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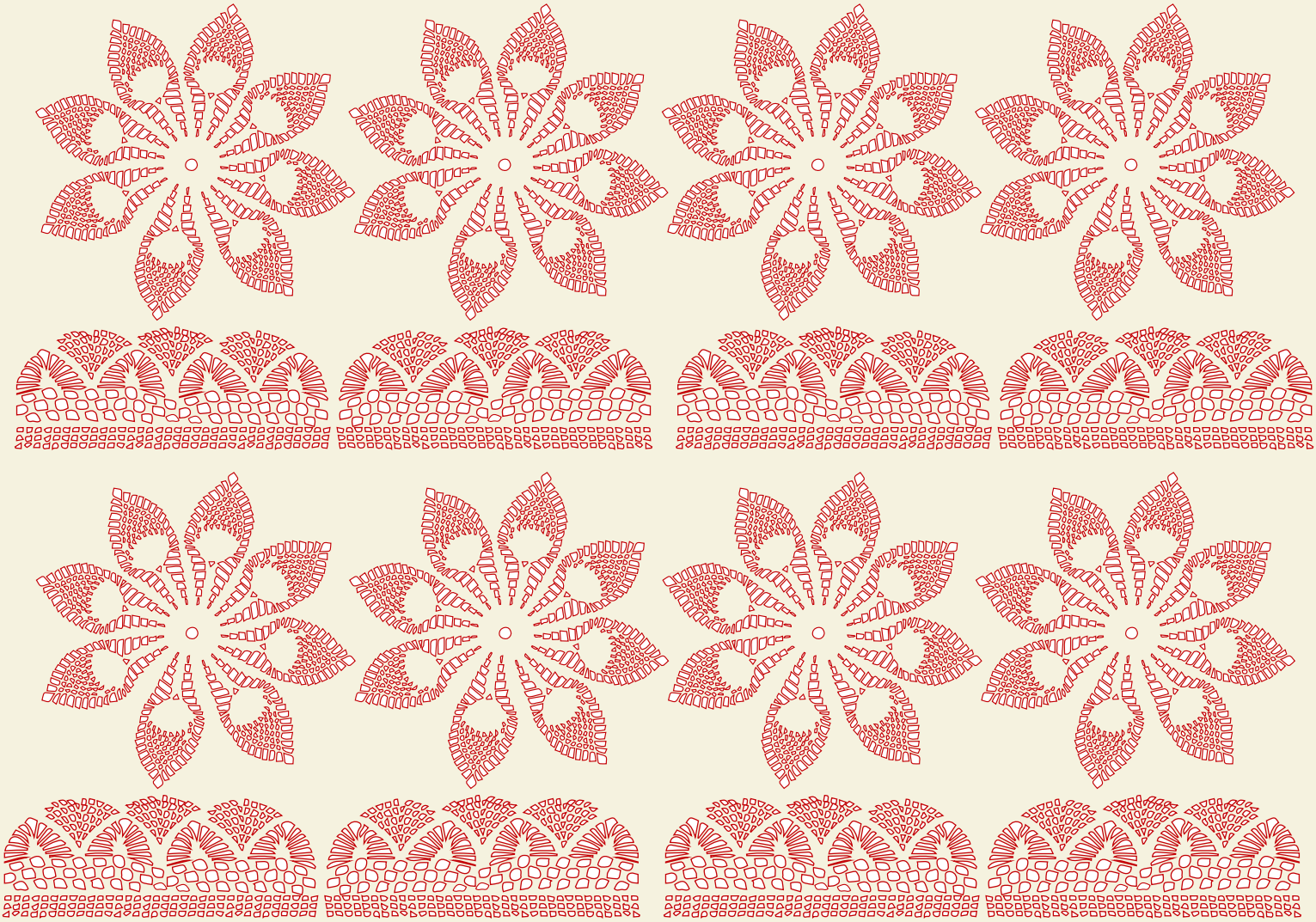
Investment Case for Tobacco Control in Montenegro



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Investment Case for Tobacco Control in

Montenegro

The case for scaling-up WHO FCTC implementation

Investment Case for Tobacco Control in Montenegro

More than

2,000

Montenegrins die every year due to tobacco-related illness, accounting for **30%** of all deaths in the country.

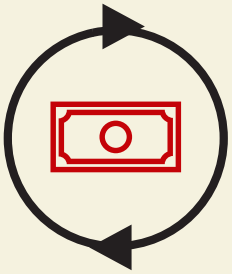
Investing now in five proven tobacco control measures will prevent more than

6,700 deaths

and avert

EUR 673 million

in economic losses by 2037.

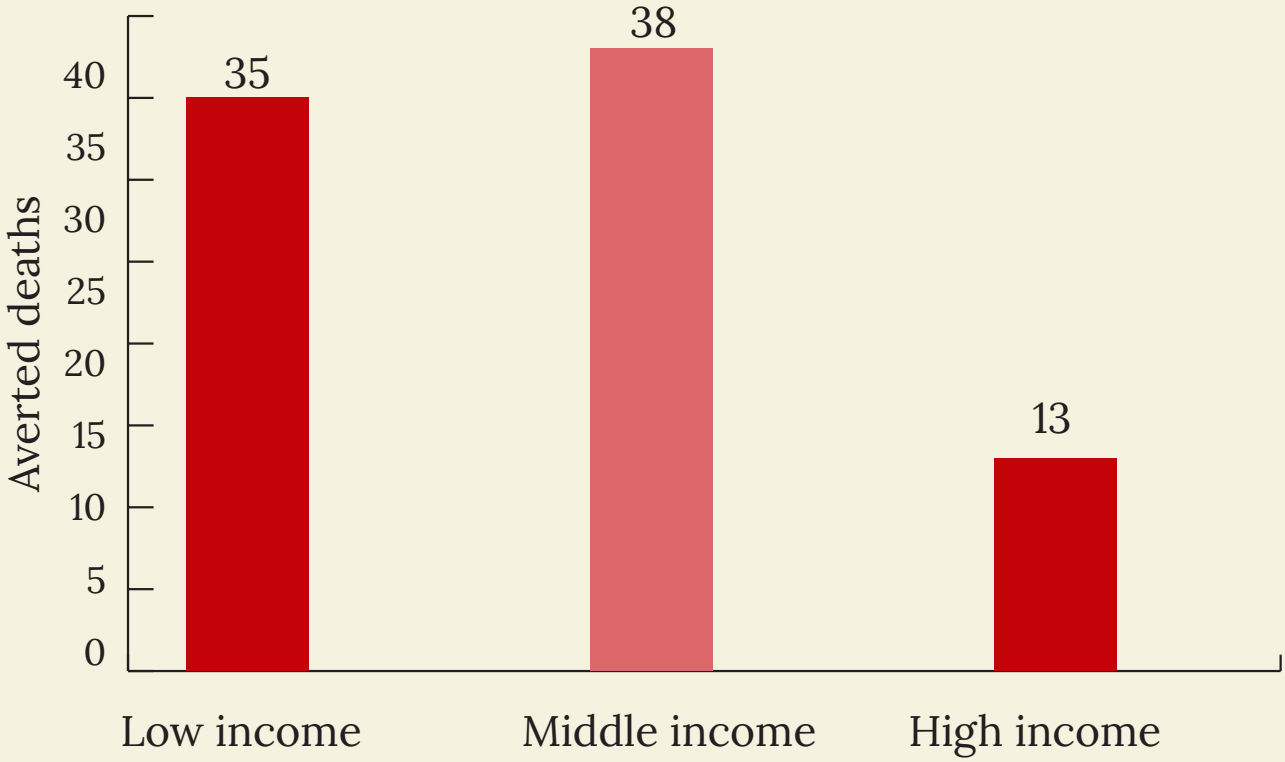


Tobacco-attributable economic losses are about

6.7 times larger

than the collected government revenue.

Deaths averted in Montenegro by tax increase, by income group during the first two years of tax increases that are modeled (2025)



Government tobacco tax revenue as a % of the tobacco burden

Burden per licit cigarette pack sold versus retail price of most sold brand (EUR)

Tobacco costs Montenegro EUR 307 million, equivalent to 7.3% of its annual GDP.

Annual cost per adult smoker EUR 1,488

Figures subject to rounding.

Acknowledgements

This report was completed through collaborative efforts of the Montenegro Ministry of Health, the Institute of Public Health of Montenegro, the United Nations Development Programme (UNDP) Montenegro, the Secretariat of the WHO Framework Convention on Tobacco Control (WHO FCTC), and the World Health Organization (WHO).

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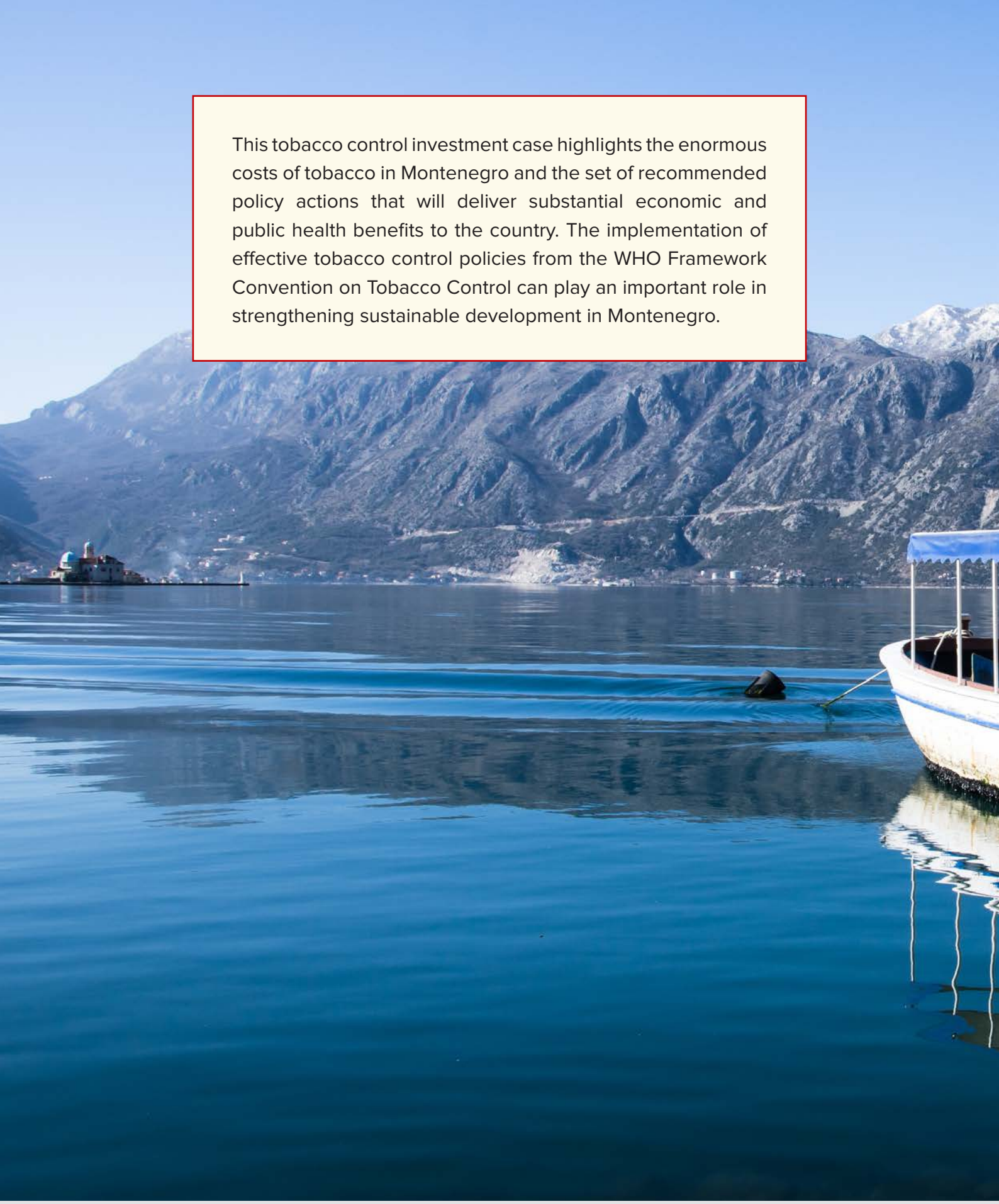
The economic modelling was performed by Brian Hutchinson and Garrison Spencer. Additional research and drafting were contributed by Tomas Sou and Samira Magdy. Zsuzsanna Schreck designed the report.

Table of Contents

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



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Executive summary

Overview

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

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

1) Increasing tobacco taxation to reduce the affordability of tobacco products (*WHO FCTC Article 6*);
2) Creating smoke-free public and work places to protect people from the harms of tobacco smoke (*WHO FCTC Article 8*);
3) Implementing plain packaging of tobacco products (*WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13*);
4) Scaling up of brief advice to quit for tobacco users in primary care clinics (*WHO FCTC Article 14*); and
5) Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (*WHO FCTC Article 12*).

Main findings

In 2020, tobacco use in Montenegro imposed around 307 million euros (EUR) in economic losses. These losses are equivalent to **7.3 percent** of Montenegro's gross domestic product (GDP). They include a) EUR **48 million** in direct health-care expenditures to treat tobacco-related illnesses, b) tobacco-attributable mortality valued at EUR **227 million**, and c) EUR **33 million** in reduced workplace productivity from absenteeism and presenteeism. Productivity losses from current tobacco use in Montenegro, representing **11 percent** of all tobacco-related costs, shows how tobacco use impedes development in Montenegro beyond health. Multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from the implementation of tobacco control measures that create healthier communities and a more productive labour force.

Every year, tobacco use kills more than 2,000 people in Montenegro, with 50 percent of these deaths being premature, among people under the age of 70. About 12 percent of lives lost from tobacco use are due to exposure to secondhand smoke. Deaths from tobacco are entirely preventable.

By acting now, the Government of Montenegro can reduce the national burden from tobacco use. The investment case findings demonstrate that implementing five key evidence-based WHO FCTC policy actions would, over the next 15 years (2023-2037):

Save more than 6,700 lives and reduce the incidence of disease. The key WHO FCTC measures would contribute to Montenegro's efforts to achieve Sustainable Development Goal (SDG) Target 3.4 to reduce by one third premature mortality (under age 70) from non-communicable diseases (NCDs) by 2030. Enacting the five key WHO FCTC policy actions would prevent premature deaths from the four main NCDs – cardiovascular disease (CVD), diabetes, cancer, and chronic respiratory disease – by 2030, in the equivalent of about **25 percent** of the needed reduction in premature mortality to achieve SDG Target 3.4.

Avert EUR 673 million in economic losses over 15 years, coming from:

- **EUR 71 million due to workplace productivity losses.** The tobacco control actions should stimulate economic growth because fewer people 1) miss days of work due to disability or sickness, and 2) work at a reduced capacity due to tobacco-related health issues.
- **EUR 104 million in savings through avoidance of tobacco-attributable health-care expenditures.** Of this, the Government would save EUR 64 million in health-care expenditures and citizens would save EUR 40 million in out-of-pocket health-care costs, with remaining savings accruing to other payers.
- **EUR 498 million in averted economic costs from tobacco-attributable mortality.**

Provide a return on investment (ROI) of 35:1.[1] This means that economic benefits **(EUR 673 million)** significantly outweigh the costs of implementing the five WHO FCTC policy actions **(EUR 19.4 million)**. For each individual measure, increasing cigarette taxes will have the highest ROI **(204:1),** followed by implementing plain packaging of tobacco products **(116:1)**, enforcing smoke-free public places and workplaces **(67:1)**, public awareness of tobacco control issues **(29:1)**, and cessation support by training health professionals to provide brief advice to quit tobacco use **(2:1)**.

1 For every 1 EUR invested in the five key WHO FCTC policy actions today, Montenegro will avert EUR 12 in economic losses by 2027 and EUR 35 by 2037.

In addition to these main findings, the investment case separately examined the equity impacts of cigarette taxes increases. Increasing cigarette taxes in Montenegro will confer social benefits to all, but particularly the poor [1]. Those with lower incomes are more likely to quit smoking when cigarette prices rise, helping them to avoid illness and catastrophic health-care expenditures. During the first two years of the modeled tax increase, 41 percent of the deaths averted from increasing cigarette taxes will be among the poorest third of the population. Cigarette tax increases would further benefit Montenegrins with lower incomes if the resulting government tax revenue were reinvested in further WHO FCTC implementation and national development priorities such as universal health coverage. There is potential for even greater revenue increases from increases in taxes for all tobacco products, not only cigarettes.

Recommendations

This report provides comprehensive recommendation that the Government of Montenegro can take to protect public health and realise the benefits of the WHO FCTC as a sustainable development accelerator, and it is not only focused on the five WHO FCTC policy actions modeled in this investment case.

Recommendations

1. **Commit to fully implement the WHO FCTC in Montenegro.**

2. **Strengthen tobacco tax structures and increase tax rates (WHO FCTC *Article* 6).**

3. **Implement and enforce the other four tobacco control policies studied in this investment case:**

   - **create smoke-free public places and workplaces to protect people from the harms of tobacco smoke (WHO FCTC *Article* 8);**
   - **implement plain packaging of tobacco products (WHO FCTC *Guidelines for implementation of Article* 11 *and* WHO FCTC *Guidelines for implementation of Article* 13);**
   - **promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC *Article* 13); and**
   - **scale up of brief advice to quit for tobacco users in primary care (WHO FCTC *Article* 14).**

4. **Strengthen the implementation of bans on tobacco advertising, promotion and sponsorship (TAPS) (WHO FCTC *Article* 13).**

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

6. **Update the national tobacco control strategy for Montenegro (WHO FCTC *Article* 5.1).**

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

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

9. **Fully implement the Protocol to Eliminate Illicit Trade in Tobacco Products, including by building capacity to combat illicit trade of tobacco and tobacco products (WHO FCTC *Article* 15).**

10. **Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in Montenegro.**

Through the FCTC 2030 Project, the Secretariat of the WHO FCTC, UNDP Montenegro and the WHO stand ready to support the Government of Montenegro to reduce the tobacco-attributed social, economic, and environmental burdens through the implementation of evidence-based tobacco control laws and policies.

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

Every year, tobacco use causes:

- More than 2,000 deaths.
- EUR 48 million in health-care expenditures.
- EUR 33 million in workplace productivity losses.
- Tobacco-attributable mortality valued at EUR 227 million.
- Total social and economic losses equivalent to 7.3% of GDP in 2019.

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

- Prevent more than 6,700 deaths.
- Save EUR 104 million in health-care expenditures.
- Generate economic benefits (EUR 673 million) that significantly outweigh costs (EUR 19.4 million) of implementation and enforcement – a 35:1 return on investment.
- Prevent EUR 498 million in losses due to tobacco-attributable mortality.
- Prevent EUR 71 million in workplace productivity losses.

* Figures subject to rounding

2. Introduction

The tobacco epidemic is one of the greatest public health threats the world has faced, killing more than 8 million people a year, including some 1.2 million deaths from exposure to secondhand smoke [2]. Tobacco is a main risk factor for non-communicable diseases (NCDs) including cardiovascular disease (CVD), diabetes, cancer and chronic respiratory disease as well as a cause of many other diseases [3]. In Montenegro, around two in five adults currently use some form of tobacco product [4], leading to more than 2,000 deaths every year [5]. About 50 percent of those deaths occur among those under age 70 [5].

In addition to the cost to health and well-being, tobacco also imposes a heavy economic burden throughout the world. A 2018 study (based on 2012 data) found that the costs of smoking[2] were equivalent to 1.8 percent of the world's annual gross domestic product (GDP). Almost 40 percent of the costs occurred in developing countries, highlighting the substantial burden these countries suffer [6].

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

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

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

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

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

The WHO FCTC was developed in response to the globalization of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. The Convention represents a milestone for the promotion of public health and provides new legal dimensions for international health cooperation. Montenegro became a Party to the treaty in 2007 [19].

Montenegro also became a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products in 2018 [20]. The Protocol is an international treaty that builds upon Article 15 of the WHO FCTC, with the objective of eliminating all forms of illicit trade in tobacco products through a package of measures to be taken by countries acting in cooperation.

Tackling tobacco use across the world is a priority within the 2030 Agenda for Sustainable Development. Tobacco control is relevant to the achievement of many Sustainable Development Goals (SDGs), particularly SDG Target 3.4 that calls on action to achieve a one-third reduction in premature mortality from NCDs by 2030. Target 3.a is a means of implementation of SDG 3.4 and calls for strengthened implementation of the WHO FCTC. But beyond health, tobacco control is also a proven approach to reduce poverty and inequalities, strengthen and expand the economy and advance sustainable development more broadly. Tobacco control is an SDG accelerator as it can contribute to many goals simultaneously across the economic, social, and environmental spheres [21]. In addition, reducing tobacco use is a one of the nine targets of the *WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013–2030* [22].

Box 1. 2030 Agenda for Sustainable Development

In 2015, all UN Member States adopted the 2030 Agenda for Sustainable Development, outlining peace and prosperity. The core components of the Agenda are the 17 Sustainable Development Goals (SDGs) which are an urgent call for all countries to act together, recognizing that efforts to address poverty, inequalities, health, education, economy and climate change must be done in unison [23].

Since joining the WHO FCTC as a Party in 2007, Montenegro has made progress in tobacco control by amending its principal tobacco control law, the Law on Limiting the Use of Tobacco Products, to regulate tobacco use in public places and workplaces, mandate combined text and graphic health warnings, and impose new restrictions on sale. In 2019, the new Law on Limiting the Use of Tobacco Products was adopted, expanding the ban on smoking in all public and workplaces while still allowing for designated smoking areas indoors. Through these important measures, Montenegro is helping to curb the tobacco epidemic but further action is needed.

However, several key demand reduction measures within the WHO FCTC remain to be implemented and some require strengthening. Opportunities for Montenegro to improve implementation of the WHO FCTC include: strengthening tobacco tax structures and increasing tax rates; implementing comprehensive policies to make all public places and workplaces smoke-free and ensuring robust enforcement; implementing plain packaging of tobacco products; promoting and strengthening public awareness of tobacco control issues; and scaling up of brief advice to quit for tobacco users in primary care clinics, by training health professionals to provide brief advice to quit tobacco use. Realizing the full benefits of all of the above measures depends on concerted and coordinated efforts from multiple sectors of government with support from civil society.

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

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

3 The FCTC 2030 project is a global initiative funded by the governments of Australia, Norway and the United Kingdom to support countries to strengthen WHO FCTC implementation to achieve the SDGs. As of 2022, Montenegro is one of 33 countries worldwide that have participated in the FCTC 2030 project [24].

1. **Increase tobacco taxation to reduce the affordability of tobacco products.** *(WHO FCTC Article 6)*
2. **Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke.** *(WHO FCTC Article 8)*
3. **Implement plain packaging[4] of tobacco products.** *(WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13)*
4. **Scale up of brief advice to quit for tobacco users in primary care clinics.** *(WHO FCTC Article 14)*
5. **Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** *(WHO FCTC Article 12)*

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

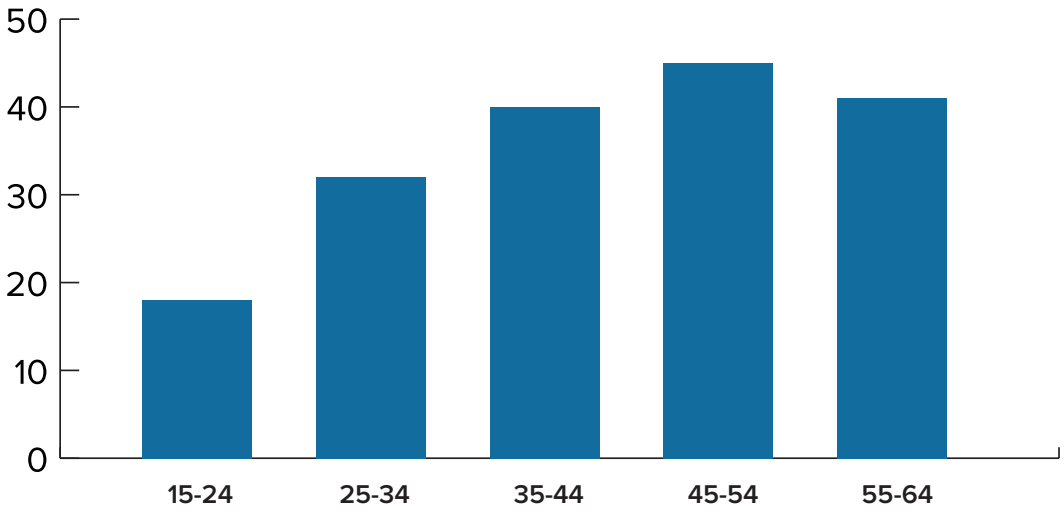
4 Plain (or standardized) packaging is defined as "measures to restrict or prohibit the use of logos, colours, brand images or promotional information on packaging other than brand names and product names displayed in a standard colour and font style". Further information is available at: Guidelines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

3. Tobacco control in Montenegro: status and context

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

In 2017, more than 35 percent of the adult population (15-64 years) in Montenegro smoked tobacco, the highest national smoking prevalence in the European region [25], [26]. The latest nationwide Periodic Survey on the Quality of Life, Lifestyles, and Health Risks of the Inhabitants of Montenegro found that close to 35 percent of females and more than 36 percent of males are current smokers and around 96 percent of users smoke tobacco daily [25]. Cigarettes are the most common type of tobacco product used, with the average user smoking 19.7 cigarettes per day [4]. Other forms of tobacco are much less common and are usually consumed by women [4]. The highest tobacco use prevalence is observed among those aged 45-54 years: close to 45 percent among females and more than 50 percent among males in this age group use tobacco [4], [25] (**Figure 1**).

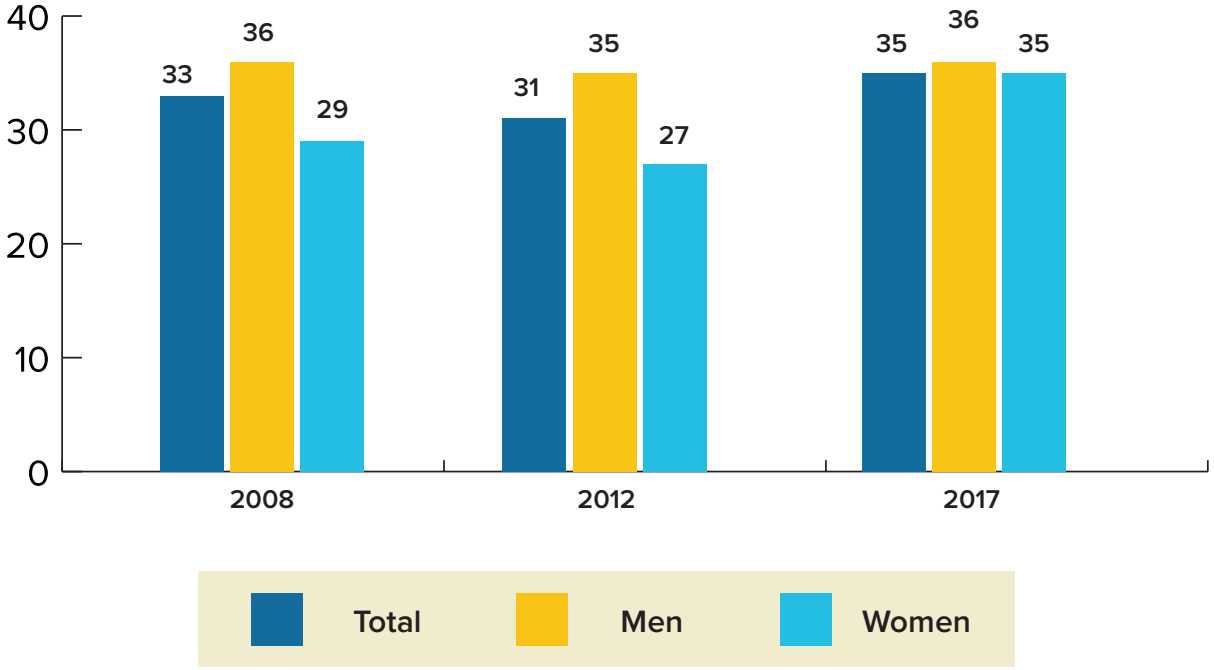
Fig. 1: Smoking prevalence (%) in adult population in Montenegro (by age groups)



Source: Survey on the Quality of Life, Lifestyles and Health Risks of the Inhabitants of Montenegro, 2017 [25]. Prevalence data used in the economic modelling of the investment case is from the report *Adult Tobacco Use in Montenegro*, by the Institute of Socioeconomic Analysis in Montenegro, 2020 [4].

There was an alarming increase in smoking prevalence between 2012 and 2017, from 31 percent to more than 35 percent. This increase has been due to smoking rates by females increasing substantially in recent years [25], [27]–[29], (**Figure 2**).

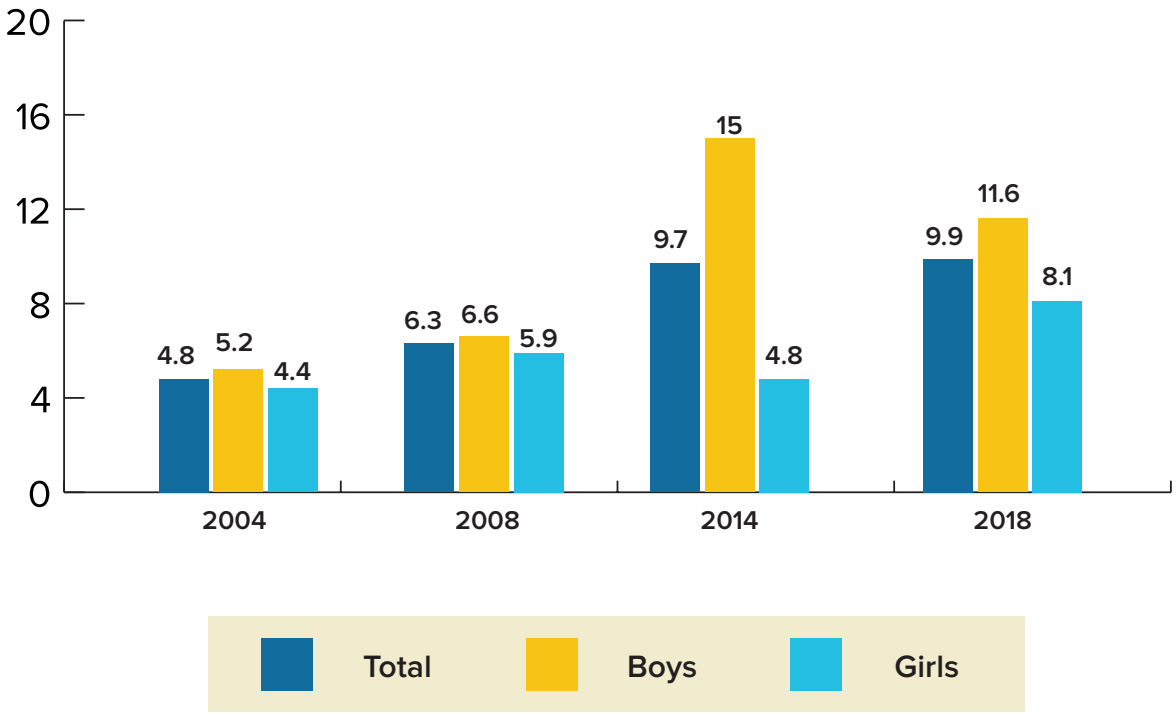
Fig. 2: Tobacco prevalence among adults (%)



Source: Institute of Public Health Survey – 2008, 2012, 2017

Furthermore, there has also been a gradual increase in tobacco use among youth (13-15 years old) – from 6.3 percent in 2008 [30] to 9.7 percent in 2014 [31] to 9.9 percent in 2018 [32] (**Figure 3**). Cigarette consumption also increased among girls (from 2.8 percent in 2014 to 5.3 percent in 2018).

Fig. 3: Smoking prevalence among youth, 13-15 years (%)



Source: Global Youth Tobacco Survey - GYTS, 2004, 2008, 2014, 2018

Making tobacco products less affordable is one of the best ways to control tobacco use, and young people are particularly sensitive to the price of tobacco [33]. A 2021 study demonstrated that higher tobacco prices, such as through tax increases, are associated with a decreased risk of smoking initiation among youth and young adults [34].

Box 2. Tobacco and gender

While worldwide women and girls tend to use tobacco at lower rates than men, in Montenegro, women and girls smoke almost as much as men and boys do, with female smoking rates increasing over the past decade [27]. Women and girls are exposed to targeted tobacco industry marketing [35] in addition to the harms of tobacco use—including exposure to secondhand smoke [36] and the effects of household income diverted to tobacco use.

Box 3. Tobacco and pregnancy

Tobacco use during pregnancy imposes significant health risks on the fetus, infant and mother. It increases the likelihood of miscarriages, stillbirths, preterm births, low birth weight, birth defects, and sudden infant death syndrome, among others [37], [38]. Exposure to secondhand smoke during pregnancy also increases the risks of having low birthweight babies, in turn increasing the risk of a mother and child developing health issues [38]. Mothers face additional health risks as pregnant smokers are more likely to experience heart and lung complications than pregnant nonsmokers [39]. Despite the strong evidence, the tobacco industry continues to aggressively target women and girls [38]. It is estimated that the global prevalence of smoking during pregnancy is 1.7 percent [40].

Youth in Montenegro also use smokeless tobacco; around 3 percent of boys and close to 2 percent of girls are current users [32]. There is also a growing demand for novel tobacco products [41] that the tobacco industry has been actively promoting to youth in Montenegro and other countries in the region [42].

In Montenegro, nearly nine in ten adults allow smoking in the home, regardless of whether they are smokers or non-smokers, and nearly one in five adults (18.4 percent) are exposed to secondhand smoke in restaurants and 26 percent in bars and night clubs [4]. The results of the latest GYTS survey indicate that close to half of young students 13-15 years old are exposed to secondhand smoke at home and close to 58 percent are exposed inside enclosed public places [32].

Among the students surveyed in GYTS, more than 82 percent were in favor of prohibiting smoking inside enclosed public places and more than 60 percent definitely thought that other people's tobacco smoking was harmful to them [32]. Around half of all current smokers also reported that they have been told on multiple occasions that their smoking bothers other people [4].

3.2 National tobacco control legislation, strategy and coordination

At Article 69, the Constitution of Montenegro sets out that everyone has the right to health protection [41].

The Government of Montenegro has adopted several laws to address tobacco use in the country. The first tobacco-specific legislation was introduced in 2004, when the government adopted the Law on Tobacco to regulate the tobacco market and the Law on Limiting the Use

of Tobacco Products to introduce the first tobacco control measures [43]. Shortly after, in 2006, Montenegro became a Party to the WHO FCTC. In the next 10 years, several amendments were made to the Law on Limiting the Use of Tobacco Products with the aim of strengthening restrictions on the sale of tobacco products and to introduce additional demand reduction measures. Over the same period, the government also implemented several tobacco tax increases. Between 2009 and 2012, the tobacco-specific excise taxes were raised, and subsequently cigarette purchases decreased and public revenue increased [43]. However, excise taxes fluctuated in following years, with amendments to the law changing the tax rates (see section 3.3 on tobacco taxation for more information) [43].

In 2017, Montenegro ratified the Protocol to Eliminate Illicit Trade in Tobacco Products and in 2019, the government passed a new Law on Limiting the Use of Tobacco Products, which expanded the ban on smoking to nearly all public and workplaces while still allowing designated smoking areas. Tobacco control measures have also been integrated in several sectoral laws, including the Law on Media, the Rulebook on Audio-visual Commercial Communication, the Rulebook on Advertising and Sponsorship in Electronic Media, and the Law on Health Inspection, which, together with the Law on Limiting the Use of Tobacco Products, mandate a comprehensive ban on advertisement and promotion of tobacco products through different media [41].

Montenegro does not have a national coordinating mechanism for tobacco control. While the government established a Committee for Tobacco Control in 2005, its activities ceased in 2008 and it has not been reactivated or replaced since then [41]. Establishing a dedicated coordinating mechanism is needed to improve multi-stakeholder communication, coordination and resource allocation among the active national committees currently engaged in tobacco control activities, which include the Committee on Health, Labor and Social and the National Council on NCD Prevention and Control [41].

In addition, Montenegro currently has no national strategy for tobacco control. Although Montenegro developed and adopted a tobacco control strategy in 2005, it expired in 2008 and was not replaced. Tobacco-related objectives were integrated in other national strategic and planning documents; however, most of them have also expired, including the Health Policy of the Republic of Montenegro until 2020, the Strategy for Health Care Development in Montenegro (2003-2020), and the Strategy for Prevention and Control of Chronic Non-communicable Diseases (2008-2020). Both the national coordinating mechanism and the national strategy are important enablers of effective tobacco control governance that can promote and facilitate multisectoral collaboration, identification and management of conflicts of interest, information sharing, co-benefit analysis and planning, and pooling of resources [44], [45].

Despite the progress that has been made, there remain several WHO FCTC obligations that are not yet fully implemented in the country.

3.3 The status of WHO FCTC demand-reduction measures

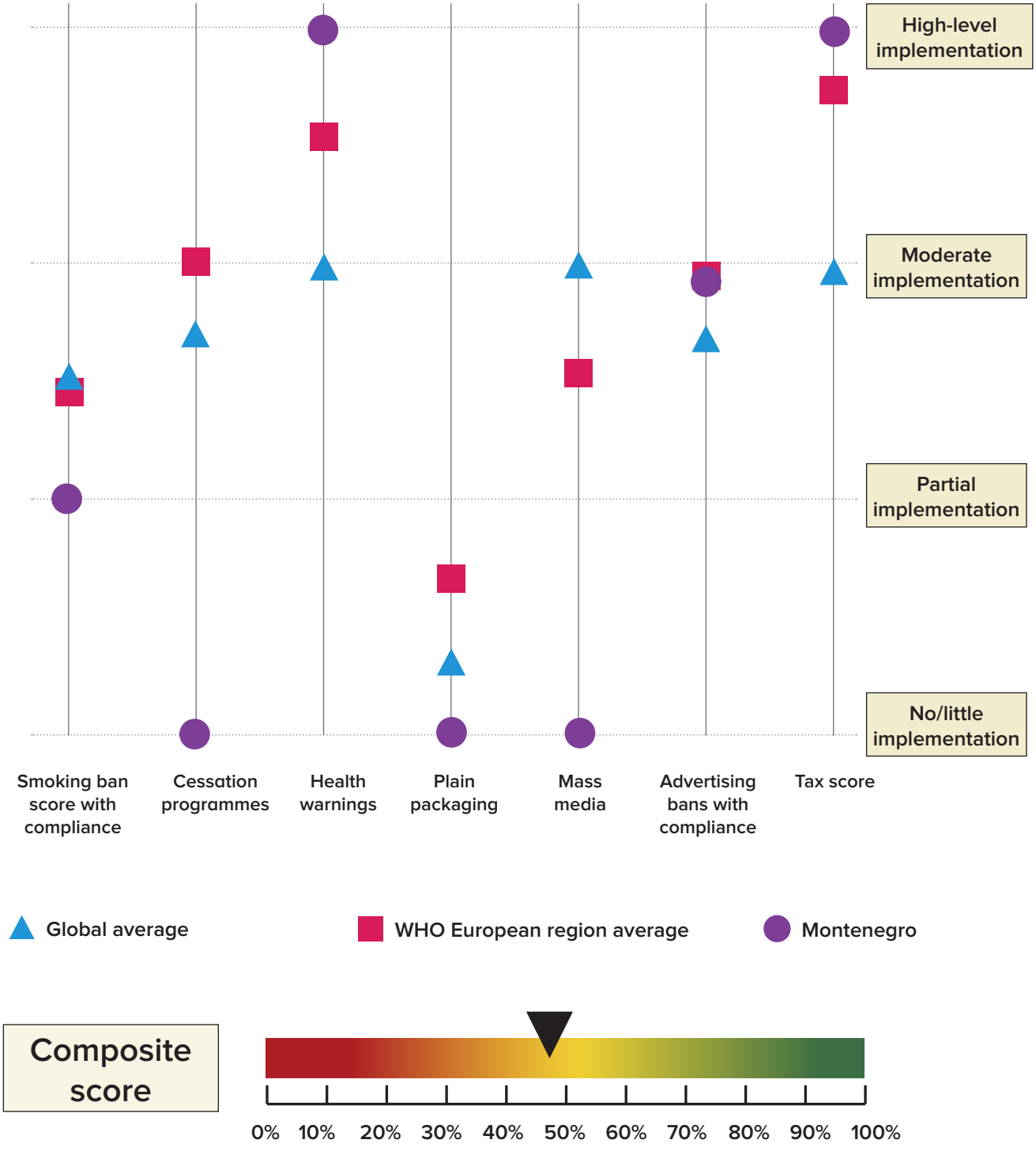
Strong fiscal and regulatory measures influence societal norms by signaling that tobacco use is harmful, not only for users but for the people around them including family, colleagues, and co-workers.

While Montenegro has demonstrated progress in implementing key demand reduction measures, more than 205,000 people in Montenegro continue to smoke [46]. Implementing additional demand reduction measures or intensifying existing ones can bring Montenegro into closer alignment with the WHO FCTC and reduce the substantial costs imposed by tobacco use. Below, the status of each of the demand reduction measures in relation to WHO FCTC recommendations is discussed.

Figure 4 summarizes the status of tobacco control demand reduction measures in Montenegro from the *WHO Report on the Global Tobacco Epidemic, 2021* [47] and, for each, progress toward meeting the obligations in the WHO FCTC. Overall, Montenegro is assessed to be 47 percent of the way toward fulfilling the key WHO FCTC demand reduction measures, below the global average of 53 percent.[5]

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

Fig. 4: Status quo implementation levels of WHO FCTC demand-reduction measures in Montenegro



Source: WHO Report on the Global Tobacco Epidemic, 2021 [47]

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

In Montenegro, total taxes comprise about 77.5 percent of the retail price of the most sold brand of cigarettes. Tax on cigarettes consists of a specific excise tax (levied at a fixed rate per 1,000 cigarettes) adjusted per inflation, an ad valorem excise tax (levied at a percentage of the weighted average price of cigarettes per pack), and a value added tax (VAT) [48], [49]. Excise taxes alone accounted for around 60 percent of the retail price of the most sold brand [47]. Tobacco products are also available at duty-free shops [50].

While the percentage represented by total taxes in the retail price is aligned with WHO recommendations, there is still scope for action particularly in relation to excise taxes. The WHO FCTC Guidelines for implementation of Article 6 and WHO recommend that excise taxes should represent 70 percent or more of the retail price of the most sold brand of cigarettes. WHO further recommends that governments rely more on specific tobacco excises to drive price increases (rather than rely on ad valorem excises), increase tobacco taxes significantly to reduce affordability of tobacco products and automatically adjust specific tobacco taxes for inflation and income growth [51].

Montenegro utilizes an excise tax calendar per the Law on Excise Taxes. In 2014, amendments were made to the Law, setting an annual increase in the specific excise tax on cigarettes at a rate of EUR 2 per 1,000 cigarettes, while decreasing ad valorem excise taxes by one percentage point. In 2017 the government passed an amendment to significantly increase the tax rates from EUR 2 to EUR 30 in 2017, EUR 40 in 2018 and EUR 50 in 2019, keeping the ad valorem as-is. However, in 2018 another amendment passed which reduced these scheduled excise tax increases [43]. In 2021, the Department of Public Revenues in Montenegro increased excise tax rates again on cigarettes to EUR 40.5 in 2022 and EUR 47.5 in 2024 while decreasing the ad valorem rate from 27.5 percent to 24.5 percent over the same period [52]. Another amendment to the Law on Excise Taxes was presented to the Parliament in 2021, which proposed to increase specific excise tax to EUR 49 per 1,000 sticks with no changes to the ad valorem rate [41]. As of July 2023, the amendment is undergoing review by the Parliament.

Still, cigarettes remain much more affordable in Montenegro than in the European Union [43], [53], [54].

While the total tobacco tax share of retail price is above the WHO-recommended threshold, the tobacco tax structure can be strengthened by raising the tobacco-specific excise tax to reduce the affordability of both higher- and lower-priced tobacco products.[6]

Furthermore, the excise tax calendar is currently not sufficient to achieve alignment with the requirements of the European Council Directive 2011/64/EU, which requires levying an overall excise tax of at least EUR 90 per 1,000 cigarettes [43]. Meeting the EU requirements is important as part of Montenegro's EU accession process, which is expected to be completed in 2025 [55].

The Global Cigarette Tax Scorecard that assesses countries' cigarette tax policy performance gave Montenegro a score of 3.63 out of a maximum score of 5 in 2020. While higher than the global average, Montenegro's score declined between 2018 and 2020. Within the Tax Scorecard, Montenegro rated lowest on cigarette absolute price change and tax structure [56].

The investment case examines the impact of raising cigarette taxes to best-practice levels recommended in the WHO Technical Manual on Tobacco Tax Administration, by increasing the specific excise tax and substantially reducing the affordability of tobacco products. It models increasing the specific excise tax annually, starting in 2023, triggering real price increases of an average of 7.5 percent per year (see the annex on methodology for detailed information). Further economic gains will be made in Montenegro with substantial tax increases on all tobacco products.

2. Create smokefree public and work places to protect people from the harms of tobacco smoke *(WHO FCTC Article 8)*

The 2019 Law on Limiting the Use of Tobacco Products expanded the smoke-free policy mandated by the previous 2004 law to cover more workplaces and enclosed public places. Designated smoking rooms in workplaces and public places are still permitted as they were in previous law, but the 2019 law indicated they must meet certain criteria.[7] Smoking in casinos and lottery premises is allowed too. In addition,

6 As evidenced by a study conducted in 2019, close to 27 percent of smokers changed their smoking behaviour in response to the last increase in the price of cigarettes, including 8.2 percent that decided to consume less tobacco and 2.2 that temporarily quite smoking. However, the most commonly reported behaviour change was a partial or complete transition to cheaper brands or hand-rolled cigarettes (reported by more than 11 percent of smokers) [4].

7 According to the 2019 Law on the Limiting the Use of Tobacco Products, smoking is permitted in workplaces in rooms that are specifically designated for smoking. Workplaces with designated smoking rooms cannot be in government buildings; places where health, educational, social protection, cultural, sport or recreational activities are performed; places where there is food production, transport and storage; places where there is production and sale of medicine, places where there is public broadcasting and recording; or places where there are public gatherings [57].

the compliance and enforcement of smoke-free policies in restaurants, cafes, bars, and nightclubs is low as there is reported exposure to secondhand smoke at these places [4].

The investment case examines the impact of enacting and enforcing comprehensive smoke-free measures for all indoor workplaces and public places.

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

Montenegro has three groups of rotating graphic warning labels that are required on cigarette packaging. The 2019 Law on Limiting the Use of Tobacco Products mandates that 65 percent of the principal display area (front and back) of cigarette packaging be covered with the health warnings (text plus picture), meeting WHO FCTC obligations. The law also prescribes that the health warning must be in a position which does not allow its removal when pack is opened. Given that the requirements under WHO FCTC Article 11 obligations are being met and there is a good level of implementation, this intervention has not modeled in the investment case.

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

Plain packaging is not included in Montenegro's existing tobacco control legislation. The investment case examines the impact of implementing and enforcing plain packaging requirements.

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

Montenegro has not aired an anti-tobacco mass media information campaign between July 2018 and June 2020 with a duration of at least three weeks [47]. The investment case examines the impact of implementing a best-practice mass media campaign in Montenegro.

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

Montenegro has not aired an anti-tobacco mass media information campaign between July 2018 and June 2020 with a duration of at least three weeks [47]. The investment case examines the impact of implementing a best-practice mass media campaign in Montenegro.

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

The results of the 2019 Survey on Tobacco Consumption in Montenegro indicate that recommendations from a healthcare professional to stop tobacco use is one of the most common reasons for Montenegrins to attempt quitting. Among young adults, illness or medical conditions were reported as the predominant reason for attempting to quit [4]. Nonetheless, tobacco cessation counselling has limited coverage in Montenegro and there is a limited capacity to offer such services to patients at the primary healthcare level [41].

Tobacco use cessation support is provided through a range of counselling programmes organized at primary care level and in communities. However, these programmes have been primarily focused on young people and pregnant women, and stakeholders report insufficient capacity to scale-up implementation due to lack of personnel [41].

There seems to also be a very low number of non-governmental organizations (NGOs) and private agencies supporting promotion, training, and education related to the harmfulness of tobacco use. While several educational programmes are being run, more effort and resources are required to discourage uptake and promote cessation among the population [41].

Montenegro does not offer a national toll-free quit line to the population and the accessibility and nicotine replacement therapy (NRT) is not available and is not included in the essential medicines list [47].

The provision of brief advice to tobacco users from health-care professionals whenever they access health-care services–especially in the primary care setting–is shown to be effective in supporting successful tobacco cessation [58] and represents a useful early step in rolling out support for tobacco users to quit. The investment case models the impact of training primary care health providers to identify tobacco

users and to provide tobacco cessation advice (see the annex on methodology for detailed information). Further gains would be possible with the provision of further support to tobacco users, such as offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet based quit support and making pharmacotherapies more widely available (free of cost, if possible).

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

Table 1: Summary of the current state of WHO FCTC demand reduction measures in Montenegro and modeled implementation targets based on the *WHO Report on the Global Tobacco Epidemic, 2021* [47]

Tobacco control policy	Montenegro baseline*	Modeled implementation target
Increase tobacco taxation to reduce the affordability of tobacco products *(WHO FCTC Article 6)*	Total tax equivalent to 77.5% of the retail price of the most sold brand of cigarettes and the excise taxes account for around 61% of the retail price of the most sold brand.	Increase excise taxes to represent at least 70% of the retail price by increasing the specific excise tax. Keep regular tax increases to outpace inflation and income growth.
Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke *(WHO FCTC Article 8)*	Smoking is banned is most public places and workplaces, but designated smoking areas are permitted and smoking is allowed in casinos and lottery premises.	Enact and enforce comprehensive smoke-free requirements for indoor public places and workplaces.
Implement plain packaging of tobacco products *(WHO FCTC Guidelines for implementation for Article 11, and WHO FCTC Guidelines for implementation for Article 13)*	Plain packaging requirements are not currently in place.	Implement and enforce plain packaging of tobacco products.
Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation *(WHO FCTC Article 12)*	No national-level, anti-smoking media campaigns have recently aired.	Implement and enforce plain packaging of tobacco products.

Tobacco control policy	Montenegro baseline*	Modeled implementation target
Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS) *(WHO FCTC Article 13)*		Implement a nationwide anti-smoking mass media campaign that is researched and tested with a targeted audience and evaluated for impact.
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Article 14)*[8]	There is no national toll-free quit line, NRT is not available and smoking cessation support is not routinely offered by healthcare professionals and is not fully cost-covered.	Expand training of primary health-care providers to identify tobacco users and to provide tobacco cessation advice; scale up the provision of tobacco cessation services at the primary care level.

Source: WHO Report on the Global Tobacco Epidemic, 2021 [47].

3.4 Tobacco use and the COVID-19 pandemic

The global coronavirus disease (COVID-19) pandemic has strained health systems worldwide, and the economic impact of the outbreak has been immense. According to WHO, evidence indicates that smokers are more likely to suffer more severe outcomes of COVID-19, such as admission into intensive care units and death, than never smokers. Furthermore, severe forms of COVID-19 or deaths due to COVID-19 are more frequent in people with comorbidities that are related to tobacco use, including chronic obstructive pulmonary disease, lung cancer and cardiovascular disease [59] .Moreover, tobacco use is also proven to worsen the outcomes of other communicable diseases including such as tuberculosis and HIV [60].

3.5 Financing

Montenegro does not presently have a national tobacco control fund and there are no financial resources earmarked for tobacco programmes. Furthermore, stakeholders report that healthcare providers, public health institutions, and other relevant authorities generally do not have dedicated budget lines for tobacco control. There are also gaps in funding of tobacco cessation services, and many tobacco prevention activities rely on ad hoc financial allocations from different ministries and institutions [41].

3.6 Tobacco industry presence and interference in policymaking

The scale of tobacco growing is very limited in Montenegro, accounting for just a small fraction of agricultural activity in the country [61]. As of 2020, the tobacco group Novi Duvanski Kombinat Podgorica plans to invest in the construction of a tobacco processing plant in the

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

country, of which tobacco products would be exclusively for export [62]. Nearly all tobacco products that are sold in Montenegro are imported [43]. An independent market research firm estimates that the smoking tobacco market in Montenegro will grow at a compound annual rate of around 3.1 percent between 2020 and 2025 [63].

The tobacco industry invests heavily in lobbying for its interests and opposing anti-tobacco policies, and there is evidence that the tobacco industry has previously interfered with policymaking in Montenegro. In the Global Tobacco Industry Interference Index,[9] Montenegro scored 46, ranking 17th out of 90 countries, in the top 20 countries analysed (in a system where a lower the score indicates less interference) [64]. According to analysis by the World Bank, the tobacco industry successfully influenced the government to reduce planned excise tax rate increases in 2018 [42]. The industry did so by manipulating tobacco sales and, in turn, government tax revenues using techniques like forestalling[10] and over-shifting,[11] and claiming that reduced tobacco tax revenues were the result of increased tobacco smuggling resulting from tax increases. Tobacco excise taxes were then reduced in 2018 in response to this campaign [42].

The Law on Limiting the Use of Tobacco Products is not fully aligned with the goals, principles and recommendations embodied in WHO FCTC Article 5.3 and its implementation guidelines. For example, there is no ban on tobacco industry corporate social responsibility activities in Montenegro. Further, there are no measures in place to govern the interactions of government officials with the tobacco industry or its representatives.

3.7 Illicit trade in tobacco products

Illicit trade in tobacco products poses a serious threat to public health. Illicit trade increases the accessibility and affordability of tobacco products, thus fuelling the tobacco epidemic and undermining tobacco control policies. It also causes substantial losses in government revenues, and at the same time contributes to the funding of transnational criminal activities [66]. Despite tobacco industry's claims, changes in illicit tobacco trade levels are very loosely connected with changes in tobacco taxes. Increasing tobacco taxes does not necessarily lead to more tobacco smuggling, as demonstrated by multiple studies [67].

On 11 October 2017, Montenegro ratified the Protocol to Eliminate Illicit Trade in Tobacco Products [20] representing a milestone in the country's efforts to eliminate the problem of

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

10 Forestalling refers to the practice of increasing production or stock of product in anticipation of tax increases to attempt to take advantage of the current or lower tax. More information can be found from the Guidelines for implementation of Article 6 of the WHO FCTC provided by the Secretariat of the WHO FCTC [65].

11 Over-shifting takes place when the tobacco industry increases the price of tobacco products above that required by a tax increase, shifting the burden of the tax/price increase to consumers, rather than producers.

illicit tobacco. The Protocol supplements the WHO FCTC with a comprehensive tool to counter and eventually eliminate illicit trade in tobacco products and to strengthen legal dimensions for international health cooperation.

Montenegro has made efforts to combat illicit tobacco trade, including through introducing criminal and administrative liability for the sale of illicit tobacco products, mandating licenses for tobacco imports and manufacturing, and promoting collaboration between the Customs Administration and other national and international institutions [41].

Further efforts are required to strengthen and coordinate the work of the police, customs officers, and inspection to combat the illicit trade of tobacco products, and to implement a tracking and tracing system that meets the requirements of the Protocol [41].

3.8 Tobacco control and the environment

Tobacco litter has been recognized as a growing threat to both aquatic and terrestrial biosystems [68]. In Montenegro, cigarette butts and filters are among the most frequent litter items found in coastal areas and at the beaches [69]. A community beach clean in Bar, Montenegro organized by the Marine Mammals Research Association found smoking materials were a main category of waste, amounting for as much as 38 percent of all waste collected [70]. If no action is taken, tobacco products will continue to harm Montenegro's environment, including coastal ecosystems.

3.9 Tobacco control and tourism

International tourism receipts accounted for close to 53 percent of foreign revenue in Montenegro in 2019 (before COVID-19) [71]. One of the arguments used by tobacco companies and its allies against stricter tobacco control measures is that such measures might adversely affect the tourism and hospitality sector. However, it is a myth that enforcing stricter tobacco control regulations would harm the tourism and hospitality sector [72]. Studies conducted in multiple countries suggest that tourism and hospitality businesses do not experience any decrease in revenues or profitability after introducing new smoking restrictions [73]–[76].

3.10 Tobacco farming

Montenegro is a major tobacco-growing country in the world. The Montenegroi government controls tobacco growing and marketing through the Montenegroi Tobacco Board (PTB). According to the PTB website, there 50 000 tobacco growers across Montenegro, with 34,790 hectares under cultivation in 2021–2022 [86]. Although MoHSRC strives to implement Article 17 of the WHO FCTC to promote alternative livelihoods for tobacco farmers in Montenegro [87], there are difficulties achieving coherence among sectors outside of health. For example,

the Ministry of Planning Development and Special Initiatives is concerned with modernizing and increasing the productivity of the tobacco sector in Montenegro [88].

It is also common for government officials and agencies to promote a narrative that positions the tobacco industry as an important driver of the economy In Montenegro [88]. However, evidence from the Social Policy and Development Centre suggests that these claims are overblown, citing that the cigarette industry only employs 0.2 precent of the industrial labour force and contributed to only 0.3 percent of GDP in 2019 to 2020 [55].

Tobacco farming puts farmers at serious risk of health complications, including green tobacco sickness (a type of nicotine poisoning) and pesticide poisoning [17]. Tobacco growing also has negative impacts on the environment [17]–[19]. Nonetheless, programmes that would help tobacco farmers make the transition to other health-promoting, economically viable alternatives to tobacco farming, in line with FCTC Articles 17 and 18, are thus far lacking [43].

3.11 Civil society organizations

In Montenegro, apart from NGOs involved in HIV and tuberculosis prevention and control, there are very few NGOs involved in public health. In general, active NGOs are mainly engaged around issues related to the EU integration agenda, including rule of law, organized crime and corruption, and electorate processes. Due to insufficient financial resources, only a few NGOs such as Društvo za borbu protiv raka, Preporod and Donna Montenegrina are active in the field of non-communicable diseases and tobacco control. These organizations work closely with the health sector to advocate and raise awareness of the harmful health effects of smoking among the general population or for specific population groups such as women.

4. Methodology

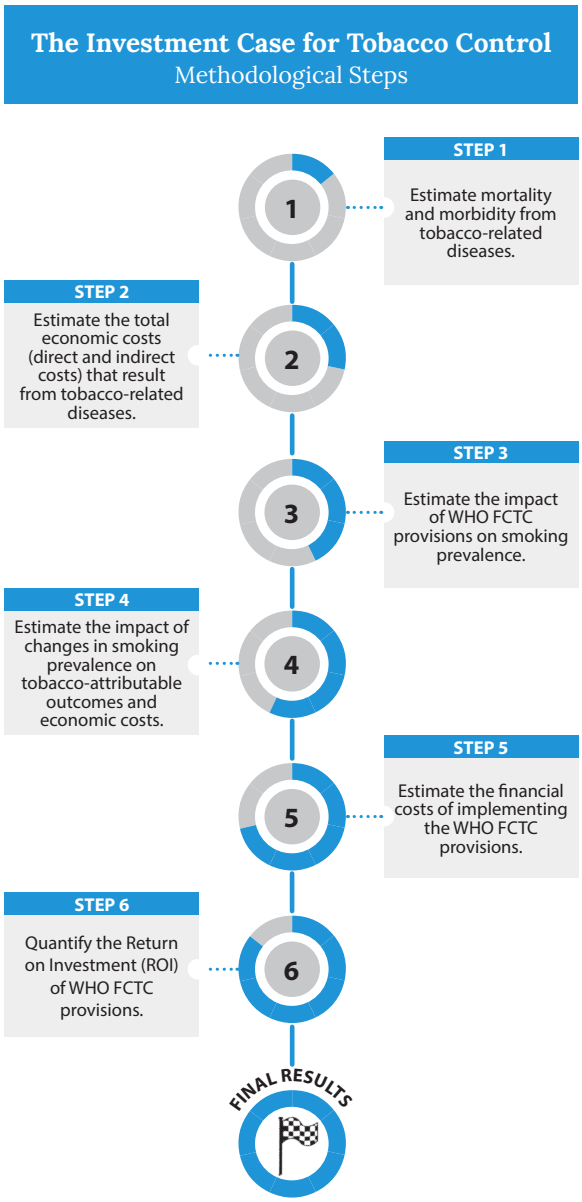
The purpose of the investment case is to quantify the current health and economic burden of tobacco use in Montenegro (in the context of WHO FCTC measures that are currently in place), and to estimate the impact that implementing new WHO FCTC measures—or strengthening existing ones—would have on reducing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

A static model was developed to conduct the investment case and to perform the methodological steps in **Figure 5**. This methodology has been used for previous national WHO FCTC investment cases under the FCTC 2030 project.

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

The investment case team worked with the MoH and other stakeholders in Montenegro 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 WHO, the World Bank database, the Global Burden of Disease (GBD) study by the Institute for Health Metrics and Evaluation (IHME), and academic literature. Within the investment case, costs and monetized benefits are reported in constant 2020 Euros (EUR) and discounted at an annual rate of 5 percent.

Fig. 5: Building the Investment Case



12 Available upon request.

5. Results

5.1 The current burden of tobacco use: health and economic costs[13]

In 2019, tobacco use caused an estimated 2,011 deaths in Montenegro, 50 percent of which were premature, i.e. occurred among those under 70 years of age [77]. These deaths amount to 29,159 years of life lost (YLLs), which are lost productive years in which many of those individuals would have contributed to the workforce [77]. Monetizing YLLs due to tobacco use, the investment case identifies EUR 227 million in losses due to tobacco-attributable mortality.

While the costs of the tobacco-attributable mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g. cardiovascular disease, respiratory conditions, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the government EUR 29 million in 2020 and caused Montenegrins to spend EUR 18.4 million in out-of-pocket (OOP) health-care expenditures. Private insurance and non-profit institutions serving households spent EUR 0.2 million on treating tobacco-attributable diseases in 2020. In total, health-care expenditures attributable to smoking amounted to EUR 48 million.

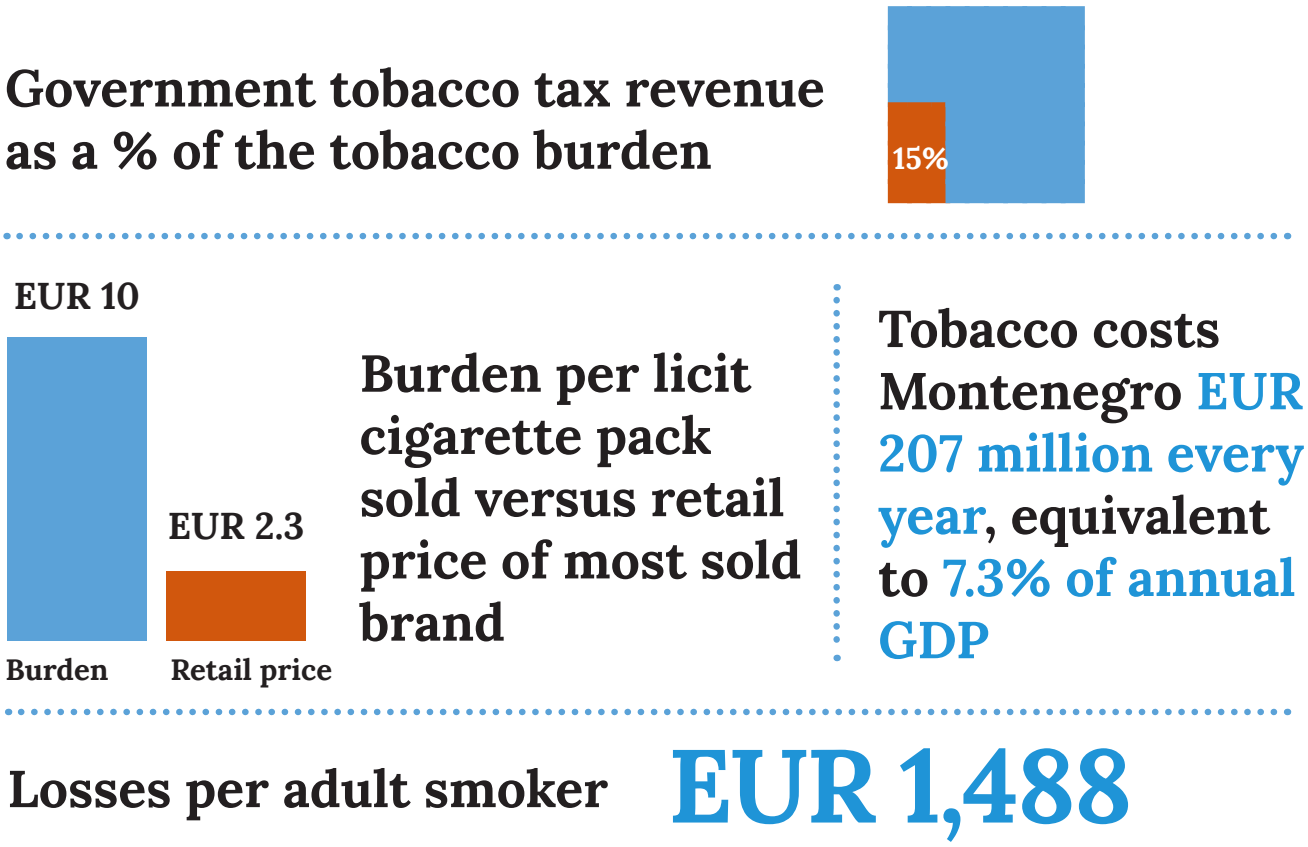
In addition to health-care costs, as people become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2020, the cost of excess absenteeism due to tobacco-related illness was EUR 8.9 million and the cost of presenteeism due to cigarette smoking was EUR 24 million.

In total, tobacco use caused EUR 307 million in economic losses in 2020, equivalent to about 7.3 percent of Montenegro's annual GDP. **Figure 6** summarizes the current social and economic burden of tobacco use and contextualizes the losses. This burden of tobacco use in Montenegro far exceeds the revenue the government currently collects from taxing tobacco products. Tobacco-attributable social and economic losses are 6.7 times larger than the collected government revenue. Social and economic losses per licit cigarette pack sold equate to about EUR 10 per pack, outweighing the financial value—represented by the per pack price—that accrues in the value chain to growers, manufacturers, vendors, other supply chain stakeholders, and the government (through taxation). Given the dominance of

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

multinational corporations in the tobacco trade and the high profit margins on cigarettes, much of the profit from tobacco sales in Montenegro leaves the country and goes into the pockets of international shareholders.

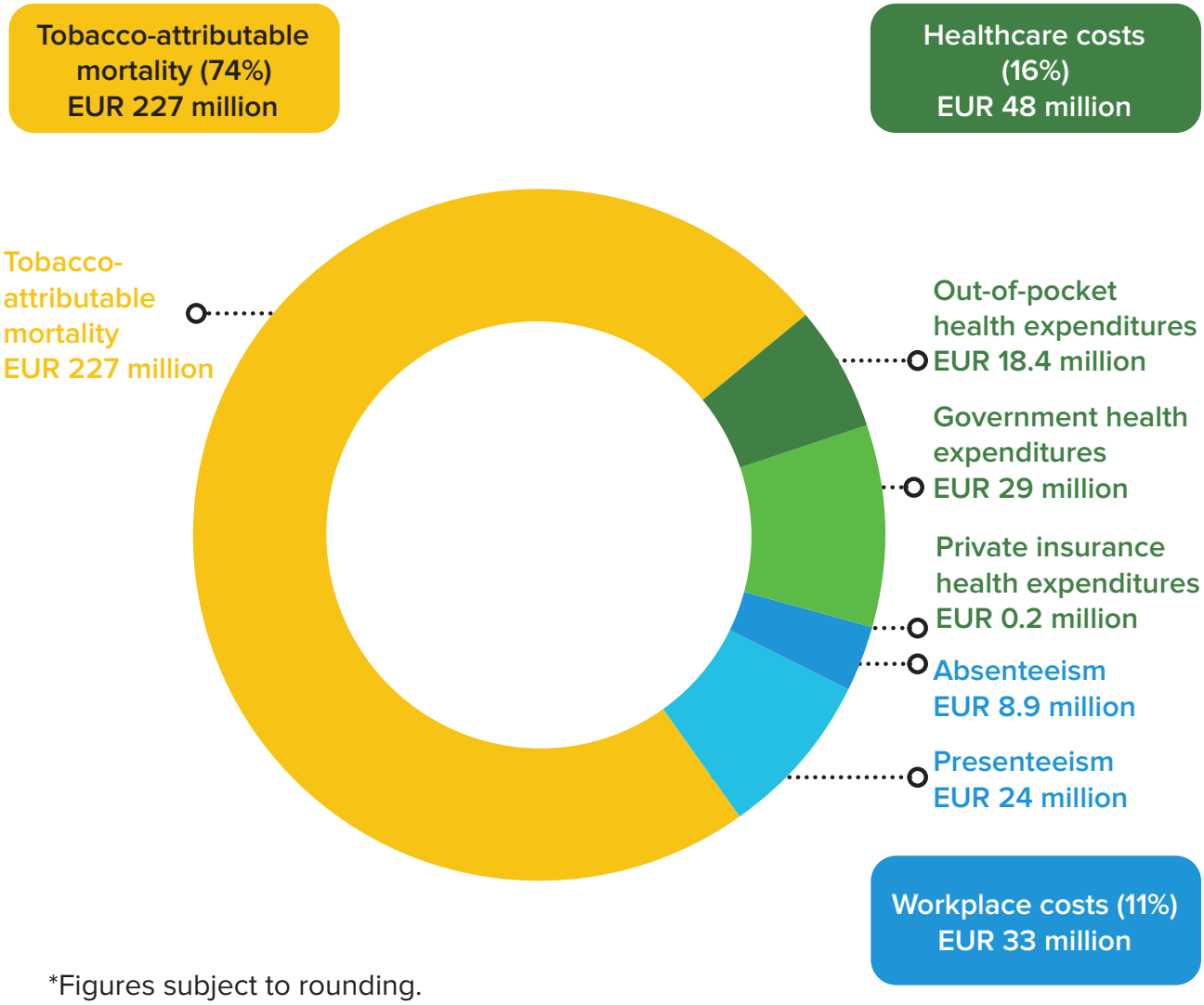
Fig. 6: Contextualizing the burden of tobacco use in Montenegro, 2020*



* Figures subject to rounding. Tax revenue comparisons are provided for context and are not meant to suggest that taxes should be increased to levels that equalize revenue with the tobacco burden. Government tobacco tax revenue (GHC 105 million in 2019) and the retail price of the most sold brand are from the WHO Report on the Global Tobacco Epidemic 2021 [47]. The number of estimated licit cigarette packs sold (≈71.5 million) is estimated following methods published by Fenny et al (2020) [78] who use information from GlobalData [79].

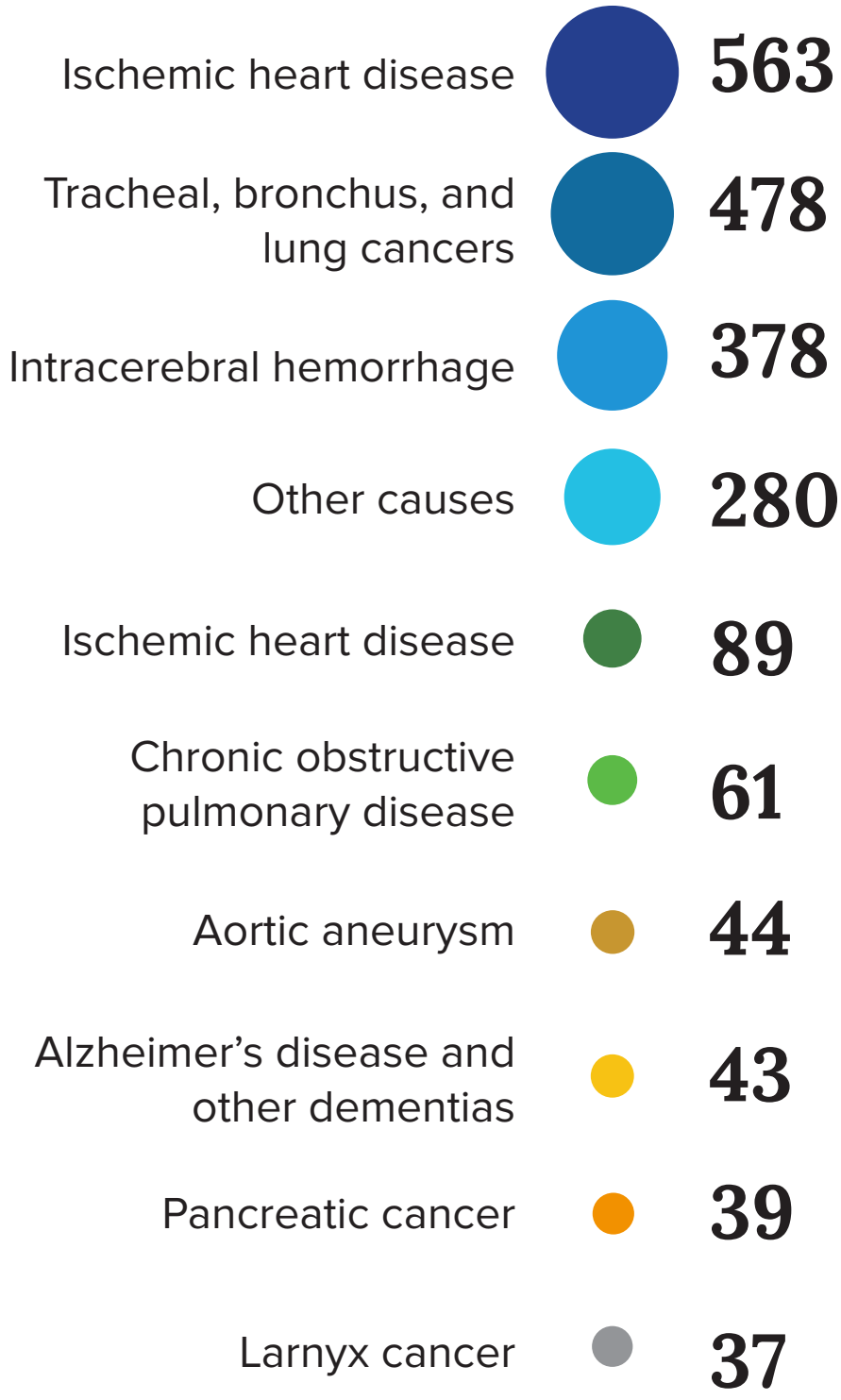
Figure 7 illustrates the share of the burden attributable to tobacco-attributable mortality, workplace costs, and health-care costs. **Figure 8 and Figure 9** illustrate the annual health losses that occur due to tobacco use.

Fig. 7: Breakdown of the share of the cost of tobacco-attributable mortality, workplace costs, and healthcare costs (EUR millions) in 2020*



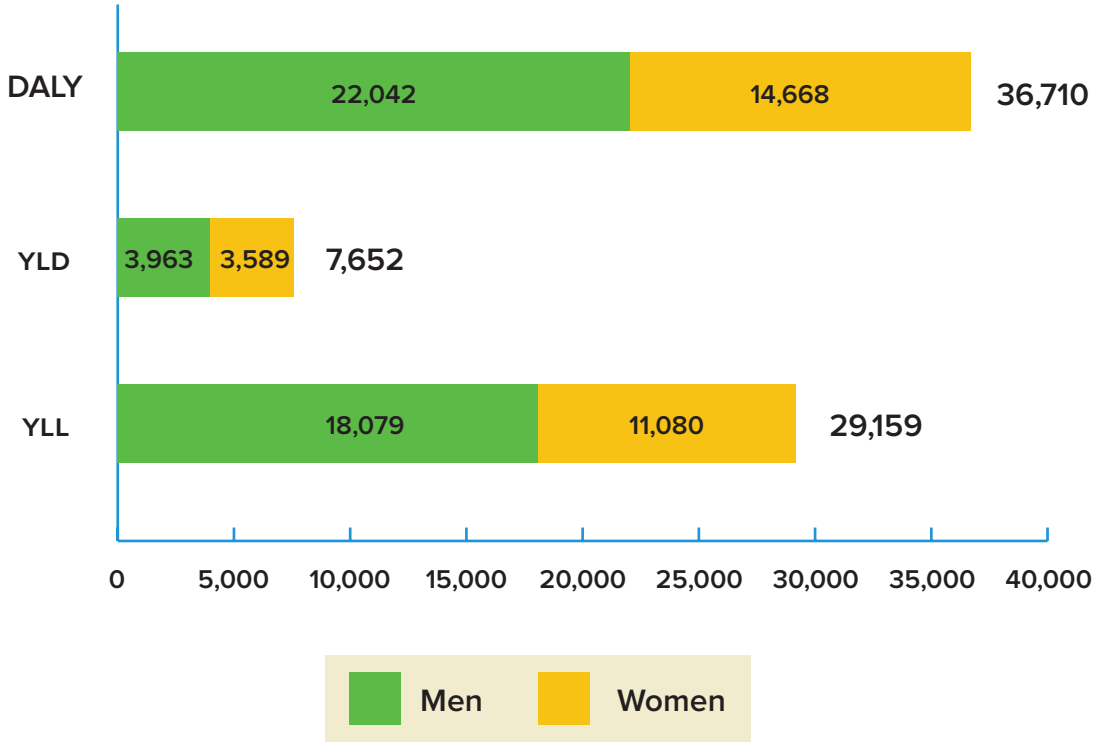
*Figures subject to rounding.

Fig. 8. Tobacco-attributable deaths by disease in Montenegro, 2019



Source: Results are from the IHME Global Burden of Disease Results Tool. Other causes include colon and rectum cancer, diabetes mellitus type 2, lower respiratory infections, stomach cancer, bladder cancer, breast cancer, liver cancer, leukaemia, esophageal cancer, lip and oral cavity cancer, atrial fibrillation and flutter, prostate cancer, kidney cancer, cervical cancer, subarachnoid haemorrhage, peptic ulcer disease, other pharynx cancer, tuberculosis, multiple sclerosis, peripheral artery disease, and asthma.

Fig. 9: Tobacco-attributable DALYs, YLDs, and YLLs* in Montenegro, by gender, 2019



* A Disability-adjusted life year (DALY) is a universal metric that allows comparison between different populations and health conditions across time. DALYs equal the sum of years of life lost (YLLs) and years lived with disability (YLDs). One DALY equals one lost year of healthy life. Years of life lost (YLL) are years lost due to premature mortality. Years lived with disability (YLD) can also be described as years lived in less-than-ideal health. A YLD is calculated by taking the prevalence of the condition multiplied by the disability weight for that condition [80].

5.2 Implementing policy measures that reduce the burden of tobacco use

The WHO FCTC provides a framework for tobacco control measures to be implemented by Parties at national and international levels to reduce continually and substantially the prevalence of tobacco use and exposure to tobacco smoke. Through the full implementation of the tobacco control measures in the WHO FCTC, Montenegro can secure significant health and economic returns, and begin to reduce the EUR 307 million in annual economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from five key WHO FCTC policy actions to: 1) increase tobacco taxation to reduce the affordability of tobacco products; 2) create smoke-free public and work places to protect people from the harms of tobacco smoke; 3) implement plain packaging of tobacco products; 4) promote and strengthen public awareness of tobacco control issues; and 5) scale up of brief advice to quit for tobacco users in primary care clinics.

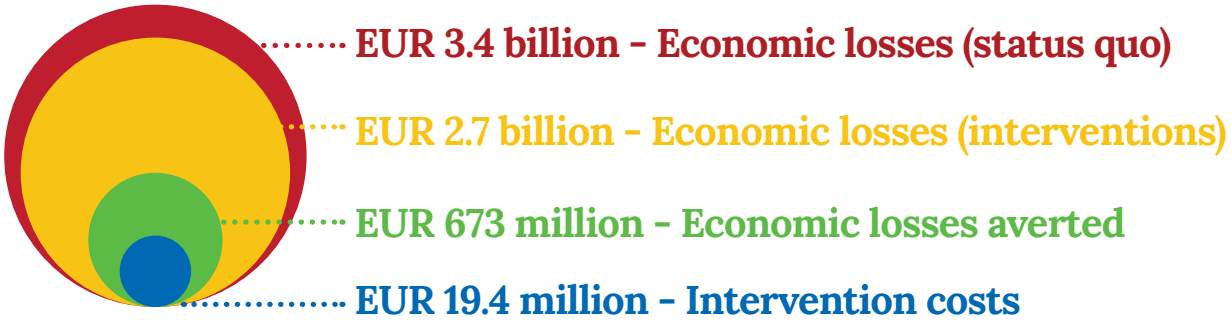
5.2.1 Health benefits—lives saved

The full implementation of the WHO FCTC in Montenegro (inclusive of all five of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains for the country. Implementing the package of five WHO FCTC policy actions that are the focus of this investment case would reduce the prevalence of cigarette smoking by 39 percent (in relative terms) over 15 years, saving 6,740 lives over 2023-2037, or 449 lives annually.

5.2.2 Economic benefits—costs averted

Implementing the package of five key WHO FCTC policy actions would result in Montenegro avoiding 20 percent of the economic loss that is expected to incur from tobacco use over the next 15 years. **Figure 10** illustrates the extent to which Montenegro can reduce the economic losses it would incur under the status quo.

Fig. 10: Tobacco-related economic losses over 15 years, 2023-2037

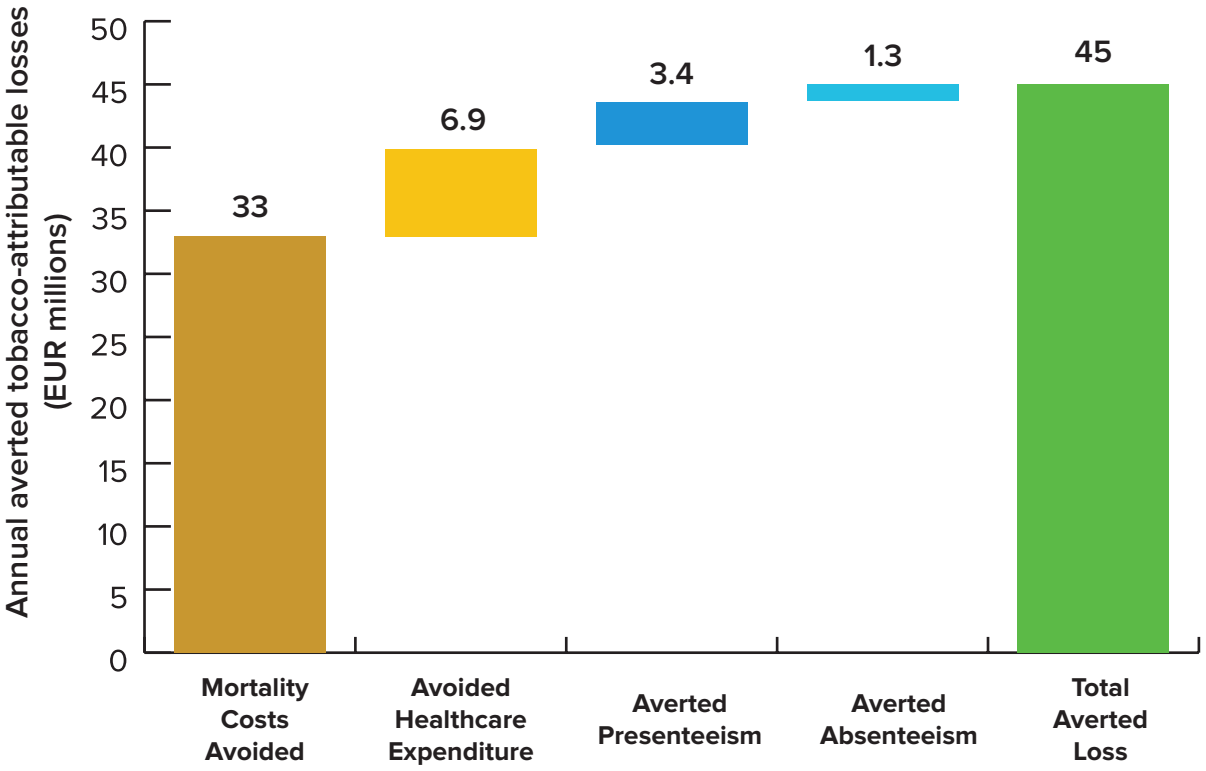


In total, over 15 years Montenegro would save about EUR 673 million that would otherwise be lost if the package of five key WHO FCTC policy actions is not implemented. This is equivalent to around EUR 45 million in annual avoided losses.

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

Figure 11 breaks down the sources from which annual avoided costs accrue from implementation of the package of five WHO FCTC policy actions. The largest annual avoided costs result from averted tobacco-attributable mortality (EUR 33 million). The next highest source is avoided health-care expenditures (EUR 6.9 million), followed by reduced presenteeism (EUR 3.4 million), and reduced absenteeism (EUR 1.3 million).

Fig. 11: Sources of annual avoided economic costs as a result of implementing the tobacco control policy package in Montenegro*



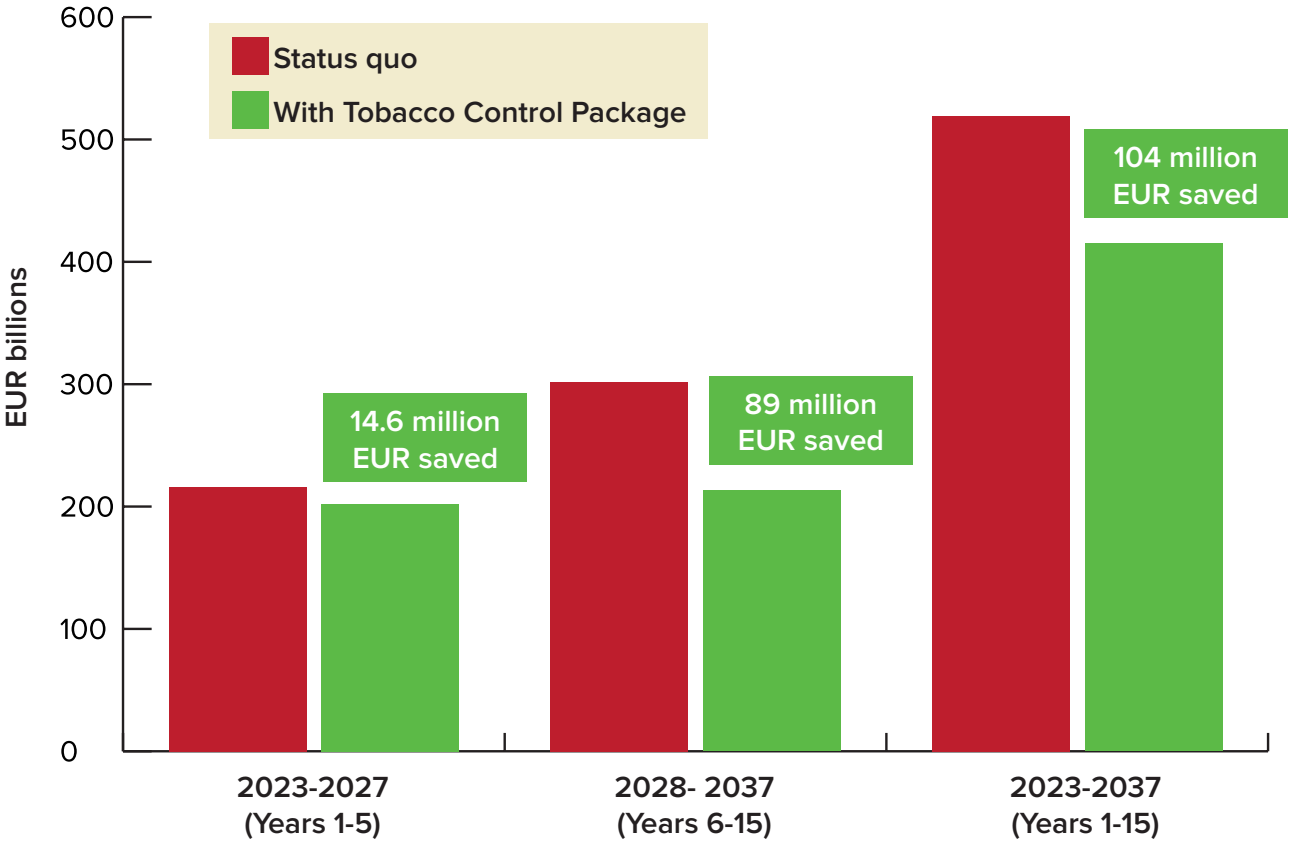
*Figures subject to rounding.

Implementing the package of five WHO FCTC policy actions examined in the investment case will reduce medical expenditures, both for citizens and the government. Presently, total private and public health-care expenditures in Montenegro are around EUR 437 million annually [81], and 10.9 percent of this amount is directly related to treating disease and illness due to tobacco use [6] (≈ EUR 48 million).

Year-on-year, the package of interventions would lower tobacco use prevalence, leading to less illness, and consequently less health-care expenditure (see **Figure 12**). Over the 15-year time horizon of the analysis, the package of interventions averts EUR 104 million in health-care expenditures, or EUR 6.9 million annually. Of these savings, 61 percent of savings would go to the government and 9 percent would go to individual citizens who would have had to make OOP payments for health care. The remainder of savings would go to private insurance and other sources of health-care expenditures. From reduced healthcare costs alone, the government would expect to save about EUR 64 million over 15 years. Simultaneously, the government would successfully reduce the health expenditure burden that tobacco imposes on Montenegrins through OOP payments, supporting efforts to reduce economic hardship on families. For families with tobacco users who quit, spending that would have been on

tobacco products or health care, could instead be invested in nutrition, education, and other productive inputs to secure a better future.

Fig. 12: Private and public health-care costs (and savings) in Montenegro over the 15-year time horizon, 2023-2037



5.2.3 The return on investment

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

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

For this investment case, the ROI for each intervention was evaluated in the short-term (five years), to align with planning and political cycles, and in the medium-term (15 years) to align with the original timeframe allotted for the SDGs. The ROI was also evaluated for the full package of five WHO FCTC policy actions. Total benefits (avoided economic losses

due to tobacco-attributable mortality, health care expenditures, and diminished workplace productivity) are a measure of which interventions are expected to have the largest impact.

Table 2 displays costs, benefits, and ROIs by intervention, as well as for all interventions combined. With the exception of training health professionals to provide brief advice to quit tobacco use (an individual-level intervention with higher initial personnel costs), interventions deliver an ROI greater than one within the first five years, meaning that even in the short-term, the benefits of implementing the interventions outweigh the costs. Depending on the intervention, over the first five years, the government will gain economic benefits ranging from 0.3 to 39 times its investment. Given the long-term nature of many tobacco-related illnesses, with disease often only developing after years of tobacco use, the ROIs for each intervention would continue to grow over time, reflecting the compounding gains from planning and development stages to full implementation.

Table 2: Return on investment, by tobacco control policy/intervention, in Montenegro (EUR millions), 2023-2027 and 2023-2037

Return on investment, by tobacco control measure	First 5 years (2023-2027)			All 15 years (2023-2037)		
	Total Costs (millions)	Total Benefits (millions)	ROI	Total Costs (millions)	Total Benefits (millions)	ROI
Tobacco control package* *(all policies/interventions implemented simultaneously)*	**8.0**	**94**	**12**	**19.4**	**673**	**35**
Increase tobacco taxation (cigarette taxation modeled) *(WHO FCTC Art. 6)*	0.8	30	39	1.6	319	204
Create smokefree public and work places *(WHO FCTC Art. 8)*	0.7	12.5	18	1.3	88	67
Implement plain packaging *(WHO FCTC Guidelines for implementation of Articles 11 and 13)*	0.4	12.5	32	0.8	88	116
Public awareness of tobacco control issues *(WHO FCTC Art. 13)*	4.5	47	10	10.9	320	29
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Art. 14)*	1.2	0.4	0.3	4.0	6.5	2

* 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 [82]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco-control programme.

Over the 15-year period, increasing tobacco taxes on cigarettes is expected to have the highest return on investment (204:1).[14] The return will be even higher with increasing tax on all tobacco products. Implementing plain packaging is expected to have the next highest return on investment (116:1), followed by creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke (67:1), public awareness of tobacco control issues (29:1), and finally to scale up of brief advice to quit for tobacco users in primary care clinics (2:1).

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14 Rounded to the nearest whole number.

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

The investment case examines how increasing taxes would impact equity, and the contributions that stronger WHO FCTC implementation would make towards Montenegro's fulfillment of SDG Target 3.4.

6.1 Tax analysis: the impact of increasing cigarette taxes on government revenue

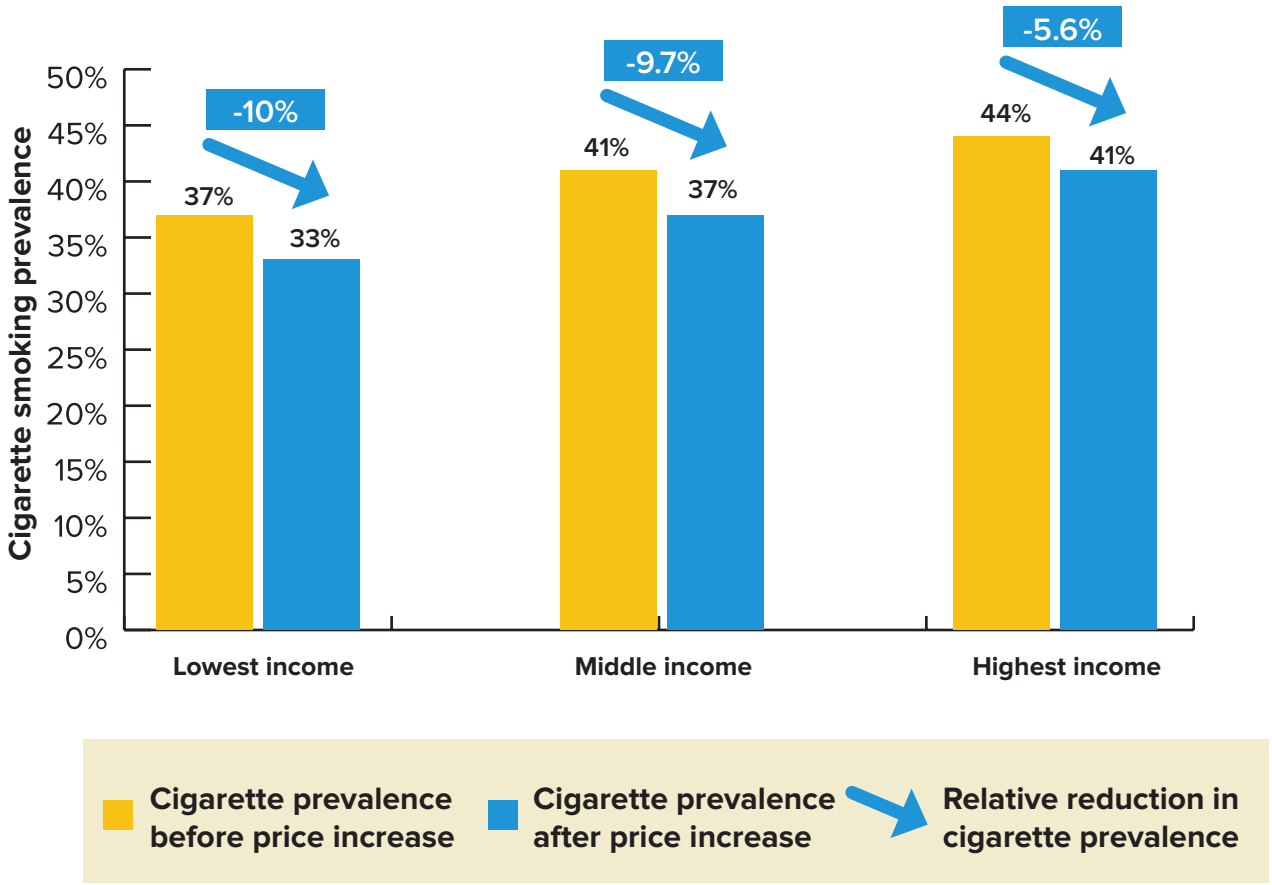
A common misconception is that taxes on tobacco products may disproportionately harm poor tobacco users, since the tax burden represents a higher proportion of their income than that of wealthier tobacco users. However, evidence shows that the poor actually stand to benefit most from raised cigarette taxes [83]. Relative to richer smokers, lower-income smokers are more likely to quit smoking when taxes are increased [33], meaning they benefit from subsequent decreases in tobacco-related health problems, and resulting medical costs which can be financially catastrophic. In Lebanon [84], 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 catastrophic health expenditures for 1.83 million individuals in India, 440,000 in Bangladesh, and 350,000 in Vietnam [85].

To examine the extent to which a cigarette tax increase could be considered pro-poor in Montenegro, an equity analysis has been undertaken as part of the investment case. The analysis divides Montenegro's population into three equal groups, by income, where the low-income group is composed of the poorest one-third of people, and the high-income group is composed of the wealthiest third. Within each income group, the analysis examines the impact of a hypothetical tax increase that raises the price of the average pack of cigarettes by about 17 percent (EUR 0.4). This is representative of only the first two years of tax increases that are modelled in the investment case. People at different income levels tend to respond differently to price changes. Tobacco-income prevalence elasticities of demand for each income group come from Montenegro-specific estimates of how changes in price affect tobacco consumption [86].

Unlike most countries, in Montenegro, high-income individuals smoke at higher rates than low-income individuals (44 and 37 percent, respectively) [46], [86]. The results from the analysis show that all income groups reduce smoking in response to the tax measures, but

because people with lower incomes are more responsive to changes in price, the cigarette tax increase causes the greatest relative reduction in prevalence among the low-income group. **Figure 13** shows the smoking prevalence in each income group before and after the tax increase, as well as the relative change in smoking prevalence.

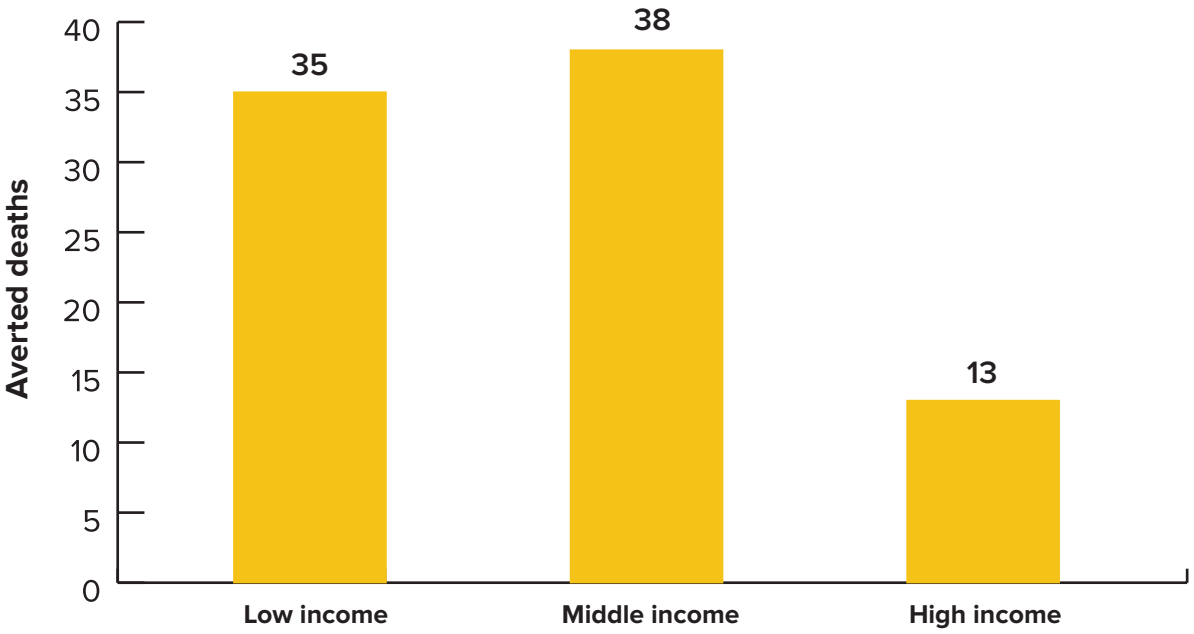
Fig. 13: Relative reduction in smoking prevalence before and after the cigarette tax increase, in Montenegro, by income group during the first year of tax increases that are modeled (2025)*



Percentages are rounded to the second decimal place.

Lower rates of smoking translate to health gains. As cigarette tax increases cause cigarette smoking prevalence to fall the most among low- and middle-income individuals, health benefits disproportionately accrue to these groups. The equity analysis finds that 41 percent of the deaths that would be averted during the first two years of tax increases modelled in the investment case would be among the poorest third of the population, as shown in **Figure 14**.

Fig. 14: Deaths averted in Montenegro by tax increase, by income quintile during the first year of tax increases that are modelled (2025)



**Percentages are rounded to the second decimal place.*

6.2 The Sustainable Development Goals and the WHO FCTC

Implementing the package of five WHO FCTC policy actions will support Montenegro to meet SDG Target 3.a to strengthen implementation of the WHO FCTC. Moreover, acting now will contribute to Montenegro's efforts to meet SDG Target 3.4 to reduce by one-third premature mortality from NCDs by 2030. The measures would contribute the equivalent of around 25 percent of the needed reduction in mortality for Montenegro to achieve SDG Target 3.4.

The WHO FCTC is an accelerator for sustainable development, and its implementation will benefit the achievement of many SDGs, including those outside of the health and well-being domain [21]. For example, stronger tobacco control will contribute to the reduction of poverty and inequalities (SDGs 1 and 10, respectively) and economic growth (SDG 8).

SDG Target 3.4

By 2030 the WHO FCTC measures would contribute the equivalent of around 25 percent of the needed reduction in mortality for Montenegro to achieve SDG Target 3.4.

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Recommendations

1. **Commit to fully implement the WHO FCTC in Montenegro.**

2. **Given the effectiveness of tobacco taxation, strengthen tobacco tax structures and increase tax rates (WHO FCTC *Article* 6).**

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

   - Creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke by prohibiting indoor designated smoking areas and strongly enforcing smoke-free policies (WHO FCTC *Article* 8)
   - Considering implementation of plain packaging to reduce the appeal of tobacco packaging and to make health warnings more prominent (*WHO FCTC Guidelines for implementation of Article 11 and* WHO FCTC *Guidelines for implementation of Article* 13)
   - Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC *Article* 12). It is also recommended to adopt comprehensive communication strategy as a part of evidence-based tobacco control framework and to implement and scale educational programmes delivered as part of school curricula as well as through the use of digital technology.
   - Scaling up of brief advice to quit for tobacco users in primary care clinics. Further gains would be possible with the provision of additional support to tobacco users, such as offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet based quit support and making pharmacotherapies more widely available (free of cost if possible) (WHO FCTC *Article* 14)

4. **Strengthen the implementation of bans on tobacco advertising, promotion and sponsorship (TAPS) (WHO FCTC *Article* 13).**

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

6. **Update the national tobacco control strategy for Montenegro (WHO FCTC *Article* 5.1).**

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

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

9. **Fully implement the Protocol to Eliminate Illicit Trade in Tobacco Products, including by building capacity to combat illicit trade (*Protocol and* WHO FCTC *Article* 15).**

10. **Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in Montenegro.**

7. Conclusion and recommendations

Each year, tobacco use costs Montenegro EUR 307 million in economic losses and causes substantial human development losses. Fortunately, as the investment case shows, there is an opportunity to reduce the health, social and economic burden of tobacco in Montenegro. Enacting the five key WHO FCTC policy actions would save 449 lives each year and reduce the incidence of disease, leading to savings from averted medical costs and averting productivity losses.

In economic terms, these benefits are substantial, adding up to EUR 673 million over the next 15 years. Further, the economic benefits of strengthening tobacco control in Montenegro greatly outweigh costs of implementation (EUR 673 million in benefits versus just EUR 19.4 million in costs).

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

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

Commit to fully implement the WHO FCTC in Montenegro

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

2025, in relevant WHO FCTC implementation guidelines, in WHO FCTC Needs Assessment reports and in this investment case.

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

2 Given the effectiveness of tobacco taxation, strengthen tobacco tax structures and increase tax rates (*WHO FCTC Article 6*)

Montenegro is encouraged to reform its tobacco tax structure and to raise the specific excise tax share of the retail price of tobacco in accordance with recommendations made in WHO FCTC implementation guidelines for Article 6 [65] and by WHO in the WHO Technical Manual on Tobacco Tax Policy and Administration [51].

While the total tobacco tax in Montenegro is above 75 percent of the retail price of the most sold brand of cigarettes, the prices of tobacco products are still low when compared to the European Union [4]. Tobacco taxes should also aim to reduce affordability, including by increasing at a rate that outpaces inflation and income growth [87].

The overall level of excise taxes is below the threshold set by the WHO recommendations in the WHO Technical Manual on Tobacco Tax Policy and Administration (at least 70 percent of the total retail price) and by the EU Directive (at least EUR 90 per 1000 cigarettes). The structure of tobacco taxes should be designed in a way that it decreases affordability across all tobacco products, preventing substitution [4], [43].

Increasing the share of tobacco-specific excise can not only raise the overall excise tax rate to bring national regulation in line with the provisions of WHO guidelines and EU directives, but also create a certain 'price floor' by reducing the differences between lower- and higher-priced brands [88]. Furthermore, increased reliance on specific tobacco excise tax is recommended because specific excises are more difficult for the tobacco industry to manipulate and easier for authorities to implement as compared to ad valorem taxes [87].

Achieving a uniform increase in tobacco prices can provide a powerful incentive to quit. Further reduction in affordability of cigarettes (particularly for lower-priced brands) can support tobacco users to quit while preventing tobacco use inception, especially among youth.

Additional tax revenue from increased tobacco taxes can be re-invested in the national healthcare system or tobacco control and prevention programmes [43]. While this investment case did not examine the effects of excise tax increases on government revenue, a recent study that modeled a 58.3 percent increase in specific excises taxes on tobacco products found that it would reduce total cigarette consumption by 11.3 percent while increasing the collection of government revenue by 8.1 percent [54].

It is also recommended to ensure robust tobacco taxation policies are in place for all types of tobacco (including for shisha, smokeless tobacco and novel tobacco products), and consideration is given to removing duty-free allowances for tobacco.

There is clear evidence that raising cigarette prices through increased taxes is a highly effective measure for reducing smoking among youth, young adults, and people from lower socioeconomic communities. Increasing the price of tobacco will have benefit for these vulnerable populations.

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

- Creating smoke-free public places and workplaces to protect people from the harms of tobacco smoke by prohibiting indoor designated smoking areas and strongly enforcing smoke-free policies *(WHO FCTC Article 8)*.
- Considering implementation of plain packaging to reduce the appeal of tobacco packaging and to make health warnings more prominent *(WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13)*.
- Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation *(WHO FCTC Article 12)*. It is also recommended to adopt comprehensive communication strategy as a part of evidence-based tobacco control framework and to implement and scale educational programmes delivered as part of school curricula as well as through the use of digital technology.
- Scaling up of brief advice to quit for tobacco users in primary care clinics. Further gains would be possible with the provision of additional support to tobacco users, such as offering specialized tobacco dependence treatment services, a national toll-free quit line and/or internet based quit support and making pharmacotherapies more widely available (free of cost if possible) *(WHO FCTC Article 14)*.

4 Strengthen the implementation of bans on tobacco advertising, promotion and sponsorship (TAPS) (*WHO FCTC Article 13*)

While this policy action was not modeled in this investment case, there is a clear opportunity to improve national policies that regulate tobacco advertisement, promotion and sponsorship (TAPS), especially in the context of the new tobacco industry tactics used to target Montenegrin youth. It is recommended that Montenegro strengthen its TAPS ban. Following the experience of many European states, Montenegro is recommended to introduce a ban on the display of tobacco products at points-of-sale. To achieve a comprehensive TAPS ban encompassing all forms of direct and indirect advertising, Montenegro should also ban advertising of tobacco products in international magazines and newspapers, the appearance of tobacco products in TV and film and all forms of tobacco industry sponsorship and corporate social responsibility activities. The Government of Montenegro can also consider including novel tobacco products in relevant provisions of the Law on Limiting the Use of Tobacco Products to prevent their promotion among the population and particularly youth.

5 Strictly enforce the prohibition of the sale of tobacco to minors (*WHO FCTC Articles 5.2(a) and 4.7*)

The legal age of sale for tobacco products is 18 years. Nevertheless, fewer than one-third of current youth cigarette smokers are prevented from purchasing cigarettes based on their age [32]. Robust enforcement action is needed to prevent children and young people from being able to access tobacco, including through retail sale. The government agency in charge of enforcement needs to be clear on their responsibilities and should be provided with the resources to undertake compliance building and enforcement action, especially with tobacco vendors. The government could also publicize enforcement actions to deter others from selling tobacco to people under the legal age of sale.

6 Update the national tobacco control strategy for Montenegro (*WHO FCTC Article* 5.1)

The last national tobacco control strategy expired in 2008 and no new strategy or policy has been adopted since then. It is therefore recommended to develop, publish, and routinely update a national multisectoral tobacco control strategy for Montenegro. This will, among other things, serve to establish and guide the work of a national coordinating mechanism for tobacco control, as well as set out plans for strengthening tobacco control policies and legislation.

The national tobacco control strategy for Montenegro should include actions to:

- Outline a comprehensive workplan and timeline for full implementation of the WHO FCTC.
- Identify sustainable funding necessary for tobacco control.
- Establish a national coordinating mechanism for tobacco control.
- Strengthen capacity for compliance building and enforcement of tobacco control laws.
- Ensure tobacco control laws consider novel products.
- Prevent children and young people from taking up tobacco use.
- Ensure gender-sensitive approaches to policy, programs, and services.
- Prioritize vulnerable groups, including but not limited to, women and girls, those with low-income and youth.
- Encourage and support current tobacco users to quit.
- Protect public health policies from commercial and other vested interests of the tobacco industry.
- Continue to regularly monitor and analyse tobacco consumption in the country.
- Counter tobacco industry promoted myths regarding tobacco control and tourism.
- Address the environmental threats posed by tobacco.

To support effective implementation of the national tobacco control strategy, it is recommended to designate focal points in all relevant institution to coordinate actions in their respective domains. These focal points would support monitoring of progress towards achieving goals and targets set by the strategy and would cooperate with Ministry of Health when needed.

7 Strengthen multisectoral coordination for tobacco control in Montenegro and encourage the participation of civil society in WHO FCTC implementation (*WHO FCTC Articles 5.2(a) and 4.7*)

Multisectoral cooperation should be strengthened through the establishment of a national coordinating mechanism (NCM) for tobacco control. The NCM should lead efforts in coordinating tobacco control with government sectors, civil society, and other stakeholders. The NCM should be given a clear mandate and should be supported with reliable, dedicated funding [89].

Structures should also be in place for monitoring and accountability. Diverse ministries and other relevant stakeholders should be invited to participate in the NCM to achieve strong multisectoral coordination.

Action to strengthen multisectoral coordination can be guided by the joint Convention Secretariat-UNDP publication: *National Coordinating Mechanism for Tobacco Control: Toolkit for Parties to Implement Article 5.2(a) of the WHO FCTC* [90].

The work of NCM will be enhanced by including the media and civil society groups in the NCM's work, as appropriate, to support advocacy, compliance-building and encouraging positive public opinion of tobacco control measures. The Government of Montenegro could support the formation of a coalition of NGOs that could jointly focus on promoting implementation of the WHO FCTC in a comprehensive manner.

8 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 Montenegro 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" [91].

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 [92].

Montenegro is encouraged to review current policies and legislation in light of the Implementation Guidelines for WHO FCTC Article 5.3 [93], 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.

9 Fully implement the Protocol to Eliminate Illicit Trade in Tobacco Products, including by building capacity to combat illicit trade (*Protocol and WHO FCTC Article 15*)

It is recommended that Montenegro move forward with the full implementation of the Protocol to Eliminate Illicit Trade in Tobacco Products. Montenegro became a Party to the Protocol in 2018. Priorities for implementation include the establishment of an effective track-and-trace system to combat distribution and trade of illicit tobacco products, reflecting Protocol requirements in national legislation, active engagement in international cooperation on illicit tobacco, and implementation of Protocol obligations relating to free zones/international transit and duty-free sales [41].

10 Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in Montenegro

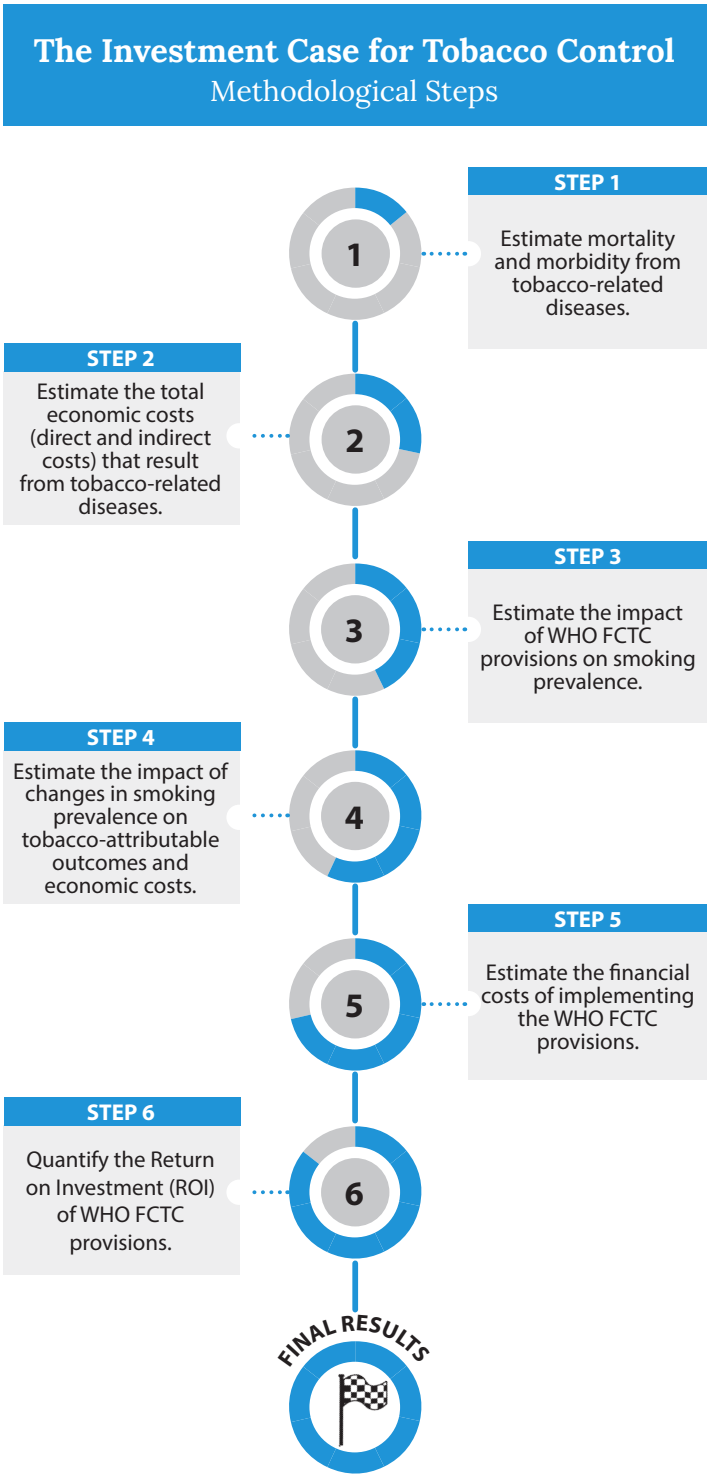
With the vast health, economic, social and environment costs of tobacco, the case is clear: implementing the WHO FCTC is a powerful means for Montenegro to improve the lives of citizens, achieve the SDGs, and better the conditions and future of the country. All sectors have a role to play in tackling tobacco use, and the benefits of full WHO FCTC implementation will enrich all aspects of life in Montenegro. The Government of Montenegro should continue to prioritize the implementation of the WHO FCTC in sustainable development strategies, as it has done in the National Strategy of Sustainable Development (NSSD) 2030 [94].

Methodology annex

A1.1 Overview

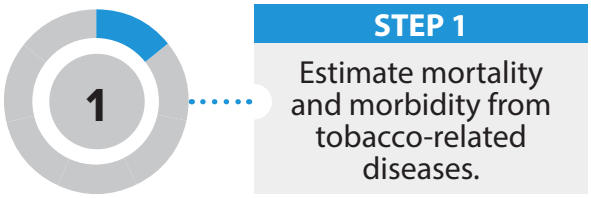
The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which WHO FCTC provisions can reduce the burden. The first two methodological steps depicted in **Figure A1** are employed to assess the current burden of tobacco use, while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

Fig. A1: Steps in the Investment Case

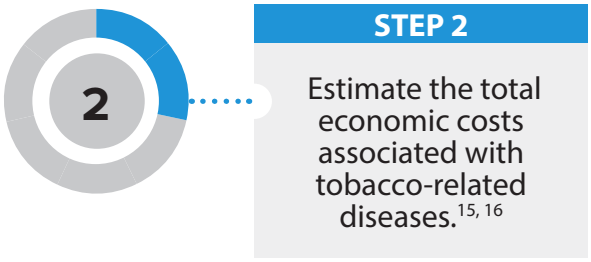


A1.2 Component one: current burden

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



The investment case model is populated with country-specific data on tobacco-attributable mortality and morbidity from the 2019 Global Burden of Disease Study (GBD) [5], [95]. The study estimates the extent to which smoking and secondhand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life years lost, and deaths, across 195 countries.



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

Healthcare expenditures – Health-care expenditures include smoking-attributable public (government-paid), private (insurance, individual out-of-pocket), and other health-care expenditures. The proportion of health-care costs attributable to smoking was obtained using the formula for estimating smoking attributable fraction (SAF) of health-care expenditures from Goodchild et al. (2018) [98]. The SAF for Montenegro is estimated at 10.9 percent. To calculate the share of smoking-attributable health-care expenditures borne by public, non-profit, and private entities, it was assumed that each entity incurred smoking-attributable health-care

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

16 All diseases are assumed to decrease in proportion to smoking prevalence when the decrease in prevalence occurs. While the model overestimates how quickly health benefits will accrue for some diseases, for example cancers—recent evidence suggests notable declines in the risk of lung cancer incidence begin two to five years after smoking prevalence decreases [96]. On the other hand, the risk of incidence of other diseases, for example CVD, declines significantly in the years immediately following quitting [97].

costs in equal proportion to the entity's contribution to total health expenditure. Health-care expenditures were obtained from the WHO Global Healthcare Expenditure Database (GHED) [81]. The latest year for which data are available in WHO GHED is 2019. To obtain 2020 values, we took the average annual increase in health-care expenditures in Montenegro over the past 10 years and applied that increase to the 2019 health-care expenditure values.

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

- *The economic cost of tobacco-attributable mortality*. Tobacco-attributable mortality was monetized using a "value of a statistical life" (VSL) measure. VSL is a measure of individuals' willingness to pay for small changes in the risk of death and it is commonly used in economic evaluations of health programmes and policies to monetize health outcomes [99]. Few studies have assessed VSL in low- and middle-income countries [100]. We extrapolated a country-specific estimate of VSL following guidance from the Reference Case Guidelines for Benefit-cost analysis in Global Health and Development [98], estimating the value of one additional year of life for Montenegro at EUR 13,670 (value of a statistical life year (VSLY)). Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each future year of life is multiplied by VSLY to calculate the cost of tobacco-attributable mortality.

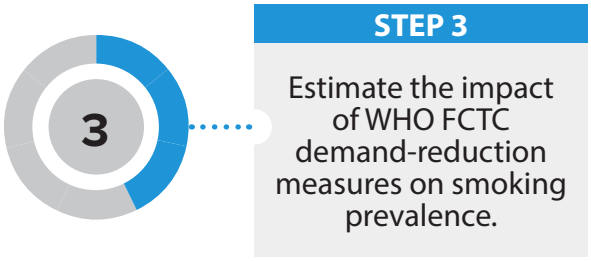
- *Productivity costs.* Productivity costs consist of costs due to absenteeism and presenteeism, and are counted only among employed cigarette smokers. The model uses estimates from academic literature on the number of extra working days missed due to active smoking (2.9 days per year) [101]. Presenteeism 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—losses equivalent to about 7.5 days of work [102]. The number of employed smokers is multiplied by days of work missed due to absenteeism or presenteeism by the average daily country wage to obtain estimates of losses.

A1.3 Component two: policy/intervention scenarios

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

A static model using a population attributable fraction (PAF) approach was used to estimate the total impact of the tobacco control measures. In the model, aside from smoking prevalence, variables do not change throughout the 15-year time horizon. The model follows a population that does not vary in size or makeup (age/gender) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [103], [104].

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



Selection of key WHO FCTC measures modeled within the investment case align with the *Global Strategy to Accelerate Tobacco Control* [105] developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, priority is given to enabling action to accelerate WHO FCTC implementation, including effective forms of technical and financial assistance to support Parties in the identified priority action areas. This includes Parties giving priority to, among other things, the implementation of price and tax measures (WHO FCTC Article 6) and time-bound measures of the Convention. The time-bound measures include creating smoke-free public places and workplaces (WHO FCTC Article 8), prominent health warnings on tobacco packaging (WHO FCTC Article 11) and comprehensive bans on tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC Article 13).

In addition, given the importance of awareness in behaviour change and shaping cultural norms, the investment cases include promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction,

and the benefits of cessation (WHO FCTC Article 12). Effect sizes for the WHO FCTC demand reduction measures are obtained from the literature. The impact of enforcing smoke-free air laws, implementing plain packaging and intensifying advertising bans, are derived from Levy et al. (2018) [82] and Chipty (2016) [106], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013-2020 [107], and adjusted based on assessments of Montenegro's baseline rates of implementation. The impact of basic evidence-based tobacco cessation in the form of brief advice to quit offered to tobacco users by healthcare professions in primary care settings is from Levy et al. 2010 [108].

Except for taxes—the impact of which is dependent on the timing of increases in tax rates (see below) — and the brief advice intervention—the impact of which is guided by rates of training for primary healthcare providers (see also below) —the full impact of the demand reduction policy measures is phased in over a five-year period. The phase-in period follows WHO assumptions [109] that two years of planning and development are required before policies are up and running, followed by three years of partial implementation that are reflective of the time that is needed to roll out policies, and work up to full implementation and enforcement.

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

Table A1: Key parameters used in the tax revenue analysis

Parameter name	Value	Source
Price elasticity of demand	-0.71	Mugosa et al (2020). Accelerating progress on effective tobacco tax policies in Montenegro [27]
Prevalence elasticity of demand	-0.36	Goodchild et al (2016). Modelling the impact of raising tobacco taxes on public health and finance [110] Assumption – half of price elasticity
Income price elasticity of demand	0.43	Mugosa et al (2020). Accelerating progress on effective tobacco tax policies in Montenegro [27]
Income prevalence elasticity of demand	0.22	Assumption – half of income price elasticity
Projected real income growth rate*	1.6%	International Monetary Fund (2020). Real GDP Growth - Annual percent change [111]

* Projected real income growth is used as a proxy for wage growth. The International Monetary Fund projects [111] real GDP growth at an average of 1.60 percent annually through 2025.

The investment case analysis examines a tax increase scenario in which Montenegro chooses to enact strong tax increases. In the hypothetical scenario, Montenegro's current tax structure and rates stay the same, with the exception that in real terms, the specific excise tax increases from current rates (EUR 0.67 per pack) to EUR 1.41 in 2027.

In the scenario, the price net of taxes remains static (full pass through of the tax increase). **Table A2** breaks down cigarette pack price components from 2023 to 2028 under the described scenario. For the main investment case analysis, additional specific excise taxes triggering real price increases of an average of 7.5 percent annually are modelled from 2027 to 2037, bringing the total tax share to 92 percent by the end of the analysis and the excise tax share to 75 percent.

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

Price component	2023	2024	2025	2026	2027
Price net of taxes	0.52	0.52	0.52	0.52	0.52
Specific excise	0.67	0.73	1.07	1.19	1.41
Ad valorem	0.74	0.71	0.51	0.55	0.62
Value added tax	0.38	0.39	0.42	0.45	0.51
Other taxes	0.00	0.00	0.00	0.00	0.00
Final consumer price *	2.31	2.34	2.51	2.71	3.05
* Figures subject to rounding.					

The impact of tax increases on revenue and cigarette use prevalence is dependent on prevailing elasticities: the extent to which individuals change use of a product (e.g., decrease consumption or quit) because of changes in the price of a tobacco product. Changes are calculated following Joosens and colleague's (2009) [112], who use a log-log function to ensure large price increases do not result in implausible reductions in consumption or prevalence. **Equation A1** provides an example of calculations to ascertain the impact of a change in price on smoking prevalence, considering changes in income.

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

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

Where:
SP = smoking prevalence (# of smokers) in year i
Ɛp = prevalence elasticity
Op_np = the ratio of the old price of a pack of cigarettes to the new price after tax increases
Ɛi = income elasticity
GDP = Gross domestic product in year

There are several limitations to the tax analysis. First, the tax tool assumes that the price and tax structure of the most sold brand of cigarettes is representative of the market, and it does not incorporate other market segments (high or low-end cigarettes). More detailed models that account for switching between segments or between products (e.g., movement to hand-rolled cigarettes) would capture nuance helpful to framing tobacco tax policy and estimating impact. Second, the analysis assumes a full pass through the tax increases. This assumption reflects a "middle ground" approach, but the tobacco industry may increase or decrease prices in reaction to the price increase.

Brief advice to quit tobacco. We calculate the effect of scaling up the provision of brief advice to quit tobacco use at the primary care level. First, we calculate the baseline population quit rate (PQR, the percent of smokers who quit annually) drawing on previously published methods by Levy and colleagues (2010) [108]. The PQR is calculated (see **Equation A2**) using three parameters- quit attempts; treatment utilization rates (i.e. counselling, pharmaceutical therapy); and treatment effectiveness.

Equation A2: Calculating Population Quit Rate, from Levy et al (2010) [109]

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

Where:
PQR = Population quit rate
QA = % of smokers who make a quit attempt at least once annually
TxUse = the percent of those who make a quit attempt who use treatment category i
TxEff = The percent of those who use a given treatment who succeed in quitting annually (Treatment efficacy)
i = is one of four treatment categories: 1) no evidence-based treatment; 2) counselling; 3) pharmacological treatment (e.g. nicotine replacement therapy), or 4) both counselling and pharmacological therapy.

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

After establishing baseline PQR, we calculated how the population quit rate would change if provision of brief advice to quit at the primary care level became more prevalent. In this "intervention scenario", over the 15-year time horizon of the analysis, half of all primary health-care providers are trained to provide brief advice to quit to adult tobacco users—a value selected based on evidence of the current intervention coverage gap; on average, in low- and middle-income countries less than half (47.8 percent) of adult smokers who visit a health provider are advised to quit.[17] Once trained, it is assumed that the provider administers the brief advice when they encounter a patient who uses tobacco.

Taking into account the number of primary health-care providers in the country, the patient panel size per provider, adult smoking rates, and the percent of adult smokers who present within the health system for at least one primary care visit per year, in each year of the analysis we calculate the number of adult tobacco users who would encounter a newly trained health provider and receive the brief intervention—which increases the likelihood that an individual makes a quit attempt by 60 percent over baseline levels [108]. With increases in population quit attempts driven by the provision of brief advice, we recalculate PQR to estimate the number of smokers who quit as a result of the intervention. Data used to inform these calculations are shown in **Table A3**.

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

Parameter name	Value	Source
Population quit rate (PQR)		
Annual quit attempt rate (QA)	11%	Mugoša et al (2019). Adult Tobacco Use in Montenegro (Report) [46]
Increase (%) in QA as a result of receiving brief advice	60%	Levy et al (2019). Modelling the impact of smoking-cessation treatment policies on quit rates [108]
Treatment use (Tx Use)		
No evidence-based treatment	90%	Mugoša et al (2019). Adult Tobacco Use in Montenegro (Report) [46]
Pharmaceutical assistance	7%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Counselling	11%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Both pharmaceutical assistance and counselling	1%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Treatment effectiveness		
No evidence-based treatment	7%	Levy et al (2019). Modeling the impact of smoking-cessation treatment policies on quit rates [108]

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

Pharmaceutical assistance	15%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [113]**
Counselling	12%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [113]**
Both pharmaceutical assistance and counselling	22%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [113]**
% of adult smokers who visit primary care clinic annually	38%	Average values from GATS of LMICs conducted between 2009 to 2018*
% of smokers who relapse after successfully quitting	60%	García-Rodríguez et al (2013). Probability and predictors of relapse to smoking: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) [114]
Number of primary care health providers	140	WHO (2021). Global Health Observatory [115]***
Annual patient panel size per health provider (# of patients)	550	Altschuler et al (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians With Team-Based Task Delegation [116]****

* Analysts pulled data from GATS surveys conducted between 2009 to 2018 and averaged values from low- and middle-income countries.
** Compared to quit attempts that are made with no assistance from any form of evidence-based therapy, pharmaceutical assistance is 100 percent more effective, counselling 60 percent more effective, and combined therapy 200 percent more effective
*** Sum of two indicators in the WHO Global Health Observatory (GHO) for the latest year for which information was available: 1) number of general physicians and 2) number of nursing personnel. Given that specific estimates for primary care nursing personnel are not given from the source, we assume the proportion of primary care nurses is the same as the proportion of generalist doctors to all doctors as given in the GHO.
**** Study results show that a primary care health provider working under a nondelegated model of care can reasonably care for a panel of 983 patients in a year and that in a conservative scenario where non-physician providers assume some responsibility for care patient panel sizes can expand to 1,387 patients. In most countries, a nondelegated model of care is the status quo. However, in this analysis, nurses are trained to offer brief advice and assume some responsibility for administering it. Therefore, a patient panel size is likely to be somewhere in the range of 983 to 1,387 patients. We assume a panel size of 1,100 and that an individual practitioner on the team covers half of the patients (550) per year

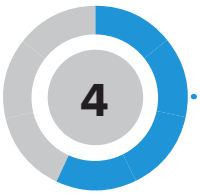
Summary: the impact of tobacco demand reduction measures. The impact sizes of all policy measures examined in the investment case are displayed in **Table A4**. Additional information on their derivation can be found in the *Technical Appendix*.[18]

18 Available upon request.

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

WHO FCTC Policy Actions	Relative reduction in the prevalence of current smoking	
	First 5 years (2023-2027)	Over 15 years (2023-2037)
Tobacco Control Package* (all policies/interventions implemented simultaneously)	**19.33%**	**39.06%**
Increase cigarette taxation *(WHO FCTC Article 6)*	6.69%	21.48%
Create smoke-free public and work places *(WHO FCTC Article 8)*	2.40%	4.00%
Implement plain packaging of tobacco products *(WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13)*	2.40%	4.00%
Promote and strengthen public awareness of tobacco control issues *(WHO FCTC Article12)*	9.12%	15.20%
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Article 14)*	0.08%	0.58%

* 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" [82].



STEP 4

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

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

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

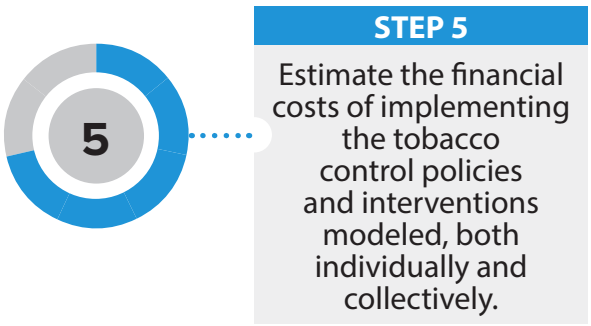
Marginal Effects = Outcome Base Scenario — Outcome Intervention Scenario

Marginal effects are calculated as follows for each outcome:

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

- **For healthcare expenditures**, the model applies forecasted annual relative changes in smoking prevalence for each intervention scenario to the SAFs. SAFs are adjusted in proportions equal to the relative change in smoking prevalence for each intervention scenario.

- **Workplace smoking outcomes** are recalculated substituting actual (status quo) smoking prevalence for estimated annual smoking prevalence for each of the intervention scenarios that are modeled.



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 [109].

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

Across these categories, the Costing Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Costing Tool is updated to reflect 2020 costs by updating several parameters: the US$ to local currency unit exchange rate (2020); purchasing power parity (PPP) exchange rate (2020); GDP per capita (US$, 2020); GDP per capita purchasing power parity (PPP, 2020); population (total, and share of the population age 15+, 2020); labour force participation rate (2020), gas per liter; and government spending on health as a percent of total health spending (2019) [117]. Unless government or other in-country parameters are received, data are from the World Bank database, with the exception of data on the share of government health spending and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.

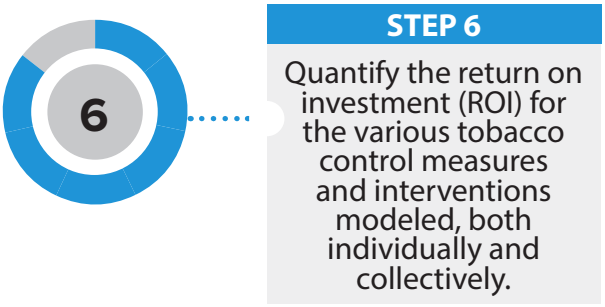
To cost the scale up of the provision of brief advice to quit tobacco use, the analysis adds to the programmatic costs embedded in the WHO Costing Tool by including costs to train health providers and the direct costs of the primary care visits in which the brief advice is administered. Over the 15-year time horizon of the analysis, half of all primary care health providers are trained to administer brief advice to quit tobacco.[19] Based on WHO’s training package for treating tobacco dependence in primary care [119], we assume that training sessions last 2.5 days, are conducted with a maximum of 30 participants, and are led by a team of two facilitators. We further assume that the training occurs in person in a rented facility space. Costs of training include those to rent the facility,[20] pay facilitators, and provide per diems to facilitators and attendees, and we also assume that trainees (doctors and nurses) are compensated for their time at their wage rate.[21] Once trained, providers are assumed to provide brief advice if they encounter a patient who smokes. The cost of providing brief advice during primary care visits is based on modelled, country-specific estimates from WHO-CHOICE of the cost or primary care outpatient visits [121]. The derivation of these estimates is detailed elsewhere [122], but in overview, the estimates reflected the “hotel cost” of a 10

19 The analysis assumes a 10 percent of health workers turn over annually [118].

20 Rental costs per square foot are obtained from the WHO Costing Tool with the room size estimated is based on square feet per person estimates for collaboration rooms [120].

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

minute visit[22] to a health facility with beds. We updated the estimates to 2020 local currency units, using 2010 PPP conversion factors and local consumer price indices [123]. For the purposes of the investment case, administration of the 5As (Ask, Advise, Assess, Assist and Arrange) brief intervention is assumed to take 10 minutes [124]. Following WHO CHOICE methodology, we estimate the cost of those extra 10 minutes as an extra 21 percent of the original cost of the primary care visit.



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

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

A1.4 Equity analysis

We used elasticity of smoking participation by income group to assess the equity implications of increases in cigarette taxation. Montenegro-specific prevalence elasticity of demand was identified for three income groups in Cizmovic et al (2022) [86]. Smoking prevalence by the three income groups was also obtained from Figure 1, Panel A in Cizmovic et al (2022) [86]. However, the investment case analysis uses overall smoking prevalence from Adult Tobacco Use in Montenegro Report published by the Institute of Socioeconomic Analysis (ISEA) in Montenegro [46]. In order to harmonize the investment case and equity analysis, the prevalence figures for each income group were adjusted proportionately by the difference in overall prevalence between the two sources. The adjusted prevalence elasticities used to calculate the reductions in prevalence for each income group are shown in **Table A5** below.

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

Table A5: Average elasticities used in investment case equity analysis

	Low income	Middle income	High income
Price elasticity	-0.595	-0.582	-0.344

Source: M. Cizmovic, A. Mugosa, M. Kovacevic, and T. Lakovic, Effectiveness of tax policy changes in Montenegro: smoking behaviour by socio-economic status, Tobacco Control, Mar. 2022 [86], (figures adjusted using data from A. Mugoša, T. Laković, M. Kovačević, M. Čizmović, and M. Popović, Adult Tobacco Use in Montenegro (Report), 2019 [46]).

A1.4 Summary of WHO FCTC demand-reduction measure status

Figure 4 in the main text is based on data from the *WHO Report on the Global Tobacco Epidemic, 2021* [47]. In the Figure, the level-of-implementation categories of "no/little implementation", "partial implementation", "moderate implementation", and "high-level implementation" are mapped to the descriptions in **Table A5**, as specified and further detailed in Technical Note I of the WHO report (see page 119).

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

- For 1) smoke-free public places and workplaces and 2) TAPS bans, we adjusted the score to account for reported levels of compliance in the WHO Global Report on the Tobacco Epidemic (Compliance Score). Following previously published assumptions by Levy and colleagues (2013), we assumed that respectively 25 percent and 50 percent of the effect of these measures depends on levels of compliance [125]. Thus, for a country with "moderate implementation" of TAPS bans but a compliance score (as detailed in the WHO Report on the Global Tobacco Epidemic) of 5 out of 10, we calculated the score as follows: Measure Score – (0.5*Compliance Score/10) = 2 – (0.5*(5/10) = 1.75. For countries that did not report a compliance score we assumed the average of compliance scores worldwide.
- For 3) cigarette taxation, all countries in which the total tax share equaled 75 percent or above received a score of 3. All countries below that mark were assigned a score as follows: 3*(Total tax share/0.75). Thus, a country with a total tax share of 35 percent received a score of 1.4 (3*(.35/.75)).

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

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

Table A6: Definition of WHO FCTC implementation status in Figure 4 (main text)

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

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

Source: Information in this table is based on the *WHO Report on the Tobacco Epidemic, 2021* [47].

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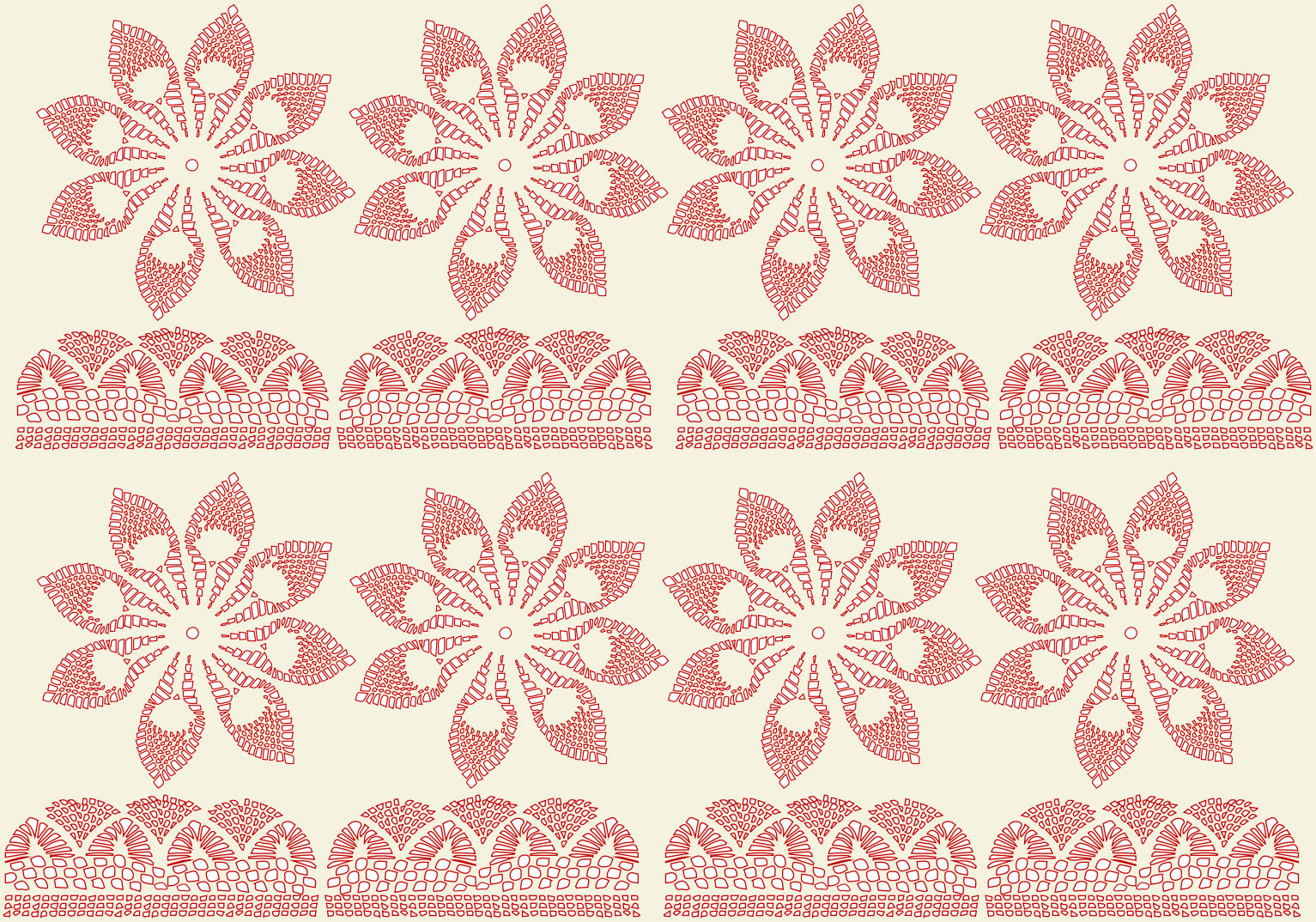

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