

# Financing of NCD prevention in LMICs: Tonga Case Study

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## Objective:

Prevention programs are increasingly seen as critical for tackling the rising burden of non-communicable diseases (NCDs), but tend to be under-prioritized and under-funded, particularly in low and middle income countries. The objective of this study is to estimate spending on NCD prevention in Tonga and identify the enablers, challenges and dynamics underpinning population-level NCD prevention spending, with particular focus on tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity.

## Methods:

Primary and secondary data collection was used to examine processes and organizational contexts that shape the formulation of policy and financial frameworks for NCD prevention. The methodology was categorized into three tiers; an academic literature review, scrutiny and analysis of official policy documents and budgetary data on health and NCDs, and in-depth stakeholder interviews with key government officials leading NCD programs. Government and government-routed donor spending on population level prevention was gauged to estimate NCD prevention spending. Where possible, impact of prevention programs on disease incidence and risk factors was gauged through available outcome indicators.

## Results:

Tonga spent an estimated T\$ 3.23 million (US\$ 1.41 million) on NCD population prevention in 2018-19, constituting around 5.98% of total government health spending for the year. Donor spending constitutes a significant proportion of population-level NCD prevention spending. Enablers include increased tobacco taxes, inter-sectoral coordination, political leadership and use of the 'settings' approach. Challenges include rising levels of obesity, high costs of healthy diets and allocative and technical inefficiencies in fiscal and administrative systems.

## Conclusion:

Tonga has made considerable progress in focusing policy attention and resources on NCD prevention and risk factors, at nearly 6% of government health spending. Increased population-level NCD prevention spending can help address the growing NCD burden and create economic benefits.

*“People used to eat papaya and tropical fruits, and walk to plantations but now they have western diet and go in a car even if it is 100 meters, children throw away the traditional diet and only have burgers” – Minister of Health, Tonga*

## 1. Introduction

This case study examines the financing of NCD prevention in Tonga and is part of a series of 10 case studies from LMIC describing the enablers, challenges and dynamics of financing non-communicable disease (NCD) prevention programs, aimed at providing promising practices and determining common threads and trends. This case study also profiles areas in need of further study to best advance domestic financing and adoption of country NCD programs.

NCDs are a major health challenge in the Pacific and are the leading cause of death in twelve Pacific Island countries, including Tonga, frequently accounting for 70% of all deaths and often occurring at rates twice that of all communicable, maternal, perinatal and nutritional conditions combined. As Tonga’s young population ages, this risk of mortality from NCDs is expected to increase. NCDs also impose considerable and increasing financial and economic costs to governments like Tonga, which fund the vast bulk of health care in the country. The economic burden of NCDs also stems from indirect sources; poor health reduces productivity by permanently or temporarily removing individuals from formal or informal labor markets. When individuals die prematurely, the labor output that they would have produced in their remaining years is lost. In addition, individuals with NCDs are more likely to miss days of work or to work at a reduced capacity while at work.

Tonga has made progress in developing a national NCD response, both in terms of health service provision and multi-sectoral action for prevention. The government has taken numerous policy and financing steps to control NCDs. These have included tax measures to reduce consumption of tobacco, alcohol and unhealthy food; the establishment of dedicated institutions like the Tonga Health Promotion Foundation (Tonga Health) to finance NCD-related interventions, screening and health promotion services in schools, workplaces and churches; sports initiatives for physical activity; and inter-sectoral coordination mechanisms like the National NCD Committee and sub-committees for planning and monitoring action to prevent and control NCDs. The interventions have met with success in some areas; however, NCDs continue to pose a major public health challenge. The risk of premature death from NCDs has stayed constant at around 25% for over a decade and a half.

Limited availability of funds for financing NCD control and prevention in particular are an important part of the reason for the continued persistence of chronic NCDs. There is an established tendency for governments to provide more funding for treatment than prevention, almost in inverse proportion to potential impact – that is, while prevention is clearly the best use of limited resources it is often easier to secure for treatment.

This study will investigate the dynamics of NCD prevention financing in Tonga to identify the key lessons, challenges and barriers from Tonga’s experience with financing and implementing NCD prevention. It will do so by first examining the socio-economic and institutional context of NCDs in Tonga and the region, outlining the key policy responses and interventions of the Tongan government to the NCD crisis, and understanding how financing for NCD prevention is raised and spent, and what kind of economic, social, political and institutional barriers stand in its way. The key lessons and challenges emerging from the Tongan experience will then be discussed and summarized, and a set of actionable outcomes and recommendations will be presented.

## 2. Methodology:

The methodology for this assessment consisted of two parts: a review of academic and grey literature and budgetary data and data collection in the form of interviews with key informants. The study adopts the critical theory approach, which acknowledges reality as contextualized and shaped by various social, cultural, economic and political factors and sees the research process as a means to bring about change and transformation. In this study, the critical theory approach was employed to question existing frameworks, organizational hierarchies and red-tape, identify impediments arising from political, economic, systemic and bureaucratic, and largely regional and global contexts, before proceeding to present a set of actionable outcomes and recommendations.

Public financing was defined as resources allocated/mobilized indigenously (revenues) at the country level. This also includes the use of catalytic official development assistance as grants/loans and/or monies from philanthropic sources predicated on the understanding that these are meant to build country capacity and are a stop gap arrangement. This implies that funds from ODA loans and grants, as well as from philanthropic sources, need to go first into the government's resources. The World Bank definition of prevention was employed, as those preventative and "public health services ... designed to enhance the health status of the population as distinct from the curative services which repair health dysfunction."

The investigators used a search strategy involving Medline, Google Scholar, Embase, JStor and Web of Knowledge, databases to identify peer-reviewed articles that examined NCD financing. In addition, the first 20 pages of Google searches were examined to identify articles from the grey literature. The main search terms were 'NCD', 'prevention', 'financing' and 'Tonga. Additional search terms related to the topic were: 'health promotion', 'non-communicable disease', and 'budget'. Additional search terms related to policy were: tax, legislation, ban, intervention, labelling, law, and standards. Based on the information in the abstracts, those studies were selected for review that: a) were of an empirical nature; b) examined NCD prevention, health promotion and its financing; and c) dated from the 21<sup>st</sup> century onward, when concerted policy efforts to counter NCDs began in the region.

The selected studies were reviewed and organized into categories of analysis that were refined based on the evidence emerging from the literature. Later, a specific search was undertaken for broader literature, including policy frameworks on NCDs in Tonga and the South Pacific.

The investigators then reached out to the governments and relevant departments/bodies to procure reports, budget plans, policy guidelines and similar material. This data was analysed thematically, to further refine research questions and thoroughly revise interview guides. At the end of the second tier, the investigators shortlisted potential participants to be recruited for in-depth interviews. These may include key stakeholders such as officials from the Ministry of Health, Ministry of Finance, planning ministry or staff from the office of the head of state. Often, interviews of individuals outside of government would be needed to get a balanced view with regard to constraints and challenges.

## 3. The socio-economic context of NCDs in Tonga

Tonga is a sovereign state comprising 169 islands scattered over the southern Pacific Ocean. It is a small, ethnically-homogenous (98% Polynesian) nation with a population of 107,000, about one third that of Iceland, so it is important to remember that lessons learned in financing NCD prevention may not be easily scalable or replicable

in larger settings. Life expectancy in Tonga for men is 70 and for women 76; while it has increased over the decades, it has started falling in recent years.<sup>1</sup> Although an increasing number of Tongans have moved into the only urban and commercial centre, Nukualofa, where European and indigenous cultural and living patterns have blended, village life and kinship ties remain influential throughout the country<sup>2</sup>. Tongans enjoy a relatively high level of education, with a 98.9% literacy rate. The national figures for the nutritional status of children indicate that 8.1%, 5.2% and 1.8% are stunted, wasted and underweight respectively.<sup>3</sup>

In general, the impact of the NCD epidemic on small island developing states (SIDS) including Tonga is catastrophic, across economic and social lines, with mortality and morbidity due to NCDs among the highest in the world, causing increasing strains on the public health system that is difficult for the government to fully finance. According to the World Bank, the NCD mortality burden is much greater in the Pacific Island countries than global standards; the estimated effect of four major types of NCDs (cardiovascular diseases, chronic respiratory diseases, diabetes, and cancer) on the global economy is approximately 3.25% of global GDP, whereas for SIDS in the Pacific, it is between 5% to 10%.<sup>4</sup>

An examination of its history, geography and economy suggests that Tonga, like other countries in the region, cannot necessarily rely on sustained economic growth to expand fiscal space for health in a region vulnerable to a variety of external and internal shocks. Pacific Island countries face a suite of unique geographical and political economy circumstances constraining rapid economic growth. These constraints include small population size (preventing economies of scale in the private sector as well as in government service delivery); distance from markets; high-cost structures; political instability and/or volatile political coalitions that inhibit economic reform; unsustainable rent seeking from natural resources, and land ownership; and contract enforcement practices that inhibit private investment (Duncan 2011; World Bank 2011a; Duncan et al. 2012). Even if future economic growth were to be strong and stable, governments would need to have the political will and administrative capacity to raise increased revenue from taxes, including from the often large informal sector.<sup>5</sup>

## 4. The NCD Challenge in Tonga

The World Health Organization's operating definition of disease prevention -- action, usually emanating from the health sector, dealing with individuals and populations identified as exhibiting identifiable risk factors which are often associated with different risk behaviours -- is relevant in Tonga where a startling 99.9% of Tongan adults aged 25-64 at moderate to high risk of developing a non-communicable disease.<sup>6</sup> 80% of deaths in Tonga are due to NCDs, and many of these deaths are premature, i.e., they occur among people less than 60 years old. In 2019, NCDs were the leading cause of morbidity; they accounted for four of the five leading causes of mortality, 10% of hospital admissions and 20% of government spending in the health sector.<sup>7</sup>

## What causes the most deaths?

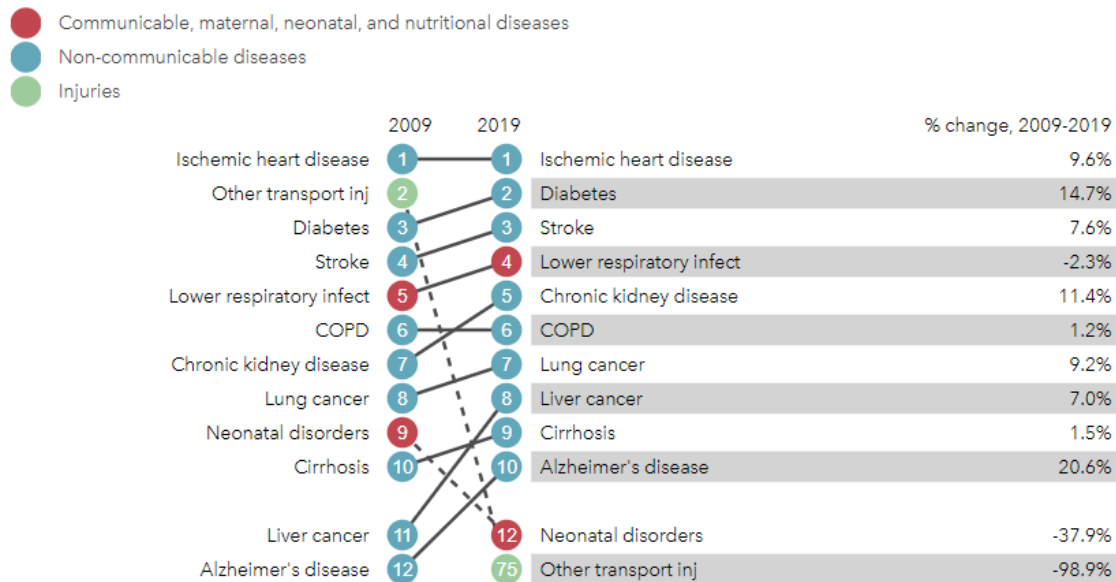


Figure 1 Top 10 causes of death in 2019 and percent change in Tonga, 2009-2019<sup>7</sup>

NCDs inflict considerable economic cost to Tonga. NCDs affect not only the productivity of those they burden, but also that of healthy members of the workforce who need to take leave to care for them. And in terms of capital, the NCD burden not only leads to the loss of income, savings, and investment at individual and household levels, but also imposes significant costs to the government – diverting spending and investments from areas beneficial to the general public. According to the World Bank, NCDs currently cost the country 8.3% of GDP, an economic burden which is expected to rise to 12.3% in 2040. By 2040, percentage of Lost Effective Labour Force due to NCDs (in particular cardiovascular disease, diabetes, chronic respiratory disease, and cancer) in Tonga will be 18.5%.<sup>4</sup>

### 4.1. The epidemiological burden of NCDs in Tonga:

It is estimated that 70-77% of deaths in Tonga can be attributed to neoplasms, diabetes, and cardiovascular disease.<sup>8</sup> Although data on cause-of-death data are patchy, cardiovascular disease (CVD) is considered to be the major cause of death in Tonga. **Cardiovascular disease** risk of 30 percent or higher or existing CVD is high, higher percentages of men were at risk than women, with CVD risk of 16.6% and 7%, respectively. As elsewhere, CVD risk increases with age as would be expected, with a significant increase from 0.8% to 11.3% from 40-54 years to 55-69.<sup>9</sup> In Tonga the past four decades have seen an increase in **Type 2 Diabetes** (T2DM) prevalence from 5.2% in 1973 to 19% of the population in 2012; this is projected to rise to 22.3% by 2020.<sup>10</sup> 34.4% of the population between 25-64 years has diabetes (defined as having capillary whole blood value  $\geq 6.1$  mmol/L or  $\geq 110$ mg/dl or currently on medication for diabetes), including 29.7% of men and 38.6% of women. The country is now ranked among the top 10 globally in the prevalence of diabetes. Cancer is responsible for about 9% of deaths in Tonga and the age standardized **cancer** incidence in Tonga (2000-2005) were 195 and 151 per 100,000 person years for females and males respectively.<sup>8</sup> **Chronic respiratory disease** is also widely prevalent and responsible for 7% of deaths in Tonga. As a result of this growing NCD disease burden, life expectancy in Tonga has started to decrease, from 69 to 65 in men and from 72 to 69 in women.<sup>11</sup>

#### 4.2. NCD risk factors in Tonga:

NCDs in Tonga are driven by a host of behavioral, metabolic and environmental risk factors. The major metabolic risks relate to body mass index (overweight/obesity), high fasting plasma glucose and high blood pressure (hypertension) while the key behavioral risks for NCDs include tobacco use, high LDL and dietary risks. (See Figure 2).

### What risk factors drive the most death and disability combined?

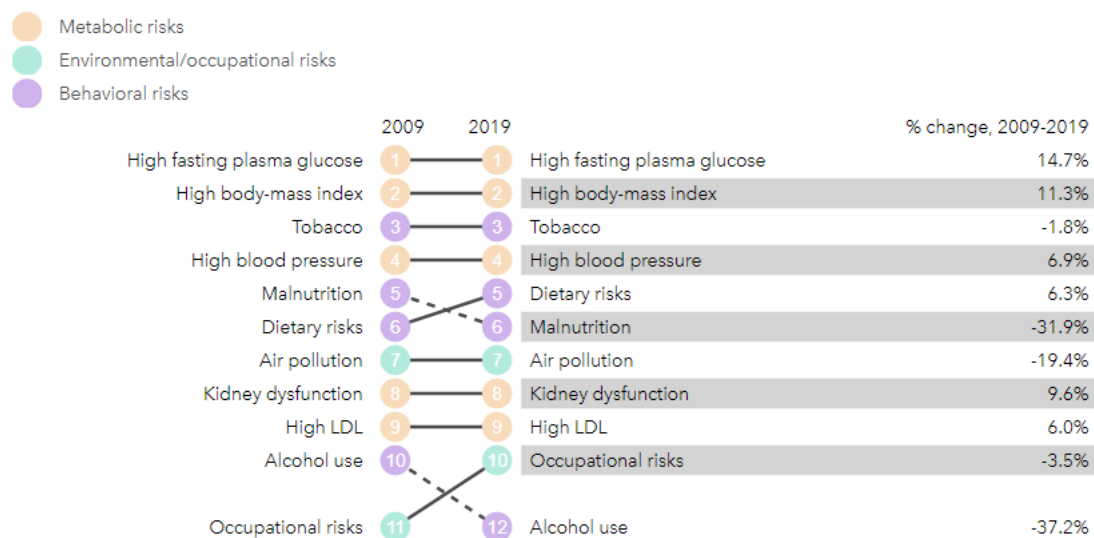


Figure 2 Top 10 risk factors contributing to DALYs in Tonga in 2019 & percentage change (2009-2019)<sup>12</sup>

#### 4.2.1. Obesity:

**High BMI** is the leading risk factor for NCDs and the obesity rate has increased since 1973 from 56% to nearly 70%. In 2012, Tonga was ranked the third most overweight country in the world, with steady increases in average weight replacing tobacco as the leading risk factor. 93% of the Tongan population is overweight, including 90% of men and 95% of women, while 77% is classified as obese (BMI  $\geq 30\text{kg/m}^2$ ) (up from 67% in 2012), including 66% men and 82% women.<sup>9</sup>

#### 4.2.2. Hypertension

**Hypertension** is also widely prevalent, with 27.6% of the adult population (25-64 years) suffering from hypertension (defined as having SBP $\geq 140$  mmHg and/or DBP $\geq 90$  mmHg or on medication for raised blood pressure), up from 27.6% of the adult population in 2012. This includes 35% of men and 37% of women (up from 28% of men and 27% of women in 2012).<sup>9</sup>

#### 4.2.3. Tobacco use:

**Tobacco use** remains a major behavioral risk factor, with 24% of the population currently smoking a tobacco product, with 22% being daily smokers, including 38% men and 15% women. This represents a slight reduction from the 2012 STEPS survey. Tobacco use seems to be more prevalent in the younger generation, as current cigarette smoking prevalence for students aged 13-15 is 37.5% for boys, and 18.9% for girls.<sup>9</sup> Though far less prevalent than tobacco, the consumption of **alcohol** (kava in particular) is also common in Tonga and has an impact on the incidence of cardiovascular diseases, cancer and diabetes.

#### 4.2.4. Unhealthy diets:

Increasingly **unhealthy diets** are partly to blame for NCDs, as 97% of the adult population consumes less than five combined servings of fruits and/or vegetables a day, deteriorating from 73% in 2012. In Tonga, as elsewhere, consumption of inexpensive, high-calorie fatty foods are associated with an increase in diet-related NCDs. In the last four decades or so, the consumption of **imported foods** low in nutritional value has increased at the expense of traditional diets that are generally recognized as healthier alternatives. Consumption of imported meats with high fat content is of concern. Furthermore, 51% of people reported always adding salt or salty sauce to their food before eating.<sup>9</sup>

#### 4.2.4. Physical inactivity:

**Physical inactivity** is also a significant concern, with 39.8% of the population having low level of total physical activity (<150 minutes of moderate intensive activity per week), including 30% of men and 45% of women, which represents a deterioration from the 2012 STEPS survey. 78% of the population does not engage in vigorous physical activity, including over 85% of women.<sup>9</sup>

#### 4.2.5. Combined risk factors:

For **combined risk factors** (current daily smokers, overweight/obese, consumed less than five servings of fruit/vegetables, low total physical activity, raised blood pressure), a survey found that among those aged 25-64 years in Tonga, 57% had 3-5 risk factors and were considered as having High Risk of NCDs. including 56% men and 60% of women.<sup>9</sup> Indoor air pollution from Solid Fuel Use (SFU) also continues to be a problem with 56% of households using SFU.

## 5. Health financing in Tonga:

Any discussion of health financing in Tonga should be prefaced by the fact that it lessons learnt here may not be replicable in other countries because of the country's small population. Tonga has a large public health system with free curative services. Health expenditure is relatively high in Tonga, like other neighbouring countries in the region. On average government health expenditure has taken up between 11% to 15% of total government budgets in the last five years. Government expenditure on health accounts for over 84% of total health expenditure, much higher than the 36% average for lower to middle-income (LMIC) countries globally. Health expenditure per capita in Tonga amounts to USD \$219 per annum, much higher than the average of USD \$79 for LMICs globally, whereas it amounts to USD \$245 in terms of purchasing power parity, higher than the LMIC average of 160.<sup>13</sup>

Table 1 Tonga Health and Total budget 2014-15 to 2018-19 (T \$)

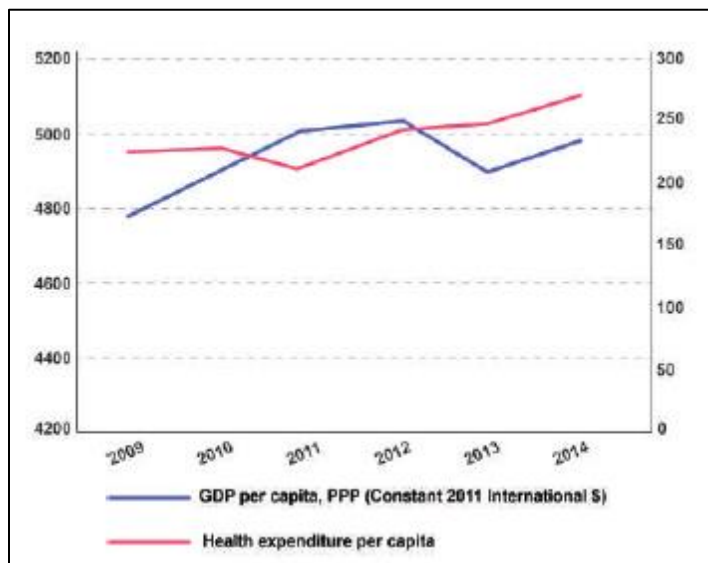
	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Total Health Budget</b>	34,373,616	37,519,500	47,322,893	52,119,400	54,879,900
<b>Total Budget</b>	302,717,658	329,709,700	327,886,600	382,449,100	476,766,600
<b>Health as % of Total Budget</b>	11%	11%	15%	15%	12%

The widespread use of government-financed, usually 'free', health services means that there is a high level of financial protection against out-of-pocket, 'catastrophic' health expenditure that otherwise impoverishes individuals or households, which is a good thing. However, the rise in chronic NCDs is putting significant and unsustainable pressure on health budgets, especially in the face of current demographic and epidemiological



trends and limited growth prospects.<sup>13</sup> Health expenditure per capita has continued to rise in recent years, with NCD treatment one of the major drivers. This presents considerable financing challenges and cost pressures to the health system.

Figure 3 GDP per capita and health expenditure per capita in Tonga 2009-2014<sup>4</sup>



## 6. NCD prevention efforts in Tonga:

Tonga's response to NCDs developed in the context of coordinated regional efforts of recognizing and combatting the challenge of NCDs. Numerous factors in the national and regional policy context helped establish an enabling environment for the development of this strategy. These included regional initiatives, including periodic meetings of Ministers of Health for Pacific Island Countries, the 'Healthy Islands' concept which recognized the importance of NCDs, consultations on food quality and safety in the Pacific, and the development of the WHO Framework Convention on Tobacco Control, which provided the impetus for tobacco control in Tonga (see below). In this context, Tonga became the first Pacific country to develop a National Strategy to Prevent and Control NCDs from 2004 to 2009. In 2010, the follow-up National Strategy (2010–2015) – *Hala Fononga* – was launched.

Additionally, Tonga was part of the Pacific Islands Forum Leaders that invested political capital in NCD control and prevention by explicitly declaring the "Pacific is in an NCD Crisis" as part of the 42nd Pacific Islands Forum communiqué of September 2011.<sup>13</sup> Health, Finance and Economic, and Trade Ministers from the Pacific (2013 and 2014) have similarly confirmed there is an NCD crisis and the importance of urgently addressing NCDs by scaling up financial commitment towards the Health System. Tonga, along with other Pacific Island governments, has signed up to the WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020 including its headline goal of achieving a relative reduction of 25 per cent in the overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases by 2025. Another key regional development that has been key to the development of Tonga's NCD response is the Pacific NCD Roadmap approved by the Joint Forum Economic and Pacific Health Ministers' Meeting held in July 2014 in which outlined the economic costs of NCDs and outlined strategic priorities for Pacific leaders, including tobacco control, reducing unhealthy food consumption, and improving prevention and early treatment.

An evaluation of Tonga's first NCD strategy found it to have had some impact on NCD risk factors. The Kingdom of Tonga STEPS Report 2012 found evidence of a positive trend in NCD risk factors - tobacco use, alcohol



consumption, fruit and vegetables consumption, physical activity, overweight and obesity - from 2004 to 2012.<sup>14</sup> However, the results of the 2017 STEPS survey were concerning – despite continued progress in tobacco reduction, many of the gains appeared to have been reversed, with the data showing increases in the prevalence of low physical activity, overweight, obesity, and unhealthy diets (see Table 2).

Table 2 Tonga STEPS survey results from 2004 to 2017<sup>9 15</sup>

<b>NCD indicators for 25-64 years</b>	<b>STEPS Survey 2004 results (%)</b>	<b>STEPS Survey 2012 results (%)</b>	<b>STEPS Survey 2017 results (%)</b>
<b>Low physical activity (&lt;600 MET minutes per week)</b>	43.9	23.7	39.8
<b>Fruit and vegetable consumption (less than 5 servings per day)</b>	92.2	73.1	97.3
<b>Alcohol consumption (in past 12 months)</b>	8.9	5.7	5.7
<b>Smoke any tobacco product (such as cigarettes, cigars or rolled tobacco)</b>	29.8	29.3	24.5
<b>Overweight</b>	92.1	90.7	93.2
<b>Obese</b>	68.7	67.6	77.1

Tonga is in the process of completing a National NCD Strategy for 2015-2020 with a greater focus on NCD risk factors, implemented by MOH, Tonga Health Foundation (Tonga Health) and National NCD Committee with support from the Australian government, with the goals of enabling infants to have a healthier start to life, healthier lifestyles for Tongans (with a focus on children and adolescents), improved early detection, treatment and sustained management of people with or at high risk of NCDs and strengthened monitoring and surveillance supports evidence based action.

### 6.1. NCD prevention and health promotion by the Ministry of Health

The Health Promotion Unit (HPU) of the Ministry of Health is a key actor in Tonga’s NCD prevention efforts along with the Health Promotion Foundation (TongaHealth). The health promotion interventions designed as part of the NCD Strategy implementation by the Ministry of Health (MOH) focus on four distinct programme interventions: healthy setting; healthy eating; tobacco control; reduction of alcohol abuse. Health promoting schools, churches and work spaces are engaged to carry forward these messages with various activities.

To support the implementation of priorities in the NCD strategy, HPU-MOH conducts sports competitions, workplace health check-ups, workplace physical activities, trainings on health literacy, public awareness campaigns, community campaigns, ad agencies, observing global days, e.g., World Diabetes Day, academic meetings, health promotion billboards and radio programs. The HPU-MOH has also collaborated with the Ministry of Internal Affairs, and Ministry of Education to support physical activity initiatives, including the ‘Kau Mai Tonga’

(Come on Tonga) program and the ‘Come and Try’ program. It has also supported, in collaboration with the Ministry of Tourism, an extension of the walkway (sidewalks) along the waterfront in the Capital Nukualofa which sees over 50 cruise ships every year. This is being supported by the Chinese government with a USD \$13 million grant and is reported to have drawn many more walkers, highlighting the importance of enabling physical environments to support greater participation in physical activity.<sup>14</sup> According to the Minister of Health, they now plan to “*further physical activity promotion by building a netball ground in every village.*” The HPU-MOH has also collaborated with the Ministry of Education to support literacy initiatives like the ‘Pacific Health and Science Literacy’ program with the Liggins Institute NZ, to integrate health promotion messages and skills within this program.<sup>14</sup>

The majority of health financing for NCD prevention in Tonga comes from government, complemented by some development funding. Total expenditure on health as a percentage of GDP is 5.2 percent or USD 270 per capita, relatively high for LMIC countries. The MOH dedicates a proportion of its health budget to ‘preventative health care’, which includes preventative health services, environmental health care and community health services. The amount dedicated to preventative health care is still limited and has tended to hover around 7% to 8% of the total health budget in the past. However, this was increased significantly in 2018-19 and now constitutes about 15% of the health budget. As percentage of GDP, preventative health spending still constitutes less than 1% in 2018-19.

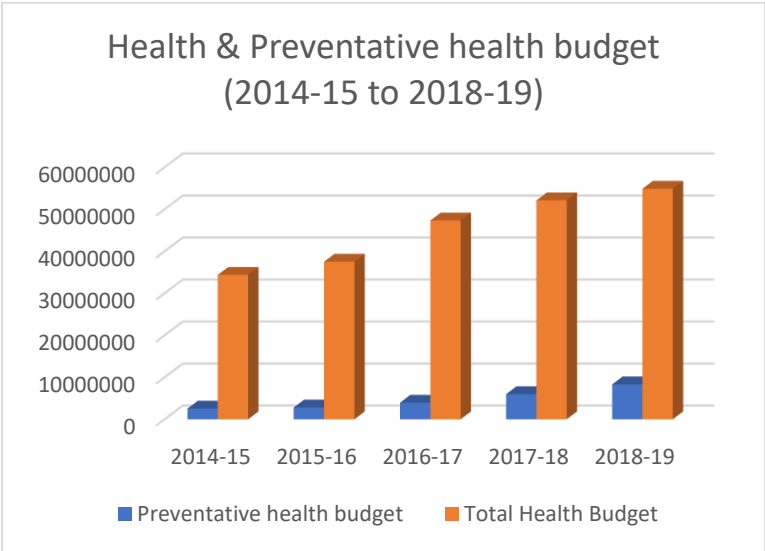


Figure 4 Tonga Health and Preventative Health budget 2014-15 to 2018-19

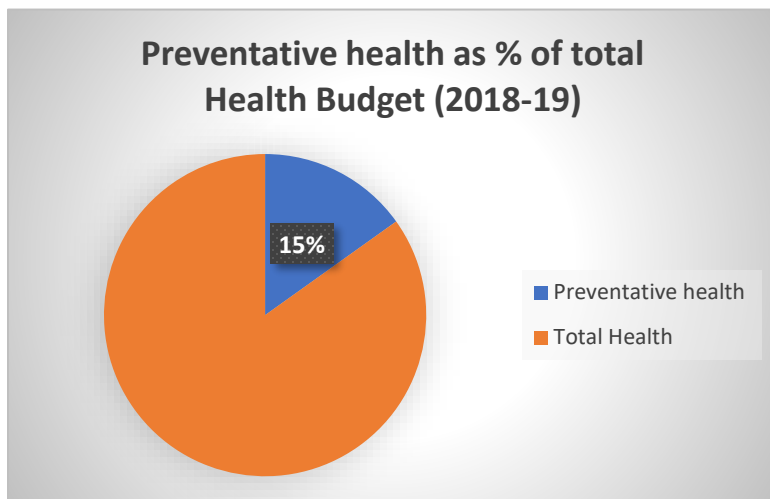


Figure 5 Preventative health as proportion of health budget

The country has now placed the oversight of the NCD Strategy in the hands of the National NCD Committee (NNCDC), a multi-disciplinary empowered body comprising chief executives from key government ministries as well as church and civil society representatives. The role of monitoring the implementation of the NCD Strategy has been assigned to Tonga Health, an autonomous body appointed by the Minister of Health (See below).

## 6.2. Tobacco control measures:

Tobacco control has been a cornerstone of Tonga's NCD control and prevention efforts since the 1990s. In 1999, Tonga's Minister for Health, Lord Viliami Tangi, attended the first major consultation in the development of the FCTC. This process provided impetus for tobacco control in Tonga, and within one year, a comprehensive Tobacco Control Act was drafted and passed in September 2001. In response to rising NCD rates, the Tongan government gradually increased taxation measures aimed at reducing the consumption of tobacco. In mid-2013, the excise tax on cigarettes was increased from T\$210 (US \$91) per 1000 cigarettes or per kilogram to T\$250 (US \$109) for imported cigarettes, and T\$200 (US \$87) to T\$238 (US \$104) for locally manufactured tobacco/cigarettes, and the tobacco concession for inbound travellers was reduced from 500 cigarettes to 250 cigarettes. In July 2016, the government further increased taxes on imported cigarettes by nearly 50 percent to T\$380/1000 sticks, compared with T\$255/1000 sticks in the previous year. Cigarette sales dropped in both years that the government imposed the tax increases (See Figure 3).<sup>16</sup> However, a 2019 World Bank evaluation found that while cigarette consumption had gone down, most smokers had just shifted to Tapaka Tonga, a local substitute.<sup>17</sup>

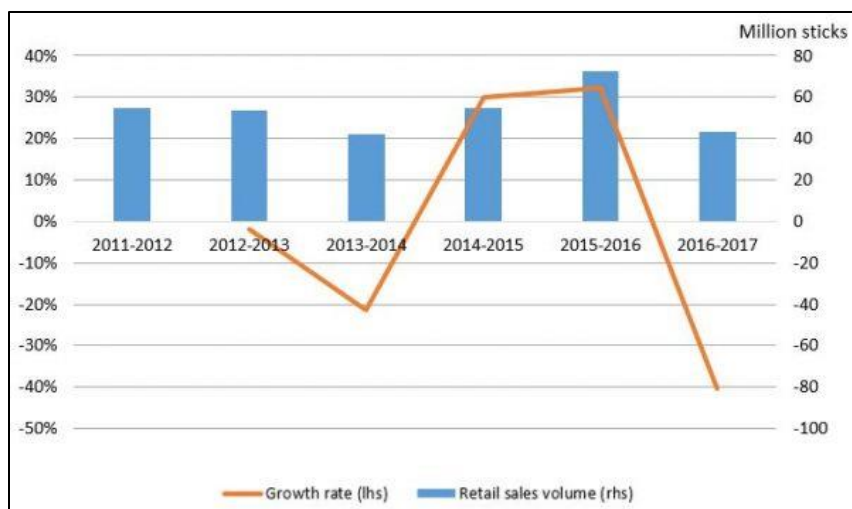


Figure 6 Cigarette sales: volume and growth

### 6.3. Tonga Health Promotion Foundation (Tonga Health)

A central element of Tonga’s efforts has been the establishment of the Tonga Health Promotion Foundation or ‘Tonga Health’. Tonga Health was established in 2007 to provide grants to fund health promotion activities, and work with the Health Ministry and other stakeholders to keep NCDs high on the policy agenda. The Victorian Health Promotion Foundation (VicHealth) in Australia was viewed as a model for this process.<sup>18</sup> According to the Tongan Minister of Health, the Foundation acts as a ‘link between the community, NGOs, and the Government to promote health by fighting NCDs’, focusing on the priority areas of healthy eating, physical activity, tobacco control and reducing alcohol misuse.

Tonga Health is composed of two representatives from the field of health and illness prevention, one with expertise in business, management or law, one representing the interests of the churches or community groups, and one member of the Legislative Assembly. One of Tonga Health’s main functions is the provision of grants and sponsorships for Health Promotion. Funding has been provided to community groups, NGOs and government stakeholders for activities including health education and promotion around tobacco use and exercise; the development of vegetable gardens in schools and communities; and research around the use of salt and tobacco.<sup>18</sup> Since 2015, Tonga Health also serves as the secretariat for the implementation of the National Strategy for the Control of Non-Communicable Diseases and has signed a Memorandum of Understanding with the National NCD Committee (NNCDC) for this purpose.

Tonga Health is funded by a combination of government budgets under Health Ministry allocations and through donor grants (See Table 3), in particular from the AusAID agency and the Australian Department of Foreign Affairs and Trade (DFAT).

Table 3 Sources of Tonga Health funding (T\$)

Source	2016-17	2017-18	2018-19
Government budget	706,063	600,000	600,000
Donor funding	559,800	871,200	215,500
<b>Total</b>	<b>1,265,863</b>	<b>1,471,200</b>	<b>815,500</b>

#### 6.4. Fiscal measures for healthy diets:

In August 2013, the Tongan government passed certain food taxes specifically as a measure to address unhealthy diets for the first time. The development of these food-related tax changes was a collaborative effort among government ministries, following a directive from the Minister of Revenue at the time, to establish a task force committee to work on developing these taxes. This initiative resulted in five food items being taxed or having taxes removed, namely, fresh fish, vegetable oil, tin fish, lard/dripping, and carbonated drinks (see table 2).<sup>19</sup>

Table 4 Food taxes passed in Tonga in 2013

Food Item	Old Rate	New Rate
Fresh Fish	20% duty	5% duty
Vegetable Oil	20% duty	10% duty
Tin Fish	20% duty	5% duty
Lard/Dripping	15% duty	T\$1/ per kg excise
Carbonated Drinks	15% duty	T\$1/ per litre excise

In 2016, further food taxes were instituted. The Ministry of Revenue was the main driver behind this policy development, with some consultation with the Ministry of Health for nutritional advice. Various food products were taxed and other “healthier” products had duties removed.

Table 5 Food Taxes passed in Tonga in 2016

Food Item	Old Rate	New Rate
Turkey Tails	-	\$1.50 per kg excise duty
Chicken Leg Quarters	-	40 seniti per kg excise duty
Mutton flaps, lamb breasts and lamb flaps	-	15% customs duty
Mayonnaise	-	15% customs duty
		\$2.00 per kg excise duty
Lard/Dripping	\$1 per kg	\$2.00 per kg

An evaluation of the food tax and fiscal measures by FAO found that mutton flaps and turkey tails consumption decreased as a result of the tax, while other fatty meat and chicken sales were not affected. The evaluation suggested that incentives needed to be put in place for the production of local substitutes and alternative food products. Data on consumption was also lacking, making it difficult to fully assess the success of these measures.

#### 6.5. Alcohol harm reduction:

Tonga has gradually increased taxes and duties on both local and imported alcohol. In 2015, the government introduced measures to increase excise taxes for locally manufactured beers to T\$15 per litre of alcohol, import duty for imported beer to 15%, excise taxes for locally manufactured spirits to T\$50 per litre of alcohol and an additional import duty rate of 15% on imported spirits. Other activities to reduce alcohol harms have been limited by lack of funding to undertake baseline data collection and research for underpinning campaigns and activities. Billboards, funded by Tonga Health, have been erected to raise awareness of the dangers of drunk driving and the messages are being reinforced by Breathalyzer testing.<sup>14</sup> According to a 2019 evaluation, the overall consumption

of beers and spirits has fallen, though largely among occasional drinkers, with daily drinkers not changing their consumption patterns.<sup>17</sup>

#### 6.6. Sugar Sweetened Beverage (SSB) consumption:

Tonga introduced an excise tax of T\$0.5 per litre on sugar-sweetened beverages (SSB) while customs duty was abolished in FY2013–4. The excise tax was increased to T\$1 in FY2016–7, and a new tax formula based on sugar content was introduced in FY2017–8. This resulted in an increase in total tax from T\$0.37 per litre in FY2012–3 to T\$0.73 per litre in FY2013–4, and to T\$1.85 per litre in FY2017–8. The retail price of SSB, reported from the retail survey, for example Coca-Cola, increased from T\$2 per can in FY2015–6 to T\$2.4 per can in FY2016–7, and further to T\$2.5 per can in FY2017–8. According to a World Bank evaluation, the increase in prices led to 38 percent of the population reducing their consumption of SSB.<sup>17</sup> It is worth noting here that over one third of the Tongan population do not consume SSB, hence it is a less significant risk factor than tobacco, and alcohol.

#### 6.7. Advisory committees for inter-sectoral coordination:

Tonga recognized early on that any effort to address NCDs needed broad buy-in and support from different sectors and groups. For instance, support from the Ministry of Education, Youth and Sport was important in order to integrate healthy food and exercise into school programs. The institutional mechanism that Tonga has sought to ensure multi-stakeholder engagement is by establishing committees and sub-committees for NCDs. A high level National NCDs Committee has been convened, along with four Sub-Committees that focus on Physical Activity, Alcohol Misuse, Tobacco Control and Healthy Eating. Current membership of the NCD Committee and Sub-Committees demonstrates the diversity of stakeholders engaged in prevention and control of NCDs, with members including Ministry of Health; AusAID; Tonga Health; WHO; Secretariat of the Pacific Community; Australian Sports Outreach Program; Church; Ministry of Education, Women’s Affairs and Culture; Ministry of Police; Ministry of Training, Employment, Youth and Sports; Ministry of Finance; the Salvation Army; Tonga Family Health Association; Tongan Red Cross; and business groups.<sup>18</sup>

#### 6.8. Tackling NCDs through sport:

One of the more significant programs addressing NCDs in Tonga is the AusAID-funded program Kau Mai Tonga. This program is a partnership between AusAID and the Tongan Ministries of Health and Sport, and the Tongan Netball Association, and particularly targets women, who are often excluded from sport and exercise due to a range of cultural and socio-economic factors. The governments of Australia and Tonga are working together through the Australian Sport Outreach Program to reduce levels of physical inactivity and related health problems among women. Kau Mai Tonga was designed to specifically implement strategies outlined in the NCDs Strategic Plan, and is an example of an effective multi-sectoral NCD intervention that can be drawn upon in strengthening and expanding delivery of other NCD activities. Kau Mai Tonga also includes a social marketing campaign to influence Tongan women’s attitudes to exercise and health. Netball Australia provides support to the Tonga Netball Association to ensure that women have access to fun, safe and accessible physical activity options. This approach has effectively building demand for sports, with more than 300 teams registering for the first Kau Mai Tonga tournament. Increasing women’s involvement in exercise has also enabled the promulgation of important health messages.<sup>18</sup>

#### 6.9. Tonga Health Sector Support Program (THSSP) by Australian DFAT:

The major external donor initiative supporting Tonga’s fight against NCD’s is the Australian Department of Foreign Affairs and Trade’s (DFAT’s) Tonga Health Sector Support Program Phase II (THSSP2), which provided the Tongan government with development assistance of approximately AUD \$10.75 million for NCD prevention and control (in addition to T\$2.1 million for the Tonga Health Foundation) from 2015 to 2020.<sup>20</sup>

THSSP2 has four components: i) Management of NCDs in primary care: primary and secondary prevention; ii) Health promotion related to NCDs; iii) Health systems strengthening; and iv) Support for mental health and disability services. Together these components support the goal of the Ministry of Health’s Corporate Plan – Universal Health Coverage (UHC) in Tonga. The program aims to ensure that that primary health care facilities provide screening (to identify the presence of NCDs or their risk factors), preventive activities (such as practical support to stop smoking) and sound management of existing NCDs to prevent them from escalating into much more serious conditions (such as diabetic-related blindness and amputations).<sup>21</sup>

The program also includes nationally organized health promotion activities to complement services provided in primary care facilities. Examples are media campaigns and programs which promote healthier lifestyles in other ways (e.g. improving diet through using fresher, local foods). For NCDs, health promotion focuses on the four major risk factors of poor diet, insufficient exercise, smoking and alcohol misuse. The program also supports health systems strengthening to improve the quality and sustainability of the NCD response in Tonga, and create well-functioning systems of planning, resource allocation, asset management and procurement.

The responsibility for achieving the THSSP2 targets is shared amongst the Ministry of Health, Tonga Health, DFAT and (to a lesser extent) many other stakeholders in Tonga. THSSP2 works through the Ministry of Health’s systems, relies on activities delivered by MOH staff and is organized around the funding of the annual work-plans of the MOH and Tonga Health.

Despite the THSSP2’s stated intention of focusing on NCD prevention and control, a Mid-term evaluation of the program published in 2019 noted that the bulk of the project’s allocations were still focused on health services.<sup>20</sup>

## 7. Total annual spending on NCD prevention in Tonga:

Based on estimates of spending on the aforementioned areas of intervention, Tonga spent an estimated T\$ 3.23 million (US\$ 1.41 million) on population level NCD prevention financing in 2018-19.<sup>22</sup> The single largest proportion of NCD prevention spending constitutes allocations for community health by the Ministry of Health (T\$ 976,100), followed by donor contributions for Health Promotion by the Ministry of Health (T\$ 881,000), donor contributions (in-kind and cash) for Tonga Health Foundation (T\$ 775,500) and the government budget for Tonga Health Foundation (T\$ 600,000). Donor contributions (particularly the Australian government’s Tonga Health Sector Support Program) make up the majority (51%) of Tonga’s spending on NCD prevention and health promotion, suggesting high levels of donor dependence in population level prevention spending.<sup>20</sup> In total, population-level NCD prevention amount represents approximately 5.98% of the total Ministry of Health budget of T\$54 million in 2018-19. This amounts to roughly 0.75% of Tonga’s GDP (of USD \$426 million) being spent on NCD prevention and health promotion.

Table 6 Total NCD prevention financing 2018-19<sup>1</sup>

Area	Estimates (T\$)	Estimates (USD \$)
<b>Community health budget MOH</b>	976,100	426,263
<b>Tonga Health Foundation budget</b>	600,000	262,980
<b>Tonga Health donor funding (cash/budget)</b>	215,500	94,454
<b>Tonga Health donor funding (in kind)</b>	560,000	245,448

<sup>1</sup> Estimated from Tonga Ministry of Finance Budget and THSSP-II documents



<b>THSSP II support to MOH Health Promotion</b>	881,000	384,732
<b>Total</b>	3,232,600	1,413,888

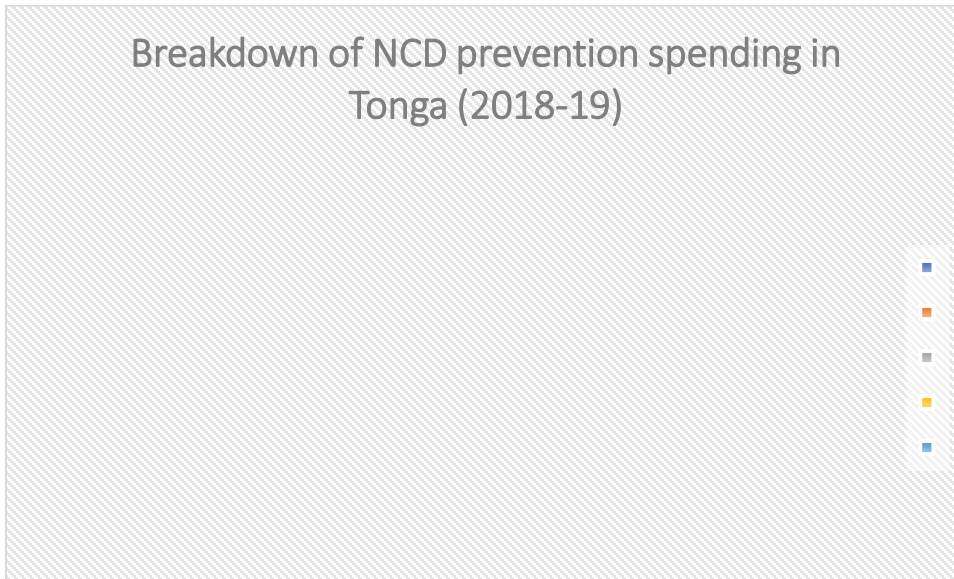


Figure 7 Breakdown of NCD prevention spending in Tonga (2018-19)<sup>22 20</sup>

## 8. Discussion:

Tonga’s experience demonstrates the importance of a collaborative and integrated all-of-government response to tackle NCDs, which illustrates the role of both tax measures to reduce tobacco and alcohol as well as institutional coordination mechanisms for initiatives to induce healthier lifestyles and diets. However, multiple challenges remain, including low population-level prevention spending by the government (with donor spending constituting the majority of population-level NCD prevention) and continued difficulties with tackling obesity and other nutrition-related risk factors. The following sections summarize some key themes that illustrate the key lessons and challenges from Tonga’s experience that are instructive for the debate around effective and well-financed prevention efforts.

### 8.1. Adjusting financing priorities:

Health has long been a budgetary priority for Tonga and the country is a regional pioneer in NCD policies. However, despite an increased policy focus on NCD prevention since 2015, population-level prevention programs still constitute less than 6% of Tonga’s health budget, with the vast majority of health spending going into curative care. The rising NCD-related curative burden amid economic difficulties suggests this high level of curative spending will be an unsustainable drain on the Tongan economy. Tonga Population-level prevention programs have also been heavily reliant on donor support in recent years, with both the Tonga Health Foundation and the Ministry of Health’s health promotion activities heavily support by the THSSP-II. This points towards the need for both sustainable local revenue mobilization for health promotion and a shift in allocative priorities towards population-level NCD spending.

## 8.2. The success and challenges of the tobacco tax:

Tonga has achieved relative success with its tobacco taxation measures, which have brought down consumption of a major NCD risk factor. The periodic tax hikes, particularly in 2016, have managed to reduce the volume of cigarette sales in Tonga to a considerable extent. This has resulted in a gradual reduction in tobacco smoking, particularly for men, as shown in Figure 8.

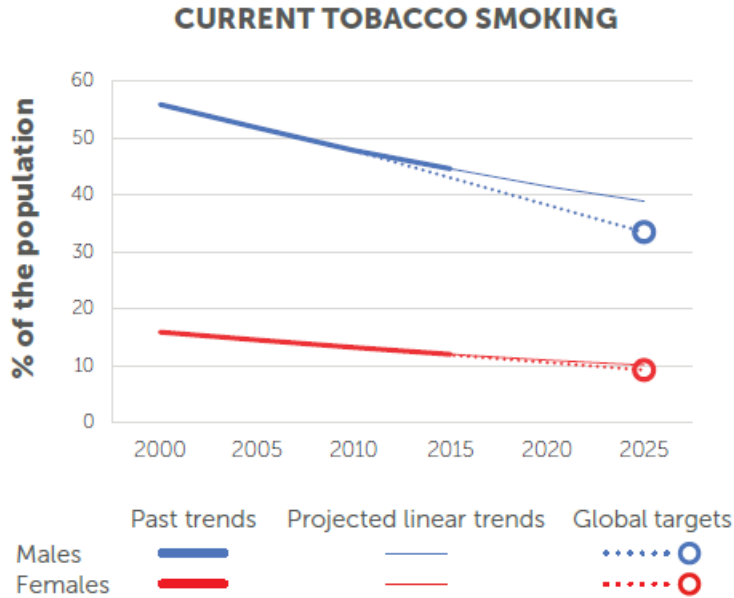


Figure 8 Tobacco smoking in Tonga over time (WHO 2018: Country NCD Profiles: Tonga)

However, there are indications that the effects of the taxes may have been limited somewhat by smokers simply shifting toward local substitutes. The tax hike has proven powerful enough to change the market share of major cigarette brands in Tonga, with a significant number of smokers having replaced more expensive imported cigarettes with cheaper, locally-manufactured cigarettes.<sup>23</sup> Tax increases imposed on imported cigarettes from July 2016 have allowed locally-manufactured cigarette brands like Palataisi, with less tax imposed on them, to overtake imported brands Pall Mall to become the most popular cigarette brands in Tonga.

According to a study conducted by the World Bank in collaboration with Australia DFAT, New Zealand MFAT, WHO, and Tonga Health Promotion Foundation, while 18% of smokers reduced their consumption, over 20% of smokers have shifted from consuming manufactured cigarettes to hand-rolled tobacco leaves called *Tapaka Tonga*, which is not subject to excise tax.<sup>23</sup> This is because *Tapaka Tonga* is cheap, costing less than half the price of a cigarette pack and is widely available across the country. Further, it is often labelled as organic, without any appropriate warnings, leading to a misconception among the population that it is less or not harmful to health. The shift to *Tapaka Tonga* is concerning and will dilute any positive health impacts resulting from the tobacco tax policy. In 2019, Tonga responded to this challenge by imposing a T\$ 200 excise tax per kg on locally manufactured Tapaka Tonga products.<sup>24</sup> Additional interventions needed include **health education campaigns** on the harms and health impacts of all tobacco products to induce behavioural change, and policies to prohibit smoking in all workplaces and public places.

## 8.3. Complementarity and inter-sectoral governance:

It is well established that multi-sectoral action and co-operation underpins effective NCDs prevention. Tonga's experience has reflected this through the formation of the National NCD Committee (NNCDC) and the respective subcommittees for tobacco control, alcohol misuse reduction, healthy activity and healthy diets. Reviews of the NCD Strategy for 2010-2015 found strong support for this multi-sectoral approach, but also found that critical governance and infrastructure gaps were impeding implementation. The UNDP's MDG Acceleration Framework also echoed this observation, stating that 'inadequate coordination and cross-sectoral collaboration' was a key bottleneck in the successful implementation of NCD control and prevention. The Tongan government has attempted to rectify this in the ongoing NCD strategy for 2015-2020 by establishing Tonga Health as secretariat for the strategy, with multi-stakeholder representation, to provide oversight for the Ministry's efforts, provide operational planning for funding distribution and simplify reporting structures.

While this is a welcome step and is expected to improve results, there is room for greater complementarity between various NCD prevention interventions, particularly those related to revenue generation through taxation of tobacco, alcohol and food and health promotion and marketing programs. In the context of NCD-related taxes, collaboration between the Ministries of Health, Revenue & Customs and Finance is especially important. This includes the need to consider using some of the revenues generated from food taxation to fund these complementary interventions by introducing **hypothecation of tax revenues** (earmarking part of the revenue from a particular tax for particular expenditure purposes) to finance NCD prevention and health promotion efforts (potentially through Tonga Health), as has been done in other countries.

#### 8.4. Addressing physical inactivity:

A lot of work has taken place in Tonga to address low physical activity in Tonga, including through sports and community-based programs. The focus on physical activity by Tonga Health, MoH and Ministry of Internal Affairs (MIA), including through campaigns like Fiefia Sports, has contributed to a changed perception of physical activity in the community with reports from multiple sources suggesting visible changes in the number of people exercising.<sup>20</sup> However, physical inactivity overall continues to be on the rise, increasing from 23.7% in 2012 to 39.8% in 2017. This trend is also pronounced among young people. The 2017 WHO Global School-based Student Health Survey (GSHS) found a 6.2% reduction in those meeting the physical activity guidelines (from 25.6% to 19.4%), and a 1.4% reduction in those attending physical education classes on  $\geq 3$  days a week (from 24.4% to 23%).<sup>25</sup> Officials and donors have identified a lack of financial allocations for physical activity and absence of obesity programs focused on adolescents as some of the key challenges.

#### 8.5. Incentivizing healthy food production and imports:

Tonga has achieved some success in incentivizing healthy diets, reducing meat consumption through increasing taxes on meat flaps. However, overall effects on unhealthy food consumption, overweight or obesity have been limited and obesity has continued to rise at an alarming rate for both women and men (Figure 9).

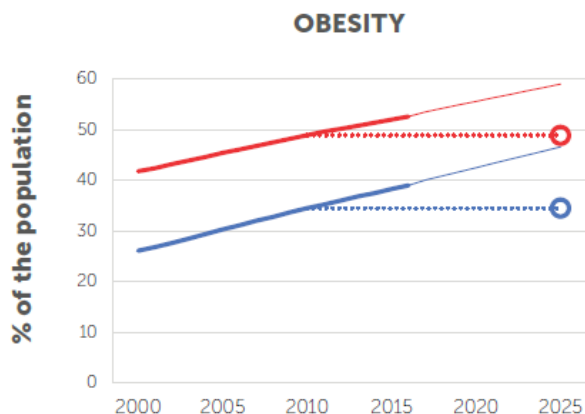


Figure 9 Obesity in Tonga over time (WHO 2018: Country NCD Profiles: Tonga)

Studies on food consumption in Tonga have shown that unhealthy consumption of processed, imported food is not necessarily a question of preference; the population at large prefers healthier, traditional alternatives, and unhealthy diets tend to be more related to concerns about cost and availability of alternatives.<sup>26</sup> Hence, part of the solution may lie in economic reforms involving **increased tariffs or a ban on unhealthy imported foods** (in particular mutton flaps), increased sugar-sweetened beverage tax and reduced tariffs on healthy imported foods to make them less costly.

However, to sustainably address the question of unhealthy diets, multi-stakeholder efforts are needed, involving the Agriculture Ministry in particular, to put in place incentives for the production of local substitutes and alternative food products. These would include **supply-side investments to ensure an affordable, accessible and sustained supply of nutritious substitutes** such as fish, marine resources livestock and local root crops.<sup>19</sup> This could involve scaling up of existing pilot projects/small projects such as the poultry distribution project, home/vegetable gardens (including 'key-hole' gardens), and fisheries special management areas. In order to compensate for the issue of seasonal availability of fruits and vegetables, undervalued/underutilized nutritious foods that can be promoted should be identified. To enable domestic food production, there is also a need for **innovations in manufacturing and food processing**, such as the use of green leaves as vegetables or a mixture of early-bearing and later-bearing varieties of the same foods.<sup>19</sup> More research is also needed on climate-resilient varieties and animal breeds. **Improved extension facilities** are critical for boosting local production; technologies and facilities for food preservation and processing, including small business development, should be considered. Food composition data on local foods is a major knowledge gap and the general public needs to be educated on the nutrient content of local foods and their benefits compared to imported food. **Subsidies for crops that would protect against NCDs**, including various varieties of fruits, nuts and vegetables, should also be considered. An approach involving both informational and economic interventions might be fruitful in enhancing dietary health in Tonga.

#### 8.6. Greater efficiency to ensure fiscal space for NCD prevention:

Government health expenditure accounts for 84% of health spending in Tonga, and is among the highest for LMICs. However, the Pacific is presented with the challenge of sustaining increased public health expenditure in the face of deep-rooted structural constraints, including historically low rates of economic growth; low rates of government tax revenue as a percentage of GDP; and high vulnerability to external economic shocks and natural disasters. All of this raises the question as to whether the expansion of public health expenditure as a share of the economy is financially sustainable. Furthermore, preventative healthcare as a proportion of health expenditure has remained low (and only in the past year has it increased to over 10% of the health budget), while the amount spent on curative services and overseas treatment has continued to rise and strain the country's finances.

Given these challenges, it is **important that allocative and technical efficiencies are improved**. Examples of inefficiencies in Tonga include the use of doctors for child delivery when well-trained midwives could perform the same role; the failure of procurement systems to purchase medicines at the lowest available prices; the use of tertiary care hospitals for the provision of basic, primary care simply because primary care facilities are inadequately supplied; and inadequate monitoring and surveillance of NCDs incidence. To address these inefficiencies and improve space for NCD prevention efforts, **resources need to be moved toward more cost-effective primary care services**, in which NCD screening needs to be integrated. Improving the quality of primary care services would allow the treatment and control of diseases early in their onset. In turn, this would lower, or at least delay, hospital admissions and lengths of stay, and thus overall costs.

It is also very important for policy makers in Tonga, and indeed in the rest of the Pacific region, to **collect baseline data and track trends in consumption and government revenue as taxes and duties change**. That would help establish a good evidence base to assess if policies are having the desired effect in terms of consumption of unhealthy products. According to health officials interviewed, *“Reform is also underway to improve processes for budgeting, tracking taxes, budget life cycles, use of the One Health Tool for costing of health interventions, and expenditure tracking, among others.”*

In terms of data, policymakers also need to **start measuring NCD prevention related indicators**, to be able to monitor, for instance, NCD financing relative to GDP, the proportion of population below the poverty line that can afford a quality food basket, and proportion of households experiencing catastrophic health spending due to an NCD, among others.

#### 8.7. Adoption of the ‘settings’ approach:

A key element of efforts to address NCDs in Tonga has been the adoption of the ‘settings approach’. According to WHO, ‘a setting is where people actively use and shape the environment; thus, it is also where people create or solve problems relating to health. Settings can normally be identified as having physical boundaries, a range of people with defined roles, and an organizational structure.’<sup>27</sup> In Tonga, this approach has been manifested through the establishment of the Health Promoting Churches Partnership, Health Promoting Schools, and Health Promoting Workplaces. These ‘settings’ are supported by designated staff within the MOH’s Health Promotion Unit (HPU). The settings approach has been key to the MOH’s efforts to promote physical activity and healthy diets through programs in schools, workplaces and churches. Employing this approach requires an investment in time for understanding the opportunities and interest for stakeholders/partners before contracting or partnering with them for health promotion. For example, in the case of schools, the curriculum is central to schools and their outcomes; hence by complementing and supporting curriculum implementation, officials can create more sustainable and long-term partnerships for health promotion.

#### 8.8. Political leadership to tackle NCDs:

Political support at the highest level has been a notable strength and enabler of Tonga’s NCD efforts so far. For instance, Bill Tangi, the Health Minister and Deputy Prime Minister at the time, played a lead role in developing Tonga’s NCDs Strategic Plan (2006–2010), advocating for NCDs to be taken seriously, and passing legislation on it.<sup>18</sup> As a medical practitioner with an understanding of the NCDs epidemic and a personal commitment to addressing it, Minister Tangi’s close involvement also helped secure the support of important groups such as the Tongan Medical Association, relevant Government Ministries such as Finance and Education, and Church leaders.

Tonga’s Royal Family has also advocated for healthy living and the reduction of NCD risk factors. His Majesty Taufa’ahau Tupou IV was known as an enthusiastic sportsperson, and frequently delivered speeches emphasizing

the importance of healthy lifestyle. Tonga's subsequent King, His Majesty George Tupou V, engaged in efforts to address diabetes, and instigated research collaborations between Tonga and other nations.<sup>18</sup>

Political support is particularly important in this area of public health given the multi-sectoral complexities of NCD prevention, and the existence of powerful lobbying groups (including from food and tobacco industries) with a vested interest in maintaining the status quo by appealing to economic and trade concerns of governments.

## 9. Conclusion

An examination of Tonga's experience illustrates many important lessons for those interested in the challenge of NCD prevention around the world. The country belongs to a region with a massive NCD burden and an NCD 'epidemic' that is among the worst in the Pacific region, while it has also taken creditable policy steps, including financing efforts, for NCD control and prevention, with some visible instances of success. This has led to success in some areas, such as tobacco, while others risk factors like obesity, physical activity and unhealthy eating, have continued to rise and pose increasing health challenges.

It is important to view Tonga's efforts to combat NCDs as part of a regional and cooperative response to NCDs in the Western Pacific Region. Tonga's policies for NCDs are closely tied to regional initiatives guided by the WHO Western Pacific Region, as exemplified in the 'Healthy Islands' initiative for health protection and promotion, developed in 1995 as the main banner under which policy advocacy and social, political and community mobilization have been vigorously pursued. This regional approach to NCDs has resulted in increased investment in research, programmes and action to address NCDs and resulted in the execution of plans like the Western Pacific Regional Action Plan for the Control and Prevention of Non-communicable Diseases (2014-2020). The role of regional organizations like the Pacific Community and WHO has been key in this regard.

Tonga has been a regional pioneer of integrated NCD planning, being the first country in the Pacific to devise a national NCD strategy. The country's 2010-2015 strategy was found to have resulted in significant reductions in physical inactivity, reduced alcohol consumption and increased fruit and vegetable consumption. However, tobacco consumption and obesity remained pressing challenges. A new 5 year NCD strategy (2015-2020) is now nearing completion, which focuses on healthier starts to life for infants, healthier lifestyles (with a focus on children and adolescents), improved early detection and strengthened monitoring and surveillance.

Tonga's multi-sectoral approach – implemented through its national NCD committee and risk-factor-specific subcommittees involving multiple ministries and departments - has been central to its success. However, inadequate coordination and infrastructure has remained a challenge which the government has attempted to rectify through the establishment of Tonga Health as the secretariat for NCD prevention with multi-sectoral representation to provide oversight for the Ministry of Health, operational planning and simplify monitoring and reporting structures. Tonga's experience shows that the establishment of NCD-specific institutions can provide considerable advantages in steering effective prevention inter-sectoral, all-of-government responses. However, as the country's experience shows, this still does not guarantee increased financing for NCD prevention (which has remained static in recent years).

Much of Tonga Health's health promotion funds are spent on public awareness campaigns, community outreach, advertisements, observation of 'health days' (like World Diabetes Day), billboards, and radio programs. However, key gaps in communication efforts remain, with household surveys showing that Tongans still lack clear ideas about what healthy products are and how to access them.

Tonga has pioneered the use of tax policy in the Pacific to address demand for a number of unhealthy products, and has significantly impacted consumer behaviour through its taxation of tobacco, alcohol and unhealthy food products, which has resulted in reduced consumption of cigarettes, beer and spirits and mutton flaps and turkey.

This suggests the efficacy of taxation as a measure to address NCD risk factors through price shocks. However, this has still not fully addressed unhealthy consumption issues, as many members of the public have simply switched to local, cheap and unhealthy substitutes, including Tapaka Tonga tobacco and Tongan keva among others.

There needs to be a concerted effort to impose unified tax rates for both imported unhealthy products and their local substitutes. Commercial tobacco substitutes like Tapaka Tonga have now been brought under the excise tax net, which will both be a source of additional revenue and will help bring down NCD incidence. Further, warning labels must be included in Tapaka Tonga packs similar to imported cigarettes. Similarly, unhealthy mutton flaps substitutes like salted beef and corned beef also remain outside of the excise tax net, which reduces the efficacy of tax measures to reduce NCDs, which needs to be rectified.

It is crucial for policy makers in Tonga, and indeed in the rest of the Pacific region, to collect baseline data and track trends in consumption and government revenue as taxes and duties change. That would help establish a good evidence base to assess if policies are having the desired effect in terms of consumption of unhealthy products. The establishment of objective monitoring and evaluation frameworks for NCD taxes, duties and tariffs is critical to ensure their effectiveness. Evaluations of existing interventions and their impact on prices, import volumes and consumer behaviour needs to be planned before new ones are started.

The increase in revenue from NCD-related taxes – particularly from food, SSBs, and alcohol tax – has somewhat increased fiscal space that will facilitate the government of Tonga to increase the resources to support health promotion/NCD prevention activities as well as improving health care services, as appropriate. However, this has not been accompanied by increases in budgeting for NCD prevention or health promotion, which has largely remained static in recent years. While taxes on tobacco, alcohol and unhealthy foods are not popular among the public, communities in Tonga have expressed that they would be convinced about the usefulness of the revenues if they are used to support and promote communities' health and their lifestyles. Hypothecation of revenues, i.e., earmarking tax revenues for NCD prevention and health promotion efforts, possibly routed through Tonga Health, would benefit both public support for the tax measures as well as enhance their public health benefits.

While taxation measures for addressing unhealthy consumption have seen some success, the high cost and unavailability of healthy food alternatives still presents a major challenge. Tonga attempted to do so through introducing consumption tax exemptions on imported fruits and vegetables in 2016; however, these exemptions were not passed on to consumers and did not result in a significant change in consumer behaviour. Stronger policy incentives are needed, focused on local production in particular. To improve the availability of healthy food alternatives, Tonga requires supply side investment in nutritious food alternatives such as fish, marine resources livestock and local root crops. These include manufacturing and food processing investments, improvements in extension facilities, subsidies for nutritious and climate-resilient crop varieties as well as scaling-up of projects involving poultry distribution, home vegetable gardens (including 'key-hole' gardens), and improved fisheries management. These may be financed through increased tariffs and taxes on unhealthy imported products.

Tonga's experience of sports to reduce physical inactivity is also instructive. With support from Aus-Aid, and through a partnership between the Ministries of Sport and Health, Tonga's focus on sports to reduce physical inactivity has had some impact, particularly through initiatives like the Kau Mai Tonga netball project and FieFia Sports, which have resulted in marked improvements of young women in sports. Such projects have become an important avenue for social marketing of NCD risk reduction and its successful implementation (even after donor funding ceased) was helped by multi-sectoral collaboration, documentation and planning. However, improving adolescent physical inactivity remains a challenge.

Tonga's overall progress has been made possible in part through political buy-in from the highest levels of government, including leadership from the Health Minister Tangi, who effectively engaged other ministries,



associations and communities. Support from the Royal Family has also been key to the advocacy for healthy living and reducing NCD risk factors. Maintaining political support for NCD policies is critical given the need for collaboration and the influence of economic lobbying groups pressuring governments to reduce NCD-related taxes and tariffs. Greater political will is still needed to both be able to increase tobacco and alcohol taxes and allocate a greater proportion of the revenue from those taxes to NCD prevention efforts.

## 10. Recommendations:

1. Move fiscal resources towards cost-effective primary care services that integrate NCD screening and prevention.
2. Increase allocation for communication and health education within health promotion funds.
3. Increase tobacco tax to the WHO-recommended minimum 75% of retail price.
4. Increase excise tax on *Tapaka Tonga* along with health education campaigns on the impact of all tobacco products and comprehensive restrictions on public smoking.
5. Consider earmarking of revenues from unhealthy food consumption to finance NCD prevention and health promotion.
6. Increase tariffs and excise taxes on or ban imports of unhealthy food products (in particular, mutton flaps) and reduce tariffs and taxes for healthier food imports.
7. Support investments for healthier food production, including for fish, marine resources, livestock and local root crops.
8. Scale up existing pilot projects like the poultry distribution project and home/vegetable gardens.
9. Consider subsidies for crops that would enable healthier eating habits, including nuts, vegetables and various varieties of fish.
10. Collect baseline data and track trends in consumption and government revenue as taxes and duties change.
11. Establish objective monitoring and evaluation frameworks for NCD taxes, duties and tariffs.
12. Continue and expand physical activity promotion and campaigning through sports.
13. Cultivate political support for increased taxes on unhealthy consumption and increased earmarking for health promotion efforts.

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## References:

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- <sup>1</sup> World Health Organization. Countries: Tonga. Statistics [cited 2019 Jan 09]. Available on <https://www.who.int/countries/ton/en/>
- <sup>2</sup> Small, C, A. and Dixon, D, L. "Tonga: Migration and the Homeland", Migration Policy Institute. 2004.
- <sup>3</sup> Tonga. The World Factbook. Central Intelligence Agency. [cited 2019 Jan 09].
- <sup>4</sup> Hou et al. 'Pacific Possible: Health and Non-communicable diseases'. World Bank IBRD – IDA. 2016.
- <sup>5</sup> Anderson et al. The challenges of health financing in five South Pacific countries. Crawford School of Public Policy, The Australian National University and Wiley Publishing Asia Pty Ltd. 2014.
- <sup>6</sup> Asia Pacific Observatory on Health Systems and Policies. The Kingdom of Tonga Health System Review. 2015.
- <sup>7</sup> Institute for Health Metrics and Evaluation. 2020. Retrieved from [www.healthdata.org/tonga](http://www.healthdata.org/tonga)
- <sup>8</sup> Carter K, Hufanga S, Rao C, Akauola S, Lopez AD, Rampatige R, Taylor R. Causes of death in Tonga: quality of certification and implications for statistics. Population health metrics. 2012. Dec;10(1):4.
- <sup>9</sup> WHO. Kingdom of Tonga NCD Risk Factors, STEPS Report. World Health Organization, Western Pacific Region. 2017.
- <sup>10</sup> Lin S, Hufanga S, Linhart C, Morrell S, Taylor R, Magliano DJ, Zimmet P. Diabetes and obesity trends in Tonga over 40 years. Asia Pacific Journal of Public Health. 2016. Sep;28(6):475-85.
- <sup>11</sup> Lin, S, Hufanga, S, Linhart, C. Diabetes and Obesity Trends in Tonga Over 40 Years. April 27, 2016. Review Article. <https://doi.org/10.1177/1010539516645156>
- <sup>12</sup> Institute for Health Metrics and Evaluation 2020. Retrieved from [www.healthdata.org/tonga](http://www.healthdata.org/tonga)
- <sup>13</sup> Anderson et al. The challenges of health financing in five South Pacific countries. Crawford School of Public Policy, The Australian National University and Wiley Publishing Asia Pty Ltd. 2014.
- <sup>14</sup> Ministry of Health. 'End-of-term review of Tonga National Strategy to Prevent and Control NCDs 2010-2015'. Government of Tonga. 2015.
- <sup>15</sup> WHO. Kingdom of Tonga NCD Risk Factors, STEPS Report. World Health Organization, Western Pacific Region. 2012.
- <sup>16</sup> Osornprasop, S. 2018. 'Tonga's tobacco taxes'. Dev Policy Blog. Retrieved from <https://www.devpolicy.org/tongas-tobacco-taxes-20180924/>
- <sup>17</sup> The World Bank. Using Taxation to Address Noncommunicable diseases: Lessons from Tonga. IBRD – IDA. 2019. Retrieved from <http://documents1.worldbank.org/curated/en/844811561475012529/pdf/Using-Taxation-to-Address-Noncommunicable-Diseases-Lessons-from-Tonga.pdf>
- <sup>18</sup> Byfield S and Moodie, R. Addressing the world's biggest killers: Non-communicable diseases and the international development agenda. ACFID Research in Development Series Report No. 7. University of Melbourne. 2013. Retrieved from <[https://acfid.asn.au/sites/site.acfid/files/resource\\_document/Non-communicable-diseases-and-the-international-development-agenda.pdf](https://acfid.asn.au/sites/site.acfid/files/resource_document/Non-communicable-diseases-and-the-international-development-agenda.pdf)>
- <sup>19</sup> FAO. 'Effects of Food Taxation in Tonga: A snapshot'. Published by the Food and Agriculture Organization of the United Nations and the Fiji National University Pacific Research Centre for the Prevention of Obesity and Non-communicable Diseases (C-POND) Rome. 2017.
- <sup>20</sup> Specialist Health Service. Mid-Term Evaluation Report: Tonga Health Systems Support Program Phase II. 2019.
- <sup>21</sup> DFAT Australia. 'Design Document: Tonga Health Systems Support Program 2'. Government of Australia. 2015.
- <sup>22</sup> Ministry of Finance. Budget Estimates 2018-2019. Government of Tonga. 2019
- <sup>23</sup> Osornprasop, S. 'Tonga's tobacco taxes'. Dev Policy Blog. 2018. Retrieved from <https://www.devpolicy.org/tongas-tobacco-taxes-20180924/>
- <sup>24</sup> Ministry of Finance. Budget Statement 2019-20. 2019. Government of Tonga.
- <sup>25</sup> WHO. Global School Based Health Survey. Tonga: 2017 Fact Sheet. 2017.
- <sup>26</sup> Evans et al. 'Consumption of traditional versus imported foods in Tonga: Implications for programs designed to reduce diet-related non-communicable diseases in developing countries'. 2010. Ecology of Food and Nutrition Volume 42, Issue 2.
- <sup>27</sup> WHO. Introduction to Healthy Settings. 1998. Retrieved from [https://www.who.int/healthy\\_settings/about/en/](https://www.who.int/healthy_settings/about/en/)