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# Investment Case for Tobacco Control in Sri Lanka

The case for scaling-up  
WHO FCTC implementation





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May 2019

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**FCTC**  
WHO FRAMEWORK CONVENTION  
ON TOBACCO CONTROL  
SECRETARIAT



**RTI**  
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World Health  
Organization

# **The Case for Investing in WHO FCTC Implementation in Sri Lanka**

Prepared by  
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World Health Organization

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May 2019



Funded by  
UK Government

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In 2016, tobacco cost Sri Lanka

**LKR 214 billion**

equivalent to

**1.6% of its GDP**

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Around

**20,000**

Sri Lankan citizens die every  
year due to **tobacco-related**  
**diseases.**

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Investing now in six tobacco control measures will save nearly

**72,344 lives**

and avert

**LKR 586 billion**

in health costs and economic losses over the course of the next 15 years.



For every LKR 1 spent to administer and collect cigarette taxes the Government can expect to see **LKR 724** in return over the 15-year period.

**LKR 724**



# Table of Contents

<b>List of figures and tables .....</b>	<b>vii</b>
<b>1. Executive summary .....</b>	<b>1</b>
<b>2. Introduction .....</b>	<b>5</b>
<b>3. Tobacco control in Sri Lanka: status and context .....</b>	<b>8</b>
3.1 Tobacco use prevalence, social norms, and awareness-raising .....	8
3.2 Tobacco control regulatory measures .....	9
<b>4. Methodology .....</b>	<b>13</b>
<b>5. Results .....</b>	<b>14</b>
5.1 The current burden of tobacco use: health and economic costs.....	14
5.2 Implementing policy measures that reduce the burden of tobacco use .....	17
5.2.1 <i>Health benefits—Lives saved</i> .....	17
5.2.2 <i>Economic benefits</i> .....	17
5.2.3 <i>The return on investment</i> .....	20
5.3 Beyond the economic model: The impact of new regulations on farmers.....	21
<b>6. Conclusion and recommendations .....</b>	<b>24</b>
<b>7. Methodology annex .....</b>	<b>27</b>
7.1 Overview .....	28
7.2 Component one: current burden .....	28
7.3 Component two: policy/intervention scenarios.....	30
7.4 The impact of changes in smoking prevalence.....	32
7.5 The financial costs of implementing tobacco control measures .....	33
7.6 The return on investment (ROI).....	33
<b>8. References .....</b>	<b>35</b>

# List of figures and tables

Fig. No.	Caption	Page No.
<b>FIG. 1</b>	<a href="#">Tobacco use prevalence, by gender and tobacco type</a>	<b>8</b>
<b>FIG. 2</b>	<a href="#">Building the FCTC Investment Case</a>	<b>13</b>
<b>FIG. 3</b>	<a href="#">Breakdown of the share of direct and indirect economic costs</a>	<b>15</b>
<b>FIG. 4</b>	<a href="#">Tobacco-attributable deaths by disease, 2016</a>	<b>16</b>
<b>FIG. 5</b>	<a href="#">Tobacco-related economic losses over 15 years: What happens if Sri Lanka does nothing, versus if the Government implements tobacco measures to reduce demand for smoking?</a>	<b>17</b>
<b>FIG. 6</b>	<a href="#">Sources of annual direct and indirect economic savings as a result of implementing the tobacco policy package</a>	<b>18</b>
<b>FIG. 7</b>	<a href="#">Private and public healthcare costs (and savings) over the 15-year time horizon</a>	<b>19</b>
<b>FIG. 8</b>	<a href="#">Tobacco production in metric tons and tobacco yield (hg/ha), 1961–2014</a>	<b>21</b>
<b>FIG. 9</b>	<a href="#">Annual producer price index for unmanufactured tobacco (2004–2006 = 100), SEARO countries</a>	<b>23</b>
<b>FIG. 10</b>	<a href="#">Building the FCTC Investment</a>	<b>27</b>
<b>TABLE 1</b>	<a href="#">Summary of the current state of FCTC demand-reduction measures in Sri Lanka, and target goals</a>	<b>12</b>
<b>TABLE 2</b>	<a href="#">Return on investment, by tobacco package</a>	<b>20</b>
<b>TABLE 3</b>	<a href="#">Impact size: Relative prevalence reduction by the end of the analysis, by tobacco-control measure</a>	<b>31</b>

# 1. Executive summary

This report presents the case for investing in tobacco control in Sri Lanka. It measures the costs and benefits—in health and economic terms—of implementing six priority tobacco control provisions, in line with the WHO FCTC and according to the stated priorities of the Government of Sri Lanka. These tobacco control provisions are: (1) Increase tobacco taxation to reduce the affordability of tobacco products (*FCTC Article 6*); (2) Enforce bans on smoking in all public places to protect people from tobacco smoke (*FCTC Article 8*); (3) Implement plain packaging of tobacco products (*FCTC Article 11: Guidelines for Implementation*); (4) Institute mass media campaigns against tobacco use; (5) Implement and enforce a comprehensive ban on tobacco advertising, promotion and sponsorship (*FCTC Article 13*), and; (6) Prohibit the sale of individual cigarette sticks (*FCTC Article 16*). The investment case finds:

**In 2016, tobacco use cost the Sri Lankan economy LKR 213.8 billion, equivalent to 1.6% of its GDP.**

Tobacco-related health expenditures totaled LKR 15.3 billion. In addition, the economy experienced LKR 198.5 billion in indirect productivity costs due to tobacco-attributable premature mortality, disability, and workplace smoking.

By acting now to curb tobacco use, the government of Sri Lanka can reduce the health and economic burden of tobacco use. The investment case findings demonstrate that over the course of the next 15 years, enacting and enforcing six FCTC tobacco-control measures would:

**Avert LKR 586 billion in economic losses, including about LKR 542 billion in lost economic output.**

The tobacco-control measures stimulate economic growth by ensuring that fewer Sri Lankans 1) drop out of the workforce due to premature mortality, 2) miss days of work due to disability or sickness, and 3) work at a reduced capacity due to smoking.

**Lead to LKR 44 billion in savings through avoidance of tobacco-attributable healthcare expenditures.**

Of this, 55 percent of the total represents savings in Government healthcare expenditure, and 38 percent represents is savings to individuals in the form of avoided out-of-pocket expenditures.

**Save 72,344 lives and reduce the incidence of disease.**

**Provide total economic benefits (LKR 586 billion) that significantly outweigh the cost of implementing the six tobacco control measures (LKR 3.4 billion).**

Each of the WHO FCTC provisions is highly cost-effective. Raising cigarette taxes has the highest return on investment (ROI): over the 15-year period, for every Sri Lankan rupee spent to administer and collect the cigarette taxes, the Government can expect to see 724 rupees in return. Enacting more stringent bans on advertising has the next highest ROI (366:1), followed by implementing plain packaging of tobacco products (278:1), expanding and enforcing bans on smoking in public places (245:1), anti-tobacco mass media campaigns (144:1), and prohibiting the sale of cigarette sticks individually (93:1).

Implementing tobacco-control measures will not provoke a livelihood crisis for tobacco farmers.

**Former tobacco farmers are often better off than current tobacco farmers. Studies in other countries have shown that tobacco farmers are more likely to be poor than the general population.**

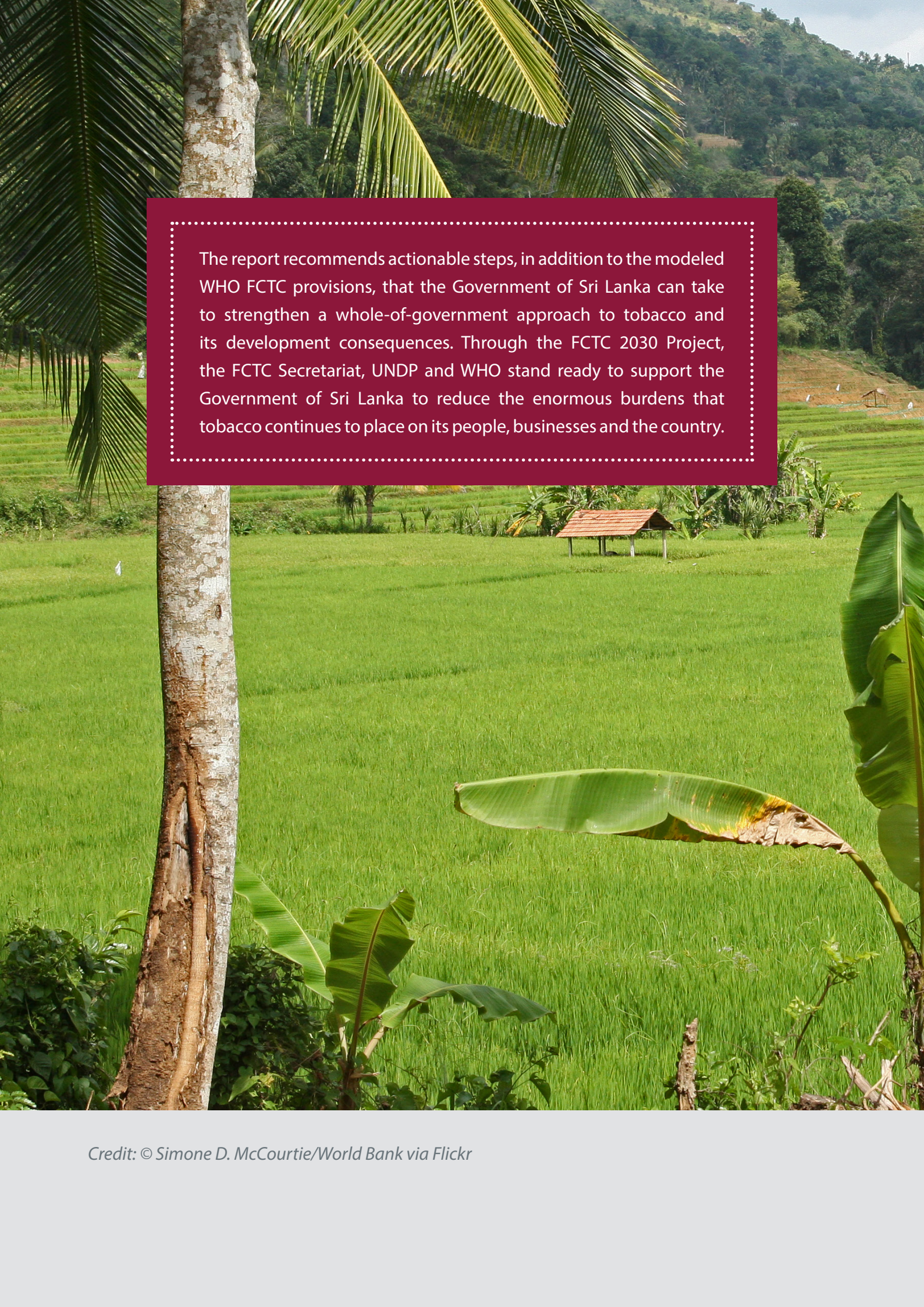
In addition, those who have substituted other crops for tobacco earn more money per year than tobacco farmers and spend less on healthcare—an indication of the health consequences associated with growing tobacco.

**Tobacco cultivation yields poor returns to labor, can lead to dependency and debt, and imposes health risks on farmers.**

Tobacco growing is associated with green tobacco sickness (nicotine poisoning) and respiratory diseases. It can also contribute to food insecurity, and environmental destruction that includes deforestation as well as soil and water degradation.

The FCTC Investment Case results for Sri Lanka show that there is an evidence-based opportunity to reduce the health and economic burdens of tobacco through preventative actions. By investing now in tobacco control measures, Sri Lanka can meet its target goals for tobacco use prevalence, lower the extraordinary health and economic burden of tobacco use, and further cement its global leadership on tobacco control.





The report recommends actionable steps, in addition to the modeled WHO FCTC provisions, that the Government of Sri Lanka can take to strengthen a whole-of-government approach to tobacco and its development consequences. Through the FCTC 2030 Project, the FCTC Secretariat, UNDP and WHO stand ready to support the Government of Sri Lanka to reduce the enormous burdens that tobacco continues to place on its people, businesses and the country.







## 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 Sri Lanka, around 26 percent of adults use some form of tobacco,<sup>1</sup> killing an estimated 20,000 Sri Lankans per year.<sup>2</sup>

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.<sup>3</sup> In Sri Lanka, for tobacco-related cancers alone, medical treatment is estimated to cost LKR 5.6 billion<sup>i</sup> annually.<sup>4</sup> In addition to inducing high healthcare costs, tobacco use can reduce productivity by permanently or temporarily removing individuals from the labor market due to poor health.<sup>5</sup> When individuals die prematurely, the labor output that they would have produced in their remaining years is lost. In addition, individuals with poor health are more likely to miss days of work (absenteeism) or to work at a reduced capacity while at work (presenteeism).<sup>6, 7</sup>

Tobacco use displaces household expenditure on basic needs, including food and education,<sup>8, 9, 10</sup> and can push families into poverty and hunger.<sup>11, 12</sup> It imposes health and socio-economic challenges on the poor, women, youth and other vulnerable populations. Meanwhile, tobacco production causes environmental damage including soil degradation, water pollution and deforestation.<sup>13, 14, 15</sup> Given the far-reaching development impacts of tobacco, effective tobacco control requires the engagement of non-health sectors within the context of a whole-of-government approach.

Sri Lanka signed and ratified the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2003, and has since enacted stringent policies to reduce tobacco use, including prohibiting advertising on traditional and new forms of media (e.g., television, the internet); mandating that graphic warning labels cover more than 80 percent of cigarette packs; and prohibiting smoking in many indoor public places.<sup>16</sup>

*Intensifying existing policies and implementing new measures can draw the prevalence curve further downward and generate additional health and economic gains in Sri Lanka.*

By legislating and funding these important measures, Sri Lanka has set the stage for curbing the tobacco epidemic and reaching its goal to reduce current adult smoking prevalence from 15% to 10%. Intensifying existing policies and implementing new measures can draw the prevalence

<sup>i</sup> US\$42.1 million estimate converted to LKR using the US\$-LKR 2015 mid-year historical exchange rate: 1:133.81.



curve further downward and generate additional health and economic gains. Opportunities include extending advertising bans to product displays at the point of sale, banning the sale of individuals cigarette sticks, and mandating smoke-free places in all restaurants and hotels, regardless of their size.<sup>17</sup>

In light of these considerations, a joint programming mission to Sri Lanka<sup>ii</sup> was undertaken in Fall 2017 to conduct needs and situational assessments as part of the FCTC 2030 project. The FCTC 2030 Project is a global initiative funded by the UK Government to support countries to strengthen FCTC implementation to achieve the Sustainable Development Goals (SDGs). Sri Lanka is one of just 15 countries worldwide receiving this dedicated project support.

As part of the initiative, the Government of Sri Lanka (GoSL) requested the development of a tobacco control investment case. An investment case analyzes the health and economic costs of tobacco use as well as the potential gains from scaled up implementation of FCTC measures. It identifies which FCTC demand-reductions measures can produce the largest health and economic returns for Sri Lanka (the return on investment (ROI)). In consultation with GoSL, six FCTC provisions were selected to model within the investment case:



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



**Enforce bans on smoking in all public places to protect people from tobacco smoke.** (*WHO FCTC Article 8*)



**Implement plain packaging.**  
(*WHO FCTC Article 11: Guidelines for Implementation*)



**Institute mass media campaigns against tobacco use.**  
(*FCTC Article 12*)



**Implement and enforcing a comprehensive ban on tobacco advertising promotion and sponsorship.** (*FCTC Article 13*)



**Prohibit the sale of cigarette sticks individually.**  
(*FCTC Article 16*)

ii Consisting of Sri Lanka's Ministry of Health, United Nations Development Programme, and RTI International

In addition to these policies, at the request of the government, the investment case also considers the impact of tobacco regulations' influence on tobacco farmer livelihoods.

This report proceeds in four sections. **Section 3** provides an overview of tobacco control in Sri Lanka, including a discussion of tobacco use prevalence as well as tobacco-control challenges and opportunities. **Section 4** summarizes the methodology of the investment case (see Annex and Technical Appendix<sup>iii</sup> for more detail). **Section 5** reports the main findings of the economic analysis and includes a report on the impact of tobacco control legislation on farmers. The report concludes under **Section 6** with a set of recommendations.



*Credit: © Dominic Sansoni/  
World Bank via Flickr*

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iii Available upon request

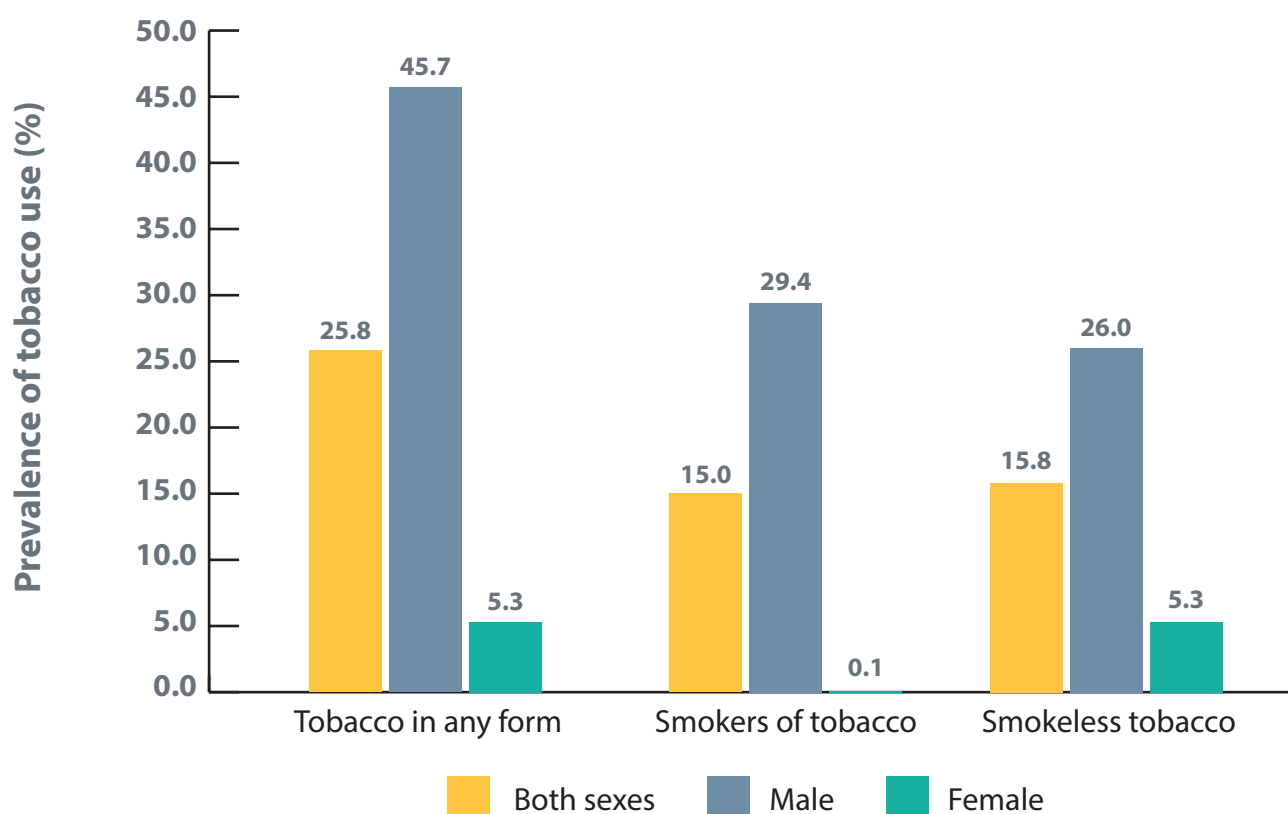
### 3. Tobacco control in Sri Lanka: status and context

Sri Lanka has prioritized tobacco control since ratifying the WHO FCTC. In 2014, it demonstrated global leadership when it enacted one of the world's more stringent graphic warning labels laws, with images covering more than 80% of the front and back of packages. Additional opportunities exist to enact new measures that will protect current and future populations. This section explores some of the main tobacco control issues in Sri Lanka, relying on local reports, academic literature, and in-country discussions with key stakeholders.

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

In Sri Lanka, a 2015 national survey found that about 26 percent of adults age 18–69 use some form of tobacco.<sup>18</sup> There is a high degree of variance in tobacco use by different demographic groups. As is true across the globe, tobacco use prevalence is higher among men than women. Among adult men, 45 percent use tobacco, compared to only 5.3 percent of women (**Figure 1**).

**Fig. 1: Tobacco use prevalence, by gender and tobacco type** (Figure duplicated from the 2015 STEPS report.)



About 29.4 percent of men smoke tobacco. Eighty-five percent of smokers consume manufactured cigarettes, 25 percent use shisha, and 7 percent smoke hand-rolled cigarettes called bidis.<sup>19, 20</sup> A recent study found that 91.4 percent of Sri Lankan males who had ever smoked had purchased cigarettes as single sticks.<sup>21</sup>

Studies prior to the STEPS survey have established that the most common type of smokeless tobacco product is betel quid—a mixture of betel leaf, areca nut and slaked lime, often mixed with tobacco. The use of betel quid is higher in rural areas (17.6 percent) compared to urban areas (1.6 percent).<sup>22</sup> Stakeholder interviews during the investment case suggest that the use of smokeless tobacco is increasing.

Although only 35 percent of current smokers have been advised by a doctor to stop smoking, just over half of current smokers in Sri Lanka have tried to quit. The quit attempt rate is highest (60.8 percent) among those aged 18 to 29.<sup>23</sup>

### 3.2 Tobacco control regulatory measures

Strong fiscal and regulatory measures can powerfully influence norms by signalling to the population that smoking is harmful.

Sri Lanka has a set of tobacco policies already in place to reduce demand for tobacco products and protect the health of its population. In 2006, the Government

of Sri Lanka enacted the National Authority on Tobacco and Alcohol Act (NATA). Among other things, the law mandated bans on smoking in public places, large graphic health warnings on tobacco packages, and bans on advertising of tobacco products.<sup>24</sup>

*“Reducing smoking prevalence from 15% to 10% is possible, but improbable at the current rate.”*

— Public health expert, on Sri Lanka’s need to take further action to reduce smoking



#### Tax System

Sri Lanka has a mixed **tax system** that includes specific excise taxes, tiered ad valorem taxes that vary by length of the cigarette,<sup>25</sup> and a sales tax. Since 2016, Sri Lanka has increased taxes several times.<sup>26</sup> In 2016, the share of taxes as a percent of the retail price of the most sold brand of cigarettes was estimated to equal 62 percent.<sup>27</sup> Raising taxes to represent at least 75 percent of the retail price of cigarettes represents an opportunity to lower smoking prevalence and increase government revenue.



### Smoking Ban in Public Places

Although legislated, some tobacco control laws face implementation challenges. Sri Lanka is yet to achieve a 100% **ban on smoking in public places**. While smoking is prohibited in many indoor public places, it is still permitted in restaurants with a capacity to hold 30 or more people, hotels with 30 rooms or more, smoking areas of airports, and other public places.<sup>28</sup>



### Warning Labels and Packaging

Sri Lanka requires that large **graphic warning labels** cover 80 percent of the packaging of smoked tobacco products, exceeding the FCTC's 50 percent recommendation and ranking among the most stringent labeling laws in the world.<sup>29</sup> In addition, the law requires the content of health warnings to rotate every six months. **Plain packaging** of tobacco products—neutral colors, without branding and logos—was approved by cabinet in 2018, but more steps are required to put it into practice. A law requiring plain packaging would offer Sri Lanka another tool to reduce the tobacco companies' opportunities to market products.



### Tobacco Advertising, Promotion and Sponsorship

Sri Lanka regulates most forms of **advertising, promotion, and sponsorship**, including through major media (domestic TV and radio, newspapers, billboards, the internet); bans on point-of-sale advertising; and, among other measures, bans on free distribution of tobacco products. In practice, key informants reported that it is difficult to regulate cable TV or the internet for tobacco advertising, and they cited a recent incident in which one tobacco company placed a hidden advertisement within a movie that it helped to fund.<sup>30</sup> The law contains gaps allowing for product displays at the point-of-sale, and some indirect forms of advertising, including tobacco industry sponsorship of events or activities.<sup>31</sup>



### Anti-tobacco Mass Media Campaigns

No recent, national-scale **anti-tobacco mass media campaigns** have taken place. Informational campaigns represent an opportunity for Sri Lanka to address tobacco use through education and communication.<sup>32</sup>



### Sale of Single Cigarette Sticks

Sri Lanka does not currently **prohibit the sale of single cigarette sticks**. Allowing their sale neutralizes two other FCTC demand-reduction provisions. First, when purchasing cigarettes as single sticks, consumers are not exposed to the graphic warning labels that cover 80 percent of tobacco products and warn about harms to health. Second, sale of single cigarettes lessens the impact of tax increases. Increasing taxes is intended to lower the affordability of tobacco. However, when cigarettes are available to purchase as single sticks at low prices, smokers who might otherwise quit facing the price of a full package can afford to continue buying single cigarettes.

**Table 1** summarizes the existing state of FCTC demand reduction policies analyzed in the Investment Case, and compares them against the FCTC target goals for each measure. Where Sri Lanka has not yet met the FCTC target goal, the investment case analyzes the impact that reaching that goal would have on tobacco consumption, population health, and the economy.



**Table 1: Summary of the current state of FCTC demand-reduction measures in Sri Lanka, and target goals**

<b>Tobacco Policy</b>	<b>Baseline</b>	<b>Target</b>
<b>Increase tobacco taxation to reduce the affordability of tobacco products.</b> (FCTC Article 6)	Taxes currently represent about 62% of the retail price of an average priced pack of cigarettes.	Commit to regular tax increases to raise the tax share to at least 75% of the retail price of tobacco, with additional increases to further lower consumption and ensure taxes outpace inflation.
<b>Enforce bans on smoking in all public places to protect people from tobacco smoke.</b> (FCTC Article 8)	Sri Lanka currently bans smoking in most public places, but continues to allow it in hotels and restaurants of sufficient size.	Extend the existing law to include all public places, and enforce to ensure compliance.
<b>Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use.</b> (FCTC Article 11)	Graphic warning labels are required to cover 80% of tobacco packaging and to rotate every six months.	✓ <b>Currently meeting the FCTC guidelines for size, and regular rotation of content</b>
<b>Mandate plain packaging of all tobacco products.</b> (FCTC Article 11: Guidelines)	Plain packaging of tobacco products—neutral colors, without branding and logos—was approved by cabinet in 2018, but more steps are required to put it into practice.	Implementation of a law requiring plain packaging.
<b>Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns.</b> (FCTC Article 12)	National-scale anti-tobacco mass media campaigns have not recently been conducted in Sri Lanka.	Implement consistent, national-scale education and public awareness campaigns to warn about the harms of tobacco use.
<b>Enact and enforce a comprehensive ban on all forms of tobacco advertising promotion and sponsorship.</b> (FCTC Article 13)	Advertising is banned on most major forms of media (TV, radio, billboards, print). Product displays at POS and some indirect forms of promotion and sponsorship remain legal.	Bans on all forms of direct and indirect advertising, promotion, and compliance, with adequate enforcement to ensure compliance.
<b>Prohibit the sale of cigarettes individually or in small packets which increase the affordability of such products to minors.</b> (FCTC Article 16)	There is no law that currently bans the sale of cigarettes individually.	Ban the sale of individual cigarettes.

\* Unless otherwise noted, information in this table is derived from the WHO Report on the Global Tobacco Epidemic: Country profile – Sri Lanka.<sup>33</sup>

## 4. Methodology

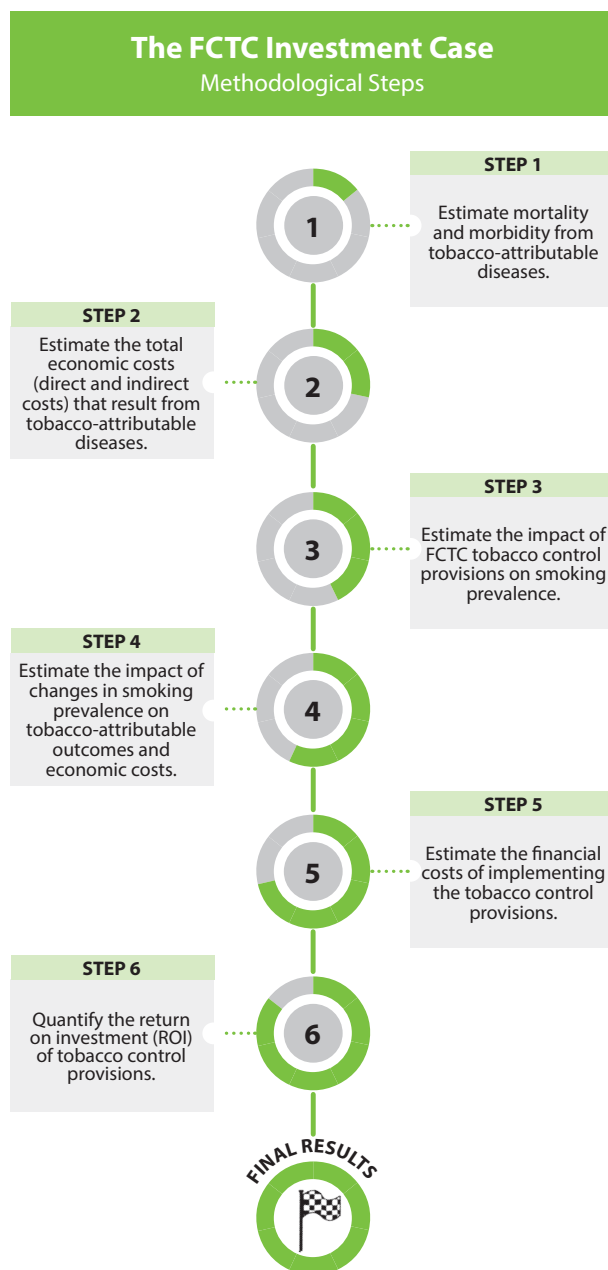
The purpose of the FCTC Investment Case is to quantify the current health and economic burden of tobacco use in Sri Lanka; estimate the impact that implementing tobacco measures would have on reducing the burden, and; provide analysis of other impacts—i.e., tobacco farmer impacts—that may factor into government decisions to implement tobacco control measures.

A RTI International-developed model was used to conduct the investment case following the methodological steps in **Figure 2**. The tools and methods used to perform these steps are described in this report's Annex. Interested readers are referred to this report's separate FCTC Investment Case methodology document for a more thorough account of the methodology.

The FCTC Investment Case team worked with partners in Sri Lanka to collect national data inputs for the model. Where data was unavailable from the 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 Global Burden of Disease (GBD) study, World Bank databases, and academic literature.

Costs and monetized benefits are reported in constant 2016 Sri Lankan rupees (LKR), and discounted at a rate of three percent.

**Fig. 2: Building the FCTC Investment Case**





## 5. Results

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

Tobacco use undermines economic growth. In 2016, tobacco use caused an estimated 20,000 deaths<sup>34</sup> in Sri Lanka, 55 percent of which occurred in Sri Lankans under age 70.<sup>35</sup> As a result, Sri Lanka lost productive years in which those individuals would have contributed to the workforce. The economic losses due to tobacco-related premature mortality are estimated at LKR 179.3 billion.

While the costs of premature mortality are high, the consequences of tobacco use begin long before death. As individuals begin to acquire tobacco-attributable diseases (e.g., cardiovascular disease, cancer), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the government LKR 8.3 billion in 2016, with Sri Lankan citizens picking up an additional LKR 5.9 billion in out-of-pocket healthcare expenditures, and private insurance or other forms of healthcare covering LKR 1.1 billion. In total, smoking resulted in LKR 15.3 billion in healthcare expenditures.

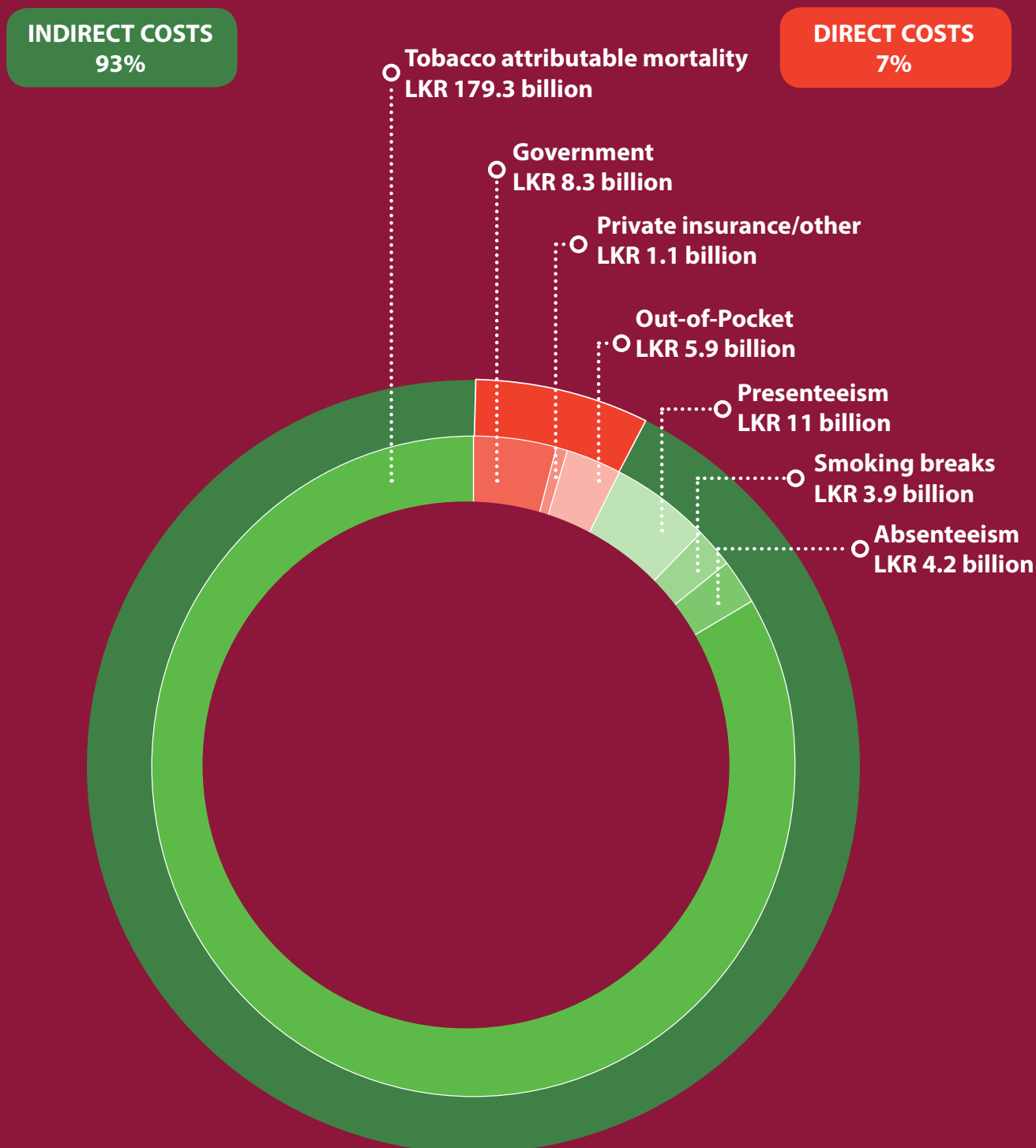
In addition to driving healthcare costs, as individuals become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2016, the cost of excess absenteeism due to smoking-related illness was LKR 4.2 billion and the costs of presenteeism due to cigarette smoking are estimated at LKR 11.0 billion.

Finally, even in their healthy years, working smokers face productivity loss due to smoking. Smokers take at least five more minutes per day in breaks than non-smoking employees.<sup>36</sup> If five minutes of time is valued at the average worker's salary, the compounding impact of 1.3 million employed daily smokers taking five minutes per day for smoke breaks is equivalent to losing LKR 3.9 billion in productive output annually.

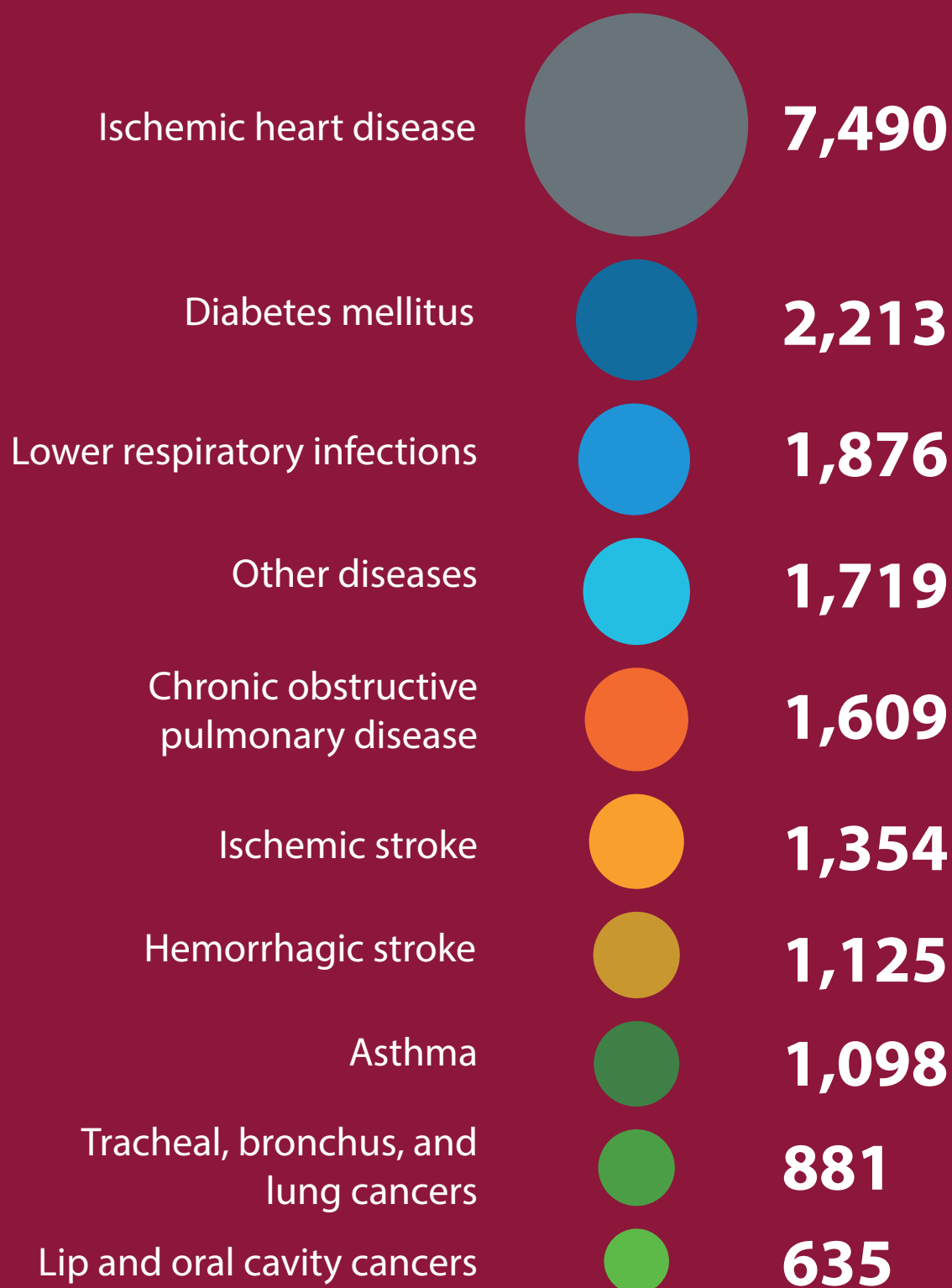
In total, smoking cost Sri Lanka's economy LKR 213.8 billion in 2016, equivalent to about 1.6 percent of Sri Lanka's GDP. **Figure 3** breaks down direct and indirect costs. **Figure 4** illustrates annual health losses that occur due to tobacco use.

# The current burden of tobacco use

Fig. 3: Breakdown of the share of direct and indirect economic costs (LKR billions)



**Fig. 4: Tobacco-attributable deaths by disease, 2016** (Results pulled from the IHME Global Burden of Disease Results Tool and scaled upward based on country input. Other diseases include tuberculosis, asthma, hypertensive heart disease, lip and oral cavity cancer, esophageal cancer, larynx cancer, liver cancer, other cardiovascular and circulatory diseases, peptic ulcer disease, pancreatic cancer, nasopharynx cancer, bladder cancer, leukemia, aortic aneurysm, atrial fibrillation and flutter, kidney cancer, other chronic respiratory diseases, peripheral artery disease, and rheumatoid arthritis.)



## 5.2 Implementing policy measures that reduce the burden of tobacco use

By implementing new FCTC policy measures, or intensifying existing ones, Sri Lanka can secure significant health and economic returns, and begin to reduce the LKR 213.8 billion in direct and indirect economic losses that occur due to tobacco use.

This section presents the health and economic benefits that result from individual policy actions to: 1) increase tobacco taxation to reduce the affordability of tobacco products; 2) expand the ban on smoking in public places to include all public spaces, and increasing compliance with the law; 3) run national-scale anti-tobacco mass media campaigns to increase awareness about the harms of tobacco use; 4) enact a comprehensive ban on tobacco advertising, promotion and sponsorship; 5) implement plain packaging of tobacco products, and; 6) prohibit the sale of cigarette sticks individually.

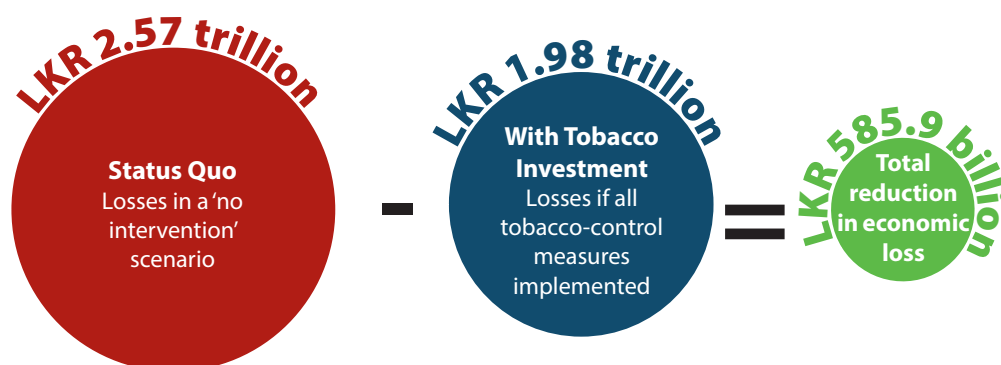
### 5.2.1 Health benefits—Lives saved

Enacting the tobacco policy package (inclusive of all six of the measures listed above) would lower the prevalence of cigarette smoking, leading to substantial health gains. Specifically, enacting the package would reduce the prevalence of cigarette smoking by 43.4 percent over 15 years, helping to save 72,344 lives from 2019–2034, or 4,823 lives annually.

### 5.2.2 Economic benefits

Implementing the package of interventions would result in Sri Lanka avoiding 23 percent of the economic losses that it is expected to incur from smoking over the next 15 years. **Figure 5** illustrates the extent to which Sri Lanka can shrink the economic losses that it is expected to incur.

**Fig. 5: Tobacco-related economic losses over 15 years: What happens if Sri Lanka does nothing, versus if the Government implements tobacco measures to reduce demand for smoking?**

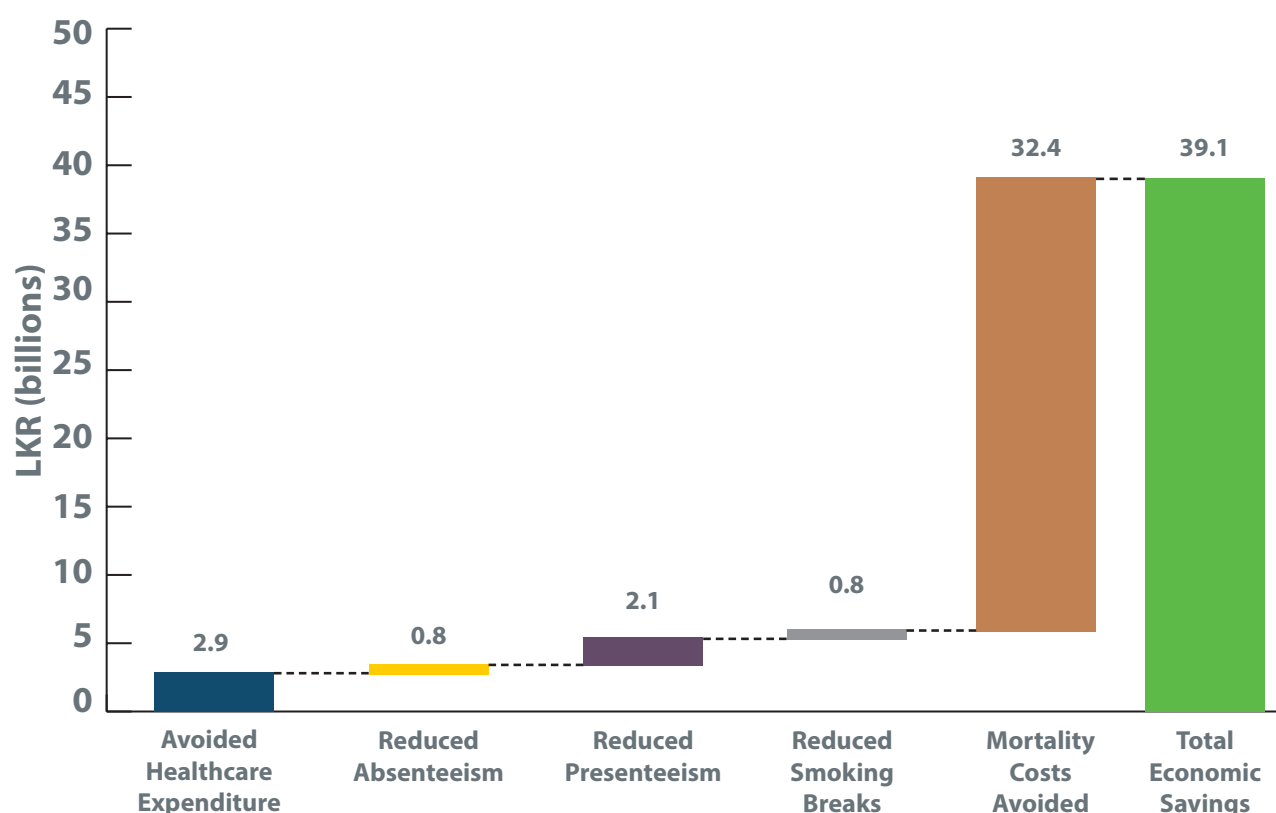


**In total, over 15 years, Sri Lanka would save about LKR 585.9 billion** that would otherwise be lost if it does not implement the package of tobacco measures. On average, that is the equivalent of about LKR 39.1 billion in annual savings.

The savings derive from lowering direct and indirect costs of tobacco use. With better health, fewer individuals need to be treated for complications from disease, resulting in direct cost savings to the government. In addition, better health leads to increased worker productivity. Fewer working-age individuals leave the workforce prematurely due to death. Laborers miss fewer days of work (absenteeism) and are less hindered by health complications while at work (presenteeism). Finally, because the prevalence of smoking declines, fewer individuals take smoke breaks in the workplace.

**Figure 6** breaks down the sources from which annual savings accrue. The largest savings result from avoiding premature mortality that removes working-age individuals from the labor force (LKR 32.4 billion). The next highest source of savings is derived from avoided healthcare expenditures (LKR 2.9 billion), followed by reduced presenteeism (LKR 2.1 billion), and reduced absenteeism (LKR 0.8 billion) and numbers of smoking breaks (LKR 0.8 billion).

**Fig. 6: Sources of annual direct and indirect economic savings as a result of implementing the tobacco policy package**

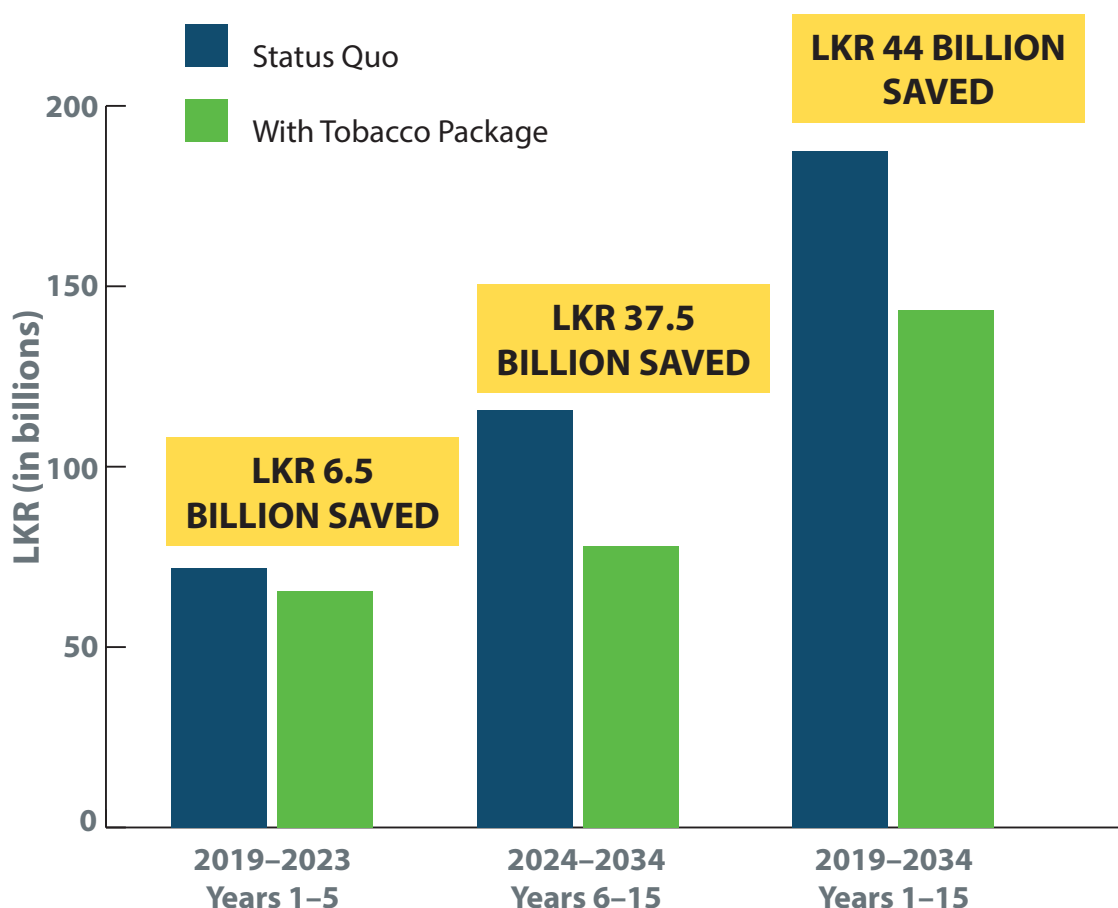


Importantly, implementing the package of tobacco measures reduces medical expenditure for both citizens and the government. Presently, private and public annual health care expenditures in Sri Lanka are about LKR 332 billion,<sup>37</sup> 4.6 percent of which is directly related to treating disease and illness due to tobacco use (about LKR 15 billion).

Year-over-year, the package of interventions lowers smoking prevalence, which leads to less illness, and consequently less healthcare expenditure. Over the time horizon of the analysis, the package of interventions averts LKR 44 billion in healthcare expenditures, or about LKR 3 billion annually, (see **Figure 7**), with 55 percent of those savings accruing to Government, 38 percent to individual citizens who would have paid out-of-pocket for healthcare, and the remainder to other voluntary healthcare pay schemes. Thus, from the reduced healthcare costs alone, the government stands to save about LKR 24 billion over 15 years.

Simultaneously, the Government would successfully reduce the health expenditure burden that tobacco imposes on Sri Lankans, supporting efforts to reduce economic hardship on families. Rather than spending on treating avoidable disease, these families would be able to invest more in nutrition, education and other productive inputs to secure a better future.

**Fig. 7: Private and public healthcare costs (and savings) over the 15-year time horizon**



### 5.2.3 The return on investment

An investment is considered worthwhile 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 FCTC measures, by the costs of the investments. For the Sri Lankan investment case, the ROI for each intervention was evaluated in the short-term (period of 5 years) and in the medium-term (period of 15 years). The ROI shows the best return on investment for each intervention, and for the full package of measures. Net benefits 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. All interventions have a positive ROI within the first five years, meaning that the government will recoup anywhere from 22–207 times its investment, depending on the intervention. 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 package (LKR billions)**

	First 5 years (2019–2023)			All 15 years (2019–2034)		
	Total Costs (LKR billions)	Net Benefits (LKR billions)	ROI	Total Costs (LKR billions)	Net Benefits (LKR billions)	ROI
<b>Raise taxes</b>	0.12	24.5	<b>207</b>	0.27	267.3	<b>724</b>
<b>Bans on advertising</b>	0.14	15.5	<b>111</b>	0.33	121.1	<b>366</b>
<b>Plain packaging</b>	0.14	11.7	<b>81</b>	0.33	91.9	<b>278</b>
<b>Protect people from tobacco smoke</b>	0.32	21.7	<b>69</b>	0.69	167.7	<b>245</b>
<b>Mass media campaign</b>	0.45	24.9	<b>56</b>	1.3	192.1	<b>144</b>
<b>Ban single stick cigarettes</b>	0.51	11.0	<b>22</b>	0.91	84.6	<b>93</b>
<b>Tobacco Package*</b> (all policies/interventions implemented simultaneously)	1.36	87.0	<b>64</b>	3.4	585.9	<b>171</b>

\* The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes  $PR_i$  and  $PR_j$ ,  $(1-PR_i) \times (1-PR_j)$  [is] applied to the current smoking prevalence [<sup>38</sup>, p. 454].

Over the 15-year period, raising taxes is expected to have the highest return on investment: for every Sri Lankan rupee invested in tobacco control, the government can expect to see 724 rupees in economic benefits in return. Bans on advertising have the next highest ROI (366:1), followed by plain packaging (278:1), expanding and enforcing smoke-free public places (245:1), implementing a mass media campaign (144:1), and single stick ban (93:1).

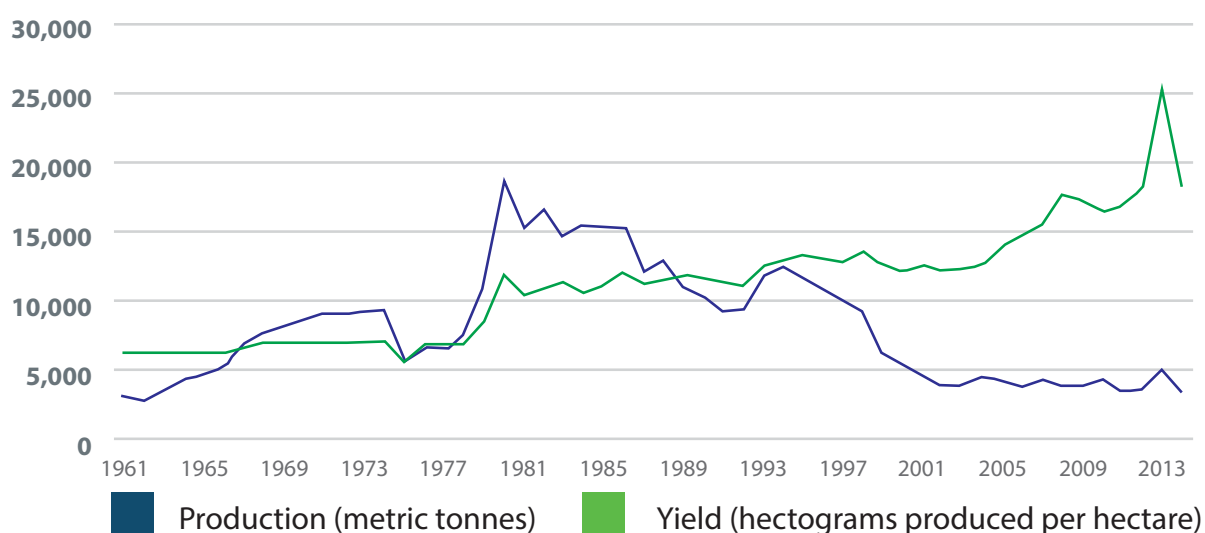
### 5.3 Beyond the economic model: The impact of new regulations on farmers

With tobacco regulation comes concern about its threat to farmers growing tobacco. The perception is that control measures will provoke a livelihood crisis for tobacco farmers, who are believed to be prosperous income earners, and that alternative crops are not sustainable. Research across the globe has found the opposite to be true: very often tobacco farming is not profitable compared to alternative crops, and very often it presents unsustainable risks for farmers.<sup>39</sup> However, the economic desirability and sustainability of tobacco farming depends on many local factors, and it is not always clear to farmers nor agriculture sector planners what the costs and benefits are for farming households or for the agricultural economy.

Tobacco cultivation is not viewed by the government as a strategic priority. The Ministry of Agriculture estimate that fewer than 300 families currently cultivate tobacco in Sri Lanka. Tobacco production has decreased significantly in recent decades, dropping by nearly three-quarters since 1980. The country has seen a drop off in tobacco production starting in 1980 and production has stayed low (**Figure 8**). Compared to nearby countries, Sri Lanka is one of the smallest producers of tobacco by metric tons. The yield from tobacco (hg/ha) has seen a steady increase since 1980—probably due to more productive land remaining in service.

**Fig. 8: Tobacco production in metric tons and tobacco yield (hg/ha), Sri Lanka, 1961–2014**

Source: Tobacco Atlas (2018). Growing. Online: <https://tobaccoatlas.org/topic/growing/> (accessed 31 May 2018).





A comprehensive assessment of tobacco farmer well-being from a social perspective must include both the direct household impacts, and social impacts. There is no recent study available for Sri Lanka that provides such information. Studies based on other countries show that tobacco cultivation yields poor returns to labor,<sup>40</sup> dependency and debt,<sup>41</sup> imposes health risks on farmers such as green tobacco sickness,<sup>42</sup> and can even contribute to food insecurity,<sup>43</sup> and environmental destruction that includes deforestation as well as soil and water degradation.<sup>44, 45, 46</sup> However, the tobacco industry frequently provides economic support in the form of infrastructure and farming inputs that make tobacco farming more appealing to smallholder tobacco farmers—especially those with few other options.<sup>47</sup>

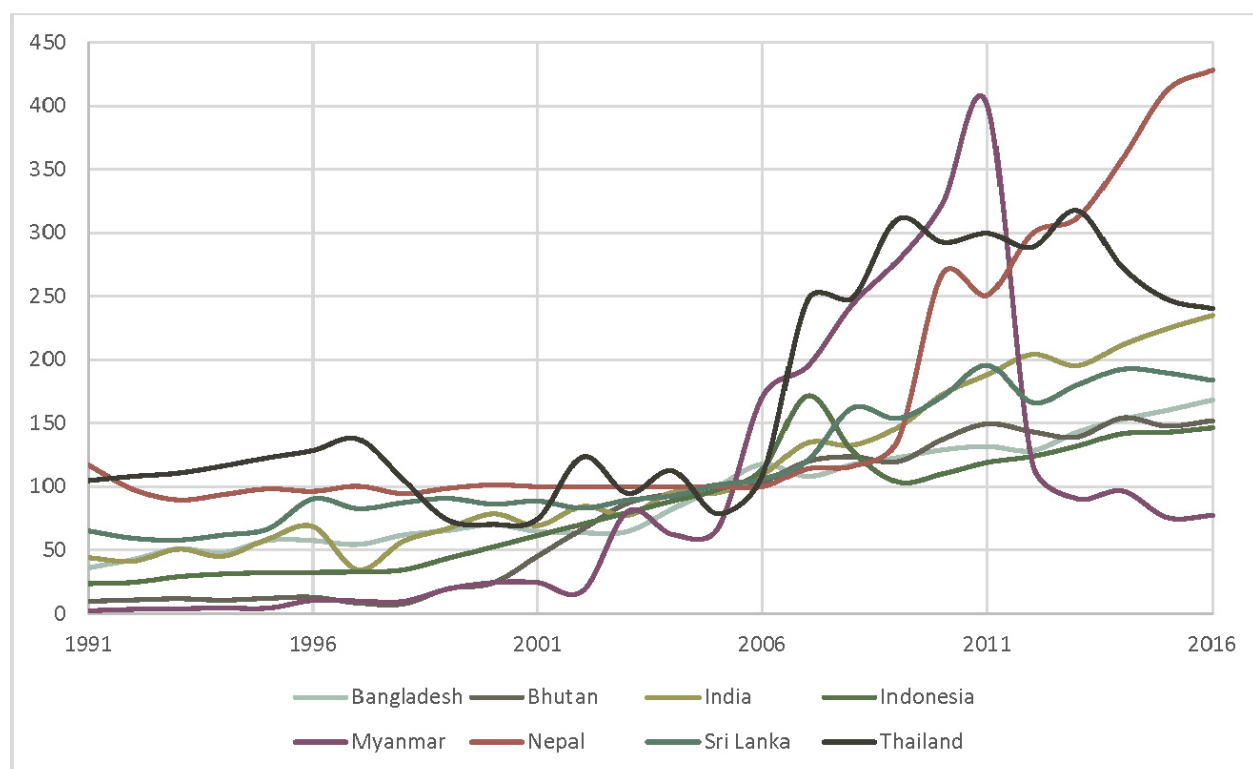
While few recent studies and reports have looked at tobacco farmers in Sri Lanka, there has been good monitoring in other countries in WHO's South East Asia Region. The story remains consistent across each country context: tobacco farmers experience a poor quality of life. Due to the high costs of inputs required for growing tobacco as well as the labor-intensive process, poverty is more likely than profitability. Transitioning farmers away from producing tobacco will provide greater sources of income, but it will require public investment in the supply and value chains to compete with the tobacco industry's incentives.

In Indonesia, as an example, former tobacco farmers are better off than current tobacco farmers. Drope et al. (2017) show that 72.2% of tobacco farmers are poor, compared to 11.1% of the general population.<sup>48</sup> In Kenya, the benefits of switching from tobacco crops and into bamboo as a substitute have been demonstrated. On average, non-tobacco farmers earned US\$198 more per year than tobacco farmers, a significant amount in rural areas. Furthermore, tobacco farmers spent US\$35 more per year on health care than non-tobacco farmers, an indication of the health consequences associated with growing tobacco.<sup>49</sup> These findings support the recommendations to switch out of tobacco farming and suggest that doing so will improve the economic and health outcomes of farmers.

These examples do not necessarily mean that tobacco farming in Sri Lanka is not profitable—at least in some years. We do not have the data to ascertain overall profitability of tobacco farming in comparison to farming other crops, but the available data indicate a high level of price risk and uncertainty for Sri Lankan tobacco farmers.

Over the past 25 years the price of tobacco has fluctuated dramatically in SEARO countries, showing steady increases and little variance from 1991 to 2006, but becoming much more unpredictable from 2006 to 2016. Sri Lanka is situated in the middle of the pack compared to its SEARO neighbors (**Figure 9**).

**Fig. 9: Annual producer price index for unmanufactured tobacco (2004–2006 = 100), SEARO countries** (Source: FAO (2018). FAOSTAT Price dataset. Online: <http://www.fao.org/faostat/> (accessed 30 May 2018)).



## 6. Conclusion and recommendations

Each year, tobacco use costs Sri Lanka LKR 214 billion in economic losses and causes substantial human development losses. The investment case shows that there is an opportunity to reduce the social and economic burden of tobacco in Sri Lanka. Enacting the recommended multisectoral tobacco control provisions would save thousands of lives each year and reduce the incidence of disease, leading to savings from averted medical costs and averted productivity losses.

In economic terms, these benefits are substantial, adding up to LKR 586 billion over the next 15 years. Further, the economic benefits of strengthening tobacco control measures in Sri Lanka and implementing new ones greatly outweigh the costs of implementing them (LKR 586 billion in benefits versus just LKR 3.4 billion in costs). By investing now in tobacco control measures, Sri Lanka would not only improve the health of its citizens but also support businesses and grow the economy. It would also raise revenue for the government to advance any of its sustainable development priorities.

Many countries reinvest savings from healthcare spending and revenue from increased tobacco taxes into poverty alleviation measures including universal health coverage and alternative livelihood support for tobacco farmers and workers.

The investment case has identified the strongest tobacco control investments for Sri Lanka to pursue. It offers policymakers a strong social and economic argument for implementing core FCTC policy measures. The full benefits of the investment case are more likely to be realized if the following actions are pursued.



*Credit: © Garret Clarke/  
World Bank via Flickr*

## **Raise awareness among the public, government and businesses of the true costs of tobacco and the enormous development and economic benefits of tobacco control**



Policymakers across sectors are encouraged to share the investment case findings broadly among all sectors of government, parliament, civil society, the media, academia, the public, and development partners. 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 and reduce hardships on households) can assist policymakers in disseminating the message and supporting tobacco control efforts, including its inclusion in national development and SDG plans. The Ministry of Health and NATA should work together with the Ministry of Mass Media and Information and members of the parliament and the media for effective and nation-wide dissemination of key messages.



## **Strengthen the tobacco control law**

Sri Lanka's National Authority on Tobacco and Alcohol Act is comprehensive legislation designed to protect the population. However, the law does not cover some areas that are critical to effective tobacco control. For example, smoking is still permitted in certain public places such as large restaurants and hotels; certain indirect forms of tobacco advertising, promotion and sponsorship are allowed; and sale of cigarettes in single sticks or small packets are permitted. The investment case clearly demonstrates the additional health and economic benefits of these additional measures. Their implementation will require strong political leadership and close collaboration among key stakeholders including the Ministries of Health, Home Affairs, Industry and Commerce, Education, Mass Media and Information, NATA as well as the media, civil society, academia, and UN and development partners.

Moreover, further tobacco control measures such as licensing of tobacco retailers; regulating e-cigarettes; increasing the level of fines and penalties for violating tobacco control laws and regulations; and using a portion of tobacco tax revenue to provide alternative livelihood support for tobacco farmers or tobacco cessation support should be considered. Strengthening the national capacity to comply with, monitor and enforce tobacco control laws and regulations is also necessary, which would include increasing the number of public health inspectors and training of police and excise officers on tobacco control.



## Advocate for additional increases in tobacco taxes

The Tobacco Tax Act governs tobacco taxation in Sri Lanka. Although it was revised twice in 2016 for higher rates, additional room still exists for the government to increase tobacco tax rates to reach the WHO FCTC recommended level (75 percent of the retail price), which will expand government revenue and health protection even further.

The investment case found raised cigarette taxes by far the most cost-effective of all individual interventions examined. They delivered a return of LKR 724 in economic benefits for every rupee invested.

The Ministry of Health and NATA should work with the Ministry of Finance and Planning to create an enabling environment for tax increases not just on cigarettes but on all tobacco products. It is important that tax rates are increased regularly and pegged to inflation and income growth in order to decrease the affordability of tobacco products. Equally important is the development of a robust strategy and systems to combat illicit tobacco trade, to prevent the loss of tax revenue for the government and the loss of lives, through the effective use of the Protocol to Eliminate Illicit Trade in Tobacco Products, which Sri Lanka acceded to in 2016.

## 7. Methodology annex

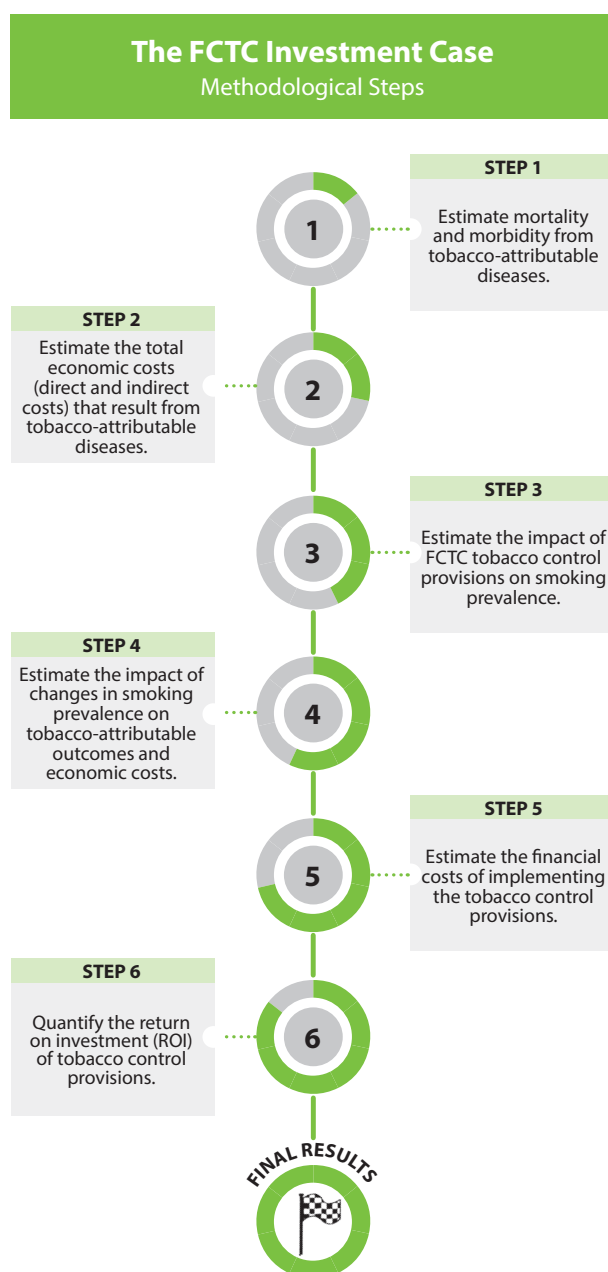
The purpose of the FCTC Investment Case is to quantify the current health and economic burden of tobacco use in Sri Lanka; estimate the impact that implementing tobacco measures would have on reducing the burden; and provide analysis of other impacts—i.e., on agriculture—that may factor into Government decisions to implement tobacco control measures.

RTI International developed a model to conduct the investment case and perform the methodological steps in **Figure 10**. Interested readers are referred to this report's separate Technical Appendix for a more thorough account of the methodology (available upon request).

The FCTC Investment Case team worked with partners in Sri Lanka 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), World Bank database, Global Burden of Disease (GBD) study, and academic literature.

Within the investment case, costs and monetized benefits are reported in constant 2016 rupees, and discounted at a rate of three percent.

**Fig. 10: Building the FCTC Investment Case**



## 7.1 Overview

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

### 7.2 COMPONENT ONE: CURRENT BURDEN

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



#### STEP 1

Estimate mortality and morbidity from tobacco-attributable diseases.

The investment case model is populated with country-specific data on tobacco attributable mortality and morbidity from the 2016 Global Burden of Disease Study (GBD).<sup>50</sup> The study estimates the extent to which smoking and exposure to second-hand smoke contribute to the incidence of 31 diseases, healthy life years lost, and deaths, across 195 countries. For the Sri Lanka investment case, GBD's mortality estimates were revised upward based on input provided by the Sri Lanka National Authority on Tobacco and Alcohol.



#### 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 costs: absenteeism, presenteeism, and excess smoking breaks.

**Direct costs** – Direct costs include both 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 and colleagues (2018), who estimated tobacco to account for an average of 4.6 percent of healthcare expenditures in nine WHO SEARO countries.<sup>51</sup>

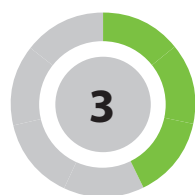
**Indirect costs** – Indirect costs represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-related diseases. Indirect costs accrue when tobacco use causes premature death, eliminating the unique economic and social contributions that an individual would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

- *The economic cost of premature mortality due to tobacco use* – Premature mortality is valued using the human capital approach, which places an economic value on each year of life lost. Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each year of life is valued at 1.4 times GDP per Capita, following the ‘full income approach’ employed by Jamison et al (2013).<sup>52</sup>
- *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 (3 days per year).<sup>53</sup> Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22% more impairment at work because of health problems compared to never-smokers.<sup>54</sup> Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take five minutes of extra breaks per day.<sup>55</sup>



### 7.3 COMPONENT TWO: POLICY/INTERVENTION SCENARIOS

This component estimates the effects of FCTC tobacco control provisions on mortality and morbidity, as well as on total economic costs (direct and indirect) associated with tobacco use. Mortality and morbidity, as well as economic costs, for the tobacco control policy/intervention scenarios are compared to the status quo scenario, which is based on the current burden estimates.



#### STEP 3

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

Selection of priority FCTC measures modeled within the investment case align with the Global Strategy to Accelerate Tobacco Control<sup>56</sup> developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, Parties seek to accelerate WHO FCTC implementation by setting clear priorities where they will be likely to have the greatest impact in reducing tobacco use. This includes priority implementation of price and tax measures (*Article 6*) and time-bound measures of the Convention, including bans on smoking in all public places (*Article 8*), health warnings and plain tobacco packaging (*Article 11*), and comprehensive bans on tobacco advertising, promotion and sponsorship (*Article 13*). In addition, given the importance of awareness in behavior change and shaping cultural norms, the investment cases include instituting mass media campaigns against tobacco use (*Article 12*) as a measure modeled.

The impacts of enforcing smoke-free air laws, implementing plain packaging, intensifying advertising bans, and conducting mass-media campaigns are derived from Levy et al (2018)<sup>57</sup> and Chipty (2016),<sup>58</sup> as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013–2020.<sup>59</sup> The impact of raising taxes on the prevalence of tobacco use is determined by the “prevalence elasticity”, or the extent to which individuals stop smoking as a result of price changes. Following evidence that price elasticity ranges between -0.4 to -0.8 in developing countries,<sup>60</sup> we assume that the price elasticity of demand in Sri Lanka is -0.5, and that prevalence elasticity is approximately one-half of price elasticity<sup>61</sup> (-0.25). Tax increases were modelled so as to engender real 10 percent increases in sales price year over year from 2020–2023, followed by an average three percent increase in the remaining years of the analysis. Given the lack of existing evidence around the impact of bans on the sale of single sticks, effectiveness was modeled as a five percent relative reduction based on the request of in country partners. **Table 3** displays the impact sizes used within the investment case analysis.

Within the analysis, it is assumed that implementation or intensification of new tobacco control measures does not take place until year three of the analysis. With the exception of taxes—the impact of which is dependent on the timing of increases in tax rates—the full impact of the measures is phased in over a five-year period. The phase-in period follows WHO assumptions<sup>62</sup> 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.

**Table 3: Impact size: Relative prevalence reduction by the end of the analysis, by tobacco-control measure**

Intervention	Relative reduction in prevalence of current smokers
Smoke-free air laws	10.37%
Mass-media campaign	11.90%
Bans on advertising	7.40%
Plain packaging	5.55%
Raise taxes	13.66%
Ban on single stick sales	5.0%
<b>Tobacco Package (all policies)</b>	<b>43.4%*</b>

\* 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<sub>i</sub> and PR<sub>j</sub>, (1-PR<sub>i</sub>) x (1-PR<sub>j</sub>) [is] applied to the current smoking prevalence [<sup>63</sup>, p. 454].

## 7.4 The impact of changes in smoking prevalence



### STEP 4

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

To analyze the impact of policy measures on reducing the health and economic burden of smoking, the investment case calculates and compares two scenarios. In the status quo scenario, current efforts are 'frozen', meaning that, through the year 2034 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the intervention scenario, Sri Lanka 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 Sri Lanka can achieve by taking targeted actions to reduce tobacco use.

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

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

Marginal effects are calculated as follows for each outcome:

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

## 7.5 The financial costs of implementing tobacco control measures



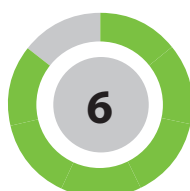
### STEP 5

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

The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO Costing tool are found elsewhere.<sup>64</sup> The Tool contains default prices and data from 2011. Following Shang and colleagues, we update the Tool to reflect 2017 costs by updating several parameters: the US\$–LKR exchange rate, including the US\$ to LKR exchange rate (2017), purchasing power parity (PPP) exchange rate (2017), GDP per capita (US\$, 2017), GDP per capital (PPP, 2017), population (total, and share of the population age 15+, 2017), labor force participation rate (2017), and government spending as a percent of total health spending (2015) [65, p. 5]. With the exception of the share of government health spending, population, and gas/liter, all parameters were sourced from the World Bank database. The share of government health spending is derived from the WHO Health Expenditures database, and population from the UN Population Prospects.

Briefly, 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. Costs are sourced from the WHO CHOICE Costing study.

## 7.6 The return on investment (ROI)



### STEP 6

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

If the benefits (avoided economic costs) from implementing an intervention exceed the cost (financial costs) of the intervention, investing in taking action is considered economically efficient. The return on investment (ROI) analysis measures the efficiency of NCD investments by dividing the monetary value of health gains from investments by their respective costs. The ROI answers the following question: for every Sri Lankan rupee that the government invests in tobacco control measures, how many rupees can it expect to receive in return?





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Prepared by  
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WHO FCTC Secretariat  
World Health Organization

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May 2019



Funded by  
UK Government