

Investment Case for Tobacco Control in

Egypt

The case for scaling up
WHO FCTC implementation



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The Case for Investing in WHO FCTC Implementation in Egypt



Nearly 95,000

Egyptians die every year from tobacco-related illness.

17,000 are due to exposure to second-hand smoke.

Most tobacco-related deaths are among people younger than 70.

Tobacco costs Egypt

EGP 90 billion

every year, equivalent to

2.1% of its GDP

in 2017.



Investing now in five tobacco control measures will save over

345,500 lives

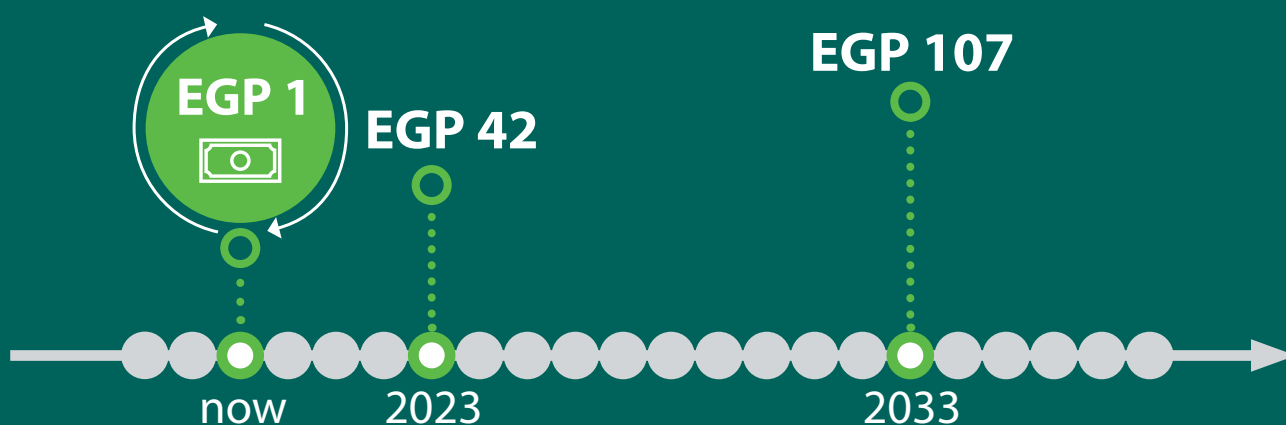
and avert

EGP 249 billion

in health costs and economic losses by 2033.



Investing in five tobacco control interventions generates a return on investment of **42:1** in averted costs and economic losses by 2023 and **107:1** by 2033.



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Contributors include Elfatih Abdelraheem, Catriona Byrne, Roman Chestnov, Luis D'Souza, Daniel Grafton, Johanna Jung, Daisy Lanvers, Emily Roberts, Roy Small, Rachael Stanton, Dudley Tarlton and Douglass Webb from UNDP; Anne-Marie Perucic from WHO; Carmen Audera-Lopez, Adriana Blanco Marquizo, Andrew Black and Rodrigo Santos Feijo from the Secretariat of the WHO FCTC; Fatimah EL-Awa, Sophia El-Gohary and Sarah Sadek from the WHO Regional Office for the Eastern Mediterranean (EMRO); and Randa Abou El Naga and Doaa Saleh from the WHO Egypt country office.

The economic modelling was performed by Brian Hutchinson and Garrison Spencer. Zsuzsanna Schreck did the graphic design and laid out the report.

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



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1. Executive summary

Overview

Tobacco is a health and sustainable development issue. Tobacco consumption and production causes early death and disease, results in high health costs and economic losses, widens socioeconomic inequalities, and impedes progress against a range of Sustainable Development Goals (SDGs).

This report presents the findings of the case for investing in tobacco control in Egypt. In line with the WHO Framework Convention on Tobacco Control (FCTC) Global Strategy to Accelerate Tobacco Control and according to the stated priorities of the Government of Egypt, it measures the costs and benefits—in health and economic terms—of implementing five priority tobacco control measures. The five measures are:

- 1 **Increase tobacco taxation to reduce the affordability of tobacco products.**
(WHO FCTC Article 6)
- 2 **Expand and enforce bans on smoking in public places to protect people from tobacco smoke.** (WHO FCTC Article 8)
- 3 **Implement plain packaging.** (WHO FCTC Guidelines for the implementation of Article 11 and Article 13)
- 4 **Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns.**
(WHO FCTC Article 12)
- 5 **Expand and enforce bans on tobacco advertising, promotion, and sponsorship.**
(WHO FCTC Article 13)

Main findings

In 2017, tobacco cost the Egyptian economy EGP 89.8 billion, equivalent to 2.1 percent of its GDP. These annual costs include a) EGP 7.3 billion million in healthcare expenditures, and b) EGP 82.5 billion in lost productive capacities due to premature mortality, disability, and workplace smoking. The productivity losses from current tobacco use in Egypt—92 percent of all tobacco-related costs—indicate that tobacco use impedes development in Egypt beyond health; multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from supporting tobacco control investments.

Every year, tobacco use kills over 94,000 Egyptians, with 74 percent of these deaths among individuals who are under the age of 70. More than 17,000 of these lives lost from tobacco use are due to exposure to second-hand smoke.

By acting now, the Government of Egypt can reduce the burden of tobacco use. The investment case findings demonstrate that enacting and enforcing five WHO FCTC tobacco-control measures would, over the next 15 years:

Avert EGP 248.9 billion in economic losses. This would include EGP 228.3 billion in economic output losses averted. The tobacco-control measures stimulate economic growth by ensuring that fewer people 1) drop out of the workforce due to premature mortality, 2) miss days of work due to disability or sickness, and 3) work at a reduced capacity due to smoking breaks and tobacco-related health conditions.

Lead to EGP 20.6 billion in savings through avoidance of tobacco-attributable healthcare expenditures. Of this, the Government would save EGP 6.2 billion in healthcare expenditures; private insurance companies would save EGP 1.6 billion in expenditures; and citizens would save EGP 12.8 billion in out-of-pocket healthcare costs.







Save 345,586 lives and reduce the incidence of disease. The recommended WHO FCTC tobacco control measures contribute to Egypt's efforts to achieve SDG Target 3.4 to reduce by one third premature mortality (under age 70) from NCDs by 2030. Enacting the WHO FCTC measures would prevent over 165,000 premature deaths from the four main NCDs by 2030, the equivalent of about 15 percent of the needed reduction in premature mortality to achieve SDG Target 3.4.

Provide economic benefits (EGP 248.9 billion) that significantly outweigh the costs (EGP 2.3 billion) of implementation. Each of the WHO FCTC provisions is highly cost-effective. Increasing cigarette taxes has the highest return on investment (1,076:1), followed by expanding and enforcing bans on tobacco advertising, promotion, and sponsorship (137:1), expanding and enforcing bans on smoking in public places (91:1), mass media campaigns (76:1), and implementing plain packaging of tobacco products (68:1).

Recommendations

The results of the Egypt FCTC Investment Case show that there is an evidence-based opportunity to reduce the health, economic and other development burdens of tobacco through preventative actions that target tobacco use. By investing now in tobacco control measures, Egypt can accelerate its efforts towards achieving the Sustainable Development Goals, which call for a one-third reduction in non-communicable diseases premature mortality by 2030.

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

-  **1 Raise awareness to change social norms around tobacco use.**
-  **2 Simplify the tobacco tax system and increase taxes on shisha and other tobacco products.**
-  **3 Reduce illicit trade.**
-  **4 Strengthen the tobacco control legislative framework and enforcement.**
-  **5 Strengthen multisectoral coordination and planning.**
-  **6 Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC Article 5.3).**

2. Introduction

Tobacco is one of the world's leading health threats, and a main risk factor for non-communicable diseases (NCDs) including cancers, diabetes, chronic respiratory disease and cardiovascular disease. In Egypt, around 14 million people use tobacco products [1], leading to an estimated 94,694 deaths every year [2], [3]. Seventy-four percent of those deaths occur among those under age 70 [2].

Alongside the cost to health, tobacco imposes a substantial economic burden. In 2012, worldwide, healthcare expenditures to treat diseases and injuries caused by tobacco use totaled nearly six percent of global health expenditure [4]. Further, tobacco use can reduce productivity by permanently or temporarily removing individuals from the labor market due to poor health [5]. When individuals die prematurely, the labor output that they would have produced in their remaining years is lost. In addition, individuals with poor health are more likely to miss days of work (absenteeism) or to work at a reduced capacity while at work (presenteeism) [6], [7].

Tobacco use may displace household expenditure that would go to fulfilling basic needs, including food and education [8]-[10], contributing to pushing some families into poverty and hunger [11], [12]. It imposes health and socio-economic challenges on the poor, women, youth and other vulnerable populations [13]. Meanwhile, tobacco production causes environmental damage including soil degradation, water pollution and deforestation [14]-[16]. Given the far-reaching development impacts of tobacco, effective tobacco control requires the engagement of non-health sectors within the context of a whole-of-government approach.

The 2030 Agenda recognizes that current tobacco use trends, in Egypt 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 30 and 70) by 2030. Accelerating progress on NCDs requires strengthened implementation of the World Health Organization Framework Convention on Tobacco Control (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.

Egypt signed the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2003 and became a Party in 2005 [17]. Since that time, Egypt has made significant progress in tobacco control by mandating that large graphic warning labels appear on tobacco packaging; banning

some forms of tobacco advertising, promotion, and sponsorship, and; banning smoking in some public places [17].

Intensifying existing policies and implementing new measures can draw the tobacco use prevalence curve further downward and generate additional health and economic gains. For example, opportunities exist to raise taxes and implement plain packing laws. Realizing the full benefits of such measures depends on concerted and coordinated efforts from multiple sectors of government as well as high-level leadership and an informed public.

In 2018, the WHO FCTC Convention Secretariat, UNDP, and WHO undertook a joint mission to Egypt to conduct an investment case as part of the FCTC 2030 Project. The FCTC 2030 Project is a global initiative funded by the UK Government to support countries to strengthen WHO FCTC implementation to achieve the Sustainable Development Goals (SDGs). Egypt is one of the 15 countries worldwide receiving this dedicated project support.

An investment case analyzes the health and economic costs of tobacco use as well as the potential gains from scaled-up implementation of WHO FCTC measures. It identifies which WHO FCTC demand-reduction measures can produce the largest health and economic returns for Egypt (the return on investment; ROI). Five key FCTC provisions were selected to model within the investment case:

- 1 Increase tobacco taxation to reduce the affordability of tobacco products.**
(WHO FCTC Article 6)
- 2 Expand and enforce bans on smoking in all public places to protect people from tobacco smoke.** (WHO FCTC Article 8)
- 3 Implement plain packaging.** (WHO FCTC Guidelines for implementation Article 11, and Article 13)
- 4 Institute mass media campaigns against tobacco use.**
(WHO FCTC Article 12)
- 5 Expand and enforce bans on tobacco advertising, promotion, and sponsorship.** (WHO FCTC Article 13)

Section 3 of this report provides an overview of tobacco control in Egypt, including tobacco use prevalence as well as challenges and opportunities. **Section 4** summarizes the methodology of the investment case (see *Annex* and *Technical Appendix*¹ for more detail). **Section 5** reports the main findings of the economic analysis. The report concludes under **Section 6** with a set of recommendations.

1 Available upon request.

3. Tobacco control in Egypt: Status and context

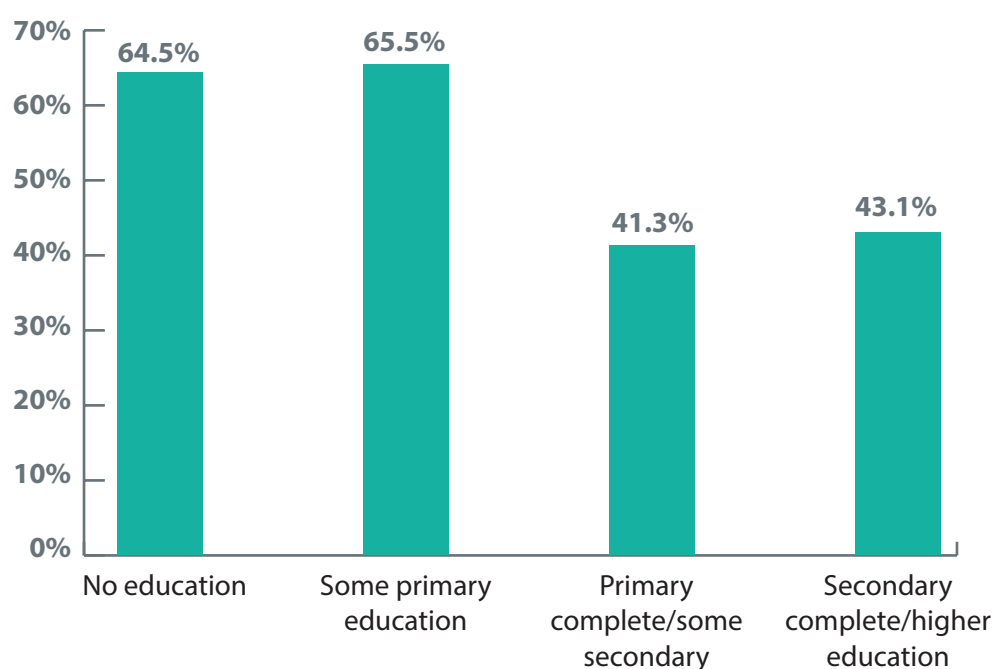
3.1. Tobacco use prevalence, social norms and awareness-raising

Smoking is ubiquitous in Egyptian society, where offering someone a cigarette can be seen as a simple greeting [18]. In Egypt, 43.4 percent of men and 0.5 percent of women age 15 to 69 smoke tobacco products [1]. Prevalence among females is likely underestimated, however, due to cultural sensitivities. The majority of tobacco users smoke every day (81.3 percent). Prevalence is also high among youth aged 13–15; 18.1 percent of boys and 8.2 percent of girls currently consume tobacco [19].

Manufactured cigarettes are the most popular form of smoked tobacco, with more than 85 percent of daily smokers consuming manufactured cigarettes [1]. However, shisha use is also prevalent. Around 4.5 percent of adults smoke shisha (8.7 percent of men and 0.1 percent of women), and more than half of shisha smokers (51.6 percent) use it in their own homes [1]. On average, men who use shisha smoke 2.8 hagar, or portions, during each session [1]. Among rural smoking populations in Egypt, smokers who only use shishas have been found to be less likely to believe that smoking can reduce life expectancy and less likely to have intentions to quit [20].

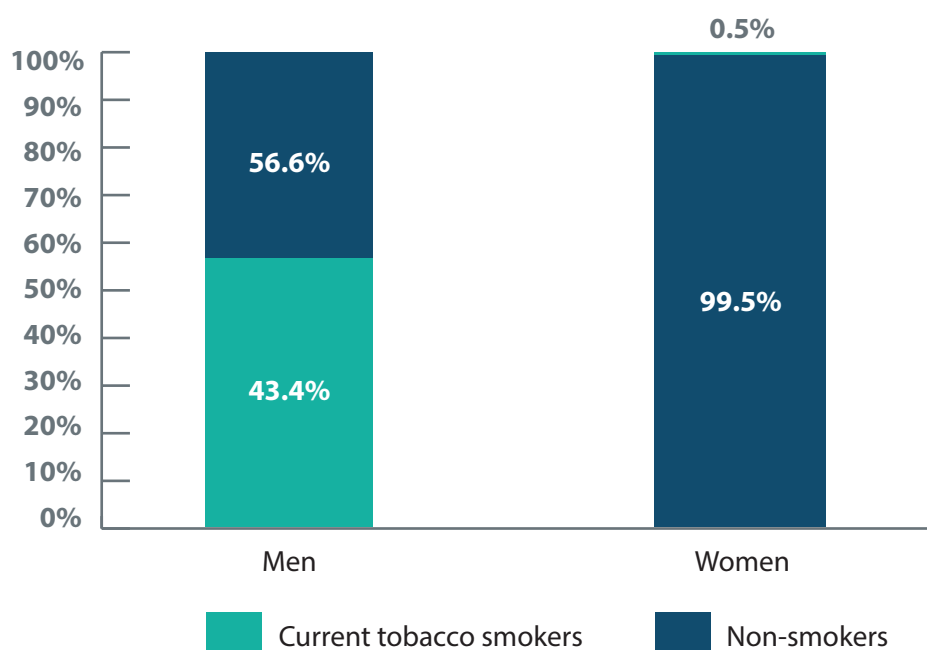
Tobacco use is associated with several demographic characteristics. For example, tobacco smoking is more prevalent among Egyptians with less education, as shown in **Figure 1** [21].

Fig. 1: Male smoking prevalence, by level of education



As is found across the globe, men smoke at higher rates, as shown in **Figure 2**, and more intensely, than females; men smoke an average of 16 cigarettes per day compared to 12 per day among women [1].

Fig. 2: Tobacco smoking prevalence, by sex



Recent evidence from consecutive STEPS surveys shows a small decrease in smoking prevalence among males. From 2012 to 2017, smoking prevalence decreased from 46 percent to 43.4 percent. A small increase has occurred among women (0.4 percent to 0.5 percent) [1, 22]. However, the overall trend in Egypt of cigarette smoking among males is upward according to the WHO Global Report on Trends in Prevalence of Tobacco Smoking, 2000–2025 [23], which takes into account several national level surveys that assess tobacco prevalence in Egypt and countries around the world.² The Eastern Mediterranean is the only WHO region where cigarette smoking prevalence among those 15 years of age and older has been increasing over the past two decades and is projected to continue to increase (see **Figure 3**). Smoking prevalence is increasing in most countries in the Eastern Mediterranean, but especially in Tunisia, Morocco, and Egypt (see **Figure 4**). These trends can be explained by a generally pro-tobacco culture in these countries and increasing acceptance of tobacco use among youth.

² Surveys included under report projections for Egypt: 2000 Demographic and Health Survey, 2002 National survey on shisha use and other risk factors for cardiovascular disease in Egypt, 2005 Tobacco use in shisha: studies on shisha smoking in Egypt, 2005–06 Non-communicable disease surveillance system, 2009 Global Adult Tobacco Survey (GATS) – Egypt, 2011–12 Egypt NCD Stepwise Survey, 2015 Egypt Demographic and Health Survey.

Fig. 3: Age-standardized fitted and projected rates of prevalence of tobacco smoking by men aged 15 and older by WHO region, 2000–2025

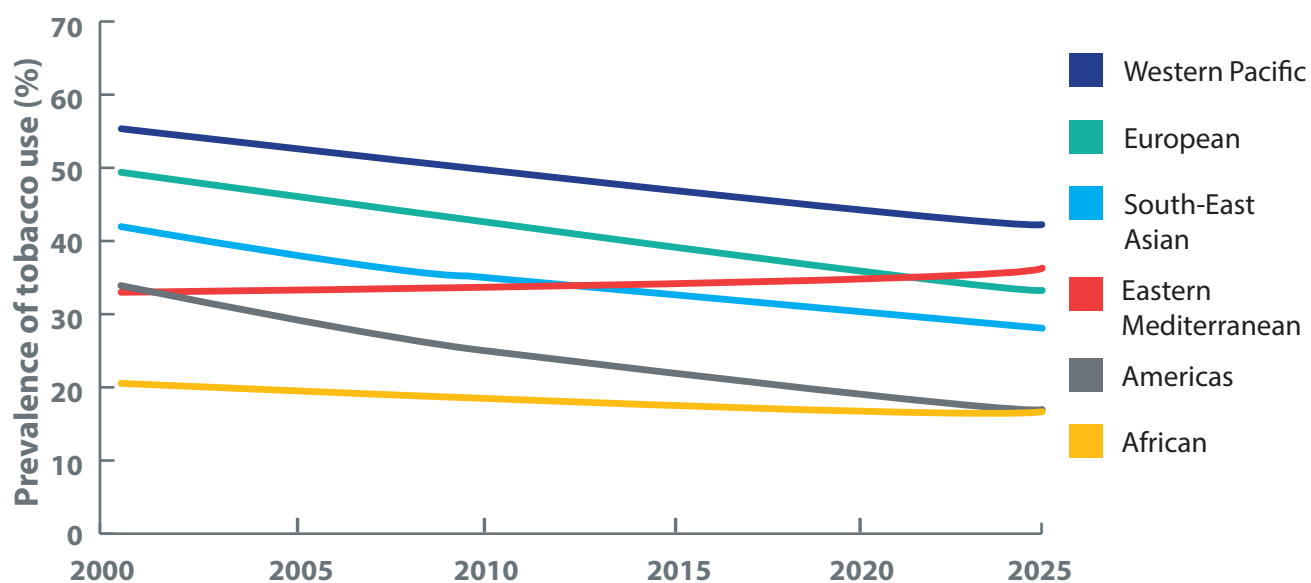
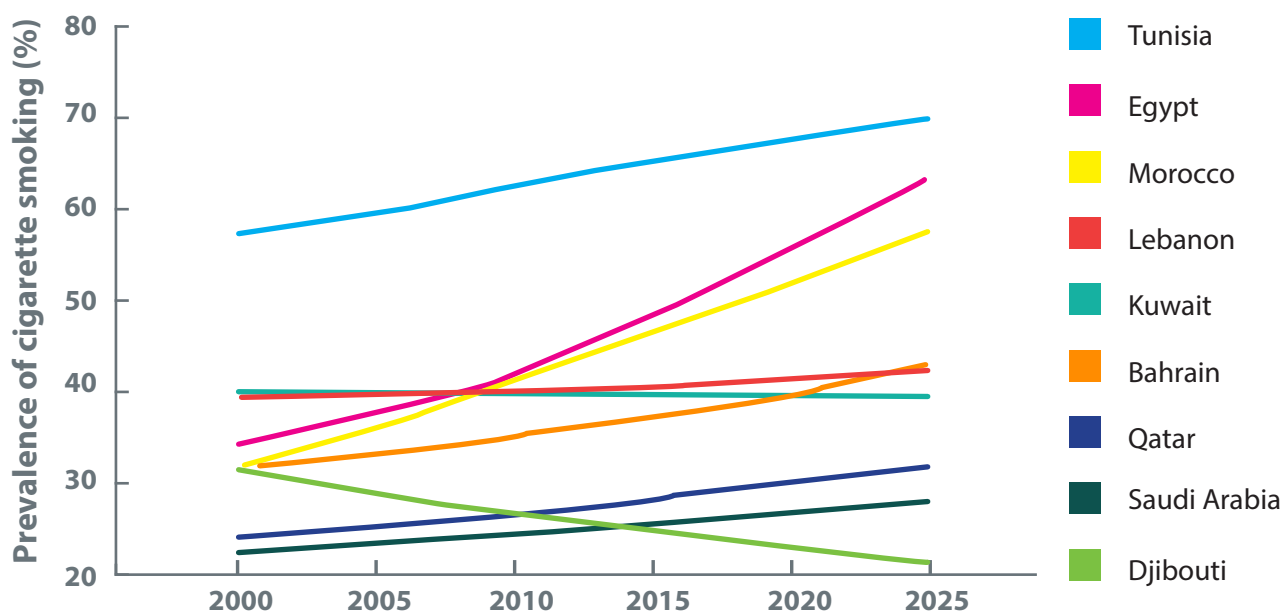


Fig. 4: Cigarette smoking prevalence trends and projections in the Eastern Mediterranean region among men aged 15 and older, 2000–2025



3.2 Tobacco control regulatory measures

Strong fiscal and regulatory measures can powerfully influence norms by signalling to the population that tobacco use is harmful. Egypt's Law No. 52 of 1981 briefly addresses smoke-free policies; advertising, promotion and sponsorship; packaging and labeling; and penalties. Several subsequent laws, bylaws, and decrees build on and supplement Law No. 52, such as Law No. 4 of 1994, which addressed smoke-free policies, and Decree No. 465 of 2007, which established the Tobacco Control Department as an administrative body within the Ministry of Health and Population [28].

To further protect the health of its population, Egypt can honor its obligations as a member of the WHO FCTC by strengthening existing policies and implementing additional measures proven to reduce demand for tobacco. Stakeholder interviews with representatives of the Ministry of Justice advised it would be best to unify tobacco control laws under one comprehensive law that contains previous regulations and new provisions in order to comply with the obligations under the Convention.



Taxation and Pricing

In 2018 Egypt had a total tax rate on cigarettes that accounts for 77.2 percent of the retail price of the most sold cigarette brand (Cleopatra). This includes a mixed excise tax with a uniform 50 percent ad valorem component on retail price, and a three tiers specific component representing 21.9 percent of the retail price of the most sold brand. There is also a 5.3 percent in other taxes. Excise tax is high and it represents more than 70 percent of the retail price in line with WHO FCTC guidelines. However, in order to decrease consumption effectively and continuously, Egypt should increase its excise tax regularly to make cigarettes less affordable. Egypt should also return to the simple one-tier unified tobacco tax system (for the specific excise component) which was in place prior to 2014, and which is in line with the WHO recommended guidelines. A uniform tax is simpler to administer and it removes incentives from the industry to avoid taxes.

In addition, not all tobacco products in Egypt are taxed in a comparable way. The total tax rate for shisha tobacco is 39.4 percent of the retail price of the most sold brand of shisha tobacco (Al-Fakher) [29]. This is well below the level recommended by WHO FCTC. Raising the tax rates for shisha and other type of tobacco to similar levels as cigarettes is key. This also represents a significant opportunity to use tobacco control to provide revenue, a priority given the emphasis in Agenda 2030 on increasing domestic financing for sustainable development. The investment case examines the impact of increasing the price of a pack of cigarettes from EGP 16 to EGP 61.5 over 15 years, by 2033 (an increase of approximately US\$2.75).



Smoking Ban in Public Places

Egypt has enacted a ban on smoking in all public places including healthcare facilities, educational facilities, universities, government buildings, workplaces, and public transit. However, smoking areas are allowed in indoor private work places, shopping malls, airports, and other public places. Further, experts rate compliance with existing bans as “low”. For instance, according to the 2014 Global Youth Tobacco Survey [19], 70 percent of students saw someone smoking inside the school building or outside on school property. There are no funds dedicated for enforcement [29].



Graphic Warning Labels

In order to inform consumers about the harmful effects of tobacco, Egypt mandates that tobacco packaging carry four rotating graphic warning labels that cover 50 percent of packaging [29]. Misleading terms which imply the product is less harmful than other similar products, such as “low tar”, “light”, “ultra-light”, or “mild” are banned on tobacco packaging and labeling. The law includes requirements for the size, language, and rotation of text and graphic warning labels and established fines for violations.

Egypt has succeeded to be one of the top achieving countries in the Eastern Mediterranean Region regarding compliance with Article 11, and this intervention is therefore not modeled in the investment case. Nevertheless, there are additional characteristics to further enhance the effectiveness of health warning labels such as: placing warnings at the top of the tobacco pack, not obscured in any way, including by required markings such as tax stamps; stating that the warnings do not remove or diminish the liability of the tobacco industry; banning figurative or other signs, including colours or numbers, as substitutes for prohibited misleading terms and descriptor; banning descriptors depicting flavours; banning the display of quantitative information on emission yields (such as tar, nicotine and carbon monoxide); mandating the display of qualitative information on relevant constituents and emissions of tobacco products; and mandating expiry dates on tobacco packaging.



Plain Packaging

Neutral colors, without branding and logos—is currently not mandated [29]. Plain packaging of tobacco products would enhance the impact of health warnings and eliminate the possibility of using the package as a vehicle for advertising.



Tobacco Advertising, Promotion and Sponsorship

In 2017, the Noncommunicable Diseases Department under the Ministry of Health and Population in collaboration with the Ministry of Youth and Sports initiated awareness raising campaigns “Your Health is Your Life” in eight Governorates covering rural and urban areas. Furthermore, the National mHealth Programme, passed a health education message to 175,000 diabetics about smoking (stop smoking right now to prevent diabetes complications). These messages are included in public screening campaigns as well. Tobacco control is also included in the form of offering cessation advice in mTB-Tobacco Programme for tuberculous smoker patients.

However, the implementation of the Convention is not explicitly incorporated in these awareness raising activities, and the Government of Egypt has not sponsored a nation-wide anti-tobacco mass media campaign within the past three years with a duration of at least three weeks [29]. Launching a best-practice mass media campaign would promote and strengthen public awareness about tobacco control issues and the harms of tobacco use.



Anti-tobacco Awareness Campaigns

Egypt has enacted a ban on many forms of tobacco advertising and promotion. However, there are compliance issues with existing bans, especially in the entertainment media. According to the 2014 Global Youth Tobacco Survey [19], 64.3 percent of students noticed tobacco advertisements or promotions when visiting points of sale, 7.8 percent students own something with a tobacco brand logo on it, and 91.4 percent of students saw someone using tobacco on television, videos or movies. Additionally, there are no regulations on tobacco sponsorship, Corporate Social Responsibility (CSR) activities, tobacco product displays at point of sale, or on internet sales of tobacco products [29].

Table 1 summarizes the existing state of FCTC demand-reduction measures and compares them against the WHO FCTC target goals for each measure. Reaching target goals can further reduce tobacco consumption.

Table 1: Summary of the current state of WHO FCTC demand-reduction measures in Egypt, and target goals

Tobacco Policy	Baseline	Target
Increase tobacco taxation to reduce the affordability of tobacco products. (Article 6)	Tax share equivalent to 77.2 percent of the retail price of the most sold brand of cigarettes and 39.4 percent of the retail price of the most sold brand of shisha tobacco.	Further reduce affordability of tobacco by increasing specific excise taxes on cigarettes and harmonize taxes across all forms of tobacco, including shisha tobacco. Unify the current tiered tax system under a single tier to reduce the possibility of consumers switching to cheaper brands and products. Implement regular tax increases to outpace inflation and income growth.
Implement and enforce bans on smoking in all public places to protect people from tobacco smoke. (Article 8)	Smoking is banned in all public places. There are no funds dedicated to enforcement and compliance with the law is low.	Expand the ban on smoking in indoor public places to include cafes and restaurants and ban designated smoking areas. Increase enforcement of existing bans.
Mandate that tobacco products and packaging carry large graphic health warnings describing the harmful effects of tobacco use. (Article 11)	Graphic warning labels are required to cover 50 percent of tobacco packaging and rotate every two years.	Currently meeting the WHO FCTC size and rotation obligations.
Mandate plain packaging of all tobacco products. (Guidelines for the implementation of Article 11 and Article 13)	No law mandates plain packaging of tobacco products.	Implement a law or decree requiring plain packaging.
Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns. (Article 12)	Egypt included tobacco as a priority topic under the healthy lifestyle campaign of the 2018/2019 "100 Million Health Presidential Initiative". The Ministry of Social Solidarity conducted a televised anti- tobacco campaign led by Mohamed Salah, the famous football player in 2019.	Implement a nationwide anti-smoking mass media campaign that is researched and tested with a targeted audience, and evaluated for impact.
Enact and enforce a comprehensive ban on all forms of tobacco advertising sponsorship and promotion. (Article 13)	Advertising is banned on major direct forms of media (e.g., TV, radio, internet, billboards, print), as are most forms of indirect promotion. Some forms of indirect advertising and promotion are still very prevalent, including scenes of tobacco smoking in TV and cinema. There are no regulations on tobacco sponsorship, Corporate Social Responsibility (CSR) activities, tobacco product displays at point of sale, or on internet sales of tobacco products.	Expand bans and fully enforce on tobacco advertising and promotion to include bans on all forms of sponsorship, product displays at points of sale, and internet sales. Regulate or ban "corporate social responsibility" efforts by the tobacco industry.

* Information in this table is derived from the WHO Report on the Global Tobacco Epidemic: Country profile – Egypt [29]

3.3 Tobacco use and the COVID-19 pandemic

The global COVID-19 pandemic is straining health systems worldwide, and the economic impact of the outbreak is immense. People living with pre-existing NCDs, including those caused by tobacco use, are likely more vulnerable to becoming severely ill with COVID-19 [30]. A review of the evidence conducted by WHO by 12 May 2020 concluded that, at the time, the available evidence suggested that smoking is associated with increased severity of disease and death in hospitalized COVID-19 patients. However, more research needs to be conducted. Well-designed population-based studies are, however, necessary to address questions about hospitalization, COVID-19 severity and the risk of infection by SARS-CoV-2 among smokers [31].

3.4 National coordination, strategy and planning

Egypt established a Tobacco Control Department and a focal point for tobacco control within the Ministry of Health and Population, as well as tobacco control units in health directorates of all Egyptian Governorates. The Tobacco Control Department has three full time staff and coordinates with focal points in health directorates to implement tobacco control measures. A multi-sectoral national coordination mechanism (NCM) to implement the WHO FCTC was established by a ministerial decree, but could not be operationalized, as the NCM included ministers as focal persons.

In the new multisectoral national tobacco control strategy 2018–2023, reviving the NCM is a key priority. Among other areas, the strategy highlights protecting people from tobacco smoke; enforcing bans on tobacco advertising, promotion and sponsorship; raising tobacco taxes; and protecting public health policy, including tobacco control policies, from tobacco industry interference. The Noncommunicable Diseases Department in the Ministry of Health and Population included tobacco control as a main component in its activities according to the Global Action Plan for NCDs. The department also developed an action plan that includes a 10 percent target of relative reduction in tobacco use by 2021.

3.5 Tobacco industry interference

The cigarette market is dominated by the Eastern Tobacco Company (ETC), which holds over 70 percent of the market share, and is slowly transitioning from a government monopoly to a private company (10 percent stock share). ETC is the sole producer of cigarettes in Egypt and other companies have licenses to produce through ETC (e.g. Philip Morris International, British American Tobacco, and Japan Tobacco International, Imperial Tobacco).

In the Global Tobacco Industry Interference Index,³ Egypt scored 63, ranking 56 out of 90 countries, roughly in the middle of country analysed (in a system where a lower the score indicates less interference) [32].

³ The Global Tobacco Industry Interference Index measures efforts by governments to address tobacco industry interference:
13 It is accessible at <https://globaltobaccoindex.org/>

The tobacco industry lobby is strong in Egypt. The industry has been initiating official requests to lift the ban on tobacco growing in the country. The current tobacco control law does not serve to protect public health policies from interference by the tobacco industry and its affiliates. As such, Egypt should, in line with WHO FCTC Article 5.3 guidelines:

- ban the industry and their front groups from all committees that decide or discuss public health related topics;
- develop a code of conduct that regulates the interaction between civil servants and the industry and their front groups;
- put in place laws to ensure preferential treatment is not given to the tobacco industry;
- mandate disclosure of all interactions made with public officials;
- ban all forms of corporate social responsibility and sponsorship pursued by the industry;
- ensure that the tobacco industry is not involved in the drafting, endorsement or implementation of tobacco control legislation or policy;
- support WHO FCTC Article 5.3 education and training among governmental employees at all levels.

3.6 Enforcement

Enforcement of tobacco control laws remains a challenge in Egypt, especially enforcement of smoking bans in public areas. Train and subway stations are one of the few public areas where smoking bans are enforced and where compliance is high.⁴ There are no funds dedicated for enforcement of the tobacco control laws, and roles and responsibilities of different sectors are not clearly delineated. Currently, the Ministry of Interior is designated to enforce smoke-free public places, but it does not conduct regular inspections and must receive a report or complaint to be able to enter any establishment.

Further, the judiciary system has delegated enforcement of certain tobacco control measures to the Tobacco Control Department in the Ministry of Health and Population, but the department does not have capacity to enforce. There is also no system in place and delegated authorities to collect fines. The Consumer Protection Agency responds to violations of bans on tobacco advertising and promotion (sponsorship is currently not banned), although violations are still present, especially in the film industry.

Cultural acceptance of smoking indoors poses perhaps the biggest obstacle to enforcing smoking bans. This is especially true in government premises and workplaces, where, as one stakeholder shared with the UN delegation, smoking bans are enforced by the work-place culture modeled by individuals higher in the organizational hierarchy: *"My boss is a smoker, and I can't apply rules because the directors are smokers also. I can't tell people not to smoke in our department."*

⁴ Smoking bans were originally strictly enforced and quickly became self-enforcing. I.e. not smoking in subway and train stations and in wagons became akin to a cultural norm.

4. Methodology

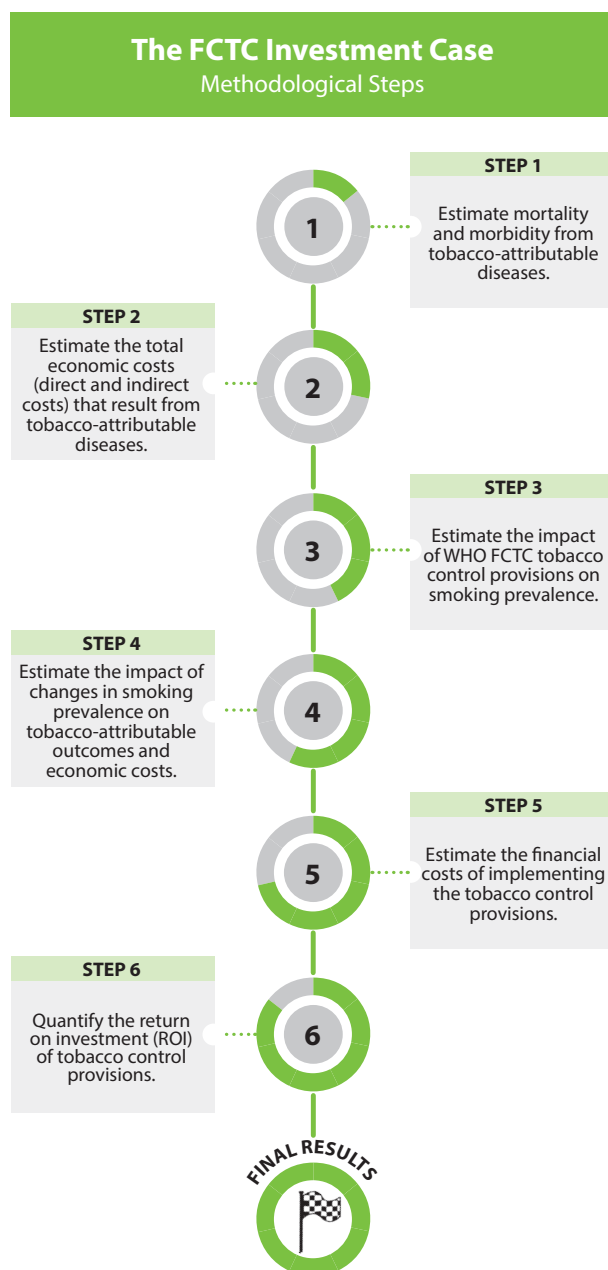
The purpose of the investment case is to quantify the current health and economic burden of tobacco use in Egypt (in the context of tobacco control measures that are currently in place), and estimate the impact that implementing new tobacco control measures—or intensifying existing ones—would have on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

A static model, incorporating a population-attributable fraction approach, was developed to conduct the investment case and to perform the methodological steps in **Figure 5**. The tools and methods used to perform these steps are described in this report's Annex. Interested readers are also referred to this report's separate *Technical Appendix* for a more thorough account of the methodology.⁵

The investment case team worked with partners in Egypt to collect national data inputs for the model. Where data was unavailable from government or other in-country sources, the team utilized publicly available national, regional, and global data from sources such as the World Health Organization (WHO), the World Bank database, the Institute for Health Metrics and Evaluation's (IHME) Global Burden of Disease (GBD) study, and academic literature.

Within the investment case, costs and monetized benefits are reported in constant 2017 Egyptian pounds (EGP) and discounted at an annual rate of 3 percent.

Fig. 5: Building the FCTC investment case



⁵ Available upon request

5. Results

5.1 The burden of tobacco use: Health and economic costs⁶

Tobacco use undermines economic growth. In 2017, tobacco use caused an estimated 94,694 deaths in Egypt, 74 percent occurring among those under 70 years. These deaths amount to 1,767,772 years of life lost (YLL), which are lost productive years in which many of those individuals would have contributed to the workforce. The economic losses in 2017 due to tobacco-related mortality are estimated at EGP 67.2 billion.

While the costs of premature mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g. heart disease, strokes, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the Government EGP 2.2 billion in 2017 and caused Egyptian citizens to spend EGP 4.5 billion in out-of-pocket (OOP) healthcare expenditures. Private insurance and non-profit institutions serving households spent EGP 0.6 billion on treating tobacco-attributable diseases in 2017. In total, smoking generated EGP 7.3 billion in healthcare expenditures.

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). In 2017, the costs of excess absenteeism due to tobacco-related illness was EGP 2.5 billion and the costs of presenteeism due to cigarette smoking were EGP 7.6 billion.

Finally, even in their healthy years, working smokers are less productive than non-smokers. Smokers take an estimated ten additional minutes per day in breaks than non-smoking employees [33]. If ten minutes of time is valued at the average workers' salary, the compounding impact of 9 million employed smokers taking ten minutes per day for smoke breaks is equivalent to losing EGP 5.3 billion in productive output annually.

In total, tobacco use cost Egypt's economy EGP 89.8 billion⁷ in 2017, or about 2.1 percent of Egypt's 2017 GDP. **Figure 6** breaks down direct and indirect costs. **Figure 7** and **Figure 8** illustrate the annual health losses that occur due to tobacco use.

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 pinpoint those losses.

⁷ Component parts may not add up exactly to 89.8 billion due to rounding.

Fig. 6: Breakdown of the share of direct and indirect economic costs (EGP billions) in 2017

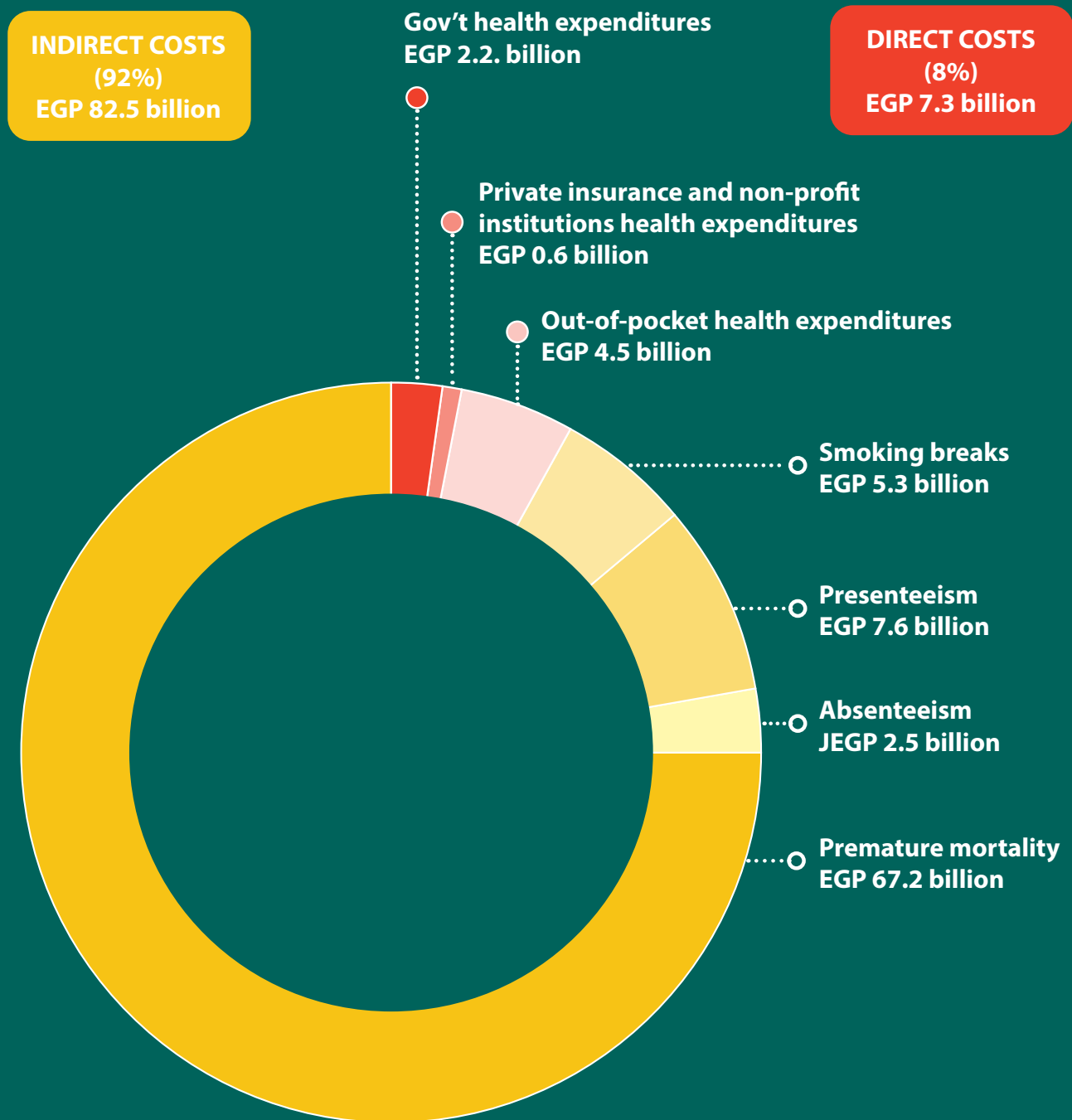


Fig. 7: Tobacco-attributable deaths by disease, 2017 (Source: Results are from the IHME Global Burden of Disease Results Tool. Other diseases include asthma, leukemia, esophageal cancer, colon and rectum cancer, aortic aneurysm, larynx cancer, peptic ulcer disease, pancreatic cancer, stomach cancer, tuberculosis, lip and oral cavity cancer, breast cancer, gallbladder and biliary diseases, prostate cancer, other pharynx cancer, kidney cancer, atrial fibrillation and flutter, peripheral artery disease, nasopharynx cancer, cervical cancer, multiple sclerosis, and rheumatoid arthritis.)

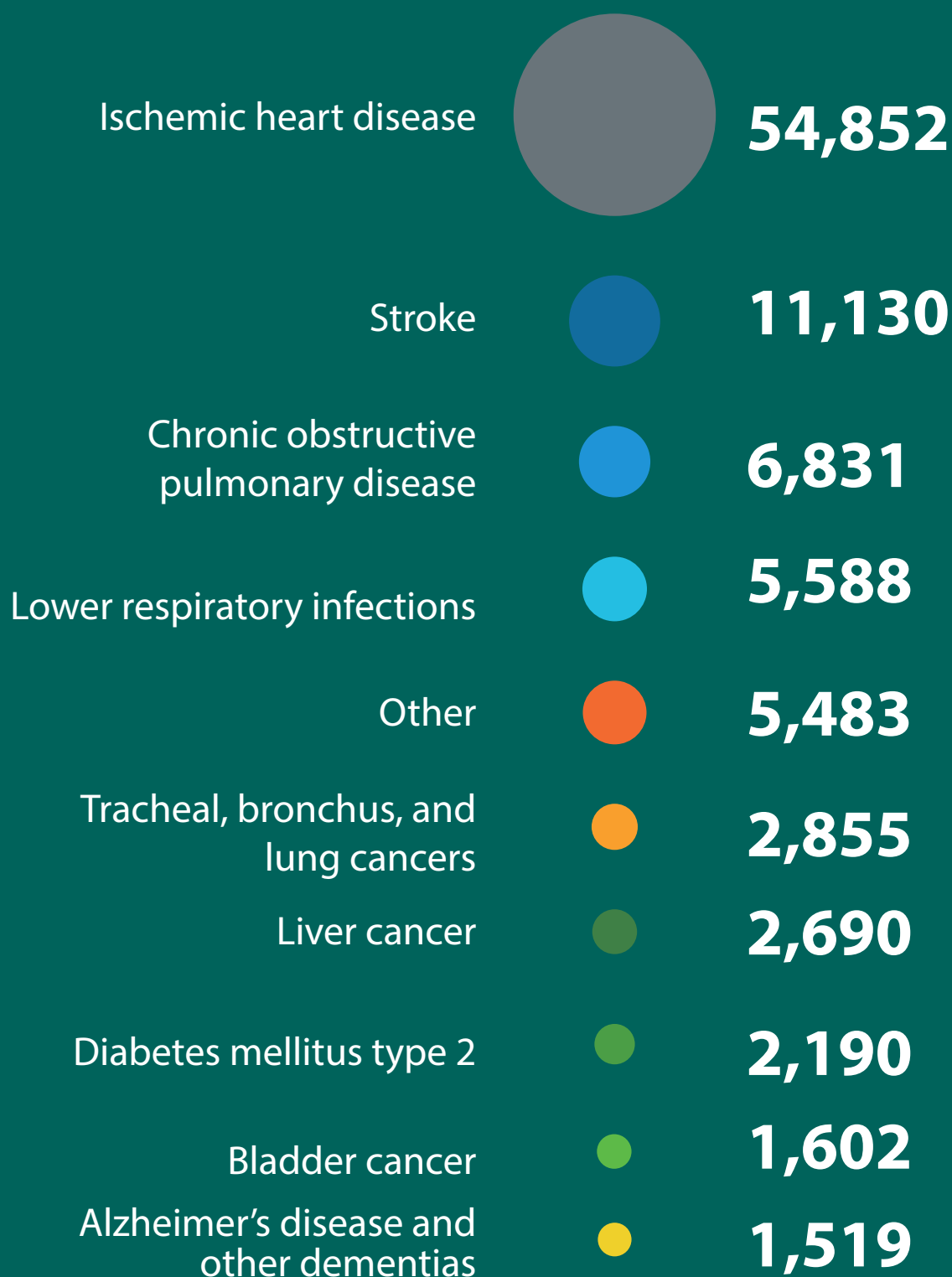
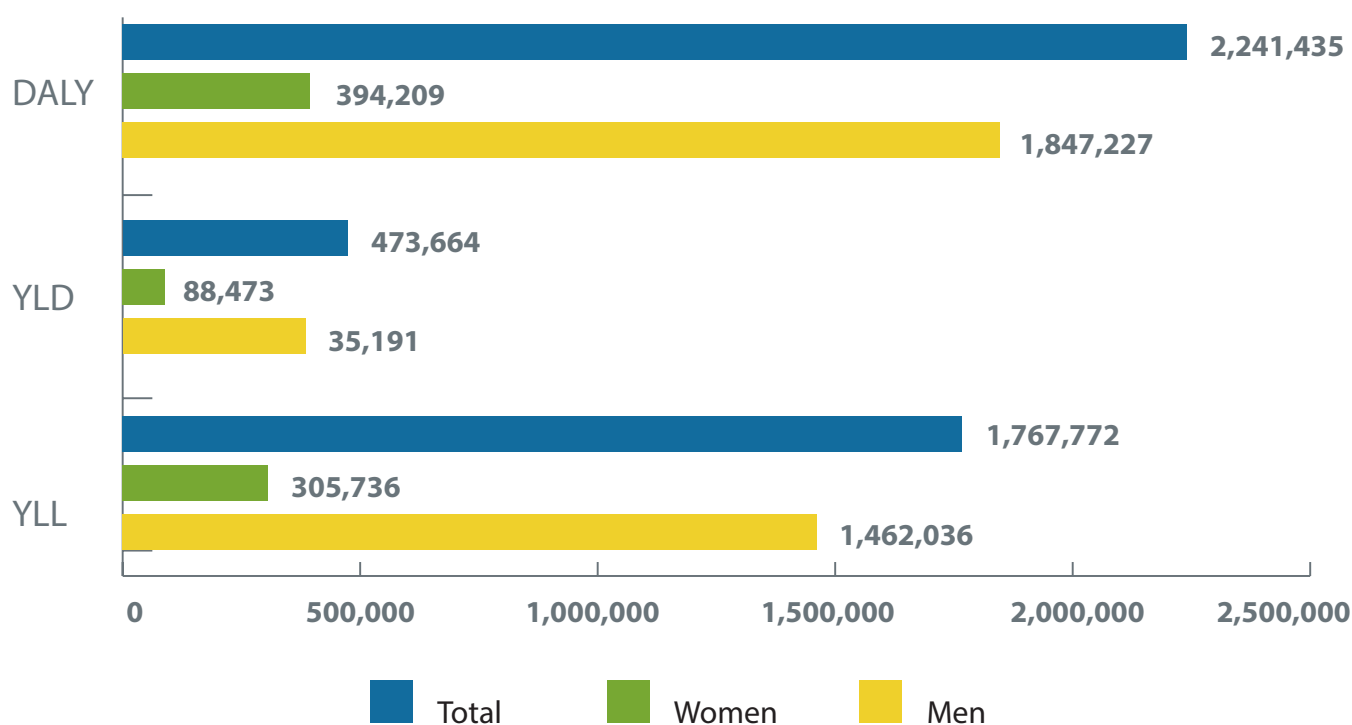


Fig. 8: Tobacco-attributable DALYs, YLDs, and YLLs, 2017, by sex⁸

5.2 Implementing policy measures that reduce the burden of tobacco use

By implementing new WHO FCTC policy measures, or intensifying implementation of existing ones, Egypt can secure significant health and economic returns, and begin to reduce the EGP 89.8 billion in annual direct and indirect economic losses that occur due to tobacco use.

The next two sections present the health and economic benefits that result from five WHO FCTC policy actions to: 1) increase tobacco taxation to reduce the affordability of tobacco products; 2) expand the ban on smoking in public spaces, and increase enforcement; 3) implement plain packaging of tobacco products; 4) institute best-practice national anti-tobacco mass media campaigns to increase awareness about the harms of tobacco use, and; 5) expand and enforce bans on tobacco advertising, promotion, and sponsorship.

5.3 Health benefits—Lives saved

Putting in place the full package of tobacco-control measures (inclusive of all five of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains. Specifically, enacting the package would reduce the prevalence of cigarette smoking by

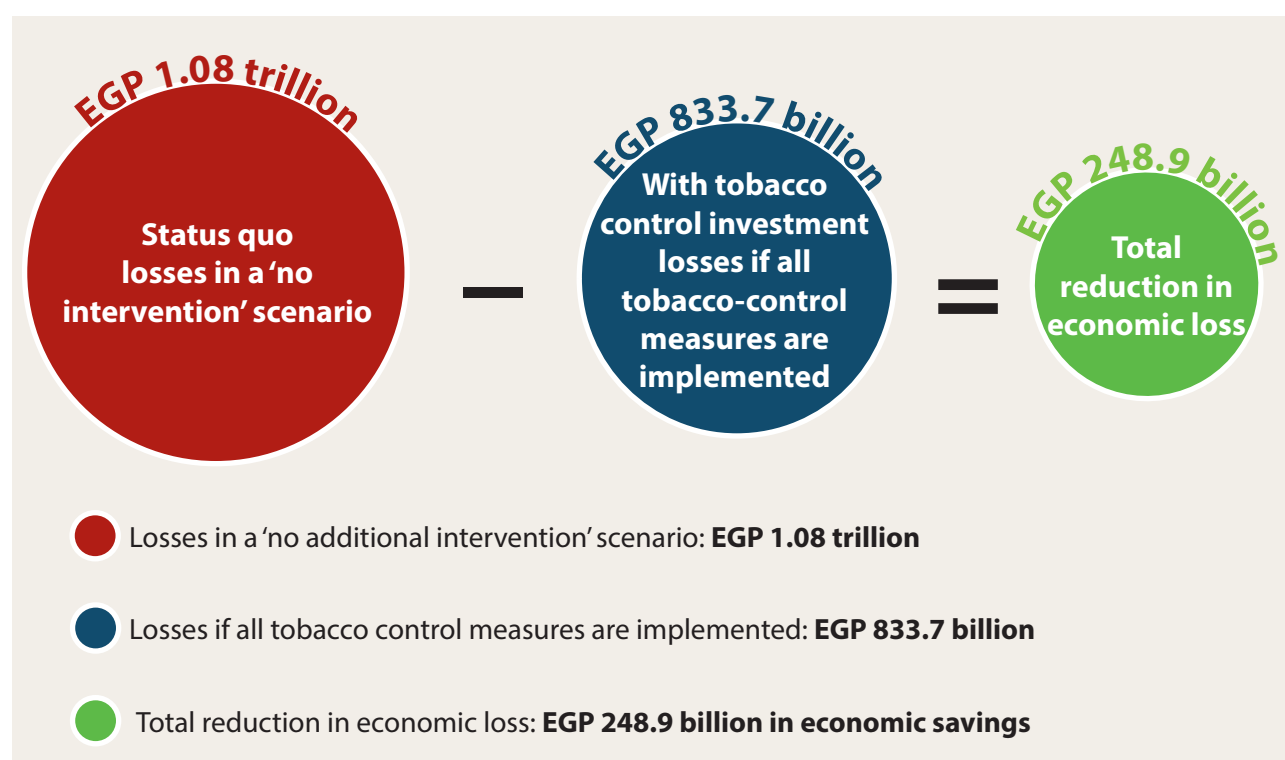
⁸ YLDs are “years lived in less than ideal health...[YLDs are] measured by taking the prevalence of a [disease] condition multiplied by the disability weight for that condition. Disability weights reflect the severity of different conditions.” YLLs are “calculated by subtracting the age at death from 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?>>

40.5 percent (in relative terms) over 15 years, saving 345,586 lives from 2019–2033, or 23,039 lives annually.

5.4 Economic benefits

Implementing the tobacco control policy package would result in Egypt avoiding 23 percent of the economic loss that it is expected to incur from tobacco use over the next 15 years. **Figure 9** illustrates the extent to which Egypt can shrink the economic losses it is expected to incur under the status quo.

Fig. 9: Tobacco-related economic losses over 15 years: What happens if Egypt does nothing, versus if the Government implements tobacco control measures to reduce demand for smoking?



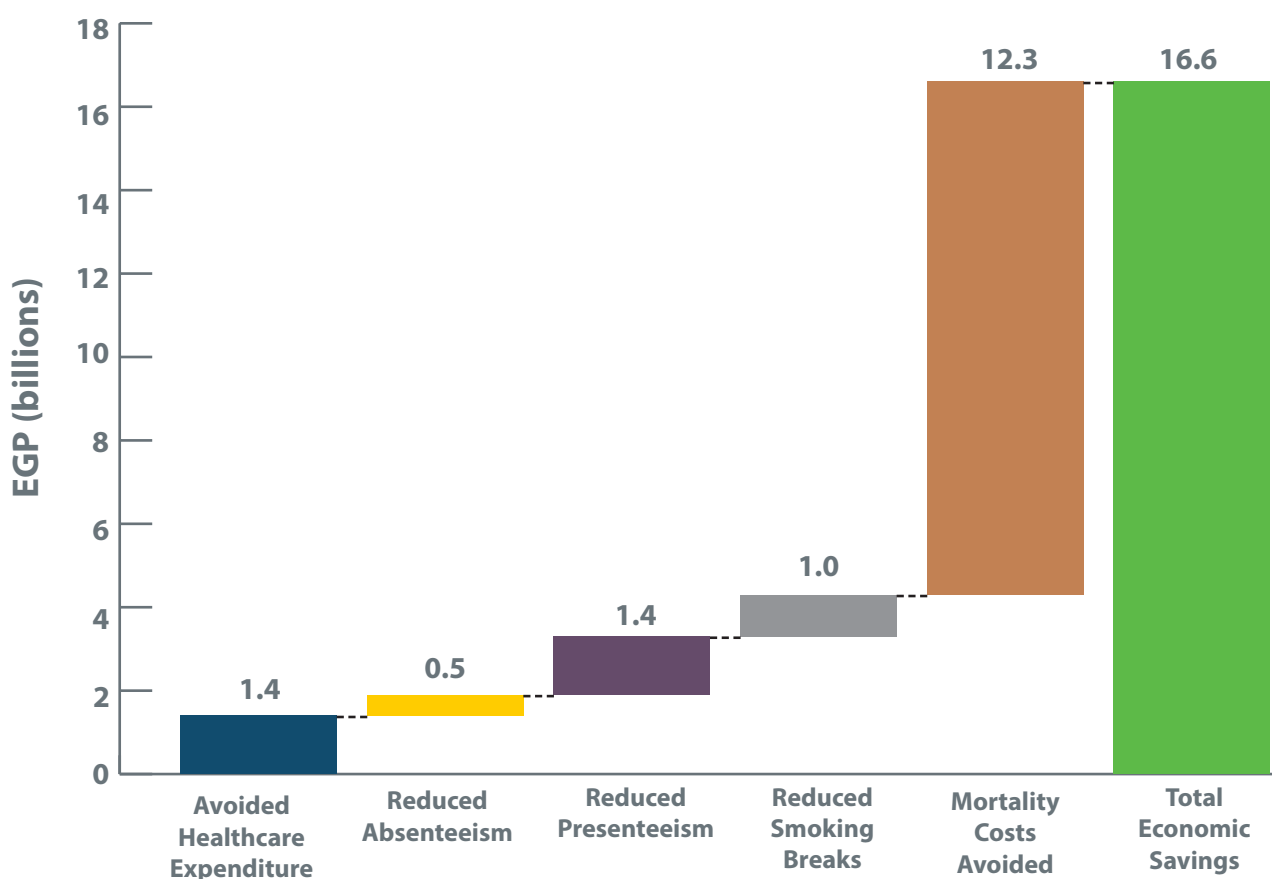
In total, over 15 years Egypt would save about EGP 248.9 billion that would otherwise be lost if it does not implement the package of tobacco control measures, or the equivalent of about EGP 16.6 billion in annual avoided economic losses.

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

In addition to the savings from avoiding healthcare and productivity losses, increasing tobacco taxation would generate significant additional revenue that could be allocated to both the tobacco control measures recommended here, as well as broader efforts to achieve the Sustainable Development Goals. The 2015 Addis Ababa Action Agenda on financing for development [34] adopted by consensus weeks before the formalization of the 2030 Agenda, specified increased tobacco taxes as key means to financing the 2030 Agenda for Sustainable Development. Those gains from additional revenue are not modeled as part of the economic savings from implementing the package recommended here, but that additional revenue would be just as concrete a benefit as the savings projected in this investment case.

Figure 10 breaks down the sources from which annual savings accrue. The largest annual savings result from avoiding premature mortality (EGP 12.3 billion). The next highest source of annual savings is reduced presenteeism (EGP 1.4 billion), followed by avoided healthcare expenditures (EGP 1.4 billion), reduced number of smoking breaks (EGP 1.0 billion), and reduced absenteeism (EGP 0.5 billion).

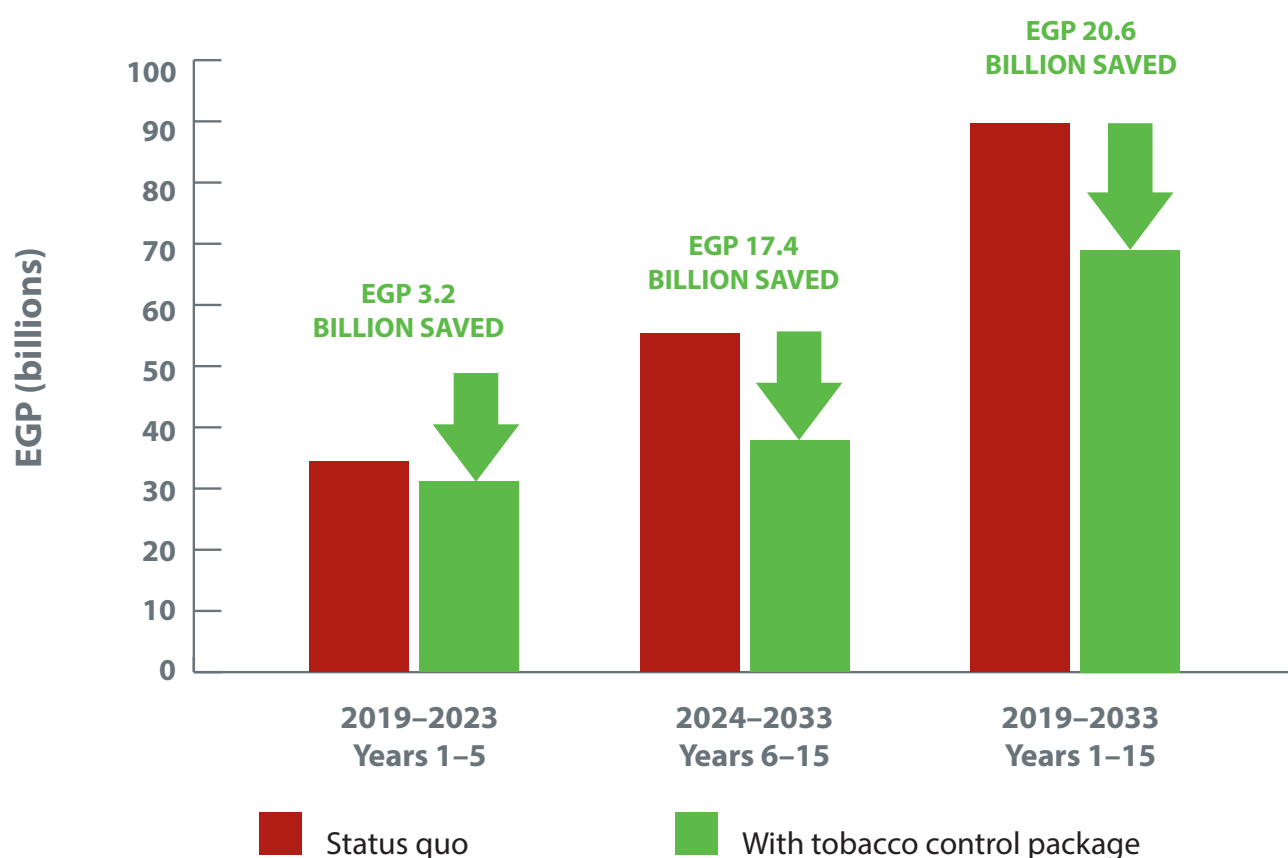
Fig. 10: Sources of annual economic savings as a result of implementing the tobacco control policy package



Implementing the package of tobacco control measures reduces medical expenditure for citizens and the Government. Presently, total private and public annual healthcare expenditures in Egypt is about EGP 113 billion, 6.5 percent of which is directly related to treating disease and illness due to tobacco use [4] (\approx EGP 7.3 billion).

Year-over-year, the package of interventions lowers tobacco use prevalence, which leads to less illness, and consequently less healthcare expenditure (see **Figure 11**). Over the 15-year time horizon of the analysis, the package of interventions averts EGP 20.6 billion in healthcare expenditures, or EGP 1.4 billion annually. Of this, 30 percent of savings accrue to the Government and 62 percent accrue to individual citizens who would have purchased out-of-pocket healthcare. The remainder of savings goes to private insurance. Thus, from reduced healthcare costs alone, the Government stands to save about EGP 6.2 billion over 15 years. Simultaneously, the Government would successfully reduce the health expenditure burden tobacco imposes on Egypt's citizens, supporting efforts to reduce economic hardship on families. Rather than spend on treating avoidable disease, these families would be able to invest more in nutrition, education and other inputs to secure a better future.

Fig. 11: Private and public healthcare costs (and savings) over the 15-year time horizon



5.5 The return on investment (ROI)

An investment is considered worthwhile from an economic perspective if the gains from making it outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco investments by dividing the economic benefits that are gained from implementing the WHO FCTC tobacco control investments by the costs of the investments. For the Egypt investment case, the ROI for each intervention was evaluated in the short-term (period of five years), to align with planning and political cycles, and in the medium-term (period of 15 years) to align with the SDGs. The ROI shows the return on investment for each intervention, and for the full package of measures. Total benefits are a measure of which interventions are expected to have the largest impact. **Table 2** displays costs, benefits and ROIs by intervention, as well as for all interventions combined. All individual interventions deliver a ROI greater than one within the first five years, meaning that even in the short-term the benefits of implementing the interventions outweigh the costs. Depending on the intervention, over the first five years, the Government will recoup anywhere from 22 to 406 times its investment. The ROIs for each intervention continue to grow over time, reflective of the increasing effectiveness of policy measures as they move from planning and development stages, to full implementation.

Table 2: Return on investment, by tobacco control measures policy (EGP billions)

	First 5 years (2019–2023)			All 15 years (2019–2033)		
	Total costs (EGP billions)	Net benefits (EGP billions)	ROI	Total costs (EGP billions)	Net benefits (EGP billions)	ROI
Tobacco control package* (combined interventions)	0.9	39	42	2.3	249	107
Raise cigarette taxes (FCTC Article 6)	0.1	23	406	0.1	154	1,076
Bans on advertising, promotion and sponsorship (FCTC Article 13)	0.1	5	45	0.3	41	137
Protect people from tobacco smoke (FCTC Article 8)	0.3	7	26	0.6	57	91
Mass media campaign (FCTC Article 12)	0.2	4	25	0.5	35	76
Plain packaging (FCTC Article 11 Guidelines)	0.1	3	22	0.3	21	68

* The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j , $(1-PR_i) \times (1-PR_j)$ [is] applied to the current smoking prevalence [35, p. 454]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco-control program.

Over the 15-year period, raising taxes is expected to have the highest return on investment (1,076:1). Bans on advertising, promotion, and sponsorship has the next highest ROI (137:1), followed by protecting people from tobacco smoke in public places (91:1), mass media campaigns (76:1), and implementing plain packaging (68:1).

5.6 The Sustainable Development Goals and the WHO FCTC

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

In Egypt in 2017, more than 271,000 premature deaths between the ages of 30 to 70 were caused by the four main NCDs (CVD, diabetes, cancer, and COPD). Roughly 23 percent of these premature deaths occurred due to tobacco use. Enacting the WHO FCTC measures identified in the Investment Case would reduce tobacco use prevalence—a key risk factor driving NCD incidence—preventing 588,800 premature deaths from the four main NCDs over the next 12 years (2019 to 2030). Preventing those deaths contributes the equivalent of about 15 percent of the needed reduction in premature mortality to fulfill SDG Target 3.4.



SDG Target 3.4

**By 2030
the FCTC
measures
would...**



Lower the prevalence of tobacco use by 39% from present day levels.

Reduce economic costs due to tobacco use by EGP 188.1 billion, including saving EGP 15.6 billion in healthcare expenditures.

Lead to savings (EGP 188.1 billion) that significantly outweigh the costs (EGP 2.0 billion), with an overall return on investment of 96:1.

5.7 Impact on the poor

Raising cigarette taxes has the highest return on investment of the five policies included in this analysis by a large margin. A common misperception is that taxes on tobacco products may disproportionately impact poor tobacco users, since the tax burden represents a higher proportion of their income than that of wealthier tobacco users. However, evidence shows that the poor actually stand to benefit most from raised cigarette taxes [36]. In Lebanon [37], for example, a 50 percent increase in cigarette prices was projected to prevent 23,000 new cases of poverty over 50 years, and that same level of increase was found to avert 2.1 million catastrophic health expenditures in India, 440,000 in Bangladesh, and 250,000 in Vietnam [38].

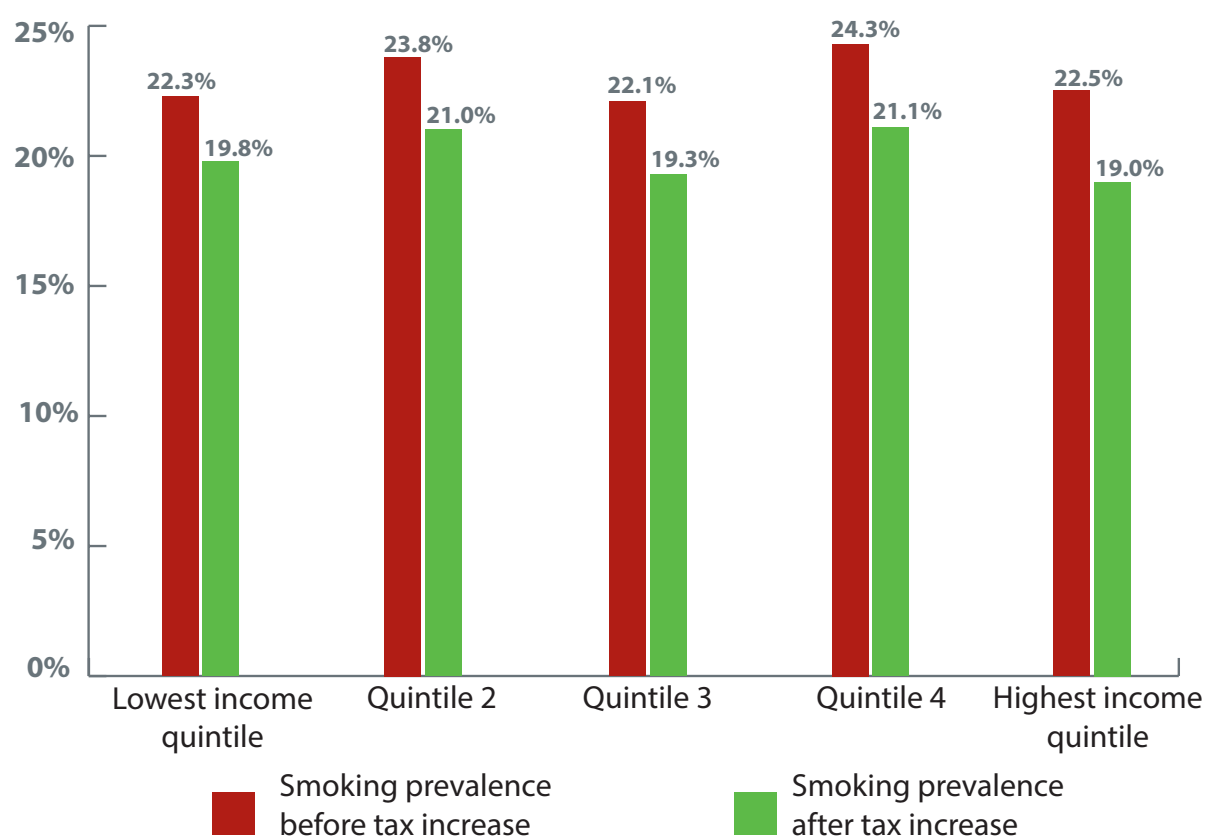
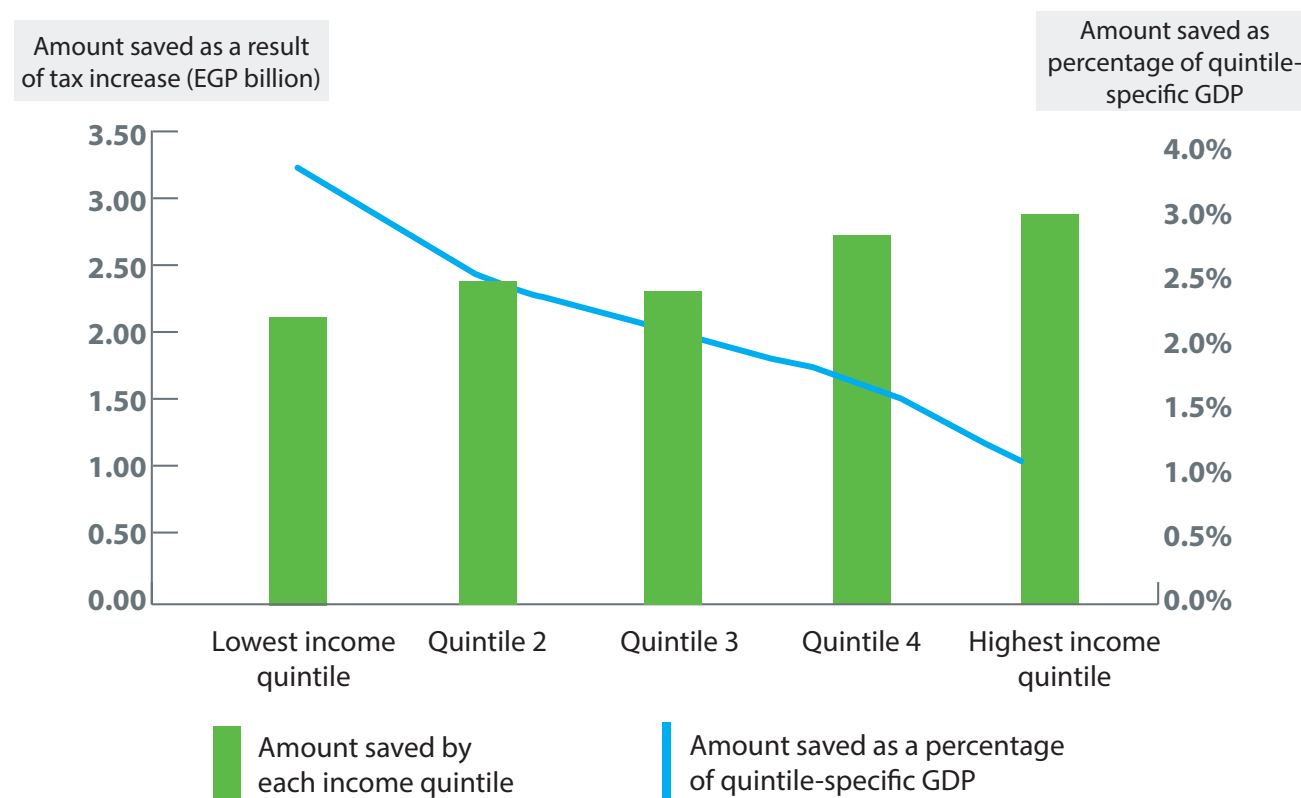
To examine the extent to which a cigarette tax increase could be considered pro-poor in Egypt, the investment case undertakes an equity analysis. The analysis divides Egypt's population into five equal groups, by income, where quintile 1 is composed of the poorest 20 percent of people, and quintile 5 is composed of the wealthiest 20 percent. Within each income group, the analysis examines the impact of tax increases that raise the price of the average pack of cigarettes by about 31 percent (5 pounds, or about US\$0.31).

Unlike most countries, there is not a clear association between income and smoking prevalence in Egypt (see **Figure 12**) [21]. Also unlike most countries, the poor are not more likely to quit smoking than wealthier smokers as a result of cigarette tax increases [39]. Instead, the reductions in prevalence resulting from the cigarette tax increase are similar across income quintiles (the tax increase causes a 2.5 percent absolute reduction among the poorest quintile and a 3.4 percent absolute reduction among the wealthiest quintile, as shown in **Figure 12**).

Hence, all income groups in Egypt will experience improved health and financial outcomes as a result of lower smoking prevalence. Though the absolute amount of money saved by people quitting smoking in response to the tax increase is higher in wealthier income quintiles, the savings are much greater in lower income quintiles as a percentage of total income. The poorest quintile stands to save 3.6 percent of their income (as defined by quintile-specific GDP per capita), compared to just 1.1 percent savings among the wealthiest quintile, as shown in **Figure 13**.

This is a significant finding for Egypt, where the average Egyptian household spent EGP 410 on cigarettes in 2017 [1]. Nassar analyzed household expenditure surveys and found that in 1999, Egyptian households spent on average 5.1 percent of all household consumption expenditure transactions on cigarettes [26]. Expenditure on cigarettes relative to other consumption was particularly high among lower-income groups,⁹ reaching 8 percent among the lowest-income

⁹ Measured by household expenditure levels. In this study, the lowest-income group was defined as monthly household expenditures less than EGP 1200 and the highest-income groups were defined as monthly household expenditures above EGP 14,000.

Fig. 12: Smoking prevalence before and after tax increase, by income quintile**Fig. 13: Absolute amount saved and percentage of quintile-specific GDP saved as a result of cigarette tax increase, by income quintile**

group. Among the highest-income group, household expenditure on cigarettes accounted for 4.1 percent of all consumption expenditure. This indicates that smoking poses a significant economic burden, especially on lower-income groups, and that the savings lower-income groups incur from tax increases and consumption decreases is sizeable. Money saved by lower-income households, is money that can be spent on nutrition and education.



Credit: © Wolrd Bank via Flickr

6. Conclusion and recommendations

Each year, tobacco use costs Egypt EGP 89.8 billion in economic losses and causes substantial human development losses. Fortunately, the investment case shows that there is an opportunity to reduce the social and economic burden of tobacco in Egypt. Enacting the recommended multisectoral tobacco control provisions would save over 23,039 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 to EGP 248.9 billion over the next 15 years. Further, the economic benefits of strengthening tobacco control in Egypt greatly outweigh costs of implementation (EGP 248.9 billion in benefits versus just EGP 2.3 billion in costs).

By investing now to intensify implementation of the five proven tobacco control measures modeled under this investment case, Egypt would not only reduce tobacco consumption, improve health, reduce government health expenditures and grow the economy, it would also reduce hardships among Egyptians. Many countries reinvest savings from healthcare expenditures and revenue from increased tobacco taxes into national development priorities such as universal health coverage.

The investment case offers compelling economic and social arguments to implement core WHO FCTC measures. 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 reduce hardships on those living on low incomes, can assist policymakers in disseminating the message.

The full benefits of the investment case are more likely to be realized if the following actions are pursued:



Raise awareness to change social norms around tobacco use.

Low levels of awareness, high prevalence of cigarette smoking among youth, increasing tobacco use prevalence among girls, and the presence of an overall pro-tobacco culture highlight the need to change social norms in Egypt around tobacco use. Beyond implementing a national-level mass media campaign as modeled under the investment case, it is recommended that the Ministry of Health and Population work closely with the National Agency of Information, Ministry of Education, Ministry of Youth and Sports, Ministry of Social Solidarity to develop coordinated plans and strategies to raise awareness of the harms of tobacco and tobacco control laws. Working with civil society to conduct grassroots and social media awareness campaigns that reach all Egyptians; incorporating tobacco into school curricula; expanding and enforcing bans on tobacco advertising, promotion and sponsorship; fully enforcing smoke-free places; training social workers, rural social change agents (raedat reefeyat), healthcare workers, educators, and decision makers; and using celebrities and opinion leaders as anti-tobacco ambassadors can all contribute to changing social norms.

The Egyptian Government can integrate tobacco control messaging into flagship health programmes, such as the ongoing Breast Cancer screening initiative or Women Health initiative. Rural health workers can screen for tobacco consumption, provide short counseling and referrals to raise awareness and assist with cessation. Awareness-raising can also be integrated in existing health programmes. Incorporating tobacco control messaging into these and primary healthcare NCD services under universal health coverage, while coordinating with non-governmental organizations (NGOs), would enhance the tobacco control response.



Simplify the tobacco tax system and increase taxes on shisha and other tobacco products.

The Government of Egypt has acknowledged the importance of financial and fiscal measures to reduce tobacco consumption. Most recently in July 2018, the Government raised taxes by 75 piasters per cigarette pack, earmarking resulting tax revenue to improve public health. Though Egypt has increased cigarette taxes, it has not substantially raised taxes on other forms of tobacco, including shisha tobacco. It is recommended that the Government develop a plan for tobacco taxation that commits

to regular tax increases and that raises taxes on shisha and other tobacco products to at least the level of taxes on cigarettes.

It is also recommended that the Government return to the adoption of the WHO FCTC Article 6 guidelines and revert to the one tier tobacco tax system instead of the three tiers currently in place. This will reduce the potential of consumers switching from premium brand to mid-price or economy cigarettes or from cigarettes to shisha, counter the trend of increasing youth shisha consumption, while generating substantial revenue.

Though all individual interventions delivered a return on investment at both 5 and 15 years, raised cigarette taxes were by far the most cost-effective of the measures examined. They delivered an impressive return of 1,076 Egyptian pounds in economic benefits for every 1 pound invested, not taking into account additional tax revenue. Tobacco tax increases have been a reliable source of revenue for the Egyptian Government. According to the State Budget, tobacco tax revenue increased from EGP 29.4 billion in 2014–2015, to 43 billion EGP in 2016–2017 [40], and again from EGP 51.4 billion for the fiscal year 2017–2018 to an expected EGP 58.5 billion for fiscal year 2018–2019.¹⁰

Egypt can continue its policy of allocating some cigarette tax revenue to health and universal health coverage. Egypt could further earmark tobacco tax revenue to continue expanding universal health coverage, and to achieve the key performance indicator of increasing government spending on the health sector to 5 percent of GDP by 2030 as envisioned under Egypt's Sustainable Development Strategy 2030. Tax increases would not disproportionately burden lower income Egyptians; global evidence shows that cigarette tax increases benefit the poorest segments of society the most.

Further, evidence from this report shows that the lowest-income groups spend the highest percentage of their incomes on cigarettes among all income groups, and that they would save the most money relative to their incomes as a result of cigarette tax increases (about 3.6 percent of their incomes). This is money saved that households can spend on education, nutrition and other investments in themselves and their families.

10 http://www.xinhuanet.com/english/2018-07/13/c_137320489.htm



Reduce illicit trade.

Equally important is the development of a robust strategy and systems to counter illicit tobacco trade, to prevent the loss of tax revenue for the Government and the loss of lives. Investing some of the resulting tobacco tax revenue into more vigorous enforcement against illicit trade of tobacco products could further increase tobacco tax revenues from those who continue to smoke, while lowering the availability of less expensive smuggled cigarettes. Monitoring the implementation of tax and price policy is important to prevent tax evasion, as is controlling the sales of single stick cigarettes and loose-leaf tobacco.



Strengthen the tobacco control legislative framework and enforcement.

Though Egypt has a strong tobacco control legal framework, there are several WHO FCTC tobacco control measures that are not covered under current laws. These include banning designated smoking areas in indoor private work places, shopping malls, airports, etc., and banning smoking in restaurants and cafes; banning tobacco sponsorship and prohibiting any form of corporate social responsibility; banning sales of single-stick cigarettes and tobacco sales over the internet; allocating funds for enforcement; rejecting partnerships and voluntary agreements with the tobacco industry; and regulating interactions between civil servants, elected officials and the tobacco industry.

Periodic tobacco tax increases to keep pace with inflation and income growth and plain packaging can also be introduced via legislation. The investment case demonstrates the additional benefits of these measures, ensuring that demand-reduction measures are fully effective. The Government may consider unifying tobacco control laws under a single comprehensive law that contains previous regulations and new provisions. Enforcement of tobacco control laws in Egypt remains a challenge, particularly of bans on smoking in public places. Therefore, it is recommended to review existing laws and regulations and to strengthen legislation where required.

The Government may learn from high compliance with smoke-free laws at train and subway stations; smoking bans were first strictly enforced and quickly became a 'cultural norm' and self-enforcing.

The Government should also develop a comprehensive enforcement framework together with the Ministry of Interior and Consumer Protection Agency, including clear role assignments and coordination of the work of enforcement officers, with provision of training to officials in all relevant ministries and agencies.

It is also recommended to explore the possibility of involvement of other agencies and personnel in enforcement, such as the environmental health officers. It is further recommended that the Government monitor media, especially during Ramadan, for their adherence to Article 13 on the ban on tobacco advertising, promotion and sponsorship. As one of the largest employers in Egypt and role-model for Egyptians, the Government should also fully implement smoking bans on government premises, as required by law.



Strengthen multisectoral coordination and planning.

The investment case demonstrates that tobacco control is a sustainable development issue for Egypt, with implications for the Ministries of Planning, Finance, Industry, Trade, Education, Social Solidarity, Customs, Communication, Labour, Interior and Health, as well as for Parliamentarians. These findings should be used to advocate stronger collaboration and coordination among sectors.

Under leadership of the Ministry of Health and Population, the national coordination mechanism (NCM) should be revived and re-constituted under a decree to include a technical implementation level that meets more frequently than the ministerial level. All relevant ministries and agencies should be represented on the NCM, and each partner ministry should dedicate staff time and budget for the implementation of relevant provisions of the Convention. The NCM may also include civil society, encouraging the re-activation of nongovernmental organizations' alliances and activities in tobacco control. It is further recommended that the NCM and Central Tobacco Control Unit in the Ministry of Health and Population leverage the well-established network of tobacco control focal points in all Egyptian governorates, holding meetings with them on issues of coordination and implementation.

NCM representatives should adopt terms of reference, rules of procedure, codes of conduct and conflict of interest declarations, as well as an annual work plan. The NCM may use the newly adopted national strategy for tobacco control, the 2017 WHO FCTC Needs Assessment, 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 and Population, Ministry of Finance 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 Egypt see tobacco control as a win-win opportunity.



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

It is recommended that Egypt take action to protect the country's public health policies from the commercial and other vested interests of the tobacco industry. A resolution made by the World Health Assembly in 2001, citing the findings of the Committee of Experts on Tobacco Industry Documents, states that "the tobacco industry has operated for years with the express intention of subverting the role of governments and of WHO in implementing public health policies to combat the tobacco epidemic" [41].

The Preamble of the WHO FCTC recognizes that Parties "need to be alert to any efforts by the tobacco industry to undermine or subvert tobacco control efforts and the need to be informed of activities of the tobacco industry that have a negative impact on tobacco control efforts". The WHO FCTC includes a specific obligation that "in setting and implementing their public health policies with respect to tobacco control, Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry in accordance with national law". The 2021 Global Progress Report on implementation of the WHO Framework Convention on Tobacco Control reported that the most frequently mentioned barrier to the implementation of the Convention by Parties is the interference by the tobacco industry, including the industries producing novel and emerging tobacco products and nicotine products [42].

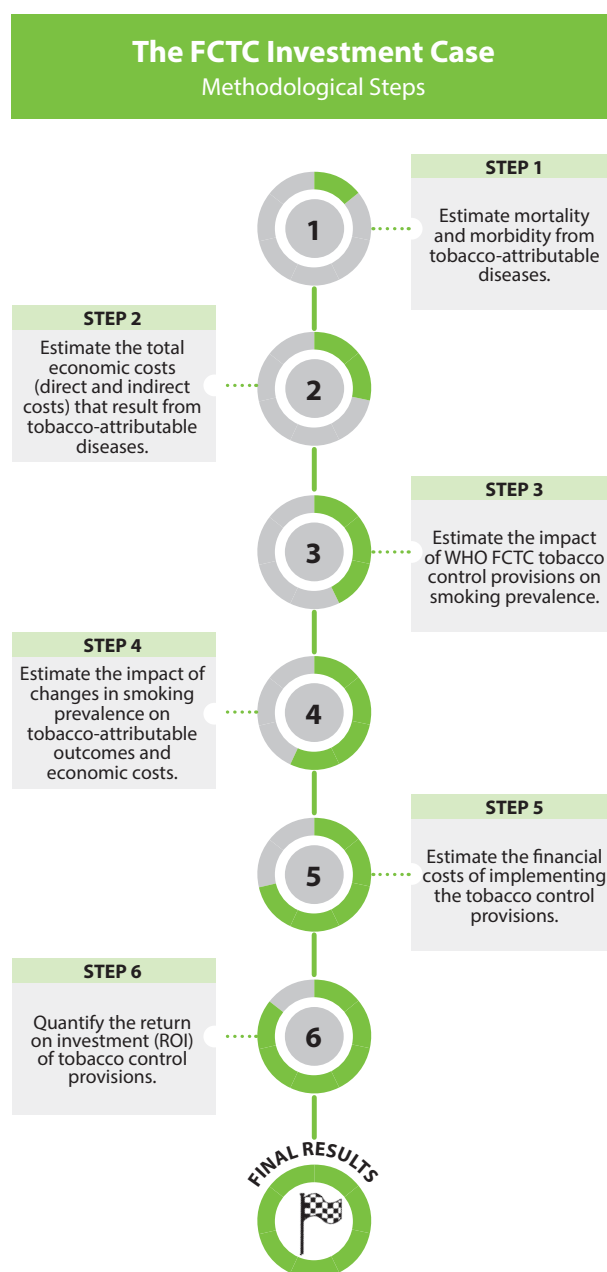
Egypt is encouraged to review current policies and legislation in light of the Implementation Guidelines for WHO FCTC Article 5.3 [43], and then address outstanding gaps by implementing the recommendations made in those guidelines. Attention should also be given to ensuring policy coherence across government policymaking to prioritise public health and WHO FCTC implementation.

7. Methodology annex

7.1 Overview

The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which WHO FCTC provisions can reduce the burden. The first two methodological steps depicted in **Figure 14** are employed to assess the current burden of tobacco use, while methodological steps 3–6 assess the impact, costs, and benefits of implementing or intensifying WHO FCTC provisions to reduce the demand for tobacco. The tools and methods used to perform these methodological steps are described in detail below.

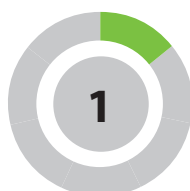
Fig. 14: Building the FCTC Investment Case



7.2 Component one: current burden

COMPONENT ONE: CURRENT BURDEN

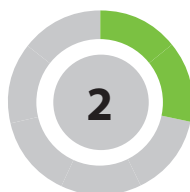
The current burden model component provides a snapshot of the current health and economic burden of tobacco use in Egypt.



STEP 1

Estimate mortality and morbidity from tobacco-attributable diseases.

The investment case model is populated with country-specific data on tobacco attributable mortality and morbidity from the 2017 Global Burden of Disease Study (GBD). The study estimates the extent to which smoking and second-hand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life years lost, and deaths, across 195 countries [44]. The data was then adjusted based on country input. Egypt provided data on the total number of deaths in Egypt, which was 14.9 percent higher than that provided in GBD. We therefore increased the number of tobacco-attributable mortality and morbidity by 14.9 percent and distribute the additional mortality and morbidity based on the proportions in GBD.



STEP 2

Estimate the total economic costs (direct and indirect costs) that result from tobacco-attributable diseases.¹¹

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 labor-force productivity losses: absenteeism, presenteeism, and excess smoking breaks.

Direct costs – Direct costs include tobacco-attributable public (government-paid), private (insurance, individual out-of-pocket), and other healthcare expenditures. The default source for the proportion of healthcare costs attributable to smoking is Goodchild et al. (2018), which estimates a smoking attributable fraction (SAF) of healthcare expenditures of 2.3 percent [4]. Egypt

¹¹ 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 exposure, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and smoking breaks. While other forms of tobacco may also cause losses in these categories, no data is available to pinpoint those losses.

also provided estimates of the SAF of healthcare expenditures for four specific diseases: chronic obstructive pulmonary diseases (COPD), ischemic heart disease, cerebrovascular stroke, and trachea, lung, and bronchi cancers. In order to incorporate the SAF estimates for these specific diseases, we first calculated the percentage of DALYs attributable to each of these diseases in Egypt from the GBD database. Then, we used these percentages to estimate the amount of overall healthcare expenditures being spent on each of these four diseases. We then applied the disease-specific SAFs provided by Egypt for the four diseases and the Goodchild estimate (2.3 percent) for all other disease categories. By dividing the sum of these smoking attributable healthcare expenditures by the total amount of healthcare expenditures, we get the SAF of 6.46 percent used in the model. To calculate the share of smoking-attributable healthcare expenditures borne by public, non-profit, and private entities, it was assumed that each entity incurred smoking-attributable healthcare costs in equal proportion to its contribution to total health expenditure, as obtained from the WHO health expenditures database—from which government is shown to cover 81 percent of total health expenditures, households cover 22 percent through out-of-pocket expenses, and private and other entities cover 7 percent [45].

Indirect costs – Indirect costs represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-related diseases. Indirect costs accrue when tobacco use causes premature death, eliminating the unique economic and social contributions that an individual would have provided in their remaining years of life. In addition, tobacco use results in productivity losses. Compared to non-tobacco users, individuals who use tobacco are more likely to miss days of work (absenteeism); to be less productive at work due 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) [46].
- *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) [33]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers [47]. Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take ten minutes of extra breaks per day [33].

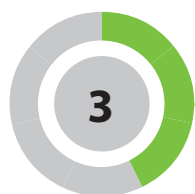
7.3 Component two: policy/intervention scenarios

COMPONENT TWO: POLICY/INTERVENTION SCENARIOS

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

The investment case employs a static model to estimate the total impact of the tobacco control measures, meaning that aside from smoking prevalence, variables do not change throughout the time horizon of the analysis. The model follows a population that does not vary in size or makeup (age/sex) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [48], [49].

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



STEP 3

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

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

al. (2018) [35] and Chipty (2016) [50], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013-2020 [51], and adjusted based on assessments of Egypt's baseline rates of implementation. The impact of raising taxes on the prevalence of tobacco use is determined by the 'prevalence elasticity', or the extent to which individuals stop smoking as a result of price changes. The price elasticity of demand in Egypt is estimated by Hannafy et al. (2010) to be -0.5 [52], and prevalence elasticity is approximately one-half of price elasticity (-0.22) [53]. **Table 3** 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. 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 [54] 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. The investment case examines the impact of doubling the price of a pack of cigarettes over the first six years, with additional incremental increases through 2033 that raise the price to 3.75 times its 2019 baseline.

Table 3: Impact size: Relative reduction in the prevalence of current smoking by tobacco control policy/intervention, over a period of 15 years

WHO FCTC measure	Relative reduction in prevalence of current cigarette smokers	
	First 5 years (2019–2023)	Over 15 years (2019–2033)
Tobacco control package* (<i>all policies/interventions implemented simultaneously</i>)	23.8%	40.5%
Increase taxes on cigarettes (<i>WHO FCTC Article 6</i>)	13.4%	25.6%
Strengthen compliance with the ban on smoking in public places and workplaces (<i>WHO FCTC Article 8</i>)	4.7%	8.1%
Mandate that tobacco product packages carry large health warnings (<i>WHO FCTC Article 11</i>)	Already fully implemented	
Plain packaging of tobacco products (<i>WHO FCTC – Guidelines for the implementation of Article 11 and Article 13</i>)	1.7%	2.9%
Run a mass media campaign to promote awareness about tobacco control (<i>WHO FCTC Article 12</i>)	2.8%	4.9%
Enact comprehensive bans on advertising, promotion, & sponsorship (<i>WHO FCTC Article 13</i>)	3.3%	5.8%

* The combined impact of all interventions is not the sum of individual interventions. Following Levy and colleagues' (2018) "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PR_i and PR_j , $(1-PR_i) \times (1-PR_j)$ [is] applied to the current smoking prevalence" [35, p. 454].

**STEP 4**

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

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

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

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

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

**STEP 5**

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

The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [54].

The tool uses a ‘bottom up’ or ‘ingredients-based’ approach. In this method, each resource that is required to implement the tobacco control measure is identified, quantified, and valued. The tool estimates the cost of surveillance, human resources—for program management, transportation, advocacy, and enacting and enforcing legislation—trainings and meetings, mass media, supplies and equipment, and other components. Within the tool, costs accrue differently during four distinct implementation phases: planning (year 1), development (year 2), partial implementation (years 3–5), and full implementation (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 US\$ to local currency unit exchange rate (2017), purchasing power parity (PPP) exchange rate (2017), GDP per capita (US\$, 2017), GDP per capita (PPP, 2017), population (total, and share of the population age 15+, 2017), labor force participation rate (2017), gas per liter, and government spending on health as a percent of total health spending (2015) [55, 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 and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.

The return on investment (ROI) analysis measures the efficiency of tobacco control investments by dividing the 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 many currency units can it expect to receive in return?

ROIs were calculated for (i) each of the tobacco control policies and interventions modeled, (ii) total economic losses and (iii) specific outcomes, such as lives saved or healthcare expenditures. Estimates from Steps 3 and 5 were used to calculate ROIs at 5- and 15-year intervals.

**STEP 6**

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

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

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

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



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The Secretariat of the WHO Framework Convention on Tobacco Control
Hosted by: World Health Organization
Avenue Appia 20, 1211 Geneva 27, Switzerland
Tel: +41 22 791 5043
Email: fctcsecretariat@who.int
Web: fctc.who.int

