



Investment Case for Tobacco Control in Samoa

The case for scaling-up
WHO FCTC implementation



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United Nations Development Programme

One United Nations Plaza, New York, NY, 10017, USA.



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Prepared by

Ministry of Health Samoa
RTI International
United Nations Development Programme
WHO FCTC Secretariat
World Health Organization

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More than **200** Samoans die every year due to tobacco-related illness, accounting for nearly **21%** of all deaths in the country.

Tobacco costs Samoa

WST 47 million

every year, equivalent to

2.3% of its GDP

in 2017.



Investing now in five tobacco control measures will prevent more than

950 deaths

and avert

WST 150 million

in healthcare costs and economic losses by 2033.



For every Samoa WST invested in the five tobacco control measures today, Samoa will receive **WST 3** in averted costs and avoided economic losses by 2023, **WST 9** by 2030, and **WST 10** by 2033.

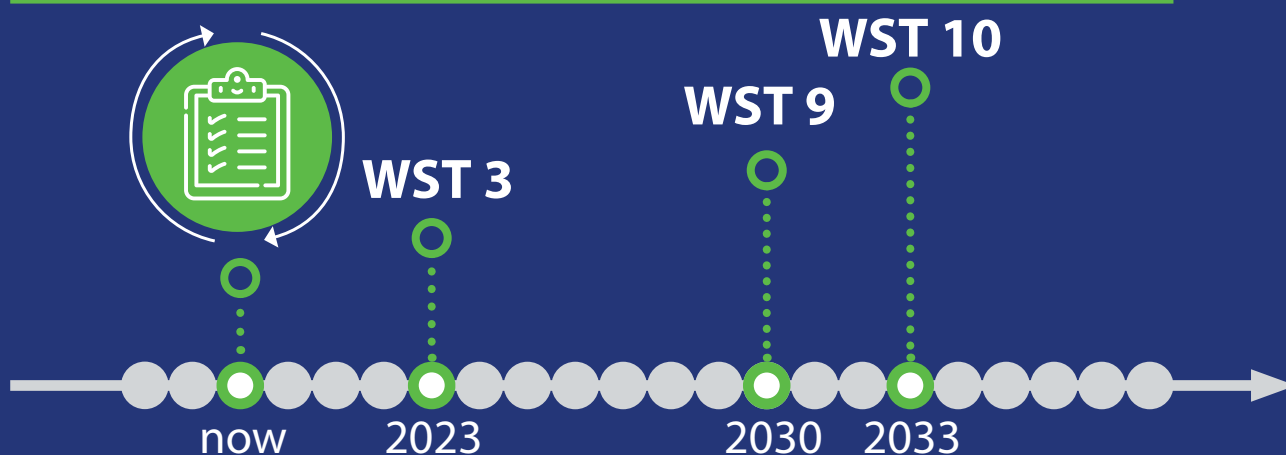
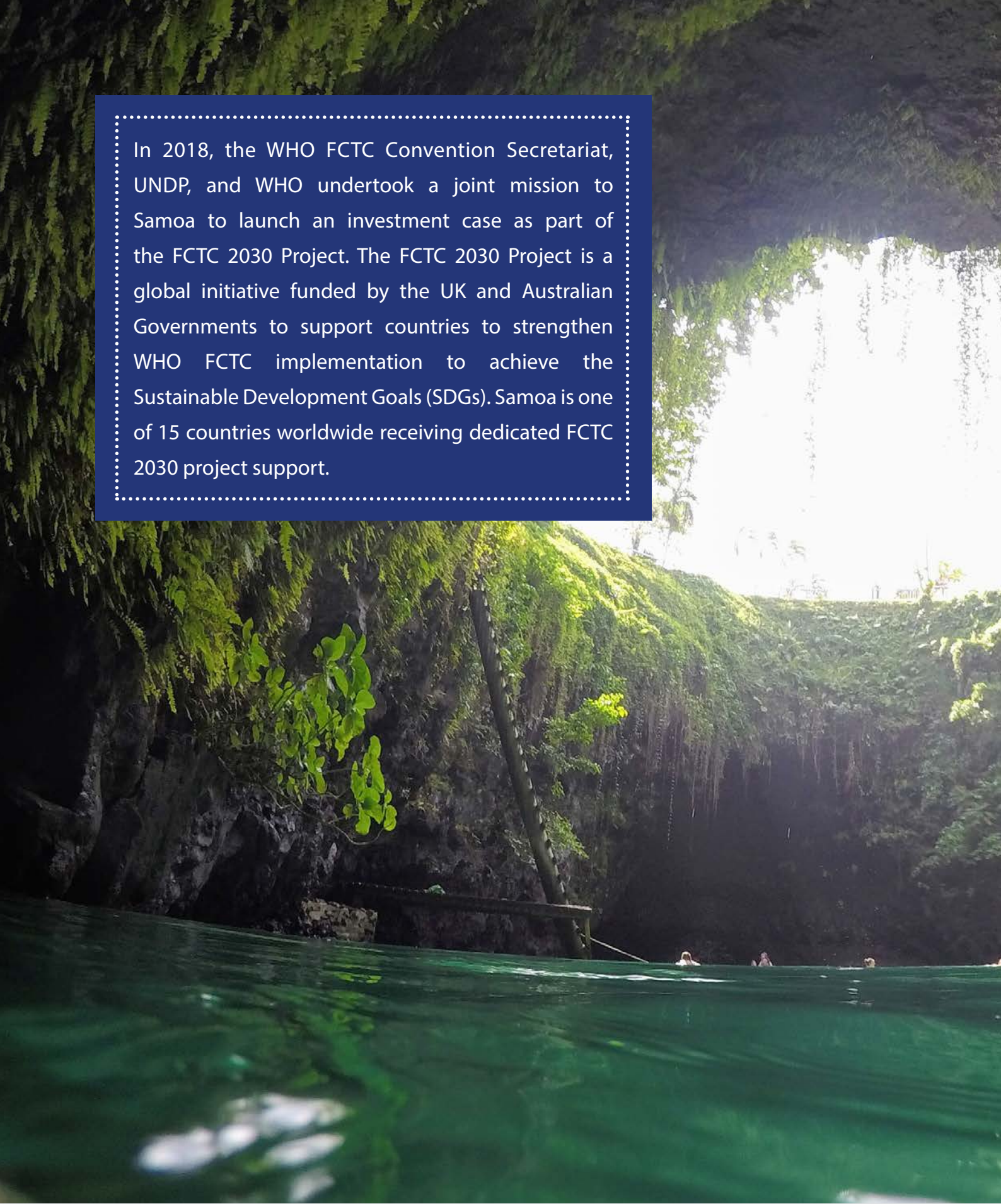


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In 2018, the WHO FCTC Convention Secretariat, UNDP, and WHO undertook a joint mission to Samoa to launch an investment case as part of the FCTC 2030 Project. The FCTC 2030 Project is a global initiative funded by the UK and Australian Governments to support countries to strengthen WHO FCTC implementation to achieve the Sustainable Development Goals (SDGs). Samoa is one of 15 countries worldwide receiving dedicated FCTC 2030 project support.



1. Executive summary

Overview

Tobacco is a health and sustainable development issue. Tobacco consumption and production causes early death and disease, results in high health costs and economic losses, widens socioeconomic inequalities, and impedes progress across the Sustainable Development Goals. This report presents the findings of the case for investing in tobacco control in Samoa. In line with the WHO Framework Convention on Tobacco Control (WHO FCTC) Global Strategy to Accelerate Tobacco Control and according to the stated priorities of the Government of Samoa, it measures the costs and benefits—in health and economic terms—of implementing five priority tobacco control measures. The five measures are:

- 1 Increase cigarette taxation to reduce the affordability of tobacco products.**
(WHO FCTC Article 6)
- 2 Expand and enforce bans on smoking in public places to protect people from tobacco smoke.** (WHO FCTC Article 8)
- 3 Implement plain packaging.** (WHO FCTC Article 11 Guidelines and Article 13)
- 4 Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns.**
(WHO FCTC Article 12)
- 5 Expand and enforce bans on tobacco advertising, promotion, and sponsorship.**
(WHO FCTC Article 13)

Main findings

In 2017, tobacco use cost the Samoan economy WST 47 million, equivalent to 2.3 percent of its GDP. These annual costs include a) WST 1.7 million in healthcare expenditures, and b) WST 45.2 million in lost productive capacities due to premature mortality and disability as well as workplace smoking breaks. The productivity losses from current tobacco use in Samoa—96 percent of all tobacco-related costs—indicate that tobacco use impedes development in Samoa beyond health; multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from supporting tobacco control investments through a healthier and more productive labour force.

Every year, tobacco use kills over 200 Samoans, with 56 percent of these deaths among individuals under age 70. More than 20 percent of lives lost from tobacco use are due to exposure to secondhand smoke.

By acting now, the Government of Samoa can reduce the national burden from tobacco use. The investment case findings demonstrate that enacting and enforcing the five proven WHO FCTC tobacco-control measures would, over the next 15 years:

Avert WST 150.2 million in economic losses. This includes WST 144.6 million in economic output losses averted. The tobacco-control measures stimulate economic growth by ensuring that fewer people 1) drop out of the workforce due to premature mortality, 2) miss days of work due to disability or sickness, 3) work at reduced capacity due to smoking-attributable disease or disability, and 4) take smoking breaks during work.

Lead to WST 5.6 million in savings through avoidance of tobacco-attributable healthcare expenditures. Of this, the Government would save WST 4.5 million in healthcare expenditures, citizens would save WST 0.7 million in out-of-pocket healthcare costs, and WST 0.4 million would be saved from other sources of healthcare expenditures.

Save 952 lives and reduce the incidence of disease. The recommended WHO FCTC tobacco control measures contribute to Samoa's efforts to achieve SDG Target 3.4 to reduce by one third premature mortality (under age 70) from NCDs by 2030. Enacting the WHO FCTC measures would prevent over 300 premature deaths from the four main NCDs by 2030, the equivalent of about 18 percent of the needed reduction in premature mortality to achieve SDG Target 3.4.

Provide economic benefits (WST 150.2 million) that significantly outweigh the costs of implementing the 5 WHO FCTC measures (WST 14.9 million). Each of the WHO FCTC provisions is highly cost-effective. Expanding and enforcing bans on tobacco advertising promotion, and sponsorship has the highest return-on-investment (28:1), followed by increasing cigarette taxes (20:1), expanding and enforcing bans on smoking in public places (18:1), implementing plain packaging of tobacco products (10:1), and mass media campaigns (9:1).

Strengthening tobacco control in Samoa will confer social benefits to all, but particularly to the poor. Forty-four percent of all smokers belong to the poorest 40 percent of the population. As a result, tobacco-attributable deaths occur disproportionately among lower income earners.

Under the first year of the recommended cigarette tax increase, 30 percent of the deaths averted from this measure project to be among the poorest income quintile (i.e. the poorest fifth of the population). The poorest 20 percent of the population cease smoking at a higher rate than wealthier individuals, helping them to avoid illness and catastrophic healthcare expenditures. Cigarette tax increases would further benefit the poor if the resulting Government tax revenue were reinvested in national development priorities. Evidence from around the world indicates that overall government revenue goes up, not down, from raised cigarette taxes.

Recommendations

The Samoan Government is currently losing WST 47 million every year due to tobacco-related productivity losses and healthcare costs. This equates to WST 565.5 million in losses over the next 15 years after discounting for future values. By comparison, the costs to implement proven tobacco control measures are just WST 14.9 million over the same 15 year period. By investing now in cost-effective tobacco control measures, Samoa can significantly reduce the health, economic and other development burdens of tobacco through preventative policy actions that target tobacco use. This would accelerate Samoa's efforts towards achieving the Sustainable Development Goals, including the call for a one-third reduction in premature mortality from NCDs by 2030 as well as the goals to end poverty, reduce inequalities and grow the economy.

This report recommends that Samoa implement the modeled WHO FCTC provisions and take additional actionable steps to strengthen a whole-of-government approach to tobacco and its development consequences. Three priority enabling actions are recommended below. Through the FCTC 2030 Project, the FCTC Secretariat, UNDP and WHO stand ready to support the Government of Samoa to reduce the social, economic, and environmental burdens that tobacco continues to place on its country.

- 1 Build on legislative achievements to close gaps in tobacco control laws and strengthen enforcement, with a focus on protecting women, youth, the poor and children.** The Tobacco Control Amendment Act 2019 was Samoa's latest achievement in tobacco control legislation. The MOH and broader NTCC should now work closely with the Attorney General to draft regulations while pursuing opportunities to strengthen public and political support, including by building the capacity of parliamentarians to engage. A communications campaign focused on women, youth, the poor and children, while recognizing that tobacco use is also a challenge among men, would be powerful. Local technical partners can provide guidance on available resources/tools for 'tobacco free' kids and youth. Strengthening enforcement of and compliance with existing regulations should be a priority, to ensure

Samoa's legislation achievements realize their full potential for the country's health and development. A concrete opportunity is a compliance building and enforcement plan which calls for increased penalties for smoke-free offences, training of enforcement officers and community stakeholder engagement. Moving forward, there is sizable room for Samoa to further strengthen its tobacco control legislation in line with the WHO FCTC and the investment case results. Opportunities exist to raise the minimum age of sale by minors, ban so-called 'kiddie packs', explore plain packaging, extend licensing requirements to retailers and remove exemptions to smoke-free areas for clubs and places where liquor is sold for consumption at that place, for example bars.

- 2 Strengthen national multisectoral coordination, planning and protection against tobacco industry interference in policymaking.** Samoa has made strong advancements in tobacco control coordination and planning, with opportunities to strengthen these dimensions as well as protection against industry interference in policymaking. It is recommended that MOH lead capacity building of the NTCC, that this commission meet quarterly and that its role and importance be promoted across government. Additional opportunities to strengthen coordination should be explored, for example developing village-based communities and strengthening other health and development coordinating committees at national level to integrate tobacco control including the investment case recommendations. Examples are the Health Sector Coordination Committee and the Health Programme Advisory Committee (HPAC). UN inter-agency support at country level will be key to support multisectoral tobacco control efforts. Moreover, Samoa should continue progress in adopting, implementing, enforcing and monitoring its new National Tobacco Control Action Plan 2018–2022, including by raising public and political awareness, and ensure tobacco control is included in relevant national and sectoral policies and plans including for the SDGs. The NTCC should maximize transparency on interactions with the tobacco industry and engage the Public Service Commission to negotiate implementation of Article 5.3 guidelines through Public Service Code of Conduct, and these should be disseminated across government. Roles for civil society and academics to monitor the activities of the tobacco industry could be identified.
- 3 Raise tobacco taxes.** Raising tobacco taxes is one of the most cost-effective measures to reduce tobacco use. Samoa, led by its Ministry of Finance, has made advancements in tobacco taxation, with cigarettes for example less affordable in 2018 compared to 2016. But additional increases in taxes for all tobacco products, including Samoan tobacco (tipi), would further reduce affordability, particularly among the young population. Raising uniform tobacco taxes across all tobacco products ensures that tobacco users do not switch to or substitute cheaper, lesser taxed options. Presently the tax rate on the most sold brand

of cigarettes in Samoa is 49.5 percent overall, inclusive of a 36.5 percent specific excise tax and a 13 percent value added tax. This is far below the WHO-recommended level modelled in the FCTC investment case (at least 75 percent of the retail price inclusive of at least a 70 percent excise tax). While this investment case demonstrates a strong ROI (19.6) for increased cigarette taxation in Samoa in terms of lives saved and health and economic costs averted, Samoa should additionally assess through modelling the increased revenue benefits from tobacco tax changes. The Addis Ababa Action Agenda on Financing for Development notes the triple benefits of tobacco taxation—a means to improve health, reduce healthcare costs, and raise important revenue to finance development. Using part of tobacco tax revenue to strengthen tobacco control efforts and related measures such as universal health coverage, as many countries are doing, is a viable option. Samoa for example could use some or all of the revenue for its new National Tobacco Control Action Plan 2018–2022, including the development and implementation of a national tobacco cessation programme that is integrated into primary care and inclusive of advancements in digital health. It is recommended that Samoa develop a clear roadmap for strengthening tobacco taxation, inclusive of capacity building on tax policy and administration for MoF. Equally important is the development of a robust strategy and systems to combat illicit tobacco trade, to prevent the loss of tax revenue for the Government and the loss of lives.



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2. Introduction

Tobacco is one of the world's leading health threats, and a main risk factor for non-communicable diseases (NCDs) including cancers, diabetes, chronic respiratory disease and cardiovascular disease. In Samoa, around 25,000 people (25.6 percent of adults aged 15 to 64) use tobacco products [1], leading to an estimated 226 deaths every year [2]. Fifty-six percent of those deaths occur among those under age 70 [2].

Alongside the cost to health, tobacco imposes a substantial economic burden. In 2012, worldwide, health care expenditures to treat diseases and injuries caused by tobacco use totaled nearly six percent of global health expenditure [3]. Further, tobacco use can reduce productivity by permanently or temporarily removing individuals from the labor market due to poor health [4]. When individuals die prematurely, the labor output that they would have produced in their remaining years is lost. In addition, individuals with poor health are more likely to miss days of work (absenteeism) or to work at a reduced capacity while at work (presenteeism) [5, 6].

Tobacco use may displace household expenditure that would otherwise go to fulfilling basic needs, including food and education [7–9], contributing to pushing some families into poverty and hunger [10, 11]. It imposes health and socio-economic challenges on the poor, women, youth and other vulnerable populations [12]. Meanwhile, tobacco production causes environmental damage including soil degradation, water pollution and deforestation [13–15]. Given the far-reaching development impacts of tobacco, and the multi-sectoral nature of the interventions required, effective tobacco control requires the engagement of non-health sectors within the context of a whole-of-government approach.

Current tobacco use trends, in Samoa and around the world, are incompatible with sustainable development. Through Sustainable Development Goal (SDG) Target 3.4, the 2030 Agenda for Sustainable Development commits Member States to achieve a one-third reduction in premature mortality from NCDs (i.e. deaths between the ages 30 and 70) by 2030. Accelerating progress on NCDs requires strengthened implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC; SDG Target 3.a). Tobacco control is not just a primary means to improve population health, but also a proven approach to reduce poverty and inequalities, grow the economy and advance sustainable development broadly. However, more work must be done to reverse the tobacco epidemic including by accelerating implementation of the Convention.

Samoa signed the WHO FCTC in 2003 and ratified it in 2005 [16]. Since that time, Samoa has made significant progress in tobacco control by mandating that large graphic warning labels appear on tobacco packaging; banning some forms of tobacco advertising, promotion, and sponsorship; and banning smoking in some public places [16].

By legislating and funding these important measures, Samoa is helping to curb the tobacco epidemic. Intensifying existing policies and implementing new measures can draw the tobacco use prevalence curve further downward and generate additional health and economic gains. For example, there are opportunities to raise taxes on tobacco products and implement plain packing laws. Presently the tax rate on the most sold brand of cigarettes in Samoa is 49.5 percent overall, inclusive of a 36.5 percent specific excise tax and a 13 percent value added tax. This is far below the WHO-recommended level modeled in the FCTC investment case (at least 75 percent of the retail price inclusive of at least a 70 percent excise tax). Many countries, for example New Zealand and Palau, have raised tobacco taxes in line with WHO guidance. Such taxes reduce tobacco consumption and avert healthcare expenditures, while raising reliable revenue for governments to finance healthcare and development. Realizing the full benefits of such measures in Samoa depends on concerted and coordinated efforts from multiple sectors of government as well as high-level leadership and an informed public. It also requires due attention to protecting against tobacco industry interference in policymaking.

In 2018, the WHO FCTC Convention Secretariat, UNDP, and WHO undertook a joint mission to Samoa to launch an investment case as part of the FCTC 2030 Project. The FCTC 2030 Project is a global initiative funded by the UK and Australian Governments to support countries to strengthen WHO FCTC implementation to achieve the SDGs. Samoa is one of 15 countries worldwide receiving dedicated FCTC 2030 project support.

An investment case analyzes the health and economic costs of tobacco use as well as the potential gains from scaled-up implementation of WHO FCTC measures. It identifies which WHO FCTC demand-reduction measures can produce the largest health and economic returns for Samoa (the return on investment; ROI). In consultation with the Government of Samoa, the following five key WHO FCTC provisions were selected to be modeled within the investment case:

1 Involves the prohibition on the use of logos, colors, brand images, or promotional information on packaging other than brand names and product names displayed in a standard color and font style.

- 1** Increase cigarette taxation to reduce the affordability of tobacco products. (*WHO FCTC Article 6*)
- 2** Expand and enforce bans on smoking in all public places to protect people from tobacco smoke. (*WHO FCTC Article 8*)
- 3** Implement plain packaging.¹ (*WHO FCTC Article 11 Guidelines and Article 13*)
- 4** Institute mass media campaigns against tobacco use. (*WHO FCTC Article 12*)
- 5** Expand and enforce bans on tobacco advertising, promotion and sponsorship. (*WHO FCTC Article 13*)

Section 3 of this report provides an overview of tobacco control in Samoa, including tobacco use prevalence as well as challenges and opportunities. **Section 4** summarizes the methodology of the investment case (see *Annex and Technical Appendix²* for more detail). **Section 5** reports the main findings of the economic analysis. The report concludes under **Section 6** with recommendations.



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² Available upon request.

3. Tobacco control in Samoa: status and context

3.1 Tobacco use prevalence, social norms, and awareness-raising

In Samoa, 36.5 percent of men and 13.7 percent of women aged 18 to 64 smoke tobacco [1]. Almost all smokers (91 percent) use tobacco every day and almost all tobacco use (91 percent) is in the form of manufactured cigarettes, as opposed to hand-rolled cigarettes, cigars, or other types of tobacco [1]. Smokers who smoke daily consume an average of 9.4 manufactured cigarettes per day [1]. On average, among daily smokers, Samoan men begin smoking around age 20 and women begin at 22 [1]. Focus groups of Samoan smokers reveal that almost all smoked for the first time among friends at social gatherings [17]. One smoker described how casual experimentation became a habit: “When I...[hung] out with friends, I saw them smoking and I would ask to have a smoke. It was only a casual thing, but then it started to get serious” [17]. Interviews with Samoan students in grades 9 through 13 found that they associate tobacco use with adulthood, maturity, and modernity [18]. Smoking is also associated with commonly held misconceptions surrounding benefits, such as aiding smokers with feelings of strength and vitality, helping indigestion, and accelerating the effects of alcohol [17].

Once smokers are addicted, the concern of their family and the health impact of smoking drive desire to quit. Two-thirds of Samoan smokers have tried to quit smoking [1].

3.2 Tobacco control regulatory measures

Strong fiscal and regulatory measures can powerfully influence norms by signalling to the population that tobacco use is harmful, not just for users but also those around users including family, colleagues and workers. The Samoa Tobacco Control Act of 2008, Tobacco Control Regulations of 2013 and the Tobacco Control Amendment Act of 2019 set limits on smoking in workplaces and public spaces, regulated tobacco advertising, and mandated graphic warning labels [19, 20][21]. To further protect the health of its population, and to honor its obligations as a Party to the WHO FCTC, Samoa should strengthen existing policies and implement additional measures to reduce demand for tobacco.



Taxation and Pricing

Samoa currently has a total tax rate on cigarettes that accounts for 49.5 percent of the retail price of the most sold cigarette brand (Pall Mall). This is inclusive of a 36.5 percent specific excise tax and a 13 percent value added tax. WHO recommends that taxes represent at least 75 percent of the retail price of tobacco products, inclusive of at least a 70 percent excise tax, and that tax rates are monitored and increased on a regular basis to ensure tobacco products do not become more affordable over time (e.g. due to growth in income). In line with the Addis Ababa Action Agenda on Financing for Development [23], price and tax measures on tobacco “represent a revenue stream for financing for development in many countries”, in addition to their ability to improve health and reduce associated social and economic costs. The investment case examines the impact of doubling the cost of a pack of cigarettes by 2030, and a total increase of WST 14 in the real price of cigarettes by 2033.



Smoking Ban in Public Places

Samoa has enacted a ban on smoking in some public places including healthcare facilities, educational facilities, universities, government buildings, workplaces, and public transit. However, smoking is not comprehensively banned in clubs or bars. Additionally, experts rate compliance with existing bans as “low”, and there are no funds dedicated for enforcement [22].



Warning Labels and Packaging

In order to inform consumers about the harmful effects of tobacco, Samoa mandates that tobacco packaging carry 14 rotating graphic warning labels that cover 90 percent of packaging on the back and 30 percent on the front [22]. The law includes requirements for the size, language, and rotation of text and graphic warning labels and established fines for violations.



Plain Packaging

Plain packaging—neutral colors, without branding and logos—is currently not mandated [22]. Plain packaging of tobacco products would enhance the impact of health warnings and eliminate the possibility of using the package as a vehicle for advertising.



Anti-tobacco Awareness Campaigns

The Government of Samoa has sponsored an anti-tobacco mass media campaign within the past three years that aired on major media platforms, such as television and radio. However, the campaigns did not include all components recommended by WHO, such as target audience research, testing of materials, working with journalists to gain publicity, and evaluating the impact of the campaign [22]. Launching a best-practice mass media campaign would further promote and strengthen public awareness about tobacco control issues and the harms of tobacco use.



Tobacco Advertising, Promotion, and Sponsorship (TAPS)

Samoa has enacted a ban on many forms of tobacco advertising, promotion, and sponsorship (TAPS), such as banning advertising on national TV, national radio, magazines, newspapers, billboards, on the internet, and at point of sale; banning free distribution of tobacco products; and, prohibiting tobacco companies from publicizing sponsorship and corporate social responsibility (CSR) activities. However, there are compliance issues with existing bans. Additionally, there are no regulations on advertising on international television, radio, newspapers, or magazines. There are also no bans on product placement and other forms of indirect advertising, or on CSR activities [22].

Table 1 summarizes the existing state of WHO FCTC demand-reduction measures and compares them against the WHO FCTC target goals for each measure. Reaching target goals can further reduce tobacco consumption.

Table 1: Summary of the current state of WHO FCTC demand reduction measures in Samoa and target goals

Tobacco Control Policy	Baseline	Target
Increase tobacco taxation to reduce the affordability of tobacco products. (Article 6)	Tax share equivalent to 49.5 percent of the retail price of the most sold brand of cigarettes.	Increase taxes on cigarettes and smokeless tobacco to at least 75 percent of the retail price with at least a 70 percent share of excise tax. Implement regular tax increases to outpace inflation and income growth. ³
Implement and enforce bans on smoking in all public places to protect people from tobacco smoke. (Article 8)	Smoking is banned in many, but not all, public places and workplaces. Compliance with the law could be improved.	Expand ban on smoking to fully include clubs and places where liquor is sold for consumption at that place, for example bars, irrespective of whether or not food is served, and ensure strict compliance with new and previously existing bans.
Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use. (Article 11)	Graphic warning labels are required to cover 90 percent of tobacco packaging on the back and 30 percent on the front, and are required to be rotated.	√ Currently meeting the FCTC size and rotation obligations.
Mandate plain packaging of all tobacco products. (Article 11 Guidelines and Article 13)	No law mandates plain packaging of tobacco products.	Implement a law requiring plain packaging.
Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns. (Article 12)	Samoa has conducted national anti-smoking mass media campaigns. However, campaigns did not include all WHO-recommended components.	Implement a nationwide anti-smoking mass media campaign that is researched and tested with a targeted audience, and evaluated for impact.
Enact and enforce a comprehensive ban on all forms of tobacco advertising sponsorship and promotion. (Article 13)	Advertising is banned on major forms of media (e.g., TV, radio, internet, billboards, print), as are most forms of indirect promotion and sponsorship.	Expand bans on tobacco advertising, promotion and sponsorship to include bans on all "corporate social responsibility" efforts and other forms of indirect advertising. Ensure strict compliance with new and previously existing bans.
* Information in this table is derived from the WHO Report on the Global Tobacco Epidemic: Country profile – Samoa [22]		

³ The investment case examines the impact of doubling the cost of a pack of cigarettes by 2030 and a total increase of WST 14 in the real price of cigarettes by 2033.

3.3 National multisectoral tobacco control legislation, planning and coordination

Legislation

Samoa ratified the WHO FCTC in November 2005. The Tobacco Control Act 2008, Tobacco Control Regulations 2013 and Tobacco Control Amendment Act 2019 address obligations under the Convention comprehensively. These measures: ban smoking in most public places, workplaces and public transport; require pictorial health warnings; and prohibit many forms of direct and indirect tobacco advertising and promotion. Samoa's latest legislative achievement, the Tobacco Control Amendment Act 2019, bans point of sale display of tobacco products, prohibits sale of tobacco to minors under age 21, introduces licensing requirements for manufacture, import and distribution, bans discounts and internet sales of tobacco products, and allows for regulation of additional smoke-free areas including 'on the spot' fines and issuance of infringement notices. In June 2018, Samoa acceded to the Protocol to Eliminate Illicit Trade in Tobacco Products.

To further protect its population, there is room for Samoa to close gaps in legislation and ensure certain provisions are fully compliant with the WHO FCTC. For example, Samoa can ensure comprehensive smoke-free bans (e.g. remove exemptions for clubs or places where liquor is sold for consumption at that place, for example bars). It can also ban tobacco sponsorship and depiction of tobacco in entertainment media, raise the minimum age of sale by minors (e.g. to 21), introduce licensing requirements for retailers, ban so-called 'kiddie packs', implement plain packaging and strengthen labelling requirements. Additional avenues to pursue are advancements in tobacco taxation⁴ and a comprehensive provision to address illicit trade in tobacco products. Strengthening enforcement and compliance building, as well as public and political awareness and support, can help Samoa's tobacco control legislation realize its potential for health and development.

Strategy

The National Tobacco Control Policy and Strategy 2010–2015 has ended. Samoa has drafted the National Tobacco Control Action Plan 2018–2022, which defines roles for different stakeholders in tobacco control and aligns with the FCTC 2030 Strategy as well as the WHO FCTC. Samoa envisages consultation with key stakeholders, including youth and women, prior to finalization, adoption, implementation, enforcement and monitoring. The new tobacco control plan will be annexed to the National Noncommunicable Diseases Control Policy and Strategy 2018–2022.

⁴ Samoa has imposed excise tax, customs duty and value-added goods and services tax on the different types of tobacco products. The Excise Tax Rates Amendment Act 2017 stipulated a 5% increase of tobacco excise tax and a 5% increase annually from 2017 to 2019.

Other strategies and plans address tobacco use. These include the Strategy for the Development of Samoa (SDS) 2016/17–2019/20,⁵ the National Health Sector Plan 2008–2018,⁶ the National Health Prevention Policy 2013–2018,⁷ and the National Noncommunicable Disease Policy 2010–2015.⁸ Other policies recognize the importance of addressing tobacco use and/or NCDs: Health Promotion Policy 2010–2015, Primary Health Care Policy, National Policy for Gender Equality 2016–2020, National Policy for Women 2010–2015; National Youth Policy 2001–2010. Continued sensitization of policymakers on the importance of tobacco control for achieving their core work and the SDGs, as well as inclusion of tobacco control in national development plans and UN support instruments, is key.

Coordination

Samoa has made great advancements in tobacco control coordination. Its National Tobacco Control Committee (NTCC) is composed of six government agencies and three civil society organizations. Samoa recently reviewed and updated the committee's terms of reference with defined roles, promoted its importance across government, and began capacity building and training for the NTCC. The committee is to meet quarterly as in the Tobacco Control Amendment 2019. Samoa can build on this progress by developing a work plan for the NTCC to assist implementation and enforcement of its tobacco control legislation, and by ensuring other health and development coordinating mechanisms consider the importance of tobacco control. Examples include the Health Sector Coordination Committee and the Health Programme Advisory Committee (HPAC) as well as the Health Programme Coordination Committee chaired by the Ministry of Foreign Affairs and Trade.

Industry interference in policymaking

Article 5.3 of the WHO FCTC states, "In setting and implementing their public health policies with respect to tobacco control, Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry in accordance with national law." Samoa does not yet have a law or policy that explicitly requires public servants and elected officials to comply with Article 5.3 and its guidelines; it has no code of conduct to guide dealings with the tobacco industry. There is, however, applicable legislation⁹ which could be utilized, including for national Article 5.3 guidelines. There are good practices for Samoa to build upon, for example MOH did

⁵ Tobacco control is in Outcome 6 "A Healthy Samoa and Well-being Promoted".

⁶ Tobacco control is in two of the six strategies – to strengthen health promotion and primordial prevention and to strengthen regulatory governance and leadership role of MOH. A new health sector plan is currently under development.

⁷ Tobacco Free Living is one of seven strategic areas and its approach is to implement the Tobacco Control Act 2008 and achieve the goals in the NTCPS 2010—2015.

⁸ Tobacco (smoking) is identified as one of four main risk factors. The Tobacco Control Act 2008 and the NTCPS 2010—2015 are two of several mandates that guide implementation of the National NCD Policy.

⁹ The Public Service Act 2004 includes relevant provisions including on Code of Conduct.

not allow tobacco industry lobbying to influence the development of the recent Tobacco Control Amendment, and though some ministries meet with the tobacco industry, they maintain the government's positions on policy decisions such as on tobacco excise taxes. The Public Service Commission could be engaged to negotiate implementation of Article 5.3 guidelines through Public Service Code of Conduct, and to disseminate the Guidelines across government. The NTCC should agree plans to maximize transparency on interactions with the tobacco industry, and civil society and academics should take on a stronger role in monitoring tobacco industry activities.

3.4 Samoan youth and tobacco

In line with WHO FCTC efforts to reduce tobacco use, policymakers in the Pacific region have been moving towards legislative measures such as restricting the sale of tobacco to and by minors, extending smoke-free environments, increasing tobacco taxation and banning tobacco advertising, promotion and sponsorship [23]. Samoa's Tobacco Control Act 2008 sets the legal age to buy cigarettes at 21, but the Tobacco Control Amendment Act 2019 still allows adolescents from 15 years old to sell tobacco products [21].

The Samoa Global Youth Tobacco Survey 2017 found that 17 percent of students aged 13–17 years old reported as current tobacco users (26.3 percent for boys and 8.6 percent for girls). For exposure to tobacco smoke over their past 7 days, 51.7 percent of students aged 13–17 endured this at home, 58.5 percent in an enclosed public place and 60.3 percent in an outdoor public place [24]. In Samoa, adults consider smoking by young people to be socially unacceptable, with strict families perceiving tobacco use to be immoral. Yet many young people reported smoking to “fit in” socially among friends [25]. Anti-tobacco measures targeted at young people are undermined when tobacco sales constitute the core of a family's income.

That young people in Samoa are highly connected to their families and their communities represents a critical opportunity for reducing youth tobacco use prevalence rates in Samoa among youth and adults.

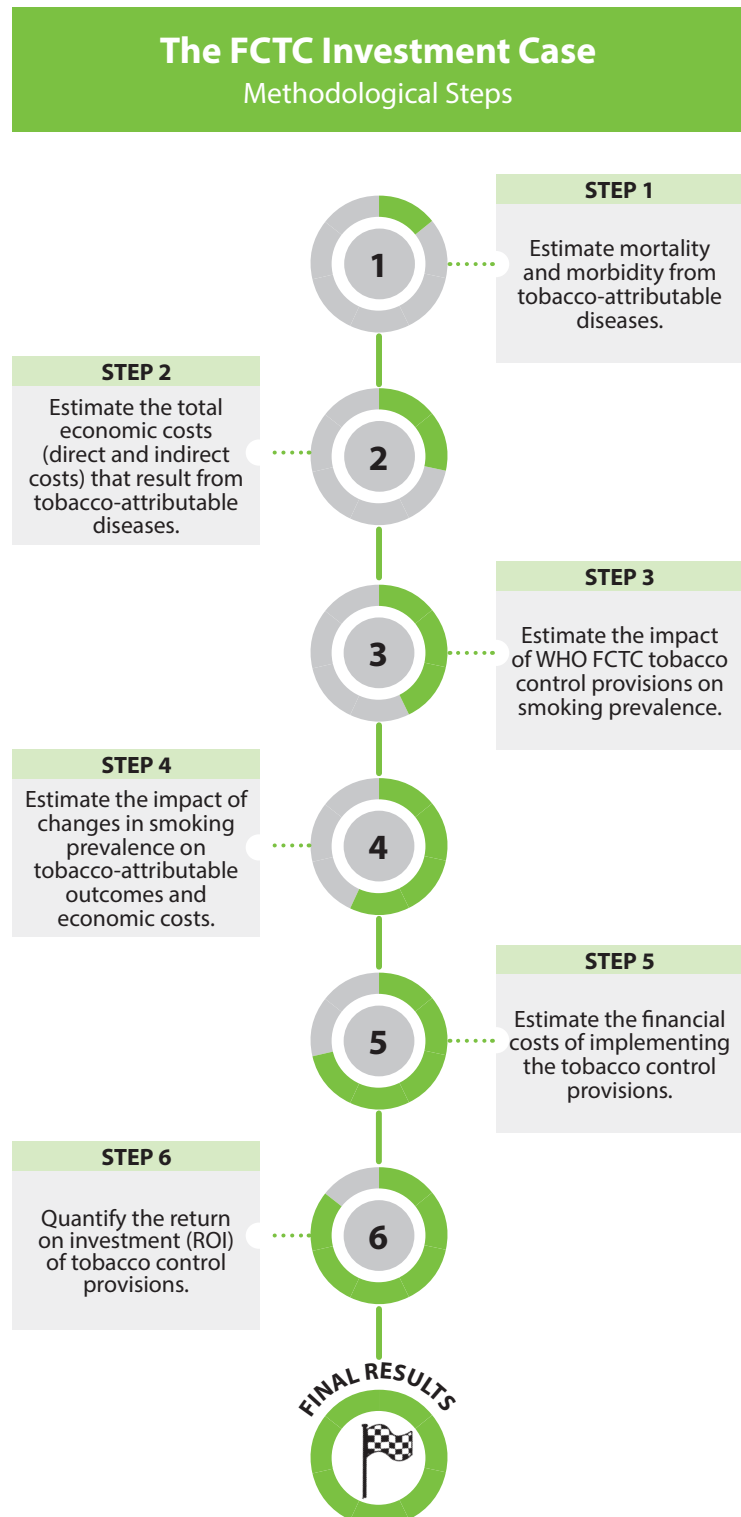
4. Methodology

The purpose of the investment case is to quantify the current health and economic burden of tobacco use in Samoa (in the context of tobacco control measures that are currently in place), and estimate the impact that implementing new tobacco control measures—or intensifying existing ones—would have on reducing this burden.

An RTI International-developed static model incorporating a population-attributable fraction approach was created to conduct the investment case and to perform the methodological steps in **Figure 1**. The tools and methods used to perform these steps are described in this report’s Annex. Interested readers are also referred to this report’s separate Technical Appendix¹⁰ for a more thorough account of the methodology.

The investment case team worked with partners in Samoa to collect national data inputs for the model. Where data was unavailable from government or other in-country sources, the team utilized publicly

Fig. 1: Building the FCTC investment case



¹⁰ Available upon request

available national, regional, and global data from sources such as the World Health Organization (WHO), the World Bank database, the Institute for Health Metrics and Evaluation's (IHME) Global Burden of Disease (GBD) study, and academic literature.

Within the investment case, costs and monetized benefits are reported in constant 2017 Samoa tālā (WST) and discounted at an annual rate of 3 percent.



Credit: © UNDP via Flickr

5. Results

5.1 The current burden of tobacco use: health and economic costs¹¹

Tobacco use undermines economic growth. In 2017, tobacco use caused an estimated 226 deaths in Samoa, 56 percent occurring among those under 70 years. These deaths amount to 3,770 years of life lost, which are lost productive years in which many of those individuals would have contributed to the workforce. The economic losses in 2017 due to tobacco-related premature mortality are estimated at WST 33.2 million.

While the costs of premature mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g. heart disease, strokes, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the Government WST 1.4 million in 2017 and caused Samoan citizens to spend WST 203,000 in out-of-pocket (OOP) healthcare expenditures. Private insurance and non-profit institutions serving households spent WST 124,000 on treating tobacco-attributable diseases in 2017. In total, healthcare expenditures attributable to smoking amounted to WST 1.7 million.

In addition to healthcare costs, as individuals become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2017, the cost of excess absenteeism due to tobacco-related illness was WST 2.1 million and the cost of presenteeism caused by smoking-attributable disease and disability was WST 6.3 million.

Finally, even in their healthy years, workers who smoke are more likely to suffer from productivity loss than workers who do not smoke. Smokers take an estimated ten additional minutes per day in breaks than non-smoking employees [26]. If ten minutes of time is valued at the average worker's salary, the compounding impact of 13,500 employed smokers taking ten minutes per day for smoke breaks is equivalent to losing WST 3.6 million in productive output annually.

In total, tobacco use cost Samoa's economy WST 47 million¹² in 2017, or about 2.3 percent of Samoa's 2017 GDP. **Figure 2** breaks down direct and indirect costs. **Figure 3** and **Figure 4** illustrate the annual health losses that occur due to tobacco use.

¹¹ In assessing the 'current burden' of tobacco use, the economic costs of premature mortality include the cost of premature deaths due to any form of exposure to tobacco (including of smoking, second-hand smoke, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and smoking breaks. While other forms of tobacco may also cause losses in these categories, no data is available to pinpoint those losses.

¹² Component parts may not add to 47 million exactly due to rounding.

The current burden of tobacco use

Fig. 2: Breakdown of the share of direct and indirect economic costs (WST millions) in 2017

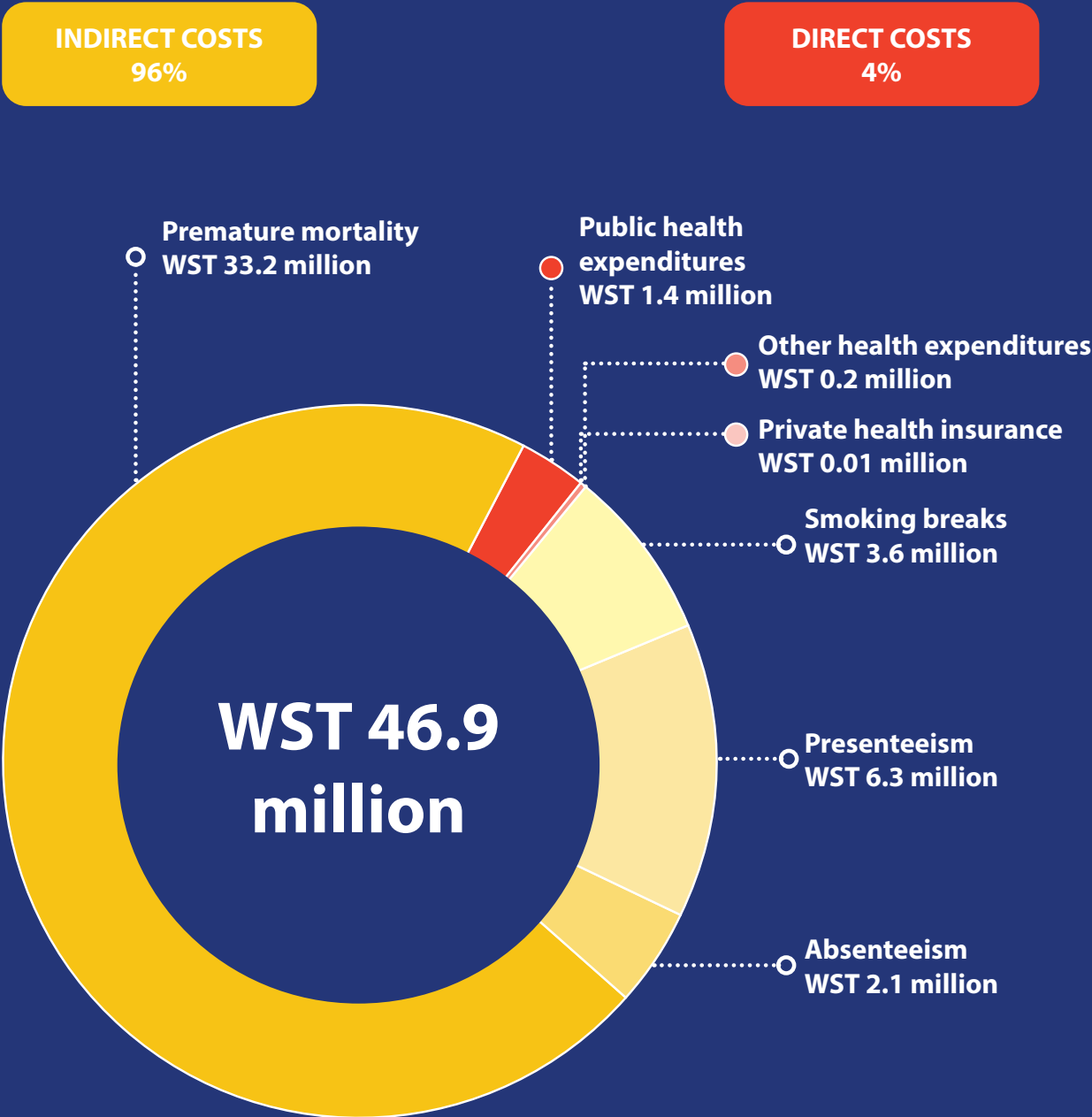


Fig. 3: Tobacco-attributable deaths by disease in Samoa, 2017 (Results are from the IHME Global Burden of Disease Results Tool. Other diseases include tuberculosis, peptic ulcer disease, colon and rectum cancer, cervical cancer, aortic aneurysm, liver cancer, leukemia, pancreatic cancer, lip and oral cavity cancer, esophageal cancer, breast cancer, bladder cancer, prostate cancer, larynx cancer, nasopharynx cancer, atrial fibrillation and flutter, gallbladder and biliary diseases, other pharynx cancer, kidney cancer, peripheral artery disease, rheumatoid arthritis, multiple sclerosis, and otitis media.)

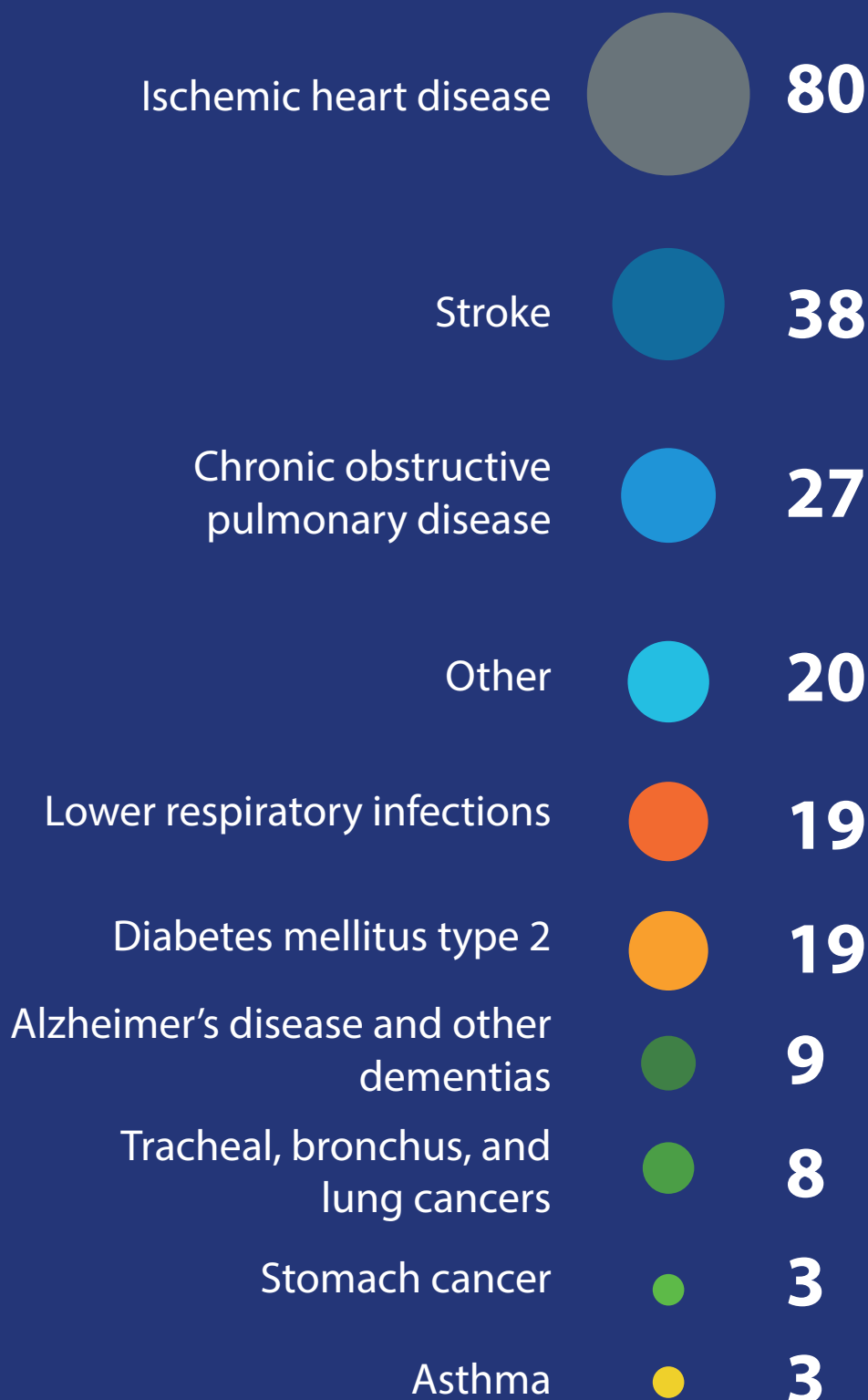
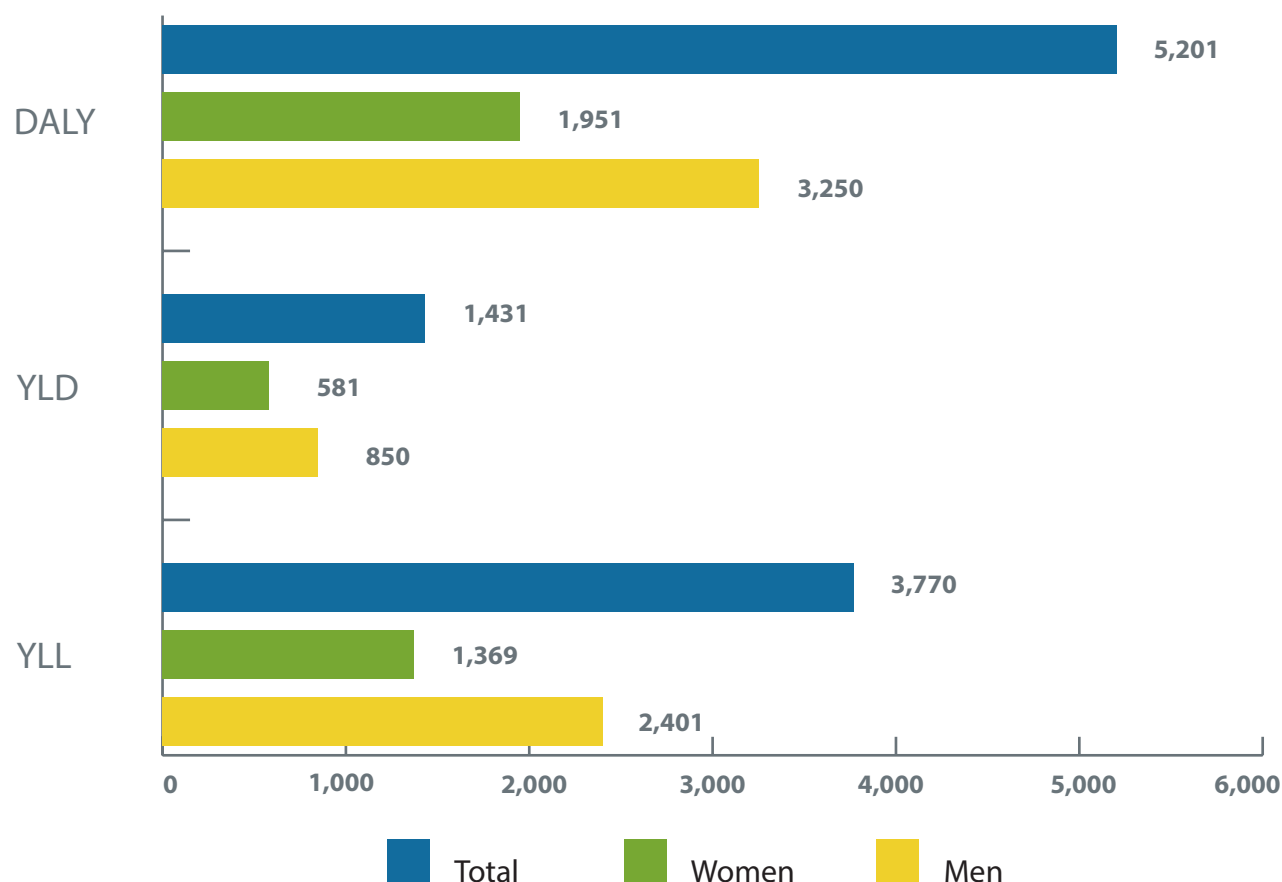


Fig. 4: Tobacco-attributable DALYs, YLDs, and YLLs, 2016, by sex¹³

5.2 Implementing policy measures that reduce the burden of tobacco use

By implementing new WHO FCTC policy measures, or intensifying implementation of existing ones, Samoa can secure significant health and economic returns, and begin to reduce the WST 47 million in annual direct and indirect economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from five WHO FCTC policy actions to: 1) increase cigarette taxation to reduce the affordability of tobacco products; 2) expand the ban on smoking in public spaces, and increase enforcement; 3) implement plain packaging of tobacco products; 4) institute best-practice national anti-tobacco mass media campaigns to increase awareness about the harms of tobacco use; and 5) expand and enforce bans on tobacco advertising, promotion and sponsorship.

¹³ YLDs are “years lived in less than ideal health...[YLDs are] measured by taking the prevalence of a [disease] condition multiplied by the disability weight for that condition. Disability weights reflect the severity of different conditions.” YLLs are “calculated by subtracting the age at death from the longest possible life expectancy for a person at that age.” DALYs “equal the sum of YLLs and YLDs. One DALY equals one lost year of healthy life.” Source: IHME. (2018). Frequently asked questions. Retrieved from <http://www.healthdata.org/gbd/faq#What%20is%20a%20DALY?>

5.3 Health benefits—lives saved

Putting in place the full package of tobacco-control measures (inclusive of all five of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains. Specifically, enacting the package would reduce the prevalence of cigarette smoking by 46.1 percent (in relative terms) over 15 years, saving 952 lives from 2019–2033, or 63 lives annually.

5.4 Economic benefits—costs averted

Implementing the tobacco control policy package would result in Samoa avoiding 27 percent of the economic loss that it is expected to incur from tobacco use over the next 15 years. **Figure 5** illustrates the extent to which Samoa can shrink the economic losses it is expected to incur under the status quo.

Fig. 5: Tobacco-related economic losses over 15 years: What happens if Samoa does nothing else, versus if the Government strengthens tobacco control measures to reduce demand for smoking?



In total, over 15 years Samoa would save about WST 150.2 million that would otherwise be lost if it does not implement the recommended package of tobacco control measures. These savings are equivalent to about WST 10 million in annual avoided economic losses.

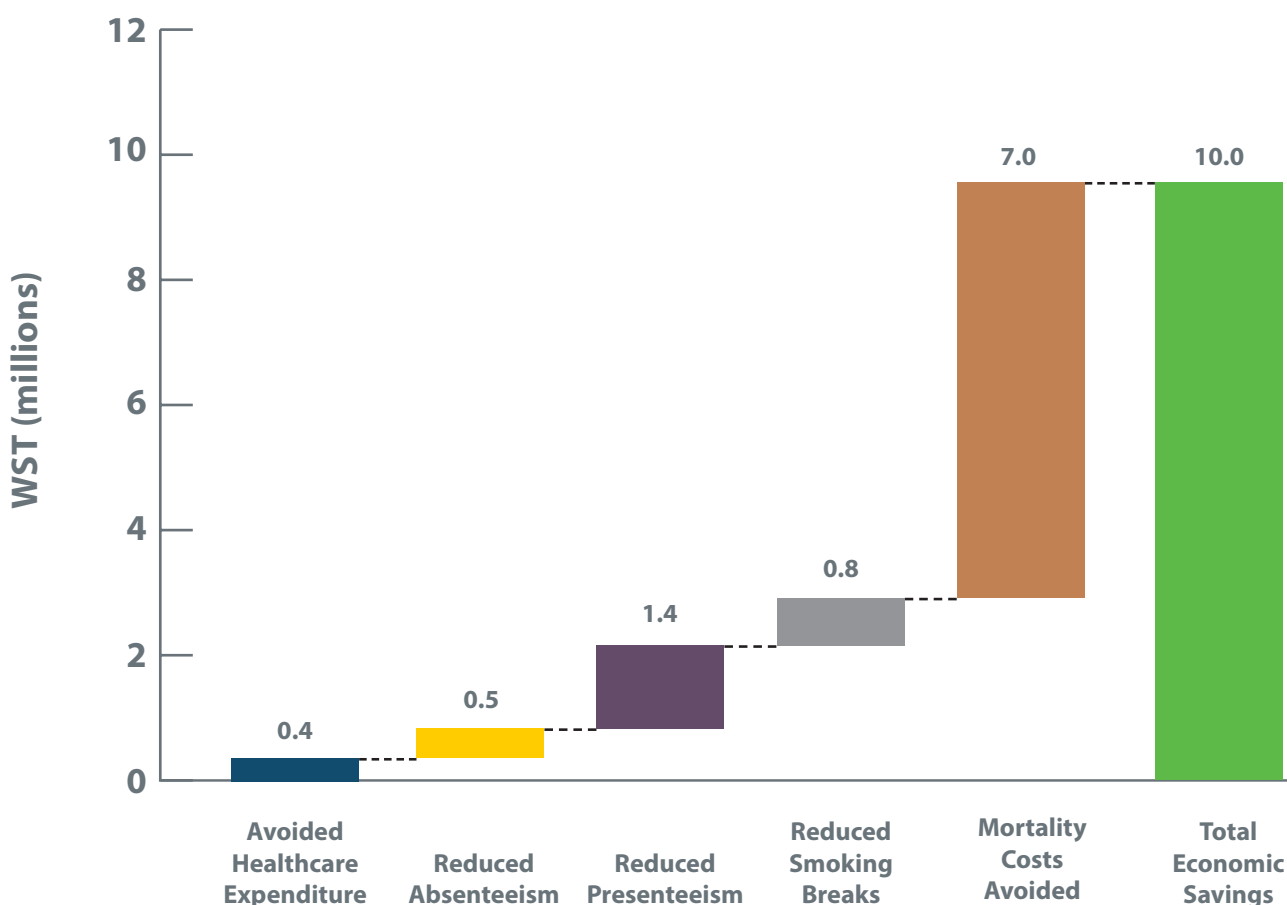
With better health, fewer individuals need to be treated for complications from disease, resulting in direct cost savings to the government and to citizens. Better health also leads to increased productivity. Fewer working-age individuals leave the workforce prematurely due to death. Laborers miss fewer days of work (absenteeism) and are less hindered by health complications while at work (presenteeism). Finally, because the prevalence of smoking declines, fewer smoke breaks are taken in the workplace.

In addition to the savings from avoiding healthcare costs and productivity losses, increasing tobacco taxation would generate significant additional revenue that could be allocated to both the tobacco control measures recommended in this report, as well as broader efforts to achieve

the Sustainable Development Goals. The 2015 Addis Ababa Action Agenda on financing for development [27] specifies that price and tax measures on tobacco represent a revenue stream to finance development. This report does not model the additional tax revenue Samoa would gain by increasing taxes, particularly excise taxes, on tobacco products. However, experiences across the world demonstrate that governments reliably increase revenue through raised tobacco taxes, despite tobacco industry myths intended to protect its profits and preserve the status quo.

Figure 6 breaks down the sources from which annual savings accrue as a result of implementing the tobacco control policy package. The largest annual savings result from avoiding premature mortality (WST 7.0 million). The next highest source of annual savings is reduced presenteeism (WST 1.4 million), followed by reduced numbers of smoking breaks (WST 0.8 million), reduced absenteeism (WST 0.5 million), and avoided healthcare expenditures (WST 0.4 million).

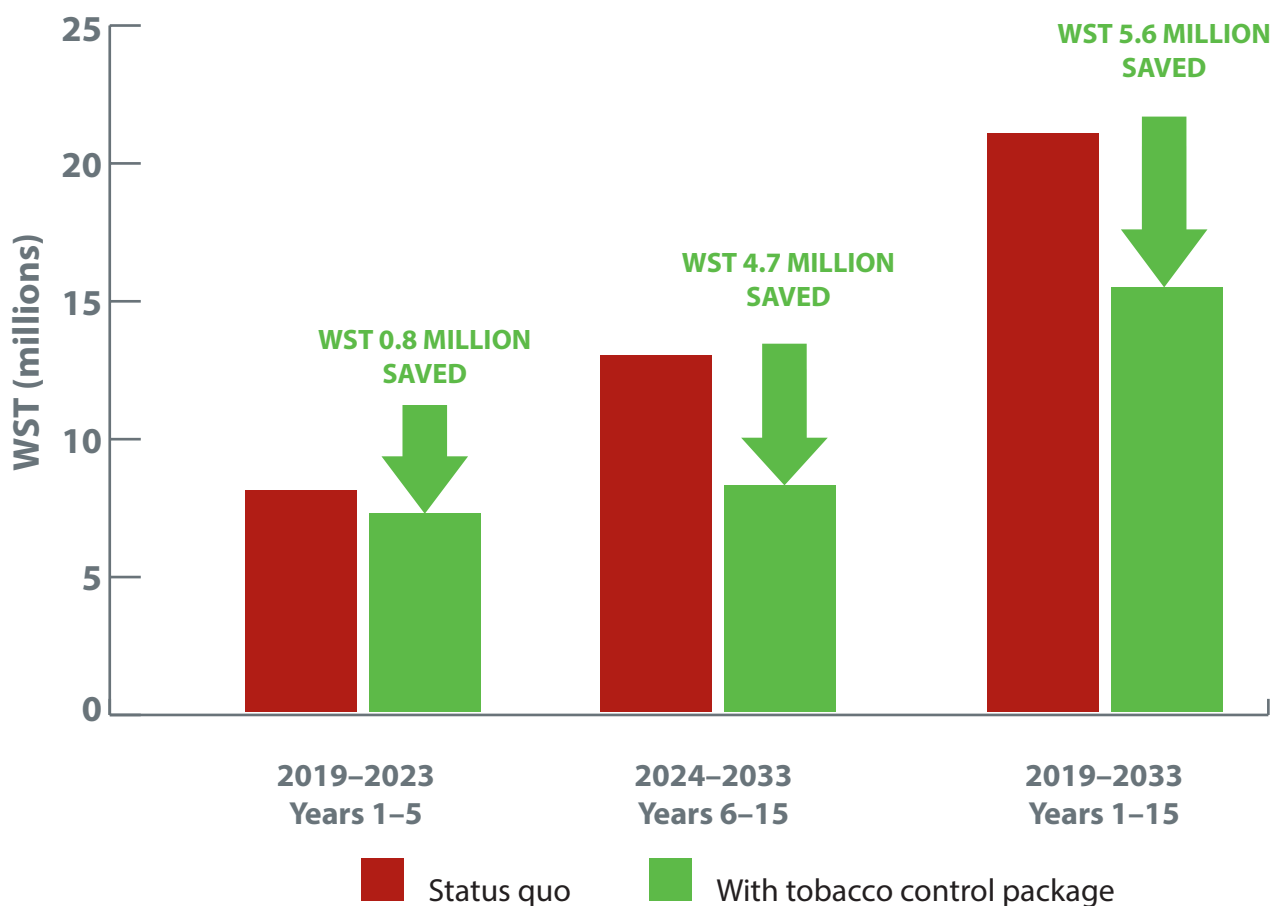
Fig. 6: Sources of annual economic savings as a result of implementing the tobacco control policy package (WST millions)



Implementing the package of tobacco control measures reduces medical expenditure for citizens and the Government. Presently, total private and public annual health care expenditures in Samoa is about WST 113.7 million, 1.5 percent of which is directly related to treating disease and illness due to tobacco use [3] (\approx WST 1.7 million).

Year-on-year, the package of interventions lowers tobacco use prevalence, which leads to less illness, and consequently less healthcare expenditure (see **Figure 7**). Over the 15-year time horizon of the analysis, the package of interventions averts WST 5.6 million in healthcare expenditures, or WST 370,000 annually. Of this, 81 percent of savings accrue to the Government and 12 percent accrue to individual citizens who would have had to make out-of-pocket payments for healthcare. The remainder of savings goes to private insurance. Thus, from reduced healthcare costs alone, the Government stands to save about WST 4.5 million over 15 years. Simultaneously, the Government would successfully reduce the health expenditure burden tobacco imposes on Samoa's citizens, supporting efforts to reduce economic hardship on families. Rather than spending on treating avoidable disease and routinely spending on tobacco products, these families would have the opportunity to invest more in nutrition, education and other productive inputs to secure a better future.

Fig. 7: Public and private healthcare costs and savings over the 15-year time horizon



5.5 The return on investment (ROI)

An investment is considered worthwhile from an economic perspective if the gains from making it outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco control investments by dividing the economic benefits that are gained from implementing the WHO FCTC tobacco control investments by the costs of the investments. For the Samoa investment case, the ROI for each intervention was evaluated in the short-term (period of five years) to align with planning and political cycles, and in the medium-term (period of 15 years) to align with the SDGs. The ROI is shown for each intervention individually and for the full package of measures. Net benefits show the impact of the tobacco control interventions and overall package. **Table 2** displays costs, benefits and ROIs by intervention, as well as for all interventions combined. All individual interventions deliver an ROI greater than one within the first five years, meaning that even in the short-term the benefits of implementing the interventions outweigh the costs. Depending on the intervention, over the first five years, the Government will recoup anywhere from 2.0 to 6.1 times its investment. The ROIs for each intervention continue to grow over time, reflective of the increasing effectiveness of policy measures as they move from planning and development stages, to full implementation.

Table 2: Return on investment, by tobacco control policy/intervention (WST millions)

Return on investment, by tobacco control measure (WST millions)	First 5 years (2019–2023)			All 15 years (2019–2033)		
	Total Costs (millions)	Net Benefits (millions)	ROI	Total Costs (millions)	Net Benefits (millions)	ROI
Tobacco Control Package* (combined interventions)	7.4	23.1	3.1	14.9	150.2	10.0
Bans on Advertising, Promotion, and Sponsorship (WHO FCTC Art. 13)	1.0	5.8	6.1	1.6	44.5	27.8
Raise Cigarette Taxes (WHO FCTC Art. 6)	1.3	7.2	5.5	2.8	54.2	19.6
Protect People from Tobacco Smoke (WHO FCTC Art. 8)	1.7	6.3	3.7	2.7	48.8	17.8
Plain Packaging (WHO FCTC Art. 11 and 13)	0.9	1.9	2.0	1.6	15.3	9.8
Mass Media Campaign (WHO FCTC Art. 12)	1.7	5.4	3.1	4.5	41.7	9.3

* The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j , $(1-PR_i) \times (1-PR_j)$ [is] applied to the current smoking prevalence [28, p. 454]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco-control program.

Over the 15-year period, bans on advertising, promotion, and sponsorship are expected to have the highest return on investment (28:1).¹⁴ Raising cigarette taxes has the next highest ROI (20:1), followed by protecting people from tobacco smoke in public places (18:1), implementing plain packaging (10:1), and mass media campaigns (9:1).

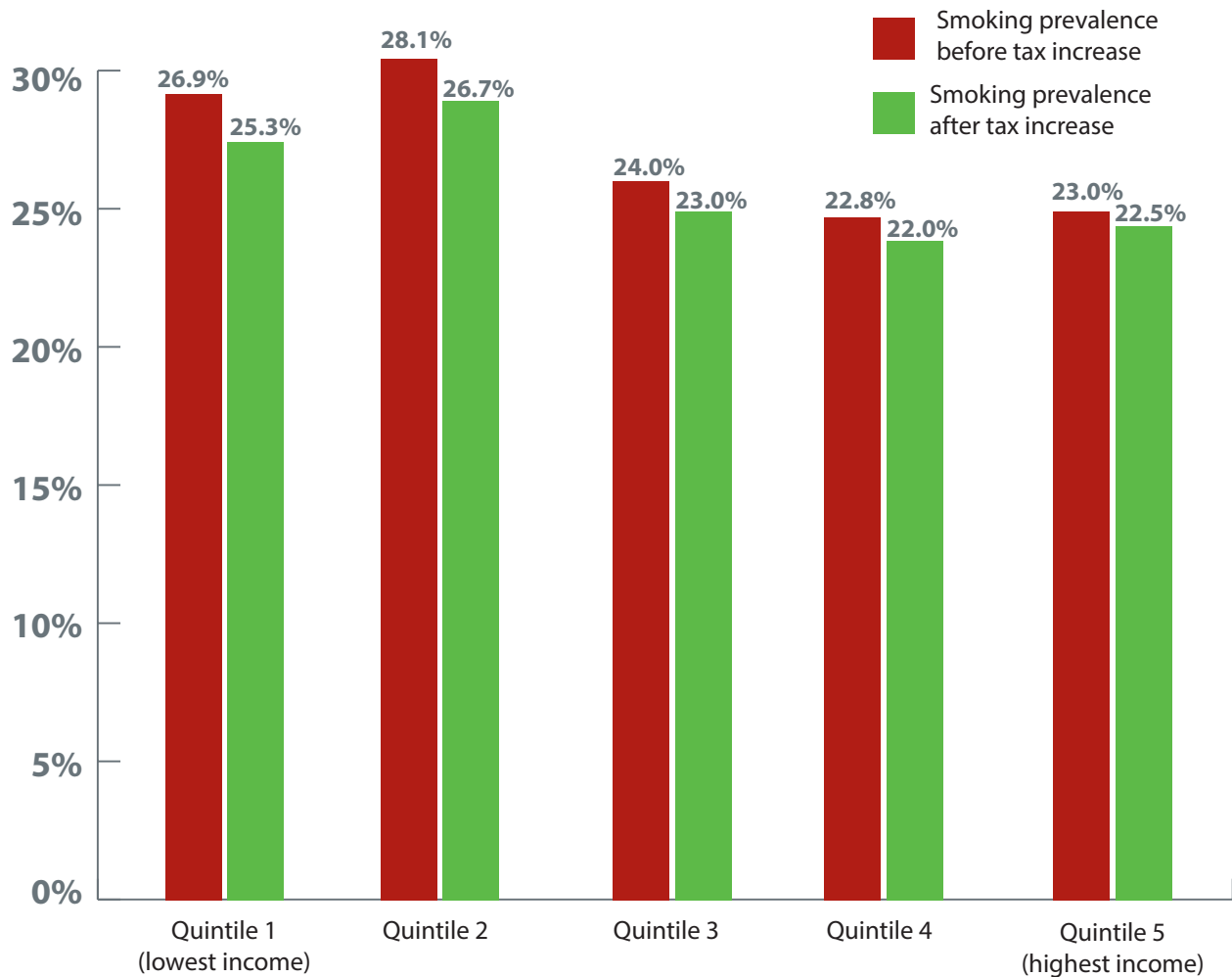
5.6 Impact on the poor

A common misperception is that taxes on tobacco products may disproportionately impact poor tobacco users, since the tax burden represents a higher proportion of their income than that of wealthier tobacco users. However, evidence shows that the poor actually stand to benefit most from raised cigarette taxes [29]. Relative to richer smokers, poorer smokers are more likely to quit smoking when taxes are increased [30], meaning they benefit from subsequent decreases in tobacco-related health problems, and resulting medical costs. In Lebanon [31], for example, a 50 percent increase in cigarette prices was projected to prevent 23,000 new cases of poverty over 50 years, and that same level of increase was found to avert 2.1 million catastrophic health expenditures in India, 440 thousand in Bangladesh, and 250 thousand in Vietnam [32].

To examine the extent to which a cigarette tax increase could be considered pro-poor in Samoa, the investment case undertakes an equity analysis. The analysis divides Samoa's population into five equal groups, by income, where quintile 1 is composed of the poorest 20 percent of people, and quintile 5 is composed of the wealthiest 20 percent. Within each income group, the analysis examines the impact of tax increases that raise the price of the average pack of cigarettes by about 15 percent (2 tālās, or about US\$ 0.75. This represents the amount that the price of cigarettes increases during the first year of price increases modeled in the investment case). Average tobacco-income elasticities from a set of low- and middle-income countries are employed to assess how different economic groups react to changes in price.

The results from the analysis show that all income quintiles reduce smoking in response to the tax measures but, because people with lower incomes are more responsive to changes in price, and because the poor smoke at higher rates in Samoa, the tax increase causes the largest drop in smoking prevalence among the two poorest income quintiles.

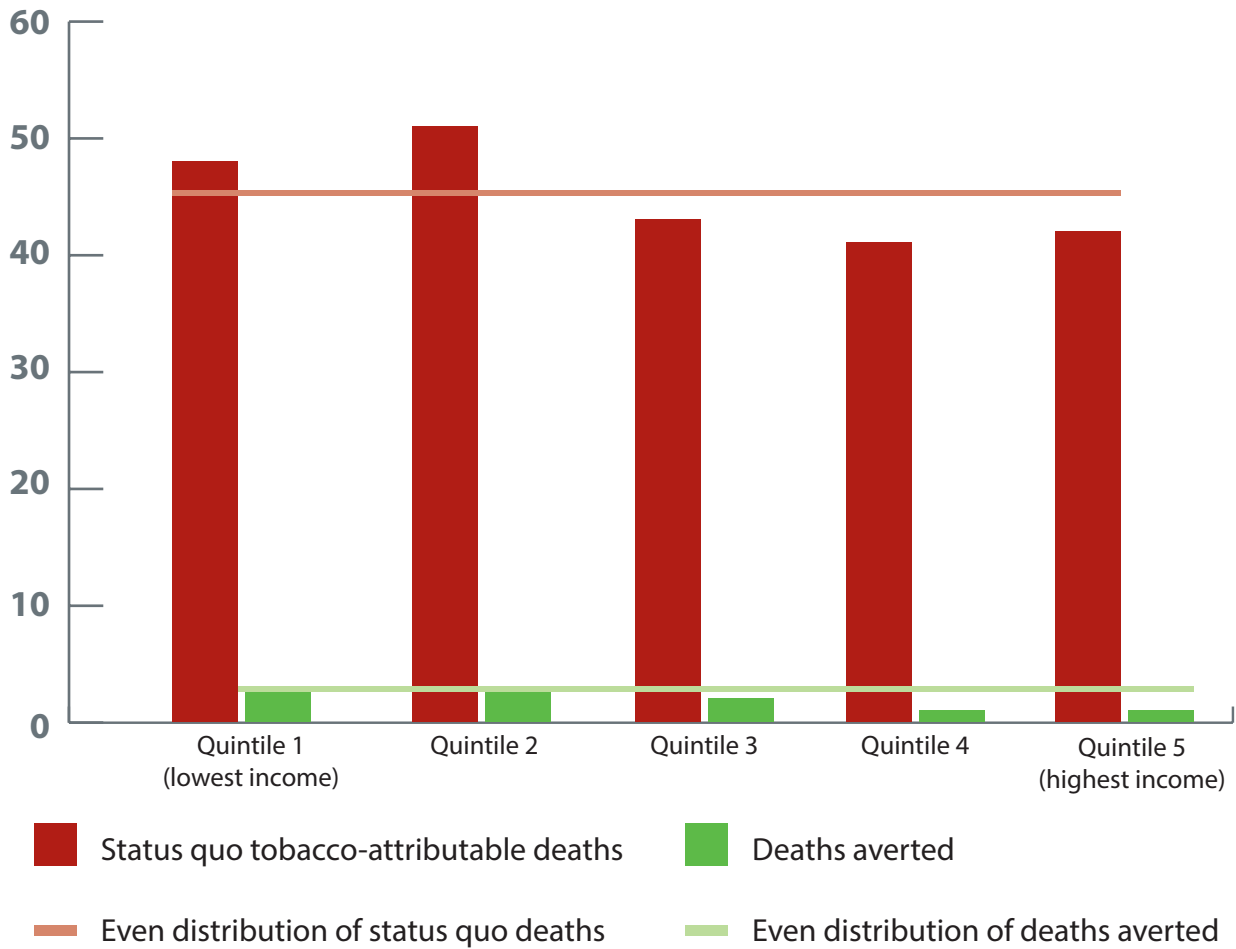
14 Rounded to the nearest whole number

Fig. 8: Smoking prevalence before and after tax increase, by income quintile

Lower rates of smoking translate to health gains. Prior to the tax increase, of the 226 tobacco-attributable deaths observed in 2017, 44 percent occurred among the poorest 40 percent of the population (quintiles 1 and 2). However, because the tax increase causes smoking prevalence to fall the most in the two poorest quintiles, health benefits disproportionately accrue to the poor.

The investment case finds that 6 of the 9 deaths that will be averted due to the cigarette tax increase will be among the poorest 40 percent of the population, as shown in **Figure 9**.

Figure 9: Status quo deaths and deaths averted by tax increase, by income quintile¹⁵



Credit: © Neils Photography via Flickr

¹⁵ The red horizontal line shows what the number of status quo deaths would be if they were evenly distributed among the quintiles, and the green line demonstrates the number of averted deaths if they were distributed evenly among quintiles.

5.7 The Sustainable Development Goals and the WHO FCTC

Enacting and strengthening five measures designed to reduce demand for tobacco will support Samoa in fulfilling SDG Target 3.a to strengthen implementation of the WHO FCTC. Moreover, acting now will contribute to Samoa's efforts to meet SDG Target 3.4 to reduce by one-third premature mortality from NCDs by 2030. These health gains will support development more broadly, including reduction of poverty and inequalities (SDGs 1 and 10, respectively) and economic growth (SDG 8).

In Samoa in 2017, more than 400 premature deaths between the ages of 30 to 70 were caused by the four main NCDs (CVD, diabetes, cancer, and COPD) [2]. Roughly 23 percent of these premature deaths occurred due to tobacco use [2]. Enacting the WHO FCTC measures identified in the Investment Case would reduce tobacco use prevalence—a key risk factor driving NCD incidence—preventing 315 premature deaths from the four main NCDs over the next 12 years (2019 to 2030). Preventing those deaths contributes the equivalent of about 18 percent of the needed reduction in premature mortality for Samoa to achieve SDG Target 3.4.



SDG Target 3.4

**By 2030
the FCTC
measures
would...**

Lower the prevalence of tobacco use by over two-fifths from present day levels.

Reduce economic costs due to tobacco use by WST 114.5 million, including saving WST 4.2 million in healthcare expenditures.

Lead to savings (WST 114.5 million) that significantly outweigh the costs (WST 13.0 million), with an overall return on investment of 9:1.

6. Conclusion and recommendations

Each year, tobacco use costs Samoa WST 47 million in economic losses and causes substantial human development losses. Fortunately, the investment case shows that there is an opportunity to reduce the social and economic burden of tobacco in Samoa. Enacting the recommended multisectoral tobacco control provisions would save over 60 lives each year and reduce the incidence of disease, leading to savings from averted medical costs and averted productivity losses. In economic terms, these benefits are substantial, adding to WST 150.2 million over the next 15 years. Further, the economic benefits of strengthening tobacco control in Samoa greatly outweigh costs of implementation (WST 150.2 million in benefits versus just WST 14.9 million in costs).

By investing now to intensify implementation of the five proven tobacco control measures modeled under this investment case, Samoa would not only reduce tobacco consumption, improve health, reduce government health expenditures and grow the economy, it would also reduce hardships among Samoans. Many countries reinvest savings from healthcare expenditures and revenue from increased tobacco taxes into national development priorities such as universal health coverage.

The investment case has identified strong tobacco control investments that Samoa can make. It offers compelling economic and social arguments to implement core WHO FCTC measures. The full benefits of the investment case are more likely to be realized if the following actions are pursued:



Build on legislative achievements to close gaps in tobacco control laws and strengthen enforcement, with a focus on protecting women, youth, the poor and children.

The Tobacco Control Amendment Act 2019 was Samoa's latest achievement in tobacco control legislation. The MOH and broader NTCC should now work closely with the Attorney General to draft regulations while pursuing opportunities to strengthen public and political support, including by building the capacity of parliamentarians to engage. A communications campaign focused on women, youth, the poor and children, while recognizing that tobacco use is also a challenge among men, would be powerful. Local technical partners can provide guidance on available resources/tools for 'tobacco free' kids and youth. Strengthening enforcement of and compliance with existing regulations should be a priority, to ensure Samoa's legislation achievements realize

their full potential for the country's health and development. A concrete opportunity is a compliance building and enforcement plan which calls for increased penalties for smoke-free offences, training of enforcement officers and community stakeholder engagement. Moving forward, there is sizable room for Samoa to further strengthen its tobacco control legislation in line with the WHO FCTC and the investment case results. Opportunities exist to raise the minimum age of sale by minors, ban so-called 'kiddie packs', explore plain packaging, extend licensing requirements to retailers and remove exemptions to smoke-free areas for clubs and places where liquor is sold for consumption at that place, for example bars.



Strengthen national multisectoral coordination, planning and protection against tobacco industry interference in policymaking.

Samoa has made strong advancements in tobacco control coordination and planning, with opportunities to strengthen these dimensions as well as protection against industry interference in policymaking. It is recommended that MOH lead capacity building of the NTCC, that this commission meet quarterly and that its role and importance be promoted across government. Additional opportunities to strengthen coordination should be explored, for example developing village-based communities and strengthening other health and development coordinating committees at national level to integrate tobacco control including the investment case recommendations. Examples are the Health Sector Coordination Committee and the Health Programme Advisory Committee (HPAC). UN inter-agency support at country level will be key to support multisectoral tobacco control efforts. Moreover, Samoa should continue progress in adopting, implementing, enforcing and monitoring its new National Tobacco Control Action Plan 2018–2022, including by raising public and political awareness, and ensure tobacco control is included in relevant national and sectoral policies and plans including for the SDGs. The NTCC should maximize transparency on interactions with the tobacco industry and engage the Public Service Commission to negotiate implementation of Article 5.3 guidelines through Public Service Code of Conduct, and these should be disseminated across government. Roles for civil society and academics to monitor the activities of the tobacco industry could be identified.



Raise tobacco taxes.

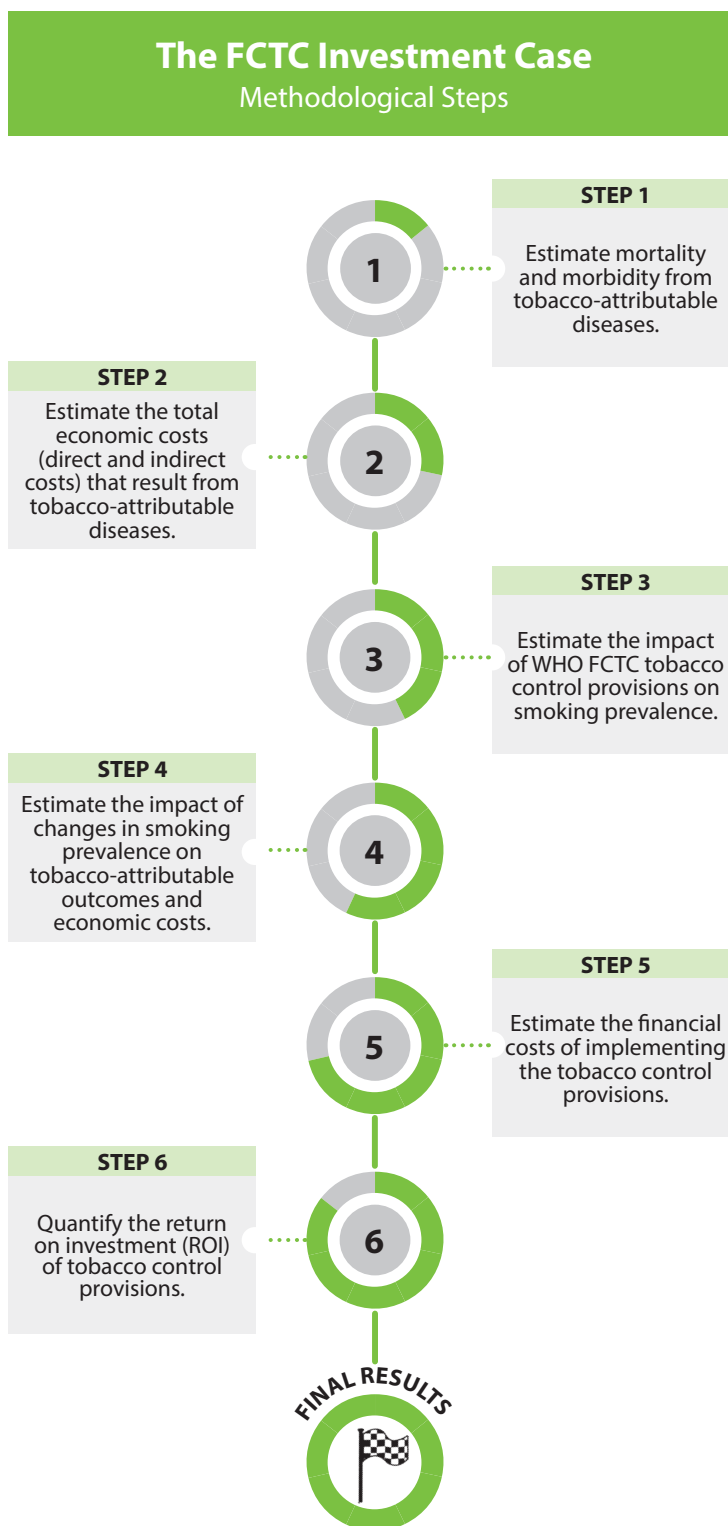
Raising tobacco taxes is one of the most cost-effective measures to reduce tobacco use. Samoa, led by its Ministry of Finance, has made advancements in tobacco taxation, with cigarettes for example less affordable in 2018 compared to 2016. But additional increases in taxes for all tobacco products, including Samoan tobacco (tipi), would further reduce affordability, particularly among the young population. Raising uniform tobacco taxes across all tobacco products ensures that tobacco users do not switch to or substitute cheaper, lesser taxed options. Presently the tax rate on the most sold brand of cigarettes in Samoa is 49.5 percent overall, inclusive of a 36.5 percent specific excise tax and a 13 percent value added tax. This is far below the WHO-recommended level modelled in the FCTC investment case (at least 75 percent of the retail price inclusive of at least a 70 percent excise tax). While this investment case demonstrates a strong ROI (19.6) for increased cigarette taxation in Samoa in terms of lives saved and health and economic costs averted, Samoa should additionally assess through modelling the increased revenue benefits from tobacco tax changes. The Addis Ababa Action Agenda on Financing for Development notes the triple benefits of tobacco taxation—a means to improve health, reduce healthcare costs, and raise important revenue to finance development. Using part of tobacco tax revenue to strengthen tobacco control efforts and related measures such as universal health coverage, as many countries are doing, is a viable option. Samoa for example could use some or all of the revenue for its new National Tobacco Control Action Plan 2018–2022, including the development and implementation of a national tobacco cessation programme that is integrated into primary care and inclusive of advancements in digital health. It is recommended that Samoa develop a clear roadmap for strengthening tobacco taxation, inclusive of capacity building on tax policy and administration for MoF. Equally important is the development of a robust strategy and systems to combat illicit tobacco trade, to prevent the loss of tax revenue for the Government and the loss of lives.

7. Methodology annex

7.1 Overview

The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which FCTC provisions can reduce the burden. The first two methodological steps depicted in **Figure 10** are employed to assess the current burden of tobacco use, while methodological steps 3–6 assess the impact, costs, and benefits of implementing or intensifying FCTC provisions to reduce the demand for tobacco. The tools and methods used to perform these methodological steps are described in detail on the next pages.

Fig. 10: Steps in the FCTC investment case



7.2 COMPONENT ONE: CURRENT BURDEN

The current burden model component provides a snapshot of the current health and economic burden of tobacco use in Samoa.



STEP 1

Estimate mortality and morbidity from tobacco-related diseases.

The investment case model is populated with country-specific data on tobacco attributable mortality and morbidity from the 2017 Global Burden of Disease Study (GBD) [33]. The study estimates the extent to which smoking and secondhand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life years lost, and deaths, across 195 countries.



STEP 2

Estimate the total economic costs (direct and indirect costs) that result from tobacco-attributable diseases.¹⁶

Next, the model estimates the total economic costs of disease and death caused by tobacco use, including both direct and indirect costs. *Direct* refers to tobacco-attributable healthcare expenditures. *Indirect* refers to the value of lives lost due to tobacco-attributable premature mortality, and labor-force productivity losses: absenteeism, presenteeism, and excess breaks due to smoking.

Direct costs — Direct costs include tobacco-attributable public (government-paid), private (insurance, individual out-of-pocket), and other healthcare expenditures. The proportion of healthcare costs attributable to smoking was obtained from Goodchild et al. (2018), who estimate the smoking attributable fraction (SAF) of healthcare expenditures for most countries [3]. The Goodchild paper does not provide an estimate for Samoa. We use the next closest country, Solomon Islands (0.6 percent, which we have rounded to 1 percent), as the basis for the lower bound. The upper bound of 4 percent, is derived from the average of the East Asia and Pacific region. The point estimate of 1.5 percent, was chosen because it is between the lower and upper bound, but closer to the Solomon Islands estimate, which is geographically closer to Samoa than

¹⁶ In assessing the current burden of tobacco use, the economic costs of premature mortality include the cost of premature deaths due to any form of exposure to tobacco (including of smoking, secondhand smoke exposure, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and smoking breaks. While other forms of tobacco may also cause losses in these categories, no data is available to pinpoint those losses.

other countries in the East Asia and Pacific region. To calculate the share of smoking-attributable healthcare expenditures borne by public, non-profit, and private entities, it was assumed that each entity incurred smoking-attributable healthcare costs in equal proportion to its contribution to total health expenditure, as obtained from the WHO health expenditures database—from which government is shown to cover 81 percent of total health expenditures, households cover 22 percent through out-of-pocket expenses, and private and other entities cover 7 percent [34].

Indirect costs — Indirect costs represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-related diseases. Indirect costs accrue when tobacco use causes premature death, eliminating the unique economic and social contributions that an individual would have provided in their remaining years of life. In addition, tobacco use results in productivity losses. Compared to non-tobacco users, individuals who use tobacco are more likely to miss days of work (absenteeism); to be less productive at work due tobacco-related illnesses (presenteeism); and to take additional breaks during working hours in order to smoke.

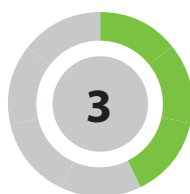
- *The economic cost of premature mortality due to tobacco use* — Premature mortality is valued using the human capital approach, which places an economic value on each year of life lost. Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each year of life is valued at 1.4 times GDP per Capita, following the “full income approach” employed by Jamison et al (2013) [35].
- *Productivity costs* — Productivity costs consist of costs due to absenteeism, presenteeism, and excess work breaks due to smoking. The model incorporates estimates from academic literature on the number of extra working days missed due to active smoking (2.6 days per year) [26]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers [36]. Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take ten minutes of extra breaks per day [26].

7.3 COMPONENT TWO: POLICY/INTERVENTION SCENARIOS

This component estimates the effects of FCTC tobacco control measures on mortality and morbidity, as well as on total economic costs (direct and indirect) associated with tobacco use.

This component estimates the effects of WHO FCTC tobacco control measures on mortality and morbidity, as well as on total economic costs (direct and indirect) associated with tobacco use. The investment case employs a static model to estimate the total impact of the tobacco control measures, meaning that aside from smoking prevalence, variables do not change throughout the time horizon of the analysis. The model follows a population that does not vary in size or makeup (age/gender) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [37, 38].

Within the investment case, the mortality and morbidity, as well as economic costs that are computed in the intervention scenario are compared to the status quo scenario to find the extent to which tobacco control measures can reduce health and economic costs.



STEP 3

Estimate the impact of WHO FCTC tobacco control provisions on smoking prevalence.

Selection of priority WHO FCTC measures modeled within the investment case align with the Global Strategy to Accelerate Tobacco Control developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, Parties seek to accelerate WHO FCTC implementation by setting clear priorities where they will be likely to have the greatest impact in reducing tobacco use. This includes priority implementation of price and tax measures (Article 6) and time-bound measures of the Convention, including bans on smoking in all public places (Article 8), health warnings and plain tobacco packaging (Article 11 and Article 13), and comprehensive bans on tobacco advertising, promotion and sponsorship (Article 13). In addition, given the importance of awareness in behavior change and shaping cultural norms, the investment cases include instituting mass media campaigns against tobacco use (Article 12) as a measure modeled. The impacts of implementing the FCTC provisions are obtained from the literature. The impact of enforcing smoke-free air laws, implementing plain packaging, intensifying advertising bans, and conducting mass media campaigns are derived from

Levy et al. (2018) [28] and Chipty (2016) [39], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013–2020 [40], and adjusted based on assessments of Samoa’s baseline rates of implementation. The impact of raising taxes on the prevalence of tobacco use is determined by the ‘prevalence elasticity’, or the extent to which individuals stop smoking as a result of price changes. Following evidence that price elasticity ranges between -0.4 to -0.8 in developing countries [41], it is assumed that the price elasticity of demand in Samoa is -0.5, and that prevalence elasticity is approximately one-half of price elasticity (-0.25) [42]. **Table 3** displays the impact sizes used within the investment case analysis. Additional information on their derivation can be found in the Technical Appendix.¹⁷

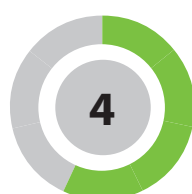
Within the analysis, it is assumed that implementation or intensification of new tobacco control measures does not take place until year three. With the exception of taxes—the impact of which is dependent on the timing of increases in tax rates—the full impact of the measures is phased in over a five-year period. The phase-in period follows WHO assumptions [43] that two years of planning and development are required before policies are up and running, followed by three years of partial implementation that are reflective of the time that is needed to roll out policies, and work up to full implementation and enforcement. The investment case examines the impact of doubling the cost of a pack of cigarettes over the first seven years, with additional incremental increases through 2033 that raise the price to 2.8 times its 2019 baseline.

17 Available upon request.

Table 3: Impact size: Relative reduction in the prevalence of current smoking by tobacco control policy/intervention, over a period of 15 years

FCTC Tobacco Policy/Intervention	Relative reduction in the prevalence of current smoking	
	First 5 years (2019–2023)	Over 15 years (2019–2033)
Tobacco Package (all policies)	28.4%	46.1%
Increase taxes on cigarettes (WHO FCTC Art. 6)	8.5%	16.8%
Strengthen compliance with the ban on smoking in public places and work places? (WHO FCTC Art. 8)	7.7%	13.4%
Mandate that tobacco product packages carry large health warnings (WHO FCTC Art. 11)	Already fully implemented	
Plain packaging of tobacco products (WHO FCTC Art. 11 Guidelines, and Art. 13)	2.3%	4.1%
Run a mass media campaign to promote awareness about tobacco control (WHO FCTC Art. 12)	6.6%	11.4%
Enact comprehensive bans on advertising, promotion, and sponsorship (WHO FCTC Art. 13)	7.0%	12.2%

* The combined impact of all interventions is not the sum of individual interventions. Following Levy and colleagues' (2018) "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j, (1-PR_i) x (1-PR_j) [is] applied to the current smoking prevalence" [28, p. 454].

**STEP 4**

Estimate the impact of changes in smoking prevalence on tobacco-attributable health outcomes and economic costs.

To analyze the impact of policy measures on reducing the health and economic burden of smoking, the investment case calculates and compares two scenarios. In the status quo scenario, current efforts are 'frozen', meaning that, through the year 2033 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the 'intervention' scenario, Samoa implements new tobacco measures or intensifies existing ones, to reduce the prevalence of smoking. The difference in health and economic outcomes between the status quo and intervention scenarios represents the gains that Samoa can achieve by taking targeted actions to reduce tobacco use.

The marginal effects of the policies are calculated using the status quo scenario as the comparison group. To calculate marginal effects, the model subtracts the outcome (risk factor attributable

deaths, healthcare expenditures, etc.) under the intervention scenario from the same outcome under the status quo scenario. The difference between the two outcomes is the amount of change in the outcome associated with the policy.

$$\text{Marginal Effects} = \text{Outcome Base Scenario} - \text{Outcome Intervention Scenario}$$

Marginal effects are calculated as follows for each outcome:

- **Health outcomes:** To calculate the reductions in mortality and morbidity due to implementation of the policy measures, forecasted changes in smoking prevalence are applied directly to the GBD risk factor attributable outcomes from the status quo scenario. This means that the model adjusts the risk factor attributable outcomes for mortality and morbidity as reported by GBD based on year-over-year relative changes in smoking prevalence for each outcome.
- **For healthcare expenditures,** the model applies forecasted annual relative changes in smoking prevalence for each intervention scenario to the SAFs. SAFs are adjusted in proportions equal to the relative change in smoking prevalence for each intervention scenario.
- **Workplace smoking outcomes** are recalculated substituting actual (status quo) smoking prevalence for estimated annual smoking prevalence for each of the intervention scenarios that are modeled.



STEP 5
 Estimate the financial costs of implementing the tobacco control policies and interventions modeled, both individually and collectively.

The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [43].

The Tool uses a ‘bottom up’ or ‘ingredients-based’ approach. In this method, each resource that is required to implement the tobacco control measure is identified, quantified, and valued. The Tool estimates the cost of surveillance, human resources—for program management, transportation, advocacy, and enacting and enforcing legislation—trainings and meetings, mass media, supplies

and equipment, and other components. Within the Tool, costs accrue differently during four distinct implementation phases: planning (year 1), development (year 2), partial implementation (years 3–5), and full implementation (years 6 onward).

Across these categories, the Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Tool is updated to reflect 2017 costs by updating several parameters: the US\$ to local currency unit exchange rate (2017), purchasing power parity (PPP) exchange rate (2017), GDP per capita (US\$, 2017), GDP per capita (PPP, 2017), population (total, and share of the population age 15+, 2017), labor force participation rate (2017), gas per liter, and government spending on health as a percent of total health spending (2015) [44, p. 5]. Unless government or other in-country parameters are received, data is from the World Bank database, with the exception of data on the share of government health spending and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.



STEP 6

Quantify the return on investment (ROI) for the various tobacco control policies and interventions modeled, both individually and collectively.

The return on investment (ROI) analysis measures the efficiency of tobacco control investments by dividing the discounted monetary value of health gains from investments by their discounted respective costs.

ROIs were calculated for each of the four tobacco control policies modeled, and for the four interventions together as a package. Estimates from Step 3 and 4, were used to calculate ROIs at 5- and 15-year intervals.

$$\text{Return on investment (ROI)} = \frac{\text{Benefits of Intervention/Policy}}{\text{Costs of Implementing Intervention/Policy}}$$

7.4 Equity analysis

To assess how increased taxation affects different income groups, different income groups responses to changes in price were estimated, i.e. their elasticity of smoking participation. No studies were identified that examine the elasticity of smoking participation in Samoa. Instead, an average from low- and middle-income countries identified by the International Agency for Research on Cancer’s Handbook of Cancer Prevention Volume 14: Effectiveness of Tax and Price Policies for Tobacco Control [45]. Some of the studies in **Table 4** below did not report elasticity by income quintile, instead reporting by income tertile, for example. In order to construct this table, adjustments to the data were made as needed. In the case of tertiles, tertile 1 was assigned to quintile 1, tertile 2 to quintile 3, and tertile 3 to quintile 5. Then, quintile 2 was given as the average of tertiles 1 and 2, and quintile 4 was given as the average of tertiles 2 and 3.

Table 4: Elasticity of smoking participation studies

Country	Author	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Myanmar	Kyaing [46]	-1.09	-1.25	-1.41	-1.38	-1.24
Nepal	Karki [47]	-0.31	-0.26	-0.35	-0.35	-0.31
Vietnam	Kinh [48]	-0.65	-0.65	-0.54	-0.42	-0.42
Bangladesh	Nargis [49]	-0.33	-0.47	-0.27	-0.21	-0.14
Sri Lanka	Arunatilake [50]	-0.37	-0.35	-0.31	0.02	0.06
Sri Lanka	Arunatilake [51]	-0.17	0.17	0.21	0.01	0.34
Ukraine	Krasovsky [52]	-0.19	-0.20	-0.21	-0.17	-0.12
Ukraine	Krasovsky [52]	-0.14	-0.15	-0.17	-0.12	-0.08
China	Mao [53]	-0.95	-0.67	-0.39	-0.07	0.26
China	Mao [54]	-0.08	-0.04	-0.01	0.06	0.13
Egypt	Nassar [55]	-0.30	-0.33	-0.33	-0.33	-0.32
Thailand	Isra [56]	-0.50	-0.18	-0.07	-0.05	-0.02
Thailand	Isra [56]	-0.25	-0.03	-0.02	-0.08	-0.04
Indonesia	Adioetomo [57]	-0.03	0.03	0.09	0.15	0.20
South Africa	van Walbeek [58]	-0.70	-0.57	-0.55	-0.54	-0.41
Turkey	Onder [59]	-0.12	-0.32	-0.11	-0.02	0.15
Average		-0.38	-0.33	-0.28	-0.22	-0.12



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Investment Case for Tobacco Control in Samoa

The case for scaling-up WHO FCTC implementation

Prepared by

Ministry of Health Samoa
RTI International
United Nations Development Programme
WHO FCTC Secretariat
World Health Organization

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