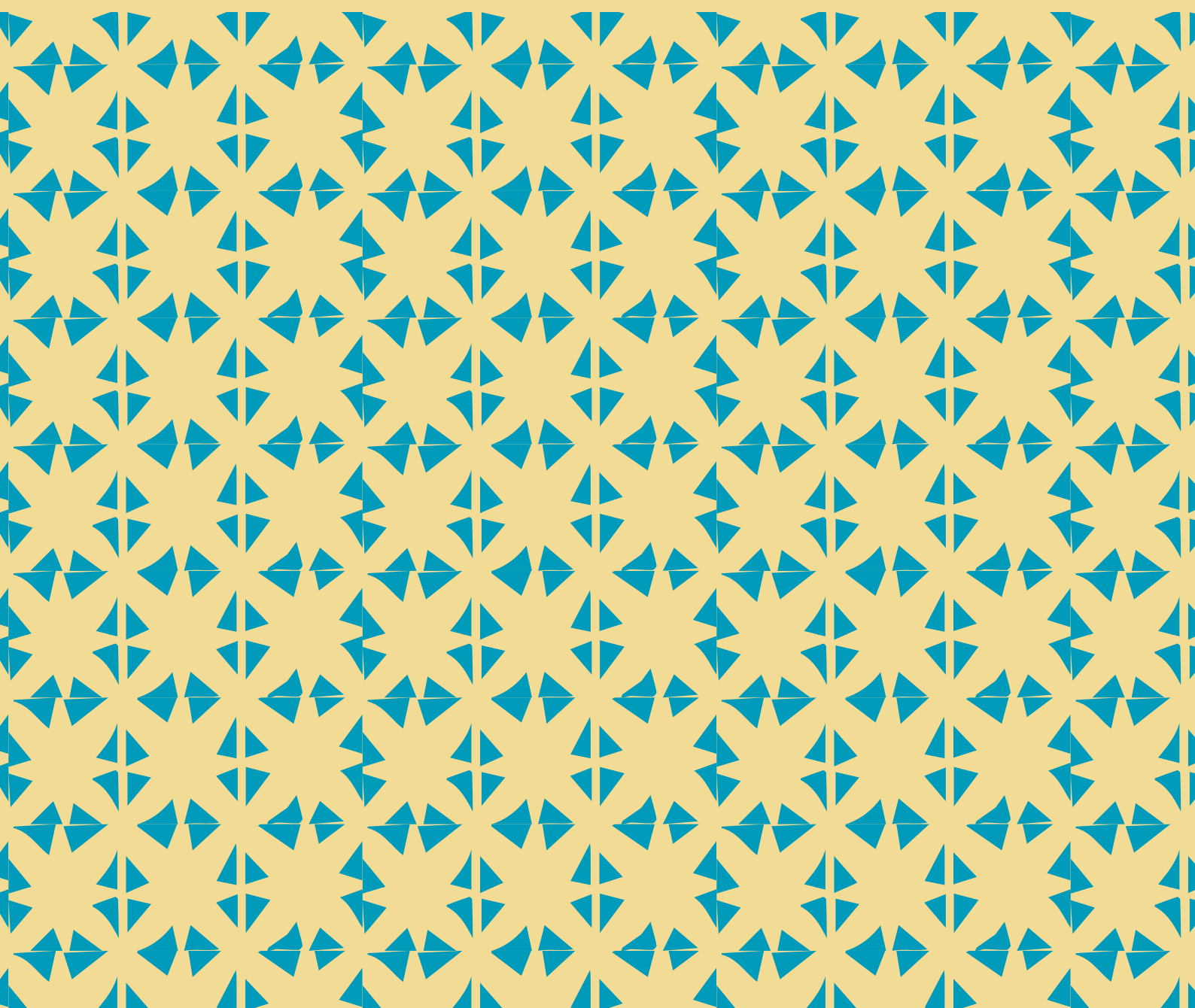




Investment Case for Tobacco Control in **VANUATU**



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**Investment Case for
Tobacco Control in
VANUATU**

**The case for scaling-up
WHO FCTC implementation**

Investment Case for Tobacco Control in Vanuatu

More than

300

Ni-Vanuatu die every year due to tobacco-related illness, accounting for

13% of all deaths in the country.



For every

1 Vanuatuan vatu (VUV)

invested in the five key WHO FCTC policy actions today, Vanuatu will avert

VUV 5

in economic losses by 2037.

Investing now in five proven tobacco control measures will prevent more than

1,000 deaths

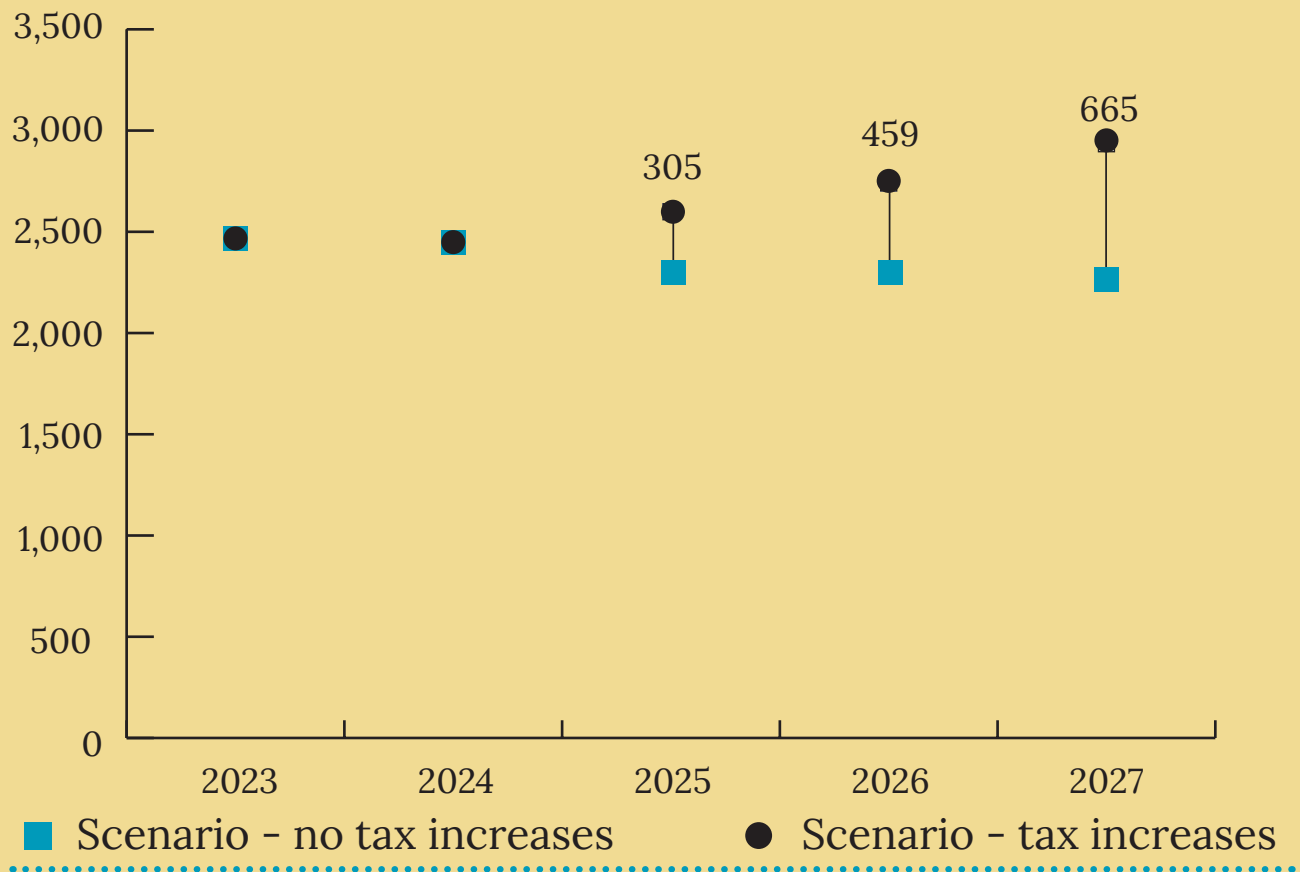
and avert

VUV 3.5 billion

in economic losses by 2037.



Additional annual tax revenue (in VUV millions) in comparison to the baseline scenario, 2023-2027



Government tobacco tax revenue as a % of the tobacco burden



VUV 713 VUV 735



Burden per licit cigarette pack sold versus retail price of most sold brand (VUV)

Tobacco costs Vanuatu **VUV 1.6 billion every year**, equivalent to **1.5% of annual GDP**

Costs per adult smoker

VUV 56,589

Figures subject to rounding.

Acknowledgements

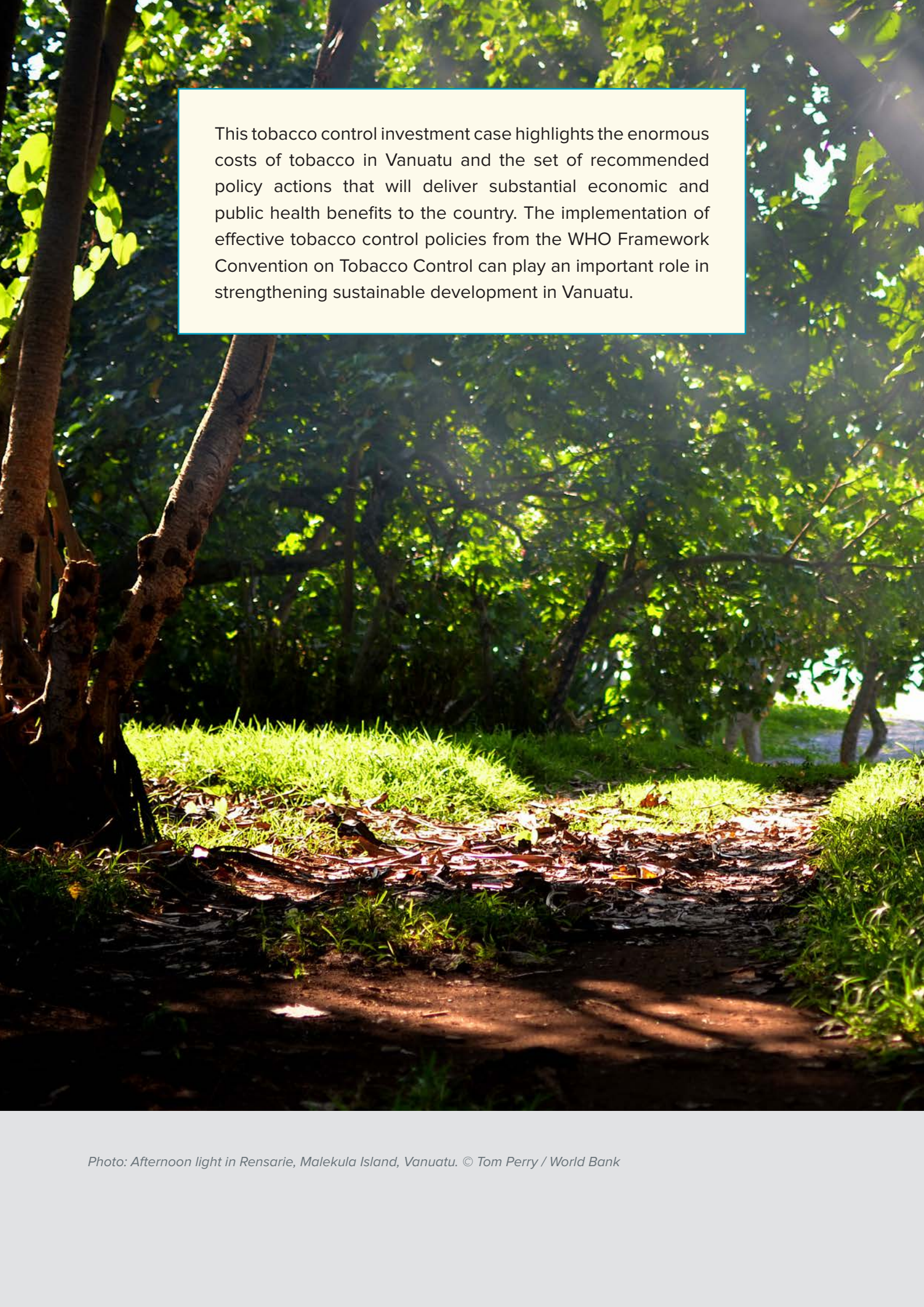
This report was completed through collaborative efforts of the Vanuatu Ministry of Health, the United Nations Development Programme (UNDP), the Secretariat of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), and the WHO.

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The economic modelling was performed by Brian Hutchinson and Garrison Spencer. Additional research and drafting were contributed by Mayu Suzuki and Abi Wiseman. Zsuzsanna Schreck did the graphic design and laid out the report.

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A photograph of a dirt path in a lush forest. Sunlight filters through the dense green foliage, creating dappled light on the path and the surrounding grass. The path is covered with fallen leaves and branches. The scene is peaceful and natural.

This tobacco control investment case highlights the enormous costs of tobacco in Vanuatu and the set of recommended policy actions that will deliver substantial economic and public health benefits to the country. The implementation of effective tobacco control policies from the WHO Framework Convention on Tobacco Control can play an important role in strengthening sustainable development in Vanuatu.



Executive summary

Overview

Tobacco is a significant threat to health and sustainable development. Tobacco causes premature death and preventable disease that result in high health costs and economic losses, widen socioeconomic inequalities, and impede progress across the Sustainable Development Goals (SDGs).

This report summarizes the costs and benefits—in health and economic terms—of implementing five key policy actions of the WHO Framework Convention on Tobacco Control (WHO FCTC) that focus on demand reduction measures. The five actions are:

- 1) Increasing tobacco taxation to reduce the affordability of tobacco products** (WHO FCTC Article 6).
- 2) Creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke** (WHO FCTC Article 8).
- 3) Implementing plain packaging of tobacco products** (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13).
- 4) Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** (WHO FCTC Article 12).
- 5) Promoting of cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use** (WHO FCTC Article 14).

Main findings of the investment case

In 2020, tobacco use in Vanuatu imposed around 1.6 billion Vanuatuan vatu (VUV) in economic losses. These losses are equivalent to 1.5 percent of Vanuatu's gross domestic product (GDP). They include a) **VUV 194 million** in direct health-care expenditures to treat tobacco-related illness, b) tobacco-attributable mortality valued at **VUV 1.1 billion**, and c) **VUV 313 million** in reduced workplace productivity from absenteeism and presenteeism. Productivity losses from current tobacco use in Vanuatu, representing **20 percent** of all tobacco-related economic losses, show how tobacco use impedes development in Vanuatu beyond health. Multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from supporting the implementation of tobacco control measures that create healthier communities and a more productive labour force. These deaths are entirely preventable.

Every year, tobacco use kills more than 300 Ni-Vanuatu, with **67 percent** of these deaths being premature, among people under the age of 70. About **20 percent** of lives lost from tobacco use are due to exposure to secondhand smoke. Deaths from tobacco are entirely preventable.

By acting now, the Government of Vanuatu can reduce the national burden from tobacco use. The investment case findings demonstrate that implementing and enforcing five key evidence-based WHO FCTC policy actions would, over the next 15 years (2023-2027):

Save more than 1,000 lives and reduce the incidence of disease. The key WHO FCTC measures would contribute to Vanuatu's efforts to achieve SDG Target 3.4 to reduce by one third mortality under age 70 from non-communicable diseases (NCDs) by 2030. Enacting the five key WHO FCTC policy actions would prevent premature deaths from the four main NCDs – cardiovascular disease (CVD), diabetes, cancer, and chronic respiratory disease, in the equivalent of about **11 percent** of the needed reduction in premature mortality to achieve SDG Target 3.4.

Avert VUV 3.5 billion in economic losses, coming from:

- **VUV 698 million due to improved workplace productivity.** The tobacco-control actions should stimulate economic growth because fewer people 1) miss days of work due to disability or sickness and 2) work at a reduced capacity due to tobacco-related health issues.
- **VUV 432 million in savings through avoidance of tobacco-attributable health-care expenditures.** Of this, the government would save **VUV 343 million** in health-care expenditures, citizens would save **VUV 39 million** in out-of-pocket health-care costs, with remaining savings accruing to other payers.
- **VUV 2.4 billion in averted economic costs from tobacco-attributed mortality.**

Provide a return on investment (ROI) of 5:1.¹ This means that economic benefits (**VUV 3.5 billion**) significantly outweigh the costs of implementing the five WHO FCTC policy actions (**VUV 708 million**). For each individual measures, protecting people from the harms of tobacco smoke has the highest return-on-investment (**11:1**), followed by public awareness of tobacco control issues and raising taxes on cigarettes (**8:1**), implementing plain packaging of tobacco products (**6:1**), and cessation support by training health professionals to provide brief advice to quit smoking (**0.8:1**).

Increasing cigarette taxes in Vanuatu will confer social benefits to all, but particularly the poor. Those with lower incomes are more likely to quit smoking when cigarette prices rise, helping them to avoid illness and catastrophic health-care expenditures [1]. During the first two years of the modeled tax increase, one third of the deaths averted from increasing cigarette taxes will be among the poorest 20 percent of the population. Cigarette tax increases would further benefit Ni-Vanuatu with lower incomes if the resulting government tax revenue were reinvested in further WHO FCTC implementation and national development priorities such as universal health coverage. There is potential for even greater revenue increases from increases in taxes for all tobacco products, not only cigarettes.

1 For every 1 VUV invested in the five key WHO FCTC policy actions today, Vanuatu will avert VUV 1.5 in economic losses by 2027 and VUV 5.1 by 2037.

Recommendations

This report provides comprehensive recommendations that the Government of Vanuatu can take to protect public health and realise the benefits of the WHO FCTC as an SDG accelerator.

Recommendations

- 1** Commit to fully implement the WHO FCTC.
- 2** Strengthen tobacco tax structures and increase tax rates (WHO FCTC Article 6).
- 3** Implement and enforce the other four tobacco control policies studied in this investment case:
 - comprehensive policies to make all public places and workplaces smoke-free (WHO FCTC Article 8);
 - plain packaging of tobacco products (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13 of the WHO FCTC);
 - promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC Article 12); and
 - promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use (WHO FCTC Article 14).
- 4** Establish a unit dedicated to tobacco control and strengthen multisectoral coordination for tobacco control in Vanuatu (WHO FCTC Article 5.2a).
- 5** Develop a national tobacco control strategy for Vanuatu (WHO FCTC Article 5.1).
- 6** Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).
- 7** Strictly enforce the prohibition on the sale of tobacco to minors (WHO FCTC Article 16).
- 8** Become a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products (Protocol and WHO FCTC Article 15).
- 9** Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies.

The Secretariat of the WHO FCTC, the United Nations Development Programme (UNDP) and the World Health Organization (WHO) stand ready to support the Government of Vanuatu to reduce the tobacco-induced social, economic, and environmental burdens through the implementation of evidence-based tobacco control laws and policies.

Table ES1. Summary of the main results of the Investment Case for Tobacco Control in Vanuatu 2023-2037*

Every year, tobacco use causes:	
<ul style="list-style-type: none"> ● More than 300 deaths. ● VUV 194 million in health-care expenditures. ● VUV 313 million in workplace productivity losses. 	<ul style="list-style-type: none"> ● Tobacco-attributable mortality valued at VUV 1.1 billion. ● Total social and economic losses equivalent to 1.5% of GDP.
Implementing the modeled WHO FCTC measures now would, over the next 15 years:	
<ul style="list-style-type: none"> ● Prevent more than 1,000 deaths. ● Save VUV 432 million in health-care expenditures. ● Generate economic benefits (VUV 3.5 billion) that significantly outweigh costs (VUV 708 million) of implementation and enforcement – an 5:1 return on investment. 	<ul style="list-style-type: none"> ● Prevent VUV 2.4 billion in losses due to tobacco-attributable mortality. ● Prevent VUV 698 million in workplace productivity losses.
* Figures subject to rounding.	

1. Introduction

The tobacco epidemic is one of the greatest health threats the world has faced, killing more than 8 million people a year, including some 1.2 million deaths from exposure to secondhand smoke [2]. Tobacco use is a main risk factor for non-communicable diseases (NCDs) including cardiovascular disease (CVD), diabetes, cancer and chronic respiratory disease, as well as a cause of many other diseases [3]. In Vanuatu, around 24 percent of adults currently use some form of tobacco product, with a significantly higher prevalence among men (46 percent) than among women (4.0 percent) [4]. Tobacco use causes more than 300 deaths every year [5], with about 67 percent of these deaths occurring among those under age 70 [5].

In addition to the cost to health and well-being, tobacco also imposes a heavy economic burden throughout the world. A 2018 study (based on 2012 data) found that the costs of smoking² were equivalent to 1.8 percent of the world's annual gross domestic product (GDP). Almost 40 percent of the costs occurred in developing countries, highlighting the substantial burden these countries suffer [6].

Tobacco use reduces productivity by permanently or temporarily removing individuals from the labour market due to poor health [7]. When people die prematurely, the labour output that they would have produced in their remaining years is lost. In addition, people with poor health are more likely to miss days of work (absenteeism) or to work at a reduced capacity while at work (presenteeism) [8], [9]. The labour and health consequences affect not only smokers, but also the people in their households who often need to take time off from work to care for those with tobacco-related diseases.

Tobacco use also displaces household expenditure that would otherwise go to fulfilling basic needs, including food and education [10]–[12], and it contributes to hunger and impoverishment of families [13], [14]. The use of tobacco imposes health and socio-economic challenges on vulnerable populations including the poor, women and young people [15].

Tobacco production causes environmental damage including soil degradation, water pollution, and deforestation. Tobacco's annual climate change impact is comparable to entire countries' emissions and represents 0.2 percent of the global total. As a result of the shift of tobacco production from richer countries to lower income countries, its environmental impacts are now mostly borne by developing regions. By depleting these countries' valuable resources, and polluting and damaging their ecosystems, tobacco puts their livelihoods and development at risk [16]–[18].

2 Defined as either 'direct costs' such as hospital fees or 'indirect costs' representing the productivity loss from morbidity and mortality. The figure here represents these combined costs.

Given the far-reaching health and development impacts of tobacco, and the multisectoral nature of the interventions required, effective tobacco control needs the engagement of non-health sectors to be operating in support of a whole-of-government and whole-of-society approach to policy making and implementation of the WHO Framework Convention on Tobacco Control (WHO FCTC).

The WHO FCTC was developed in response to the globalization of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. The Convention represents a milestone for the promotion of public health and provides new legal dimensions for international health cooperation. Vanuatu ratified the WHO FCTC and became a Party to the treaty in 2005 [19].

Tackling tobacco use across the world is a priority within the 2030 Agenda for Sustainable Development. Tobacco control is relevant to the achievement of many Sustainable Development Goals (SDGs), particularly SDG Target 3.4 that calls for action to achieve a one-third reduction in premature mortality from NCDs by 2030. Target 3.a is a means of implementation of SDG 3.4 and calls for strengthened implementation of the WHO FCTC. But beyond health, tobacco control is also a proven approach to reduce poverty and inequalities, strengthen and expand the economy and advance sustainable development more broadly. Tobacco control is an SDG accelerator as it can contribute to many goals simultaneously across the economic, social, and environmental spheres [20]. In addition, reducing tobacco use is one of the nine targets of the WHO Global action plan for the prevention and control of NCDs 2013-2030 [21].

Box 1. 2030 Agenda for Sustainable Development

In 2015, all UN Member States adopted the 2030 Agenda for Sustainable Development, outlining actions to achieve greater peace and prosperity. The core components of the Agenda are the 17 SDGs which are an urgent call for all countries to act together, recognizing that efforts to address poverty, inequalities, health, education, economy and climate change must be undertaken in unison [22].

Since joining the WHO FCTC as a Party in 2005, the Government of Vanuatu has taken important steps to implement the Convention, including its enactment of the Tobacco Control Act in 2008, the country's primary piece of tobacco control legislation, further regulation in 2013 and 2016, development of the Vanuatu Non-communicable Disease Policy & Strategic Plan 2021-2030 [23], and the 2021 legislative decision on the regulation of heated tobacco products, electronic nicotine delivery systems and electronic non-nicotine delivery systems [24]. Through this legislation, Vanuatu has taken action to address the tobacco epidemic. However, Vanuatu's young population [25] and growing incomes [26] make the country a target for market expansion by the tobacco industry, and more vulnerable to increases in tobacco use [27].

Several key demand reduction measures within the WHO FCTC remain to be implemented and some require strengthening. Opportunities for Vanuatu to improve implementation of the WHO FCTC include: strengthening tobacco tax structures and increasing tax rates; implementing comprehensive policies to make all public places and workplaces smoke-free and ensuring robust enforcement; implementing plain packaging for tobacco products; promoting and strengthening public awareness of tobacco control issues; and training health professionals to provide brief advice to quit tobacco use. In 2020, a WHO FCTC Implementation Review was carried out in Pacific Island countries, including Vanuatu, which assessed the level of implementation of key WHO FCTC Articles. A main finding was the absence of a dedicated unit for tobacco control in Vanuatu [28]. Realizing the full benefits of the above measures depends on concerted and coordinated efforts from multiple sectors of government with support from civil society.

In 2021, the Secretariat of the WHO FCTC, UNDP, and WHO undertook a virtual joint mission with partners in Vanuatu to initiate this investment case.

Investment cases for tobacco control analyse the health and economic costs of tobacco use as well as the opportunities for potential gains from scaled-up implementation of key WHO FCTC measures. It identifies which WHO FCTC demand reduction measures are likely to produce the largest health and economic returns for Vanuatu, based on the return on investment (ROI). Taking into account the current implementation of WHO FCTC measures in Vanuatu, the investment case models the impact of the following five key WHO FCTC provisions:

- 1 Increase tobacco taxation to reduce the affordability of tobacco products** (*WHO FCTC Article 6*).
- 2 Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke** (*WHO FCTC Article 8*).
- 3 Implement plain packaging³ of tobacco products** (*WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13*).
- 4 Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** (*WHO FCTC Article 12*).
- 5 Promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use** (*WHO FCTC Article 14*).

Chapter 2 of this report provides an overview of tobacco control in Vanuatu, including tobacco use prevalence as well as challenges and opportunities. **Chapter 3** summarizes the methodology of the investment case (see the annex on methodology and the separate Technical Appendix, available upon request, for more detail). **Chapter 4** reports the main findings of the economic analysis. **Chapter 5** details the results of complementary analyses examining the impact of increasing cigarette taxes on government revenue, as well as the projected impact on government revenue. Further, it also details the contribution of the WHO FCTC demand reduction measures to meeting SDG Target 3.4 to reduce premature mortality due to NCDs by one third by 2030. **Chapter 6** summarizes the results and provides recommendations to the government to further tobacco control. The annex provides information on the methods underlying the various analyses described in the report.

3 Plain (or standardized) packaging is defined as “measures to restrict or prohibit the use of logos, colours, brand images or promotional information on packaging other than brand names and product names displayed in a standard colour and font style”. Further information is available at: Guidelines for implementation of Article 11 of the WHO Framework Convention on Tobacco Control (decision FCTC/COP3(10)) November 2008, available at: <https://fctc.who.int/publications/m/item/packaging-and-labelling-of-tobacco-products>, and Guidelines for implementation of Article 13 of the WHO Framework Convention on Tobacco Control, available at: <https://fctc.who.int/publications/m/item/guidelines-for-implementation-article-13>.

2. Tobacco control in Vanuatu: status and context

2.1 Tobacco use prevalence⁴, social norms, and awareness-raising

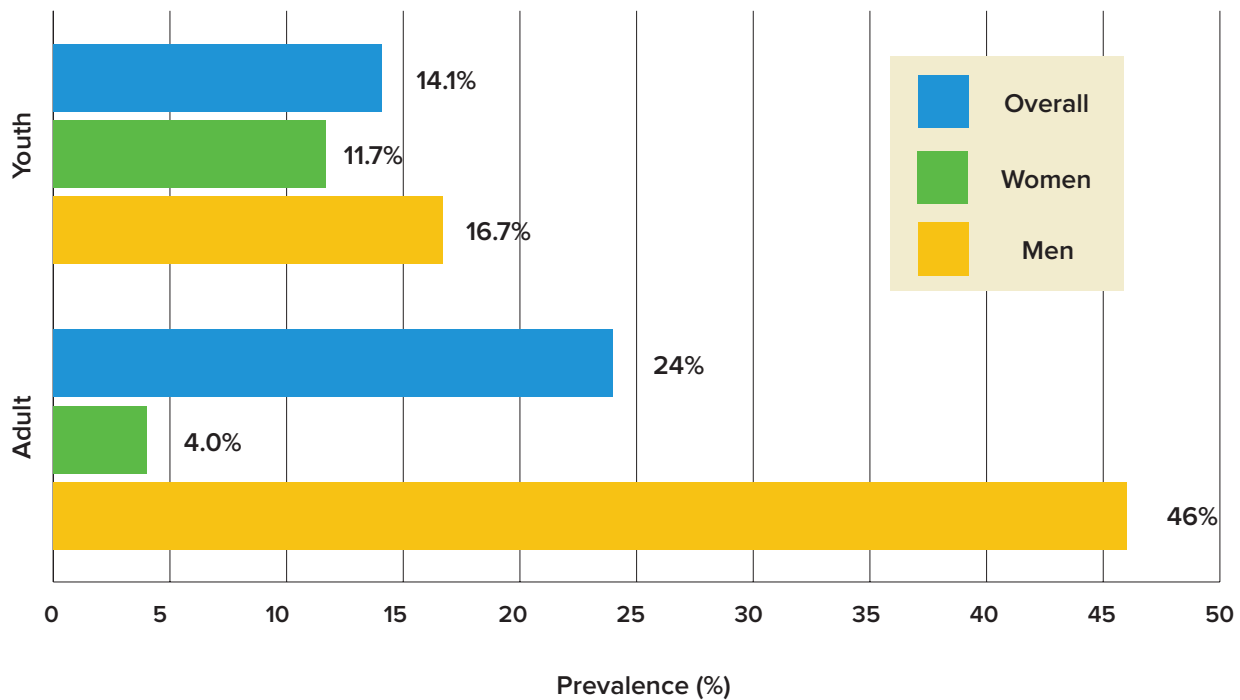
According to the 2011 Vanuatu NCD Risk Factors STEPS Report, 24 percent of adults 25-64 years old are current smokers [4]. Current smoking prevalence is more than ten times higher among men than women (46 percent versus 4 percent). The STEPS report also found that around half of adult daily smokers smoke manufactured cigarettes (52 percent), suggesting that the remaining half smoke other forms of tobacco products. Female smokers tended to favour manufactured cigarettes, with 81 percent of current daily female smokers reporting smoking manufactured cigarettes, versus 50 percent of men. The report also shows that ni-Vanuatu start smoking young. The mean age of smoking initiation was 20.2 years and younger (18.8 years) in the 25-34 age group [4].

Youth tobacco use in Vanuatu is also a concern. The 2017 Global Youth Tobacco Survey (GYTS) found that 16.9 percent of students aged 13-15 years old use any tobacco products, 14.1 percent smoke tobacco, 11.1 percent smoke cigarettes and 5.2 percent use smokeless tobacco, with higher prevalence among boys than girls in all of these categories. For example, around 20 percent of boys use any tobacco products compared to 14.5 percent of girls. Among cigarette smokers, more than half (53 percent) of students were not prevented from purchasing cigarettes despite their age [30].

4 Data on cigarette prevalence that is used in the economic modelling section of this report comes from WHO Report on the Global Tobacco Epidemic, 2021 [29].

Fig. 1: Current smoking prevalence among youth and adults, disaggregated by gender (%)

Youth are also exposed to second-hand tobacco smoke in Vanuatu. Nearly 40 percent of students surveyed in the 2017 GYTS were exposed to tobacco smoke at home, and 57 percent were exposed to tobacco smoke inside enclosed public places [30].



Source: Data on tobacco consumption among youth comes from GYTS 2017 [30], while data for adult cigarette consumption comes from the 2011 Vanuatu NCD Risk Factors STEPS Report [4].

A study published in 2020 showed that peer influence has a strong impact on smoking among adolescents in Vanuatu. The authors of the study found that for adolescents, having peers who smoke and being offered tobacco from peers is significantly associated with ever having smoked [31]. Making tobacco products less affordable is one of the best ways to control tobacco use, and young people are particularly sensitive to the price of tobacco [32]. Higher tobacco prices from tax increases can make smoking too costly for young people and reduce the incentive to start or continue to smoke. A 2021 study demonstrated that higher tobacco prices, such as through tax increases, are associated with a decreased risk of smoking initiation among youth and young adults [33].

Box 2. Tobacco and gender

While, worldwide, women and girls tend to use tobacco at lower rates than men, they can still be subjected to the harms of tobacco use—including exposure to secondhand smoke [34] and the effects of household income diverted to tobacco use. Since tobacco use prevalence is often lower for women than men, the tobacco industry see this as an opportunity to scale up marketing targeted at women and girls [35]. This is concerning as recent trends suggest tobacco use is increasing among girls in many countries of the world [36]. In Vanuatu, girls are consuming tobacco at concerning rates, greatly outpacing previous generations of women. The prevalence of tobacco smoking among girls 13-15 years old is considerably higher than the prevalence among adult women: 11.7 percent [30] compared to 4.0 percent [4], respectively. Moreover, 56 percent of girls are exposed to secondhand smoke in enclosed public places [30].

Box 3. Tobacco and pregnancy

Tobacco use during pregnancy imposes significant health risks on the fetus, infant and mother. It increases the likelihood of miscarriages, stillbirths, preterm births, low birth weight, birth defects, and sudden infant death syndrome, among others [37], [38]. Exposure to secondhand smoke during pregnancy also increases the risks of having low birthweight babies, which, in turn, would increase the risk of a mother and child developing health issues [38]. Mothers face additional health risks as pregnant smokers are more likely to experience heart and lung complications than pregnant nonsmokers [39]. Despite the strong evidence, the tobacco industry continues to aggressively target women and girls [24]. It is estimated that the global prevalence of smoking during pregnancy is 1.7 percent [40].

2.2 National tobacco control legislation, strategy and coordination

Vanuatu ratified the WHO FCTC in 2005, becoming a Party later that year [19]. The primary tobacco control legislation in Vanuatu is the Tobacco Control Act No. 19 of 2008. The Act includes regulations governing the import, sale, distribution, marketing, promotion and use of tobacco products in Vanuatu. It provides for a prohibition on the sale of tobacco products to individuals under 18, introduces requirements for tobacco product labelling and health warnings, and bans tobacco advertising promotion and sponsorship, among other measures [41]. The Tobacco Control (Amendment) Regulation Order No. 98 of 2016 strengthens tobacco control legislation in the country by providing further regulation to existing policies and introducing new regulations. For instance, it introduces further requirements regarding testing and measuring the contents of tobacco products, increases the size of health warnings to 90 percent and defines smoke-free places, among other measures [42].

Vanuatu has also developed four national NCD Strategic Plans (2004-2009, 2010-2015, 2016-2020 [43], and 2021-2030 [23]) which have included a range of tobacco control measures broadly in line with WHO FCTC recommendations [23]. The two most recent NCD Strategic Plans acknowledge that a multisectoral approach is necessary to address NCDs and identify tobacco control as an essential part of NCD reduction. They identify tobacco control measures including increasing taxation, strengthening legislation and enforcement, educating the public about the harms of tobacco use and tobacco industry interference, and supporting smoking cessation services. They both also include the specific objective to strengthen national tobacco control mechanisms [43], [23]. Vanuatu has also developed the Vanuatu People's Plan 2030, a sustainable development plan for period 2016-2030, which is the country's highest-level policy guidance [44]. While NCDs are discussed within this plan, there is no mention of tobacco.

The Health Promotion Unit within the Ministry of Health leads tobacco control in Vanuatu and is responsible for advocacy and communication with WHO on administrative matters [45]. The Environmental Health, Health Standards and Inspection Unit is responsible for enforcement of the Tobacco Control Act [46]. While Vanuatu does not possess a national coordinating mechanism overseeing the effective implementation of tobacco control, a focal point for tobacco control has been appointed within the Ministry of Health (MoH). While the Vanuatu Non-Communicable Disease Policy & Strategic Plan 2021-2030 aims to secure adequate funding and resources for the Tobacco Control Sub-Committee, there is no indication that this committee acts as the designated national coordinating mechanism for tobacco control in Vanuatu. Indeed in 2023, the National NCD multisectoral Task Force has been revived and mandated to oversee the overall national NCD Policy 2022-2030 including tobacco control, thus likely superseding the Tobacco Control Sub-Committee.

Despite this progress in establishing tobacco control coordination, policies, and laws, there remains WHO FCTC obligations that are not yet fully implemented in the country.

2.3 The status of WHO FCTC demand reduction measures

Strong fiscal and regulatory measures influence societal norms by signalling that tobacco use is harmful, not only for users but for the people around them including family, colleagues, and co-workers.

While the implementation levels of health warnings, advertising bans and tobacco taxation in Vanuatu are above the regional and global averages, smoke-free policies, cessation programmes, plain packaging and public awareness of tobacco control issues are below. Vanuatu has demonstrated progress to implement key demand reduction measures, but 28,000 Ni-Vanuatu continue to smoke [29]. Implementing additional demand reduction measures or intensifying existing ones can draw Vanuatu into closer alignment with the WHO FCTC and reduce the substantial costs imposed by tobacco use. Below, the status of each of the demand reduction measures in relation to WHO FCTC recommendations is discussed.

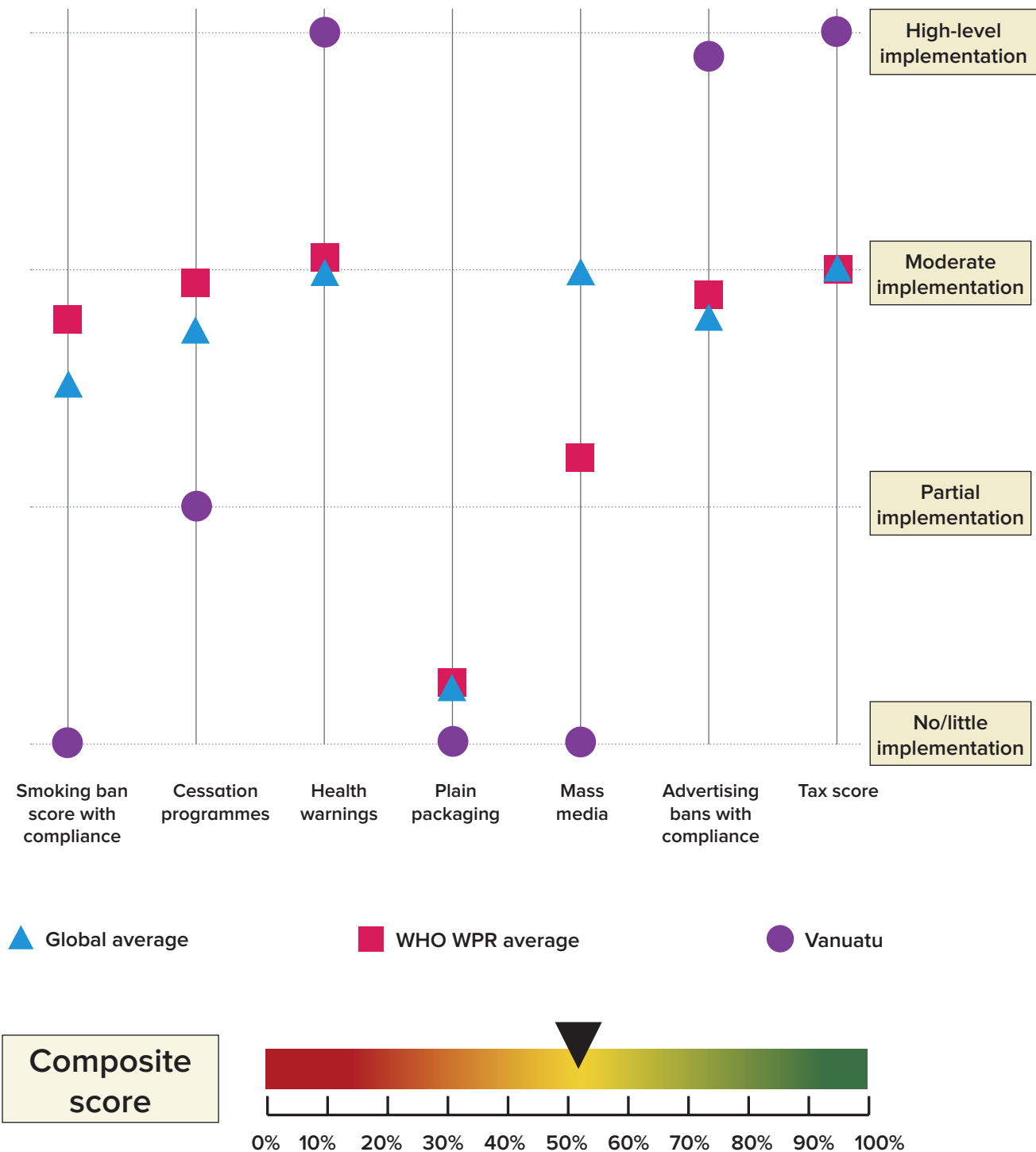
Figure 2 summarizes the status of tobacco control demand reduction measures in Vanuatu from the WHO Report on the Global Tobacco Epidemic 2021 [29] and, for each, progress toward meeting the WHO FCTC obligations. Overall, Vanuatu is assessed to be 52 percent of the way toward fulfilling the key WHO FCTC demand reduction measures, slightly below the global average of 53 percent.⁵

Photo: © World Bank



⁵ This composite score represents a status quo implementation level of tobacco control demand reduction measures developed intentionally for tobacco control investment cases. The underlying tax data is from national health authorities and reflects the newly passed Excise (Amendment) Act No. 34 of 2021, while data on the other WHO demand reduction measures are from the WHO Report on the Global Tobacco Epidemic, 2021.

Fig. 2: Implementation of WHO demand reduction measures in Vanuatu



Source: WHO Report on the Global Tobacco Epidemic, 2021 [4] and Excise (Amendment) Act No. 34 of 2021 [47].

1. Increase tobacco taxation to reduce the affordability of tobacco products (WHO FCTC Article 6)

With the adoption of Excise (Amendment) Act No. 34 of 2021—which raised the specific excise tax per cigarette pack from VUV 320 to VUV 500 per pack, taxes in Vanuatu comprise around 78 percent of the retail price of the most sold brand of cigarettes [47]. Tax on cigarettes consist of a specific excise tax (59 percent), a value added tax (11 percent) and import duties (8 percent).⁶

Vanuatu is meeting best-practice recommendations in the WHO Report on the Global Tobacco Epidemic, which is for total taxes to represent at least 75 percent of the retail price [48]. However, WHO recommends that governments increase taxes significantly to reduce affordability and automatically adjust specific taxes for inflation and income growth [48]. The Vanuatu Non-Communicable Disease Policy and Strategic Plan 2016-2020 [41], its succeeding plan for 2021-2030 [23] and the NCD Roadmap for Pacific Countries [49] advocate for tax increases in line with WHO recommendations. However, for other tobacco products, there have been no increases in tobacco tax since 2010 [29]. Additionally, tobacco of certain quantities can be imported duty-free into Vanuatu [50] and is available for purchase a duty-free shops [51]. There have also been no changes in cigarette affordability since 2010 [52].

The investment case examines the impact of a continued increase in cigarette taxation to lower affordability and meet recommendations in the WHO technical manual on tobacco tax administration, and for excise taxes to account for at least 70 percent of the retail price of tobacco products. In the analysis, Vanuatu's current tax structure and rates stay the same, with the exception that in real terms, the specific excise tax increases from current rates (VUV 500 per pack) to VUV 645 in 2027. Additional specific excise taxes triggering real price increases of an average of four percent annually are modeled from 2028 to 2037, bringing the total tax share to 88 percent by 2038 and the excise tax share to 72 percent (see methodology annex for detailed information). Further health and economic gains will be made in Vanuatu with substantial taxes increases on all tobacco products.

6 Data on the price of the most sold brand of cigarettes obtained from WHO partners – VUV 880 for a pack of Peter Jackson Hybrid cigarettes.

2. Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke (WHO FCTC Article 8)

According to the 2021 WHO Report on the Global Tobacco Epidemic, no places are completely smoke-free in Vanuatu [52]. The Tobacco Control (Amendment) Regulation 2016 regulates smoke-free spaces, prohibiting smoking in health care, educational, and government facilities, in addition to indoor workplaces, prisons, restaurants, bars, public transportation and other prescribed smoke-free areas [42]. However, the Act includes an exemption that allows smoking in indoor or enclosed workplaces accessible by one person only, where smoking by that person is permitted. However, there is no evidence to suggest this exemption has ever been applied in Vanuatu.

The investment case examines the impact of **enacting and enforcing comprehensive smoke-free measures for all indoor public places and workplaces.**

3. Require tobacco packaging to carry graphic health warnings describing the harms of tobacco use (WHO FCTC Article 11)

Under the Tobacco Control (Amendment) Regulation 2016, health warnings must cover at least 90 percent of tobacco packages, at least 30 percent of the warning must be text (in English, Bislama and French) and 60 percent must be pictorial. The legislation does not specify how often the warnings must be rotated.

Given the requirements for the WHO FCTC Article 11 obligations are being met and there is a good level of implementation, this intervention has not been modeled in the investment case.

4. Implement plain packaging of tobacco products (WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13)

Vanuatu currently does not mandate plain packaging of tobacco products [29]. The investment case examines the impact of implementing and enforcing plain packaging requirements.

5. Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC Article 12)

No national mass media campaign lasting at least three weeks has been conducted between July 2018 and June 2020 [52]. The investment case examines the impact of running a mass media campaign that conforms to WHO best practices, which would further promote and strengthen public awareness about tobacco control issues and the harms of tobacco use.

6. Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC Article 13)

Vanuatu bans some forms of tobacco advertising nationally, with a high level of compliance. Tobacco advertising on international television, radio, magazines and newspapers is not banned, nor is the appearance of tobacco products in television and films. Not all forms of tobacco promotion and sponsorship are banned as tobacco companies are permitted to make sponsorship contributions and can fund anti-smoking media campaigns. Additionally tobacco products can be displayed at point-of-sale and be sold on the internet [52]. However, at least 90 percent of the population is protected by subnational legislation imposing a complete ban on tobacco advertising, promotion and sponsorship (TAPS) [29].

Given the existing good level of implementation in Vanuatu of WHO FCTC Article 13 requirements, this intervention has not been modeled in the investment case.

7. Promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit smoking (WHO FCTC Article 14)

Promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit smoking (WHO FCTC Article 14).

Smoking cessation support is not available within health clinics, hospitals, or within communities in Vanuatu. There is no toll-free quit line available. Nicotine replacement therapy (NRT) is on the essential drugs list and is available for purchase at pharmacies without a prescription, but the cost is not covered [52]. There is a strong need for smoking cessation services in Vanuatu, especially among youth as almost 9 in 10 young tobacco smokers (13-15 years old) report that they want to stop smoking [30].

The provision of brief advice to tobacco users from healthcare professionals whenever they access health-care services—especially in the primary care setting—is shown to be effective in supporting successful tobacco cessation [53] and represents a useful early step in rolling out support for tobacco users to quit. The investment case models the impact of training primary care health providers to identify tobacco users and to provide tobacco cessation advice (see the annex on methodology for detailed information). Further gains would be possible with the provision of further support to tobacco users, such as offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet-based quit support and making pharmacotherapies more widely available (free of cost, if possible).

Table 1 summarizes the existing state of WHO FCTC demand reduction measures and compares them against a target that would represent a best practice of implementation for each measure. The impact of each policy measure—individually and in combination—is described in **Annex Table A4**.

Table 1: Summary of the current state of WHO FCTC demand reduction measures in Vanuatu and modeled WHO FCTC targets based on the WHO Report on the Global Tobacco Epidemic, 2021 [29]

Tobacco control policy	Vanuatu baseline	Modeled implementation target
Increase tobacco taxation to reduce the affordability of tobacco products (<i>WHO FCTC Article 6</i>)	Taxes on cigarettes represent 78% of retail price of the most sold brand.	Implement regular tax increases to outpace inflation and income growth, bringing the total tax share to 88% of the retail price and the excise tax share to 72% of the retail price by 2038.
Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke (<i>WHO FCTC Article 8</i>)	No places are 100% smoke-free in Vanuatu, given the law permits smoking for one person when they are in an indoor or enclosed workplace accessible by one person only.	Enact and enforce a complete ban on smoking in all public places and workplaces.
Implement plain packaging of tobacco products (<i>WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13</i>)	Plain packaging requirements are not in place.	Implement and enforce plain packaging of tobacco products.
Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (<i>WHO FCTC Article 12</i>)	No national campaign lasting at least three weeks has been conducted between July 2018 and June 2020.	Implement and sustain nationwide anti-smoking mass media campaign that is researched and tested with a targeted audience and evaluated for impact.
Promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use (<i>WHO FCTC Article 14</i>)	There are no tobacco cessation services available, nor a toll-free quit line. NRT is on the essential drugs list and available at pharmacies without a prescription.	Scale up of brief advice to quit for tobacco users in primary care clinic.

Source: WHO Report on the Global Tobacco Epidemic, 2021 [29].

2.4 Tobacco use and the COVID-19 pandemic

The global coronavirus (COVID-19) pandemic has strained health systems worldwide, and the economic impact of the outbreak has been immense. According to WHO, evidence indicates that smokers are more likely to suffer more severe outcomes of COVID-19, such as admission into intensive care units and death, than never smokers. Furthermore, severe forms of COVID-19 or deaths due to COVID-19 are more frequent in people with comorbidities that are related to tobacco use, including chronic obstructive pulmonary disease (COPD), lung cancer and cardiovascular diseases [30]. Moreover, tobacco use is also proven to worsen the outcomes of other communicable diseases including tuberculosis and HIV [54].

2.5 Financing

There is no sustainable funding for tobacco control in Vanuatu [55]. Annual expenditure on tobacco control in the country, as reported by the Government of Vanuatu for 2023, is expected to be VUV 200,000.⁷ A lack of both financial and human capacity is deemed as a cause of tobacco control laws being poorly enforced [56].

Assistance with tobacco control, and certain resources, are offered to Vanuatu through regional initiatives including the WHO Tobacco Free Initiative in the Western Pacific region (WHO Western Pacific) [56].

2.6 Illicit trade in tobacco products

Illicit trade in tobacco products poses a serious threat to public health. Illicit trade increases the accessibility and affordability of tobacco products, thus fuelling the tobacco epidemic and undermining tobacco control policies. It also causes substantial losses in government revenues, and at the same time contributes to the funding of transnational criminal activities [57]. Vanuatu has yet to become a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products [58]. However, MoH indicated that it was ratified in November in 2019 and will be published by the State Law Office [59]. The Protocol supplements the WHO FCTC with a comprehensive tool to counter and eventually eliminate illicit trade in tobacco products and to strengthen legal dimensions for international health cooperation.

In 2020, the MoH indicated that illicit trade increased in the past two years and reported intercepting the smuggling of illegal cigarettes [59]. While it is required that the packaging of tobacco products sold in Vanuatu include a statement indicating the final destination, there are few other measures in place to combat illicit trade, and there is no track and trace system [59]. However, MoH has indicated that Vanuatu is planning to strengthen legislation, adopt

⁷ Budget was discussed in investment case interviews with country colleagues.

measures to monitor tobacco products, and promote cooperation nationally, regionally and internationally to address illicit trade [59].

2.7 Tobacco industry presence and interference in policymaking

Transnational Tobacco Companies (TTCs) such as Philip Morris International, British American Tobacco, Imperial Brands and Japan Tobacco International have manufacturing facilities, ownership of local entities and distribution rights in many countries in the West Pacific Region. However, their presence is not formally reported in many countries, including in Vanuatu [60]. While there are no tobacco manufacturers present in Vanuatu, government officials report that manufactured tobacco products, including cigarettes, are imported by local distributors associated with TTCs. In fact, it was reported that multilateral tobacco companies occasionally visit Vanuatu [61]. Government officials also indicate there is locally grown tobacco available (referred to as “lif tabak”) and sold at markets and shops across the country.

Despite the lack of physical presence of TTCs in country, conflicts of interests – often driven by commercial incentives – occur in Vanuatu and are hindering effective tobacco control. A research paper published in 2022 included interviews with tobacco control stakeholders and an analysis of how their interests affect multisectoral tobacco control governance in Vanuatu. Certain stakeholders expressed their reluctance towards tobacco control, viewing it as a threat to the tobacco industry, which they perceive as a “powerhouse” for government revenue [62]. According to the study, the Ministries of Education, Trade and Agriculture are reluctant to support the implementation of tobacco control measures, instead supporting the tobacco industry [62]. In actuality, the tobacco industry exploits and harms the government and economy of Vanuatu.

Considering the dominance of multinational corporations in the tobacco trade and the high-profit margins on cigarettes, much of the tobacco companies profit from tobacco sales in Vanuatu actually leaves the country to go into the pockets of international shareholders. This leaves the country to deal with the health and economic burden of tobacco, including a less productive and unhealthy workforce and soaring health-care costs and economic losses (see *5.1 The current burden of tobacco use: health and economic costs*, for more information). Nationally specific evidence and data, such as that generated in this investment case, can help inform effective tobacco control decision-making and provide counter arguments to the myths perpetuated by the tobacco industry.

The Western Pacific Region has witnessed numerous cases of senior government officials taking up leadership positions within tobacco companies [60]. In Vanuatu, there is no code of conduct for civil servants, as called for in the Guidelines for WHO FCTC Article 5.3, putting Vanuatu at great risk for tobacco industry interference in public health policy making, compromising the health and wellbeing of Ni-Vanuatu.

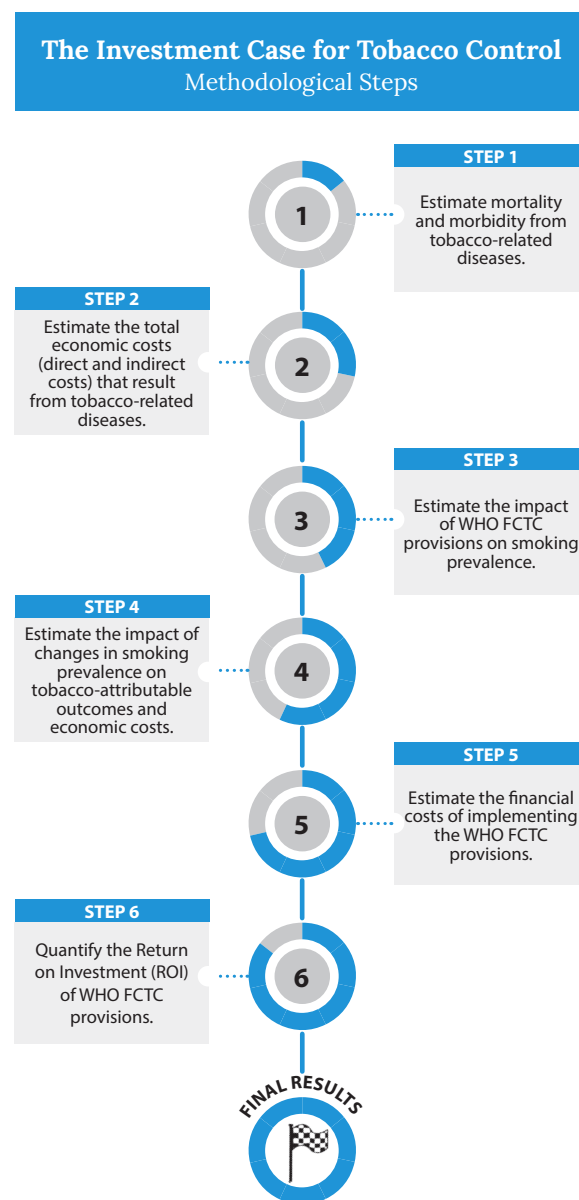
3. Methodology

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

A static model was developed to conduct the investment case and to perform the methodological steps in **Figure 3**. This methodology has been used for previous national WHO FCTC investment cases under the WHO FCTC 2030 project. The tools and methods used to perform these steps are described in this report’s annex on methodology. Interested readers are also referred to this report’s separate *Technical Appendix*⁸ for a more thorough account of the methodology.

The investment case team worked with MoH and other stakeholders in Vanuatu to collect national data inputs for the model. Where data was unavailable from government or other in-country sources, the team utilized publicly available national, regional, and global data from sources such as the WHO, the World Bank database, the Global Burden of Disease study by the Institute for Health Metrics and Evaluation (IHME), and academic literature. Within the investment case, costs and monetized benefits are reported in constant 2020 Vanuatu Vatu (VUV) and discounted at an annual rate of 5 percent.

Fig. 3: Building the investment case



⁸ Available upon request.

4. Results

4.1 The current burden of tobacco use: health and economic costs⁹

Tobacco use undermines economic growth. In 2016, it was estimated that tobacco-related deaths represented 17.8 and 7.3 percent of men and women's deaths, respectively [62]. In 2019, tobacco use caused an estimated 311 deaths in Vanuatu, 67 percent of which were premature, i.e. occurred among those under 70 years [63]. These deaths amount to 5,244 years of life lost (YLLs), which are lost productive years in which many of those individuals would have contributed to the workforce [64]. Monetizing YLLs due to tobacco use, the investment case identifies VUV 1.1 billion in losses due to tobacco-attributable mortality.

While costs of the tobacco-attributable mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g., cardiovascular disease, respiratory conditions, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the government VUV 154 million in 2020 and caused Vanuatuan citizens to spend VUV 17.4 million in out-of-pocket (OOP) health-care expenditures. Private insurance and non-profit institutions serving households spent VUV 23 million on treating tobacco-attributable diseases in 2020. In total, health-care expenditures attributable to smoking amounted to VUV 194 million.

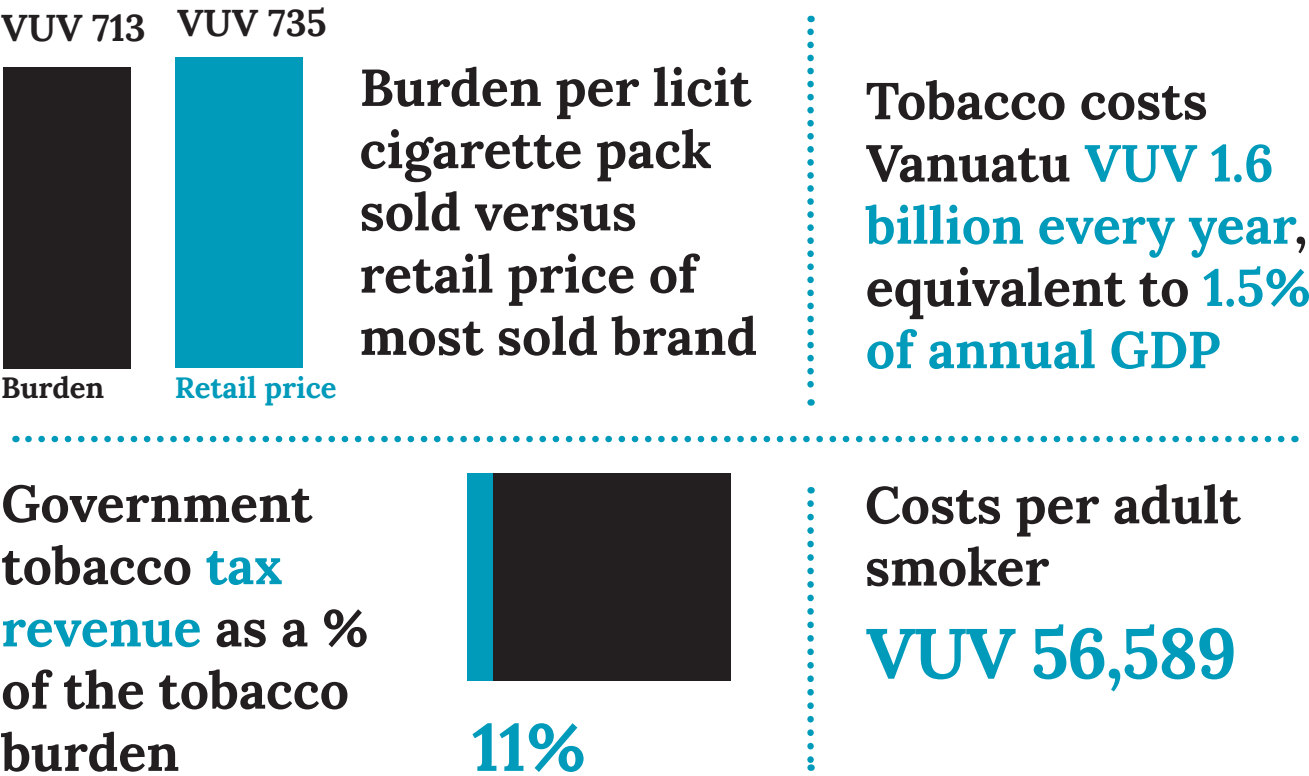
In addition to health-care costs, as people become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2020, the cost of excess absenteeism due to tobacco-related illness was VUV 86 million and the cost of presenteeism due to cigarette smoking was VUV 227 million.

In total, tobacco use caused VUV 1.6 billion in economic losses in 2020, equivalent to about 1.5 percent of Vanuatu's 2020 GDP. **Figure 4** summarizes the current social and economic burden of tobacco use and contextualizes the losses. Tobacco tax revenue is equivalent to about 88 percent of the tobacco burden. Social and economic losses per licit cigarette pack sold are about VUV 508 per pack, well below the financial value—represented by the per pack price—that accrue in the value chain to growers, manufacturers, vendors, other supply chain stakeholders, and the government (through taxation). That government tax revenue is relatively on par with the tobacco burden and the burden per pack of cigarettes is less than

⁹ In assessing the 'current burden' of tobacco use, the economic costs of tobacco-attributable mortality include the cost of deaths due to any form of exposure to tobacco (including smoking, secondhand smoke, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for health-care expenditures, absenteeism, and presenteeism. While other forms of tobacco may also cause losses in these categories, no data is available to precisely ascertain those losses.

the retail price is a testament to Vanuatu’s status among the top five countries in the world with the least affordable cigarettes [29].

Fig. 4: Contextualizing the Burden of Tobacco Use in Vanuatu, 2020¹⁰



¹⁰ Figures subject to rounding. Tax revenue comparisons are provided for context and are not meant to suggest that taxes should be increased to levels that equalize revenue with the tobacco burden. Government tobacco tax revenue (VUV 36 billion in 2020) and the retail price of the most sold brand are from WHO Global Tobacco Control Report 2021 (analysts added estimated VAT taxes to the 28.7 billion specific excise taxes reported in the GTCR). The number of licit cigarette packs sold (34.3 million) is estimated by dividing total specific excise tax revenue by the specific excise tax per pack of cigarettes, as reported in the 2020 GTCR.

Figure 5 illustrates the share of the burden attributable to tobacco-attributable mortality, workplace costs, and health-care costs. **Figure 6** and **Figure 7** illustrate the annual health losses that occur due to tobacco use.

Fig. 5. Breakdown of the share of the cost of tobacco-attributable mortality, workplace costs, and health-care costs in Vanuatu (VUV millions), 2020

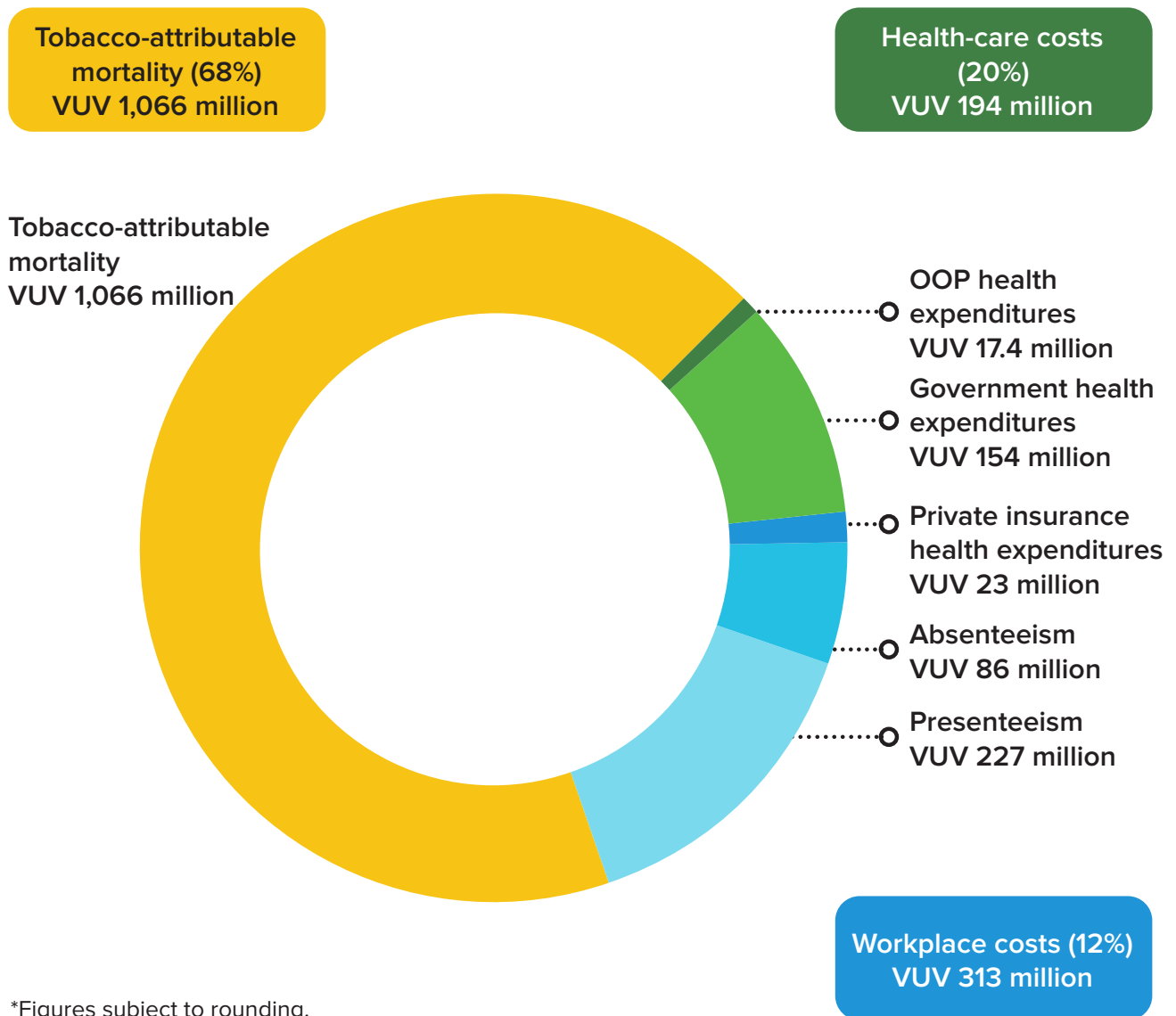
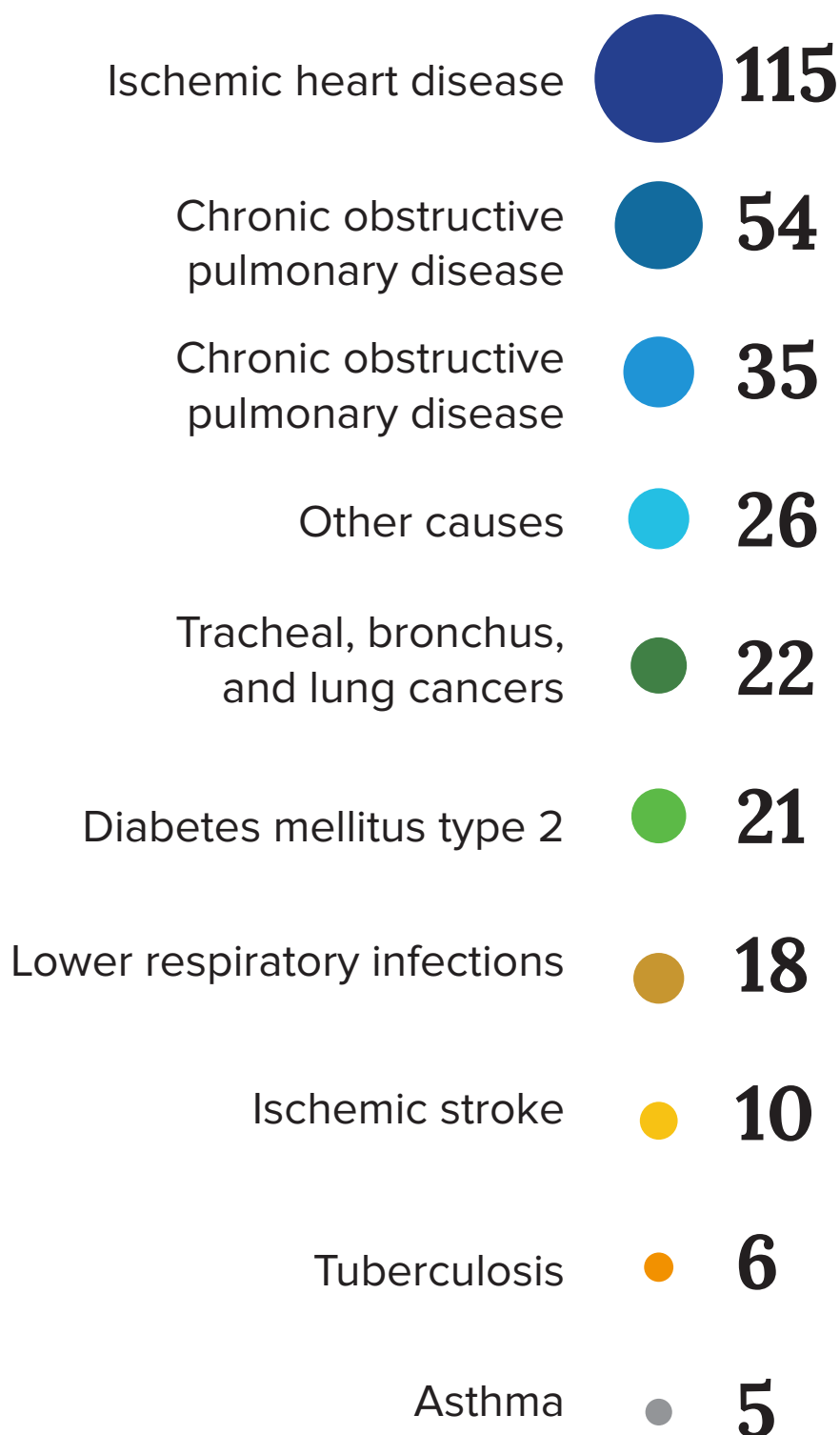
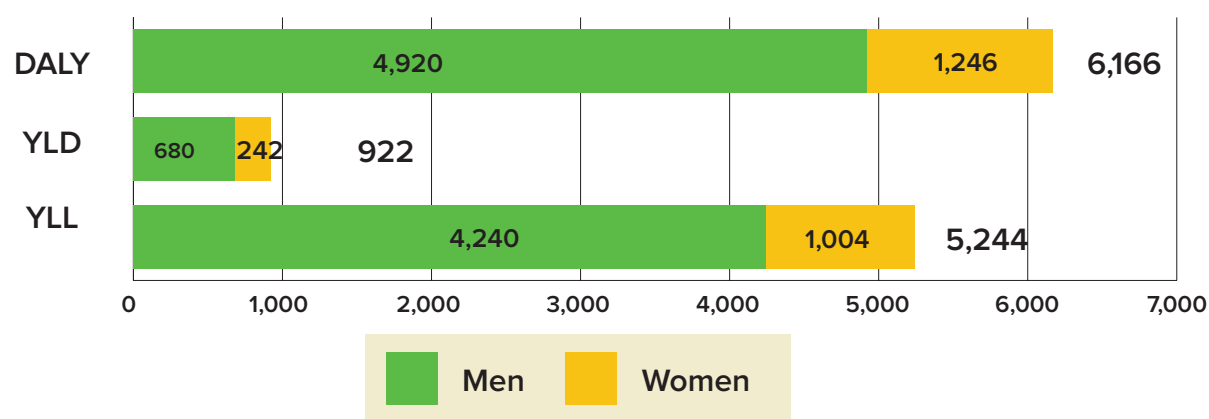


Fig. 6: Tobacco-attributable deaths by disease in Vanuatu, 2019

Source: Results are from the IHME Global Burden of Disease Results Tool. Other causes include oesophageal cancer, Alzheimer's disease and other dementias, larynx cancer, cervical cancer, pancreatic cancer, bladder cancer, liver cancer, prostate cancer, breast cancer, colon and rectum cancer, stomach cancer, leukaemia, aortic aneurysm, peptic ulcer disease, subarachnoid haemorrhage, lip and oral cavity cancer, gallbladder and biliary diseases, other pharynx cancer, kidney cancer, atrial fibrillation and flutter, multiple sclerosis, nasopharynx cancer, peripheral artery disease, rheumatoid arthritis, otitis media, and age-related macular degeneration.

Fig. 7: Tobacco-attributable DALYs, YLDs, and YLLs in Vanuatu, by gender, 2019*

A Disability-adjusted life year (DALY) is a universal metric that allows comparison between different populations and health conditions across time. DALYs equal the sum of years of life lost (YLLs) and years lived with disability (YLDs). One DALY equals one lost year of healthy life. Years of life lost (YLL) are years lost due to premature mortality. Years lived with disability (YLD) can also be described as years lived in less-than-ideal health. A YLD is calculated by taking the prevalence of the condition multiplied by the disability weight for that condition [65].

4.2 Implementing policy measures that reduce the burden of tobacco use

The WHO FCTC provides a framework for tobacco control measures to be implemented by Parties at national and international levels to reduce continually and substantially the prevalence of tobacco use and exposure to tobacco smoke. Through the full implementation of the tobacco control measures in the WHO FCTC, Vanuatu can secure significant health and economic returns, and begin to reduce the VUV 1.6 billion in annual economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from five key WHO FCTC policy actions: 1) to increase tobacco taxation to reduce the affordability of tobacco products; 2) to create smoke-free public places and workplaces to protect people from the harms of tobacco smoke; 3) to implement plain packaging of tobacco products; 4) to promote and strengthen public awareness of tobacco control issues; and 5) to promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use.

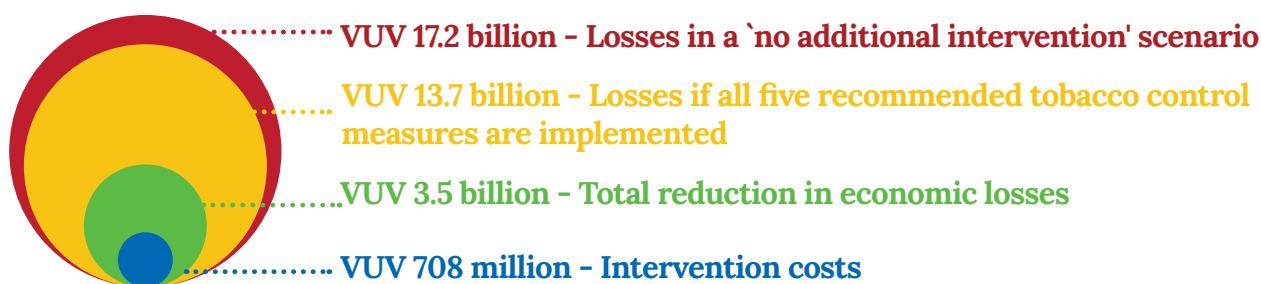
4.2.1 Health benefits – lives saved

The full implementation of the WHO FCTC in Vanuatu (inclusive of all five of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains for the country. Implementing the package of five WHO FCTC policy actions that are the focus of this investment case would reduce the prevalence of cigarette smoking by 36 percent (in relative terms) over 15 years, saving 1,054 lives over 2023-2037, or about 70 lives annually.

4.2.2 Economic benefits – costs averted

Implementing the package of five key WHO FCTC policy actions would result in Vanuatu avoiding 20 percent of the economic loss that it is expected to incur from tobacco use over the next 15 years. **Figure 8** illustrates the extent to which Vanuatu can mitigate the economic losses it would incur under the status quo.

Fig. 8: Tobacco-related economic losses over 15 years, 2023-2037

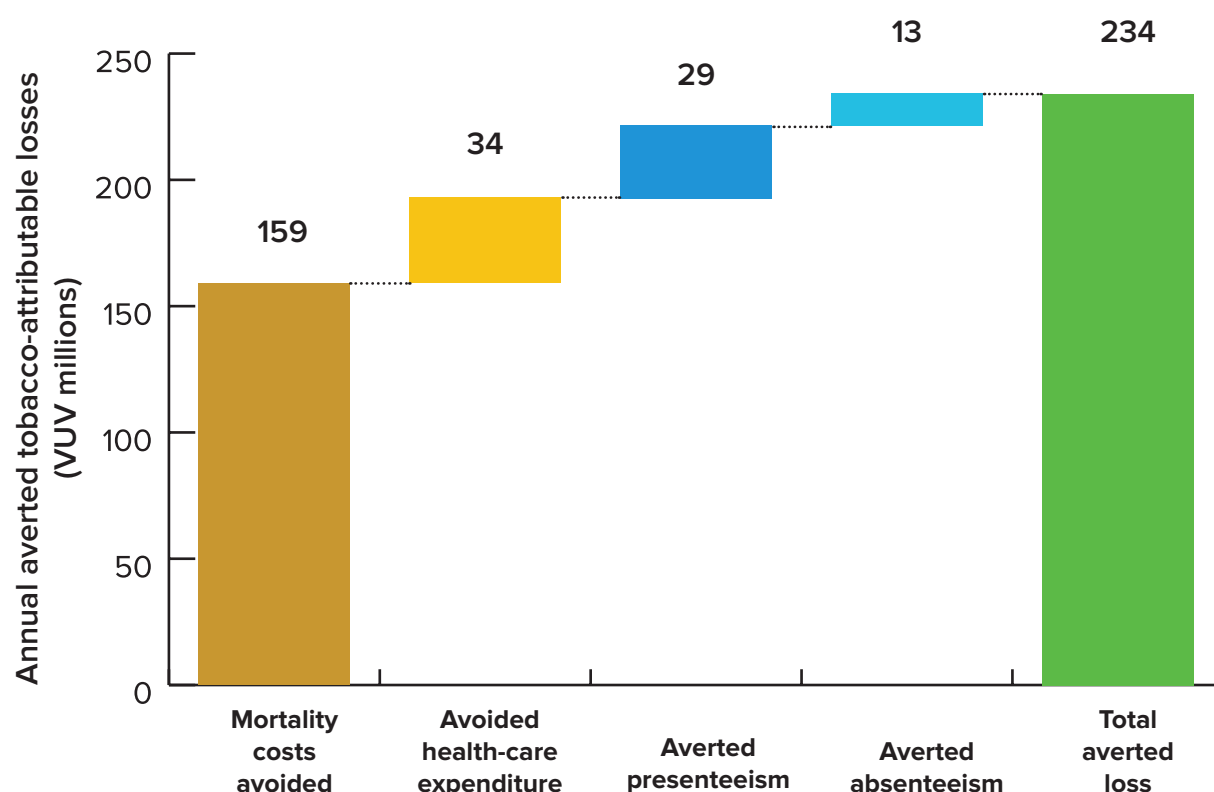


In total, over 15 years Vanuatu would save about VUV 3.5 billion that would otherwise be lost if the package of five key WHO FCTC policy actions is not implemented. This is equivalent to around VUV 234 million in annual avoided losses.

With better health that would arise from the implementation of the WHO FCTC, fewer individuals would need health-care services due to tobacco-related diseases, resulting in direct cost savings to the government and citizens. Better health also leads to increased productivity. Fewer working-age individuals leave the workforce prematurely due to death. Workers miss fewer days of work (absenteeism) and are less hindered by health complications while at work (presenteeism).

Figure 9 breaks down the sources from which annual avoided costs accrue from implementation of the package of five WHO FCTC policy actions. The largest annual avoided costs result from averted tobacco-attributable mortality (VUV 159 million). The next highest source is averted presenteeism (VUV 34 million), avoided health-care expenditures (VUV 29 million), and reduced absenteeism (VUV 13 million).

Fig. 9: Sources of annual avoided economic costs as a result of implementing the tobacco control policy package in Vanuatu*



*Figures subject to rounding.

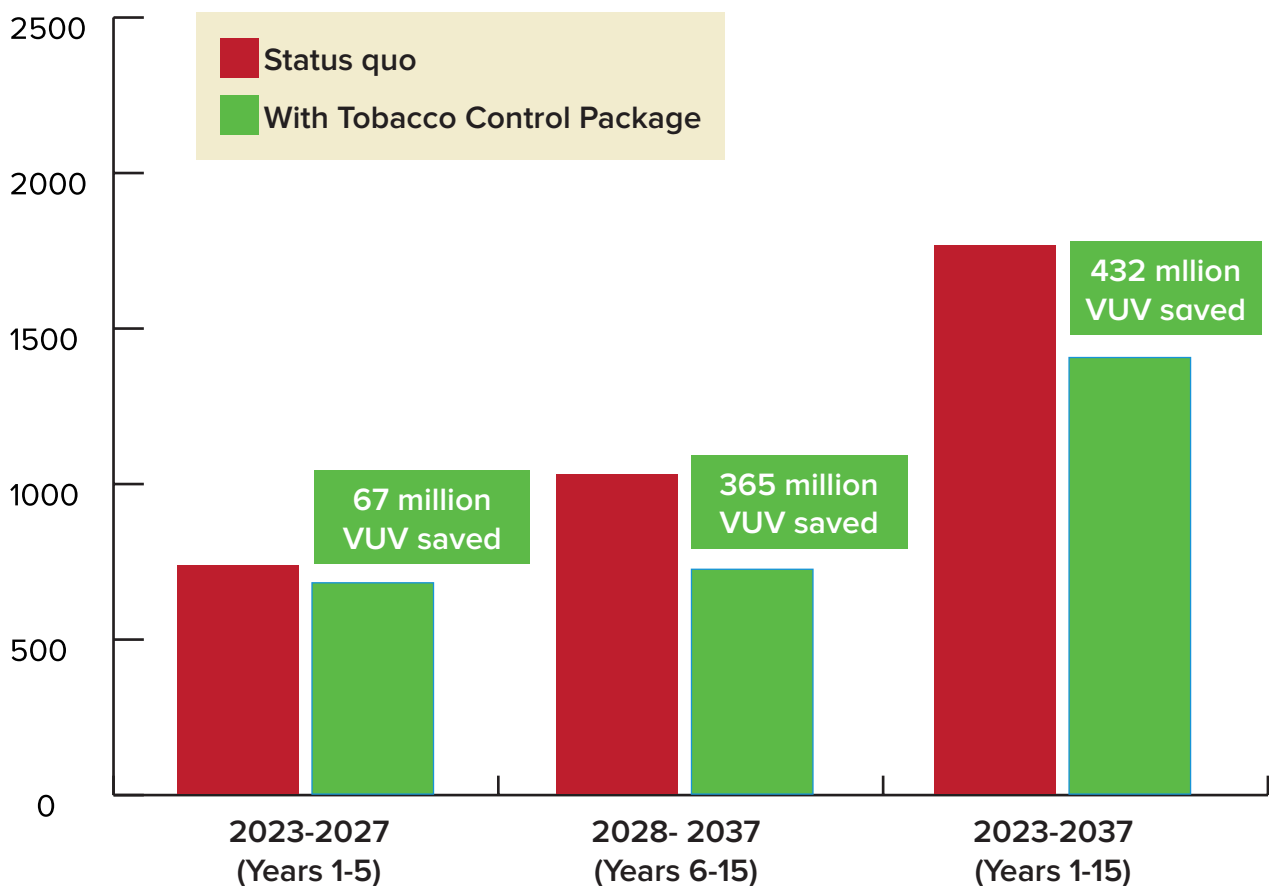
Implementing the package of five WHO FCTC policy actions examined in the investment case will reduce medical expenditure both for citizens and the government. Presently, total private and public health-care expenditures in Vanuatu is about VUV 3.4 trillion annually [66] and 5.7 percent of this amount is directly related to treating disease and illness due to tobacco use (\approx VUV 194 million) [6].

Year-on-year, the package of interventions would lower tobacco use prevalence, leading to less illness, and consequently less health-care expenditure (see **Figure 10**). Over the 15-year time horizon of the analysis, the package of interventions averts VUV 432 million in health-care expenditures, or VUV 29 million annually. Of these savings, 79 percent of savings would go to the government and nine percent would go to individual citizens who would have had to make OOP payments for health care. The remainder of savings would go to private

insurance and other sources of health-care expenditures.

From reduced health-care costs alone, the government would expect to save about VUV 343 million over 15 years. Simultaneously, the government would successfully reduce the health expenditure burden that tobacco imposes on Ni-Vanuatu through OOP payments, supporting efforts to reduce economic hardship on families. For families with tobacco users who quit, spending that would have been on tobacco products or health care, could instead be invested in nutrition, education, and other productive inputs to secure a better future.

Fig. 10: Private and public health-care costs (and savings) in Vanuatu over the 15-year time horizon, 2023-2037



*Figures subject to rounding.

4.2.3 *The return on investment*

While the health gains from strengthening tobacco control in Vanuatu are by themselves enough to justify the cost of the interventions, the economic gains that will also accrue make the case for WHO FCTC implementation even stronger.

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 this investment case, the ROI for each intervention was evaluated in the short-term (five years), to align with planning and political cycles, and in the medium-term (15 years) to align with the original timeframe allotted for the SDGs. The ROI was also evaluated for the full package of five WHO FCTC policy actions. Total benefits (avoided economic losses due to tobacco-attributable mortality, health-care expenditures, and diminished workplace productivity) are a measure of which interventions are expected to have the largest impact.

Table 2 displays costs, benefits, and ROIs by intervention, as well as for all interventions combined. With the exception of training health professionals to provide brief advice to quit tobacco use (an individual-level intervention with higher initial personnel costs), 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 gain economic benefits ranging from between 0.2 to 2.7 times its investment. Given the long-term nature of many tobacco-related illnesses, with disease often only developing after years of tobacco use, the ROIs for each intervention would continue to grow over time, reflecting the compounding gains from planning and development stages to full implementation.

Table 2: Return on investment, by tobacco control policy/intervention (VUV billions)

Return on investment, by tobacco control measure	First 5 years (2023-2027)			All 15 years (2023-2037)		
	Total costs (millions)	Total benefits (millions)	ROI	Total costs (millions)	Total benefits (millions)	ROI
Tobacco control package* (all policies/interventions implemented simultaneously)	367	548	1.5	708	3,518	5.0
Increase tobacco taxation (cigarette taxation modeled)¹¹ (WHO FCTC Article 6)	54	85	1.6	104	787	7.6
Create smoke-free public places and workplaces (WHO FCTC Article 8)	92	198	2.2	127	1,361	10.7
Implement plain packaging (WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13)	49	64	1.3	70	449	6.4
Promote and strengthen public awareness of tobacco control issues (WHO FCTC Article 12)	88	240	2.7	209	1,640	7.8
Promote tobacco cessation and treatment for dependence by training health professionals to provide brief advice to quit (WHO FCTC Article 14)	46	9.9	0.2	110	90	0.8

*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) × (1-PR_j) [is] applied to the current smoking prevalence [67]. 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 programme.

11 Raise taxes to what is considered in the WHO Report on the Global Tobacco Epidemic, 2021 as a high- level of achievement, which is for total taxes to represent at least 75 percent of the retail price. In the scenario modeled, cigarette taxes would meet the 75 percent threshold in 2037, at the end of the analysis.

Over the 15-year period, creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke is expected to have the highest return on investment (11:1).¹² Promoting and strengthening public awareness of tobacco control issues is expected to have the next highest return on investment (8:1), followed by increasing taxes on cigarettes (8:1), implementing plain packaging (6:1), and finally to promote cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use (0.8:1).

12 Rounded to the nearest whole number

5. Examining additional impacts: government revenue, equity, and the SDGs

The investment case examines how increasing taxes would impact government revenue and equity, and contributions that stronger WHO FCTC implementation would make towards Vanuatu's fulfilment of SDG Target 3.4.

5.1 Equity analysis: benefits for lower-income populations of increasing cigarette taxes

The Addis Ababa Action Agenda on Financing for Development [68], aligned with the adoption of the Sustainable Development Goals, notes that tobacco price and tax measures “represent a revenue stream for financing for development”.

This section analyses a scenario in which Vanuatu continues to increase cigarette taxation to reduce affordability and meet recommendations in the WHO Technical Manual on Tobacco Tax Policy and Administration for excise taxes to account for at least 70 percent of the retail price of tobacco products. In the analysis, Vanuatu's current tax structure and rates stay the same, with the exception that in real terms, the specific excise tax increases from current rates (VUV 500 per pack) to VUV 645 in 2027.

Evidence from countries in the Asia Pacific region shows that on average a 10 percent increase in price is expected to result in a 4.9 percent reduction in consumption [69]. Accounting for the rise in demand that results from income increases,¹³ under the described tax increase pattern and demand elasticities, licit cigarette consumption would drop from the present amount of about 3.7 million packs annually¹⁴ to about 3.5 million in 2027.

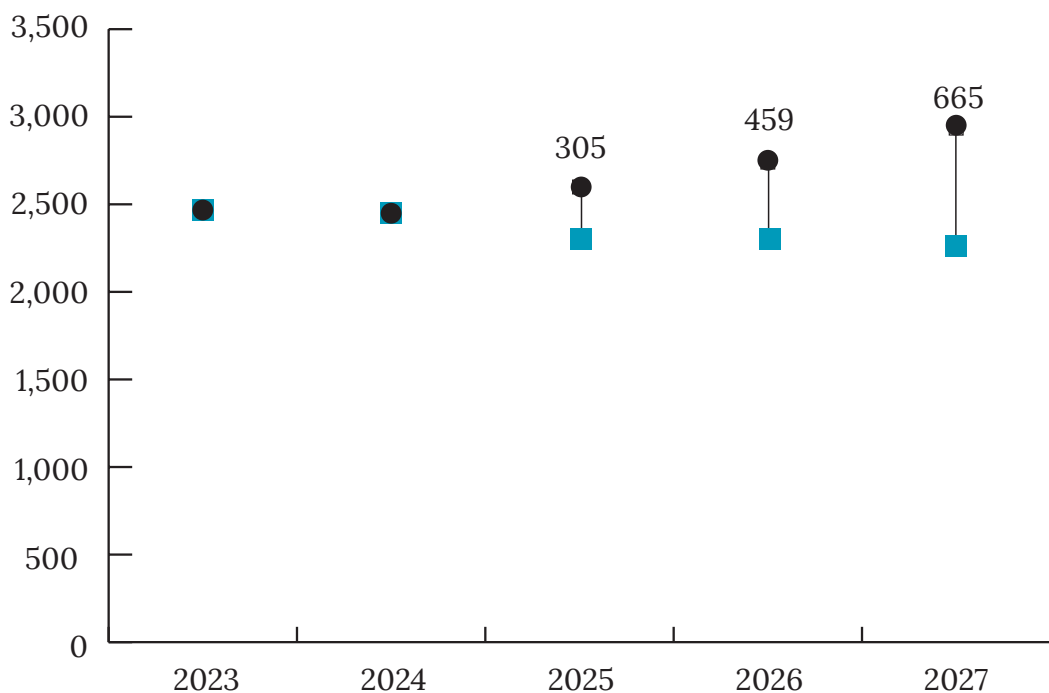
Even though there are drops in consumption, revenue gains will still occur. Although reducing the affordability of tobacco products leads people to quit smoking or reduce consumption, many people will continue to smoke, largely because of the addictive nature of tobacco, paying higher taxes to the government each time they purchase cigarettes.

13 Income elasticity of demand – 0.319 [70]; income prevalence elasticity of demand – 0.16. Projected income growth over the period from 2022 to 2026 is estimated using real GDP growth projections from the International Monetary Fund as a proxy for income – 2.9 percent [71].

14 The number of licit cigarette packs sold (3.7 million) is estimated by dividing total specific excise tax revenue by the specific excise tax per pack of cigarettes, as reported in the *WHO Report on the Global Tobacco Epidemic, 2021*.

Over a five-year period, **Figure 11** compares annual government cigarette tax revenue (undiscounted) in a hypothetical scenario where Vanuatu enacts strong specific excise taxes to a scenario in which tobacco prices remain static over time. The figure depicts a growing gap in annual tax collection between the two scenarios. It is assumed that no change occurs during the first two years, allowing time for debate and legislation of the new tax increase. In 2025, specific excise tax increases in an intervention scenario yield an additional 305 million in revenue, growing to 665 million in 2027. Over the five-year period, this is about VUV 286 million annually, which is equivalent to about 8.8 percent of government health expenditures in 2021.

Fig. 11: Additional annual tax revenue (undiscounted) in comparison to the baseline scenario, in Vanuatu, 2023-2027, in VUV millions



It is important to note that this tax analysis does not consider the availability of locally grown untaxed tobacco in Vanuatu known as “lif tabak”. A twist of lif tabak weighs around 12 grams and costs around VUV 300-350 in Port Vila,¹⁵ much cheaper than a pack of cigarettes which costs around VUV 850 to VUV 1,000 (see annex on methodology). As lif tabak is not taxed, it may become even more affordable in comparison to cigarettes. It is important for all tobacco products in Vanuatu to be subject to taxation.

¹⁵ Price data was collected between September 2022 and January 2023 by MoH for the WHO Report on the Global Tobacco Epidemic.

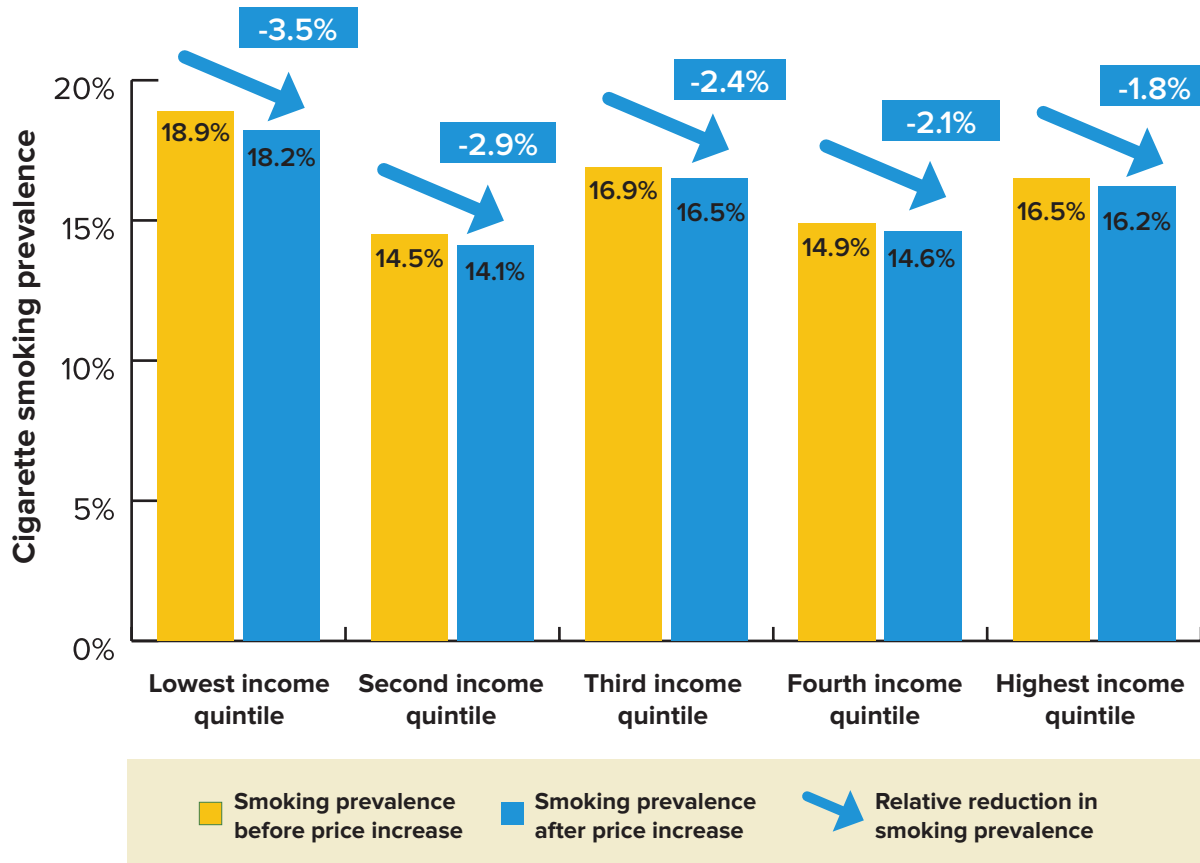
5.2 Equity analysis: benefits for lower-income populations of increasing cigarette taxes

A common misconception is that taxes on tobacco products may disproportionately harm 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 [72]. Relative to richer smokers, lower-income smokers are more likely to quit smoking when taxes are increased [32], meaning they benefit from subsequent decreases in tobacco-related health problems, and resulting medical costs which can be financially catastrophic. In Lebanon [73], 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 catastrophic health expenditures for 1.83 million individuals in India, 440,000 in Bangladesh, and 350,000 in Viet Nam [74].

To examine the extent to which a cigarette tax increase could be considered pro-poor in Vanuatu, an equity analysis has been undertaken as part of the investment case. The analysis divides Vanuatu'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 a hypothetical tax increase that raises the price of the average pack of cigarettes by about 12 percent (VUV 89, or about US\$0.77). This represents only the first year of tax increases that are modeled in the investment case. People at different income levels tend to respond differently to price changes. Average tobacco-income prevalence elasticities of demand from a set of low- and middle-income countries are employed to assess how different economic groups react to changes in price.

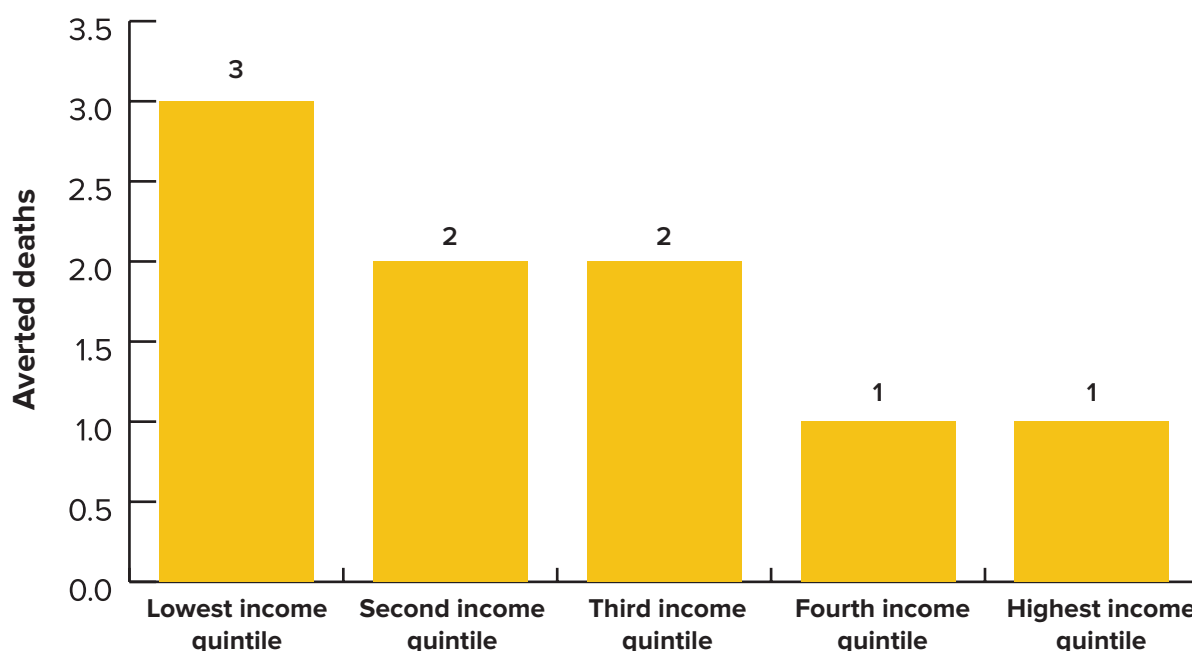
In Vanuatu, the poorest income quintile has the highest smoking prevalence (18.9 percent), meaning they experience the largest share of health and economic impacts resulting from tobacco use. The results from the analysis show that all income quintiles reduce smoking in response to the tax measures, but because people with lower incomes are more responsive to changes in price, the cigarette tax increase causes the largest drop in prevalence among the poorest income quintiles. **Figure 12** shows the smoking prevalence in each income quintile before and after the tax increase, as well as the relative change in smoking prevalence.

Fig. 12: Relative reduction in cigarette smoking prevalence before and after the cigarette tax increase, in Vanuatu, by income quintile, during the first year of tax increase that is modeled (2023) *



Lower rates of smoking translate to health gains. Prior to the cigarette tax increase, of the 300 smoking-attributable deaths observed in 2019, 23 percent occurred among the poorest 20 percent of the population (quintile 1). As cigarette tax increases cause cigarette smoking prevalence to fall the most in the poorest quintile, health benefits disproportionately accrue to lower-income Ni-Vanuatu. The equity analysis finds that three of the nine deaths (33 percent) that would be averted during the first two years of tax increases modeled in the investment case would be among the poorest 20 percent of the population, as shown in **Figure 13**.

Fig. 13: Deaths averted in Vanuatu by tax increase, by income quintile during the first year of tax increases that are modeled (2023)



5.3 The Sustainable Development Goals and the WHO FCTC

Implementing the package of five WHO FCTC policy actions will support Vanuatu to meet SDG Target 3.a to strengthen implementation of the WHO FCTC. Moreover, acting now will contribute to Vanuatu's efforts to meet SDG Target 3.4 to reduce by one-third premature mortality from NCDs by 2030. The measures would contribute the equivalent of around 11 percent of the needed reduction in mortality for Vanuatu to achieve SDG Target 3.4.

The WHO FCTC is an accelerator for sustainable development, and its implementation will benefit the achievement of many SDGs, including those outside of the health and well-being domain [20]. For example, stronger tobacco control will contribute to the reduction of poverty and inequalities (SDGs 1 and 10, respectively) and economic growth (SDG 8).



SDG Target 3.4

By 2030 the WHO FCTC measures would contribute the equivalent of around 11 percent of the needed reduction in mortality for Vanuatu to achieve SDG Target 3.4.

Photo: © World Bank



6. Conclusion and recommendations

Each year, tobacco use costs Vanuatu VUV 1.6 billion in economic losses and causes substantial human development losses. Fortunately, as the investment case shows, there is an opportunity to reduce the health, social and economic burden of tobacco in Vanuatu. Enacting the five key WHO FCTC policy actions would save 70 lives each year and reduce the incidence of tobacco-related disease, leading to savings from averted medical costs and averting productivity losses.

In economic terms, these benefits are substantial, adding up to VUV 3.5 billion over the next 15 years. Importantly, the economic benefits of strengthening tobacco control in Vanuatu greatly outweigh costs of implementation (VUV 3.5 billion in benefits versus just VUV 708 million in costs).

By investing now in the package of five WHO FCTC policy actions modeled in this investment case, Vanuatu would not only reduce tobacco consumption, improve health, reduce government health expenditures, increase tax revenues, and grow the economy, it would also reduce hardships faced by many Ni-Vanuatu. The country can also reinvest savings from government health-care expenditures and revenue from increased tobacco taxes into national development priorities such as universal health coverage and other social protections, and COVID-19 response and recovery efforts.

Based on the findings of this investment case, these key actions for Vanuatu are recommended to be pursued simultaneously:

Recommendations

- 1** Commit to fully implement the WHO FCTC in Vanuatu.
- 2** Strengthen tobacco tax structures and increase tax rates (WHO FCTC Article 6).
- 3** Take action to strengthen, implement and enforce the other four key WHO FCTC policy actions modeled in this investment case.
- 4** Strengthen multisectoral coordination for tobacco control in Vanuatu (WHO FCTC Articles 5.2(a) and 4.7).
- 5** Develop a national tobacco control strategy for Vanuatu (WHO FCTC Article 5.1).
- 6** Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).
- 7** Strictly enforce the prohibition on the sale of tobacco to minors (WHO FCTC Article 16).
- 8** Join the Protocol to Eliminate Illicit Trade in Tobacco Products (Protocol and WHO FCTC Article 15).
- 9** Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in Vanuatu.

1

Commit to fully implement the WHO FCTC in Vanuatu.

As a Party to the WHO FCTC, Vanuatu has committed to fully implement the Convention. The WHO FCTC is an evidence-based treaty that sets out a clear blueprint for action to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke. Vanuatu is encouraged to fully implementing the treaty, with a focus on the recommendations made for Parties in the *Global Strategy to Accelerate Tobacco Control: Advancing Sustainable Development through the Implementation of the WHO FCTC 2019–2025*, in relevant WHO FCTC implementation guidelines, in WHO FCTC Needs Assessment reports and in this investment case.

2

Given the effectiveness of tobacco taxation, strengthen tax structures for all tobacco products (including novel products) and increase tax rates (WHO FCTC Article 6).

Vanuatu is encouraged to substantially raise the excise tax share of the retail price of tobacco in accordance with recommendations made by WHO in the WHO Technical Manual on Tobacco Tax Policy and Administration. While the total tobacco tax in Vanuatu is above 75 percent of the retail price of the most sold brand of cigarettes, the overall level of excise taxes falls below levels recommended in the WHO FCTC implementation guidelines for Article 6 [75] and by WHO in the WHO Technical Manual on Tobacco Tax Policy and Administration (at least 70 percent of the total retail price) [77]. Tobacco taxes should aim to reduce affordability, including by increasing at a rate and frequency that outpace inflation and income growth [76]. There is clear evidence that raising cigarette prices through increased taxes is a highly effective measure for reducing smoking among youth, young adults, and people from lower socioeconomic communities. Increasing the price of tobacco will have benefit for these vulnerable populations.

As such, Vanuatu is encouraged to continue strengthening tobacco taxes as it has done in the Excise (Amendment) Act 34 of 2021 [47] which increased the excise tax on cigarettes from VUV 16 per stick to VUV 25 per stick.

It is also recommended to ensure robust tobacco taxation policies are in place for all types of tobacco (including for shisha, smokeless tobacco and novel tobacco products), and consideration is given to removing duty-free allowances for tobacco. When taxing tobacco products, it is imperative to also consider the availability locally grown “lif tabak” and the potential to switch from taxed tobacco products to untaxed lif tabak among tobacco smokers. Appropriate measures must be sought to equally reduce the accessibility and affordability of lif tabak.

3

Take action to strengthen, implement and enforce the other four key WHO FCTC policy actions modeled in this investment case by:

- making all public places and workplaces smoke-free in Vanuatu by removing the current exemption that allows smoking by one person in places accessible by one person only (WHO FCTC Article 8).
- considering implementation of plain packaging to reduce the appeal of tobacco packaging and to make health warnings more prominent (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13).
- promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation. Vanuatu should introduce new methods, such as campaigns, to increase awareness and can consider a national mass media campaign. Vanuatu should prioritize disseminating messages at locations frequented by youth and, in particular, girls, such as schools and in places where youth activities take place, considering the concerning prevalence among these groups (WHO FCTC Article 12).
- promoting cessation of tobacco use and treatment for tobacco dependence by training health professionals to provide brief advice to quit tobacco use, especially in primary care settings. The Government of Vanuatu should ensure that cessation services are available and reach vulnerable populations, and that these services are cost-covered by the government. Vanuatu could develop national guidelines on tobacco cessation by adjusting existing WHO recommendations, and integrate cessation programs in primary health-care services. Further gains would be possible with the provision of additional support to tobacco users, such as offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet-based quit support and making pharmacotherapies more widely available (free of cost if possible) (WHO FCTC Article 14). Part of increased tobacco tax revenues could be utilised to fund these interventions (WHO FCTC Article 14).

Enforcement mechanisms on these policy actions as well as other existing tobacco control measures must be reviewed and strengthened to ensure that these measures can effectively reduce tobacco use.

4

Strengthen multisectoral coordination for tobacco control in Vanuatu (WHO FCTC Articles 5.2(a) and 4.7).

Effective coordination across sectors is vital for the successful implementation of tobacco control measures and to reduce the burden of tobacco in Vanuatu. While a WHO FCTC focal point has been established within MoH, a multisectoral national coordinating mechanism (NCM) is recommended to drive the implementation of the WHO FCTC. The NCM could be convened and supported by the existing WHO FCTC focal point, and should include representatives from all relevant sectors, such as the Ministry of Foreign Affairs, International Cooperation and External Trade, the Ministry of Agriculture, Livestock, Forestry, Fisheries, and Biosecurity, the Ministry of Finance and Economic Management, the Ministry of Education and Training, and relevant civil society groups and non-governmental organizations. The government could reactivate or build upon the pre-established Tobacco Control Sub-Committee to start the process of forming a designated NCM on tobacco control for Vanuatu. It is important to protect the NCM from tobacco industry interference, and to address conflicts of interest among representatives. Given the need for dedicated financing for tobacco control, the Government of Vanuatu should ensure sustainable financing for the existing tobacco control focal point and establish a tobacco control fund.

5

Develop a national tobacco control strategy for Vanuatu (WHO FCTC Article 5.1).

While the Government of Vanuatu has already set a clear tobacco control strategy in the Vanuatu Non-Communicable Disease Policy & Strategic Plan 2021-2030, it is recommended that a standalone national tobacco control strategy is developed for Vanuatu. The strategy should be routinely updated and linked to the NCD strategic plan.

The national tobacco control strategy for Vanuatu should include action to:

- Outline a comprehensive workplan and timeline for full implementation of the WHO FCTC.
- Identify sustainable funding necessary for tobacco control.
- Establish a designated NCM for tobacco control in Vanuatu.
- Become a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products.
- Strengthen capacity for compliance building and enforcement of tobacco control laws.
- Prevent children and young people from taking up tobacco use.
- Undertake research and surveillance to gather more information on consumption of other tobacco products (such as lif tabak) in addition to cigarettes.
- Ensure gender-sensitive approaches to policy, programs, and services.
- Prioritize vulnerable groups including, but not limited to women and girls, those with low-income and youth.
- Encourage and support current tobacco users to quit.
- Protect public health policies from commercial and other vested interests of the tobacco industry.
- Prioritize exchanging of information and cooperation nationally, regionally, and internationally to support WHO FCTC implementation.

6

Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).

It is recommended that Vanuatu take action to protect the country's public health policies from the commercial and other vested interests of the tobacco industry. A resolution made by the World Health Assembly in 2001, citing the findings of the Committee of Experts on Tobacco Industry Documents, states that “the tobacco industry has operated for years with the express intention of subverting the role of governments and of WHO in implementing public health policies to combat the tobacco epidemic” [77].

The Preamble of the WHO FCTC recognizes that Parties “need to be alert to any efforts by the tobacco industry to undermine or subvert tobacco control efforts and the need to be informed of activities of the tobacco industry that have a negative impact on tobacco control efforts”. The WHO FCTC includes a specific obligation that “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”. The 2021 *Global Progress Report on Implementation of the WHO Framework Convention on Tobacco Control* reported that the most frequently mentioned barrier to the implementation of the Convention by Parties is the interference by the tobacco industry, including the industries producing novel and emerging tobacco products and nicotine products [78].

Vanuatu is encouraged to review current policies and legislation in light of the Implementation Guidelines for WHO FCTC Article 5.3 [79], and then address outstanding gaps by implementing the recommendations made in those guidelines. Attention should also be given to ensuring policy coherence across government policy-making to prioritise public health and WHO FCTC implementation.

7

Strictly enforce the prohibition on the sale of tobacco to minors (WHO FCTC Article 16)

The legal age of sale for tobacco products is 18 years. Nevertheless, one in six students 13-15 years old uses any form of tobacco, and among cigarette smokers 13-15 years old, more than half were not prevented from purchasing cigarettes despite their age [30].

Robust enforcement is needed to prevent children and youth from being able to access tobacco, including through retail sale and on the internet. The government agency that has responsibility for enforcement needs to be clear on their obligations and should have the resources to undertake compliance-building and enforcement action, especially with tobacco vendors. The government could publicize enforcement actions to deter others from selling tobacco to people under the legal age of sale. The government could also consider raising the minimum age from 18 to 20.

8

Join the Protocol to Eliminate Illicit Trade of Tobacco Products (Protocol and WHO FCTC Article 15).

It is recommended that the Government of Vanuatu act quickly to join the Protocol to Eliminate Illicit Trade of Tobacco Products. As MoH indicated that it was ratified in November in 2019, it is important that this is followed through so Vanuatu can officially become a Party [59]. Vanuatu should also move forward with strengthening legislation, implementing measures to monitor tobacco products and cooperating nationally, regionally and internationally to address illicit trade. Vanuatu would also benefit from enacting a track and trace system. One practical policy option for the supply chain control is to require licences for tobacco manufacturers, importers, distributors and retailers, as is done in neighbouring countries like Fiji and Solomon Islands.

9

Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in Vanuatu.

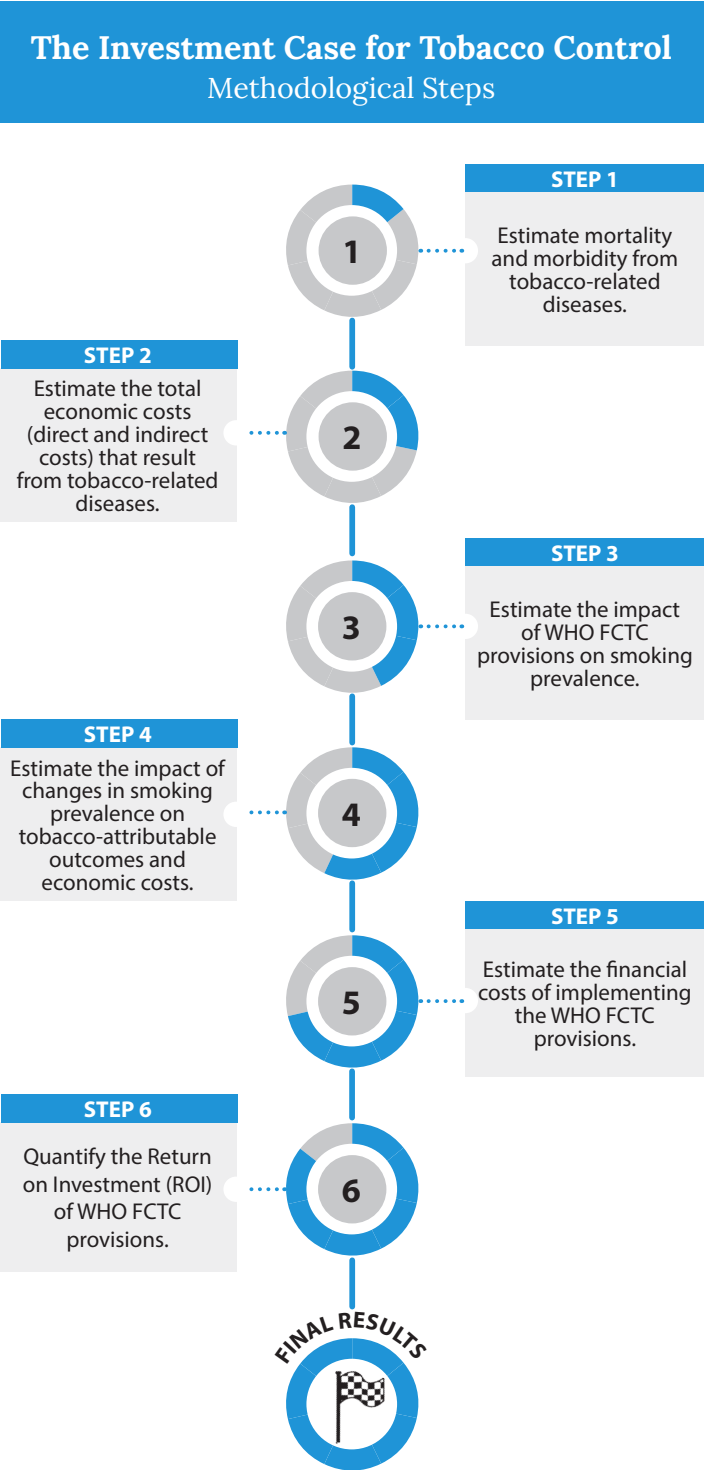
With the vast health, economic, social and environmental costs of tobacco, the case is clear: implementing the WHO FCTC is a powerful means for Vanuatu to improve the lives of citizens, achieve the SDGs, and better the conditions and future of the country. All sectors have a role to play in tackling tobacco use, and the benefits of full WHO FCTC implementation will enrich all aspects of life in Vanuatu. Given that there is presently no mention of tobacco in Vanuatu's National Sustainable Development Plan 2016 to 2030 [80], the Government of Vanuatu should prioritize the implementation of the WHO FCTC in all of its future sustainable development strategies. The upcoming UN Sustainable Development Cooperation Framework for 14 Pacific Island countries (2023-2027) should also incorporate the WHO FCTC implementation with clear actionable plans [81].

Annex: Methodology

A1.1 Overview

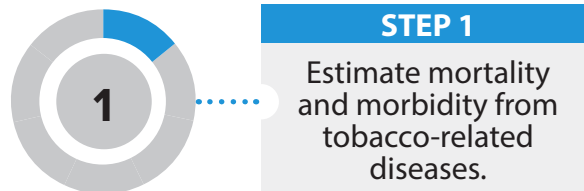
The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which WHO FCTC provisions can reduce the burden. The first two methodological steps depicted in Figure A1 are employed to assess the current burden of tobacco use, while methodological steps 3-6 assess the impact, costs, and benefits of implementing or intensifying WHO FCTC provisions to reduce the demand for tobacco. The tools and methods used to perform these methodological steps are described in detail below.

Fig. A1: Steps in the investment case



A1.2 Component one: current burden

The current burden model component provides a snapshot of the health and economic burden of tobacco use in Vanuatu in the most recent year for which data are available.



The investment case model is populated with country-specific data on tobacco-attributable mortality and morbidity from the 2019 Global Burden of Disease Study (GBD) [5], [82]. 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.



Next, the model estimates the total economic costs of disease and death caused by tobacco use. The total economic costs include tobacco-attributable health-care expenditures, the value of tobacco-attributable mortality, and workplace productivity losses: absenteeism and presenteeism.

Health-care expenditures – Health-care expenditures include smoking-attributable public (government-paid), private (insurance, individual out-of-pocket), and other health-care expenditures. The proportion of health-care costs attributable to smoking was obtained using the formula for estimating smoking attributable fraction (SAF) of health-care expenditures from Goodchild et al. (2018) [85]. The SAF for Vanuatu is estimated at 5.7 percent. To calculate the share of smoking-attributable health-care expenditures borne by public, non-profit, and

16 In assessing the current burden of tobacco use, the economic costs of mortality include the cost of deaths due to any form of exposure to tobacco (including 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 and presenteeism. While other forms of tobacco may also cause losses in these categories, no data are available to precisely ascertain those losses.

17 All diseases are assumed to decrease in proportion to smoking prevalence when the decrease in prevalence occurs. While the model overestimates how quickly health benefits will accrue for some diseases, for example cancers—recent evidence suggests notable declines in the risk of lung cancer incidence begin two to five years after smoking prevalence decreases [83]. On the other hand, the risk of incidence of other diseases, for example cardiovascular disease (CVD), declines significantly in the years immediately following quitting [84].

private entities, it was assumed that each entity incurred smoking-attributable health-care costs in equal proportion to the entity's contribution to total health expenditure. Health-care expenditures were obtained from the WHO Global Health-care Expenditure Database (GHED) [66]. The latest year for which data are available in WHO GHED is 2019. To obtain 2020 values, we took the average annual increase in health-care expenditures in Vanuatu over the past 10 years and applied that increase to the 2019 health-care expenditure values.

Workplace costs and the cost of tobacco-attributable mortality – Workplace costs and the cost of tobacco-attributable mortality represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-attributable diseases. The cost of tobacco-attributable mortality accrues when tobacco use causes mortality, eliminating the unique economic and social contributions that an individual would have provided in their remaining years of life. Workplace costs accrue when tobacco use results in productivity losses. Compared to non-tobacco users, individuals who use tobacco are more likely to miss days of work (absenteeism) and to be less productive at work due tobacco-related illnesses (presenteeism).

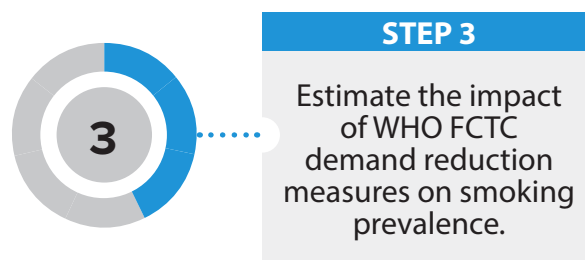
- *The economic cost of tobacco-attributable mortality.* Tobacco-attributable mortality was monetized using a “value of a statistical life” (VSL) measure. VSL is a measure of individuals’ willingness to pay for small changes in the risk of death and it is commonly used in economic evaluations of health programmes and policies to monetize health outcomes [86]. Few studies have assessed VSL in low- and middle-income countries [87]. We extrapolated a country-specific estimate of VSL following guidance from the Reference Case Guidelines for Benefit-cost analysis in Global Health and Development [86] estimating the value of one additional year of life for Vanuatu at VUV 369,331 (value of a statistical life year (VSLY)). 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 future year of life is multiplied by VSLY to calculate the cost of tobacco-attributable mortality..
- *Productivity costs.* Productivity costs consist of costs due to absenteeism and presenteeism and are counted only among employed cigarette smokers. The model uses estimates from academic literature on the number of extra working days missed due to active smoking (2.9 days per year) [88]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the United States, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers—losses equivalent to about 7.5 days of work [89]. The number of employed smokers is multiplied by days of work missed due to absenteeism or presenteeism by the average daily country wage to obtain estimates of losses.

A1.3 Component two: policy/intervention scenarios

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

A static model using a population attributable fraction (PAF) approach was used to estimate the total impact of the tobacco control measures. In the model, aside from smoking prevalence, variables do not change throughout the 15-year time horizon. 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 [90], [91].

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



Selection of key WHO FCTC measures modeled within the investment case align with the [Global Strategy to Accelerate Tobacco Control](#) [92] 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, priority is given to enabling action to accelerate WHO FCTC implementation, including effective forms of technical and financial assistance to support Parties in the identified priority action areas. This includes Parties giving priority to, among other things, the implementation of price and tax measures (WHO FCTC Article 6) and time-bound measures of the Convention. The time-bound measures include creating smoke-free public places and workplaces (WHO FCTC Article 8), prominent health warnings and plain tobacco packaging (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Article 13), and comprehensive bans on tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC Article 13).

In addition, given the importance of awareness in behaviour change and shaping cultural norms, the investment cases include promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC Article 12). Effect sizes for the WHO FCTC demand reduction measures are obtained from the literature. The impact of enforcing smoke-free air laws, implementing plain packaging and public awareness of tobacco control issues are derived from Levy et al. (2018) [67] and Chipty (2016) [93], as adapted within the Tobacco Use Brief of Appendix 3 of the *WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020* [94], and adjusted based on assessments of Vanuatu's baseline rates of implementation. The impact of basic evidence-based tobacco cessation in the form of brief advice to quit offered to tobacco users by health-care professions in primary care settings is from Levy et al. 2010 [95].

Except for taxes—the impact of which is dependent on the timing of increases in tax rates (see below)—and the brief advice intervention—the impact of which is guided by rates of training for primary health-care providers (see also below)—the full impact of the demand reduction policy measures is phased in over a five-year period. The phase-in period follows WHO assumptions [96] 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.

Tobacco taxes. The impact of cigarette tax increases on revenue and cigarette use prevalence was estimated using an Excel-based tool developed to analyse the impact of tax increases on a fixed population cohort. The tool is populated with data, including on current cigarette smoking prevalence, the tax structure and applied tax rates, cigarette prices, demand elasticities, and inflation and income projections (see **Table A1**).

Table A1: Key parameters used in the tax revenue analysis

Parameter name	Value	Source
Price elasticity of demand	-0.49	LM. Ho, C. Schafferer, JM. Lee, CY. Yeh, and CJ. Hsieh. Raising cigarette excise tax to reduce consumption in low-and middle-income countries of the Asia-Pacific region: a simulation of the anticipated health and taxation revenues impacts [69]
Prevalence elasticity of demand	-0.24	Goodchild et al (2016). Modelling the impact of raising tobacco taxes on public health and finance. Assumption – half of price elasticity [97]
Income elasticity of demand	0.32	Nargis et al (2021). Price, Income, and Affordability as the Determinants of Tobacco Consumption: A Practitioner's Guide to Tobacco Taxation [70]
Income prevalence elasticity of demand	0.16	Assumption – half of income elasticity
Projected real income growth rate*	2.9%	International Monetary Fund (2020). Real GDP Growth - Annual percent change [71]

Projected real income growth is used as a proxy for wage growth. The International Monetary Fund projects [70] real GDP growth at an average of 6.0 percent annually through 2025.

The investment case analysis examines a tax increase scenario in which Vanuatu chooses to enact strong tax increases. In the hypothetical scenario, Vanuatu's current tax structure and rates stay the same, with the exception that in real terms, the specific excise tax is increases from current rates (VUV 500 per pack) to about VUV 645 in 2027.

In the scenario, the price net of taxes remains static (full pass through of the tax increase). **Table A2** breaks down cigarette pack price components from 2023 to 2027 under the described scenario. For the main investment case analysis, additional specific excise taxes triggering real price increases of an average of four percent annually are modeled from 2028 to 2037, bringing the total tax share to 88 percent by 2038 and the excise tax share to 72 percent.

Table A2: Projected cigarette pack price in the tax increase scenario, 2023-2027 (VUV, in real terms)

Price component	2023	2024	2025	2026	2027
Price net of taxes	189.44	189.44	189.44	189.44	189.44
Specific excise	500.00	500.00	533.04	577.20	644.65
Ad valorem	0.00	0.00	0.00	0.00	0.00
Value added tax	94.44	94.44	98.57	104.09	112.53
Other taxes	66.11	66.11	66.11	66.11	66.11
Final consumer price*	850.00	850.00	887.17	936.85	1,012.73
* Figures subject to rounding.					

The impact of tax increases on revenue and cigarette use prevalence is dependent on prevailing elasticities: the extent to which individuals change use of a product (e.g., decrease consumption or quit) because of changes in the price of a tobacco product. Changes are calculated following Joosens and colleague's (2009) [98], who use a log-log function to ensure large price increases do not result in implausible reductions in consumption or prevalence. Below, Equation A1 provides an example of calculations to ascertain the impact of a change in price on smoking prevalence, considering changes in income.

Below, **Equation A1** provides an example of calculations to ascertain the impact of a change in price on smoking prevalence, considering changes in income.

Equation A1: The impact of changes in price on smoking prevalence

$$\Delta SP_i = SP_{i-1} * ((EXP(\epsilon_p * LN(op_{np}))) - 1) - \left[\frac{1 + \epsilon_i \left(\frac{GDP_2 - GDP_1}{GDP_2 + GDP_1} \right)}{1 - \epsilon_i \left(\frac{GDP_2 - GDP_1}{GDP_2 + GDP_1} \right)} \right]$$

Where:

SP = smoking prevalence (# of smokers) in year i

ϵ_p = prevalence elasticity

Op_{np} = the ratio of the old price of a pack of cigarettes to the new price after tax increases

ϵ_i = income elasticity

GDP = Gross domestic product in year

There are several limitations to the tax analysis. First, the tax tool assumes that the price and tax structure of the most sold brand of cigarettes is representative of the market, and it does not incorporate other market segments (high or low-end cigarettes). More detailed models that account for switching between segments or between products (e.g., movement to hand-rolled cigarettes) would capture nuance helpful to framing tobacco tax policy and estimating impact. Second, the analysis assumes a full pass through the tax increases. This assumption reflects a “middle ground” approach, but the tobacco industry may increase or decrease prices in reaction to the price increase. Third, we did not obtain Vanuatu-specific estimates of price elasticities, and we did not take into account the influence of increases in income because data on income growth was not available for Vanuatu from the World Economic Outlook database.

Brief advice to quit tobacco. We calculate the effect of scaling up the provision of brief advice to quit smoking at the primary care level. First, we calculate the baseline population quit rate (PQR, the percent of smokers who quit annually) drawing on previously published methods by Levy and colleagues (2010) [95]. The PQR is calculated (see **Equation A2**) using three parameters: quit attempts; treatment utilization rates (i.e. counselling, pharmaceutical therapy); and treatment effectiveness.

Equation A2: Calculating Population Quit Rate, from Levy et al (2010) [81]

$$PQR = QA * \sum_{i=1...4} (TxUse_i * TxEff_i)$$

Where:

PQR = Population quit rate

QA = % of smokers who make a quit attempt at least once annually

TxUse = the percent of those who make a quit attempt who use treatment category i

TxEff = The percent of those who use a given treatment who succeed in quitting annually (Treatment efficacy)

i = is one of four treatment categories: 1) no evidence-based treatment; 2) counselling; 3) pharmacological treatment (e.g. nicotine replacement therapy), or 4) both counselling and pharmacological therapy.

Again following Levy et al (2010), “to account for the effect of multiple quit attempts among those who fail at their first attempt, it was assumed that half of those that make at least one quit attempt per year go on to make a second attempt, and half of those [who make a second attempt] make a third, and so on,” and that treatment effectiveness does not change based on whether it is a persons’ first quit attempt or a succeeding one.

After establishing baseline PQR, we calculated how the population quit rate would change if provision of brief advice to quit at the primary care level became more prevalent. In this “intervention scenario”, over the 15-year time horizon of the analysis, half of all primary health-care providers are trained to provide brief advice to quit to adult tobacco users—a value selected based on evidence of the current intervention coverage gap; on average, in low-

and middle-income countries less than half (47.8 percent) of adult smokers who visit a health provider are advised to quit.¹⁸ Once trained, it is assumed that the provider administers the brief advice when they encounter a patient who uses tobacco.

Taking into account the number of primary health-care providers in the country, the patient panel size per provider, adult smoking rates, and the percent of adult smokers who present within the health system for at least one primary care visit per year, in each year of the analysis we calculate the number of adult tobacco users who would encounter a newly trained health provider and receive the brief intervention—which increases the likelihood that an individual makes a quit attempt by 60 percent over baseline levels [82]. With increases in population quit attempts driven by the provision of brief advice, we recalculate PQR to estimate the number of smokers who quit as a result of the intervention. Data used to inform these calculations are shown in **Table A3**.

Table A3: Provision of brief advice – key parameters to calculate intervention impact

Parameter name	Value	Source
Population quit rate (PQR)		
Annual quit attempt rate (QA)	41%	Average values from the Global Adult Tobacco Survey (GATS) of low- and middle-income countries (LMICs) conducted between 2009 to 2018*
Increase (%) in QA as a result of receiving brief advice	60%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [91]
Treatment use (Tx Use)		
No evidence-based treatment	81%	Average values from GATS of LMICs conducted between 2009 to 2018*
Pharmaceutical assistance	7%	Average values from GATS of LMICs conducted between 2009 to 2018*
Counselling	11%	Average values from GATS of LMICs conducted between 2009 to 2018*
Both pharmaceutical assistance and counselling	1%	Average values from GATS of LMICs conducted between 2009 to 2018*
Treatment effectiveness		
No evidence-based treatment	7%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [95]
Pharmaceutical assistance	15%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [99]**

18 Analysts pulled data from GATS surveys conducted between 2009 to 2018 and averaged values from low- and middle-income countries.

Counselling	12%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [99]**
Both pharmaceutical assistance and counselling	22%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [99]**
% of adult smokers who visit primary care clinic annually	38%	Average values from GATS of LMICs conducted between 2009 to 2018*
% of smokers who relapse after successfully quitting	60%	WHO (2017). Tobacco Interventions for the Appendix 3 of the Global Action Plan for Non Communicable Disease[72, p. 3]. García-Rodríguez et al (2013). Probability and predictors of relapse to smoking: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) [100]
Number of primary care health providers	73,025	WHO (2021). Global Health Observatory [101]***
Annual patient panel size per health provider (# of patients)	550	Altschuler et al (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians With Team-Based Task Delegation [102]****

*Analysts pulled data from GATS surveys conducted between 2009 to 2018 and averaged values from low- and middle-income countries.

**Compared to quit attempts that are made with no assistance from any form of evidence-based therapy, pharmaceutical assistance is 100 percent more effective, counselling 60 percent more effective, and combined therapy 200 percent more effective

***Sum of two indicators in the WHO Global Health Observatory (GHO) for the latest year for which information was available: 1) number of general physicians and 2) number of nursing personnel. Given that specific estimates for primary care nursing personnel are not given from the source, we assume the proportion of primary care nurses is the same as the proportion of generalist doctors to all doctors as given in the GHO.

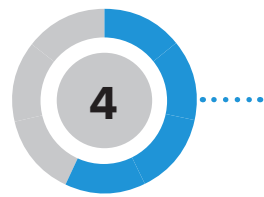
****Study results show that a primary care health provider working under a nondelegated model of care can reasonably care for a panel of 983 patients in a year and that in a conservative scenario where non-physician providers assume some responsibility for care patient panel sizes can expand to 1,387 patients. In most countries, a nondelegated model of care is the status quo. However, in this analysis, nurses are trained to offer brief advice and assume some responsibility for administering it. Therefore, a patient panel size is likely to be somewhere in the range of 983 to 1,387 patients. We assume a panel size of 1,100 and that an individual practitioner on the team covers half of the patients (550) per year.

Summary: the impact of tobacco demand reduction measures. The impact sizes of all policy measures examined in the investment case are displayed in **Table A4**. Additional information on their derivation can be found in the *Technical Appendix*.¹⁹

Table A4: Impact size: Relative reduction in the prevalence of current smoking by tobacco control policy/intervention, over a period of five (2023-2027) and 15 years (2023-2037)

WHO FCTC policy actions	Relative reduction in the prevalence of current smoking	
	First five years (2023-2027)	Over 15 years (2023-2037)
Tobacco control package* (all policies/interventions implemented simultaneously)	21.2%	36.2%
Increase taxes on cigarettes (<i>WHO FCTC Article 6</i>)	3.4%	9.1%
Create smoke-free public places and workplaces (<i>WHO FCTC Article 8</i>)	7.5%	12.5%
Implement plain packaging of tobacco products (<i>WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13</i>)	2.4%	4.0%
Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (<i>WHO FCTC Article 12</i>)	9.1%	15.2%
Promote tobacco cessation and treatment for dependence by training health professionals to provide brief advice to quit tobacco (<i>WHO FCTC Article 14</i>)	0.4%	1.2%
*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" [67].		

¹⁹ Available upon request.

**STEP 4**

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

To analyse 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 2037 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the “intervention scenario”, Vanuatu 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 Vanuatu can achieve by taking targeted actions to reduce tobacco use.

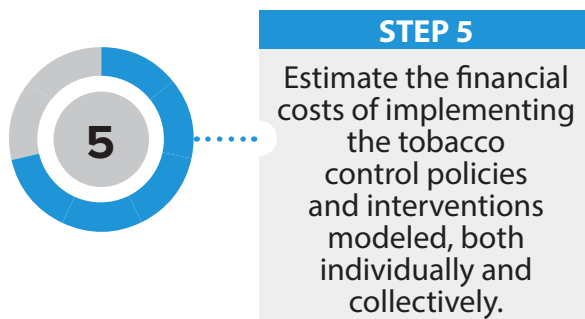
The marginal effects of the policies are calculated using the status quo scenario as the comparison group. To calculate marginal effects, the model subtracts the outcome (risk factor attributable deaths, health-care expenditures, etc.) under the intervention scenario from the same outcome under the status 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 health-care 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.



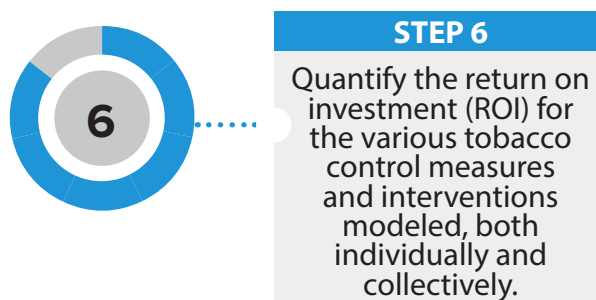
The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [96].

The Costing 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 Costing Tool estimates the cost of surveillance, human resources—for programme management, transportation, advocacy, and enacting and enforcing legislation—trainings and meetings, mass media, supplies and equipment, and other components. Within the Costing Tool, costs accrue differently during four distinct implementation phases: planning (year 1); development (year 2); partial implementation (years 3-5); and full implementation (year 6 and onward).

Across these categories, the Costing Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Costing Tool is updated to reflect 2020 costs by updating several parameters: the US\$ to local currency unit exchange rate (2020), purchasing power parity (PPP) exchange rate (2020), GDP per capita (US\$, 2020), GDP per capita purchasing power parity (PPP, 2020), population (total, and share of the population age 15+, 2020), labour force participation rate (2020), gas per litre, and government spending on health as a percent of total health spending (2019) [103]. Unless government or other in-country parameters are received, data are 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.

To cost the scale up of the provision of brief advice to quit tobacco use, the analysis adds to the programmatic costs embedded in the WHO Costing Tool by including costs to train health providers and the direct costs of the primary care visits in which the brief advice is administered. Over the 15-year time horizon of the analysis, half of all primary care health

providers are trained to administer brief advice to quit tobacco.²⁰ Based on WHO's training package for treating tobacco dependence in primary care [105], we assume that training sessions last 2.5 days, are conducted with a maximum of 30 participants, and are led by a team of two facilitators. We further assume that the training occurs in person in a rented facility space. Costs of training include those to rent the facility,²¹ pay facilitators, and provide per diems to facilitators and attendees, and we also assume that trainees (doctors and nurses) are compensated for their time at their wage rate.²² Once trained, providers are assumed to provide brief advice if they encounter a patient who smokes. The cost of providing brief advice during primary care visits is based on modeled, country-specific estimates from WHO-CHOICE of the cost of primary care outpatient visits [107]. The derivation of these estimates is detailed elsewhere [108], but in overview, the estimates reflected the "hotel cost" of a 10-minute visit²³ to a health facility with beds. We updated the estimates to 2020 local currency units, using 2010 PPP conversion factors and local consumer price indices [109]. For the purposes of the investment case, administration of the 5A's (Ask, Advise, Assess, Assist and Arrange) brief intervention is assumed to take 10 minutes [110]. Following WHO CHOICE methodology, we estimate the cost of those extra 10 minutes as an extra 21 percent of the original cost of the primary care visit.



The 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 five tobacco control policy actions modeled, and for the five interventions together as a package. Estimates from Steps 3, 4 and 5 were used to calculate ROIs at 5- and 15-year intervals.

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

20 The analysis assumes a 10 percent of health workers turn over annually [104].

21 Rental costs per square foot are obtained from the WHO Costing Tool with the room size estimated is based on square feet per person estimates for collaboration rooms [106].

22 Compensation costs for trainers, per diem estimates, and provider salaries are obtained from the WHO Costing Tool.

23 The analysis assumes that the mean duration of a clinic visit is 10-minutes, following guidance from the WHO NCD Costing Tool.

A1.4 Equity analysis

We used elasticity of smoking participation by income group to assess the equity implications of increases in cigarette taxation. No studies were identified that examine the elasticity of smoking participation in Vanuatu. Instead, we use the average of income-group-specific elasticities in low- and middle-income countries, as compiled in a World Bank policy research working paper [111]. The working paper provides elasticities by deciles. To apply the elasticities to the smoking prevalence data available for Vanuatu, which are presented as quintiles, we take the average of the first and second decile to obtain the elasticity for the first quintile, and so on. The average elasticity for each quintile from the working paper that are used to calculate reductions in smoking prevalence and smoking attributable mortality are shown in **Table A5** below.

Table A5: Average elasticities used in investment case equity analysis

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Price elasticity	-0.60	-0.49	-0.41	-0.36	-0.30

Source: Average of income-group-specific elasticities in low- and middle-income countries, as compiled in World Bank policy research working paper (Fuchs et al (2019). Distributional Effects of Tobacco Taxation: A Comparative Analysis. Accessible at <https://openknowledge.worldbank.org/handle/10986/31534>) [111].

The source for smoking prevalence used in the main investment case model (the *WHO Report on the Global Tobacco Epidemic*), does not contain prevalence disaggregated by income quintile. For the equity analysis, we use prevalence by income quintile obtained from the 2013 Demographic and Health Survey (DHS). We adjust the prevalence by income quintile proportionally by the difference between overall prevalence in the DHS and WHO Report.

A1.5 Summary of WHO FCTC demand reduction measure status

Figure 2 in the main text is based on data from the *WHO Report on the Global Tobacco Epidemic 2021*²⁴ [29]. In the Figure, the categories of “no/little implementation”, “partial implementation”, “moderate implementation”, and “meeting WHO FCTC recommendations” are mapped to the descriptions in **Table A6**, as specified and further detailed in Technical Note I of the WHO report (see page 119).

Investment case analysts assigned scores between 0 to 3 for each demand reduction measure, depending on the level of implementation. For four measures—graphic warning labels, plain packaging, public awareness of tobacco control issues, and tobacco cessation—we assigned

24 Except for the tobacco taxation demand reduction measure, for which the underlying tax data is from national health authorities and reflects the newly passed Excise (Amendment) Act No. 34 of 2021.

whole number scores (i.e. 0, 1, 2, or 3) that mapped to the four levels of implementation described above and detailed in **Table A6**. For increases in cigarette taxation, smoke-free public places and workplaces and TAPS bans, we adjusted the level-of-implementation score creating a decimal value as follows:

- For 1) smoke-free public places and workplaces and 2) TAPS bans, we adjusted the score to account for reported levels of compliance in the WHO Report on the Global Tobacco Epidemic (Compliance Score). Following previously published assumptions by Levy and colleagues (2013), we assumed that respectively 25 percent and 50 percent of the effect of these measures depends on levels of compliance [112]. Thus, for a country with “moderate implementation” of TAPS bans but a compliance score (as detailed in the WHO Report on the Global Tobacco Epidemic) of 5 out of 10, we calculated the score as follows: $\text{Measure Score} - (0.5 * \text{Compliance Score} / 10) = 2 - (0.5 * (5 / 10)) = 1.75$. For countries that did not report a compliance score we assumed the average of compliance scores worldwide.
- For 3) cigarette taxation, all countries in which the total tax share equalled 75 percent or above received a score of 3. All countries below that mark were assigned a score as follows: $3 * (\text{Total tax share} / 0.75)$. Thus a country with a total tax share of 35 percent received a score of 1.4 ($3 * (.35 / .75)$).

Ultimately, most measures are weighted equally (counting as 3 points if fully implemented) except for plain packaging (counting as 1 point if fully implemented). Analysts selected 1 point for plain packaging because: 1) Unlike for the other measures, plain packaging operates on a 0,1 scale—either the measure is in place or it is not (i.e. there are no gradations of the policy—there is little benefit to mandating that half of the package is “plain” while the rest is open to colouring or other attributes); 2) In the WHO Report on the Global Tobacco Epidemic plain packaging is scored as a “star” on top of the graphic warning labels acting as a supportive add on to other labelling requirements.

The total score a country can receive for implementation of the key demand reduction measures (i.e. composite tobacco control score) is 19. A country with a composite tobacco control score of 12/19 may be said to have implemented about 63 percent of the WHO FCTC key demand reduction measures agenda.

Table A6: Definition of WHO FCTC implementation status in Figure 2 (main text)

WHO FCTC demand reduction measure	No/little implementation	Partial implementation	Moderate implementation	High-level implementation
Increase cigarette taxation to reduce the affordability of tobacco products (<i>WHO FCTC Article 6</i>)	0% of retail price is tax, or no data is reported.	≥ 25% and <50% of retail price is tax.	≥ 50% and <75% of retail price is tax.	≥ 75% of retail price is tax.
Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke (<i>WHO FCTC Article 8</i>)	Complete absence of ban, or up to two public places completely smoke-free, or no data is reported.	Three to five public places completely smoke-free.	Six to seven public places completely smoke-free.	All public places completely smoke-free (or at least 90% of the population covered by complete subnational smoke-free legislation).
Require tobacco packaging to carry graphic health warnings describing the harmful effects of tobacco use (<i>WHO FCTC Article 11</i>)	No warnings or small warnings, or data not reported.	Medium size warnings missing some appropriate characteristics or large warnings missing many appropriate characteristics.	Medium size warnings with all appropriate characteristics or large warnings missing some appropriate characteristics.	Large warnings with all appropriate characteristics.
Implement plain packaging of tobacco products (<i>WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13</i>)	Plain packaging is not mandated.	-	-	Plain packaging is mandated.

WHO FCTC demand reduction measure	No/little implementation	Partial implementation	Moderate implementation	High-level implementation
Promote and strengthen public awareness about tobacco control issues and the addictive nature and harms of tobacco use through mass media information campaigns (<i>WHO FCTC Article 12</i>)	No national campaign conducted between July 2018 and June 2020 with a duration of at least 3 weeks, or no data is reported.	National campaign conducted with one to four appropriate characteristics.	National campaign conducted with five to six appropriate characteristics.	National campaign conducted with at least seven appropriate characteristics including airing on television and/or radio.
Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship – TAPS (<i>WHO FCTC Article 13</i>)	Complete absence of ban, or ban that does not cover national television, radio and print media.	Ban on national television, radio and print media only.	Ban on national television, radio and print media as well as on some but not all other forms of direct and/or indirect advertising.	Ban on all forms of direct and indirect advertising (or at least 90% of the population covered by subnational legislation completely banning tobacco advertising, promotion and sponsorship).
Develop infrastructure to support tobacco cessation and treatment of tobacco dependence (<i>WHO FCTC Article 14</i>)	None, or no data are reported.	Nicotine Replacement Therapy (NRT) and/or some cessation services (neither cost-covered).	NRT and/or some cessation services (at least one of which is cost-covered).	National quit line, and both NRT and cessation services routinely cost-covered.

Source: Information in this table is based on the WHO Report on the Tobacco Epidemic, 2021 [29].

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