



Investment Case for
Tobacco Control in the

United Republic of Tanzania

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**Investment Case for
Tobacco Control in the
United Republic of
Tanzania**

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

Investment Case for Tobacco Control in the United Republic of Tanzania

More than

21,800

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

6% of all deaths in the country.



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

112,700 deaths

and avert

TZS 2.8 trillion

in economic losses by 2037.

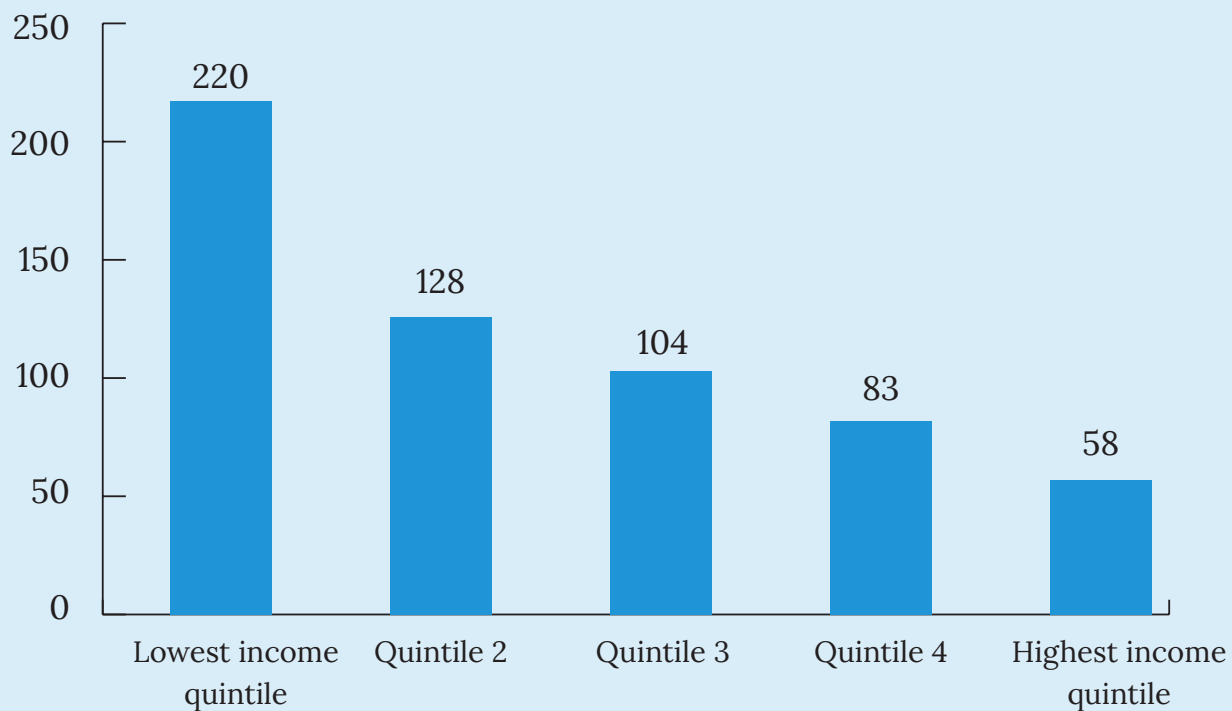


Enacting and enforcing seven proven WHO FCTC tobacco-control measures over the next 15 years would lead to:

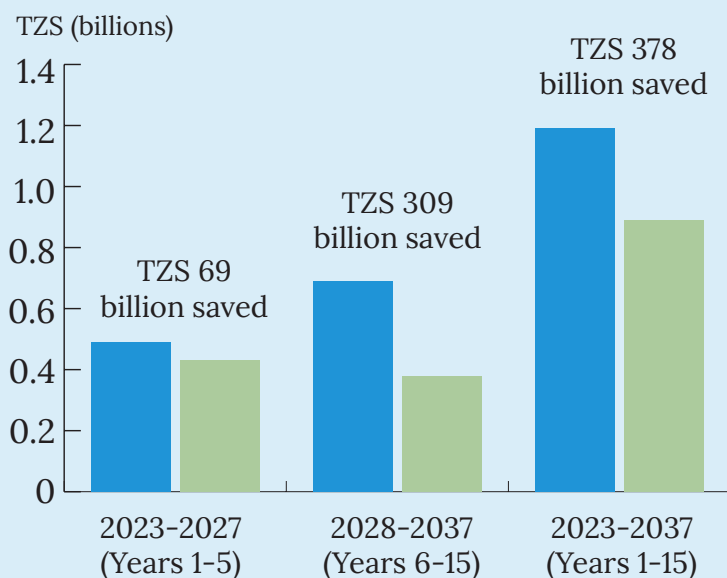
TZS 481 billion in savings

through avoidance of tobacco-attributable healthcare expenditures.

Deaths averted by tax increase, by income quintile



Private and public healthcare costs (and savings) over the 15-year time horizon



Tobacco costs the United Republic of Tanzania 820 billion Tanzanian shillings (TZS) every year, equivalent to 0.5% of GDP.

■ Status quo
■ With tobacco control package

Costs per adult smoker

TZS 352,000

Acknowledgements

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The report has been made possible through the FCTC 2030 project which is generously funded by the Governments of Australia, Norway and the United Kingdom.

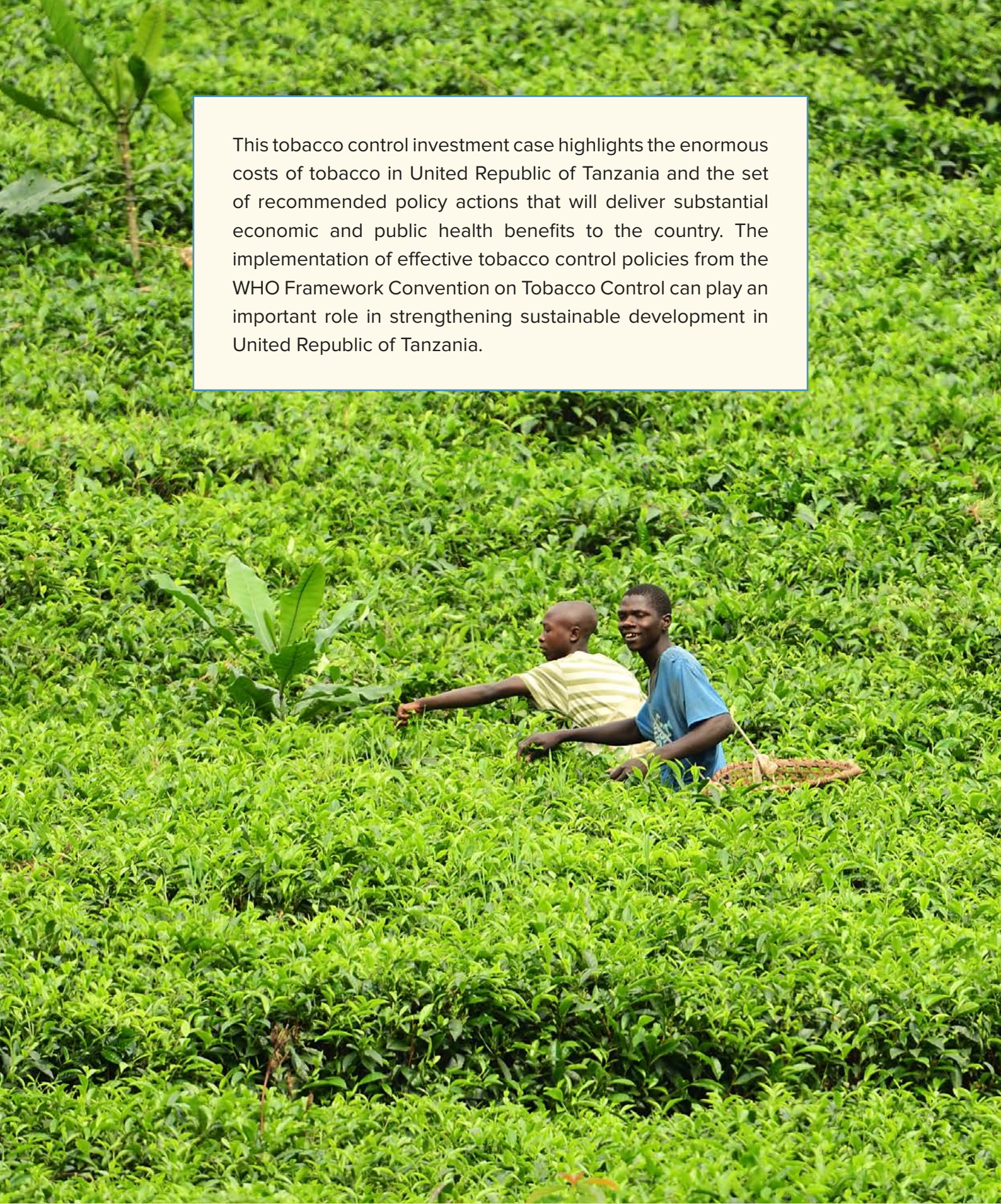
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This tobacco control investment case highlights the enormous costs of tobacco in United Republic of Tanzania and the set of recommended policy actions that will deliver substantial economic and public health benefits to the country. The implementation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





Executive summary

Overview

Tobacco is a significant threat to health and development. Tobacco causes premature death and preventable disease that results in high health costs and economic losses, widens socioeconomic inequalities, and impedes progress towards the achievement of the Sustainable Development Goals (SDGs).

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

- 1) **Increasing tobacco taxation to reduce the affordability of tobacco products** (*WHO FCTC Article 6*).
- 2) **Creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke** (*WHO FCTC Article 8*).
- 3) **Implementing rotating, graphic warning labels on tobacco packaging** (*WHO FCTC Article 11*).
- 4) **Implementing plain packaging of tobacco products** (*WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13*).
- 5) **Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** (*WHO FCTC Article 12*).
- 6) **Enacting and enforcing a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS)** (*WHO FCTC Article 13*).
- 7) **Scaling up of brief advice to quit for tobacco users in primary care clinics** (*WHO FCTC Article 14*).

Main findings of the investment case

- **In 2019, tobacco use in the United Republic of Tanzania imposed around 820 billion Tanzanian shillings (TZS) in economic losses.** These losses are equivalent to **0.5 percent** of the United Republic of Tanzania's gross domestic product (GDP). They include a) **TZS 110 billion** in direct health-care expenditures to treat tobacco-related illness, b) tobacco-attributable mortality valued at **TZS 337 billion**, and c) **TZS 373 billion** in reduced workplace productivity from absenteeism and presenteeism. Productivity losses from current tobacco use in the United Republic of Tanzania, representing **40 percent** of all tobacco-related economic costs, show how tobacco use impedes development in the United Republic of Tanzania beyond health. Multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from the implementation of tobacco control measures that create healthier communities and a more productive labour force.

- **Every year, tobacco use kills more than 21,800 Tanzanians, with 63 percent of these deaths being premature, among people under the age of 70.** About **17 percent** of lives lost from tobacco use are due to exposure to secondhand smoke. Deaths from tobacco are entirely preventable.

By acting now, the **Government of the United Republic of Tanzania can substantially reduce the national burden from tobacco use.** The investment case findings demonstrate that implementing seven key evidenced-based WHO FCTC policy actions set out in the WHO FCTC would, over the next 15 years (2023-2037):

- **Save more than 112,700 lives and reduce the incidence of disease. This would contribute to the United Republic of Tanzania's efforts to achieve SDG Target 3.4, which aims to reduce by one third premature mortality (under age 70) from non-communicable diseases (NCDs) by 2030.** Enacting the seven WHO FCTC measures would prevent premature deaths from the four main NCDs—cardiovascular disease (CVD), diabetes, cancer, and chronic respiratory disease—by the 2030, in the equivalent of about **13 percent** of the needed reduction in premature mortality to achieve SDG Target 3.4.

Avert TZS 2.8 trillion in economic losses, coming from:

- **TZS 1.3 trillion due to workplace productivity losses.** The tobacco control actions should stimulate economic growth because fewer people 1) miss days of work due to disability or sickness and 2) work at a reduced capacity due to tobacco-related health issues.
- **TZS 378 billion in savings through avoidance of tobacco-attributable health-care expenditures.** Of this, the government would save TZS 173.81 billion in healthcare expenditures and citizens would save TZS 107 billion in out-of-pocket health-care costs, with remaining savings going to other payers.
- **TZS 1.2 trillion in averted economic costs from tobacco-attributed mortality.**

- **Provide a return on investment (ROI) of 13:1.**¹ This means that economic benefits (**TZS 2.8 trillion**) significantly outweigh the costs of implementing the seven WHO FCTC policy actions (**TZS 214 billion**). For each individual measure, increasing cigarette taxes will have the highest ROI (**68:1**), followed by enforcing comprehensive bans on advertising, promotion, and sponsorship (**55:1**), graphic warning labels (**42:1**), promote and strengthen public awareness of tobacco control issues (**28:1**), enforcing smoke-free public places and workplaces (**26:1**), implementing plain packaging of tobacco products (**14:1**), and scaling up of brief advice to quit for tobacco users in primary care clinics (**0.3:1**).

Increasing cigarette taxes in the United Republic of Tanzania will bring social benefits to all, but particularly the poor. Those with lower incomes are more likely to quit smoking when cigarette prices rise, helping them to avoid illness and catastrophic health-care expenditures [1]. During the first year of the modeled tax increase, 37 percent of the deaths averted from increasing cigarette taxes will be among the poorest 20 percent of the population. Cigarette tax increases would further benefit Tanzanians with lower incomes if the resulting government tax revenue were reinvested in further WHO FCTC implementation and national development priorities such as universal health coverage. There is potential for even greater revenue increases and public health benefits from increasing taxes for all tobacco products, not only cigarettes.

1 For every 1 TZS invested in the seven key WHO FCTC policy actions today, the United Republic of Tanzania will avert TZS 5 in economic losses by 2027 and TZS 12 by 2037.

Recommendations

This report provides comprehensive recommendations that the Government of the United Republic of Tanzania can take to protect public health and realize the benefits of the WHO FCTC as a sustainable development accelerator, and it is not only focused on the seven WHO FCTC policy actions modeled in this investment case.

Recommendations

- 1** Commit to fully implement the WHO FCTC in the United Republic of Tanzania.
- 2** Given the effectiveness of tobacco taxation, strengthen tobacco tax structures and increase tax rates (WHO FCTC Article 6).
- 3** Take action to strengthen, implement and enforce the other six key WHO FCTC policy actions modeled in this investment case.
- 4** Strengthen multisectoral coordination for tobacco control in the United Republic of Tanzania and encourage the participation of civil society in WHO FCTC implementation (WHO FCTC Articles 5.2(a) and 4.7).
- 5** Develop a national tobacco control strategy for the United Republic of Tanzania (WHO FCTC Article 5.1).
- 6** Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).
- 7** Strictly enforce the prohibition on the sale of tobacco to minors (WHO FCTC Article 16).
- 8** Ratify and implement the Protocol to Eliminate the Illicit Trade in Tobacco Products and build capacity to combat illicit trade of tobacco and tobacco products (Protocol and WHO FCTC Article 15).
- 9** Support health-promoting and economically viable alternatives to tobacco growing and manufacturing (WHO FCTC Article 17 and 18).
- 10** Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in the United Republic of Tanzania.

Through the FCTC 2030 Project, the Secretariat of the WHO FCTC, the United Nations Development Programme (UNDP), and the World Health Organization (WHO) stand ready to support the Government of the United Republic of Tanzania to reduce the tobacco-induced social, economic, and environmental burdens through the implementation of evidence-based tobacco control laws and policies.

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

Every year, tobacco use causes:

- More than 21,800 deaths.
- TZS 110 billion in health-care expenditures.
- TZS 373 billion in workplace productivity losses.
- Tobacco-attributable mortality valued at TZS 337 billion.
- Total social and economic losses equivalent to 0.5% of GDP.

Implementing the modeled WHO FCTC measures now would, over the next 15 years:

- Prevent more than 112,700 deaths.
- Save TZS 378 billion in health-care expenditures.
- Generate economic benefits (TZS 2.8 trillion) that significantly outweigh costs (TZS 214 billion) of implementation and enforcement – an 13:1 return on investment.
- Prevent TZS 1.2 trillion in losses due to tobacco-attributable mortality.
- Prevent TZS 1.3 trillion in workplace productivity losses.

* Figures subject to rounding.

1. Introduction

The tobacco epidemic is one of the greatest public health threats the world has faced, killing more than 8 million people a year, including some 1.2 million deaths from exposure to secondhand smoke [2]. Tobacco use is a main risk factor for non-communicable diseases (NCDs) including cardiovascular disease (CVD), diabetes, cancer and chronic respiratory disease, as well as a cause of many other diseases [3]. In the United Republic of Tanzania, 2.6 million adults (8.7 percent overall) currently use some form of tobacco product, with a higher prevalence among men (14.6 percent) than among women (3.2 percent) [4]. Tobacco use causes more than 21,500 deaths every year [5], about 63 percent of them are premature, occurring among those under the age of 70 [5].

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

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

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

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

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

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

Tackling tobacco use across the world is a priority within the 2030 Agenda for Sustainable Development. Tobacco control is relevant to the achievement of many Sustainable Development Goals (SDGs), particularly SDG Target 3.4 that calls for action to achieve a one-third reduction in premature mortality from NCDs by 2030. Target 3.a is a means of implementation of SDG 3.4 and calls for strengthened implementation of the WHO FCTC. But beyond health, tobacco control is also a proven approach to reduce poverty and inequalities, strengthen and expand the economy and advance sustainable development more broadly. Tobacco control is an SDG accelerator as it can contribute to many goals simultaneously across the economic, social, and environmental spheres [19]. In addition, reducing tobacco use is one of the nine targets of the *WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2030* [20].

Box 1. 2030 Agenda for Sustainable Development

In 2015, all UN Member States adopted the 2030 Agenda for Sustainable Development, outlining actions to achieve greater peace and prosperity. The core components of the Agenda are the 17 SDGs which are an urgent call for all countries to act together, recognizing that efforts to address poverty, inequalities, health, education, economy and climate change must be undertaken in unison [21].

The United Republic of Tanzania's young population and growing incomes make it a prime target of tobacco industry expansion and more vulnerable to increases in tobacco use [22]. Several key demand reduction measures within the WHO FCTC remain to be implemented and some require strengthening. Opportunities for the United Republic of Tanzania to improve implementation of the WHO FCTC include: strengthening tobacco tax structures and increasing tax rates; enacting comprehensive policies to make all public and work places smokefree, including by ending the use of designated smoking areas and ensuring robust enforcement; implementing rotating, graphic warning labels on tobacco packaging; implementing plain packaging for tobacco products; closing loopholes in tobacco advertising, promotion and sponsorship (TAPS) legislation and ensuring robust enforcement; promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke; and scaling up of brief advice to quit for tobacco users in primary care clinics. Realizing the full benefits of all above measures depends on concerted and coordinated efforts from multiple sectors of government with support from civil society.

In 2021, the Secretariat of the WHO FCTC, UNDP, and WHO undertook a virtual joint mission with partners in the United Republic of Tanzania to initiate this investment case. The investment case is part of support made available to the United Republic of Tanzania as an [FCTC 2030 project](#) country.³

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

- 1 Increase tobacco taxation to reduce the affordability of tobacco products** (*WHO FCTC Article 6*).
- 2 Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke** (*WHO FCTC Article 8*).
- 3 Graphic health warnings on tobacco product packaging that describes the harms of tobacco use** (*WHO FCTC Article 11*).
- 4 Implement plain packaging⁴ of tobacco products** (*WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13*).
- 5 Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** (*WHO FCTC Article 12*).
- Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS)** (*WHO FCTC Article 13*).
- Scale up of brief advice to quit for tobacco users in primary care clinics** (*WHO FCTC Article 14*).

3 The FCTC 2030 project is a global initiative funded by the Governments of Australia, Norway and the United Kingdom to support countries to strengthen WHO FCTC implementation to achieve the SDGs. As of 2022, the United Republic of Tanzania is one of 33 countries worldwide that have participated in the FCTC 2030 project [23].

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

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

2. Tobacco control in the United Republic of Tanzania: status and context

2.1 Tobacco use prevalence, social norms and awareness-raising

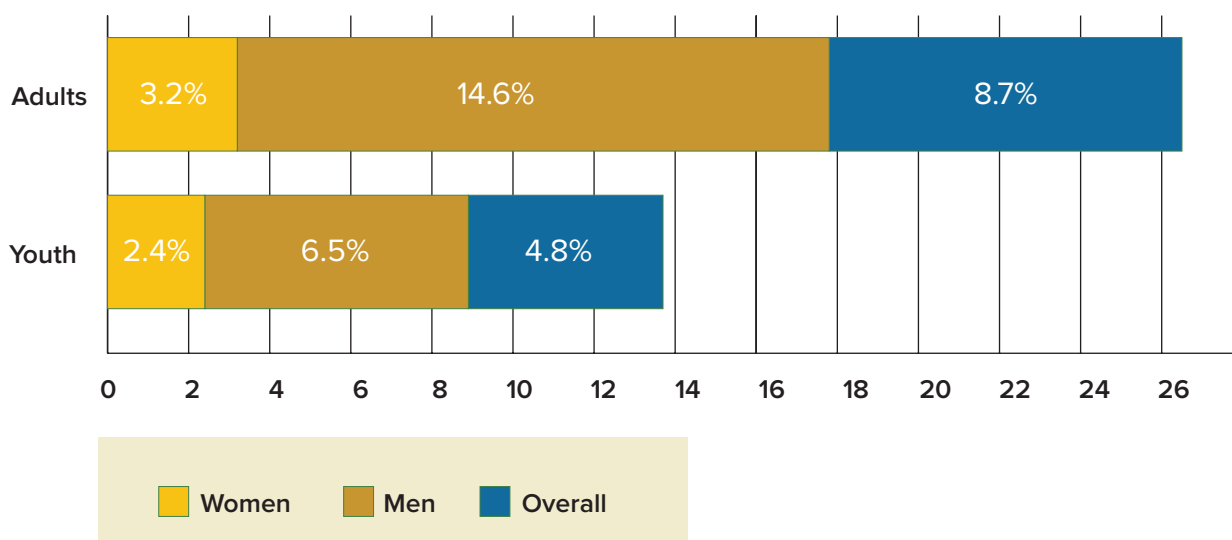
Around 8.7 percent of adults use tobacco products in the United Republic of Tanzania [4]. Overall, tobacco prevalence is significantly higher among men than among women (14.6 percent of adult men use tobacco, compared to 3.2 percent of adult women) [4]. Cigarette smoking is the most common type of tobacco consumed, with 7.0 percent of adults smoking cigarettes and a significantly higher prevalence among men than among women (13.4 percent compared to 0.6 percent) [4].

Tobacco consumption varies across age groups. Men and women, 45-49 years old have the highest prevalence of tobacco use (33 and 1.8 percent respectively) [24], and 15-19 year-olds have the lowest prevalence (1.2 and 0.3 percent respectively) [24]. Secondhand smoke (SHS) exposure in indoor areas is high in the United Republic of Tanzania, as 77 percent of adults reported passive smoking in bars and clubs, 33 percent reporting being exposed at work, and 31 percent in restaurants [25].

There is a significant difference in tobacco consumption across education levels, especially for men. Adults with no education are more likely to smoke any type of tobacco (23 and 0.4 percent for men and women respectively) than those with secondary education (6.8 and 0.3 percent respectively). Similarly, individuals with low-incomes are more likely to smoke any type of tobacco (18.5 and 1.1 percent for men and women respectively) than high-income individuals (10.8 and 0.7 percent) [24].

Tobacco consumption among adults varies slightly between rural (7 percent) and urban (6 percent) areas. However, tobacco smoking prevalence varies significantly across regions and is particularly high among men in the regions of Katavi (25 percent), Mtwara (25 percent), Ruvuma (24 percent) and Kilimanjaro (23 percent). Among women, smoking prevalence is higher in Njombe (2 percent), Pwani (1.3 percent) and Singida (1.2 percent) [24].

Fig. 1: Tobacco use prevalence among youth and adults, disaggregated by gender⁵



According to the most recent Global Youth Tobacco Survey (GYTS) in the United Republic of Tanzania in 2016, 4.8 percent of students 13-15 years old were current tobacco users, with a higher prevalence among boys (6.5 percent) than girls (2.4 percent) (**Figure 1**) [26]. Smoked tobacco is the most common form of tobacco used by youth (3.6 percent), with other tobacco (e.g., pipes, cigars, cheroots, cigarillos, and water pipes [24]) being more popular (2.8 percent) than cigarettes (1.3 percent). Consumption of smokeless tobacco is also high among young people, with 2.1 percent of 13–15-year-olds (2.9 and 0.9 percent of boys and girls, respectively) being current smokeless tobacco users [26].

In 2016, 17.3 percent of students were exposed to secondhand smoke (SHS) at home and 34 percent were exposed to SHS in enclosed public places [26]. Thirty-one percent of students noticed people smoking in school buildings or on school property [26]. Exposure to smoking not only imposes serious health harms but can also influence attitudes towards smoking, as 24 percent of students thought smoking helped people feel more comfortable at social gatherings [26].

⁵ Data on youth tobacco consumption comes from GYTS (2016), while data on adults' tobacco consumption comes from WHO report on the global tobacco epidemic, 2021.

Making tobacco products less affordable is one of the best ways to control tobacco use, and young people are particularly sensitive to the price of tobacco [27]. Higher tobacco prices from tax increases can make smoking too costly for young people and reduces the incentive to start or continue to smoke. A 2021 study demonstrated that higher tobacco prices, such as through tax increases, are associated with a decreased risk of smoking initiation among youth and young adults [28].

Box 2. Tobacco and gender

While worldwide women and girls tend to use tobacco at lower rates than men, they can still be subjected to the harms of tobacco use—including exposure to secondhand smoke [29] and the effects of household income diverted to tobacco use. Since tobacco use prevalence is often lower for women than men, the tobacco industry see this as an opportunity to scale up marketing targeted at women and girls [30]. In the United Republic of Tanzania, 14.7 percent of girls aged 13-15 and 11.9 percent of women are exposed to secondhand smoke at home [25], [26], and 29 percent of women are exposed to secondhand smoke at work [25]. Moreover, women are disproportionately more exposed to secondhand smoke than men in universities (17.8 versus 14 percent respectively) [25]. Recent trends also suggest tobacco use is increasing among girls in many countries in the African region [31].

Box 3. Tobacco and pregnancy

Tobacco use during pregnancy imposes significant health risks on the fetus, infant and mother. It increases the likelihood of miscarriages, stillbirths, preterm births, low birth weight, birth defects, and sudden infant death syndrome, among others [32], [33]. Exposure to secondhand smoke during pregnancy also increases the risks of having low birthweight babies, in turn increasing the risk of a mother and child developing health issues [33]. Mothers face additional health risks as pregnant smokers are more likely to experience heart and lung complications than pregnant nonsmokers [34]. Despite the strong evidence, the tobacco industry continues to aggressively target women and girls [33]. It is estimated that the global prevalence of smoking during pregnancy is 1.7 percent [35].

2.2 National tobacco control legislation, strategy and coordination

The Tobacco Products (Regulation) Act (2003) is the primary tobacco control law in the United Republic of Tanzania. It contains measures concerning smoking in public areas, tobacco advertising, promotion and sponsorship, and tobacco packaging. The 2014 Tobacco Products Regulations strengthens measures from the 2003 Act.

Together, this legislation provides bans on: smoking in enclosed public spaces (except for designated smoking areas); advertising on television, radio, internet and in printed press; the sale or distribution of promotional items naming tobacco companies or tobacco brands; and the advertisements of tobacco industry corporate social responsibility (CSR) activities. In 2016, the United Republic of Tanzania banned shisha primarily to prevent young people from taking up tobacco use [36].

The United Republic of Tanzania ratified the WHO FCTC on 30 April 2007. However, the United Republic of Tanzania has not yet fully implemented several WHO FCTC Articles [37].

Within the United Republic of Tanzania, Zanzibar retains competence to make its own public health legislation that covers several aspects of the WHO FCTC. In 2017, the Government of Zanzibar made tobacco control regulations under powers in the Public and Environmental Health Act on 2012. These Zanzibar tobacco control regulations include measures for smoke-free enclosed public places and workplaces, a prohibition on the sale of cigarette packs that contain fewer than 20 sticks and health warning requirements (that cover 70 percent of each side of a package and prohibit misleading descriptors). The Regulations also prohibit tobacco advertisement, promotion and sponsorship [38].

The United Republic of Tanzania has recently developed a national tobacco control strategy to cover the period 2023-2028 with support from the FCTC 2030 project. Previously, the United Republic of Tanzania had a tobacco control strategy covering the period 2010-2015, although this was not fully implemented.

The Tobacco Products (Regulation) Act (2003) established a Tobacco Products (Regulation) Committee to advise the Minister of Health on matters relating to the Act, but this committee is not currently active.

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

2.3 The status of WHO FCTC demand-reduction measures

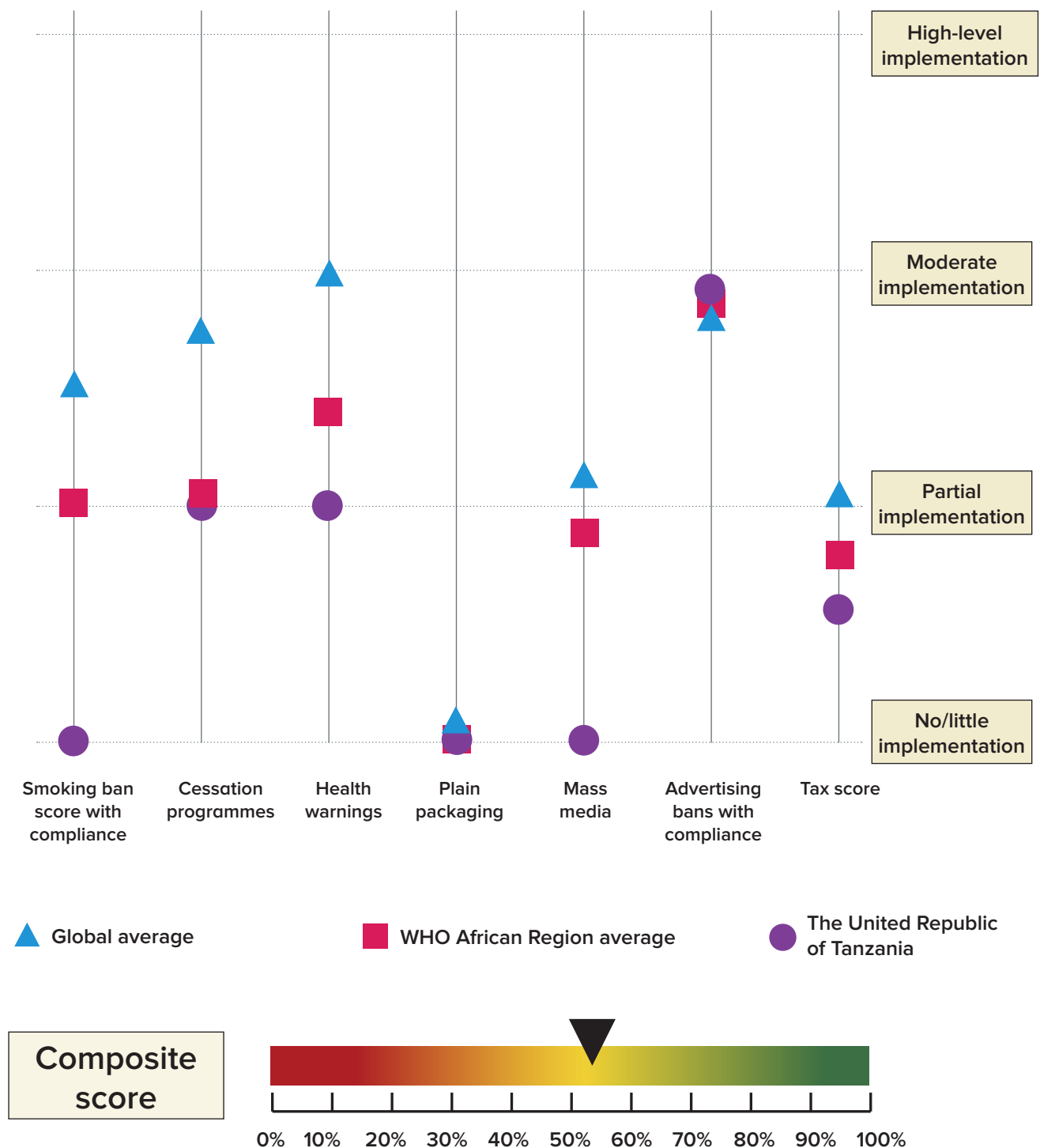
Strong fiscal and regulatory measures influence societal norms by signaling that tobacco use is harmful, not only for users but for the people around them including family, colleagues, and co-workers.

While the United Republic of Tanzania has demonstrated progress towards implementing key demand reduction measures, more than 2.3 million Tanzanians continue to smoke [25]. Implementing additional demand reduction measures or intensifying existing measures will move the United Republic of Tanzania into closer alignment with the WHO FCTC and reduce the substantial costs imposed by tobacco use. Below, the status of each of the demand reduction measures in relation to WHO FCTC recommendations is discussed.

Figure 2 summarizes the status of tobacco control demand-reduction measures in the United Republic of Tanzania from the WHO Report on the Global Tobacco Epidemic, 2021 [4] and, for each, progress toward meeting the WHO FCTC obligations. Overall, the United Republic of Tanzania is assessed to be 27 percent of the way toward fulfilling the key WHO FCTC demand reduction measures, below the global average of 53 percent.⁶

⁶ This composite score represents a status quo implementation level of tobacco control demand reduction measures developed intentionally for tobacco control investment cases.

Fig. 2. Implementation of WHO demand reduction measures in the United Republic of Tanzania



Source: WHO Report on the Global Tobacco Epidemic, 2021 [4].

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

In the United Republic of Tanzania, total taxes comprise about 30 percent of the retail price of the most sold brand of cigarettes. Taxes on cigarettes consist of a specific excise tax (14.7 percent) and a value added tax (15.3 percent) [4]. According to the WHO Report on the Global Tobacco Epidemic, 2021, the affordability of cigarettes did not decrease between 2010 and 2020, though there was a decrease in affordability of these products between 2018 and 2020 [4].

There is substantial scope for action to reach what is considered in the WHO Report on the Global Tobacco Epidemic as a high-level of achievement, which is for total taxes to represent at least 75 percent of the retail price⁷ [4]. On tax design for tobacco products, WHO makes a number of recommendations including that governments should rely more on specific tobacco excises to drive price increases (rather than only on ad valorem excises), increase tobacco taxes significantly to reduce the affordability of tobacco products and automatically adjust specific taxes for inflation and income growth [39]. Additionally, the WHO and FCTC Article 6 Implementation Guidelines recommend uniform tobacco tax structures, rather than tiered or differential structures, as they lead to relatively higher prices, reduce incentives for tobacco users to switch to lower-priced brands, and are easier for governments to implement and administer [39], [40].

The Global Cigarette Tax Scorecard that assesses countries' cigarette tax policy performance gave the United Republic of Tanzania a score of 0.75 out of a maximum score of 5 in 2020. This is significantly lower than the African regional average of 1.64, and the United Republic of Tanzania's rating has not changed since 2014. Within the Tax Scorecard, the United Republic of Tanzania rated lowest on cigarette affordability⁸ change and tax share components, scoring zero for both components in 2020 [42]. The investment case examines the impact of raising cigarette taxes to levels considered in the WHO Report on the Global Tobacco Epidemic, 2021 as a high level of achievement [4]. It models raising taxes on tobacco by an average of TZS 5.7 annually from 2023 to 2037, bringing the total tax share to 75 percent by the end of the analysis and the excise tax share to 70 percent.⁹ Further economic gains will be made in the United Republic of Tanzania with substantial taxes increases on all tobacco products.

7 The WHO Report on the Global Tobacco Epidemic classifies total tax share of 75 percent or more of the retail price as the highest level of achievement [4].

8 Measured as the percentage of a country's GDP per capita needed to buy 100 packs of the most sold brand of cigarettes [41].

9 The WHO Report on the Global Tobacco Epidemic classifies total tax share of 75 percent or more of the retail price as the highest level of achievement. Available: <https://www.who.int/publications/item/9789240032095>.

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

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

The 2003 Tobacco Products (Regulations) Act restricts indoor smoking in certain public spaces but allows designated smoking rooms with ventilation systems. These systems do not reduce exposure to secondhand smoke, and effectively allow smoking in indoor public places. The 2003 law also does not ban indoor smoking at universities and other educational facilities, clubs, bars and restaurants, workplaces, healthcare and government facilities, and public transportation [43], [44]. The investment case examines the impact of enacting and enforcing comprehensive smoke-free measures for all indoor workplaces and public places.

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

Tobacco product packaging contains text-only health warning labels written in English and Swahili. One of ten authorized text-only health messages must be displayed on 30 percent of the front and back surfaces of tobacco product packaging. Large graphic health warning pictorials are not required [44]. This does not meet the WHO FCTC recommendation that graphic warning labels cover at least 50 percent of tobacco packaging. The investment case examines the impact of enacting and enforcing comprehensive smoke-free measures for all indoor public places and workplaces.

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

The United Republic of Tanzania currently does not mandate plain packaging of tobacco products [44]. The investment case examines the impact of implementing and enforcing plain packaging requirements.

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

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

No national-level anti-tobacco mass media campaign have been conducted in the United Republic of Tanzania [44]. An effective mass media campaign should include all components recommended by WHO, such as target audience research, testing of materials, working with journalists to gain publicity, and evaluating the impact of the campaign. Launching a best-practice mass media campaign would further promote and strengthen public awareness about tobacco control issues and the harms of tobacco use. The investment case examines the impact of initiating a nationwide antismoking mass media campaign that is researched and tested with a target audience and evaluated for impact.

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

The United Republic of Tanzania has a ban on tobacco advertising and promotion via domestic and cross-border television, radio, newspapers, magazines, and internet communications [44]. However, other forms of advertising and promotion are permitted, including some outdoor advertising, advertising at the point of sale, and product display. There are some restrictions on tobacco sponsorship and the publicity of such sponsorship. The investment case models the impact of implementing a comprehensive TAPS ban.

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

7. Scale up of brief advice to quit for tobacco users in primary care clinics (WHO FCTC Article 14)

The United Republic of Tanzania does not have a national tobacco quitline, and only 36 percent of smokers who visit health care providers receive advice to quit tobacco. There are some tobacco cessation services available, including nicotine replacement therapy (NRT), but these are not cost-covered [44]. The investment case models the impact of training primary care health providers to identify tobacco users and to provide tobacco cessation advice (see the annex on methodology for detailed information).

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

Table 1: Summary of the current state of WHO FCTC demand reduction measures in the United Republic of Tanzania and modeled implementation targets based on the *WHO Report on the Global Tobacco Epidemic, 2021* [4].

Tobacco control policy	The United Republic of Tanzania baseline	Modeled implementation target
Increase tobacco taxation to reduce the affordability of tobacco products (<i>WHO FCTC Article 6</i>)	Total tax rate on cigarettes that accounts for 30% of the retail price of a pack of cigarettes.	Increase taxes on cigarettes to at least 75% of the retail price with at least a 70% tax increase to outpace inflation and income growth.
Create smokefree indoor public places and workplaces to protect people from the harms of tobacco smoke (<i>WHO FCTC Article 8</i>)	Indoor smoking is allowed in designated areas in public places, workplaces, restaurants, bars, clubs, health care and government facilities, public transportation, university campuses and other educational facilities and on public transport.	Enact and enforce comprehensive smoke-free requirements for indoor public places and workplaces.
Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use (<i>WHO FCTC Article 11</i>)	Textual health warning labels are written in both English and Swahili and cover 30% of tobacco packaging. Graphic health warning labels on tobacco packaging are not required.	Mandate that graphic warning labels cover at least 50% of tobacco packaging, and those labels are regularly rotated and refreshed (at least every two years) to ensure continued impact.
Implement plain packaging of tobacco products (<i>WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13</i>)	National tobacco law does not mandate plain packaging of tobacco products.	Implement and enforce plain packaging of tobacco products.
Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (<i>WHO FCTC Article 12</i>)	No national anti-smoking mass media campaigns have been conducted.	Implement a national anti-smoking mass media campaign that is researched and tested with a targeted audience and evaluated for impact.
Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS) (<i>WHO FCTC Article 13</i>)	Direct advertisements are banned on national and international television, radio, newspapers, and magazines. Internet advertising is also prohibited. The ban does not cover However, most outdoor advertising, advertising at the point of sale, and product display. Bans are moderately enforced. Sponsorship is allowed.	Ban all forms of direct and indirect TAPS, with enforcement to ensure compliance.
Scale up of brief advice to quit for tobacco users in primary care clinics (<i>WHO FCTC Article 14</i>) ¹⁰	There is no national toll-free quit line, tobacco cessation centres are not yet established, NRT is not readily available, and smoking cessation support is not routinely offered by healthcare professionals and it is not fully cost-covered.	Train 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.

Source: WHO Report on the Global Tobacco Epidemic, 2021 [4].

10 The costs include: those to train health providers, the cost to health systems to deliver the brief interventions (inclusive of human resource time, facility overheads, etc.), and some programmatic costs.

2.4 Tobacco use and the COVID-19 pandemic

The global coronavirus disease (COVID-19) pandemic has strained health systems worldwide, and the economic impact of the outbreak has been immense. According to WHO, evidence indicates that smokers are more likely to suffer more severe outcomes of COVID-19, such as admission into intensive care units and death, than never smokers. Furthermore, severe forms of COVID-19 or deaths due to COVID-19 are more frequent in people with comorbidities that are related to tobacco use, including chronic obstructive pulmonary disease, lung cancer and cardiovascular diseases [45]. Moreover, tobacco use is also proven to worsen the outcomes of other communicable diseases such as tuberculosis and HIV [46]. In the United Republic of Tanzania, the COVID-19 pandemic prompted debate on the need for stronger tobacco control. Tobacco companies took advantage of the pandemic by using it as an opportunity to improve their public image, including by offering COVID-19 medical equipment to MoH [47].

2.5 Financing

Government health expenditure has grown at a decreasing rate over the years compared to other sectors such as education. The United Republic of Tanzania's public expenditure on health as a share of total government expenditure has decreased by 3 percent in the last decade (9.5 percent in 2010 against 6.1 percent in 2017) [48]. The United Republic of Tanzania's health sector was allocated TZS 2.2 trillion in 2019/2020 – equivalent to 1.5 percent of GDP – a 0.4 percent decline compared to the allocation of 2017/2018 [49]. Moreover, allocation of health budgets varies greatly across regions, deepening health inequalities within the country [47].

The United Republic of Tanzania is a major recipient of official development assistance (ODA), especially in the form of development assistance for health (DAH) to combat malaria, tuberculosis, and HIV. Over the past 20 years, the United Republic of Tanzania has received more than US\$3.5 billion from the Global Fund [50]. However, overall the majority of the United Republic of Tanzania's healthcare financing is aimed at combatting malaria, which is the leading cause of under-five mortality, and HIV, the leading cause of adult deaths in the country [48].

NCDs, especially tobacco-related diseases receive significantly less public healthcare investment, despite the growing number of tobacco-related illnesses [49]. Moreover, it is reported that the Government of the United Republic of Tanzania has accepted donations and financial gifts from tobacco companies and their affiliated charities and associations, including for programs on poverty alleviation [51].

2.6 Monitoring the impact of tobacco control

The United Republic of Tanzania has a multi-sectoral co-ordination mechanism for NCDs, which includes tobacco control; however, information and data concerning collaborative projects between the United Republic of Tanzania's MoH and stakeholders is scarce. The Strategic and Action Plan for the prevention and control of NCDs (2016-2020) addresses tobacco control legislation and regulation but is more generally focused on commitments to achieving SDG 3 – and has lapsed [52].

The Tanzania Tobacco Control Forum (TTCF), which is an alliance of NGOs and associations, aims to improve public health by ending tobacco use and strengthening tobacco control [53]. The TTCF is involved in developing and implementing a national tobacco control plan. Information concerning its work, funding and impact lacks transparency making it difficult to measure its effectiveness [54].

Some surveys have been conducted in the country providing crucial information to monitor tobacco use and the impact of tobacco control policies. The United Republic of Tanzania is part of the Global Tobacco Surveillance System and has conducted several surveys to monitor tobacco consumption and tobacco control. In 2008, three Global Youth Tobacco Surveys (GYTS) were conducted in Arusha, Dar Es Salaam and Kilimanjaro; in 2016, a nation-wide GYTS was conducted. A Global Adults Tobacco Survey (GATS) was carried out in 2018, as well as a Global School-based Student Health Survey (GSHS) in 2006, and a demographic health survey in 2010 [55]. Nonetheless, there is room for developing capacities to monitor the impact of tobacco in the country, and evaluate the outcomes of tobacco control efforts.

2.7 Tobacco industry presence and interference in policymaking

The Tanzania Cigarette Company (TCC) – which is a subsidiary of Japan Tobacco International (JTI) – has 96 percent of the tobacco market share, making it the dominant tobacco industry in the United Republic of Tanzania [36]. British American Tobacco (BAT) and Philip Morris International (PMI) possess 1.3 and 1.2 percent of the market, respectively [36]. In 1967, TCC was nationalized with the Government of the United Republic of Tanzania acquiring a 60 percent stake – and in 1975, the remaining 40 percent. Following years of poor operation and management, the Government sold 51 percent in 1995. Since 2000, TCC is traded on the Stock Exchange with JTI holding the majority stake (75 percent) and the Government 2.2 percent [56].

The United Republic of Tanzania recently saw a worsening in its Global Tobacco Industry Interference Index¹¹ score, receiving 79 points, and now ranks 81st out of 90 (moving from a ranking of 29th in 2020, in a ranking system where a lower score is better) [51]. This places the United Republic of Tanzania among the top 20 percent of countries with the most tobacco industry interference in the world [51]. This high interference poses significant threats to the effective implementation of tobacco control in the United Republic of Tanzania. For instance, in 2003, the tobacco industry was closely involved in the process of writing the Tobacco Products (Regulation) Act, as it was considered a “stakeholder”. Similarly, during the fourth Conference of Parties (COP4) of the WHO FCTC, the United Republic of Tanzania was the country with the most tobacco industry representatives within its delegation [45].

The tobacco industry has, on several occasions, prevented tax increases in the United Republic of Tanzania, using the erroneous argument that tax increases would lead to increased illicit trade [51]. The tobacco industry also funds many associations and groups in the United Republic of Tanzania — such as the Eliminating Child Labour in Tobacco-Growing Foundation — giving it substantial influence and power in decision making. A substantial number of government representatives are also engaged in tobacco-related CSR activities and promote the tobacco industry’s contribution to the United Republic of Tanzania’s economy [51].

Conflict of interest is ubiquitous in the United Republic of Tanzania, as board members of tobacco companies have powerful roles in governmental organizations and associations. This gives them significant influence on the government as well as room for lobbying [51]. For instance, the chairman of the board of Tanzania Cigarette Company is also the chairman of Tanzania Start Up Association, as well as being a board member of the Tanzania Confederation of Industries. Similarly, until September 2020, the Finance, Investment and Planning Manager at Tanzania Standard Newspapers (a government-owned company), was a board member of the Tanzania Cigarette Company and became Finance and Administration manager of the Copyright Society of Tanzania in October 2020 [51].

To date, the United Republic of Tanzania has not effectively implemented WHO FCTC Article 5.3, which calls on governments to protect health policymaking from tobacco industry interference [51]. As a result, there is considerable conflict of interest between the government and the tobacco industry, and the government is not sufficiently protected from the influence of the industry. The government does not have a code of conduct for public officials, meaning there are no standards to which they should comply when dealing with the tobacco industry. There is also a lack of transparency concerning meetings and agreements between the government and the tobacco industry [51], giving room for corruption and pressure imposed by the industry on the government. Finally, the government does not have any policy regulating contributions and gifts from the tobacco industry [51].

11 The Global Tobacco Industry Interference Index measures efforts by governments to address tobacco industry interference. Available at: <https://globaltobaccoindex.org/>.

2.8 Civil society organizations (CSOs)

Civil society organizations are key tobacco control stakeholders in the United Republic of Tanzania. According to WHO FCTC Article 4.7, the participation of civil society is essential in achieving the objective of the Convention and its protocols. In the United Republic of Tanzania there are active non-governmental organizations (NGOs) working to raise awareness of the adverse impacts of tobacco and advocating for more robust tobacco control laws and policies. Active NGOs include the Tanzania Tobacco Control Forum (TTCF), Community of People Living with NCDs, Tanzania Non-Communicable Diseases Association (TANCDA) and the Alliance of NCDs of Zanzibar (Z-NCDA). The TTCF mainly undertakes advocacy activities for tobacco control and working with tobacco growers to promoting economically viable alternative livelihoods. The TTCF is also an active member of the Africa Tobacco Control Alliance (ATCA).

3. Methodology

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

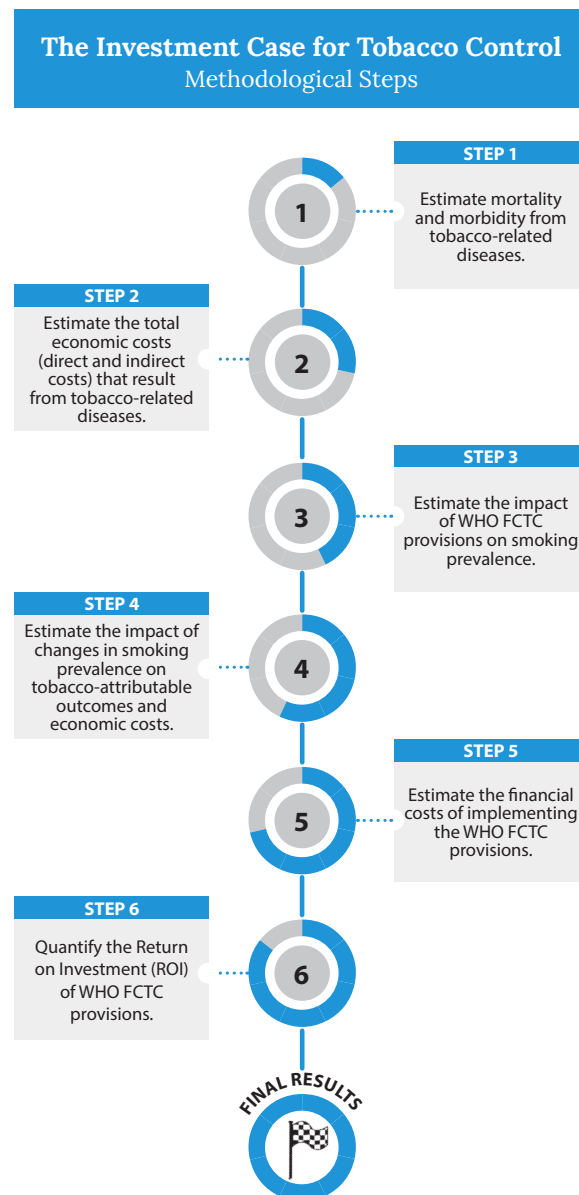
A static model was developed to conduct the investment case and to perform the methodological steps in **Figure 3**. This methodology has been used for previous national WHO FCTC investment cases under the WHO FCTC 2030 project.

The tools and methods used to perform these steps are described in this report's Annex. Interested readers are also referred to this report's separate *Technical Appendix*¹² for a more thorough account of the methodology.

The investment case team worked with the MoH and other stakeholders in the United Republic of Tanzania 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 2020 Tanzanian Shilling (TZS) and discounted at an annual rate of 5 percent.

Fig. 3: Building the investment case



4. Results

4.1 The current burden of tobacco use: health and economic costs¹³

In 2019, tobacco use caused an estimated 21,832 deaths in the United Republic of Tanzania, 63 percent of which were premature i.e. occurred among those under 70 years [24]. These deaths amount to 435,911 years of life lost (YLLs), which are lost productive years in which many of those individuals would have contributed to the workforce [24]. Monetizing YLLs due to tobacco use, the investment case identifies TZS 337 billion in losses due to tobacco-attributable mortality.

While the costs of the tobacco-attributable mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g., cardiovascular disease, respiratory conditions, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the government TZS 51 billion in 2020 and caused Tanzanians to spend TZS 31 billion in out-of-pocket (OOP) healthcare expenditures. Private insurance and non-profit institutions serving households spent TZS 28 billion on treating tobacco-attributable diseases in 2020. In total, healthcare expenditures attributable to smoking amounted to TZS 110 billion.

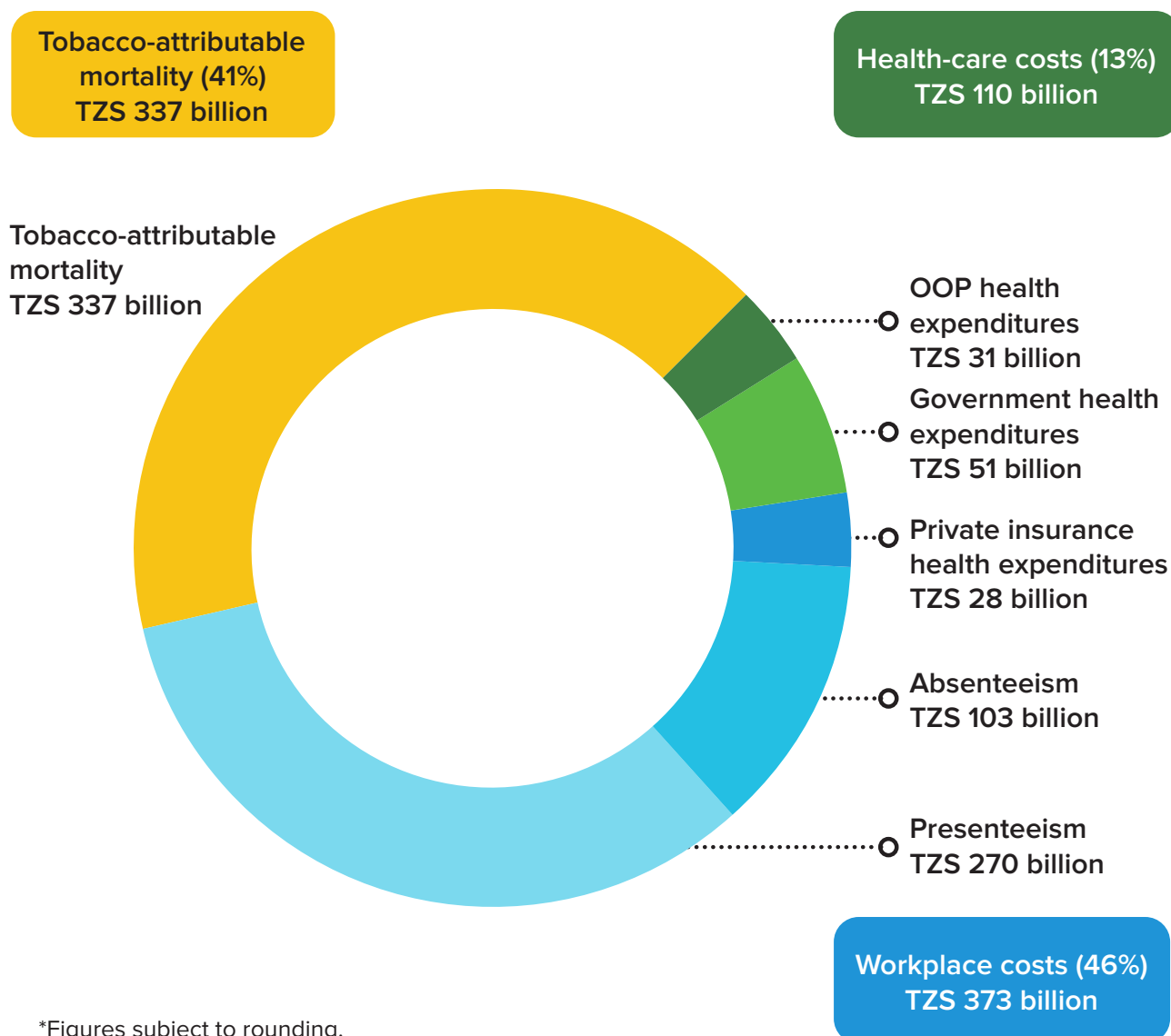
In addition to health-care costs, as people become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2020, the cost of excess absenteeism due to tobacco-related illness was TZS 103 billion and the cost of presenteeism due to cigarette smoking was TZS 270 billion.

In total, tobacco use caused TZS 820 billion in economic losses in 2020, equivalent to about 0.5 percent of the United Republic of Tanzania's 2020 GDP.

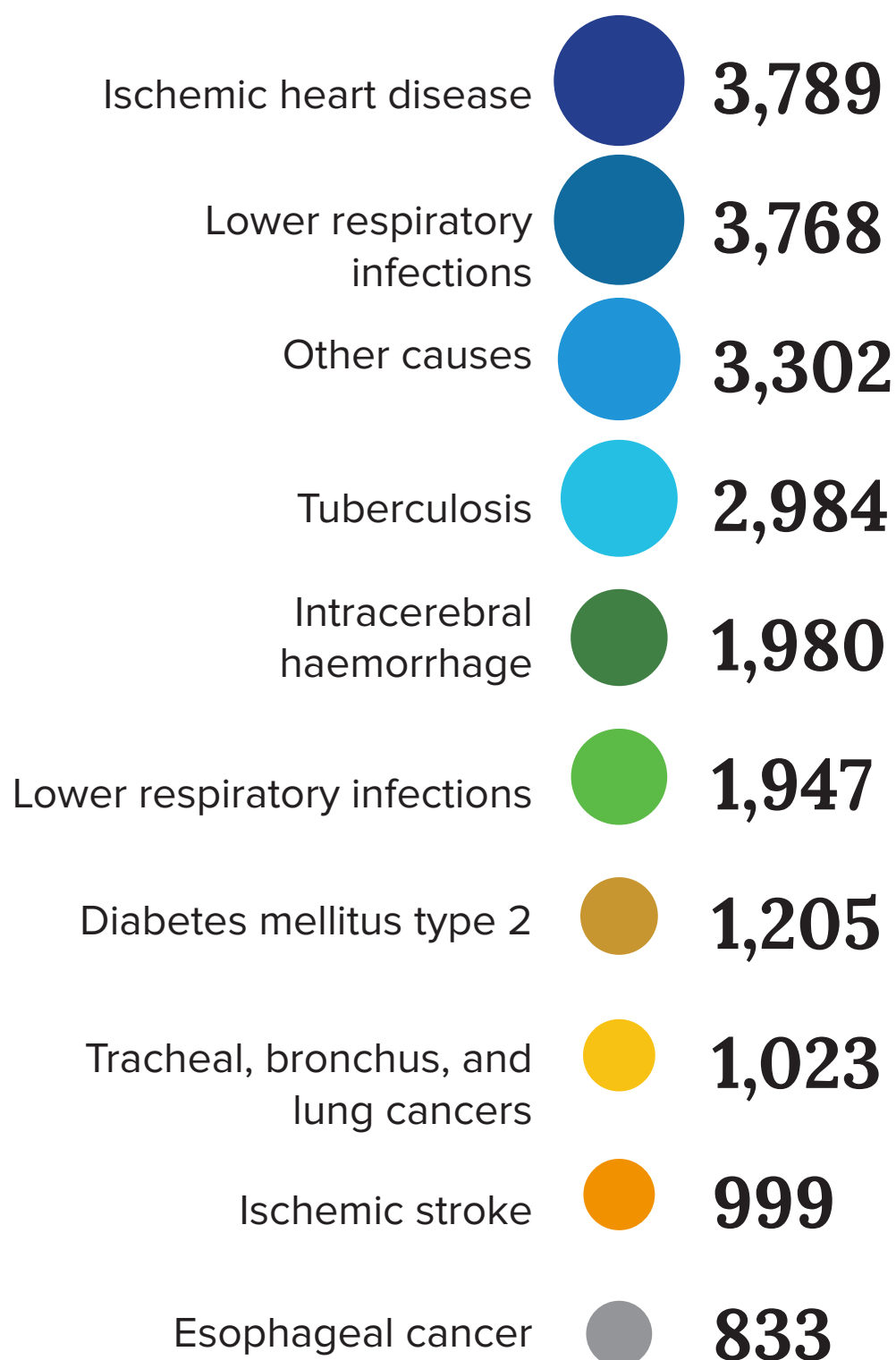
Figure 4 illustrates the share of the economic burden attributable to tobacco-attributable mortality, workplace costs, and healthcare costs. **Figures 5** and **Figure 6** illustrate the annual health losses that occur due to tobacco use.

¹³ In assessing the 'current burden' of tobacco use, the economic costs of tobacco-attributable mortality include the cost of deaths due to any form of exposure to tobacco (including smoking, 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, and presenteeism. While other forms of tobacco may also cause losses in these categories, no data is available to precisely ascertain those losses.

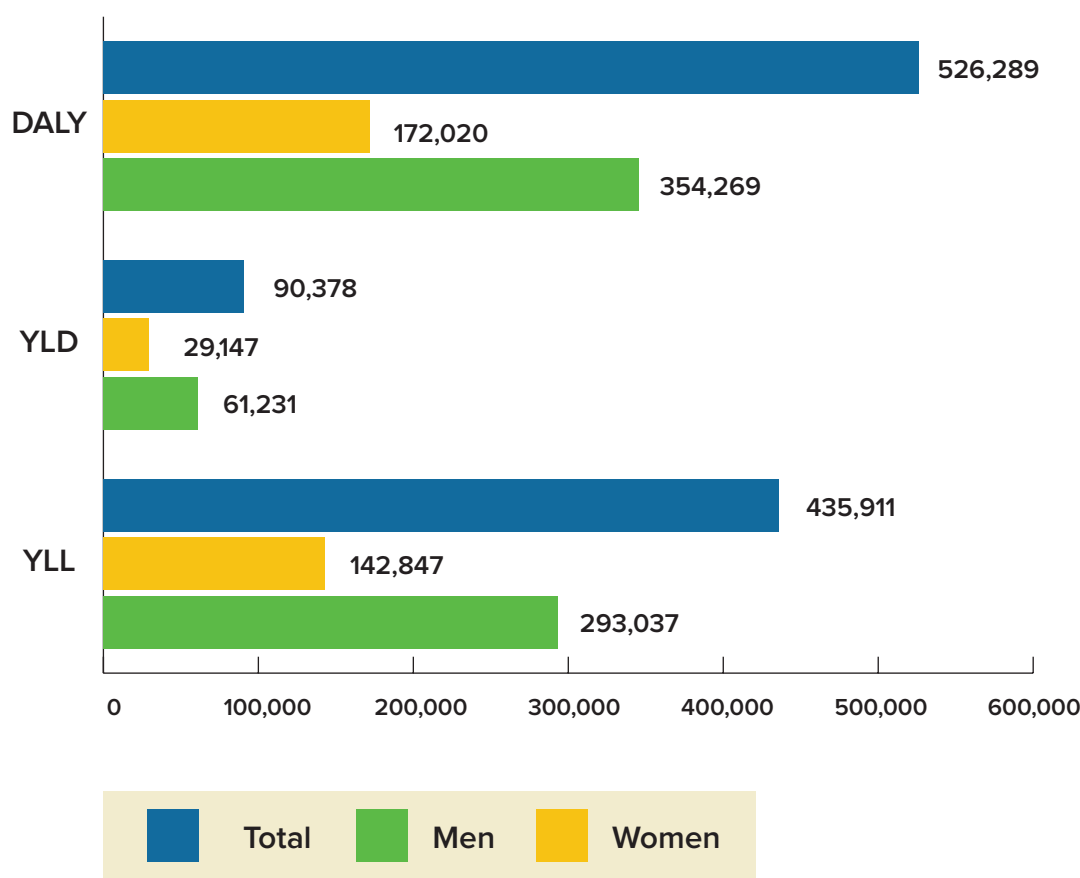
Fig. 4: Breakdown of the share of the economic cost of tobacco-attributable mortality, workplace costs, and health-care costs in the United Republic of Tanzania (TZS billions), 2020¹⁴



¹⁴ Figures subject to rounding. Tax revenue comparisons are provided for context and are not meant to suggest that taxes should be increased to levels that equalize revenue with the tobacco burden. Government tobacco tax revenue (TZS 36 billion in 2020) and the retail price of the most sold brand are from WHO Global Tobacco Control Report 2021 (analysts added estimated VAT taxes to the 28.7 billion specific excise taxes reported in the GTCR). The number of licit cigarette packs sold (34.3 million) is estimated by dividing total specific excise tax revenue by the specific excise tax per pack of cigarettes, as reported in the 2020 GTCR.

Fig. 5: Tobacco-attributable deaths by disease in the United Republic of Tanzania, 2019

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

Fig. 6: Tobacco-attributable DALYs, YLDs, and YLLs in the United Republic of Tanzania, by gender, 2019*

A Disability-adjusted life year (DALY) is a universal metric that allows comparison between different populations and health conditions across time. DALYs equal the sum of years of life lost (YLLs) and years lived with disability (YLDs). One DALY equals one lost year of healthy life. Years of life lost (YLL) are years lost due to premature mortality. Years lived with disability (YLD) can also be described as years lived in less-than-ideal health. A YLD is calculated by taking the prevalence of the condition multiplied by the disability weight for that condition [57].

4.2 Implementing policy measures that reduce the burden of tobacco use

The WHO FCTC provides a framework for tobacco control measures to be implemented by Parties at national and international levels to reduce continually and substantially the prevalence of tobacco use and exposure to tobacco smoke. Through the full implementation of the tobacco control measures in the WHO FCTC, the United Republic of Tanzania can secure significant health and economic returns, and begin to reduce the TZS 820 billion in annual economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from seven key WHO FCTC policy actions: 1) to increase tobacco taxation to reduce the affordability of tobacco products; 2) to create smoke-free public places and workplaces to protect people

from the harms of tobacco smoke; 3) to implement rotating, graphic warning labels on tobacco packaging; 4) to implement plain packaging of tobacco products; 5) to promote and strengthen public awareness of tobacco control issues; 6) to enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS); and 7) to scale up of brief advice to quit for tobacco users in primary care clinics.

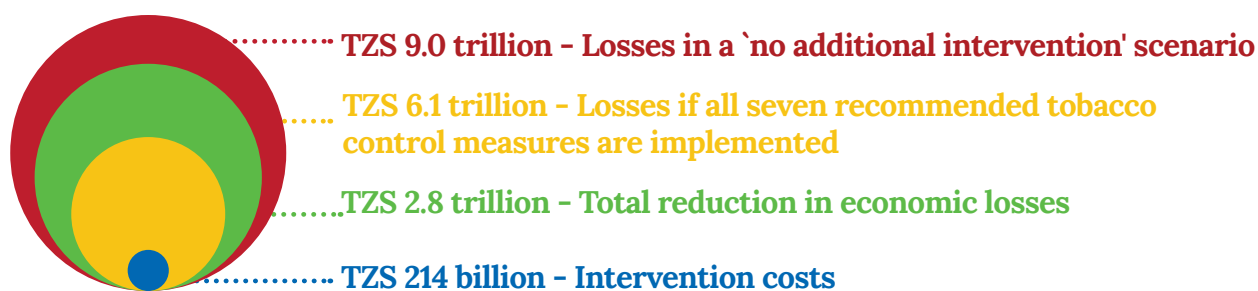
4.2.1 Health benefits – lives saved

The full implementation of the WHO FCTC in the United Republic of Tanzania (inclusive of all seven of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains for the country. Implementing the package of seven WHO FCTC policy actions that are the focus of this investment case would reduce the prevalence of cigarette smoking by 57 percent (in relative terms) over 15 years, saving 112,748 lives over 2023-2037, or about 7,517 lives annually.

4.2.2 Economic benefits – costs averted

Implementing the package of seven key WHO FCTC policy actions would result in the United Republic of Tanzania avoiding 32 percent of the economic loss that it is expected to occur from tobacco use over the next 15 years. **Figure 7** illustrates the extent to which the United Republic of Tanzania can mitigate the economic losses it would incur under the status quo.

Fig. 7: Tobacco-related economic losses over 15 years, 2023-2037

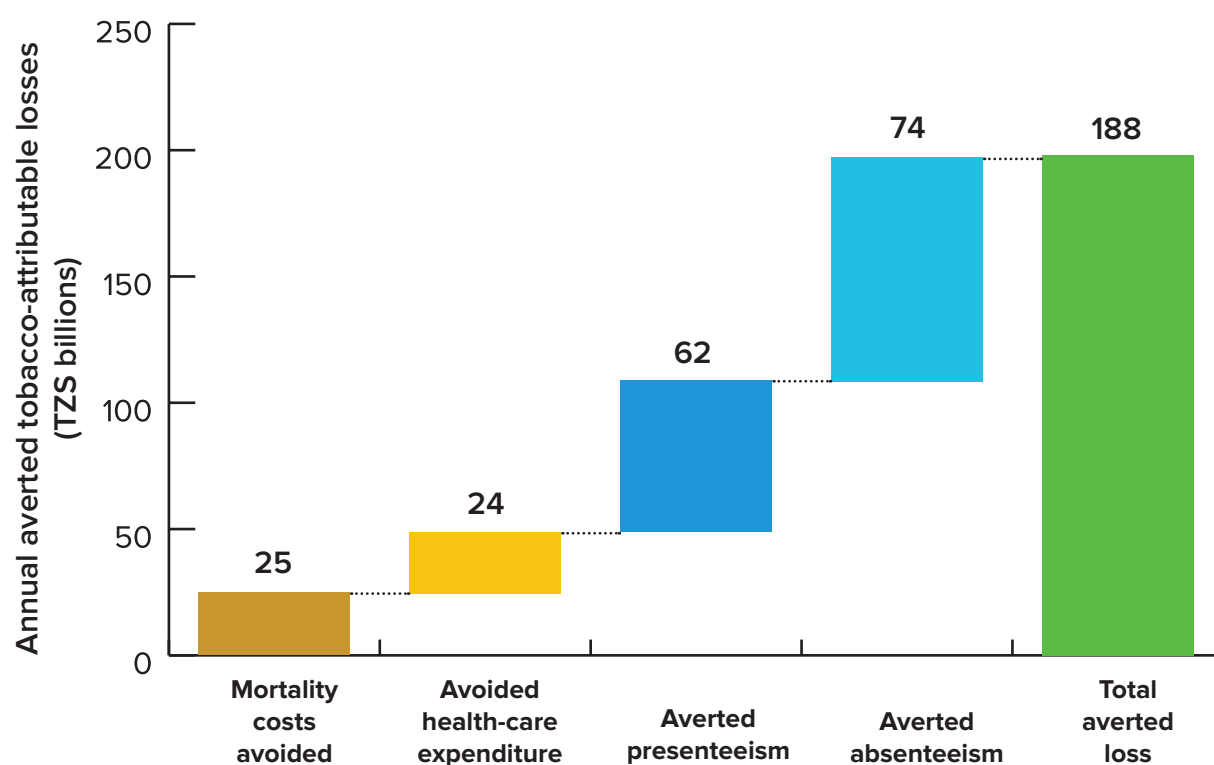


In total, over 15 years the United Republic of Tanzania would save about TZS 2.8 trillion that would otherwise be lost if the package of seven key WHO FCTC policy actions were not implemented. This is equivalent to around TZS 188 billion in annual avoided losses.

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

Figure 8 breaks down the sources from which annual avoided costs accrue from implementation of the package of seven WHO FCTC policy actions. The largest annual avoided costs result from averted tobacco-attributable mortality (TZS 78 billion). The next highest source is averted presenteeism (TZS 62 billion), avoided healthcare expenditures (TZS 25 billion), and reduced absenteeism (TZS 24 billion). Figure 9 breaks down the sources from which annual avoided costs accrue from implementation of the package of five WHO FCTC policy actions. The largest annual avoided costs result from averted tobacco-attributable mortality (TZS 159 million). The next highest source is averted presenteeism (TZS 34 million), avoided health-care expenditures (TZS 29 million), and reduced absenteeism (TZS 13 million).

Fig. 8: Sources of annual avoided economic costs as a result of implementing the tobacco control policy package in the United Republic of Tanzania*



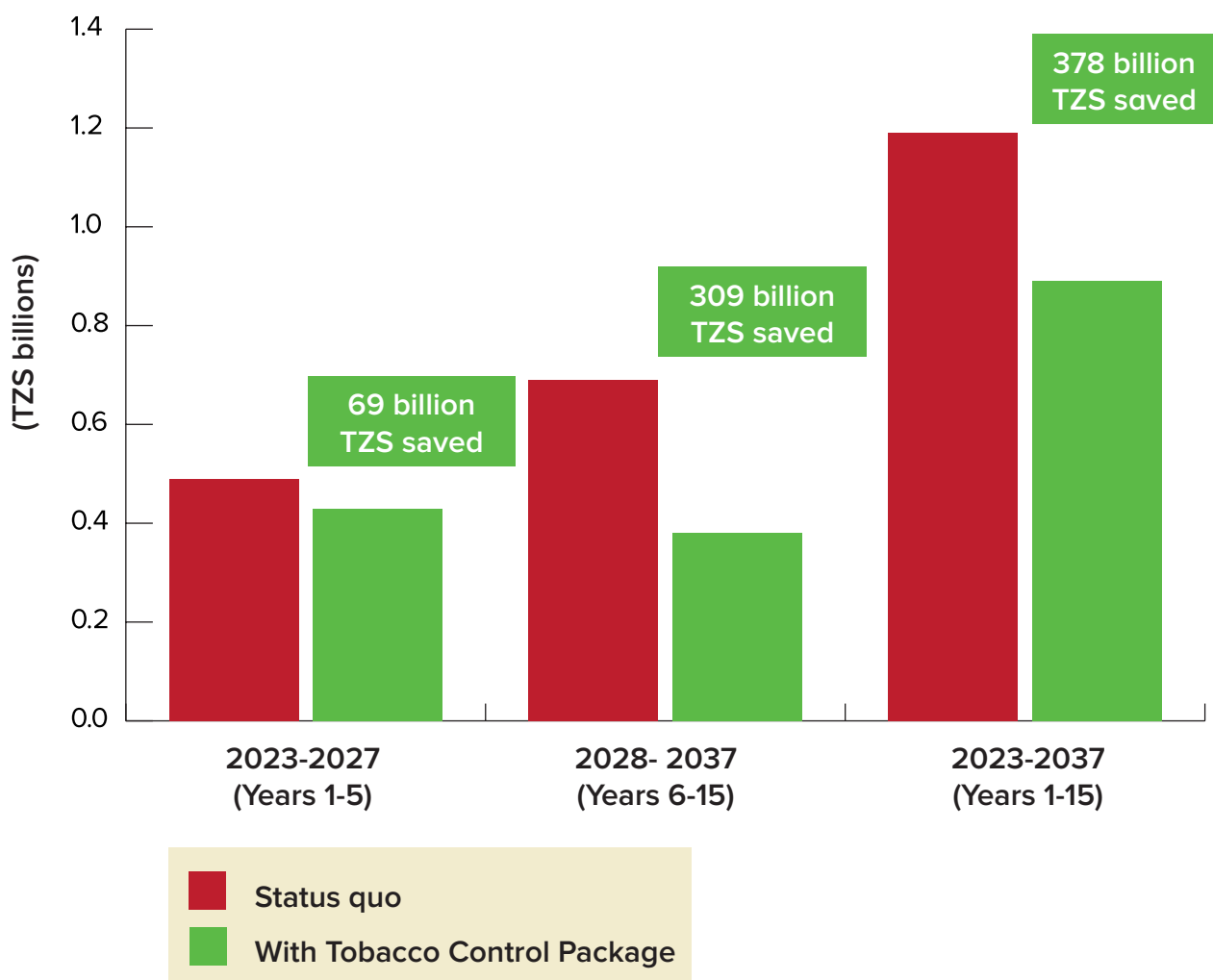
*Figures subject to rounding.

Implementing the package of seven WHO FCTC policy actions examined in the investment case will reduce medical expenditure both for citizens and the government. Presently, total private and public healthcare expenditures in the United Republic of Tanzania are around TZS 4.7 trillion annually [58], and 2.4 percent of this amount is directly related to treating disease and illness due to tobacco use [3] (\approx TZS 110 billion).

Year-on-year, the package of interventions would lower tobacco use prevalence, leading to less illness, and consequently less health-care expenditure (see **Figure 9**).

Over the 15-year time horizon of the analysis, the package of interventions averts TZS 378 billion in health-care expenditures, or TZS 25 billion annually. Of these savings, 46 percent would go to the government and 28 percent would go to individual citizens who would have had to make OOP payments for health care. The remainder of savings would go to private insurance and other sources of health-care expenditures. From reduced health-care costs alone, the government would expect to save about TZS 174 billion over 15 years. Simultaneously, the government would successfully reduce the health expenditure burden that tobacco imposes on Tanzanians, through OOP payments, supporting efforts to reduce economic hardship on families. For families with tobacco users who quit, spending that would have been on tobacco products or health care, could instead be invested in nutrition, education, and other productive inputs to secure a better future.

Fig. 9: Private and public health-care costs (and savings) in the United Republic of Tanzania over the 15-year time horizon, 2023-2037*



*Figures subject to rounding.

4.2.3 *The return on investment*

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

An investment is considered worthwhile from an economic perspective if the gains from making it outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco investments by dividing the economic benefits that are gained from implementing the WHO FCTC tobacco control investments by the costs of the investments.

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

Table 2 displays costs, benefits, and ROIs by intervention, as well as for all interventions combined. With the exception of training health professionals to provide brief advice to quit tobacco use (an individual-level intervention with higher initial personnel costs), interventions deliver an ROI greater than one within the first five years, meaning that even in the short-term the benefits of implementing the interventions outweigh the costs. Depending on the intervention, over the first five years, the government will gain economic benefits ranging from between 0.05 to 23 times its investment. Given the long-term nature of many tobacco-related illnesses, with disease often only developing after years of tobacco use, the ROIs for each intervention would continue to grow over time, reflecting the compounding gains from planning and development stages to full implementation.

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

Return on investment, by tobacco control measure	First 5 years (2023-2027)			All 15 years (2023-2037)		
	Total costs (billions)	Total benefits (billions)	ROI	Total costs (billions)	Total benefits (billions)	ROI
Tobacco control package* (all policies/interventions implemented simultaneously)	90	514	6	214	2,824	13
Increase tobacco taxation (cigarette taxation modeled)¹⁵ (WHO FCTC Article 6)	4.5	103	23	10.2	694	68
Create smoke-free public places and workplaces (WHO FCTC Article 8)	16.3	131	8	34	896	26
Graphic warning labels (WHO FCTC Art. 11)	7.4	99	13	16.1	681	42
Implement plain packaging (WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13)	7.4	33	5	16.1	234	14
Promote and strengthen public awareness of tobacco control issues (WHO FCTC Article 12)	12.9	125	10	31	853	28
Enact and enforce comprehensive TAPS bans (WHO FCTC Article 13)	7.3	131	18	16.4	896	55
Scale up of brief advice to quit for tobacco users in primary care clinics (WHO FCTC Article 14)	24	1.3	0.05	66	20	0.3

*The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j , $(1-PR_i) \times (1-PR_j)$ [is] applied to the current smoking prevalence [26]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco-control programme.

15 Raise taxes to what is considered in the WHO Report on the Global Tobacco Epidemic, 2021 as a high-level of achievement, which is for total taxes to represent at least 75 percent of the retail price. In the scenario modeled, cigarette taxes would meet the 75 percent level by 2032.

Over the 15-year period, increasing tobacco taxes on cigarettes is expected to have the highest return on investment (68:1).¹⁶ The return will be even higher with increasing tax on all tobacco products. Enacting and enforcing a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS) is expected to have the next highest return on investment (55:1), followed by implementing graphic warning labels (42:1), promote and strengthen public awareness of tobacco control issues (28:1), creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke (26:1), implementing plain packaging (14:1), and finally to scale up of brief advice to quit for tobacco users in primary care clinics (0.3:1).

Photo: © GS Garrett



16 Rounded to the nearest whole number.

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

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

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

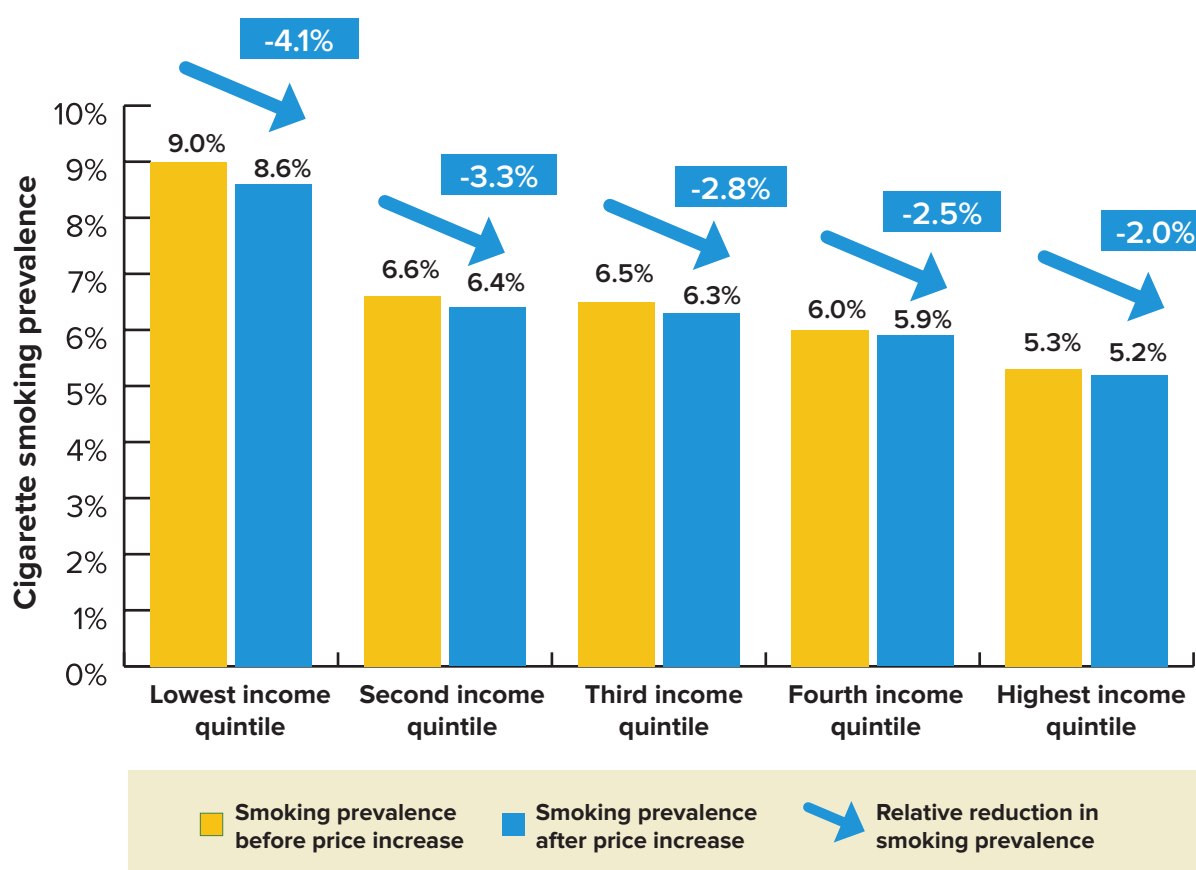
A common misconception is that taxes on tobacco products may disproportionately harm poor tobacco users, since the tax burden represents a higher proportion of their income than that of wealthier tobacco users. However, evidence shows that the poor actually stand to benefit most from raised cigarette taxes [59]. Relative to richer smokers, lower-income smokers are more likely to quit smoking when taxes are increased [27], meaning they benefit from subsequent decreases in tobacco-related health problems, and resulting medical costs which can be financially catastrophic. In Lebanon for example, a 50 percent increase in cigarette prices was projected to prevent 23,000 households from falling into poverty over 50 years [60], and that same level of increase was found to avert catastrophic health expenditures for 1.83 million individuals in India, 440,000 in Bangladesh, and 350,000 in Viet Nam [61].

To examine the extent to which a cigarette tax increase could be considered pro-poor in the United Republic of Tanzania, the analysis has been undertaken as part of the investment case. The analysis divides the United Republic of Tanzania's population into five equal groups by income, where quintile 1 is composed of the poorest 20 percent of people, and quintile 5 is composed of the wealthiest 20 percent. Within each income group, the analysis examines the impact of a hypothetical tax increase that raises the price of the average pack of cigarettes by about 14 percent (TZS 575, or about US\$0.25). This represents only the first year of tax increases that are modeled in the investment case. People at different income levels tend to respond differently to price changes. Average tobacco-income prevalence elasticities of demand from a set of low- and middle-income countries are employed to assess how different economic groups react to changes in price.

In the United Republic of Tanzania, the poorest income quintile has the highest smoking prevalence (9.0 percent), meaning they experience the largest share of health and economic impacts resulting from tobacco use. The results from the analysis show that all income quintiles

reduce smoking in response to the tax measures, but because people with lower incomes are more responsive to changes in price, the cigarette tax increase causes the largest drop in prevalence among the poorest income quintiles. **Figure 10** shows the smoking prevalence in each income quintile before and after the tax increase, as well as the relative change in smoking prevalence.

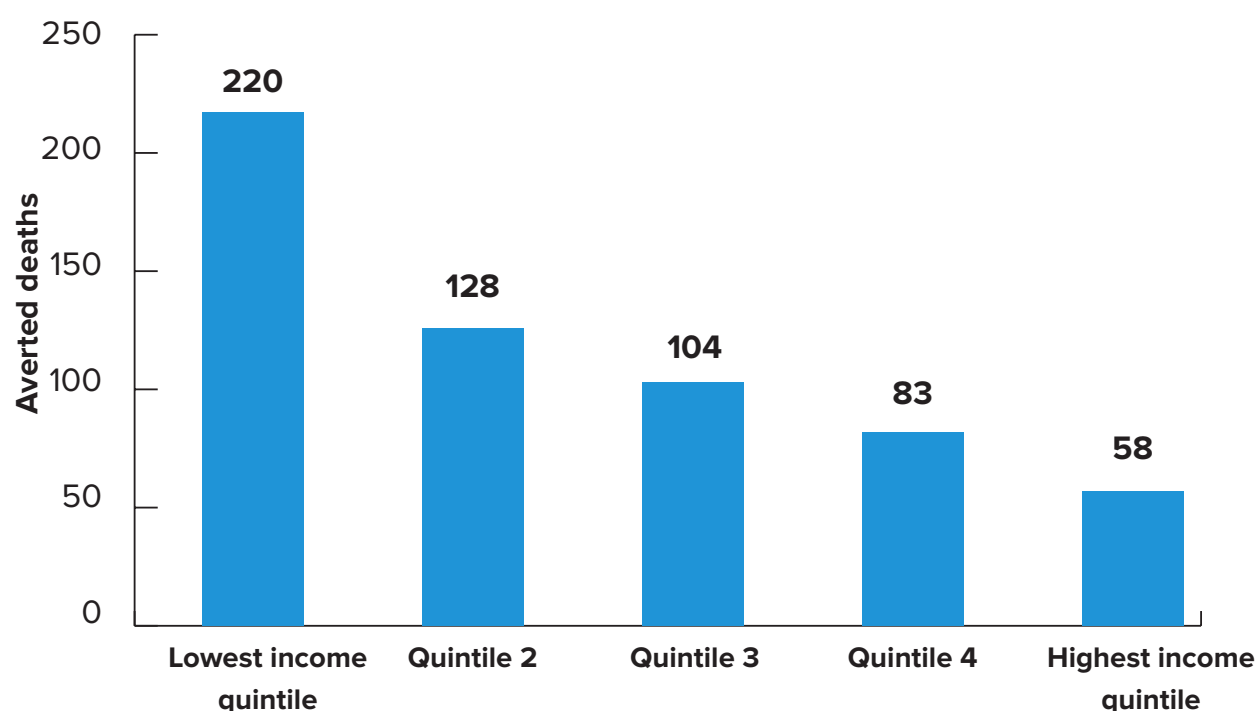
Fig. 10: Relative reduction in cigarette smoking prevalence before and after the cigarette tax increase, in the United Republic of Tanzania, by income quintile, during the first year of tax increases that are modelled (2025)*



*Percentages are rounded to the second decimal place.

Lower rates of smoking translate to health gains. Prior to the cigarette tax increase, of the 21,580 smoking-attributable deaths observed in 2019, more than one-quarter (27 percent) occurred among the poorest 20 percent of the population (quintile 1). As cigarette tax increases cause cigarette smoking prevalence to fall the most in the poorest quintiles, health benefits disproportionately accrue to lower-income Tanzanians. The equity analysis finds that more than one-third (37 percent) of the deaths that would be averted during the first year of tax increases modeled in the investment case would be among the poorest 20 percent of the population, as shown in **Figure 11**.

Fig. 11. Deaths averted in the United Republic of Tanzania by tax increase, by income quintile during the first year of tax increases that are modelled (2025)



5.2 The Sustainable Development Goals and the WHO FCTC

Implementing the package of seven WHO FCTC policy actions will support the United Republic of Tanzania to meet SDG Target 3.a to strengthen implementation of the WHO FCTC. Moreover, acting now will contribute to the United Republic of Tanzania's efforts to meet SDG Target 3.4 to reduce by one-third premature mortality from NCDs by 2030: the measures would contribute the equivalent of around 13 percent of the needed reduction in mortality for the United Republic of Tanzania to achieve SDG Target 3.4.

The WHO FCTC is an accelerator for sustainable development, and its implementation will benefit the achievement of many SDGs, including those outside of the health and well-being domain [19]. For example, stronger tobacco control will contribute to the reduction of poverty and inequalities (SDGs 1 and 10, respectively) and economic growth (SDG 8).



SDG Target 3.4

By 2030 the WHO FCTC measures would contribute the equivalent of around 13 percent of the needed reduction in mortality for the United Republic of Tanzania to achieve SDG Target 3.4.

6. Conclusion and recommendations

Each year, tobacco use costs the United Republic of Tanzania TZS 820 billion in economic losses and causes substantial human development losses. Fortunately, as the investment case shows, there is an opportunity to reduce the health, social and economic burden of tobacco in the United Republic of Tanzania. Enacting the seven key WHO FCTC policy actions would save 7,517 lives each year and reduce the incidence of tobacco-related disease, leading to savings from averted medical costs and averting productivity losses.

In economic terms, these benefits are substantial, adding up to TZS 2.8 trillion over the next 15 years. Importantly, the economic benefits of strengthening tobacco control in the United Republic of Tanzania greatly outweigh the costs of implementation (TZS 2.8 trillion in benefits versus just TZS 214 billion in costs).

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

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

Photo: © GS Garrett



Recommendations

- 1** Commit to fully implement the WHO FCTC in the United Republic of Tanzania.
- 2** Given the effectiveness of tobacco taxation, strengthen tobacco tax structures and increase tax rates (WHO FCTC Article 6).
- 3** Take action to strengthen, implement and enforce the other six key WHO FCTC policy actions modeled in this investment case.
- 4** Strengthen multisectoral coordination for tobacco control in the United Republic of Tanzania and encourage the participation of civil society in WHO FCTC implementation (WHO FCTC Articles 5.2(a) and 4.7).
- 5** Develop a national tobacco control strategy for the United Republic of Tanzania (WHO FCTC Article 5.1).
- 6** Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).
- 7** Strictly enforce the prohibition on the sale of tobacco to minors (WHO FCTC Article 16).
- 8** Ratify and implement the Protocol to Eliminate the Illicit Trade in Tobacco Products and build capacity to combat illicit trade of tobacco and tobacco products (Protocol and WHO FCTC Article 15).
- 9** Support health-promoting and economically viable alternatives to tobacco growing and manufacturing (WHO FCTC Article 17 and 18).
- 10** Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in the United Republic of Tanzania.

1

Commit to fully implement the WHO FCTC in the United Republic of Tanzania.

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

Through the FCTC 2030 project, the WHO FCTC Secretariat's flagship development assistance project, the United Republic of Tanzania is receiving support to take policy actions towards the full implementation of the treaty. As a FCTC 2030 project country, The United Republic of Tanzania is accessing technical and financial resources, including intensive support from the WHO FCTC Secretariat, WHO and UNDP.

2

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

The United Republic of Tanzania is encouraged to substantially raise the total tax share of the retail price of tobacco to meet or exceed 75 percent of the retail price (considered in the WHO Report on the Global Tobacco Epidemic, 2021 as a high level of achievement), and to ensure an excise tax share of 70 percent, in accordance with WHO recommendations in the WHO Manual on Tobacco Tax Policy and Administration [4]. Tobacco taxes should aim to reduce affordability, including by increasing at a rate that outpaces inflation and income growth [62]. In addition, in line with recommendations in the WHO Technical Manual on Tobacco Tax Policy and Administration and the FCTC Article 6 guidelines, the United Republic of Tanzania could consider moving towards a uniform excise tax structure by collapsing the number of excise tax tiers on tobacco products. In general, uniform taxation is simpler to administer, results in less price variability, and reduces opportunities for both consumer brand substitution and industry tax avoidance [39], [40]. The United Republic of Tanzania is also encouraged to

have open conversations with neighbouring east African countries to align tax policies at the regional level. Contrary to industry narratives, increasing taxes does not necessarily increase rates of illicit trade – and enhancing cooperation and consistency on tobacco taxes across the region would ensure this.

Given the concerning prevalence of tobacco use by Tanzanian youth, and high rates of use of non-cigarette smoked tobacco [26], it is also recommended to ensure robust tobacco taxation policies are in place for all types of tobacco (including for shisha, smokeless tobacco and novel tobacco products). There is clear evidence that raising cigarette prices through increased taxes is a highly effective measure for reducing smoking among youth, young adults and people from lower socioeconomic communities. Increasing the price of tobacco will have benefit for these vulnerable populations. Consideration should also be given to removing duty-free allowances for tobacco.

3

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

- implementing comprehensive policies to make all public places and workplaces smoke-free by prohibiting indoor designated smoking areas and ensuring robust enforcement (WHO FCTC Article 8).
- mandating large graphic health warning labels that cover 50 percent of tobacco packaging and are regularly rotated (WHO FCTC Article 11).
- considering implementation of plain packaging to reduce the appeal of tobacco packaging and to make health warnings more prominent (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13).
- promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation. Build on existing NCD mass media campaigns in Zanzibar to include specific tobacco focus (WHO FCTC Article 12).
- enacting and enforcing a comprehensive TAPS ban to involve all forms of direct and indirect advertising, promotion and sponsorship (WHO FCTC Article 13). This should include point-of-sale product display (and ‘work arounds’ seen in the United Republic of Tanzania such as moving advertisement board close to points-of-sale), as well as product placement in television and films. Notably, young people may be at risk for exposure to advertising from these two outlets.
- scaling up of brief advice to quit for tobacco users in primary care clinics. Further gains would be possible with the provision of additional support to tobacco users, such as

offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet based quit support and making pharmacotherapies more widely available (free of cost if possible) (WHO FCTC Article 14).

4

Strengthen multisectoral coordination for tobacco control in the United Republic of Tanzania and encourage the participation of civil society in WHO FCTC implementation (WHO FCTC Articles 5.2(a) and 4.7).

Insufficient capacity in human resources, financing, access to reliable data and organizational processes are major obstacles for tobacco control, including stronger legislation, in the United Republic of Tanzania. It is recommended that steps be taken to build the capacity of all public officials involved directly or indirectly in the implementation of tobacco control policies. Those with some level of capacity should also be retrained periodically to ensure effective implementation.

Effective coordination across sectors is vital for the successful implementation of tobacco control measures. The government has already established a WHO FCTC focal point within the Ministry of Health, and a multisectoral team to advise the Minister responsible for Health on tobacco control matters is in place. The establishment of the multisectoral national coordinating mechanism (NCM) referenced in 2020 [63] can be used to effectively drive the implementation of tobacco control measures. The NCM could be convened and supported by the existing FCTC focal point, and should include representatives from all relevant sectors, including from the Ministry of Foreign Affairs and East African Cooperation; the Ministry of Agriculture; the Ministry of Finance and Planning; the Ministry of Education, Science and Technology; and relevant community groups and non-government organizations. It is recommended that the NCM includes representatives from these groups from both the mainland and Zanzibar.

The NCM should meet regularly and be collectively accountable for the successful implementation of FCTC measures. Tasks should include monitoring implementation progress, including commissioning the collection of data and reporting what would enable effective governance.

5

Develop a national tobacco control strategy for the United Republic of Tanzania (WHO FCTC Article 5.1).

With support from the FCTC 2030 project, the United Republic of Tanzania has recently developed a draft national tobacco control strategy to cover the period 2023-2028. The National Tobacco Control Strategy of 2010-2015 was not reviewed when it expired in 2015 and thus, the United Republic of Tanzania mainland had been without a National Tobacco Strategy for a considerable number of years. It is recommended to finalise, publish and routinely update a national multisectoral tobacco control strategy for the United Republic of Tanzania. This will, among other things, serve to facilitate the implementation of tobacco control legislation.

The national tobacco control strategy for the United Republic of Tanzania should include action to:

- outline a comprehensive workplan and timeline for the full implementation of the WHO FCTC;
- strengthen multisectoral cooperation for the implementation of the WHO FCTC;
- identify sustainable funding necessary for tobacco control;
- strengthen capacity for compliance building and enforcement of tobacco control laws;
- prevent children and young people from taking up tobacco use;
- ensure gender-sensitive approaches to policy, programmes, and services;
- prioritize vulnerable groups including, but not limited to, young people, women and girls, those with low income;
- encourage and support current tobacco users to quit;
- end the sale of single cigarette sticks;
- outline plans to develop and introduce a track and trace system for tobacco products;
- protect public health policies from commercial and other vested interests of the tobacco industry; and
- guide research, surveillance (e.g., on drivers of and disparities in tobacco use) and exchange of information and international cooperation to support WHO FCTC implementation.

6

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

It is recommended that the United Republic of Tanzania take action to protect the country's public health policies from the commercial and other vested interests of the tobacco industry. A resolution made by the World Health Assembly in 2001, citing the findings of the Committee of Experts on Tobacco Industry Documents, states that "the tobacco industry has operated for years with the express intention of subverting the role of governments and of WHO in implementing public health policies to combat the tobacco epidemic"[64].

The Preamble of the WHO FCTC recognizes that Parties "need to be alert to any efforts by the tobacco industry to undermine or subvert tobacco control efforts and the need to be informed of activities of the tobacco industry that have a negative impact on tobacco control efforts". The WHO FCTC includes a specific obligation that "in setting and implementing their public health policies with respect to tobacco control, Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry in accordance with national law". The 2021 global progress report on implementation of the WHO Framework Convention on Tobacco Control reported that the most frequently mentioned barrier to the implementation of the Convention by Parties is the interference by the tobacco industry, including the industries producing novel and emerging tobacco products and nicotine products [65].

The United Republic of Tanzania is encouraged to review current policies and legislation in light of the Implementation Guidelines for WHO FCTC Article 5.3 [66], and then address outstanding gaps by implementing the recommendations made in those guidelines. Attention should also be given to ensuring policy coherence across government policy-making to prioritise public health and WHO FCTC implementation.

7

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

The legal age of sale for tobacco products is 18 years. Nevertheless, almost 5 percent of students aged 13 to 15 years are current tobacco users. Robust enforcement is needed to prevent children and young people from being able to access tobacco, including through retail sale. The government agency responsible for enforcement must be clear and have the resources to undertake compliance building and enforcement action, especially with tobacco vendors. The government could publicize enforcement actions to deter others from selling tobacco to people under the legal age of sale.

8

Ratify and implement the Protocol to Eliminate the Illicit Trade in Tobacco Products and build capacity to combat illicit trade of tobacco and tobacco products (Protocol and WHO FCTC Article 15).

While illicit trade is a significant challenge in the United Republic of Tanzania, the country is not yet a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products. The United Republic of Tanzania would benefit from joining the Protocol. Key measures from the Protocol that the United Republic of Tanzania would benefit from implementing include:

- tracking and tracing systems;
- controlling the supply chain through licensing and record-keeping requirements;
- due diligence requirements; and
- training, technical assistance, and cooperation in scientific, technical and technological matters.

Increased investment is also necessary to overcome the lack of resources and capacity challenges that impede the United Republic of Tanzania's implementation and enforcement of tobacco control, including the elimination of illicit tobacco.

9

Support health-promoting and economically viable alternatives to tobacco growing and manufacturing (WHO FCTC Article 17 and 18).

Areas of land in the United Republic of Tanzania are used for tobacco farming leading to substantial opportunity costs for the national agriculture and food sector. By protecting the country from tobacco, not only will the government improve the health of Tanzanians and avert trillions of economic losses, and will also support a shift in public consumption towards other goods and services, improving food security, strengthening economic diversification, and supporting other local businesses.

Furthermore, tobacco growing and manufacturing are damaging to the environment and have negative repercussion for local society, as the major share of profits are drawn from the national economy and siphoned abroad by tobacco conglomerates [67], [68].

Farmers and workers involved in tobacco supply chain should be offered economically viable alternatives in sectors that contribute to health and sustainability of the local economy [69], for example food production or tourism and hospitality. The Government of the United Republic of Tanzania should consult the Policy options and recommendations on economically sustainable alternatives to tobacco growing (in relation to Articles 17 and 18 of the WHO FCTC) during policy development to support economically viable and sustainable alternatives are promoted for tobacco growers, workers or sellers [70].

10

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

With the vast health, economic, social and environment costs of tobacco, the case is clear: implementing the WHO FCTC is a powerful means for the United Republic of Tanzania to improve the lives of citizens, achieve the SDGs, and better the conditions and future of the country. All sectors have a role to play in tackling tobacco use, and the benefits of full WHO FCTC implementation will enrich all aspects of life in the United Republic of Tanzania.

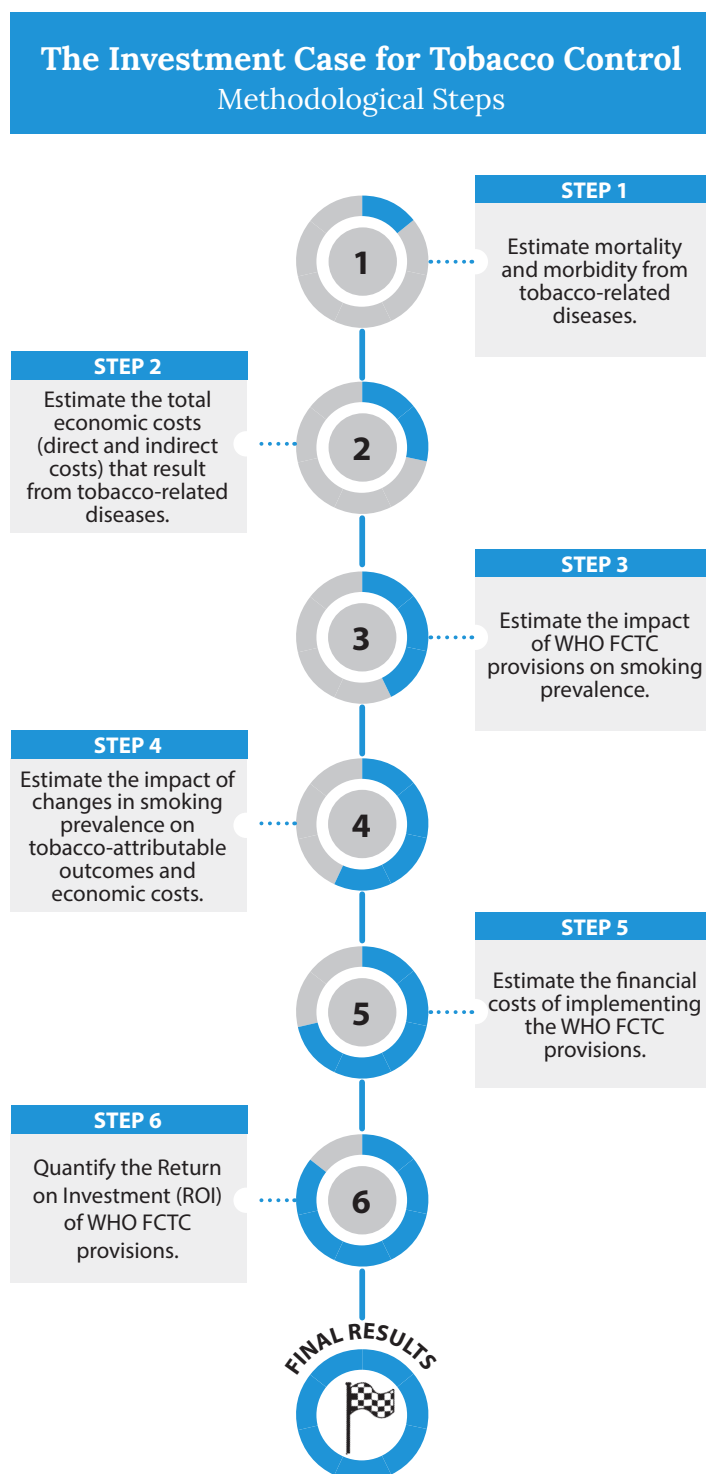
Annex: Methodology

The investment case demonstrates that tobacco control is a sustainable development issue for the United Republic of Tanzania with implications for a wide range of national stakeholders, including the Ministry of Commerce, Ministry of Finance, Ministry of Health, and civil society organizations. All sectors within the Government of the United Republic of Tanzania must recognize the far-reaching negative impact that tobacco has on development and their responsibility to uphold the right to health and protect citizens from the multifaceted harms of tobacco.

A1.1 Overview

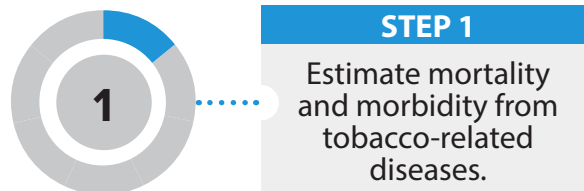
The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which WHO FCTC provisions can reduce the burden. The first two methodological steps depicted in Figure A1 are employed to assess the current burden of tobacco use, while methodological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

Fig. A1: Steps in the investment case

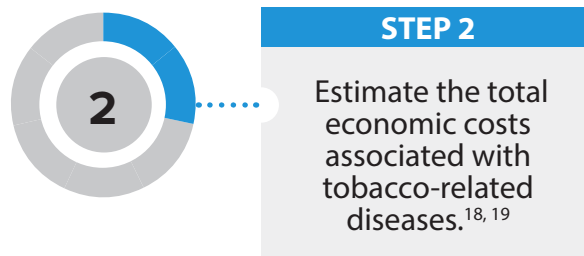


A1.2 Component one: current burden

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



The investment case model is populated with country-specific data on tobacco-attributable mortality and morbidity from the 2019 Global Burden of Disease Study (GBD) [5], [6], [71]. The study estimates the extent to which smoking and secondhand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life years lost, and deaths, across 195 countries.



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

Health-care expenditures – Health-care expenditures include smoking-attributable public (government-paid), private (insurance, individual out-of-pocket), and other health-care expenditures. The proportion of healthcare costs attributable to smoking was obtained using the formula for estimating smoking attributable fraction (SAF) of healthcare expenditures from Goodchild et al. (2018) [3]. The SAF for the United Republic of Tanzania is estimated at 2.4 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 the entity's contribution to total health

¹⁷ In assessing the current burden of tobacco use, the economic costs of mortality include the cost of deaths due to any form of exposure to tobacco (including smoking, secondhand smoke exposure, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism and presenteeism. While other forms of tobacco may also cause losses in these categories, no data are available to precisely ascertain those losses.

¹⁸ All diseases are assumed to decrease in proportion to smoking prevalence when the decrease in prevalence occurs. While the model overestimates how quickly health benefits will accrue for some diseases, for example cancers—recent evidence suggests notable declines in the risk of lung cancer incidence begin two to five years after smoking prevalence decreases [72]. On the other hand, the risk of incidence of other diseases, for example cardiovascular disease (CVD), declines significantly in the years immediately following quitting [73].

expenditure. Healthcare expenditures were obtained from the WHO Global Healthcare Expenditure Database (GHED) [58]. The latest year for which data is available in WHO GHED is 2019. To obtain 2020 values, the average annual increase in healthcare expenditures in the United Republic of Tanzania over the past 10 years was used and that increase was applied to the 2019 healthcare expenditure values.

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

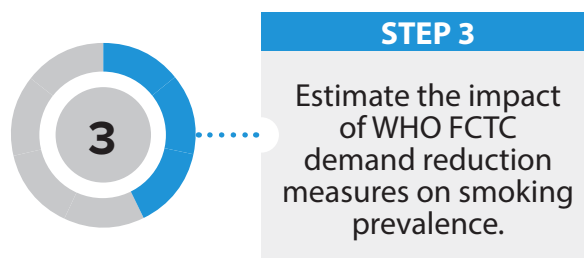
- *The economic cost of tobacco-attributable mortality.* Tobacco-attributable mortality was monetized using a “value of a statistical life” (VSL) measure. VSL is a measure of individuals’ willingness to pay for small changes in the risk of death and it is commonly used in economic evaluations of health programmes and policies to monetize health outcomes [53]. Few studies have assessed VSL in low- and middle-income countries [74]. We extrapolated a country-specific estimate of VSL following guidance from the Reference Case Guidelines for Benefit-cost analysis in Global Health and Development [53], estimating the value of one additional year of life for the United Republic of Tanzania at TZS 1.4 million (value of a statistical life year (VSLY)). Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each future year of life is multiplied by VSLY to calculate the cost of tobacco-attributable mortality.
- *Productivity costs.* Productivity costs consist of costs due to absenteeism and presenteeism and are counted only among employed cigarette smokers. The model uses estimates from academic literature on the number of extra working days missed due to active smoking (2.9 days per year) [75]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the United States, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers—losses equivalent to about 7.5 days of work [76]. The number of employed smokers is multiplied by days of work missed due to absenteeism or presenteeism by the average daily country wage to obtain estimates of losses.

A1.3 Component two: policy/intervention scenarios

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

A static model using a population attributable fraction (PAF) approach was used to estimate the total impact of the tobacco control measures. In the model, aside from smoking prevalence, variables do not change throughout the 15-year time horizon. The model follows a population that does not vary in size or makeup (age/gender) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [77], [78].

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



Selection of key WHO FCTC measures modeled within the investment case align with the [Global Strategy to Accelerate Tobacco Control](#) [79] developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, priority is given to enabling action to accelerate WHO FCTC implementation, including effective forms of technical and financial assistance to support Parties in the identified priority action areas. This includes Parties giving priority to, among other things, the implementation of price and tax measures (WHO FCTC Article 6) and time-bound measures of the Convention. The time-bound measures include creating smoke-free public places and workplaces (WHO FCTC Article 8), prominent health warnings on tobacco packaging (WHO FCTC Article 11) and comprehensive bans on tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC Article 13).

In addition, given the importance of awareness in behaviour change and shaping cultural norms, the investment cases include promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC Article 12). Effect sizes for the WHO FCTC demand reduction measures are obtained from the literature. The impact of enforcing smoke-free air laws, implementing plain packaging and intensifying advertising bans, are derived from Levy et al. (2018) [80] and Chipty (2016), as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020 [81, p. 3], and adjusted based on assessments of the United Republic of Tanzania's baseline rates of implementation. The impact of basic evidence-based tobacco cessation in the form of brief advice to quit offered to tobacco users by health-care professions in primary care settings is from Levy et al. 2010 [82].

Except for taxes—the impact of which is dependent on the timing of increases in tax rates (see below)—and the brief advice intervention—the impact of which is guided by rates of training for primary health-care providers (see also below)—the full impact of the demand reduction policy measures is phased in over a five-year period. The phase-in period follows WHO assumptions [83] that two years of planning and development are required before policies are up and running, followed by three years of partial implementation that are reflective of the time that is needed to roll out policies, and work up to full implementation and enforcement.

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

Table A1: Key parameters used in the tax revenue analysis

Parameter name	Value	Source
Price elasticity of demand	-0.50	Ho et al (2017). The effect of cigarette price increases on cigarette consumption, tax revenue, and smoking-related death in Africa from 1999 to 2013 [84].
Prevalence elasticity of demand	-0.25	Goodchild et al (2016). Modelling the impact of raising tobacco taxes on public health and finance [42] Assumption – half of price elasticity.
Income elasticity of demand	0.32	Nargis et al (2021). Price, Income, and Affordability as the Determinants of Tobacco Consumption: A Practitioner's Guide to Tobacco Taxation [85].
Income prevalence elasticity of demand	0.16	Assumption – half of income price elasticity.
Projected real income growth rate*	3.4%	International Monetary Fund (2020). Real GDP Growth - Annual percent change [86].

*Projected real income growth is used as a proxy for wage growth. The International Monetary Fund projects [44] real GDP growth at an average of 3.4 percent annually through 2025.

The investment case analysis examines a tax increase scenario in which the United Republic of Tanzania chooses to enact strong tax increases. In the hypothetical scenario, the United Republic of Tanzania's current tax structure and rates stay the same, with the exception that in real terms, the specific excise tax is increases from current rates (TZS 588 per pack) to TZS 2,522 in 2026.

In the scenario, the price net of taxes remains static (full pass through of the tax increase). **Table A2** breaks down cigarette pack price components from 2023 to 2027 under the described scenario. For the main investment case analysis, additional specific excise taxes triggering real price increases of an average of 6.8 percent annually are modeled from 2028 to 2037, bringing the total tax share to 75 percent by the end of the analysis and the excise tax share to 70 percent.

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

Price component	2023	2024	2025	2026	2027
Price net of taxes	2,802	2,802	2,802	2,802	2,802
Specific excise	588	588	1,354	2,087	2,522
Ad valorem	0.00	0.00	0.00	0.00	0.00
Value added tax	610	610	420	420	420
Other taxes	0.00	0.00	0.00	0.00	0.00
Final consumer price*	4,000	4,000	4,576	5,308	5,744
* Figures subject to rounding.					

The impact of tax increases on revenue and cigarette use prevalence is dependent on prevailing elasticities: the extent to which individuals change use of a product (e.g., decrease consumption or quit) because of changes in the price of a tobacco product. Changes are calculated following Joosens and colleagues (2009) [87], who use a log-log function to ensure large price increases do not result in implausible reductions in consumption or prevalence. Below, Equation A1 provides an example of calculations to ascertain the impact of a change in price on smoking prevalence, considering changes in income.

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

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

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

Where:

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

ϵ_p = prevalence elasticity

Op_np = the ratio of the old price of a pack of cigarettes to the new price after tax increases

ϵ_i = income elasticity

GDP = Gross domestic product in year

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

Brief advice to quit tobacco. We calculate the effect of scaling up the provision of brief advice to quit smoking at the primary care level. First, we calculate the baseline population quit rate (PQR, the percent of smokers who quit annually) drawing on previously published methods by Levy and colleagues (2010) [82]. The PQR is calculated (see **Equation A2**) using three parameters: quit attempts; treatment utilization rates (i.e. counselling, pharmaceutical therapy); and treatment effectiveness.

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

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

Where:

PQR = Population quit rate

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

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

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

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

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

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

and middle-income countries less than half (47.8 percent) of adult smokers who visit a health provider are advised to quit.¹⁹ Once trained, it is assumed that the provider administers the brief advice when they encounter a patient who uses tobacco.

Taking into account the number of primary health-care providers in the country, the patient panel size per provider, adult smoking rates, and the percent of adult smokers who present within the health system for at least one primary care visit per year, in each year of the analysis we calculate the number of adult tobacco users who would encounter a newly trained health provider and receive the brief intervention—which increases the likelihood that an individual makes a quit attempt by 60 percent over baseline levels [39]. With increases in population quit attempts driven by the provision of brief advice, we recalculate PQR to estimate the number of smokers who quit as a result of the intervention. Data used to inform these calculations are shown in **Table A3**.

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

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

Parameter name	Value	Source
Population quit rate (PQR)		
Annual quit attempt rate (QA)	48%	Global Adult Tobacco Survey (GATS) 2018, the United Republic of Tanzania [25]
Increase (%) in QA as a result of receiving brief advice	60%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [82]
Treatment use (Tx Use)		
No evidence-based treatment	69.2%	GATS 2018, the United Republic of Tanzania [25]
Pharmaceutical assistance	6.6%	GATS 2018, the United Republic of Tanzania [25]
Counselling	23.8%	GATS 2018, the United Republic of Tanzania [25]
Both pharmaceutical assistance and counselling	0.5%	GATS 2018, the United Republic of Tanzania [25]
Treatment effectiveness		
No evidence-based treatment	7%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [82]
Pharmaceutical assistance	15%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [88]**
Counselling	12%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [88]**
Both pharmaceutical assistance and counselling	22%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [88]**
% of adult smokers who visit primary care clinic annually	28%	Average values from GATS of LMICs conducted between 2009 to 2018
% of smokers who relapse after successfully quitting	60%	Goodchild et al (2016), Modelling the impact of raising tobacco taxes on public health and finance [89], [90]
Number of primary care health providers	34,374	WHO (2021). Global Health Observatory [90]**
Annual patient panel size per health provider (# of patients)	550	Altschuler et al (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians With Team-Based Task Delegation [91]***

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

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

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

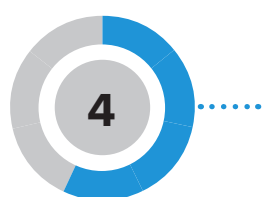
Summary: the impact of tobacco demand reduction measures. The impact sizes of all policy measures examined in the investment case are displayed in **Table A4**. Additional information on their derivation can be found in the *Technical Appendix*.²⁰

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

WHO FCTC policy actions	Relative reduction in the prevalence of current smoking	
	First five years (2023-2027)	Over 15 years (2023-2037)
Tobacco control package* (all policies/interventions implemented simultaneously)	37.6%	57.2%
Increase taxes on cigarettes (WHO FCTC Article 6)	6.7%	13.8%
Create smoke-free public places and workplaces (WHO FCTC Article 8)	9.6%	16.0%
Mandate that tobacco product packages carry large health warnings (WHO FCTC Article 11)	7.2%	12.0%
Implement plain packaging of tobacco products (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13)	2.4%	4.0%
Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC Article 12)	9.1%	15.2%
Enact and enforce a comprehensive TAPS ban (WHO FCTC Article 13)	9.6%	16.0%
Scale up of brief advice to quit for tobacco users in primary care clinics (WHO FCTC Article 14)	0.1%	0.6%

*The combined impact of all interventions is not the sum of individual interventions. Following Levy and colleagues' (2018) "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j, (1-PR_i) x (1-PR_j) [is] applied to the current smoking prevalence" [26].

20 Available upon request.

**STEP 4**

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

To analyse the impact of policy measures on reducing the health and economic burden of smoking, the investment case calculates and compares two scenarios. In the “status quo scenario”, current efforts are “frozen”, meaning that, through the year 2037 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the “intervention scenario”, the United Republic of Tanzania 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 the United Republic of Tanzania can achieve by taking targeted actions to reduce tobacco use.

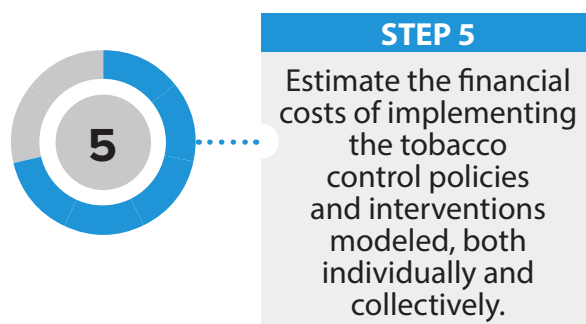
The marginal effects of the policies are calculated using the status quo scenario as the comparison group. To calculate marginal effects, the model subtracts the outcome (risk factor attributable deaths, health-care expenditures, etc.) under the intervention scenario from the same outcome under the status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

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

Marginal effects are calculated as follows for each outcome:

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

that are modeled.



The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [83].

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

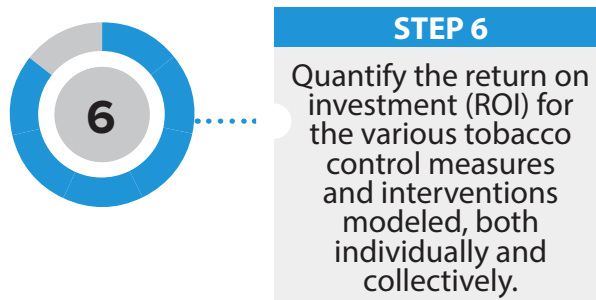
Across these categories, the Costing Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Costing Tool is updated to reflect 2020 costs by updating several parameters: the US\$ to local currency unit exchange rate (2020); purchasing power parity (PPP) exchange rate (2020); GDP per capita (US\$, 2020); GDP per capita purchasing power parity (PPP, 2020); population (total, and share of the population age 15+, 2020); labour force participation rate (2020); gas per liter; and government spending on health as a percent of total health spending (2019) [50]. Unless government or other in-country parameters are received, data are from the World Bank database, with the exception of data on the share of government health spending and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.

To cost the scale up of the provision of brief advice to quit tobacco use, the analysis adds to the programmatic costs embedded in the WHO Costing Tool by including costs to train health providers and the direct costs of the primary care visits in which the brief advice is administered. Over the 15-year time horizon of the analysis, half of all primary care health providers are trained to administer brief advice to quit tobacco.²¹ Based on WHO’s training

21 The analysis assumes a 10 percent of health workers turn over annually [51]

package for treating tobacco dependence in primary care [92], we assume that training sessions last 2.5 days, are conducted with a maximum of 30 participants, and are led by a team of two facilitators. We further assume that the training occurs in person in a rented facility space. Costs of training include those to rent the facility,²² pay facilitators, and provide per diems to facilitators and attendees, and we also assume that trainees (doctors and nurses) are compensated for their time at their wage rate.²³

Once trained, providers are assumed to provide brief advice if they encounter a patient who smokes. The cost of providing brief advice during primary care visits is based on modeled, country-specific estimates from WHO-CHOICE of the cost of primary care outpatient visits [93]. The derivation of these estimates is detailed elsewhere [94], but in overview, the estimates reflected the “hotel cost” of a 10-minute visit²⁴ to a health facility with beds. We updated the estimates to 2020 local currency units, using 2010 PPP conversion factors and local consumer price indices [95]. For the purpose of the investment case, administration of the 5A’s (Ask, Advise, Assess, Assist and Arrange) brief intervention is assumed to take 10 minutes [96]. Following WHO CHOICE methodology, we estimate the cost of those extra 10 minutes as an extra 21 percent of the original cost of the primary care visit.



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

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

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

22 Rental costs per square foot are obtained from the WHO Costing Tool with the room size estimated is based on square feet per person estimates for collaboration rooms [53].

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

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

A1.4 Tobacco-use and the COVID-19 pandemic

We estimated the total number of people living with a tobacco-attributable health condition that increases vulnerability to COVID-19 using methods developed by Clark and colleagues, and by adding a module to their Excel-based published model estimating the number of people at increased risk of severe outcomes due to COVID-19.

The authors' methods are published [97]. They use IHME prevalence data to identify the number of people in each country with a disease or condition that increases the risk of severe outcomes due to COVID-19. The IHME data identifies the number of people in each disease category, but not the number of people with one or more diseases. The authors calculate the expected probability of having at least one of the diseases linked to severe COVID-19 outcomes as $(1-P_1)*(1-P_2)...$ where P is the prevalence of a given disease. Then, drawing on two large multi-morbidity studies that show that the observed number of people with one or more diseases is about 90 percent, they multiply the expected probability by 0.9 to estimate the number of people in each country who have one or more diseases linked to severe COVID-19 outcomes.

We adapted the authors' methods and Tool to estimate the number of people who have diseases linked to severe COVID-19 outcomes because of tobacco use. First, we uploaded IHME data on total years lived with disability (YLDs) and tobacco-attributable YLDs for the eleven diseases and conditions linked to severe COVID-19 outcomes, and then used the data to calculate the tobacco-attributable fraction of YLDs. We applied the tobacco-attributable fraction to the prevalence rates of each of the eleven diseases to estimate the number of people who have a given disease as a direct result of tobacco use. Following Clark and colleagues' methods, we calculated the expected probability of having one or more tobacco-attributable disease. We assumed that the 0.9 ratio of observed to expected cases held for tobacco-attributable multi-morbidity.

A1.5 Equity analysis

We used elasticity of smoking participation by income group to assess the equity implications of increases in cigarette taxation. No studies were identified that examine the elasticity of smoking participation in the United Republic of Tanzania. Instead, we use the average of income-group-specific elasticities in low- and middle-income countries, as compiled in a World Bank policy research working paper [98]. The working paper provides elasticities by deciles. To apply the elasticities to the smoking prevalence data available for the United Republic of Tanzania, which are presented as quintiles, we take the average of the first and second decile to obtain the elasticity for the first quintile, and so on. The average elasticity for each quintile from the working paper that are used to calculate reductions in smoking prevalence and smoking attributable mortality are shown in **Table A5**.

Table A5: Average elasticities used in investment case equity analysis

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

Source: Average of income-group-specific elasticities in low- and middle-income countries, as compiled in World Bank policy research working paper (Fuchs et al (2019). Distributional Effects of Tobacco Taxation: A Comparative Analysis. Available at: <https://openknowledge.worldbank.org/handle/10986/31534>) [98].

The source for smoking prevalence used in the main investment case model (the the United Republic of Tanzania 2018 Global Adults Tobacco Survey), does not contain prevalence disaggregated by income quintile. For the equity analysis, we use prevalence by income quintile obtained from the 2015-16 Demographic and Health Survey (DHS) [59]. We adjust the prevalence by income quintile proportionally by the difference between overall prevalence in the DHS and WHO Report.

A1.6 Summary of WHO FCTC demand reduction measure status

Figure 2 in the main text is based on data from the *WHO Report on the Global Tobacco Epidemic, 2021* [4]. In the Figure, the level-of-implementation categories of “no/little implementation”, “partial implementation”, “moderate implementation”, and “meeting WHO FCTC recommendations” are mapped to the descriptions in Table A5, as specified and further detailed in Technical Note I of the WHO report (see page 119).

Investment case analysts assigned scores between 0 to 3 for each demand reduction measure, depending on the level of implementation. For four measures—graphic warning labels, plain packaging, public awareness and tobacco cessation—we assigned whole number scores (i.e. 0, 1, 2, or 3) that mapped to the four levels of implementation described above and detailed in Table A5. For increases in cigarette taxation, smoke-free public places and workplaces, and TAPS bans, we adjusted the level-of-implementation score creating a decimal value as follows:

- For 1) smoke-free public places and workplaces and 2) TAPS bans, we adjusted the score to account for reported levels of compliance in the WHO Report on the Global Tobacco Epidemic (Compliance Score). Following previously published assumptions by Levy and colleagues (2013), we assumed that respectively 25 percent and 50 percent of the effect of these measures depends on levels of compliance [92]. Thus, for a country with “moderate implementation” of TAPS bans but a compliance score (as detailed in the WHO Report on the Global Tobacco Epidemic) of 5 out of 10, we calculated the score as follows: Measure Score – $(0.5 \times \text{Compliance Score} / 10) = 2 - (0.5 \times (5/10)) = 1.75$. For countries that did not report a compliance score we assumed the average of compliance scores worldwide.

- For 3) cigarette taxation, all countries in which the total tax share equaled 75 percent or above received a score of 3. All countries below that mark were assigned a score as follows: $3 \times (\text{Total tax share} / 0.75)$. Thus, a country with a total tax share of 35 percent received a score of 1.4 ($3 \times (.35 / .75)$).

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

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

Photo: © GS Garrett



Table A5: Definition of WHO FCTC implementation status in Figure 2 (main text)

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

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

Source: Information in this table is based on the *WHO Report on the Tobacco Epidemic, 2021* [4].

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