The Zambian
Ministry of
Health

Investment Case For Tobacco Control in Zambia

The Case for Investing in WHO FCTC Implementation

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March 2019

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The Zambian Ministry of Health

The Case for Investing in WHO FCTC Implementation

Prepared by
Ministry of Health, Zambia
RTI International
United Nations Development Programme

Report
March 2019

Funded by UK Government

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WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL SECRETARIAT

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World Health Organization

7,142

Zambians die every year due to **tobacco-related diseases**.

60%

of those deaths occur **before the age of 70.**

Every year tobacco costs Zambia

ZMW 2.8 billion

equivalent to

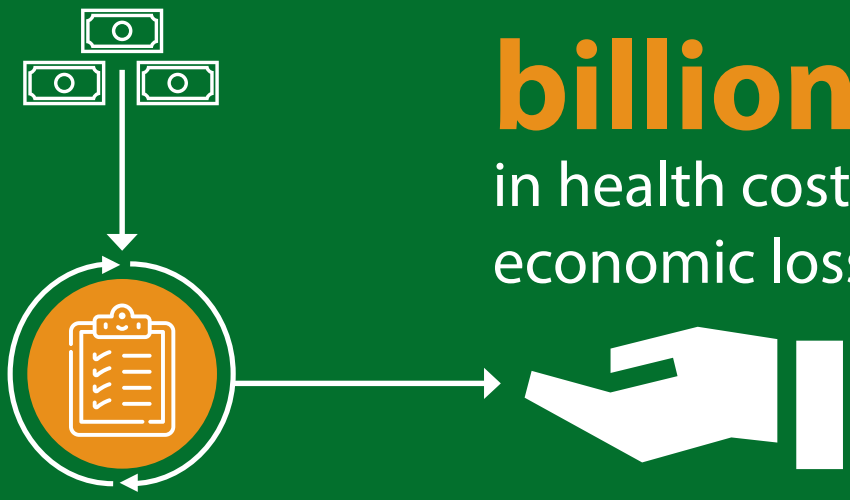
1.2% of GDP

in 2016.

Investing in

six FCTC measures

now...



...will save

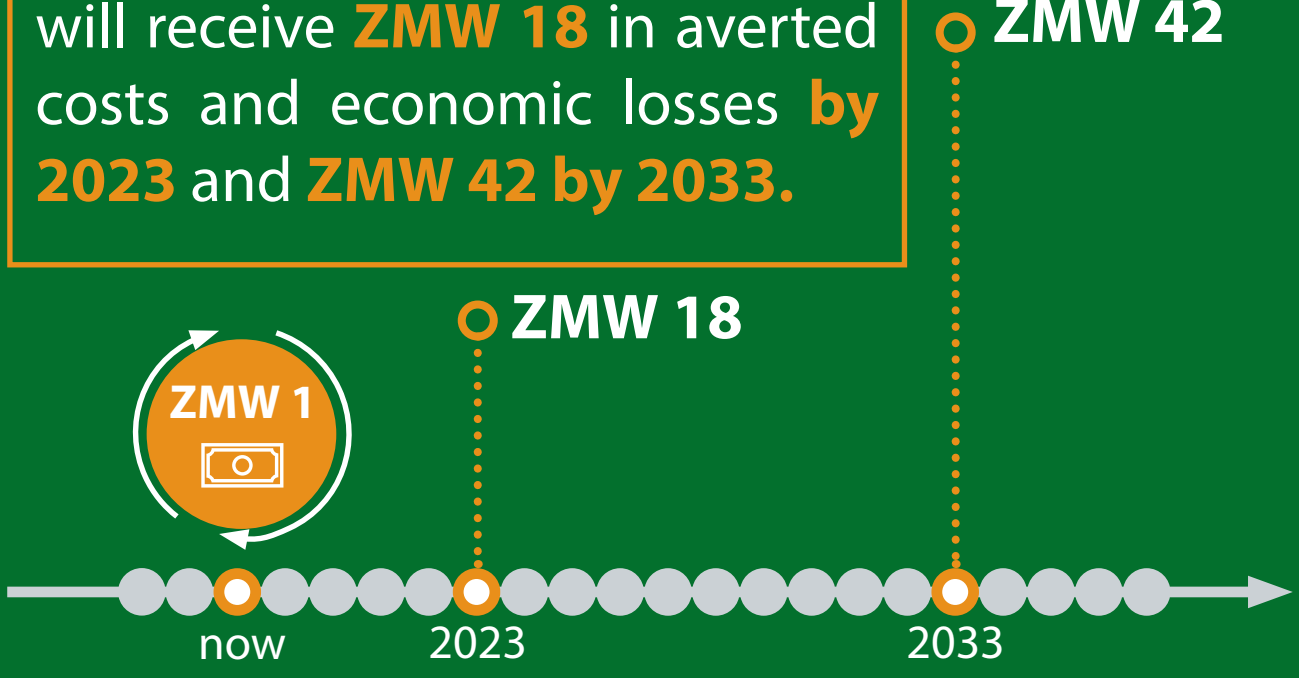
40,349 lives

and avert

ZMW 12.4 billion

in health costs and economic losses by 2033.

For every **ZMW 1** invested in six FCTC interventions now Zambia will receive **ZMW 18** in averted costs and economic losses **by 2023** and **ZMW 42 by 2033.**



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Acronyms

Acronym	Caption
GDP	Gross domestic product
GYTS	Global Youth Tobacco Survey
MT	Metric tonne
NDP	National Development Plan
NCDs	Non-communicable diseases
OOP healthcare expenditures	Out-of-pocket healthcare expenditures
ROI	Return on investment
RYO cigarettes	Roll-your-own cigarettes
SDG	Sustainable development goal
UNDP	United Nations Development Programme
WHO	World Health Organization
WHO FCTC	WHO Framework Convention on Tobacco Control

Foreword

The priorities of the Government of the Republic of Zambia is to improve the health status of the people in the country in order to contribute to increased productivity and socio-economic development. The health sector identifies strategies to significantly reduce disease burden and accelerate the attainment of the Sustainable Development Goals by placing emphases on health promotion, disease prevention, and curative and rehabilitation services in close to client settings. Further, the Government through the Ministry of Health is promoting a multisectoral collaboration, with appropriate levels of commitment and support, from line ministries, cooperating partners, and key stakeholders, in order to effectively address all the social determinants of health.

I am cognisant of Sixth Session of the World health Organization-Framework Convention on Tobacco Control Conference of Parties (COP6) Decision 17, urging the United Nations Development Programme (UNDP) and the World Health Organization (WHO) to work with the World Bank and other partners to help Parties develop the business case for investment in implementation of the Framework Convention on Tobacco Control (FCTC).

The Investment Case is built to help Zambia advocate for fuller implementation of the Convention, in order to deliver to the Government a set of advocacy tools, making the case for scaled-up FCTC implementation. The target is to influence policy-makers within and beyond the health sector to appreciate and make informed decisions regarding the health and economic benefits of implementing tobacco control measures. The Zambia Tobacco Control Investment Case has been developed at a time that the Government of the Republic of Zambia is taking prominent leadership roles in addressing Sustainable Development Goals (SDGs).

In this regard, strengthening the implementation of the FCTC as part of Sustainable Development Goals, namely, SDG 3.a, which encourages member countries to accelerate implementation of the FCTC provides the opportunity to quicken national development. With the support of global, regional and national offices of WHO, UNDP and other UN Agencies, the Government of the Republic of Zambia has quantified the costs and benefits of tobacco control, which has been calculated in health and economic terms, leading to sustainable returns to investment as well as a healthier, more able and productive Zambian population.

We are in earnest undertaking the implementation of the Ministry of Health's transformational agenda of promotion of health and prevention of diseases, treatment of those who fall ill, improving

human resources knowledge and skills, reorientation of health services and ensuring that health is incorporated in all Government policies in the context of Health in All Policies, and providing Universal Health Coverage, leaving no one behind. The critical findings in the Investment Case for Tobacco Control in Zambia provides a firm platform to support better planning, leadership and commitment from the central government and Ministry of Health. Within this robust policy context, I expect to see recommendations of the investment case guiding the Zambian health and non-health sector policies in the understanding of the relationship between health and development outcomes.

Dr. Chitalu Chilufya, M.P
Minister of Health

UNDP is proud to be a core partner of the FCTC 2030 project, and to have supported the development and launch of this investment case report. The investment case findings tell us in stark terms that Zambia is not spared tobacco's far-reaching development harms. The findings also tell us that implementing just six proven FCTC measures avoids significant human suffering and economic losses.

UNDP looks forward to working with the FCTC Secretariat and WHO to support the Government to do just that. But I want to stress that the Ministry of Health, while strongly committed, cannot take on the task of tobacco control alone. Progress requires the engagement and support of different sector of government, working across siloes and across agendas to, for example, strengthen law enforcement, ensure effective taxation, educate children and the public, secure alternative livelihoods for tobacco farmers, and protect the environment. Finding win-wins is essential.

Zambia has a strong new draft tobacco control law which is being reviewed by ministries. Enacting the Tobacco Products and Nicotine Products Control Bill would protect the people of Zambia from a deadly and destructive product.

This country has proven itself as a leader in so many areas of health and development. I have no doubt that Zambia will continue this legacy by scaling up tobacco control.

Ms. Mandisa Mashologu
UNDP Zambia, Resident Representative

Acknowledgements

Along the trajectory of development of this important and critical Zambia Tobacco Control Investment Case, we wish to profoundly thank the United Nations Development Programme (UNDP), the Research Triangle International (RTI) for providing technical, material and financial resources to undertake this exercise. Special thanks go to the Government of the United Kingdom, through the WHO FCTC 2030 project, for providing further technical and material support to the team of local and international experts. Gratitude is also extended to the WHO AFRO AND Country Office providing regional and country perspectives on Investment Case, including logistical support.

The Ministry of Health team, is hugely commended, applauded and praised for providing the requisite leadership and policy environment to undertake this invaluable and priceless work. We are also grateful to Zsuzsanna Schreck for her design work.

Dr. Kennedy Malama
Permanent Secretary – Technical Services

1. Executive summary

Overview

Tobacco is a health and sustainable development issue. Tobacco consumption and production causes early death and disease, results in high health costs and economic losses, widens socioeconomic inequalities, and contributes to environmental degradation. With a draft Tobacco and Nicotine Products Control Bill under consideration by Parliament, Zambia has an historic opportunity to scale up tobacco control efforts, honour Zambia's commitment to the WHO Framework Convention on Tobacco Control (WHO FCTC), and ensure that today's adolescents do not become the next generation of smokers.

Adopting the bill would put a strong legislative framework in place to prevent the devastating health and economic consequences of tobacco."
This WHO FCTC Investment Case analyses the health and economic costs of tobacco use as well as the potential gains from scaled up implementation of FCTC measures over the next 15 years (2018–2033). It identifies which FCTC demand-reduction measures can produce the largest health and economic returns for Zambia (the return on investment; ROI). The Zambian Ministry of Health selected six policies to be modeled in the investment case.

1. Increase tobacco taxation to reduce the affordability of tobacco products. (FCTC Article 6)
2. Enforce bans on smoking in all public places to protect people from tobacco smoke. (FCTC Article 8)
3. Mandate that tobacco products carry health warnings that cover 50 percent of the packaging.
(FCTC Article 11)
4. Implement plain packaging. (FCTC Article 11: Guidelines for Implementation)
5. Institute mass media campaigns against tobacco use. (FCTC Article 12)
6. Implement and enforce a comprehensive ban on tobacco advertising, sponsorship, and promotion. (FCTC Article 13)

Main findings

The results indicate that tobacco use in Zambia is leading to enormous economic and health losses:

- **Each year, tobacco costs the Zambian economy ZMW 2.8 billion, equivalent to 1.2 percent of its GDP.**[1] These costs include a) ZMW 154 million in healthcare expenditures, and b) ZMW 2.7 billion in lost productive capacities due to premature mortality, disability, and workplace smoking. The productivity losses from current tobacco use in Zambia—94.5 percent of all tobacco-related costs—indicate that tobacco use causes problems in Zambia far beyond the health sector; multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from supporting tobacco control investments.

- **Every year, tobacco kills 7,142 Zambians, causing the loss of 104,611 years of life.** Sixty percent of annual deaths from tobacco are among individuals under age 70; 800 yearly deaths are due to second-hand smoke exposure; Zambia's poorest and least educated are those most likely to consume tobacco.

Conversely, the investment case indicates that fully implementing and enforcing the selected WHO FCTC priority interventions is a highly cost-effective way to reduce the burden of tobacco:

- **If Zambia fully implements and enforces all six interventions together, the country can save ZMW 12.4 billion over 15 years.** Averted productivity losses would total about ZMW 11.8 billion, spurring economic growth and development.

- **Implementation and enforcement of the six tobacco control measures will help avert ZMW 685 million in healthcare expenditures over 15 years**. Of this, ZMW 329 million will be saved in Government healthcare expenditure, and ZMW 188 million will be saved in out-of-pocket healthcare costs.

- **If all six tobacco control interventions are implemented and enforced, the Government will be responsible for saving 40,349 lives over 15 years.**

1 Equivalent to about USD 299.3 million as of 2017 exchange rate: USD 1 = ZMW 9.52 http://data.worldbank.org/indicator/PA.NUS.FCRF?locations=ZM

- **The benefits of the six tobacco control measures far outweigh their costs at both 5 and 15 years, with a return on investment (ROI) at year 15 of ZMW 42 in benefits for every ZMW 1 invested.** All interventions are highly cost-effective. Enacting more stringent bans on advertising and raising cigarette taxes deliver the highest ROIs (ZMW 173:1 and 139:1, respectively). This is followed by warning labels (107:1), anti-tobacco mass media campaigns (60:1), plain packaging of tobacco products (42:1), and bans on smoking in public places (33:1).

Tobacco farming in Zambia, main findings

- Tobacco represents only a small percentage of total agricultural products exported and employs only 0.5 percent of small and medium scale farmers [25].
- Tobacco cultivation yields poor returns to labour, can cause dependency and debt, is hazardous to farmers' health, and can contribute to food insecurity and environmental destruction [23].
- Sixty percent of tobacco farmers in Zambia are considering switching to other crops [24].
- There are low-cost interventions the Government can support to help tobacco farmers wishing to transition to other crops and/or non-agricultural activities [33,32].
- Tobacco farming spreads untaxed and cheap loose-leaf tobacco for roll-your-own (RYO) cigarettes, which decreases the effectiveness of tobacco control measures, including taxes [8].

Recommendations

1. Pass the new, comprehensive tobacco control law, the 'Tobacco products and Nicotine Products Control Bill'.
2. Raise awareness among stakeholders of the true costs of tobacco and the enormous development benefits of tobacco control.
3. Strengthen tobacco control coordination and planning.
4. Ensure adequate funding and resourcing of tobacco control measures.
5. Advocate for additional increases in tobacco taxes.
6. Strengthen enforcement.
7. Assist tobacco farmers who wish to transition from tobacco to alternative livelihoods.

Credit: © Ignacio Palacios

Credit: © Jake Lyell/Courtesy of Heifer International

2. Introduction

In Zambia, about 16 percent of individuals 15 and older currently use some form of tobacco [1], meaning 1.6 million Zambians are at a substantially increased risk of morbidity and early mortality from cancer, cardiovascular disease, respiratory illnesses, and many other tobacco-attributable diseases. In 2016, tobacco was responsible for the deaths of over 7,100 Zambians [2] or roughly 6 percent of all deaths, costing Zambia nearly 140 lives every week.[2]

In addition to the immense toll tobacco takes on human health and wellbeing, it also imposes a substantial economic burden. Worldwide, healthcare expenditures to treat diseases and injuries caused by tobacco totaled nearly six percent of global health expenditures [3]. Further, tobacco use can reduce productivity by permanently or temporarily removing individuals from the work force due to poor health [4]. When individuals die prematurely, the labour output that they would have produced in their remaining years is lost. In addition, individuals with poor health are more likely to miss days of work (absenteeism) and, when they are at work, to operate at a reduced capacity (presenteeism, smoking breaks) [5, 6].

The 2030 Agenda recognizes that current tobacco use trends, in Zambia and around the world, are incompatible with sustainable development. Through Sustainable Development Goal (SDG) Target 3.4., Agenda 2030 commits Member States to achieve a one-third reduction in premature mortality from NCDs (i.e. deaths between 35 and 69) by 2030. Accelerating progress on NCDs requires strengthened implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC); SDG Target 3.a. Tobacco control is not just a primary means to improve population health, but also a proven approach to reduce poverty and inequalities, grow the economy and advance sustainable development broadly. However, more work must be done to reverse the tobacco epidemic. Zambia ratified the WHO FCTC in May 2008 [7], but, as of 2018, it has adopted few of the policies designed to reduce tobacco use that are obligated under the treaty.

With a draft of the Tobacco Products and Nicotine Products Control Bill being reviewed by line ministries, Zambia has an historic opportunity to lower the health and economic losses attributable to tobacco. By adopting the Bill, Zambia can strengthen its implementation of FCTC demand-reduction policy measures (SDG Target 3.a). The Bill would: protect people from exposure to tobacco smoke by banning smoking in all public places; comprehensively ban advertising,

2 2016 population, 16.6 million; Total number of deaths (all causes), 117.3 thousand (IHME, GBD Results Tool)

promotion and sponsorship of tobacco products; require that large graphic warning labels cover 65 percent of tobacco packaging, and; grant the Ministry of Health the authority to mandate plain packaging of tobacco products. By intensifying existing policies and implementing these new measures, this legislation can draw the tobacco prevalence curve downward and generate health and economic gains.

With a draft of the Tobacco Products and Nicotine Products Control Bill being reviewed by line ministries, Zambia has an historic opportunity to scale up tobacco control efforts, honour Zambia's commitment to the WHO FCTC, and ensure that today's adolescents do not become the next generation of smokers.

A joint programming mission to Zambia was undertaken in mid-2018 to launch an investment case to examine the health and economic impact of certain policy measures contained within the bill, as well as the impact of implementing or intensifying additional tobacco control measures (e.g., increasing tobacco taxes).

An investment case analyses the health and economic costs of tobacco use as well as the potential gains from scaled up implementation of FCTC measures. It identifies which FCTC demand-reduction measures can produce the largest health and economic returns for Zambia (the return on investment; ROI). In consultation with the Zambian Ministry of Health, six policies were selected to be modeled in the investment case.

Section 3 of this report provides an overview of tobacco control in Zambia, including a discussion of tobacco use prevalence, as well as challenges and opportunities. **Section 4** summarizes the methodology of the investment case (see Annex for more detail); **Section 5** reports the main findings of the economic analysis; **Section 6** presents a discussion of the impact of tobacco control on tobacco farmers in Zambia; and **Section 7** concludes with a set of recommendations.

What are the six FCTC policies for the Investment Case?

1. **Increase tobacco taxation to reduce the affordability of tobacco products. (FCTC Article 6)**
2. **Enforce bans on smoking in all public places to protect people from tobacco smoke. (FCTC Article 8)**
3. **Mandate that tobacco products carry health warnings that cover 50 percent of the packaging. (FCTC Article 11)**
4. **Implement plain packaging. (FCTC Article 11: Guidelines for Implementation)**
5. **Institute mass media campaigns against tobacco use. (FCTC Article 12)**
6. **Implement and enforce a comprehensive ban on tobacco advertising, sponsorship, and promotion. (FCTC Article 13)**

In addition, the investment case includes a discussion of the potential impact of tobacco control policies on Zambian tobacco farmers.

3. Tobacco control in Zambia: Status and context

3.a Tobacco use prevalence, social norms and awareness

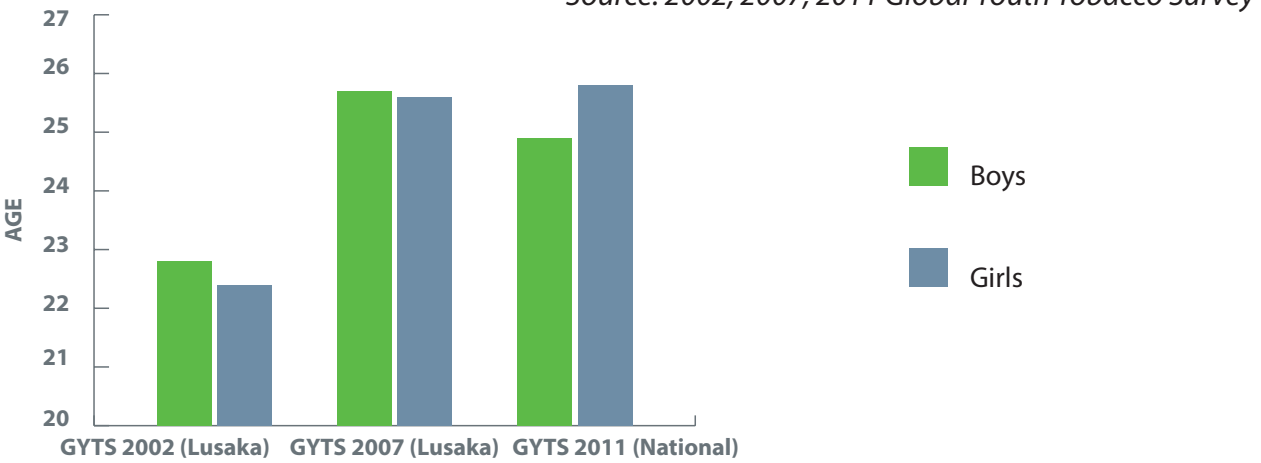
In Zambia, 15.8 percent of adults currently use some form of tobacco; 12.3 percent of adults are current smokers and 4.5 percent use smokeless tobacco [1]. Most smokers (67.9%) consume manufactured cigarettes, and about half of smokers consume roll your own (RYO) cigarettes [1]. The vast majority (88%) of RYO users cite the lower cost as the main reason for smoking RYO cigarettes; factory-produced cigarettes are around four times more expensive than RYO cigarettes [8]. The purchase of single stick cigarettes is also common in Zambia; 49 percent of smokers report their last purchase of cigarettes being single sticks [9].

Tobacco use prevalence is higher among men than women (24% of men use tobacco, compared to 7.8% of women) [1]. For both men and women, the prevalence of current tobacco use tends to increase with age. Tobacco use is also positively correlated with lower levels of income and education. The poorest 20 percent of the population is more likely to consume tobacco (18.8%) than the middle 20 percent of income earners (9.4%) and those with no education are substantially more likely to consume tobacco (17.7%) than those with secondary education or higher (~8%) [10].

Tobacco use prevalence has increased among youth (**Figure 1**). In 2002, the Global Youth Tobacco Survey (GYTS) in Lusaka found that among school-attending youth aged 13 to 15, 22.8 percent of boys and 22.4 percent of girls consumed tobacco [11]. In 2007 for the same study in Lusaka, this percentage had climbed to 28.7 percent of boys and 27.7 percent of girls [12]. The national-level GYTS study in 2011, showed that 24.9 percent of boys and 25.8 percent of girls used tobacco products [13].

Fig. 1: Tobacco consumption from 2002–2011 among school-attending youth ages 13–15

Source: 2002, 2007, 2011 Global Youth Tobacco Survey



That girls use tobacco at similar or higher rates than boys indicates shifting perspectives of tobacco consumption among girls. This may be due, in part, to the tobacco industry's increasing efforts to target females using gender-specific messaging, linking tobacco consumption with female empowerment and vitality.

Contributing to the tobacco epidemic particularly among youth, but also among adults, is the fact that purchase of single stick cigarettes is legal and common in Zambia. Although the per stick price is higher for single cigarettes versus buying a whole pack, single stick sales make purchasing cigarettes accessible for youth. Further, while sales to those under 16 years of age is prohibited, 23 percent of youth aged 13–15 years currently smoke purchase cigarettes from stores [13].

In addition, the tobacco industry remains free to market to youth by advertising at point of sale. Vending machines, internet sales and the sale of sweets, snacks, toys or any other objects made to look like tobacco products (these appeal to minors) are not prohibited. Menthol cigarettes encourage youth initiation of smoking by making cigarettes feel less harsh. All of these factors contribute to the relatively high levels of youth smoking and create a new generation of tobacco consumers.

High accessibility and affordability is compounded by low levels of awareness about the harms of tobacco. According to findings from the 2014 ITC study [9], 79 percent of male smokers in Zambia are aware that tobacco causes cancer—the lowest percentage among 12 countries where the study was carried out. Among youth, only 42.4 percent of those aged 13–15 thought that second-hand smoke is harmful to them (GYTS, 2007). There is also the presence of a pro-tobacco culture, particularly in regions where tobacco is grown locally and traditional tobacco (nsunko) is consumed more widely. In these regions, it is said that tobacco use is 'passed-down' through generations.

Low levels of awareness, increasing rates of tobacco use prevalence among youth (both boys and girls), and higher smoking rates among the poor and less educated all highlight the need to change social norms through mass media campaigns, school curricula, tobacco advertising restrictions, smoke-free places, and use of celebrities and opinion leaders as anti-tobacco ambassadors. The Ministry of Health is working with the WHO on a radio programme to raise awareness and there are several non-governmental organizations (NGOs) conducting work on tobacco control. Stronger coordination between these organizations would enhance the tobacco control response.

3.b Tobacco control regulatory measures

The 1992 Public Health (Tobacco) Regulation is the primary legislation prescribing restrictions on smoking in public, textual warning on cigarette packages, and bans on sales to minors [8]. Since that time, Zambia has implemented several laws and policies relating to the control of tobacco. Although legislated, some tobacco control laws face implementation challenges. This section examines regulatory measures modeled in the investment case.

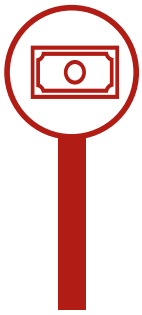
Smoking Ban in Public Places

Zambia has legislated a nearly complete **ban on smoking in public places**. Smoking in public places was first banned by the 1992 Public Health (Tobacco) Regulations (Statutory Instrument No. 163), which specified smoking bans in hospitals, health centers, educational facilities for those up to age 21, theaters, elevators, and public transportation [8]. In 2008, the Government enacted additional regulations to expand the definition of public places to include "any building, premises, conveyance, or other place to which the public has access" and in 2009 attempted to increase enforcement of the ban by making violators subject to a 400 Kwacha fine (approximately USD 33[3]) or up to two years in jail [8]. Despite these measures, enforcement of the smoking ban remains weak. Compliance with the ban is especially low in government and educational facilities, cafes, pubs and bars; restaurants and public transit have medium levels of compliance, while high levels of compliance are found only in healthcare facilities [7].

Advertising, Promotion and Sponsorship

Advertising, promotion, and sponsorship is loosely regulated in Zambia. The 1992 Public Health Regulations permit advertising of tobacco products on TV, radio, newspapers, billboards, posters and other direct and indirect forms of media as long as the advertisement includes the name and address of the manufacturer, the brand and logo, tar and nicotine level, and price information [8]. There are size restrictions on billboard, poster, and newspaper advertisements; and all oral or TV ads must be followed by a "Health Warning" [8]. There are no restrictions on promotion and sponsorship. The tobacco industry is described as being actively involved in corporate social responsibility (CSR) activities that target youth [8]. CSR activities are often used by the tobacco industry as part of a strategy to hook new consumers under the guise of 'doing good' for the community.

3 As of January 2019, exchange rate: ZMW 1 = US $0.083.



Retail Price

In 2016, the **share of taxes as a percent of the retail price** of the most sold brand of cigarettes was 37.3 percent, well below the FCTC-recommended amount of 75 percent of the retail price and the global average of 51.1 percent [14]. Zambia implemented its current ad valorem tax rate in 2007 (145 percent of the value of cost, insurance, and freight for imported cigarettes), and has a specific tax floor that has been adjusted once for inflation (in 2016) since its original implementation (in 2007) [15].

Warning Labels and Packaging

Text warnings are required to be placed on the front and the back of tobacco packages in Zambia, but there are no requirements for **graphic warning labels** [8], which are more effective. Zambia's existing regulations on warning labels do not meet FCTC guidelines in several areas: warnings are not required to be rotated; there are no size or content requirements; warnings do not appear in local languages; warning labels are not required to be on the bottom of packages, vary in messaging, and provide advice about cessation, and; labels do not include full-colour pictures [8].

Anti-tobacco Campaigns

There have not been any national **mass media campaigns** on the health risks of tobacco use and the benefits of cessation. Although there has been no national campaign, there are several civil society organizations in Zambia that are involved with raising awareness about tobacco control issues, including the Zambia Consumer Association (ZACA), the Zambia Anti-Smoking Society (ZASS), and the Tobacco Free Association of Zambia (TOFAZA) [8]. The Ministry of Health is working with the WHO on a radio programme to raise awareness.

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

Table 1: Summary of the current state of FCTC demand measures in Zambia, and target goals modelled in the Investment Case

FCTC Demand-Reduction Measure	Baseline	Target
Implementing and enforcing bans on smoking in all public places to protect people from tobacco smoke (Article 8)	Compliance and enforcement of the ban is reportedly low, especially in government facilities, educational facilities, cafes, pubs and bars.	Extend the existing law to include all public places and strengthen enforcement to ensure compliance.
Enacting and enforcing a comprehensive ban on all forms of tobacco advertising sponsorship and promotion (Article 13)	Tobacco adverts are permitted on all forms of media and many forms of promotion and sponsorship are allowed as long as there is a disclaimer reading "smoking is harmful to health".	Enact and enforce comprehensive bans on all forms of advertising, promotion, and sponsorship.
Increasing tobacco taxation to reduce the affordability of tobacco products (Article 6)	Taxes are 37.3 percent of the retail price of an average priced pack of cigarettes.	Scale up cigarette taxes to 75 percent of the retail price, with regular increases to outpace inflation and income growth.
Mandating that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use (Article 11)	Text warning labels are required but fail to meet most of the FCTC guidelines.	Mandate that graphic warning labels cover at least 50 percent of the package of all tobacco products, and require effective language, content, and rotation period of the labels.
Mandating plain packaging of all tobacco products (Article 11)	There is no law that currently mandates plain packaging of tobacco products.	Implement a law requiring plain packaging.
Promoting and strengthening public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns (Article 12)	There have been no national mass media campaigns undertaken in Zambia. There is no communication plan on tobacco control.	Implement national-scale, mass media campaigns that are researched and tested with a targeted audience, aired on TV and radio, and evaluated for impact.

* In this table, the baselines originate from information compiled in the Zambia Country Profile included in the WHO Report on the Global Tobacco Epidemic, 2017.

3.c Enforcement of tobacco control measures

Zambia faces challenges in enforcement of bans on smoking in public places, bans on sales to minors, and restrictions on tobacco advertisement, promotion and sponsorship. Zambia has made some progress in enforcing indoor public smoking bans by developing and implementing a smoke free manual and training law enforcement agents on how to use the manual. However, resource constraints and a fragmented tobacco control legislative framework continue to hamper stronger enforcement. Within Lusaka, environmental health inspectors can issue fines and warnings, but they lack the manpower to fully enforce tobacco control regulations. Further, indoor smoking bans are regulated under a statutory instrument which lacks clear guidelines on what constitutes a public space. While national and local police can assist in enforcing tobacco control regulation, bylaws such as the statutory instrument regulating indoor smoking often remain under-enforced. Zambia is issuing a new regional planning act, which will add a local government unit at the community level called development committees. There is discussion on including voluntary and part-time inspectors within the new act.

3.d Tobacco industry interference

The tobacco industry lobby is strong in Zambia. The industry has attempted to weaken the new, comprehensive tobacco control bill and change policies, including tobacco tax regulation, in the industry's favour. The industry has a stake in tobacco cultivation, as Zambia produces a significant amount of tobacco leaf.

3.e Fiscal measures, i.e. tobacco taxes

Increasing taxes on tobacco products is one of the most effective measures a government can take to reduce tobacco use among the population while increasing government revenue for national development priorities. The 2015 Addis Ababa Action Agenda on Financing for Development, the global financing framework for sustainable development agreed by UN Member States, specifies price and tax measures on tobacco as an important and underutilized revenue stream to finance national development efforts [16]. In Zambia, revenue from tobacco taxes could finance components of the costed Zambia National Health Strategic Plan 2017–2021, a national tobacco control strategy (should one be created), or other key development priorities such as those outlined in the Seventh National Development Plan 2017–2021.

However, Zambia's share of taxes as a percent of the retail price of the most sold brand of cigarettes was 37.3 percent in 2016, and tobacco products remain highly affordable compared to many other consumer products. Tobacco in Zambia is highly affordable compared to many other WHO FCTC Parties in Africa. Currently, there are no product-specific taxes on snuff and smokeless tobacco.

Readily available roll-your-own tobacco, often available at even lower cost than cigarettes, remains an issue in Zambia because tobacco users can substitute with these less expensive tobacco products. Scaling up taxes to represent 75 percent of the retail price, with a predominant specific excise tax component, as recommended under WHO FCTC Article 6 guidelines, would generate large health and economic gains for Zambia. Further, restructuring the tax system to be uniform across tobacco products and contain a strong specific-tax component would substantially increase the benefits of tax increases.

3.f National coordination, strategy and planning

Opportunities to strengthen tobacco control measures—raising awareness among the public; denying the tobacco industry all forms of advertising, promotion, and sponsorship; strengthening enforcement of tobacco control measures; countering tobacco industry interference and increasing tobacco taxes—all require strategic alignment and coordination between sectors of the government. Concerted coordination between government sectors and other actors underpins effective tobacco control, especially because many of the benefits and activities of tobacco control are realized in domains outside of health. This is why Parties to the WHO FCTC have an obligation under Article 5.2(a) of the Convention to establish or reinforce and finance a national multisectoral coordinating mechanism or focal points for tobacco control.[4]

The national tobacco control Focal Point is the Chief Mental Health Officer under delegation of the Permanent Secretary of Ministry of Health. Operating under agreed ToRs, this Office that falls under the Department of Health Promotion, Environment and Social Determinants in the Non-Communicable Diseases (NCDs) unit coordinates activities of key government departments, CSOs and parliament as appropriate and shall create technical working groups in programmatic areas as necessary.

The multi-sectoral approach to tobacco control embraces the Health in All Policies Initiative . There is an informal national multisectoral committee on implementation of the WHO FCTC led by the Minister of Health, but it is not functional. Zambia can strengthen financial and human resources of the tobacco control focal point and reinvigorate the multisectoral committee with the active participation of key governmental departments, civil society and parliament, as appropriate. Such a coordinating mechanism needs to operate under agreed terms of reference, must be protected from vested and commercial interests of the tobacco industry (in accordance with WHO FCTC Article 5.3) and should create technical working groups on programmatic areas, as necessary.

4 A WHO FCTC Article 5.2(a) toolkit to assist Parties in institutionalizing effective national, multisectoral coordinating mechanisms is available at: http://www.who.int/fctc/implementation/cooperation/5-2-toolkit/en/

The work plan of such a committee should be based on priority actions as outlined in a national strategy for tobacco control (WHO FCTC Article 5.1).[5] A multisectoral, costed, national strategy for tobacco control aligns sectors along common strategies, goals and targets, facilitates resource mobilization and enhances accountability and transparency. In Zambia, there is an opportunity to enhance coordination and tobacco control efforts by developing and implementing a multisectoral tobacco control strategic plan using the Needs Assessment for Implementation of the WHO FCTC in Zambia report as a situation analysis [17]. A national tobacco control strategy can be linked with different sectoral plans and to national development plans. These include Zambia's Seventh National Development Plan 2017–2021, Zambia's National Health Strategic Plan 2017–2021, the UN Development Assistance Framework (UNDAF) and WHO Country Cooperation Strategy (CCS).

5 UNDP and the FCTC Secretariat have developed a WHO FCTC Article 5.1 Toolkit on national strategy and planning, which will be officially released in 2019. Officials may request an advance copy from Dudley.tarlton@undp.org. Additional guidance on national strategy and planning includes Chapter 5 of "Building Blocks for Tobacco Control: A Handbook" available under, http://www.who.int/tobacco/resources/publications/general/HANDBOOK%20Lowres%20with%20cover.pdf and "Development Planning and Tobacco Control: Integrating the WHO Framework Convention on Tobacco Control into UN and National Development Planning Instruments", available at http://www.undp.org/content/undp/en/home/librarypage/hiv-aids/development-planning-and-tobacco-control--integrating-the-who-fr.html

4. Methods

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

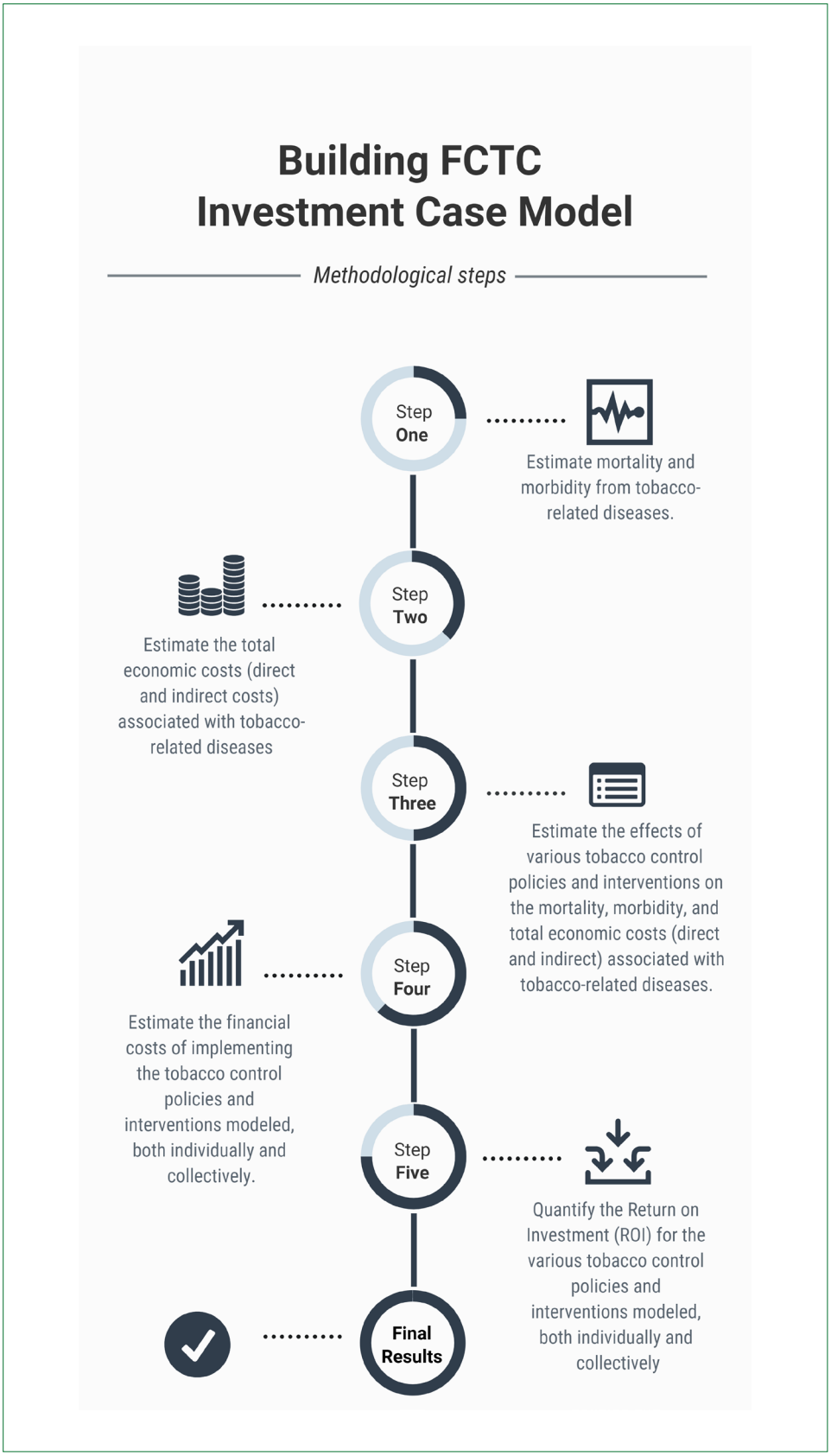
RTI International developed a model to conduct the investment case and perform the methodological steps in **Figure 2**. The tools and methods used to perform these steps are described in this section of the report. Interested readers are referred to this report's separate, forthcoming Technical Appendix for a more thorough account of the methodology (available upon request).

The FCTC Investment Case team worked with partners in Zambia to collect national data inputs for the model. Where data was unavailable from government or other in-country sources, the team utilized publicly available national, regional, and global data from sources such as the World Health Organization (WHO), World Bank database, Global Burden of Disease (GBD) study, and academic literature.

Within the investment case, costs and monetized benefits are reported in constant 2017 kwacha and discounted at a rate of three percent.

Credit: © Achim

Fig. 2: Investment Case: Methodological steps



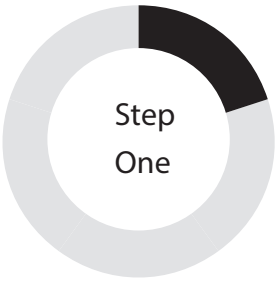
4.a Overview

The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which FCTC provisions can reduce the burden. The first two methodological steps depicted in **Figure 2** are employed to assess the current burden of tobacco use, while methodological steps 3–5 assess the costs and benefits of implementing or intensifying FCTC provisions to reduce demand for tobacco. The tools and methods used to perform these methodological steps are described in detail below.

4.b Component one: current burden

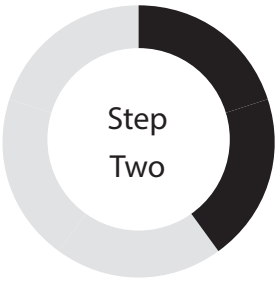
COMPONENT ONE: CURRENT BURDEN

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



Estimate mortality and morbidity from tobacco-related diseases.

The investment case model is populated with country-specific data on tobacco attributable mortality and morbidity from the 2016 Global Burden of Disease Study (GBD) [36]. The study estimates the extent to which smoking and exposure to second-hand smoke contribute to the incidence of 31 diseases, healthy life years lost, and deaths, across 195 countries.



Estimate the total economic costs (direct and indirect costs) associated with tobacco-related diseases.[6]

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

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

Direct costs — Direct costs include both tobacco-attributable public (government-paid), private (insurance, individual out-of-pocket), and other healthcare expenditures. The proportion of healthcare costs attributable to smoking was obtained from Goodchild and colleagues (2018), who estimated tobacco on average to account for 1.6 percent of all healthcare expenditures in 31 LMIC African countries [21].

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

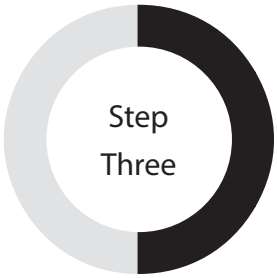
The economic cost of premature mortality due to tobacco use — Premature mortality is valued using the human capital approach, which places an economic value on each year of life lost. Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each year of life is valued at 1.4 times GDP per Capita, following the 'full income approach' employed by Jamison et al (2013) [37].

Productivity costs — Productivity costs consist of costs due to absenteeism, presenteeism, and excess work breaks due to smoking. The model incorporates estimates from academic literature on the number of extra working days missed due to active smoking (2.6 days per year) [19]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22% more impairment at work because of health problems compared to never-smokers [38]. Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take ten minutes of extra breaks per day [19].

4.c Component two: policy/intervention scenarios

COMPONENT TWO: POLICY/INTERVENTION SCENARIOS

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



Estimate the effects of FCTC tobacco control provisions on tobacco-attributable mortality, morbidity and total economic costs (direct and indirect).

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

The impacts of enforcing smoke-free air laws, graphic warning labels, mass media campaigns, implementing plain packaging, and intensifying advertising bans are derived from Levy et al (2018) [22] and Chipty (2016) [39], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013–2020 [40]. The impact of raising taxes on the prevalence of tobacco use is determined by the 'prevalence elasticity', or the extent to which individuals stop—or reduce—smoking as a result of price changes.

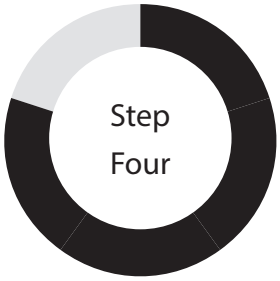
Following research by Stoklosa and colleagues (2018), the model utilizes a -0.2 prevalence elasticity within the analysis [15, 41] and calculates the prevalence reduction that would result if average annual 13 percent tax increases led to a tax share of 75 percent by 2027, followed by more gradual increases until the tax share reaches 80 percent in 2033. **Table 2** displays the impact sizes used within the investment case analysis. Additional information on their derivation can be found in the Technical Appendix.

Within the analysis, it is assumed that implementation or intensification of new tobacco control measures does not take place until year three of the analysis. With the exception of taxes—the impact of which is dependent on the timing of increases in tax rates—the full impact of the measures is phased in over a five-year period. The phase-in period follows WHO assumptions [42] that two years of planning and development are required before policies are up and running, followed by three years of partial implementation that are reflective of the time that is needed to roll-out policies, and work up to full implementation and enforcement.

Table 2: Impact size: Relative prevalence reduction over 15 years, by FCTC demand-reduction measure

FCTC demand-reduction measure	Relative reduction in prevalence of current smokers
Enact a complete ban on smoking in public places and strengthen enforcement	9.4%
Enact comprehensive bans on advertising, promotion, and sponsorship	27.41%
Increase taxes on cigarettes	20.33%
Mandate large graphic health warning on cigarette packages	15.66%
Implement plain cigarette packaging	5.87%
Run a mass media campaign to promote awareness about tobacco control	14.88%
Tobacco Package (all policies)	**64%**

* 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 PRi and PRj, (1-PR ii) x (1-PR j) [is] applied to the current smoking prevalence [22, p. 454].



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

The financial costs to the Government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [42].

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

Across these categories, the Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Tool is updated to reflect 2017 costs by updating several parameters: the USD to local currency unit (LCU) exchange rate (2017), purchasing power parity (PPP) exchange rate (2017), GDP per capita (USD, 2017), GDP per capital (PPP, 2017), population (total, and share of the population age 15+, 2017), labour force participation rate (2017), and government spending on health as a percent of total health spending (2015) [43, p. 5].

Unless government or other in-country parameters are received, data is from the World Bank database, with the exception of data on the share of government health spending, population figures, and the price of gas per liter. 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.

4.d The return on investment (ROI)

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

The return on investment (ROI) analysis measures the efficiency of tobacco control investments by dividing the monetary value of health gains from investments by their respective costs. The ROI answers the following question: for every currency unit that the government invests in tobacco control measures, how much can it expect to receive in return? ROIs were calculated for (i) each of the five tobacco control policies and interventions modeled, (ii) total economic losses and (iii) specific outcomes, such as lives saved or healthcare expenditures. Estimates from Step 3 and 4 were used to calculate ROIs for at 5- and 15-year intervals.

$$\textbf{Return on Investment} = \frac{\text{Benefits of Intervention/Policy}}{\text{Costs of Implementing Intervention/Policy}}$$

5. Results

5.a The burden of tobacco use: the health and economic costs[7]

Tobacco use undermines economic growth. In 2016, tobacco use caused 7,142 deaths in Zambia, 60 percent of which occurred in Zambians under age 70 [18].[8] As a result, Zambia lost productive years in which those individuals would have contributed to the economy as well as their families and communities. The economic losses in 2016 due to tobacco-related premature mortality are estimated at ZMW 1.4 billion.

While the costs of premature mortality are high, the consequences of tobacco use begin long before death. As individuals begin to acquire tobacco-attributable diseases (e.g. heart disease, strokes, cancer, COPD), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by tobacco use cost the government ZMW 74.2 million in 2016, and caused Zambia citizens to spend ZMW 42.5 million in out-of-pocket healthcare expenditures. OOP healthcare expenditures have significant implications for poverty reduction efforts given the relationship between OOP health spending and impoverishment. Private insurance covered an additional ZMW 37.6 million in tobacco-related healthcare expenditures. In total, smoking generated ZMW 154.3 million in healthcare expenditures in 2016.

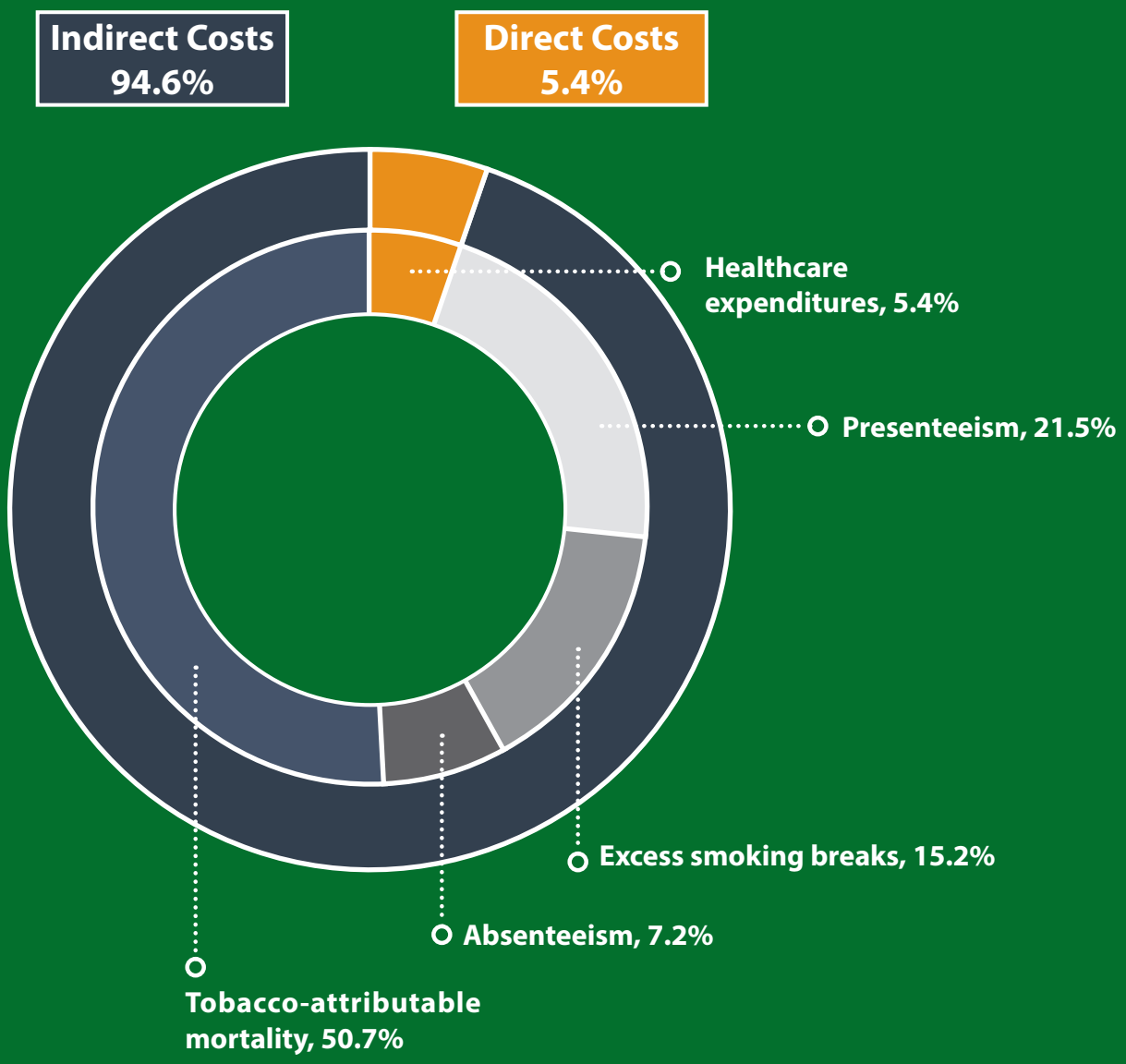
In addition to generating healthcare costs, as individuals become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). The annual costs of excess absenteeism due to tobacco-related illnesses are estimated at ZMW 204 million, and the annual costs of presenteeism are ZMW 613 million. Finally, even in their healthy years, working smokers are less productive than working non-smokers. Smokers take at least 10 minutes more per day more in breaks than non-smoking employees [19]. If 10 minutes of time is valued at the average worker's salary, the compounding impact of 498,160 Zambian employed daily smokers taking 10 minutes per day for smoke breaks is equivalent to losing ZMW 434.2 million in productive output annually.

In total, tobacco use cost Zambia's economy ZMW 2.8 billion in 2016, the equivalent of about 1.2 percent of its gross domestic product that year. **Figure 3** breaks down direct and indirect costs, and **Figure 4** and **Figure 5** illustrate the annual health losses that occur due to tobacco use.

7 In this section, the economic costs of premature mortality include the cost of premature deaths due to any form of exposure to tobacco (including of smoking, second-hand smoke, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and smoking breaks. While other forms of tobacco use may also cause losses in these categories, they are not estimated within the investment case.
8 Results extrapolated from IHME Global Burden of Results Tool and scaled based on country input.

The current burden of tobacco use: economic costs

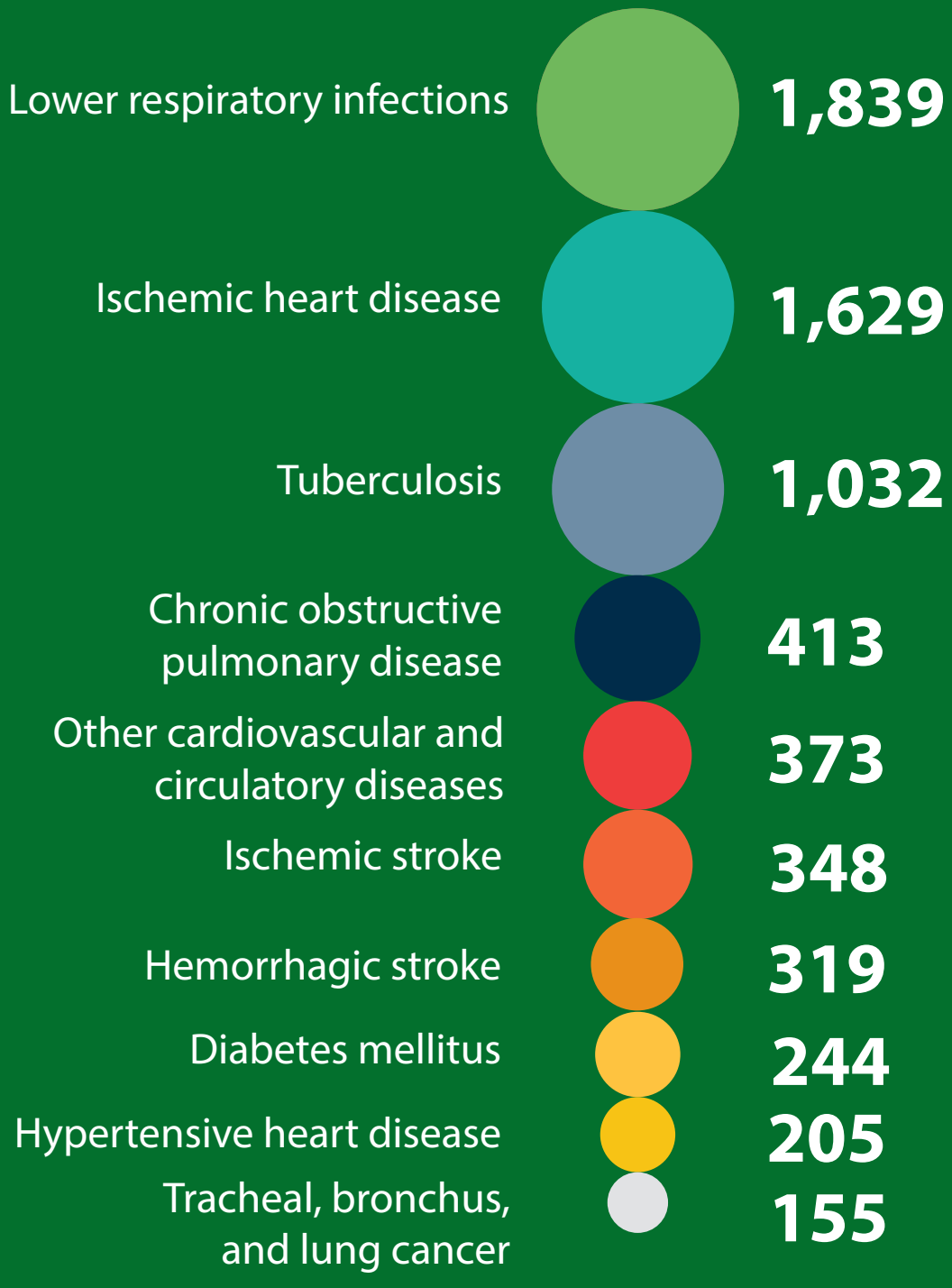
Fig. 3: Breakdown of direct and indirect costs of tobacco use



Data Source: Investment Case for Tobacco Control in the Republic of Zambia

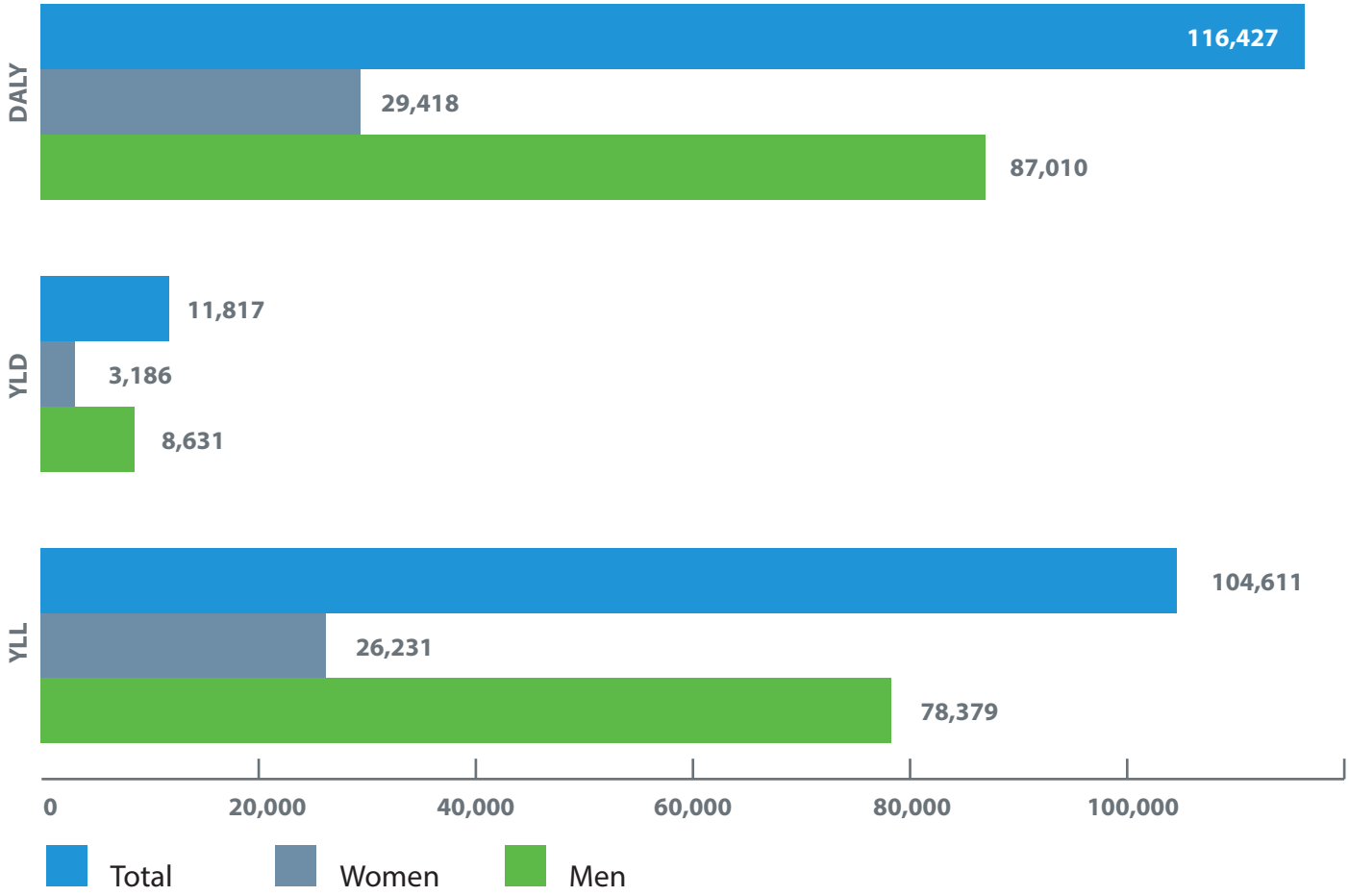
The current burden of tobacco use: health costs

Fig. 4: Tobacco-attributable deaths by disease (top 10), 2016



Data Source: IHME Global Burden of Disease [2]

Fig. 5: Tobacco-attributable DALYs, YLDs, and YLLs, 2016, by sex[9]



Disability adjusted life years (DALY); Years lived with disability (YLD); Years of life lost (YLL)

Data Source: IHME Global Burden of Disease [2]

5.b The benefits of policy measures that reduce the burden of cigarette smoking[10]

By implementing additional WHO FCTC policy measures, or intensifying already implemented ones, Zambia can secure significant health and economic returns, and begin to reduce the ZMW 2.8 billion in annual direct and indirect economic losses that occur due to tobacco use. This section presents the health and economic benefits that result from individual policy actions to:

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

10 All impacts in this section are on reducing the health or economic costs of smoking. While some FCTC demand-reduction measures (e.g., raising taxes, or graphic warning labels) may have an impact on other forms of tobacco use, we have not quantified them here. Therefore, in this section, all results refer to reductions in the smoking-attributable burden that can occur as a result of implementing FCTC demand-reduction measures.

- *Enforce bans on smoking in public places*
- *Enact comprehensive bans on all forms of advertising, promotion, and sponsorship*
- *Raise taxes*
- *Mandate that tobacco product packages carry large health warnings and messages describing the harmful effects of tobacco use*
- *Enact a law requiring plain packaging of tobacco products*
- *Raise public awareness about tobacco control issues through mass media campaigns*

In addition, it calculates the return on investment of each intervention by comparing the economic benefits against the costs to implement each of the policy measures.

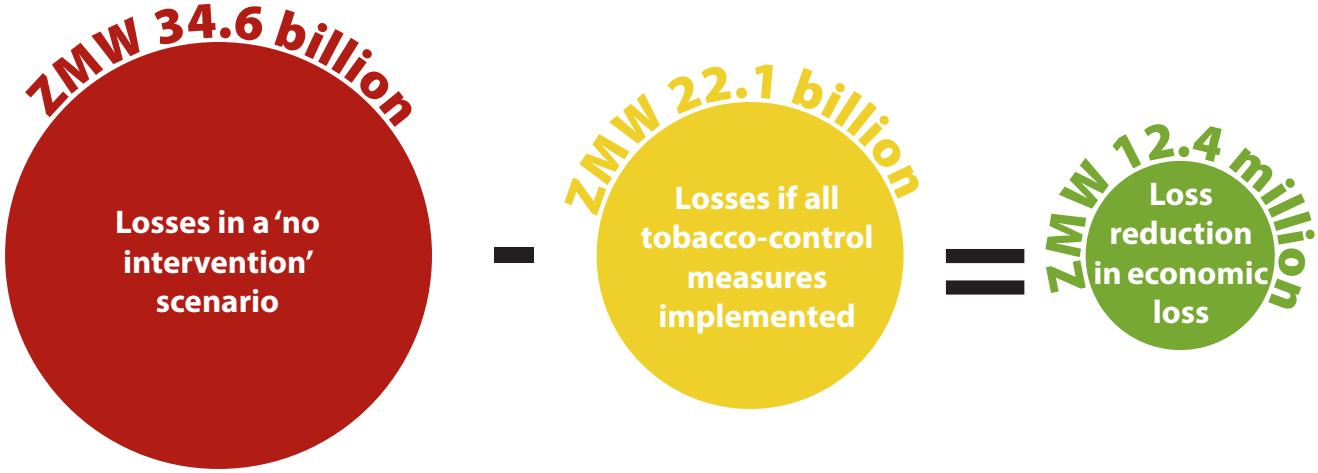
5.b.i Health benefits—Lives saved

Enacting the FCTC demand-reduction measures as a complete policy package would lower the prevalence of smoking, leading to substantial health gains. Enacting the package and ensuring that each policy measure is well enforced would save 40,349 lives from 2018–2033, or 2,690 lives annually.

5.b.ii Economic benefits

Implementing the package of interventions would result in Zambia avoiding 36 percent of the economic losses that it is expected to incur from smoking over the next 15 years. **Figure 6** illustrates the extent to which Zambia can shrink the economic losses that it is expected to incur.

Fig. 6: Tobacco-related economic losses over 15 years: What happens if Zambia does nothing, versus if the Government implements tobacco control measures to reduce demand for smoking?

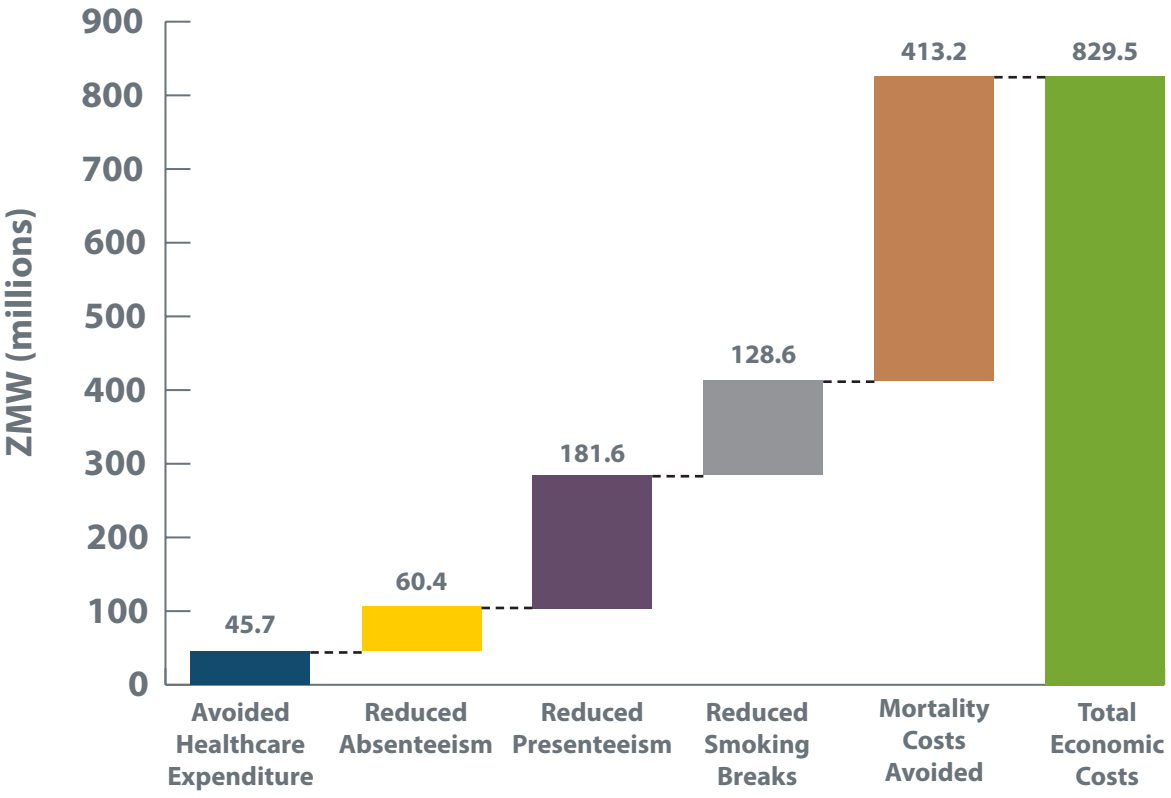


In total, over 15 years Zambia would save ZMW 12.4 billion that would otherwise be lost if it does not implement the package of tobacco measures. On average, that is the equivalent of about ZMW 829.5 million in annual avoidable economic losses.

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

Figure 7 breaks down the sources from which savings accrue. By far the largest savings result from preventing economic and social losses associated with premature mortality (ZMW 413.2 million). The next highest source of savings is derived from reduced presenteeism (ZMW 181.6 million), followed by reduced smoking breaks (ZMW 128.6 million), reduced absenteeism (ZMW 60.4 million), and averted healthcare expenditures (ZMW 45.7 million).

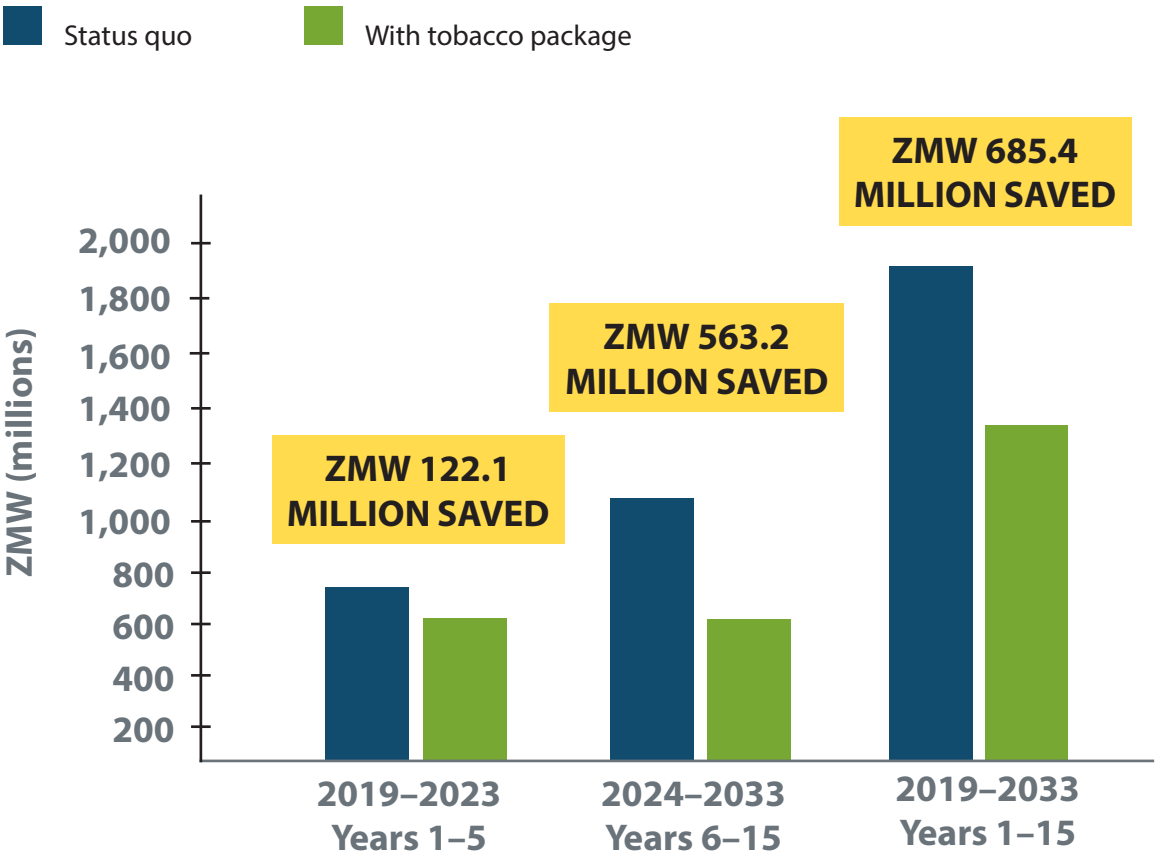
Fig. 7: Sources of economic savings as a result of implementing the tobacco policy package



Importantly, implementing the package of tobacco measures reduces medical expenditure for both citizens and for the Government. Presently, private and public annual health care expenditures in Zambia are about ZMW 9.6 billion [20], of which an estimated 1.6[11] percent [21] is directly related to treating disease and illness due to tobacco use (≈ ZMW 154.3 million).

Year-over-year, the package of interventions lowers smoking prevalence, which leads to less illness, and consequently less healthcare expenditure. Over the 15-year time horizon of the analysis, the package of interventions averts ZMW 685.4 million in healthcare expenditures, or ZMW 45.7 million annually (**Figure 8**), with 48 percent of those savings accruing to Government, 28 percent to individual citizens who would have paid out-of-pocket for healthcare, and the remainder to private insurance. Thus, the Government stands to save about ZMW 329.5 million over 15 years.

Fig. 8: Private and public healthcare costs and savings over 15 years



11 Data on the smoking attributable fraction (SAF) of healthcare expenditures in Zambia was not found. Goodchild et al (2018) report that the average SAF across 31 LMIC African countries is 1.6 percent. This figure is used in the investment case.

5.b.iii The return on investment

An investment is considered worthwhile economically if the gains from making the benefits outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco control investments by dividing the economic benefits that are gained from implementing the FCTC measures, by the costs of the investments. The ROI for each intervention was evaluated in the short-term (period of five years) and in the medium-term (period of 15 years). The ROI shows the best return on investment for each intervention, and for the full package of measures. Net benefits are a measure of the impacts of the interventions.

Table 3 displays costs, benefits, and ROIs by intervention, as well as for all interventions combined. All interventions have a positive ROI within the first five years, meaning the Government will recoup anywhere from 10 to 57 times its investment, depending on the intervention. The ROIs for each intervention continue to grow over time, reflecting the increasing effectiveness of policy measures as they move from planning and development stages, to full implementation at scale.

Table 3: Return on investment, by FCTC demand-reduction measure (ZMW)

	First 5 years (2019–2023)			All 15 years (2019–2033)		
	Total Costs (millions)	Net Benefits (millions)	ROI	Total Costs (millions)	Net Benefits (millions)	ROI
Bans on advertising, promotion, and sponsorship (FCTC Art. 13)	14.2	791.3	**56**	33.8	5,800	**173**
Raise cigarette taxes (FCTC Art. 6)	12.6	714.1	**57**	29.4	4,100	**139**
Graphic warning labels (FCTC Art. 11)	14.2	459.2	**32**	32.5	3,500	**107**
Mass media campaign (FCTC Art. 12)	19.4	443.5	**23**	56.2	3,400	**60**
Plain packaging (FCTC Art. 11 Guidelines)	14.2	174.4	**12**	32.5	1,400	**42**
Bans on smoking in public places (FCTC Art. 8)	29.6	277.7	**10**	65.5	2,100	**33**
Package (combined interventions)*	122.8	2,200	**18**	297.7	12,400	**42**

* The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PRi and PRj, (1-PR ii) x (1-PR j) [is] applied to the current smoking prevalence [22, p. 454].

Over 15 years, bans on advertising, promotion, and sponsorship would have the highest return on investment: for every kwacha invested, one can expect to see 173 kwachas in return. Raising cigarette taxes has the next highest ROI (139:1), followed by graphic warning labels (107:1), mass media campaigns (60:1), plain packaging (42:1), and smoke-free public places (33:1).

Credit: © Geoff Oliver Bugbee/Courtesy of Heifer International

6. Tobacco cultivation and alternative livelihoods

Research in countries across the globe has found tobacco cultivation to not be profitable for the majority of smallholder farmers compared to alternative crops, and very often presents unsustainable risks for farmers. Studies show that tobacco cultivation yields poor returns to labour, causes dependency and debt, imposes health risks on farmers such as green tobacco sickness and respiratory diseases, and can even contribute to both food insecurity and environmental destruction that includes deforestation as well as soil and water degradation [23].

Considering these unfavourable conditions, it is not surprising that 60 percent of surveyed tobacco farmers in Zambia are considering switching from tobacco to another crop and that 51 percent do not envision themselves growing tobacco in the next five years [24].

Promoting the economic welfare of farmers is important in Zambia, where more than 66 percent of the population relies on agriculture for their livelihoods [25]. However, the economic desirability and sustainability of tobacco farming depends on many local factors, and it is not always clear to farmers nor agriculture sector planners what the costs and benefits are for farming households or for the agricultural economy.

Articles 17 and 18 of the WHO FCTC call on Parties to protect the environment and support farmers wishing to transition to alternative livelihoods. There are several policy options and investments the Government of the Republic of Zambia can take to support tobacco farmers to transition to more profitable, healthy and sustainable livelihoods.

Sixty percent of surveyed tobacco farmers in Zambia are considering switching from tobacco to another crop and 51 percent do not envision themselves growing tobacco in the next five years [21].

6.a Tobacco's role in the economy and employment

Tobacco leaf production in Zambia between 2005 to 2016[12] has ranged between 19,000–40,000 metric tonnes [29]. About 0.5 percent of small and medium scale farmers grow tobacco in Zambia [25]. This equates to approximately 10,000 farmers engaged in tobacco cultivation, out of a total of 1.4 million agricultural households. Because of limited tobacco processing ability in Zambia, almost all tobacco is exported. Nonetheless, agricultural exports are a minor component of Zambia's economy.

These figures contrast sharply with claims by the tobacco industry that tobacco employs 450,000 Zambians and that tobacco contributes substantially to Zambia's GDP [27]. Tobacco's impact on local economies is relatively small even in regions where tobacco is grown.[13] The Eastern Province employs the most tobacco farmers, but even here, only 2.03 percent of farmers grow tobacco [25].

The Government of the Republic of Zambia viewed tobacco cultivation, processing, and manufacturing as an opportunity to encourage economic diversification and attract capital investments [28]. According to Zambia's Seventh National Development (7th NDP) Implementation Plan [29], however, tobacco constitutes a small fraction of agricultural production and export. As of 2016, ~19,000 metric tonnes (MT) of tobacco were produced, compared to 2,873,052 MT of maize, 3,417,572 MT of cassava, 475,000 MT of sugar, and 267,490 MT of soya beans.

The 7th NDP targets increases in tobacco production and export but calls into question tobacco's long-term viability due to price challenges: "The drop in the annual growth rate in area planted is attributed to the relative decline in the rate of increase in global commodity prices, which peaked in 2008. Cotton, Virginia and Burley tobacco have in particular, experienced a decline in the area planted. This is on account of pricing challenges which resulted in farmers switching to alternative crops". [30, p. 25]

Pricing challenges are bound to continue. The industry claims that global tobacco consumption is decreasing and that therefore prices for tobacco will increase, but the opposite is true in considerable part because of continually increasing supply by some newer tobacco-producing countries. While global consumption of cigarettes has been decreasing over the past decade, the decrease has been at a very slow rate. Meanwhile, global tobacco production has been increasing and prices decreasing [14]. The tobacco industry has shifted its supply chains such that it positions low-income countries against each other in a race to the bottom in the price of tobacco.

12 No data is available from 2011–2015 in the 6th and 7th NDPs.
13 Tobacco cultivation is concentrated mainly in Mukonchi in the Kabwe district of Central Province, Kalomo in Southern Province, Kaoma in Western Province, and in Eastern Province (ITC Zambia National Report, 2012–2014).

6.b Tobacco farmer income and wellbeing

In Zambia, over half of tobacco farmers report choosing to engage in tobacco farming because they view it as the only viable cash crop or because they believe it to be a highly lucrative pursuit. When asked how they began farming tobacco, 68 percent of tobacco farmers in Zambia report being recruited by representatives of tobacco companies [24]. The tobacco industry frequently offers farmers contracts that provide access to credit, guarantee having a buyer at the end of the season, and sometimes provide cash incentives. Entering into a contract may be an attractive option to farmers, who may not have access to alternative sources of credit and may use cash incentives to pay for healthcare or education for their children.

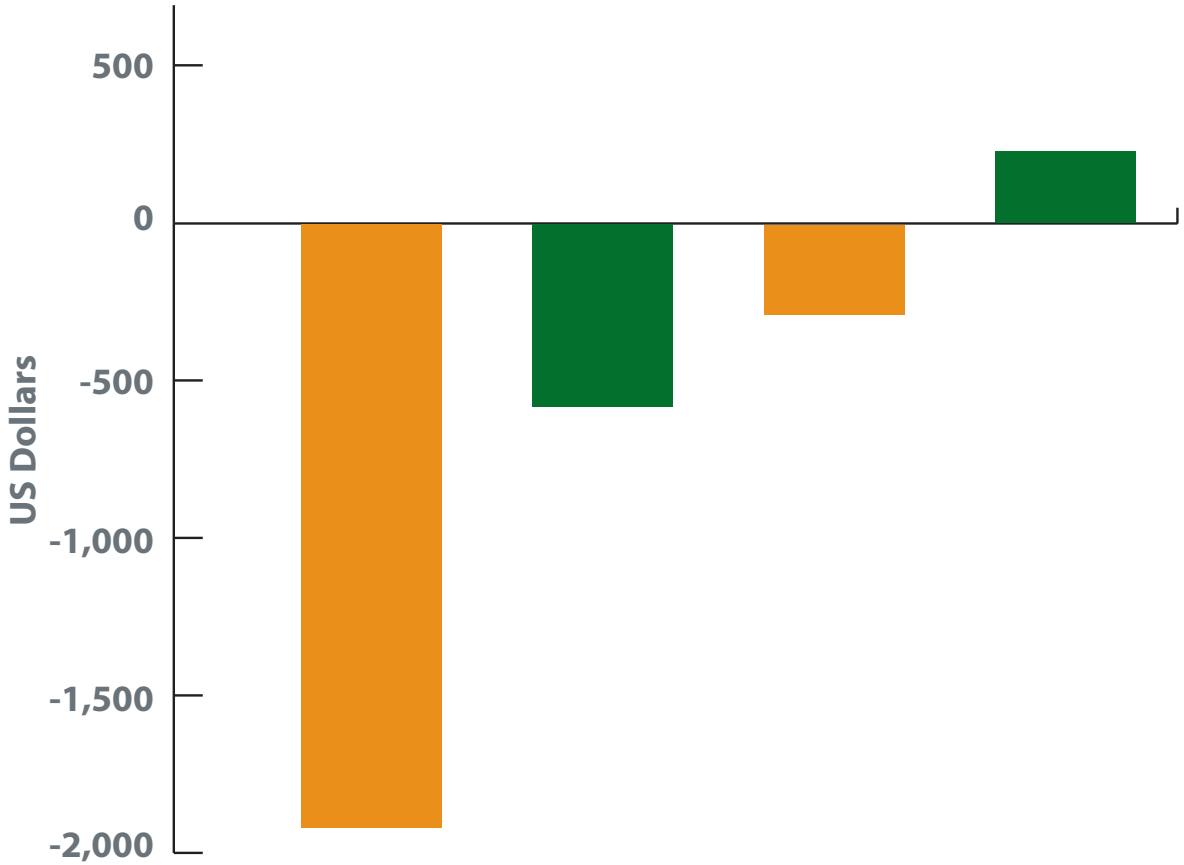
However, there is high risk associated with tobacco farming in Zambia. 72 percent of all tobacco farmers are contract farmers [21] who enter into agreements with tobacco leaf buyers in which they do not have to pay for inputs at the start of the growing season (seeds, fertilizers, etc.), in exchange for having a guaranteed buyer but not a guaranteed price at the end of the season. The costs of the inputs are deducted from the final sale price. This means that contract farmers must commit to paying the cost even while accepting the price risk. These contracts are often obscure or not made in good faith; in Zambia, most farmers were not literate enough to read their contracts and did not have a copy of the contract, which was kept by the leaf-buying firms; one third did not feel adequately informed about the terms of their contract [24].

Many farmers that enter these contracts and receive industry loans to pay for inputs are not able to pay back the loans and are obligated by leaf-buying firms to enter into contracts with those firms the following year to pay off outstanding debt. This traps farmers into farming tobacco in a perpetual cycle of debt. The leaf buyers often contribute to this, for instance by lowering the price paid to farmers. Buyers dictate both the grade and price of tobacco, so even if they are offering a fair price for Grade A tobacco, they may categorize all of a client farmer's tobacco as Grade B which is purchased at a lower price. This is not uncommon; in Zambia, over three quarters of tobacco farmers were not satisfied with how the quality of their tobacco leaf was classified by the buyer, and 86 percent were not satisfied with the prices that they received from the buyer [24].

[…] over three quarters of tobacco farmers were not satisfied with how the quality of their tobacco leaf was classified by the buyer, and 86 percent were not satisfied with the prices that they received from the buyer [22].

Further, tobacco is often thought of as a highly profitable crop, but research in Zambia indicates otherwise. Without taking the cost of household labour into account, independent tobacco farmers make an average profit of approximately USD 200 per acre, while contract farmers on average generate losses of USD 200 per acre [24]. Including in the equation even a modest estimate of household labour greatly decreases profitability (**Figure 9**). Assigning tobacco farmers the regional minimum wage for agricultural workers for their time spent cultivating tobacco results in large losses for independent and contract farmers alike [24].

Fig. 9: Profit per acre (from Goma et al., (2017). The Economics of Tobacco Farming in Zambia [24].)



	Contractor Profits including value of labour	Independent Profits including value of labour	Contractor Profits excluding value of labour	Independent Profits excluding value of labour
Profit per acre	-1915.3	-579.1	-285.6	227.3

Facing cycles of debt and low income, many tobacco farming families are forced to employ their children as unpaid labour. An assessment of child labour in tobacco farms in the Kaoma district found that one-third of tobacco farmers relied on unpaid family labour that typically involved children [31]. The other two-thirds of tobacco farmers, in addition to unpaid family labour, hired outside labour which consisted of slightly over a quarter of children. Thirty percent of children working on the farms were not attending school (during important periods of the tobacco cycle, tobacco farming leads to mass absenteism from school).

Thus, the high labour requirements of farming tobacco compared to other crops imposes significant opportunity costs on tobacco farmers and their families. Children who drop out of school, attend less often and fall behind are likely to contribute less to the economy in the future. Tobacco farmers who spend most of their day tending to tobacco cultivation have less time for other activities, including income-generating activities. In Indonesia, former tobacco farmers spent far fewer hours of the day in the fields, and many engaged in other economically productive activities that made their livelihoods more varied and robust [32].

6.c Tobacco regulation's impact on tobacco farming

There is a perception that implementation of the WHO FCTC and tobacco control measures will provoke a livelihood crisis for tobacco farmers. This view is advanced by the tobacco industry, which has been eager to promote claims regarding the profitability of tobacco farming, the importance of the tobacco industry to the economy, and the potential for tobacco farming to contribute to poverty reduction and economic development in Zambia [27]. Likewise, the industry claims that the WHO FCTC requires Parties to end tobacco production. Articles 17 and 18 of the WHO FCTC do not require an end to tobacco cultivation. Rather, they call on Parties to support famers who wish to transition from tobacco farming to livelihoods that are more profitable and sustainable.

Further, as 95 percent of tobacco leaf grown in Zambia is exported, strong tobacco control measures and decreases in tobacco use and consumption among Zambians will have little effect on tobacco farmers' livelihoods. To the contrary, however, if left unregulated, tobacco farming can negatively affect the impact of increases in tobacco taxation. Unregulated tobacco cultivation increases availability of loose leaf tobacco for roll-your-own (RYO) cigarettes and many smokers switch from manufactured to RYO cigarettes when prices go up [15]. 39 percent of Zambians smoke exclusively or primarily RYO cigarettes, mainly because they cost substantially less than manufactured cigarettes [8].

As of 2014, in Zambia, the price of manufactured cigarettes was four times higher than RYO cigarettes. This is partly because the same percentage tax rate is applied to RYO cigarettes, but

Credit: © Doug Badcock

RYO cigarettes have a significantly lower net price than manufactured cigarettes, and the tax on RYO cigarettes is lower as well. It is also partly because applying taxes is difficult on RYO because of the informal nature of this market. Minimum price policies can prevent tobacco products from being sold beneath a certain price. Much higher and uniform specific excise taxes on all tobacco products can help prices for all tobacco products, whether manufactured or RYO, to converge. If these efforts are not sufficient to bring the price of RYO closer to other tobacco products, a relatively higher specific tax may need to be applied to RYO products.

Compliance with tax requirements poses a challenge as well, particularly in the context of thousands of informal sellers [15]. Countries facing similar challenges, such as Poland, have taken steps to apply the excise tax on informal sellers thereby significantly mitigating tax evasion and stemming the use of RYO. The new tax revenues generated by this intervention are significantly more than the costs.

6.d Alternative livelihoods

Zambia is not alone in experiencing the economic and social challenges around tobacco cultivation. The experiences of other countries can provide examples for reducing the effects of tobacco farming and providing viable alternatives for tobacco farmers. For example, in Kenya a programme to help farmers switch from tobacco crops to bamboo demonstrated some success [33]. On average, non-tobacco farmers earned USD 198 more per year than tobacco farmers, a significant amount in rural areas. Furthermore, tobacco farmers spent USD 35 more per year on healthcare than non-tobacco farmers, a possible indication of the health consequences associated with growing tobacco. In Indonesia, former tobacco farmers who independently switched to other crops had average total incomes that were 25 percent higher than current tobacco farmers, generated more of their income from nonagricultural activities, dramatically decreased their input costs, and were less dependent on social assistance provided by the Government [32].

In Zambia, alternative crops such as wheat and barley show promise, with the industries and international prices growing significantly over the period 2015/2016. Over this period, Zambia also experienced a gradual increase in the production of soya beans, especially among smallholders. Production reached 267,490 MT in the 2015/2016 season, the highest in the country's history. Further, Zambia's 7th NDP aims for ambitious increases in the production of sorghum, cashew nuts, ground nuts, mixed beans, rice, palm oil, hides/skins, and livestock/fish.

Zambia could reap large rewards if these crops and products received similar investments into supply and value-chain development as tobacco. As cited in Zambia's 7th NDP: "Zambia has the potential to increase its agricultural output. Despite a favourable climate, fertile land and vast water resources, Zambia's agricultural prospects are not yet fully tapped. Arable land covers 47 percent of the country's total land but only about 15 percent of this is under cultivation. Promoting the agriculture sector is one of the Government's priorities to diversify the economy and move it away from its over-reliance on its traditional products and exports, such as copper and cobalt" [30, p. 25]

In the latest WHO FCTC progress report submitted to the Convention Secretariat in 2016, Zambia reported the results of a baseline study conducted by the Zambia Agriculture Research Institute and Tobacco Free Association of Zambia. The study identified alternative crops to tobacco cultivation in tobacco growing regions through a series of consultative meetings with small-scale tobacco farmers. Identified crops included soy beans, cotton, beans, upland rice, sunflower and vegetable production. Livestock-based interventions such as fish farming and small-scale dairy also showed potential.

Scaling up systems and opportunities that can enable tobacco farmers to switch to more sustainable, healthy, and profitable endeavours will improve farmer livelihoods. In tobacco-growing regions, the Government can take low-cost, proactive steps to support farmers who wish to switch to alternative livelihoods. Such support may include investing in agricultural extension services to inform farmers how to grow other viable cash crops, improving access to small loans for smallholder tobacco farmers to try other crops, and developing markets and improved value and supply chains for non-tobacco crops so that farmers have more opportunity to sell their products.

Immediate steps to support tobacco farming families may also include protection for farmers from predatory contracts, monitoring of the industry's classification and pricing of tobacco, and keeping children from tobacco-farming households safe and in school. Further, more strictly regulating loose leaf tobacco resulting from tobacco farming will also improve the effectiveness of tobacco taxation. Together, these efforts encourage and enable these farmers to transition out of tobacco cultivation and decrease the prevalence of tobacco smoking.

7. Conclusion and recommendations

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

In economic terms, these benefits are substantial, adding up to ZMW 12.4 billion over the next fifteen years. Further, the economic benefits of implementing and enforcing the recommended tobacco control measures in Zambia greatly outweigh the costs of implementation (ZMW 12.4 billion in benefits versus ZMW 0.3 billion in costs over 15 years).

The investment case has identified the most cost-effective tobacco control investments for Zambia. It offers policymakers a strong social and economic argument to implement core FCTC policy measures. The full benefits of the investment case are more likely to be realized if the following actions are pursued.

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1 Pass the new, comprehensive tobacco control law, The Tobacco Products and Nicotine Products Control Bill.

Zambia's 1992 Public Health (Tobacco) Regulation does not cover many areas that are critical to effective tobacco control. For example, the investment case demonstrates the additional benefits of: (a) expanding the ban on tobacco advertising, promotion and sponsorship (TAPS); (b) the ban on smoking in public places; (c) increasing tobacco excise taxes; and (d) implementing new measures such as mass media campaigns and plain packaging. The Ministry of Health can work with parliamentarians, civil society, the Attorney General's Office, and other ministries to pass the new tobacco control bill. Passing this new legislation will help Zambia fulfill its obligations under the WHO FCTC, drive sustainable development and meet its commitment to health in all policies. Further, by banning sales of single cigarettes and smaller packs, effectively taxing RYO cigarettes, and banning marketing that appeals to the younger generation, the new legislation would help protect Zambia's youth among whom tobacco use is on the rise.

2 Raise awareness among stakeholders of the true costs of tobacco and the enormous development benefits of tobacco control.

Policymakers across sectors are encouraged to share the investment case findings broadly among all sectors of government, parliament, civil society, the public, development partners and academic institutions. Doing so will strengthen public and political support for tobacco control. An advocacy strategy with key messages, for example on how tobacco control can support economic growth and improve population health, can assist policymakers in disseminating the message. To help stem the tobacco epidemic, it is imperative that Zambia raise awareness among the public, particularly among youth. The rising smoking rates among youth and the increase in tobacco use among girls cannot be ignored. Zambia needs to reduce youth accessibility to tobacco to avoid the next wave of health and economic consequences from tobacco. As recommended in the Needs Assessment for Implementation of the WHO FCTC in Zambia, the Ministry of Health can develop a communication plan that includes a sustained, national-scale mass media campaign [17]. The Ministry of Health can also work together with relevant sectors of the Government and with civil society to strengthen training for teachers, health professionals, and law enforcement, about the health, economic and environmental consequences of tobacco consumption and exposure to tobacco smoke.

3 Strengthen tobacco control coordination and planning.

The investment case demonstrates that tobacco control is a sustainable development issue for Zambia with implications for the Ministries of Finance, Education, Labour, Agriculture, Commerce, Trade and Industry, other sectors, and Parliamentarians. A joint UNDP and WHO FCTC Convention Secretariat discussion paper demonstrates how tobacco impacts virtually every SDG [34]. These findings should be used to advocate for stronger collaboration and coordination among sectors. Under the leadership of the Ministry of Health, the national coordination mechanism for tobacco control should be re-invigorated. The UNDP and WHO FCTC Convention Secretariat joint publication "Toolkit for Parties to implement Article 5.2 (a) of the WHO FCTC" provides sample terms of reference, rules of procedure, and codes of conduct, among other tools.

Further, a specific national tobacco control strategy should be developed to align with the Zambia National Health Strategic Plan 2017-2021. The Ministry of Health could use the Needs Assessment for Implementation of the WHO FCTC in Zambia and the modelled policy measures in this investment case report to develop near and medium-term national tobacco control priorities, ensuring to include other relevant ministries in the strategy development process. The Ministry of Health, Ministry of National Development Planning and other sectors could also champion integration of tobacco control into relevant national and sectoral planning and policy documents. Given the development dimensions of tobacco consumption and production, many ministries in Zambia see tobacco control as a win-win opportunity.

4 Ensure adequate funding and resourcing of tobacco control measures.

Sustainable financing is essential to implement the WHO FCTC. Using part of tobacco excise tax revenues to finance tobacco control and national development priorities, as many other countries are doing, is a viable option. Given the economic benefits of tobacco control demonstrated through this investment case, it is recommended that the Ministry of Health work with the Ministry of Finance on a sustainable financing mechanism for tobacco control. Establishing a national tobacco control programme with a multisectoral coordination mechanism and costed strategy will assist in allocating resources towards national tobacco control efforts. Consideration should be given to earmarking revenue from tax increases on tobacco products towards a national tobacco control programme, and the MoH should work with the Ministry of Foreign Affairs and international partners to mobilize resources from bi-and multi-lateral funding mechanisms to complement domestic resources.

5 Advocate for additional increases in tobacco taxes.

According to investment case findings, raising cigarette taxes delivered an impressive return of 139 kwacha in economic benefits for every 1 kwacha invested. The model assumes an average annual 13 percent tax increase that leads to a consumer price tax share of 75 percent by 2027, followed by more gradual increases until the tax share reaches 80 percent in 2033. Increasing tobacco taxes more quickly and to higher rates would lead to even higher returns on investment. Further, while this study does not take into account the potential for increased tax revenue, a previous study estimated that a ten-fold increase in the specific excise taxes on tobacco would result in an additional 400 million kwachas in annual government revenue [35].

However, cigarette tax levels in Zambia are currently far below the WHO FCTC recommended levels of taxes comprising 75 percent of price. Ministry of Health should work with the Ministry of Finance to create an enabling environment for tax increases on tobacco products including by restructuring the tax system in a way that emphasizes a specific tax component and by taxing all tobacco products uniformly, including loose leaf (typically used for RYO), snuff and smokeless tobacco. Policymakers can now cite robust, Zambia-specific evidence from this report that increasing tobacco tax rates now and on a regular basis to decrease affordability of tobacco products will result in substantial health and economic gains.

6 Strengthen enforcement.

For every year that provisions under the current tobacco control law are under-enforced, Zambia suffers avoidable health and economic losses. Many stakeholders including the Ministry of Home Affairs, Local Government, and Health expressed a need for stronger enforcement, particularly to enforce smoke-free places and prevent the sale of tobacco to and by minors. Lack of resources and the highly fragmented current tobacco control legal framework pose barriers to stronger tobacco control enforcement. It is recommended that, along with the new legislation, enforcement mechanisms are introduced with clear role assignments and coordination of the work of enforcement officers. Funds dedicated to enforcement and provisions to train officials in all relevant ministries and agencies are further steps to strengthen enforcement.

7 Assist tobacco farmers who wish to transition from tobacco to alternative livelihoods.

Tobacco represents a small percentage of total agricultural products when compared to maize, cassava, sugar, soy beans and other major crops grown in Zambia. Similarly, tobacco cultivation employs a comparatively very small number of farmers. This stands in contrast to tobacco industry claims that tobacco is a vital sector of the economy. The WHO FCTC does not require Parties to slow or stop tobacco cultivation; rather, Article 17 of the WHO FCTC calls on Parties to promote economically viable and sustainable alternatives for tobacco growers, workers, and individual sellers searching for alternatives.

In light of the poor working conditions facing many tobacco farmer families in Zambia and the high percentage who wish to switch to alternative livelihoods, the Government should adopt and implement policies and programmes that assist farmers in finding alternative livelihoods. This may include investments in agricultural extension services to inform farmers about how to grow other viable cash crops in their region and improving access to small loans for smallholder tobacco farmers to try other crops. The Ministry of Agriculture, together with other relevant Ministries and organizations, could also examine developing improved supply and value chains for non-tobacco crops.

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