Investment Case for Tobacco Control in SURINAME

The case for scaling up WHO FCTC implementation
The Case for Investing in WHO FCTC Implementation in Suriname

Prepared by
Ministry of Health Suriname
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More than 500 Surinamese die every year due to tobacco-related illness, accounting for nearly 12% of all deaths in the country.

Tobacco-related illnesses cost Suriname SRD 508 million every year, equivalent to 1.7% of its GDP in 2019.
Investing now in five tobacco control measures will prevent more than **1,750 deaths** and avert **SRD 1 billion** in health costs and economic losses by 2035.

For every **Surinamese dollar** invested in the five tobacco control measures today, Suriname will achieve **SRD 5** in averted costs and economic losses by 2025 and **SRD 13** by 2035.
Acknowledgements

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This report recommends actionable steps, in addition to the modeled WHO FCTC provisions, that the Government of Suriname can take to strengthen a whole-of-government approach to tobacco and its development consequences. Through the FCTC 2030 Project, the Convention Secretariat, UNDP, and WHO stand ready to support the Government of Suriname to reduce the social, economic, and environmental burdens that tobacco continues to place on the country.
1. Executive summary

Overview

Tobacco is a health and sustainable development issue. Tobacco consumption and production causes early death and disease, results in high health costs and economic losses, widens socioeconomic inequalities, and impedes progress across the Sustainable Development Goals.

This report presents the findings of the case for investing in tobacco control in Suriname, a stated priority of the Government of Suriname. In line with the WHO Framework Convention on Tobacco Control (WHO FCTC) Global Strategy to Accelerate Tobacco Control, it measures the costs and benefits—in health and economic terms—of implementing five priority tobacco control measures. The five measures are (1) Increase cigarette taxation to reduce the affordability of tobacco products (WHO FCTC Article 6), (2) Enforce bans on smoking in public places to protect people from tobacco smoke (WHO FCTC Article 8), (3) Implement plain packaging (WHO FCTC Article 11 Guidelines and Article 13), (4) Institute national mass media campaigns against tobacco use (WHO FCTC Article 12), and (5) Support reducing tobacco dependence and encourage cessation by training health professionals to provide brief advice to quit smoking (WHO FCTC Article 14).

Main findings

In 2019, tobacco use caused SRD 508 million in economic losses. These losses are equivalent to 1.7 percent of Suriname’s GDP. They include a) SRD 53 million in healthcare expenditures and b) SRD 455 million in indirect losses due to premature mortality and ill-health as well as workplace smoking breaks. The indirect economic losses from current tobacco use in Suriname—90 percent of all tobacco-related costs—indicate that tobacco use impedes development in Suriname beyond health; multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from supporting tobacco control investments through a healthier and more productive labour force.

Every year, tobacco use kills more than 500 Surinamese, with 62 percent of these deaths among individuals under age 70 (i.e. premature death). About 17 percent of lives lost from tobacco use are due to exposure to secondhand smoke.
By acting now, the Government of Suriname can reduce the national burden from tobacco use. The investment case findings demonstrate that enacting and enforcing five proven WHO FCTC tobacco control measures would, over the next 15 years:

### Avert SRD 1 billion in economic losses.**

The tobacco control measures stimulate economic growth by ensuring that fewer people 1) die prematurely due to tobacco-attributable diseases, 2) miss days of work due to disability or sickness, and 3) work at a reduced capacity due to smoking breaks or tobacco-related health issues.

### Lead to an additional SRD 113 million in savings through avoidance of tobacco-attributable healthcare expenditures.**

Of this, the Government would save SRD 85 million in healthcare expenditures, citizens would save SRD 23 million in out-of-pocket healthcare costs, and SRD 6 million would be saved from other sources of healthcare expenditures.

### Save 1,800 lives and reduce the incidence of disease.**

The recommended WHO FCTC tobacco control measures would contribute to Suriname’s efforts to achieve SDG Target 3.4 to reduce by one-third premature mortality (under age 70) from non-communicable diseases (NCDs) by 2030. Enacting the WHO FCTC measures would prevent around 500 premature deaths from the four main NCDs—CVD, diabetes, cancer, and COPD—by 2030, the equivalent of about 11 percent of the needed reduction in premature mortality to achieve SDG Target 3.4.

### Provide economic benefits (SRD 1 billion) that significantly outweigh the costs of implementing the five WHO FCTC measures (SRD 85 million).**

A mass media campaign would have the highest return on investment (54:1), followed by increasing cigarette taxes (29:1), implementing plain packaging of tobacco products (23:1), enforcing bans on smoking in public places (21:1), and cessation support by training health professionals to provide brief advice to quit smoking (2:1).

In addition to the above analyses, the investment case separately examined the revenue-generating potential of cigarette tax increases. Under the examined scenario, committing to 18-percent annual increases in specific excise taxes through 2025 could generate SRD 89 million\(^1\) in revenue. This is SRD 18 million annually, which is equivalent to about 1 percent of government health expenditures.

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\(^1\) Undiscounted value.
Recommendations

This report recommends actionable steps, in addition to the modeled WHO FCTC provisions, that the Government of Suriname can take to strengthen a whole-of-government and whole-of-society approach to tobacco and its development consequences. Through the FCTC 2030 Project, the Convention Secretariat, UNDP, and WHO stand ready to support the Government of Suriname to reduce the social, economic, and environmental burdens that tobacco continues to place on its country.

1. Increase taxes on all tobacco products to meet WHO recommendations.
2. Scale-up efforts to monitor and combat illicit trade.
3. Strengthen multisectoral planning and coordination for tobacco control.
4. Elevate the legislative framework, close enforcement gaps and warn people about the harms of tobacco.

Table ES1. Summary of the main results of the investment case for tobacco control in Suriname

<table>
<thead>
<tr>
<th>Every year, tobacco use causes...</th>
<th>Over 15 years, implementing new tobacco control measures or intensifying existing ones would...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 500 deaths</td>
<td>Prevent over 1,750 deaths</td>
</tr>
<tr>
<td>SRD 53 million in healthcare expenditures</td>
<td>Save SRD 113 million in healthcare expenditures</td>
</tr>
<tr>
<td>SRD 455 million in economic losses</td>
<td>Prevent SRD 1 billion in economic losses</td>
</tr>
<tr>
<td>Total economic losses equivalent to 1.7% of GDP. Economic losses are about seven times greater than annual revenue from tobacco taxation. Suriname could recoup losses generated by tobacco use through increased taxation. Increasing specific excise taxes by 18 percent annually through 2025 could generate SRD 89 million in revenue.</td>
<td>Generate economic benefits (SRD 1 billion) that greatly outweigh costs (SRD 85 million) of implementation and enforcement – a 13:1 return on investment.</td>
</tr>
</tbody>
</table>
2. Introduction

Tobacco is one of the world’s leading health threats, and a main risk factor for non-communicable diseases (NCDs) including cancers, diabetes, chronic respiratory disease, and cardiovascular disease. In Suriname, one in five adults currently use some form of tobacco product [1], leading to an estimated 546 deaths every year [2]. About 62 percent of those deaths occur among those under age 70 [2].

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

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

Current tobacco use trends in Suriname and around the world are incompatible with sustainable development. Through Sustainable Development Goal (SDG) Target 3.4, the 2030 Agenda for Sustainable Development commits Member States to achieve a one-third reduction in premature mortality from NCDs (i.e. deaths between 30 and 70) by 2030. Accelerating progress on NCDs requires strengthened implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC; SDG Target 3.a). Tobacco control is not just a primary means to improve population health, but also a proven approach to reduce poverty and inequalities, grow the economy, and advance sustainable development broadly. Tobacco control is an SDG accelerator as it can contribute to multiple goals simultaneously across the economic, social and environmental spheres. However, more work must be done to reverse the tobacco epidemic including by accelerating implementation of the WHO FCTC.
Suriname ratified the WHO FCTC in 2008 [16]. In response to its WHO FCTC obligations, Suriname approved the National ‘Tobacco Act’ in 2013 – the primary piece of legislation governing smoke-free places; tobacco advertising, promotion and sponsorship (TAPS); and regulations around tobacco packaging and labeling [17]. The Attorney General and Minister of Public Health of Suriname issued Decisions that established fines for violations of the Tobacco Act and increased restrictions around packaging and labeling of tobacco products in 2014 and 2018, respectively [17].

Though Suriname has a legislative package that includes several provisions that meet WHO FCTC obligations, other provisions remain to be implemented and several existing policies can be intensified to reduce tobacco use prevalence. For example, there are opportunities to increase enforcement of smoke-free public spaces, implement plain packaging of cigarette packages, and increase tobacco taxes. Realizing the full benefits of such measures depends on concerted and coordinated efforts from multiple sectors of government, as well as high-level leadership and an informed public.

In 2020, the Convention Secretariat, UNDP, and PAHO/WHO undertook a joint mission with partners in Suriname to initiate an investment case as part of the FCTC 2030 Project. The FCTC 2030 Project is a global initiative funded by the governments of the UK, Norway, and Australia that supports 24 countries to strengthen WHO FCTC implementation to achieve the SDGs. Suriname is one of these 24 countries worldwide receiving the dedicated support. An investment case analyzes the health and economic costs of tobacco use as well as the potential gains from scaled-up implementation of WHO FCTC measures. It identifies which WHO FCTC demand-reduction measures would produce the largest health and economic returns for Suriname (the return on investment; ROI).

In consultation with the Government of Suriname, the investment case models the impact of the following key WHO FCTC provisions:

1. **Cigarette taxation to reduce the affordability of tobacco products** *(WHO FCTC Article 6)*
2. **Enforce bans on smoking in all public places to protect people from tobacco smoke** *(WHO FCTC Article 8)*
3. **Plain packaging** of tobacco products *(WHO FCTC Article 11: Guidelines for implementation, and Article 13)*
4. **Mass media campaigns against tobacco use** *(WHO FCTC Article 13)*
5. **Reducing tobacco dependence by training health professionals to provide brief advice to quit smoking** *(WHO FCTC Article 14)*

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2 Plain (or neutral) packaging requirements prohibit the use of logos, colors, brand images, or promotional information on packaging other than brand names and product names displayed in a standard color and font style.
Section 3 of this report provides an overview of tobacco control in Suriname, including tobacco use prevalence as well as challenges and opportunities. Section 4 summarizes the methodology of the investment case (see Section 8: Methodology Annex and the separate Technical Appendix, available upon request, for more detail). Sections 5 and 6 report the main findings of the economic analysis. The report concludes under Section 7 with recommendations.
3. Tobacco control in Suriname: status and context

3.1 Tobacco use prevalence, social norms and awareness-raising

In Suriname, 20.1 percent of the population aged 15 to 64 are current smokers, according to the most recent WHO STEPwise approach to surveillance (STEPS) survey conducted in 2013 [1]. Nearly three in four smokers consume tobacco every day, with manufactured cigarettes accounting for 96 percent of daily smokers’ consumption [1]. Nearly five times more men smoke than women (34 percent of men compared to 6.5 percent of women) (Figure 1) [1]. On average, both sexes consume more than half a pack of cigarettes per day and initiate smoking after the age of 18.

![Fig. 1: Smoking prevalence, intensity, and age of initiation, by sex](image)

Surinamese youth are also affected by passive smoke exposure. One in three students (aged 13-15 years) reported being exposed to tobacco smoke at home, and 43 percent were exposed to secondhand tobacco smoke inside enclosed public spaces [18].
3.2 The status of WHO FCTC tobacco control demand-reduction measures

Strong fiscal and regulatory measures powerfully influence societal norms by signalling to the population that tobacco use is harmful, not only for users but also for the people around them—including family, colleagues, and workers. While Suriname has implemented several tobacco control measures, tobacco continues to harm the health and economy of Surinamese citizens, as over 80,000 Surinamese continue to smoke [1, 19].

The 2013 Tobacco Act is the primary tobacco control law in Suriname, containing provisions governing smoke-free places; tobacco advertising, promotion, and sponsorship (TAPS); and tobacco packaging and labeling. The Minister of Public Health and Attorney General subsequently issued regulations based on this law, including establishing requirements for ‘no smoking’ signs as well as signs indicating the minimum sales age, establishing the fine amounts for violations, and graphic health warnings on cigarette packaging [17].

While Suriname is fulfilling some obligations under the WHO FCTC, implementing additional measures, or intensifying existing ones, can draw Suriname into closer alignment and act to reduce the substantial costs imposed by tobacco use. This section below highlights the status of existing measures and the WHO FCTC target advocated for, and analyzed within, the investment case.

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

The specific excise tax is approximately SRD 10 in Suriname, accounting for 39.4 percent of the retail price of the most sold brand of cigarettes [16]. A value added tax (VAT) forms an additional 8.2 percent, meaning that in total, taxes comprise about 47.6 percent of the retail price [16]. The WHO Technical Manual on Tobacco Tax Administration recommends that taxes represent at least 75 percent of the retail price of tobacco products, inclusive of at least a 70 percent excise tax, and that tax rates are monitored and increased on a regular basis to ensure tobacco products do not become more affordable over time (e.g. due to growth in income). The investment case examines the impact of raising cigarette taxes to levels that would meet and exceed WHO FCTC obligations. Beginning in 2023, the specific excise tax is raised an average of 2.4 Surinamese Dollars per year until 2035 (see Methodology annex for detailed information), until the tax share meets WHO FCTC obligations.
Implement and enforce bans on smoking in all public places to protect people from tobacco smoke (WHO FCTC Article 8)

Suriname’s Tobacco Act bans smoking in public places, including workplaces, public transportation, government buildings, and restaurants. Although there is high compliance in healthcare facilities and indoor offices, the bans are not well-enforced in restaurants, cafés, bars, public transportation, and other public places [16]. The investment case examines the impact of strengthening enforcement of the ban on smoking in public places.

Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use (WHO FCTC Article 11)

Suriname has six rotating graphic warning labels that are required on cigarette packaging. The law mandates that 50 percent of the principal display area (front and back) of cigarette packaging be covered with the health warnings, meeting WHO FCTC obligations. Surinamese law also dictates that the health warnings describe the harmful effects of tobacco use, and that the warnings do not diminish or remove liability of the tobacco industry.

Mandate plain packaging of all tobacco products (WHO FCTC Guidelines for Articles 11 and 13)

Plain packaging—neutral colors, without branding and logos—is not included in Suriname’s existing tobacco control legislation. The investment case models the impact of implementing and enforcing plain packaging requirements.

Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns (WHO FCTC Article 12)

Public information campaigns can increase awareness of the harms of tobacco use. Suriname has not recently implemented an anti-tobacco national mass-media campaign. Launching and sustaining a WHO best-practice mass media campaign3 (examined in the investment case) would further promote and strengthen public awareness about tobacco control issues and the harms of tobacco use.

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3 Research is conducted to tailor the campaign to the target audience; communication is tested with the targeted audience; advertising space is purchased using internal resources or using a media agency; media outreach occurs to gain publicity; process and outcome evaluations of the campaign are undertaken regularly to assess effectiveness; the campaign airs on television and/or radio.
Enact and enforce a comprehensive ban on all forms of tobacco advertising, sponsorship and promotion (WHO FCTC Article 13)

Suriname comprehensively bans tobacco advertising, promotion, and sponsorship (TAPS) with high rates of compliance [16]. The ban covers national and international TV and radio, print media, internet, and billboards and outdoor advertising. Indirect advertising, such as product placement in TV and film, is also banned, and there are complete bans on tobacco industry corporate social responsibility and sponsorship contributions.

Provide support for reducing tobacco dependence and cessation: Offer brief advice to quit at the primary care level (WHO FCTC Article 14)

Smoking cessation support is available in some community health centers, hospitals, and clinics, and the related costs incurred at health clinics and primary care facilities are fully covered by the national health service. Supportive cessation advice from trained providers can motivate individuals to quit or increase quit attempts. However, evidence shows that in low- and middle income countries, over half of health providers do not deliver this advice [20]. The investment case examines the impact of training at least 50 percent of primary health providers to offer cessation advice in primary care settings.

Table 1 summarizes the existing state of WHO FCTC demand-reduction measures and compares them against the WHO FCTC target for each measure. Reaching the WHO FCTC targets can further reduce tobacco consumption and its development impacts. The impact of each policy measure—individually and in combination—is described in Annex Table A1.
Table 1. Summary of the current state of WHO FCTC demand-reduction measures in Suriname and modeled WHO FCTC targets

<table>
<thead>
<tr>
<th>Tobacco Control Policy</th>
<th>Suriname Baseline*</th>
<th>Modeled WHO FCTC Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increase cigarette taxation to reduce the affordability of tobacco products</strong> (WHO FCTC Article 6)</td>
<td>Tax share equivalent to 47.6 percent of the retail price of the most sold cigarette brand, with 39 percent specific excise tax.</td>
<td>Increase taxes on cigarettes to at least 75 percent of the retail price and specific excise taxes to 70 percent. Implement regular tax increases to outpace inflation and income growth.</td>
</tr>
<tr>
<td><strong>Implement and enforce bans on smoking in public places to protect people from exposure to tobacco smoke</strong> (WHO FCTC Article 8)</td>
<td>Suriname has a complete ban on smoking in public places. However, compliance issues remain.</td>
<td>Increase levels of enforcement to drive compliance with existing bans on smoking in public places.</td>
</tr>
<tr>
<td><strong>Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use</strong> (WHO FCTC Article 11)</td>
<td>Graphic, rotating health warnings are required to cover at least 50 percent of cigarette packages.</td>
<td>Suriname is fulfilling the WHO FCTC minimal obligation to ensure that at least 50 percent of cigarette packaging is covered by graphic warning labels.</td>
</tr>
<tr>
<td><strong>Mandate plain packaging of all tobacco products</strong> (WHO FCTC Article 11: Guidelines, and Article 13)</td>
<td>Plain packaging is currently not mandated.</td>
<td>Implement and enforce plain packaging of tobacco products.</td>
</tr>
<tr>
<td><strong>Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns</strong> (WHO FCTC Article 12)</td>
<td>No national-level, anti-smoking media campaigns have recently aired in Suriname.</td>
<td>Implement and sustain nationwide anti-smoking mass media campaign that is researched and tested with a targeted audience and evaluated for impact.</td>
</tr>
<tr>
<td><strong>Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship - TAPS</strong> (WHO FCTC Article 13)</td>
<td>Suriname has a comprehensive and well-enforced ban on tobacco advertising, promotion, and sponsorship.</td>
<td>Suriname is fulfilling the WHO FCTC obligation to ban tobacco advertising, promotion, and sponsorship.</td>
</tr>
<tr>
<td><strong>Provide support for reducing tobacco dependence and cessation: Offer brief advice to quit at the primary care level</strong> (WHO FCTC Article 14)</td>
<td>Smoking cessation support is available in some, but not all, healthcare facilities and hospitals.</td>
<td>Train 50 percent of health providers to identify tobacco users and to provide tobacco cessation advice; scale-up the provision of tobacco cessation services at the primary care level.</td>
</tr>
</tbody>
</table>

* Information in this column is drawn from the Suriname WHO Tobacco Country Profile [16].
3.3 Tobacco use and the COVID-19 pandemic

The global COVID-19 pandemic is straining health systems worldwide, and the economic impact of the outbreak is immense. People living with pre-existing NCDs, including those caused by tobacco use, are likely more vulnerable to becoming severely ill with COVID-19 [21]. According to WHO, smokers have up to a 50 percent increased risk of developing severe disease or dying from COVID-19. However, more research needs to be conducted. Well-designed population-based studies are, however, necessary to address questions about hospitalization, COVID-19 severity and the risk of infection by SARS-CoV-2 among smokers [22].

3.4 National tobacco control legislation, strategy and coordination

3.4.1 Laws and regulations

Suriname ratified the WHO FCTC in 2008 and became a Party in 2009. It has since made strides in implementing WHO FCTC measures, including legislation on smoke-free areas, packaging regulations and bans on tobacco advertisement, promotion and sponsorship. These measures, adopted through the 2013 Tobacco Act, coupled with progress raising tobacco excise taxes and provision of cessation services, have earned Suriname the status of “best practice country” in the 2019 WHO Report on the Global Tobacco Epidemic [23]. Suriname’s comprehensive national legislation could be further strengthened to ensure full WHO FCTC compliance. For example, as a priority, Suriname is recommended to increase levels of enforcement to drive compliance with existing national bans on smoking in public places.

Through the FCTC 2030 project, Suriname will develop a new national multisectoral tobacco control strategy, a critical component of a strengthened WHO FCTC implementation. This strategy will be powered by a two-year multisectoral action plan to be developed with stakeholders involved in drafting the strategy. Integration of tobacco control into national and sectoral plans can enhance the whole-of-government and whole-of-society response. Suriname has integrated tobacco control into past national plans and UN support strategies such as the 2012-2016 National Action Plan for NCDs and the PAHO/WHO Country Cooperation Strategy 2012-2016. WHO FCTC targets are not integrated in the Strategic Plan for Health and Well-being 2019-2028 [24], presenting an opportunity for stronger alignment, including with the Plan’s priorities on universal health coverage and financing. The United Nations Multi-Country Sustainable Development Framework in the Caribbean (2016) includes a target on ratifying WHO FCTC compliant legislation and can be used to strengthen UN system-wide support in protecting Suriname from the pervasive harms of tobacco.
3.4.2 Tobacco control governance, planning and coordination

The 2013 STEPS survey is the most comprehensive tobacco surveillance survey conducted in Suriname. The survey included a nationally representative sample of 5,752 people aged 15-65 from all provinces. Results suggest that a high prevalence of risk factors is driving large NCD burdens. Four Global Youth Tobacco Surveys (GYTS) have been conducted—2000, 2004, 2009 and 2016—with each subsequent GYTS intended to monitor and evaluate progress in and impact on policies and legislation for reducing tobacco use among youth. The PAHO/WHO 2016 Universal Periodic Review (UPR) for Suriname noted that inequalities exist between ethnicities, genders and age groups regarding prevalence of tobacco use and NCDs. GYTS surveys for Suriname also highlighted key differences in tobacco consumption by sex.

Suriname dedicates funds to tobacco control but the proportional allocation could be increased to draw financing in closer alignment with current disease burden. In 2019, Suriname allocated SRD 6.6 million (about US$860,000) to NCD-related interventions and SRD 100,000 (about US$7,065) to ‘Implementation of the 2013 Tobacco Law’ [25]. The FCTC investment case demonstrates the power of increasing investments in health. The recommendation on taxation (WHO FCTC Article 6) can support Suriname’s efforts on health financing including in the context of COVID-19 response and recovery.

3.4.3 Illicit trade

Despite widespread recognition of the harmful effect of illicit trade on businesses and government, Suriname is not yet a Party to the WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products. PAHO/WHO has been coordinating with Suriname’s Ministry of Finance to develop a model for estimating illicit trade volume. This model, combined with increased data on the extent of illicit trade in Suriname, would improve tobacco excise tax modeling.

In Suriname, there is concern among private and public sector representatives that stricter tobacco product regulations and higher taxes, if unaccompanied by a stronger approach to illicit trade, would harm the firms operating within legal boundaries and reward those trading in counterfeit and contraband tobacco. Currently, counterfeit and contraband cigarettes enter the country through clandestine ports in locations largely unknown to police and customs authorities. There are also known issues in illicit trade at the main port of entry in Paramaribo [26].
The Government, notably the Ministry of Finance, recognizes that improved control of illicit trade would support efforts to more strictly regulate and tax tobacco products. WHO advises that strengthening tax administration—such as simplifying taxation, monitoring the tobacco products market, and strengthening customs and police—are key approaches to reduce incentives for tax evasion by manufacturers and smuggling as a source of revenue for criminal organizations [27]. In line with WHO FCTC Article 5.3 on preventing tobacco industry interference in policymaking, Suriname’s efforts on illicit trade should not include the tobacco industry. British American Tobacco (BAT), a multinational tobacco company, attempts to position itself as a partner against illegal trade in the Caribbean through workshops and seminars, and by offering governments alleged technical expertise [28]. Illicit tobacco trade is used by tobacco companies to promote misleading narratives that advance their own business goals. These include arguments against effective tobacco control policies such as standardized packaging and tax increases.
4. Methodology

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

Research Triangle Institute International (RTI) developed a static model to conduct the investment case and to perform the methodological steps in Figure 2. This methodology has been used for previous national 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. Interested readers are also referred to this report’s separate Technical Appendix4 for a more thorough account of the methodology.

The investment case team worked with stakeholders in Suriname 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 World Health Organization (WHO), the World Bank database, the Institute for Health Metrics and Evaluation’s (IHME) Global Burden of Disease (GBD) study, and academic literature. Within the investment case, costs and monetized benefits are reported in constant 2019 Surinamese dollars (SRD) and discounted at an annual rate of 5 percent.

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4 Available upon request.
5. Results

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

Tobacco use undermines economic growth. In 2019, tobacco use caused an estimated 546 deaths in Suriname, 62 percent of which occurred among those under 70 years. These deaths amount to 12,700 years of life lost, which are lost productive years in which many of those individuals would have contributed to the workforce. The economic losses in 2019 due to tobacco-related premature mortality are estimated at SRD 366 million.

While the costs of premature mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g. heart disease, strokes, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the Government SRD 39.6 million in 2019 and caused Surinamese citizens to spend SRD 10.5 million in out-of-pocket (OOP) healthcare expenditures. Private insurance and non-profit institutions serving households spent SRD 2.9 million on treating tobacco-attributable diseases in 2019. In total, healthcare expenditures attributable to smoking amounted to SRD 53 million.

In addition to healthcare costs, as individuals become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2019, the cost of excess absenteeism due to tobacco-related illness was SRD 15.9 million and the cost of presenteeism due to cigarette smoking was SRD 43 million (Figure 3).

Finally, even in their healthy years, workers who smoke are more likely to incur productivity loss than workers who do not smoke. Smokers take an estimated ten additional minutes per day in breaks than non-smoking employees [29]. If ten minutes of time is valued at the average worker’s salary, the compounding impact of 48,400 employed smokers taking ten minutes per day for smoke breaks is equivalent to losing SRD 31 million in productive output annually.

In total, tobacco use caused SRD 508 million in economic losses in 2019, equivalent to about 1.7 percent of Suriname’s 2019 GDP. Figure 3 breaks down the direct and indirect costs. Figure 4, Figure 5, and Figure 6 illustrate the annual health losses that occur due to tobacco use.

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

6 Component parts may not add to SRD 508.1 million exactly due to rounding.
WHO FCTC Investment Case for Suriname

The current burden of tobacco use

Fig. 3: Breakdown of the share of direct and indirect economic costs in 2019

**INDIRECT COSTS (90%)**
SRD 455.14 million

- Premature mortality
  SRD 365.9 million
- Presenteeism
  SRD 42.9 million
- Smoking breaks
  SRD 30.5 million
- Absenteeism
  SRD 15.9 million
- Out-of-pocket health expenditures
  SRD 10.5 million
- Government health expenditures
  SRD 39.6 million

**DIRECT COSTS (10%)**
SRD 53 million

- Private insurance health expenditures
  SRD 2.9 million
Fig. 4: Tobacco-attributable deaths by disease in Suriname, 2019 (Results are from the IHME Global Burden of Disease Results Tool. Other causes include pancreatic cancer, stomach cancer, prostate cancer, peptic ulcer disease, aortic aneurysm, leukemia, larynx cancer, breast cancer, lip and oral cavity cancer, bladder cancer, esophageal cancer, liver cancer, asthma, tuberculosis, other pharynx cancer, kidney cancer, nasopharynx cancer, atrial fibrillation and flutter, and gallbladder and biliary diseases.)
Fig. 5: Tobacco-attributable DALYs, YLDs, and YLLs in Suriname, by sex,\(^7\) 2019

![Bar chart showing tobacco-attributable DALYs, YLDs, and YLLs in Suriname, by sex.]

<table>
<thead>
<tr>
<th></th>
<th>DALY</th>
<th>YLD</th>
<th>YLL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>4,008</td>
<td>967</td>
<td>3,041</td>
</tr>
<tr>
<td>Men</td>
<td>8,721</td>
<td>1,658</td>
<td>7,063</td>
</tr>
</tbody>
</table>

Fig. 6: Tobacco-attributable disability-adjusted life years (DALYs) in Suriname, by cause (word sizes relative to their burden)\(^8\)

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

Size of words representative of the number of DALYs resulting from that disease.
5.2 Implementing policy measures that reduce the burden of tobacco use

Implementing new tobacco control measures, or intensifying existing ones, can reduce the national burden from tobacco use. Through these actions, Suriname can secure significant health and economic returns, and begin to reduce the SRD 508 million in annual direct and indirect economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from the five WHO FCTC policy actions to 1) increase cigarette taxation to reduce the affordability of tobacco products; 2) strengthen enforcement of bans on smoking in public spaces; 3) implement plain packaging of tobacco products; 4) institute national mass media campaigns against tobacco use; and 5) support reducing tobacco dependence and encouraging cessation by training health professionals to provide brief advice to quit smoking.

5.3 Health benefits—lives saved

Putting in place the full package of tobacco control measures (all five of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains now and into the future. Specifically, enacting the package would reduce the prevalence of cigarette smoking by 36 percent (in relative terms) over 15 years, saving around 1,800 lives from 2021-2035, or around 120 lives annually.

5.4 Economic benefits—costs averted

Implementing the tobacco control policy package would result in Suriname avoiding 17 percent of the economic loss that it is expected to incur from tobacco use over the next 15 years. Figure 7 illustrates the extent to which Suriname can shrink the economic losses it is expected to incur under the status quo.

Fig. 7: Tobacco-related economic losses over 15 years: What happens if Suriname does nothing else versus if the Government strengthens tobacco control measures to reduce demand for smoking?
In total, over 15 years Suriname would save about SRD 1 billion that would otherwise be lost if it does not implement the recommended package of tobacco control measures. These avoided costs are equivalent to about SRD 73 million in annual avoided economic losses.

With better health, fewer individuals need to be treated for complications from disease, relieving strain on health systems, and 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. Labourers miss fewer days of work (absenteeism) and are less hindered by health complications while at work (presenteeism). Finally, because the prevalence of smoking declines, fewer smoke breaks are taken in the workplace.

Figure 8 breaks down the sources from which annual avoided costs accrue because of implementing the tobacco control policy package. The largest annual avoided costs result from averted premature mortality (SRD 52 million). The next highest source is avoided healthcare expenditures (SRD 8 million), followed by reduced presenteeism (SRD 6 million), reduced numbers of smoking breaks (SRD 4 million), and reduced absenteeism (SRD 2 million).

**Fig. 8: Sources of annual avoided economic costs because of implementing the tobacco control policy package**
Implementing the package of tobacco control measures reduces medical expenditure for citizens and the Government. Presently, total private and public annual healthcare expenditures in Suriname are about SRD 2 billion [30], 2.6 percent of which is directly related to treating disease and illness due to tobacco use [3] (= SRD 53 million).

Year-on-year, the package of interventions lowers tobacco use prevalence, which leads to less illness, and consequently less healthcare expenditure (see Figure 9). Over the 15-year time horizon of the analysis, the package of interventions averts SRD 113.2 million in healthcare expenditures, or about SRD 7.5 million annually. Of this, 75 percent of savings accrue to the Government and 20 percent accrue to individual citizens who would have had to make out-of-pocket payments for healthcare. The remainder of savings goes to private insurance and other sources of healthcare expenditures. Thus, from reduced healthcare costs alone, the Government stands to save about SRD 84.5 million over 15 years. Simultaneously, the Government would successfully reduce the burden of health expenditure that tobacco imposes on Suriname’s citizens, supporting efforts to reduce economic hardship on families. Rather than spending on treating avoidable disease and routinely spending on tobacco products, these families would be able to invest more in nutrition, education, and other productive inputs to secure a better future.

Fig. 9: Private and public healthcare costs (and savings) over the 15-year time horizon
5.5 The return on investment

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 investments by dividing the economic benefits that are gained from implementing the WHO FCTC tobacco control investments by the costs of the investments. For the Suriname investment case, the ROI for each intervention was evaluated in the short-term (period of five years), to align with planning and political cycles, and in the medium-term (period of 15 years) to align with the timeframe allotted for the SDGs. The ROI shows the return on investment for each intervention and for the full package of measures.

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 smoking (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 anywhere from 0.4 to 18.9 times its investment. The ROIs for each intervention continue to grow over time, reflective of the increasing effectiveness of policy measures as they move from planning and development stages to full implementation.
### Table 2: Return on investment, by tobacco control policy/intervention (SRD millions)

<table>
<thead>
<tr>
<th>Return on investment, by tobacco control measure</th>
<th>First 5 years (2021–2025)</th>
<th>All 15 years (2021–2035)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Costs (millions)</td>
<td>Total Benefits (millions)</td>
</tr>
<tr>
<td><em><em>Tobacco control package</em> (all policies/interventions implemented simultaneously)</em>*</td>
<td>38.3</td>
<td>178</td>
</tr>
<tr>
<td><strong>Raise Cigarette Taxes (WHO FCTC Art. 6)</strong></td>
<td>6.2</td>
<td>59.3</td>
</tr>
<tr>
<td><strong>Protect People from Tobacco Smoke (WHO FCTC Art. 8)</strong></td>
<td>5.8</td>
<td>33</td>
</tr>
<tr>
<td><strong>Plain Packaging (WHO FCTC Art. 11 Guidelines &amp; Art. 13)</strong></td>
<td>3.3</td>
<td>21</td>
</tr>
<tr>
<td><strong>Mass Media Campaigns (WHO FCTC Art. 12)</strong></td>
<td>4.1</td>
<td>78</td>
</tr>
<tr>
<td><strong>Cessation: Brief Advice to Quit (WHO FCTC Art. 14)</strong></td>
<td>8.9</td>
<td>3.8</td>
</tr>
</tbody>
</table>

*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 PRi and PRj, (1-PR ii) x (1-PR j) [is] applied to the current smoking prevalence [31]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco control program.

Over the 15-year period, a sustained mass media campaign is expected to have the highest return on investment (54:1). Raising cigarette taxes is expected to have the next highest return on investment (29:1), followed by implementing plain packaging of tobacco products (23:1), enforcing bans on smoking in public places (21:1), and increasing cessation by training health professionals to provide brief advice to quit smoking (2:1).
6. Examining additional impacts: Government revenue and the SDGs

The investment case examines how increasing taxes on cigarettes would deliver additional Government revenue to Suriname, and the contributions that tobacco control would make to Suriname’s fulfillment of the Sustainable Development Goals.

6.1 Cigarette taxes and Government revenue

In line with the Addis Ababa Action Agenda on Financing for Development [32], tobacco price and tax measures “represent a revenue stream for financing for development”.

This section analyzes a scenario in which Suriname chooses to enact strong cigarette tax increases—saving lives and reducing tobacco use prevalence. In the hypothetical scenario, VAT tax rates stay the same, while the specific excise tax increases (in real terms) from around SRD 10 to SRD 19 in 2025 (see appendix Table A2 for more detail).

Evidence from countries in Latin America and the Caribbean shows that on average a 10 percent increase in price is expected to result in a 4.3 percent reduction in consumption [33]. Even accounting for the rise in demand that results from income increases, under the described tax increase pattern and demand elasticities, licit cigarette consumption would drop from the present amount of about 5.8 million packs annually to about 5.1 million in 2025.

Even with drops in consumption, revenue gains occur because reducing the affordability of tobacco products leads people to quit smoking or reduce consumption. This is because many people continue to smoke, largely because of the addictive nature of tobacco, paying higher taxes to the government each time they purchase cigarettes. Over a five-year period, Figure 10 compares annual government cigarette tax revenue (undiscounted) in a hypothetical scenario where Suriname enacts the above stated specific excise tax increases 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 2023, tax increases in an “intervention scenario” yield an additional SRD 16.4 million in revenue, which grows to SRD 41 million in 2025.

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10 Income price elasticity of demand – 0.319 [34]; income prevalence elasticity of demand – 0.16. Projected income growth over the period from 2021 to 2026 is estimated using real GDP growth projections from the International Monetary Fund as a proxy for income – 2.3 percent [35].

11 Estimates of the total number of cigarette packs sold were obtained by extrapolating from tax revenue estimates provided in Suriname’s 2019 Tobacco Country profile (see appendix)
Fig. 10: Additional annual tax revenue (undiscounted) in comparison to the baseline scenario, 2021-2025

- **Scenario – no tax increases**
- **Scenario – tax increases**

<table>
<thead>
<tr>
<th>Year</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue (SRD millions)</td>
<td>16.4</td>
<td>31.5</td>
<td>41.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total tax revenue - SRD millions
6.2 The Sustainable Development Goals and the WHO FCTC

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

In Suriname in 2019, over 1,200 premature deaths between the ages of 30 to 70 were caused by the four main NCDs (CVD, diabetes, cancer, and COPD) [36]. Over a fifth (21 percent) of these premature deaths occurred due to tobacco use [36]. Enacting the WHO FCTC measures identified in the investment case would reduce tobacco use prevalence—a key risk factor driving NCD incidence—preventing 495 premature deaths from the four main NCDs over the next 10 years (2021 to 2030). Preventing those deaths contributes the equivalent of about 11 percent of the needed reduction in premature mortality for Suriname to achieve SDG Target 3.4.

Achieving SDG Target 3.4 by 2030

By 2030 the FCTC measures would...

- **Lower the prevalence of tobacco use** by 33 percent from present day levels.
- **Reduce economic costs** due to tobacco use by SRD 662 million, including saving SRD 69 million in healthcare expenditures.
- **Lead to savings** (SRD 662 million) that significantly outweigh the costs (SRD 62 million), with an overall return on investment of 10:1.
7. Conclusion and recommendations

Each year, tobacco use costs Suriname SRD 508 million in healthcare costs, productivity losses and causes substantial human development losses. This investment case underlines the opportunity to reduce the social and economic burden of tobacco in Suriname. Enacting the recommended WHO FCTC tobacco control measures would save an estimated 550 lives annually and reduce the incidence of disease, leading to savings from averted medical costs and averted productivity losses. In economic terms, these benefits are substantial, adding up to SRD 1 billion over the next 15 years. Further, the economic benefits of strengthening tobacco control in Suriname greatly outweigh costs of implementation (SRD 1 billion in benefits versus just SRD 85 million in costs over 15 years).

By investing now to scale-up implementation of the five proven tobacco control measures modeled under this investment case, Suriname would not only reduce tobacco consumption, improve health, reduce government health expenditures and grow the economy, it would also reduce hardships among Surinamese, particularly among low-income populations. Many countries reinvest savings from government healthcare expenditures and revenue from increased tobacco taxes into national development priorities such as social protection, including universal health coverage, which the Suriname government is committed to achieve. Leveraging increased revenue from tobacco taxes can also be a key strategy to finance COVID-19 response and recovery efforts.

This investment case highlights strong tobacco control interventions that Suriname can effectively implement. It offers compelling economic and social arguments to implement core WHO FCTC measures. Suriname is encouraged to share the investment case findings broadly among all sectors of government, parliament, civil society, the public, development partners, and academic institutions. Doing so will strengthen public and political support for tobacco control. An advocacy strategy with key messages, for example on how tobacco control can support economic growth, improve population health and finance social protection, including in the context of COVID-19, can assist policymakers in disseminating the message. The full benefits of the investment case are more likely to be realized if the following actions are pursued:
Increase taxes on all tobacco products in line with WHO recommendations

The investment case demonstrated the potential power of increased cigarette taxation in Suriname, in line with the WHO Manual on Tobacco Tax Administration of at least a 75 percent overall tax inclusive of at least a 70 percent excise component. Specifically, even in the short-term, by year 5, Suriname can expect a 10:1 return on investment from the modeled cigarette tax increase, with this already substantial return growing to 29:1 by year 15. In addition to saving lives and avoiding substantial healthcare costs and productivity losses, increasing cigarette taxes in line with WHO recommendations could generate an additional 41 million in annual revenue by 2025, with increased revenue in the nearer-term. This would position Suriname to better align financing for NCDs/tobacco control with disease burdens, strengthen UHC, and pursue broader investments in health and development, including in the context of COVID-19 response and recovery.

The investment case modeled only the potential gains from increasing taxes on cigarettes, not all tobacco products, meaning that if Suriname were to take an even more comprehensive approach to taxation in line with WHO guidelines, it would benefit further. It is recommended that Suriname takes immediate steps to comprehensively strengthen taxes on all tobacco products, including smokeless tobacco as well as newer electronic nicotine delivery systems. Suriname should convey the multidimensional benefits of tobacco taxation to all stakeholders and ensure a robust system to eliminate illicit trade of tobacco products in line with the Protocol (see below). Guidance and support is available on governance frameworks, tax structures, monitoring, administration and complementary measures.
Scale up efforts to monitor and combat illicit trade

Suriname is not yet a party to the Protocol to Eliminate Illicit Trade in Tobacco Products despite widespread recognition of the harmful effects of illicit trade on businesses and government. At present, many counterfeit and contraband cigarettes find their way into Suriname through clandestine ports, in locations largely unknown to police and customs authorities, as well as the main port of entry in Paramaribo. Inadequate control and enforcement of illicit trade severely undermines efforts to tax and regulate tobacco products, including those modeled under this investment case. Improvements in surveillance capacity can have positive spillover effects to other areas of illicit trade, driving sustainable development benefits. To this end, Suriname can take four key actions: (1) ratify the Protocol to Eliminate Illicit Trade in Tobacco Products, (2) improve data collection on illicit trade, (3) boost surveillance and enforcement, and (4) coordinate efforts with regional trade partners, especially within CARICOM, to implement track-and-trace systems, and share information and best practices on illicit trade in the region. It is recommended that the Ministries of Finance and Health collaborate on these efforts with customs and tax authorities as well as law enforcement.
Multisectoral planning, coordination and prevention of industry interference are at the heart of strong national tobacco control efforts. This is why these areas, covered under WHO FCTC Article 5, are General Obligations under the treaty. The Ministry of Health in Suriname is committed to further protecting the population from tobacco and its development impacts. For maximum success, high-level political support, coordinated contributions from other government sectors and the productive engagement of civil society, academia, private institutions and other actors are critical.

It is recommended that the Government of Suriname rigorously pursue national multisectoral tobacco control planning and coordination, which remains among the very few areas of WHO FCTC implementation where Suriname has not yet made strong progress. Critical for Suriname is developing a national multisectoral tobacco control strategy and establishing a mechanism to coordinate different government sectors, civil society and other stakeholders to advance WHO FCTC implementation in line with national priorities. Both the strategy and the coordination mechanism should be supported with reliable, dedicated funding and must include clear roles and responsibilities for relevant actors as well as monitoring and accountability structures. The findings and recommendations of this FCTC Investment Case for Suriname can be a powerful catalyst to bring together different stakeholders for the overall benefit of the country and can serve as a foundation for prioritized action. Improving tobacco control planning and coordination while elevating its already impressive legislative framework would further position Suriname as a regional and global leader in tobacco control. Comprehensive, step-by-step toolkits on tobacco control planning and coordination are available from the WHO FCTC Secretariat, UNDP and other partners, as is corresponding technical support [25, 37, 38].
Elevate the legislative framework, close enforcement gaps and warn people about the harms of tobacco

The 2013 Tobacco Act remains the primary tobacco control law in Suriname, which already boasts extensive tobacco control regulations. But there is room for improvement to protect the population and secure the full development benefits of tobacco control. For example, while there is high compliance with smoke-free areas in healthcare facilities and indoor offices, bans are not well-enforced in restaurants, cafés, bars, public transportation and other public places. Plain packaging is not mandated and requirements on disclosure of contents and emissions are not stipulated. The Government of Suriname should elevate the legislative framework in line with the investment case recommendations and increase compliance with existing regulations through stronger enforcement. Efforts could include spot fines for breaches in smoke-free areas and engaging retailers to observe existing regulations, particularly concerning sales to minors. A strengthened whole-of-government and whole-of-society response to tobacco would support these efforts.

Awareness raising and norm shifting is key among businesses and the general public as tobacco use is normalized in Suriname. Public information campaigns can increase awareness of the health and development harms of tobacco use. Given that Suriname has not recently implemented an anti-tobacco national mass-media campaign, launching a best-practice mass media campaign – which would deliver the highest ROI of all measures modeled in this investment case – can increase public awareness about the harms of tobacco, and support efforts to strengthen the legislative framework as well as fiscal measures. Key messages from this investment case could be used to demonstrate to the population the development benefits of tobacco control. This includes economic growth, better health as well as improved quality, affordability and accessibility of health services, and finance for development such as social protection in the context of COVID-19.
8. Methodology annex

8.1 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.
8.2 COMPONENT ONE: CURRENT BURDEN

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

STEP 1

Estimate mortality and morbidity from tobacco-related diseases.

The investment case model is populated with country-specific data on tobacco-attributable mortality and morbidity from the 2019 Global Burden of Disease Study (GBD) [2, 39]. The study estimates the extent to which smoking and secondhand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life-years lost, and deaths, across 195 countries.

STEP 2

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

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

Direct costs — Direct costs include tobacco-attributable public (government-paid), private (insurance, individual out-of-pocket), and other healthcare expenditures. The proportion of healthcare costs attributable to smoking was obtained from Goodchild et al. (2018), who estimate the smoking attributable fraction (SAF) of healthcare expenditures for most countries, including Suriname [3]. The SAF for Suriname provided in the Goodchild paper is 2.6 percent. To calculate the share of smoking-attributable healthcare expenditures borne by public, non-profit, and private entities, it was assumed that each entity incurred smoking-attributable healthcare costs in equal proportion to its contribution to total health expenditure. Healthcare expenditures were obtained from the WHO Global Healthcare Expenditure Database (GHED) [30].

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12 In assessing the current burden of tobacco use, the economic costs of premature mortality include the cost of premature deaths due to any form of exposure to tobacco (including smoking, secondhand smoke exposure, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and excess breaks. While other forms of tobacco use may also cause losses in these categories, no data is available to precisely ascertain those losses.
Indirect costs — Indirect costs represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-related diseases. Indirect costs accrue when tobacco use causes premature death, eliminating the unique economic and social contributions that an individual would have provided in their remaining years of life. In addition, tobacco use results in productivity losses. Compared to non-tobacco users, individuals who use tobacco are more likely to miss days of work (absenteeism); to be less productive at work due to tobacco-related illnesses (presenteeism); and to take additional breaks during working hours to smoke.

• The economic cost of premature mortality due to tobacco use — Premature mortality is valued using the human capital approach, which places an economic value on each year of life lost. Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each year of life is valued at 1.4 times GDP per capita, following the “full income approach” employed by Jamison et al (2013) [40].

• Productivity costs — Productivity costs consist of costs due to absenteeism, presenteeism, and excess work breaks due to smoking. The model incorporates estimates from academic literature on the number of extra working days missed due to active smoking (2.9 days per year) [41]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers [42]. Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take ten minutes of extra breaks per day [29].

8.3 COMPONENT TWO: POLICY/INTERVENTION SCENARIOS

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

The investment case employs a static model to estimate the total impact of the tobacco control measures, meaning that aside from smoking prevalence, variables do not change throughout the time horizon of the analysis. The model follows a population that does not vary in size or makeup (age/gender) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [43, 44].
Within the investment case, the mortality and morbidity, as well as the economic costs that are computed in the intervention scenario, are compared to the status quo scenario to find the extent to which tobacco control measures can reduce health and economic costs.

The selection of priority WHO FCTC measures modeled within the investment case align with the Global Strategy to Accelerate Tobacco Control developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, Parties seek to accelerate WHO FCTC implementation by setting clear priorities where they will be likely to have the greatest impact in reducing tobacco use. This includes priority implementation of price and tax measures (WHO FCTC Article 6) and time-bound measures of the Convention, including bans on smoking in all public places (WHO FCTC Article 8), health warnings and plain tobacco packaging (WHO FCTC Article 11 guidelines and WHO FCTC Article 13), and comprehensive bans on tobacco advertising, promotion, and sponsorship (WHO FCTC Article 13). In addition, given the importance of awareness in behavior change and shaping cultural norms, the investment cases include instituting mass media campaigns against tobacco use (WHO FCTC Article 12). The impacts of implementing the WHO FCTC provisions are obtained from the literature. The impact of enforcing smoke-free air laws, implementing plain packaging, intensifying advertising bans, and conducting mass media campaigns are derived from Levy et al. (2018) [31] and Chipty (2016) [45], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013-2020 [46], and adjusted based on assessments of Suriname’s baseline rates of implementation.

Except for taxes—the impact of which is dependent on the timing of increases in tax rates (described below)—the full impact of the measures is phased in over a five-year period. The phase-in period follows WHO assumptions [47] 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 analyze 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

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<thead>
<tr>
<th>Parameter name</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price elasticity of demand</td>
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<td>[33]</td>
</tr>
<tr>
<td>Prevalence elasticity of demand</td>
<td>-0.22</td>
<td>Assumption – half of price elasticity [48]</td>
</tr>
<tr>
<td>Income price elasticity of demand</td>
<td>0.32</td>
<td>[34]*</td>
</tr>
<tr>
<td>Income prevalence elasticity of demand</td>
<td>0.16</td>
<td>Assumption – half of income price elasticity</td>
</tr>
<tr>
<td>Projected real income growth rate*</td>
<td>2.3%</td>
<td>[35]</td>
</tr>
</tbody>
</table>

*Projected real income growth is used as a proxy for wage growth. The International Monetary Fund projects [35] real GDP growth at an average of 2.3 percent annually through 2025.

The investment case analysis examines a tax increase scenario in which Suriname chooses to enact strong tax increases. In this intervention scenario, VAT tax rates stay the same, while the specific excise tax increases (in real terms) from around SRD 10 to SRD 19 in 2025. In the scenario, price net of taxes remains static, assuming a full pass through of the tax increase. Table A2 breaks down cigarette pack price components from 2021 to 2025 under the described specific excise tax increases. Additional specific excise taxes triggering real price increases of an average of 5.6 percent annually are modeled from 2025 to 2035, bringing the total tax share to 78 percent by the end of the analysis and the specific excise tax share to 70 percent.
### Table A2. Projected cigarette pack price in the tax increase scenario (SRD)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Price net of taxes</td>
<td>13.09</td>
<td>13.09</td>
<td>13.09</td>
<td>13.09</td>
<td>13.09</td>
</tr>
<tr>
<td>Specific excise</td>
<td>9.85</td>
<td>9.85</td>
<td>13.29</td>
<td>16.73</td>
<td>19.01</td>
</tr>
<tr>
<td>Value added tax</td>
<td>2.06</td>
<td>2.06</td>
<td>2.37</td>
<td>2.68</td>
<td>2.89</td>
</tr>
<tr>
<td><strong>Final Consumer Price</strong></td>
<td><strong>25.00</strong></td>
<td><strong>25.00</strong></td>
<td><strong>28.75</strong></td>
<td><strong>32.50</strong></td>
<td><strong>34.99</strong></td>
</tr>
</tbody>
</table>

Component parts may not sum to final consumer price due to underlying rounding.

The impact of these increases on revenue and cigarette use prevalence is dependent on prevailing elasticities: the extent to which individuals change use of a tobacco product (e.g. decrease consumption or quit) because of changes in the price. Changes are calculated following Joosens and colleagues (2009) [49], 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.

**Equation A1.**

\[
\Delta SP_i = SP_{i-1} \times ((EXP(EP \times LN(op_{np}))) - 1 - \left[ \frac{1 + \frac{GDP_{i-1}-GDP_i}{GDP_{i-1}}} {1 - \frac{GDP_{i-1}}{GDP_{i}}} \right])
\]

Where:
- \(SP\) = smoking prevalence (# of smokers) in year \(i\)
- \(EP\) = prevalence elasticity
- \(op_{np}\) = the ratio of the old price of a pack of cigarettes to the new price after tax increases
- \(EI\) = 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 tax increase. Third, though regional estimates were used, we did not obtain Suriname-specific estimates of price and income elasticities. In addition, the most recent available information on the tax structure and number of packs sold was from 2018.

The impact sizes of all policy measures examined in the investment case are displayed in Table A3. Additional information on their derivation can be found in the Technical Appendix.\textsuperscript{13}

\textbf{Table A3. Impact size: Relative reduction in the prevalence of current smoking by tobacco control policy/intervention, over a period of 15 years}

<table>
<thead>
<tr>
<th>WHO FCTC Measure</th>
<th>Relative reduction in the prevalence of current smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First 5 Years (2021–2025)</td>
</tr>
<tr>
<td>Tobacco Control Package (all policies)</td>
<td>20.4%</td>
</tr>
<tr>
<td>Increase taxes on cigarettes (\textit{WHO FCTC Art. 6})</td>
<td>6.1%</td>
</tr>
<tr>
<td>Implement and enforce bans on smoking in indoor public places and workplaces</td>
<td>3.8%</td>
</tr>
<tr>
<td>(\textit{WHO FCTC Art. 8})</td>
<td></td>
</tr>
<tr>
<td>Mandate that tobacco product packages carry large health warnings (\textit{WHO FCTC Art. 11})</td>
<td>Fully implemented – not included in model</td>
</tr>
<tr>
<td>Plain packaging of tobacco products (\textit{WHO FCTC Art. 11 Guidelines &amp; Art. 13})</td>
<td>2.4%</td>
</tr>
<tr>
<td>Implement and sustain a mass media campaign to promote awareness about tobacco control</td>
<td>9.1%</td>
</tr>
<tr>
<td>(\textit{WHO FCTC Art. 12})</td>
<td></td>
</tr>
<tr>
<td>Enact comprehensive bans on advertising, promotion and sponsorship (\textit{WHO FCTC Art. 13})</td>
<td>Fully implemented – not included in model</td>
</tr>
<tr>
<td>Cessation: Brief advice to quit tobacco use (\textit{WHO FCTC Art. 14})</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

* 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\textsubscript{i} and PR\textsubscript{j}, (1-PR\textsubscript{i}) \times (1-PR\textsubscript{j}) \ (is) applied to the current smoking prevalence” [31].

\textsuperscript{13} Available upon request.
To analyze the impact of policy measures on reducing the health and economic burden of smoking, the investment case calculates and compares two scenarios. In the status quo scenario, current efforts are ‘frozen’, meaning that, through the year 2035 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the intervention scenario, Suriname 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 Suriname can achieve by taking targeted actions to reduce tobacco use.

The marginal effects of the policies are calculated using the status quo scenario as the comparison group. To calculate marginal effects, the model subtracts the outcome (risk factor attributable deaths, healthcare expenditures, etc.) under the intervention scenario from the same outcome under the status quo scenario. The difference between the two outcomes is the amount of change in the outcome associated with the policy.

\[
\text{Marginal Effects} = \frac{\text{Outcome Base Scenario} - \text{Outcome Intervention Scenario}}{\text{Outcome Base Scenario}}
\]

Marginal effects are calculated as follows for each outcome:

- **Health outcomes:** To calculate the reductions in mortality and morbidity due to implementation of the policy measures, forecasted changes in smoking prevalence are applied directly to the GBD risk factor attributable outcomes from the status quo scenario. This means that the model adjusts the risk factor attributable outcomes for mortality and morbidity as reported by GBD based on year-over-year relative changes in smoking prevalence for each outcome.

- **For healthcare expenditures,** the model applies forecasted annual relative changes in smoking prevalence for each intervention scenario to the smoking-attributable fraction (SAF) of healthcare expenditures. 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 [47].

The Tool uses a ‘bottom up’ or ‘ingredients-based’ approach. In this method, each resource that is required to implement the tobacco control measure is identified, quantified, and valued. The Tool estimates the cost of surveillance, human resources—for program management, transportation, advocacy, and enacting and enforcing legislation—trainings and meetings, mass media, supplies and equipment, and other components. Within the Tool, costs accrue differently during four distinct implementation phases: planning (year 1), development (year 2), partial implementation (years 3-5), and full implementation (year 6 onwards).

Across these categories, the Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Tool is updated to reflect 2019 costs by updating several parameters: the US$ to local currency unit exchange rate (2019), purchasing power parity (PPP) exchange rate (2019), GDP per capita (US$, 2019), GDP per capita (PPP, 2019), population (total, and share of the population age 15+, 2019), labour force participation rate (2019), gas per liter, and government spending on health as a percent of total health spending (2018) [50]. Unless government or other in-country parameters are received, data is from the World Bank database, with the exception of data on the share of government health spending and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.
The return on investment (ROI) analysis measures the efficiency of tobacco control investments by dividing the discounted monetary value of health gains from investments by their discounted respective costs.

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


The Case for Investing in WHO FCTC Implementation in Suriname

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

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