JULY 2022

INDONESIA

COUNTRY REPORT

Prepared by the
Foundation for a Smoke-Free World

FOUNDATION FOR A
SMOKE-FREE WORLD

CONTENTS

Executive Summary

1. Demographic, Economic, and Development Status

- Indonesia is the fourth most populous country in the world.
- It has the highest rate of urbanization in Asia but appears to lack the necessary infrastructure to benefit fully from this trend.
- Its economy hit a nadir during the Asian financial crisis in 1997 but has since grown steadily. Indonesia appears poised to grow further as it reaps the demographic dividends associated with having relatively large swaths of young, working-age adults.
- Its economic growth has powered an improvement in life expectancy and a dramatic drop in extreme poverty, but inequality along various demographic lines persists.

2. Health and Health Care

- Against this backdrop of development, Indonesia finds itself in the midst of an epidemiological transition as its burden of disease shifts from one characterized by communicable diseases common in low-income countries (such as diarrheal illnesses and tuberculosis) to noncommunicable diseases common in high-income countries (such as chronic obstructive pulmonary disease, diabetes, heart disease, and stroke).
- The resulting "double burden of disease," in which the country faces relatively high levels of both communicable and noncommunicable diseases, presents a unique set of challenges.
- Chief among these challenges is the need to combat behavioral risk factors—such as smoking—that represent keys drivers of this double burden.
- Underscoring the contribution of tobacco use to death, disease, and disability, tobacco use was estimated to be responsible for more than 290,000 deaths in 2019 in Indonesia. This accounts for 17% of all deaths and 22% of all non-communicable deaths in the country.
- In 2019, the costs of treating tobacco comprised 0.1-0.2% of the country's GDP (Rp 17.9 trillion-27.7 trillion).
- Although Indonesia's health care system has improved considerably over the years, and it has invested heavily into providing universal health care coverage, there appear to be serious limitations in its ability to respond forcefully to this challenge.
- On average, the country spends only $117 USD per person per year on health care (including out-of-pocket spending, government spending, and private entities).
- There is only one physician per every 5,000 Indonesians, and studies suggest that many health care providers feel inadequately prepared to provide smoking cessation support. Moreover, many providers smoke themselves and believe that smoking fewer than ten cigarettes per day is not harmful to health.

3. Tobacco Use

- Coupled with the relatively high rate of smoking in Indonesia—where roughly 56% of men of men smoke and approximately 9% are former smokers (most of whom smoke clove-flavored cigarettes known as kretek)—current trends in tobacco use call for a robust public health response.

- A closer examination also reveals a stark split between the sexes. Smoking is dramatically lower among women, with virtually all—nearly 97%—reporting never having smoked.
- Despite this, Indonesia has not signed on to the Framework Convention on Tobacco Control and has implemented only modest tobacco control measures. Many Indonesians report seeing cigarette marketing more often than anti-smoking warnings. Although nicotine replacement therapy products are available over the counter, demand remains low, knowledge about them is limited, and their prices are high. Other pharmaceutical options such bupropion and varenicline are not legally allowed in the country at this time.
- In recent years, the most significant changes to the landscape have included the streamlining of taxes on cigarettes and the introduction of novel tobacco harm-reduction products such as e-cigarettes and heated tobacco products. There are no restrictions on the sale, manufacture, supply, use, or advertising of e-cigarettes (hardware or e-liquid) or nicotine pouches in Indonesia. Heated tobacco products are not regulated in Indonesia. The government has placed a 57% excise tax on e-liquids to accompany the introduction of these novel products.
- The vast majority of those who do quit smoking do so without assistance.

4. Tobacco Production

- Although proponents of the tobacco industry may argue that these harms are offset by the employment provided by the tobacco economy, this appears unlikely in light of studies finding that smallholder tobacco farmers are disproportionately poor, are dependent on social assistance, and suffer from food insecurity.

1 Demographic, Economic, and Development Status

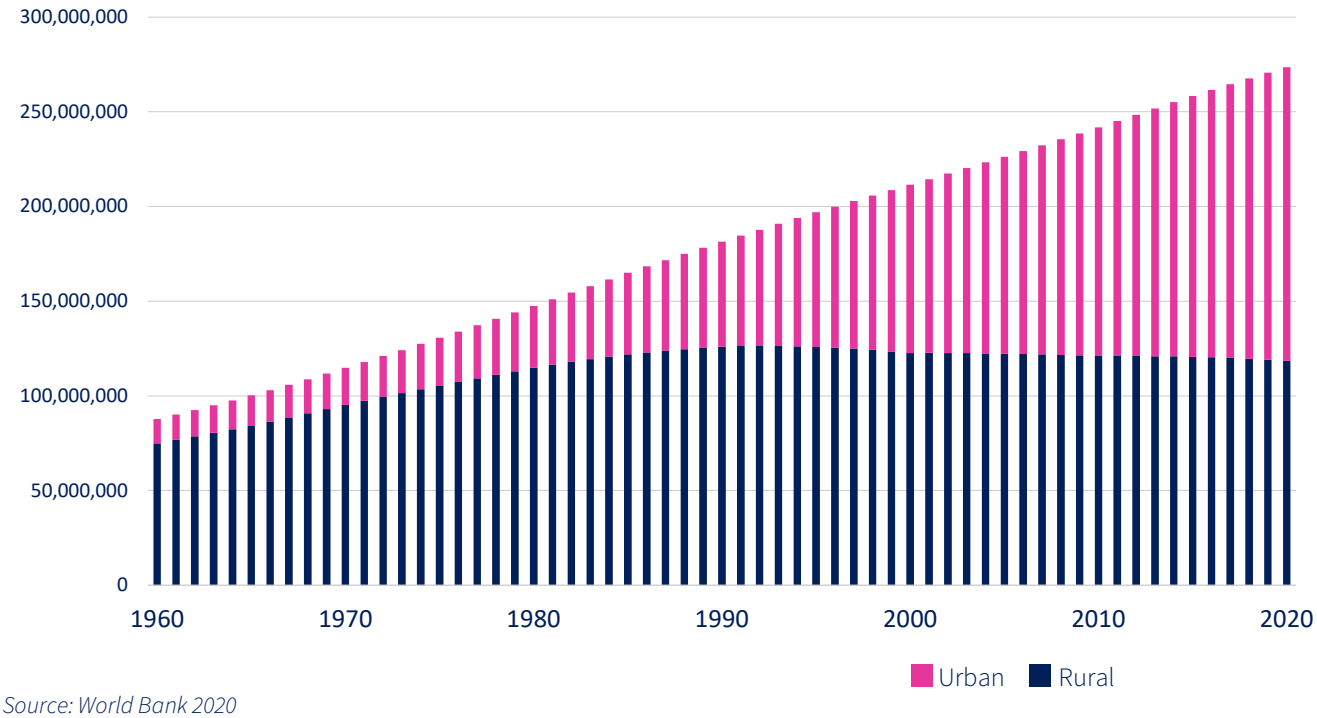
A. Demographic Overview and Recent Trends

Indonesia is the fourth most populous nation in the world, with nearly 274 million residents (World Bank 2020). Its population is spread across an archipelago consisting of 17,508 islands, grouped in 34 provinces, and consists of more than 300 ethnic groups (EOI 2014, EOI 2022). A closer examination of its demographics brings two insights into sharp relief.

First, half of the population is under the age of 30 years (United Nations 2020), and many of the largest age groups are currently in school or university (World Bank 2014). The percentage of the population that is dependent on those of working age (typically defined as ages 15-64 years) —also known as the age dependency ratio—has steadily declined to 47.5% (CIA 2022). This is the lowest point in the past half century and well under its peak of over 87% roughly 50 years ago (World Bank 2020a). Such trends suggest that the economic boost that Indonesia experienced as a result of its relatively large working-age population—the so called "demographic dividend" —will likely continue in the years ahead (World Bank 2014).

Second, a substantial number of Indonesians—more than 118 million (see Figure 1.a.1), or about 43% of the entire population—live in rural areas, but many are rapidly relocating to urban areas. The number of Indonesians living in rural areas has steadily declined over the last three decades, from a peak of 126 million in 1992 to less than 119 million in 2020, while the number of Indonesians living in urban areas over the last three decades has nearly tripled, from 50 million in 1988 to nearly 155 million in 2020 (World Bank 2020). Indonesia has the highest growth rate of urbanization in Asia (Oxfam 2017).

Figure 1.a.1: Rural and Urban Population of Indonesia from 1960 to 2020



Source: World Bank 2020

Interestingly, Indonesia does not appear to be reaping the full economic benefit of its rural-to-urban transition (World Bank 2016). Indonesia gains roughly 4% of gross domestic product (GDP) per capita for every 1% of its population that moves from rural to urban areas (World Bank 2016). By comparison, China appears to gain 10% of GDP per capita and India appears to gain 13% of GDP per capita for every 1% of its population that moves from rural to urban areas. The discrepancy suggests that urban areas in Indonesia may lack the infrastructure (e.g., housing, roads, sanitation, utilities) to effectively absorb and maximize the economic productivity of individuals who move to its cities (World Bank 2016).

B. Economic Overview and Recent Trends

After years of lackluster economic growth that hit a nadir in the Asian financial crisis in 1997, Indonesia's economy has steadily picked up momentum. In 2020, its GDP grew by 5% to $1,058,423 trillion USD, making it the largest economy in Southeast Asia (a region that does not include China or India), and the 16th largest economy in the world (World Bank 2020a).

In 2020, its GDP per capita was roughly $3,870, reflecting an increase of more than 70-fold since 1960 and qualifying it as an upper-middle-income country (World Bank 2020). This growth has enabled tens of millions of Indonesians to move up a rung on the economic ladder, and the number of Indonesians living in extreme poverty has fallen from 40% in 2000 to 9.8% in 2020 (Asian Development Bank 2020).

C. Economic Inequality

The fruits of Indonesia's economic growth have not been reaped evenly. In recent decades, the Gini index has risen from 32.4 in 1984 to 38.2 in 2019, making Indonesia one of the most unequal countries in the world (World Bank 2020). The wealthiest 1% of Indonesians now own nearly half of all wealth in the country, while the vast majority—more than four out of every five Indonesians—possess less than $10,000 USD in wealth (Oxfam 2017).

A more granular analysis of economic inequality by province reveals a similar trend. Between 2008 and 2013, income inequality grew in nearly every province and peaked in the province of North Sulawesi at 9% (Oxfam 2017). That year, in 2013, the Gini index ranged from a low of 31% to a high of 44%. One recurring theme in these analyses is that, as droves of Indonesians move from rural to urban areas, income inequality has grown within rural areas, between rural and urban areas, and within urban areas (Oxfam 2017). On average, urban areas have higher levels of economic inequality, with a Gini index of roughly 40%, as opposed to rural areas with a Gini index of about 30%. Indicators suggest that economic inequality between the sexes is also substantial.

D. Overall Development

The pattern of economic growth accompanied by persistent inequality is observed for a number of development indicators. Indonesians today have an average life expectancy of 71.7 years and an average schooling of 8.2 years, which have increased from 62.3 years and 3.3 years, respectively, in 1990 (UNDP 2020). Across such measures, however, gender inequality is apparent, with women obtaining an average of 7.8 years of schooling and men obtaining an average of 8.6 years of schooling (UNDP 2020). Such discrepancies rank Indonesia at 121 out of 162 countries in terms of gender inequality. Overall, these measures contributed to a Human Development Index score of 0.72 in 2019 (UNDP 2020). This score represents an improvement from 0.52 in 1990, and reflects a position of 107th out of 189 nations in terms of development (for context, China is ranked 85th) (UNDP 2020).

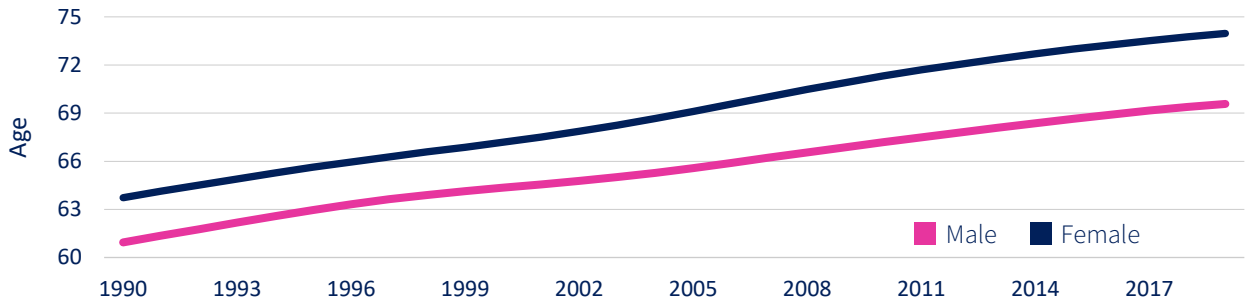
2 Health and Health Care

A. Trends in Life Expectancy; Major Causes of Death, Disease, and Disability; and Risk Factors

Life Expectancy

Indonesia has experienced a relatively steady rise in life expectancy since 1990 (see Figure 2.a.1) (World Bank 2020b). Today, life expectancy in Indonesia is approaching 75 and 70 years for women and men respectively (World Bank 2022).

Figure 2.a.1: Life Expectancy in Indonesia for Females and Males from 1960 to 2019

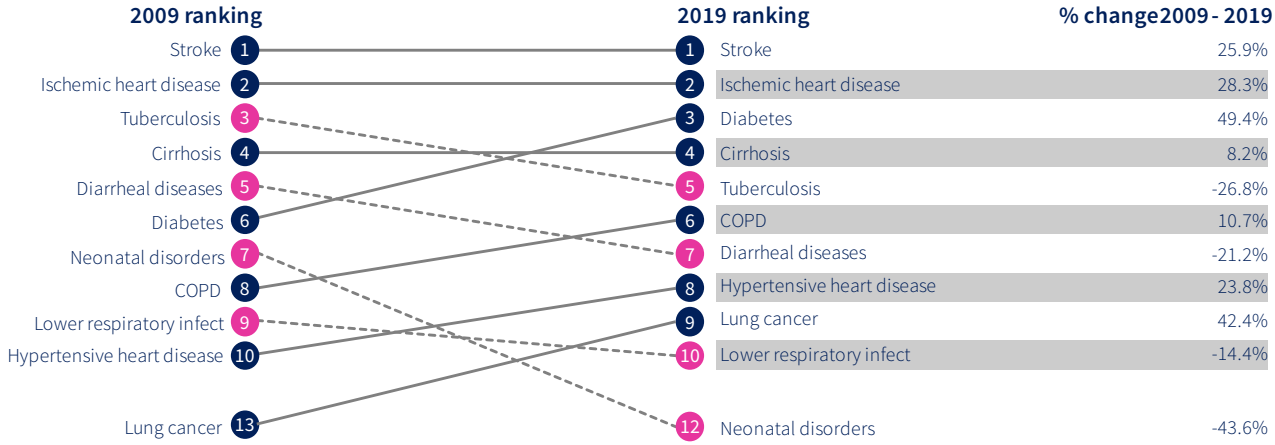


Source: World Bank 2020

Major Causes of Death

A review of the leading causes of death during the past decade provides an important window into the rapidly evolving health landscape in Indonesia. In 2009, the top five causes of death, in order, were stroke, ischemic heart disease, tuberculosis, cirrhosis, and diarrheal diseases. In 2019, the top five causes of death, in order, were stroke, ischemic heart disease, diabetes, cirrhosis, and tuberculosis (see Figure 2.a.2). Expanding the review to the top ten causes of death also highlights the growing role of diseases such as chronic obstructive pulmonary disease (COPD), lung cancer, and lower respiratory tract infections, among others (IHME 2019).

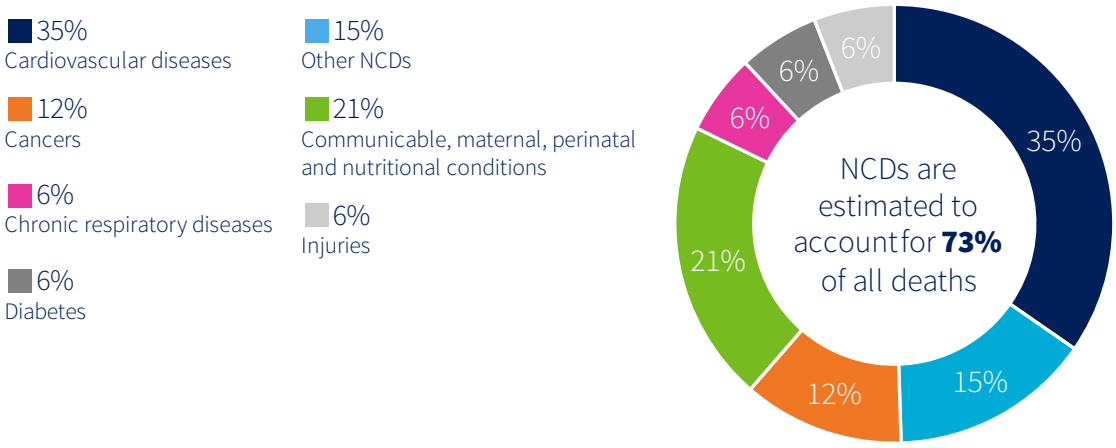
Figure 2.a.2: Leading Causes of Death and Percentage Changes in Indonesia in 2009 and 2019



Source: IHME 2019

Juxtaposing the leading causes of death in 2009 and 2019 brings three insights into sharp relief (see Figure 2.a.2). First, like many emerging countries in the region, Indonesia has a substantial burden of both communicable and noncommunicable diseases. Public health experts often refer to this as a "double burden" associated with a period of epidemiological transition (Mboi 2016). Specifically, the leading causes of death in low-income countries tend to be communicable diseases, whereas those in high-income countries tend to be noncommunicable diseases. As countries move up the economic ladder, their burden of disease tends to change from communicable to noncommunicable. In the interim, these countries are often saddled with the worst of both—a combination of communicable and noncommunicable diseases. This appears to be the case in Indonesia.

Figure 2.a.3: Breakdown of Common Causes of Death in Indonesia in 2018



Source: WHO 2018

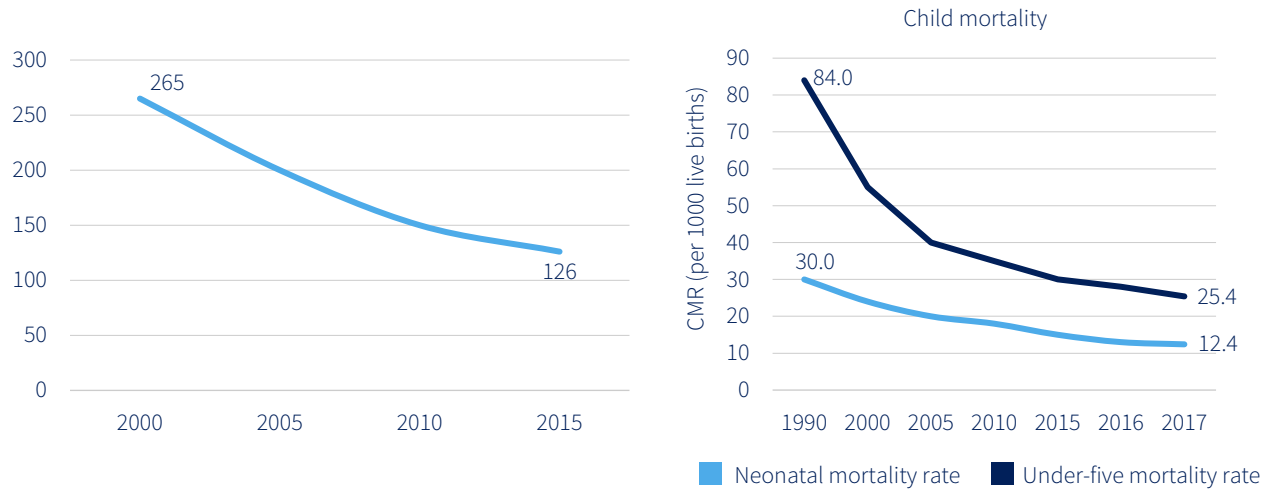
Second, the burden of noncommunicable diseases is growing rapidly. Between 2009 and 2019, the numbers of deaths associated with diabetes, ischemic heart disease, stroke, and COPD increased by 49.9%, 28.3%, 25.9%, and 10.7%, respectively (see Figure 2.a.2) (IHME 2019). Noncommunicable diseases now account for nearly three-quarters of all deaths in Indonesia (see Figure 2.a.3). Notably, cancer accounts for a growing and substantial number of noncommunicable disease deaths and approximately 12% of all deaths in Indonesia (WHO 2018).

Third, tobacco use likely contributes significantly to the double burden of disease in Indonesia, because it is a risk factor for both communicable diseases such as tuberculosis and noncommunicable diseases (Amere 2018). Coupled with the fact that many of these noncommunicable diseases are irreversible and can last a lifetime, the contribution of tobacco use to disease and disability—as opposed to simply death—is also likely to grow as Indonesia moves through its epidemiological transition.

Major Indicators of Disease and Disability

Indonesia has had mixed results vis-à-vis several common indicators of disease and disability. Most notably, the rates of maternal and child mortality have declined by half over the last decade and a half (see Figure 2.a.4). Between 2000 and 2015, the maternal mortality rate dropped from 265 to 126 deaths per 100,000 live births. Similarly, between 1990 and 2017, mortality for children less than 5 years has fallen from 84.0 to 25.4 deaths per 1,000 live births, and neonatal mortality has declined from 30.0 to 12.4 per 1,000 live births (WHO 2019).

Figure 2.a.4: Maternal, Children <5 Years, and Neonatal Mortality in Indonesia from 1990 to 2017



Left side = maternal (per 100,000 live births); right side dark blue = children <5 years (per 1,000 live births); right side light blue = neonates (per 1,000 live births). CMR, child mortality rate.

Source: WHO 2019

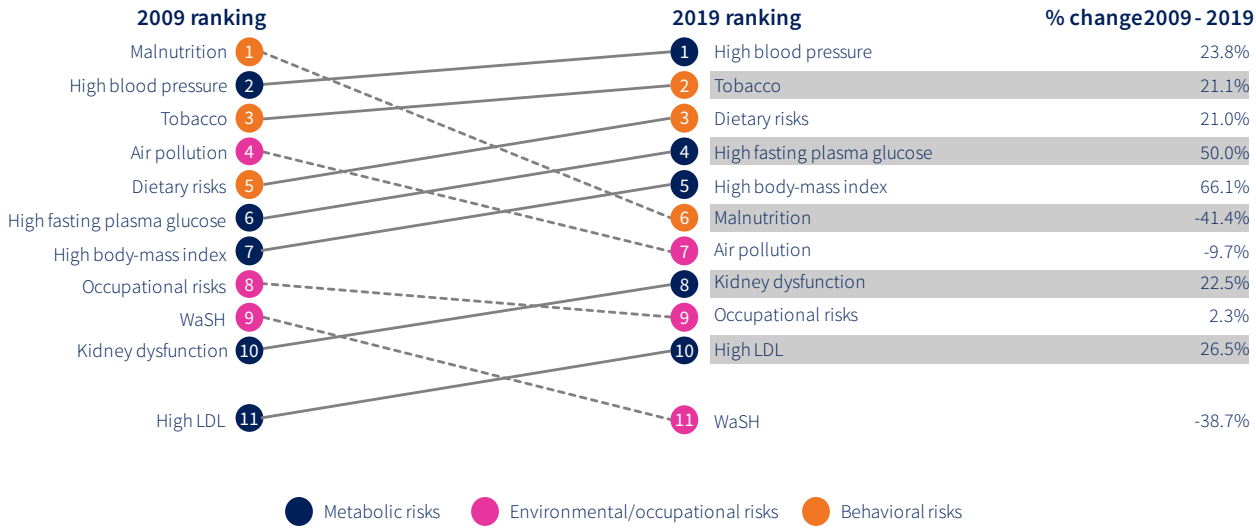
Progress on several other common indicators—including air pollution, child stunting and wasting, hepatitis, tuberculosis, malaria, noncommunicable diseases, and smoking—has been less impressive (GBD 2019).

Risk Factors for Death, Disease, and Disability

The leading risk factors for death, disease, and disability—as measured in disability-adjusted life-years—in Indonesia are primarily metabolic and behavioral (with the former often a manifestation of the latter). Juxtaposing the leading risk factors in 2009 with those in 2019 reveals several insights (see Figure 2.a.5).

First, the changes in risk factors reinforce the observation that Indonesia is in the midst of an epidemiological transition. In the last 10 years alone, risk factors have changed from those associated with a scarcity of food (i.e., malnutrition) to those associated with an abundance of food (i.e., dietary risks, high blood pressure, high fasting plasma glucose). Second, the increase in noncommunicable diseases is substantial and likely to be sustained. The top four risk factors in 2019 (high blood pressure, tobacco use, dietary risks, and high fasting plasma glucose) grew between 21% and 50% from the preceding decade. Other metabolic risk factors such as high body mass index, high cholesterol, and impaired kidney function grew between 22% and 66% from the preceding decade. All of these risk factors represent significant drivers of noncommunicable diseases. Third, the role of tobacco cannot be understated. Between 2009 and 2019, tobacco use grew by 21.1%. Its contributions to death, disease, and disability are likely compounded by the other metabolic risks, such as high blood pressure, to which smoking contributes (IHME 2019).

Figure 2.a.5: Leading Risk Factors for Death, Disease, and Disability in Indonesia in 2009 and 2019



LDL, low-density lipoprotein cholesterol; WaSH, water, sanitation, and hygiene.

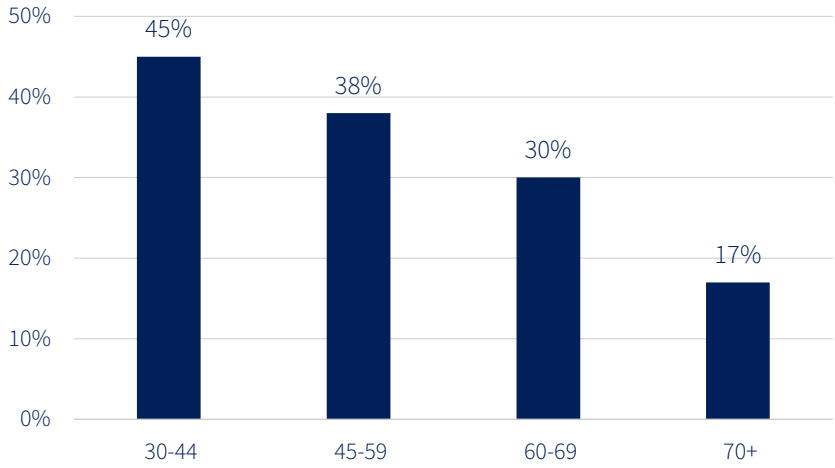
Source: IHME 2019

B. The Health and Economic Burden of Tobacco Use

Death, Disease, and Disability Associated with Tobacco Use

Underscoring the contribution of tobacco use to death, disease, and disability, tobacco use was estimated to be responsible for more than 290,000 deaths in 2019 in Indonesia (GBD 2019a). This figure represents nearly 17% of all deaths and more than a fifth (22%) of all noncommunicable disease deaths in the country. A more granular analysis of tobacco-related deaths in Indonesia reveals that they account for just over one-quarter of all deaths associated with cardiovascular disease—more than 147,000 each year—and persons between the ages of 30 and 44 years are the most vulnerable (see Figure 2.b.1).

Figure 2.b.1: Percentage of Cardiovascular Deaths Attributed to Tobacco Use in Indonesia by Age Group



Source: WHO 2018

Analogous studies of other noncommunicable diseases found that smoking-attributable cancers pose an enormous burden in Indonesia and accounted for 74,440 deaths (30.6% of all cancer deaths) and 1,207,845 years of potential life lost (YPLL) (Kristina 2015). Given that smoking prevalence is markedly greater among men than women, 95% of deaths were in men (Kristina 2015). Lung cancer represents the bulk of deaths among cancers for men and, to a far lesser extent, for women. Similar dynamics are likely to characterize the relationship between smoking and other diseases such as tuberculosis; studies have found that smoking doubles the risk of both contracting tuberculosis and dying from it (Amera 2018). The same study found that one in every four cases of tuberculosis deaths in Indonesia was due to smoking (Amera 2018).

Economic Costs of Death, Disease, and Disability Associated with Tobacco Use

The economic costs associated with death, disease, and disability due to tobacco use in Indonesia are substantial. A recent study estimated that the costs of treating tobacco comprises 0.1-0.2% of the country's GDP (Rp 17.9 trillion-27.7 trillion) in 2019 (Meilissa et al 2021).

C. Health Care System and Health Care Spending

Evolution of the health care system and universal health coverage: *In the late 1990s and early 2000s, Indonesia passed a series of reforms that decentralized the health care system. Although the central government continued to provide technical and financial support, city and district authorities were given substantially more leeway in health care delivery. Along with decentralization, reimbursement was modified and the use of midwives, especially in rural and remote areas, was incentivized.*

According to analyses by the World Bank, these changes bore fruit by helping cut the infant mortality rate in half and helping reduce the mortality rate of children younger than 5 years between 1992 and 2007. Notably, these infant and child mortality rates are some of the lowest in the region. Despite these improvements, the very same analyses by the World Bank noted major areas for improvement in health care efficiency, equity, utilization, and supervision (Mboi 2016, Suyanto 2017). More recently, Indonesia established a central administrative agency known as the Badan Penyelenggara Jaminan Sosial, with the goal of achieving universal health care coverage.

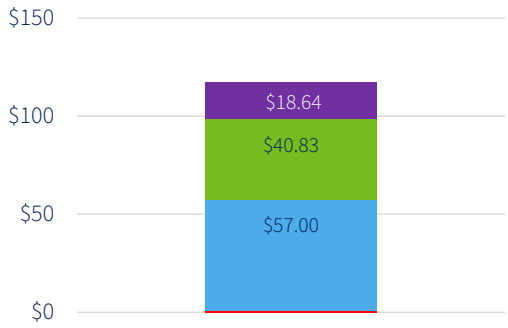
At present, 203 million out of 262 million Indonesians have coverage through the agency (Augustina 2019) However, enrollment rates remain low among the poor and those working in the informal sector (Augustina 2021). The system faces an enormous deficit, and its offerings appear modest relative to the high and increasing costs associated with noncommunicable diseases. The Indonesian government uses excise duties (one of the three taxes on cigarette sales) to cover budget deficits in the country's insurance program (Augustina 2019).

The health care system in Indonesia has recently undergone a series of significant reforms (see box above). At present, the vast majority of health care facilities in the country are either hospitals or community health clinics known as puskesmas (Suyanto 2017). The highest level of care is delivered within hospitals. Two-thirds of hospitals are government owned and the remaining third are privately owned. More modest levels of care are available through the country's nearly 10,000 puskesmas (Suyanto 2017). Puskesmas are typically staffed by a general practitioner and nurse. They offer basic outpatient services such as vaccinations, family planning, and

evaluation by a general practitioner. Although a subset of puskesmas have beds (usually in remote and isolated areas) for observation, most do not, and the facilities close by midday.

Health care spending was evenly split between individuals and government (see Figure 2.c.1). More specifically, the average Indonesian had $117 USD in health care expenditures, with $57 USD spent by the government, $40.83 USD spent by individuals out of pocket, and $18.64 USD covered by prepaid private entities (IHME 2019). For individuals, covering roughly 40% of their health care expenses out of pocket is considered high and results in 8% of households (an estimated 7 million households) pushed into poverty (World Bank 2020).

Figure 2.c.1: Per-Person Spending (in USD) on Health Care in Indonesia in 2018 by Funding Source



Red = development assistance; blue = government spending; green = private out-of-pocket spending; purple = private prepaid spending.

Source: IHME 2019

For the government, covering a fraction of all health care expenditures amounted to roughly 2.9% of GDP in 2019 (World Bank 2020c). That level of spending is an increase from 2% of GDP in 2000 but is still below that of nearly all other low- and middle-income countries in the region, and it has been one of the main barriers to achieving universal health care (Suryanto 2017). As noted in the box above, the relatively modest level of government spending and relatively high level of out-of-pocket spending means that many Indonesians struggle to meet the substantial health care expenses associated with noncommunicable diseases. After all, it is far easier to manage the one-off expense of antibiotics for an infection than it is to manage the ongoing expenses of oxygen-dependent COPD or feeding tube–dependent stroke survivors. As Indonesia progresses through its epidemiological transition, the costs associated with a higher burden of noncommunicable diseases will prove challenging for individuals and the government alike.

D. Health Care Professionals in Indonesia

Most health care professionals in Indonesia are medical doctors, midwives, or nurses. There are roughly 102,000 medical doctors in Indonesia (Suryanto 2017). The ratio of medical doctors to individuals is one doctor for every 5,000 people. This is well below the ratio of one doctor for every 1,000 people recommended by WHO and is one of the lowest ratios in all of Southeast Asia. Moreover, the ability to see a doctor is affected by the unique geographic constraints of Indonesia as an archipelago of more than 13,000 islands; access to health care professionals is more limited in its many remote and rural areas. The country also has roughly 111,700 midwives and nearly 234,000 nurses (Suryanto 2017). Sixty percent of these nurses—about 147,000—are employed by hospitals, while the remainder are employed by puskesmas across the country. A constellation of other health care providers—including biomedical technicians, dieticians, medical technicians, pharmacists,

physiotherapists, psychologists, and traditional health care providers—round out the remainder of the health care workforce, albeit in much more modest numbers (Suryanto 2017).

Data on patterns of tobacco use by health care professionals in Indonesia are limited. Relatively modest cross-sectional surveys suggest that smoking among health care professionals is common, albeit at lower rates than within the general population. For instance, a survey of 447 physicians in the province of Jogjakarta found that roughly 22% of male and 1% of female physicians were active smokers (Ng 2007). The survey also found that four out of five physicians believed that smoking no more than ten cigarettes per day is not harmful to health and that 72% of physicians did not ask about their patients' smoking status (Ng 2007). The same survey of physicians found that 88% of medical school faculty, residents, and community physicians reported feeling inadequately prepared or trained to help people quit smoking. Eighty percent also said they were interested or very interested in receiving training in cessation counseling skills (Prabandari 2015). Similarly, the 2007 Global Health Professions Student Survey (GHPSS) for dental students revealed that nearly 11% were current smokers (40% of male and 4% of female students), and only 10% received formal training in smoking cessation (CDC 2020).

3 Tobacco Use

A. Overview of Tobacco Products and Their Use in Indonesia

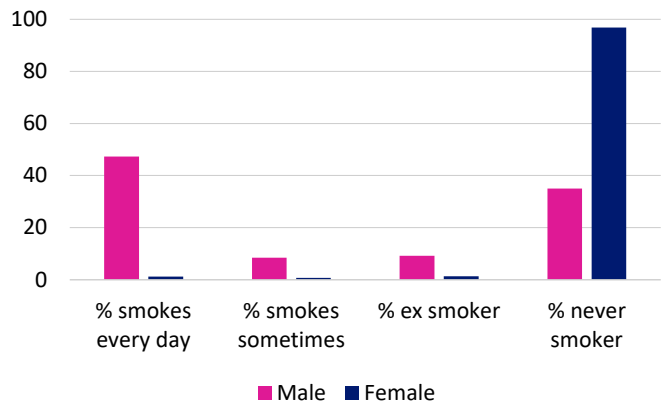
Tobacco products are sold in both smoked and smokeless forms in Indonesia. In terms of smoked products, common types include kretek (a type of cigarette that blends tobacco and cloves for flavoring), factory-made cigarettes, roll-your-own cigarettes, and electronic cigarettes.

Data from the Riset Kesehatan Dasar (Riskesdas), Global Youth Tobacco Survey (GYTS), and the Global Adult Tobacco Survey (GATS) provide a window into the ways in which demographic, economic, and social forces contour the use of these products, bringing several insights into sharp relief.

Riskesdas was a national household-level survey of over 800,000 Indonesians conducted in 2018 and published by Indonesia's Ministry of Health that revealed several important facts (MoH 2018). First, Indonesia has one of the highest rates of tobacco use in the world, especially among men (Figure 3.a.1). Roughly 56% of men smoke and approximately 9% are former smokers. Of those who do smoke, 47.3% report smoking daily and 8.5% report smoking sometimes. Notably, smoking is dramatically lower among women, with virtually all—nearly 97%—reporting never having smoked (MoH 2018). With an overall prevalence of 28.9% of adults above the age of 15 using tobacco, there are 56 million users.

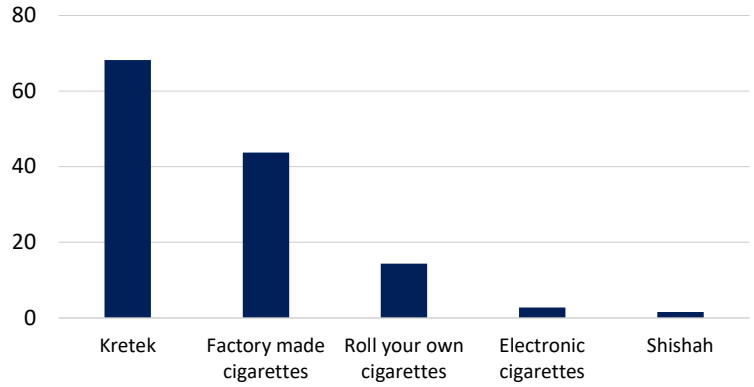
Second, among men who use tobacco, the most popular products are smoked (Figure 3.a.2). Just under 70% of those who report using tobacco smoke kreteks, and 44% report smoking factory-made cigarettes. A subset of those users, of course, engage in dual use. Relatively modest numbers roll their own cigarettes (14%) or use electronic cigarettes (2.8%). The relative popularity of these products is similar among women who use tobacco, with 59% and 37% reporting use of kreteks and factory-made cigarettes, respectively, followed by more modest use of roll-your-own cigarettes, electronic cigarettes, and shishah (Figure 3.a.3) (MoH 2018).

Figure 3.a.1: Percentages of Males and Females Above 10 Years Who Smoke in Indonesia



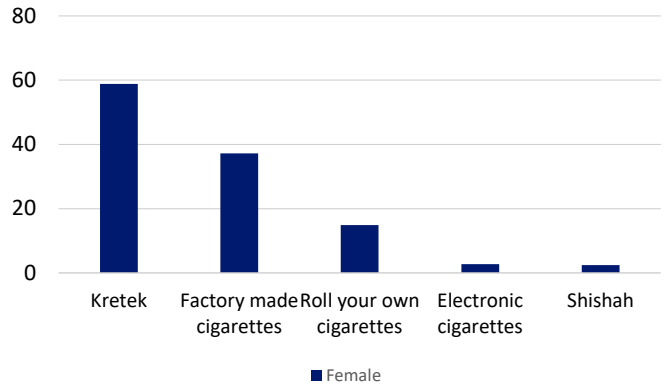
Source: MoH 2018

Figure 3.a.2: Percentages of Males Above 10 Years Who Report Using Smoked Products, by Type



Source: MoH 2018

Figure 3.a.3: Percentages of Females Above 10 Years Who Report Using Smoked Products, by Type



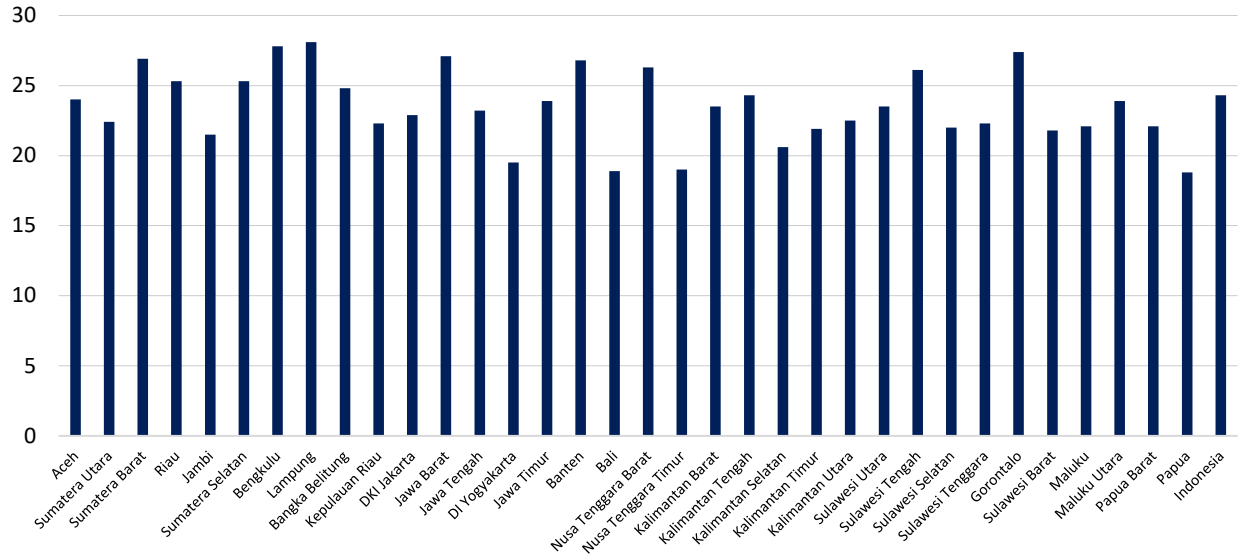
Source: MoH 2018

Third, although the prevalence of smoking is relatively similar across provinces (Figure 3.a.4), it does appear to vary by age and level of education. More specifically, data from Riskesdas suggest that the prevalence of smoking dramatically increases as adolescents get older, peaks for those in their 30s, and then modestly ebbs among those who are older (Figure 3.a.5). Smoking also appears to increase by level of education (Figure 3.a.6), although this may ultimately reflect the aforementioned increase associated with age, especially among adolescents and youths (MoH 2018).

Additional data on tobacco use among these age groups come from the GYTS, which found that among adolescents aged 13 to 15 years, 35.6% of boys and 3.5% of girls used tobacco (totaling 19.2% of all students). Nearly 77% of those who use tobacco reported that they were able to buy cigarettes from a store, shop, street vendor, or kiosk, and 61% reported that they were not prevented from buying because of their age.

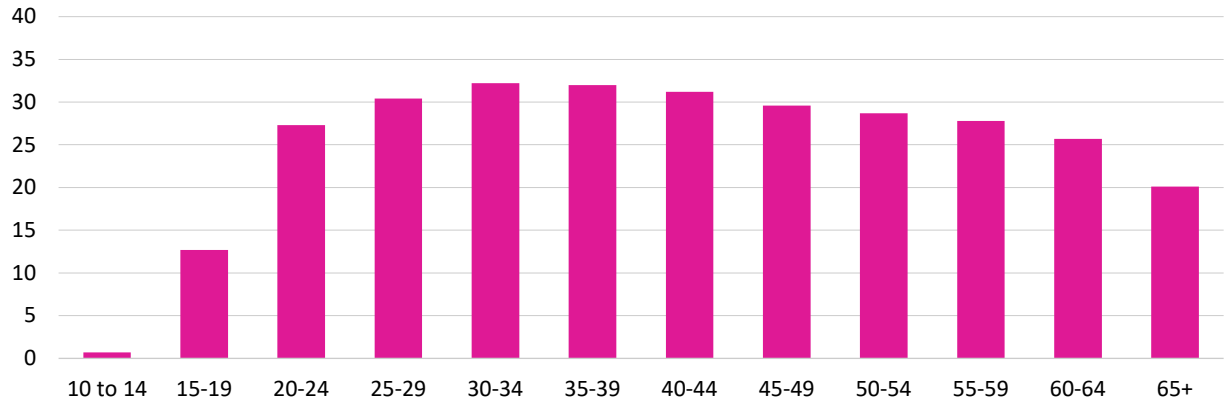
Fourth, tobacco use also appears to vary by setting, with 26% of rural participants and less than 23% of urban participants reporting smoking daily (Figure 3.a.7). This difference appears to be corroborated by related findings, such as higher rates of daily smoking in occupations associated with rural areas such as farming and fishing (Figure 3.a.8) (MoH 2018).

Figure 3.a.4: Percentages of Those Who Smoke Every Day by Province



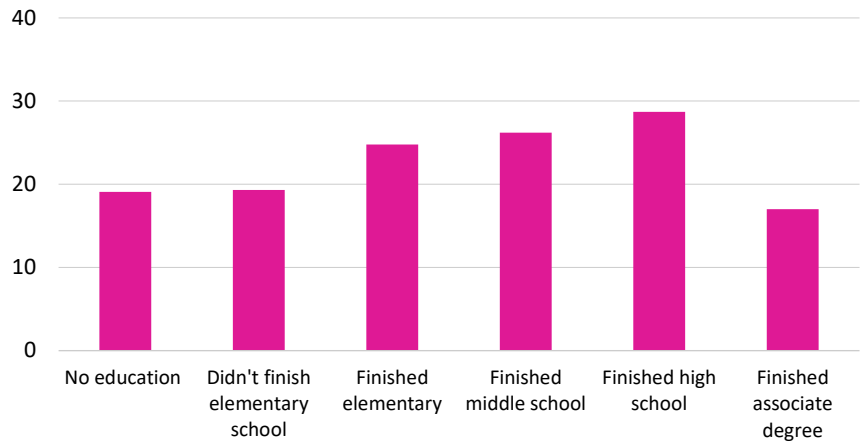
Source: MoH 2018

Figure 3.a.5: Percentages of Those Who Smoke Every Day by Age



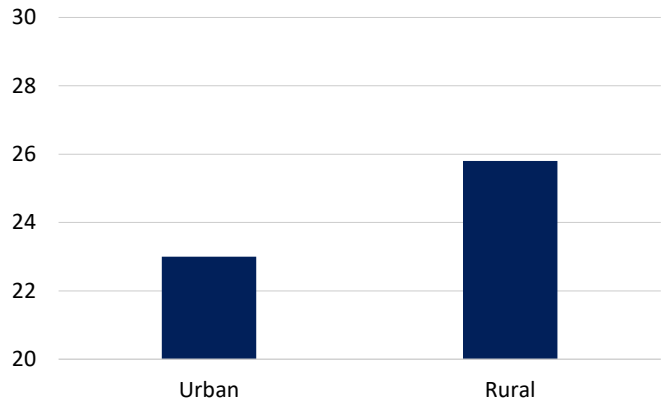
Source: MoH 2018

Figure 3.a.6: Percentages of Those Who Report Smoking Every Day by Education



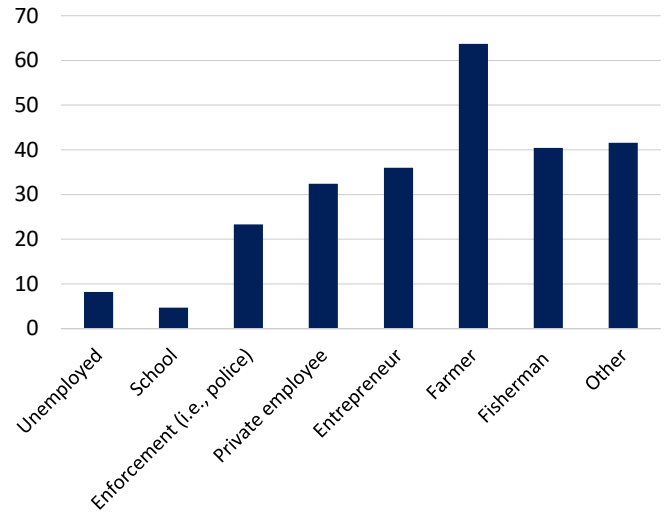
Source: MoH 2018

Figure 3.a.7: Percentages of Those Who Smoke Every Day Based on Location



Source: MoH 2018

Figure 3.a.8: Percentages of Those Who Smoke Every Day Based on Vocation



Source: MoH 2018

Collectively, these findings suggest that Indonesia is characterized by relatively high rates of tobacco use among men, that this use consists almost entirely of smoked tobacco, that kreteks and factory-made cigarettes are particularly popular smoked tobacco products, and that their use is influenced by clear demographic, economic, and social characteristics.

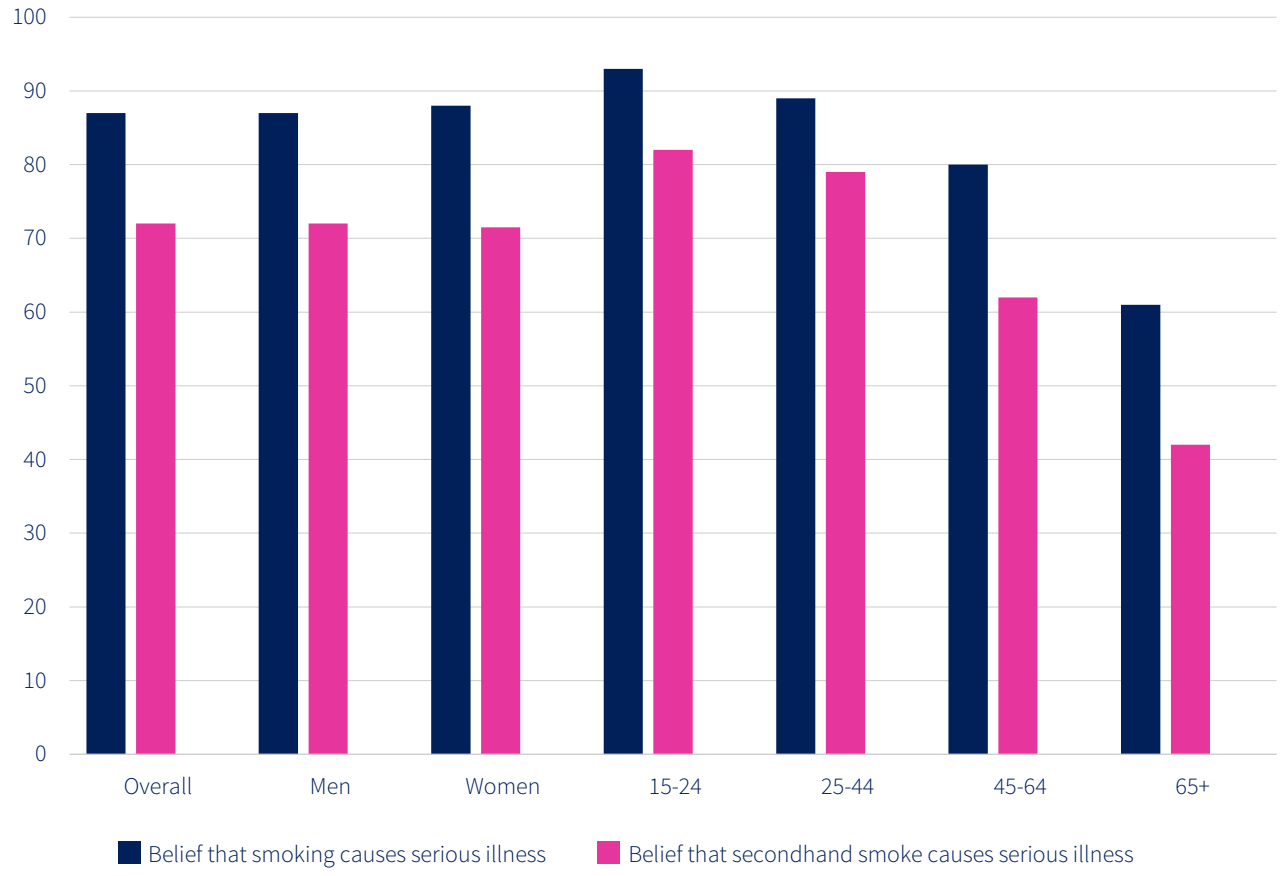
B. Product Characterization, Epidemiology, and Risk Perceptions of Tobacco Use

Tobacco products in Indonesia can be bifurcated into smoked and smokeless forms.

Few studies, however, have examined the epidemiology of smokeless tobacco in Indonesia, most likely because rates of smokeless tobacco use are low compared with smoked tobacco. As a result, our understanding of smokeless products, their epidemiology, chemical composition and toxicology, and their implications for tobacco control is limited, and the topic is usually examined in the context of broader regional studies (Sreeramareddy 2014, Sinha 2012).

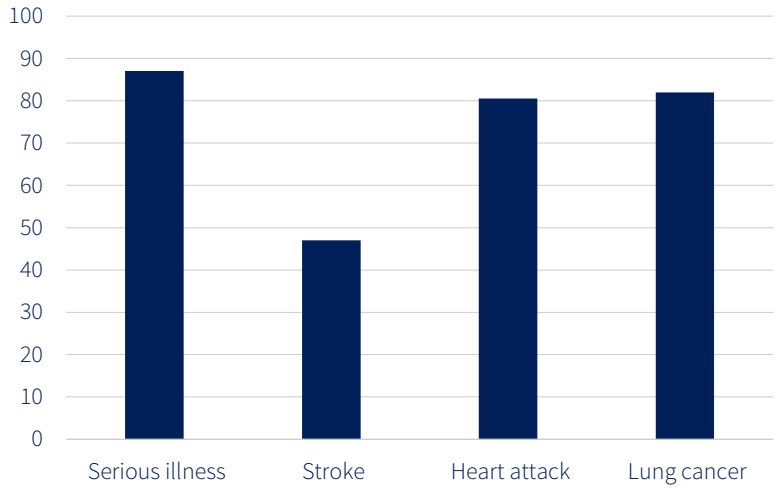
Data on the perceived risks of smoked and smokeless tobacco use are available through GATS (Riskesdas does not survey risk perceptions among tobacco users). These data offer three insights. First, the vast majority of Indonesians appear to understand the health risks associated with tobacco use, at least for smoked tobacco. In the GATS survey, nearly nine out of ten Indonesians (86%) believed that smoking causes serious illness, and more than seven out of ten Indonesians (74%) believed that secondhand smoke causes serious illness (see Figure 3.b.1) (GATS 2011). The rates of awareness were similar between men and women. The rates of awareness were higher among younger respondents; 93% of those between ages 15 and 24 years believed that smoking causes serious illness, while only 61% of those aged 65 years or older believed that smoking causes serious illness. Second, the type of serious illness that individuals believe to be caused by smoking varies, with only 45% of respondents reporting that smoking causes strokes and 85% reporting that smoking causes lung cancer (see Figure 3.b.2). Third, a quarter or less of respondents—including users, nonusers, urban residents, or rural residents—reported that smokeless tobacco causes serious illness (see Figure 3.b.3).

Figure 3.b.1: Percentages of Adults in Indonesia Who Report That Smoking or Secondhand Smoke Causes Serious Illness, Stratified by Sex and Age Group



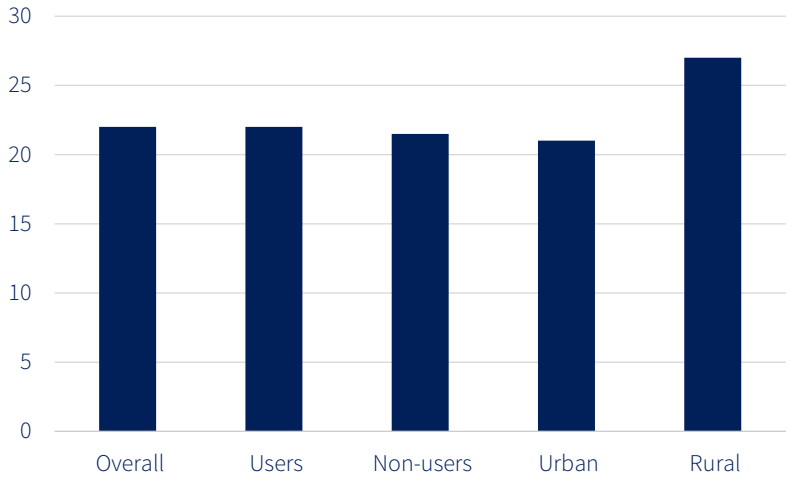
Source: GATS 2011

Figure 3.b.2: Percentages of Adults in Indonesia Who Report That Smoking Causes Serious Illness, Stroke, Heart Attack, and Lung Cancer



Source: GATS 2011

Figure 3.b.3: Percentages of Adults by Usage Category (Users, Nonusers) and Area of Residence (Urban, Rural) Who Report That Using Smokeless Tobacco Causes Serious Illness



Source: GATS 2011

C. Size of the Tobacco Industry

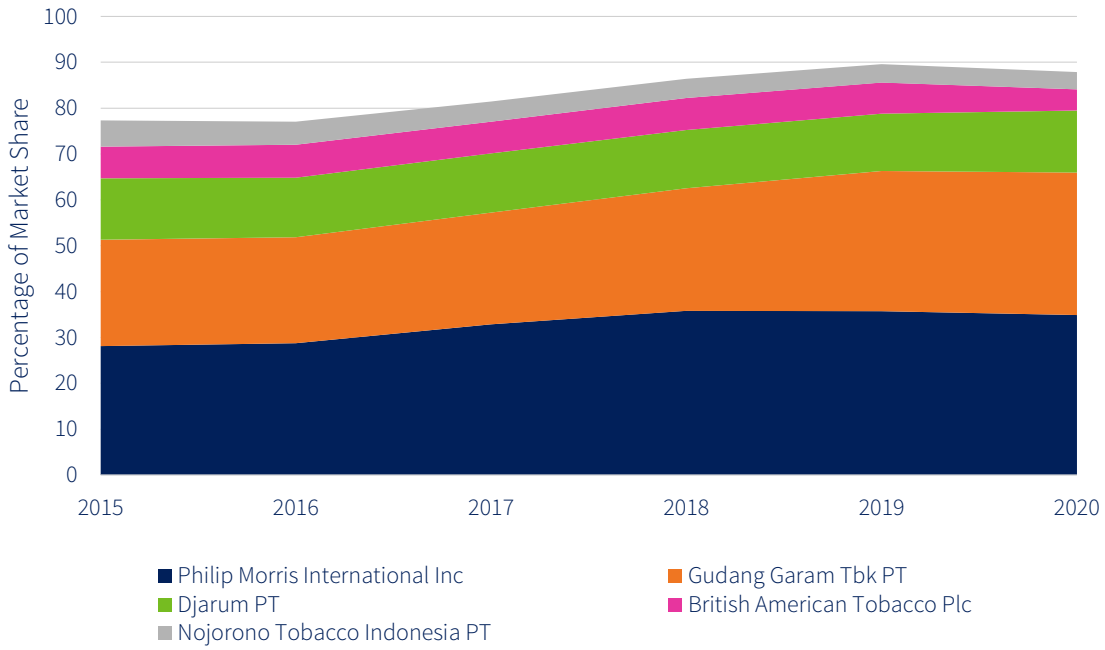
Despite widespread awareness that smoking causes serious illness, the tobacco industry in Indonesia is dominated by cigarettes. Indonesia remains the second-largest market for cigarettes by retail volume in the world (Euromonitor, 2021a). The market consists of a handful of large companies and a number of smaller companies across the range of key products. During the past decade, for example, more than 80% of the market has been controlled by five companies—Philip Morris International (PMI; which owns Sampoerna), Gudang Garam, Djarum PT, British American Tobacco, and Nojorono Tobacco Indonesia (see Figure 3.c.1).

Today, PMI (which owns Sampoerna) and Gudang Garam are the largest players in the industry, with nearly two thirds of the market (see Figure 3.c.1). The bulk of manufacturing is mechanized, with machine-made kreteks and white cigarettes accounting for 68% and 6% of all domestic consumption, respectively. The remainder are hand-rolled (FSFW 2018). Euromonitor also estimates that in 2019, 7% to 8% of the cigarette volume in

Indonesia came from illicit trade (Euromonintor 2021a). The International Tax and Investment Center and Oxford Economics reported in 2016 that Indonesia was one of the largest markets in the Southeast Asian region with illicit consumption, totaling 38 billion cigarettes. Domestically produced but non-duty-paid illicit cigarettes accounted for 60% of total illicit consumption in Indonesia, Pakistan, and Philippines combined (Oxford Economics 2018).

Given the relatively high rate of smoking and the large population in Indonesia, its cigarette market eclipses that of many of its regional neighbors. In terms of cigarette volume, for instance, Indonesia is nearly four times larger than India (FSFW 2018).

Figure 3.c.1: Percentages of Adults by Usage Category (Users, Nonusers) and Area of Residence (Urban, Rural) Who Report That Using Smokeless Tobacco Causes Serious Illness



Source: Euromonitor 2021

D. The Tobacco Regulatory Landscape

Indonesia and the FCTC

Indonesia is among seven countries that have not signed or ratified the WHO Framework Convention on Tobacco Control (FCTC) (UNTC 2003). As context, the largest regional producers and consumers of tobacco—India and China—have ratified the treaty despite the implications for tobacco-related employment and livelihoods. President Jokowi reportedly said that Indonesia did not want to follow the trend just because many other countries did, although "we [Indonesia] have to really look at our national interests, especially our citizens who have been affected by tobacco-related health problems" (Amindoni 2016).

According to reports, several issues are delaying the government's decision, including first and foremost the tobacco industry's strong relations with the government, the industry's role as a direct employer of and source of income for Indonesians, the strength of the industry, and other financial considerations including revenue from taxes and advertisements (Amindoni 2016, Ayuningtyas 2019, Barraclough 2010). Many argue that Indonesia's reluctance to sign the FCTC weakens tobacco control efforts of the global community, while Indonesia argues that it has implemented many national policies, including higher cigarette taxes and restrictions on tobacco advertising, sponsorship, and promotion; nevertheless, these measures have been considered suboptimal.

INDONESIA AND MPOWER MEASURES

The MPOWER framework was developed by the WHO and refers to a series of objectives aimed at achieving robust tobacco control (WHO 2008).

1. Monitor tobacco use: Indonesia conducts regular national household surveys.
2. Protect people from tobacco smoke: At least four public places were considered smoke-free though compliance is inconsistent. There are no smoke-free restrictions on workplaces and restaurants.
3. Offer help to quit tobacco use: Indonesia has a smoke-free toll line. NRTs are available but bupropion and varenicline are not legally allowed.
4. Warn about the dangers of tobacco: Indonesia requires only 40% of front and back of cigarette packages to be covered.
5. Enforce bans on tobacco advertising, promotion, and sponsorship: There are no direct bans on tobacco advertising. Bans on tobacco promotion and distribution are limited.
6. Raise taxes on tobacco: Burden of tax is equal to MPPC cigarettes (WHO 2021). In 2020, excise burden on cigarettes was 62.3% of the retail price of the most sold brand of cigarette in Indonesia. Cigarettes were not considered less affordable in 2020 compared to 2018 (WHO 2021). A recent study shows that the relatively low excise taxes have contributed to higher tobacco use (YSB, 2021).

Progress and Gaps in Policies

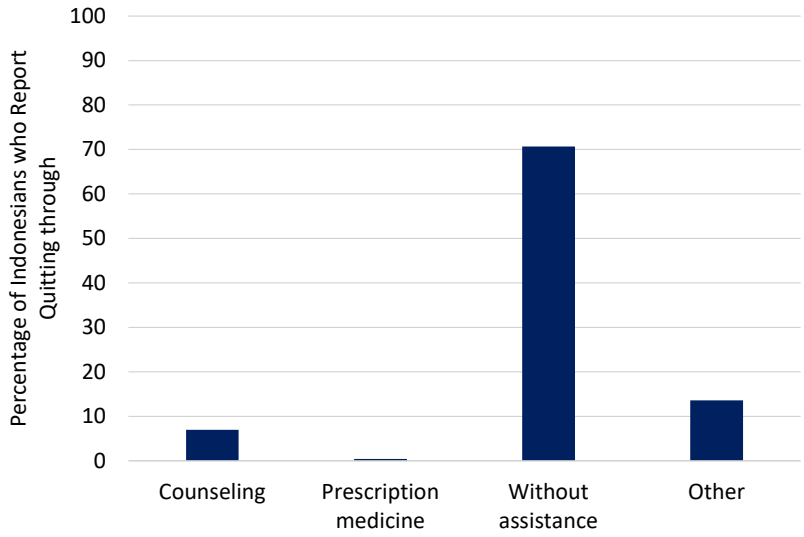
Even though Indonesia did not sign the FCTC and is not legally obligated to follow the provisions under the WHO's MPOWER framework (see textbox), examining tobacco control efforts in Indonesia through this lens provides several important insights.

Most notably, the WHO 2019 report revealed that tobacco control measures in Indonesia are far from comprehensive, are poorly implemented, and are ineffective (WHO 2019). Indonesia was evaluated to have made 'minimal progress' in developing smoke-free environments, 'no and/or weak' measures in instituting advertising bans, 'moderate' progress in developing cessation programs, health warnings and taxation and 'completed' measures related to monitoring of tobacco use prevalence (see textbox; WHO 2021).

Although nicotine replacement therapy products are available over the counter, demand remains low, knowledge about them is limited, and their prices are high. Despite the high burden of tobacco use and the resulting toll on health, NRTs are not included on Indonesia's national essential medicines list (WHO 2019). Other pharmaceutical options such bupropion and varenicline are not legally allowed in the country at this time (WHO 2021).

As a result, majority of adults—seven out of ten— who did quit reported doing so without assistance (GATS 2011).

Figure 3.d.1: Percentages of Indonesians Who Quit Tobacco Use, by Method



Source: GATS, 2010-2011

Tobacco Harm Reduction

In recent years, one of the main changes to the landscape have been the introduction of tobacco harm reduction products.

The market for e-vapor products remains highly fragmented, consisting of hundreds of different brands and players, with a noteworthy number of Chinese imports such as Eleaf, Joyetech, and KangerTech. There are currently 1.7 million users of e-vapor products in Indonesia (1% of the total population) (EcigIntelligence 2021).

Heated tobacco products such as IQOS have not been officially launched in Indonesia via HM Sampoerna. At present, they are available through several online retailers (many of them via the black market), and availability remains largely limited to major cities. IQOS is expected to be launched in the fourth quarter of 2022 (Euromonitor 2021).

There are no restrictions on the sale, manufacture, supply, use, or advertising of e-cigarettes (hardware or e-liquid) or nicotine pouches in Indonesia at a national level. Local governments in Indonesia are allowed to establish their own restrictions (ECigIntelligence 2021). Heated tobacco products are not regulated in Indonesia.

An analysis of the regulatory responses to alternatives in Indonesia is summarized in Table 3.d.1

Table 3.d.1: Regulation of Tobacco Harm Reduction Products versus Cigarettes

Country	Policy area	
Indonesia	Products and ingredients	All tobacco-containing products are currently regulated in the same way as cigarettes. There are no specific labeling or packaging regulations applicable to e-cigarette hardware or e-liquid. According to the National Agency of Drug and Food Control, e-cigarettes are not catalogued as tobacco products except for tax purposes. Therefore, since no other product-specific laws exist, only general and consumer product regulations apply. There are no bans on flavors or additives.
	Advertising	The advertising of tobacco-containing products is treated similarly to that of cigarettes, with only limited restrictions; nicotine-containing product advertising is unrestricted.
	Retail channels	Restrictions on the sales channels for tobacco-containing products apply similarly to those for cigarettes (only limited restrictions); nicotine products are unregulated in this area.
	Taxation	Taxes on oral tobacco/e-cigarettes/pouches are effectively lower than for cigarettes; heated tobacco taxes are higher. Indonesia's Ministry of Finance imposed a 57% tax on e-liquids which became effective from 1 October 2018 (Euromonitor 2021, YSB 2021).
	Authorization/notification	Nicotine-containing products can be sold as a consumer product with fewer restrictions compared to cigarettes; all tobacco-containing products require a government license to be sold.
	Public use	Public use of tobacco-containing products intended for inhalation is limited in the same places as are cigarettes; other products' use is not limited, but vaping could be implied as having the same restrictions as smoking.
	Age restrictions	All products are, de facto or legally, intended for adults, similar to cigarettes.

Source: E-cigarette Intelligence

Religion, Culture and Smoking

The role of religion in shaping the culture around smoking in Indonesia merits exploration. The country has a largely Muslim majority, and multiple Islamic leaders have spoken out against smoking. At the extreme, several leaders have issued fatwas against smoking. In 2009, Majelis Ulama Indonesia—an organization of religious scholars—declared smoking in general to be "makruh", and, in 2010, a similar organization declared smoking to be "haram". Subsequent studies, including one consisting of semi-structured focus groups of smokers and non-smokers in Bogor, found that such announcements had limited reach (Byron 2015).

Some non-smokers cited religion as a factor in reinforcing their desire not to smoke, but many smokers felt that religious leaders lacked credibility in making such recommendations. They cited examples of religious leaders who themselves smoked and noted that many religious leaders may view smoking as "discouraged but not forbidden." Nonetheless, smokers appreciated the role religious leaders, especially those who did not smoke, could play in discouraging the habit. The role of religion overall, however, appears to be overshadowed by other elements of the smoking culture, including the idea that smoking and masculinity go hand-in-hand (Byron 2015). Coupled with the affordability and availability of cigarettes, that culture of smoking appears to be deeply ingrained in Indonesia.

4 Tobacco Production

A. Tobacco Production

Indonesia is the fifth largest producer of unmanufactured tobacco (FAO 2021). In 2020, it produced 200,000 tons of tobacco and was surpassed only by China, India, Brazil, and Zimbabwe (FAO 2020). Over the past two decades, tobacco production has fluctuated from year to year, with no easily discernible and consistent trend (see Figure 4.a.1). The area of land cultivated for tobacco and the yield on this land have also fluctuated, with no consistent trends (see Figures 4.a.2 and 4.a.3).

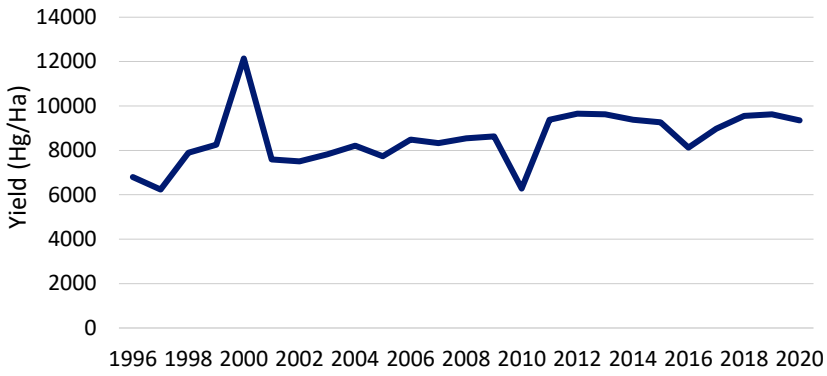
Table 4.a.1: Tobacco Production in Indonesia from 1996 to 2020

Source: FAO 2021

Table 4.a.2: Area of Land Under Tobacco Cultivation in Indonesia from 1996 to 2020

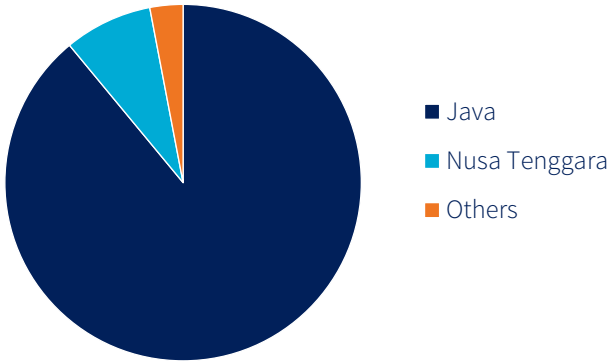
Source: FAO 2021

Table 4.a.3: Tobacco Yield in Indonesia from 1996 to 2020



Source: FAO 2021.

Table 4.a.4: Tobacco Production by Provinces in Indonesia



Source: World Bank 2018

The vast majority of tobacco production in Indonesia—roughly 85%—occurs in Java (see Figure 4.a.4). Less than 10% occurs in West Nusa Tenggara, and the remainder occurs across a small number of other regions. The main tobacco varieties grown are Virginia and, to a much lesser extent, burley and oriental. Farmers may be either large landowners or smallholders with farms of less than 1 hectare that operate independently or on contract. Indonesia exports about one-fifth—and rarely more than one-third—of the tobacco it produces (Shah 2019). Moreover, to meet its large domestic demand, the country also imports a significant amount of tobacco (Shah 2019).

B. Tobacco-Related Crop Production: Cloves and Areca

Given the popularity of kretek, clove production has become a complementary crop to tobacco. Indonesia is the world's largest producer of clove (World Bank 2018a), producing 133,604 tons and accounting for over 73% of the global supply of clove in 2020 (FAO 2020). Nearly all of the clove that it produces is consumed domestically as part of the kretek supply chain, and less than 5% of it is exported (World Bank 2018a). It is grown mainly by smallholder farmers with, typically, plots of no more than 1 to 2 hectares. About half a million hectares of land are used for clove cultivation, and its growth reportedly employs as many as one million farmers and laborers. Given the seasonal nature of the crop, it is often just one of several grown by a smallholder farmer and accounts for only a fraction of overall household income (World Bank 2018a). To a much lesser extent, areca nuts—used in smokeless, chewable tobacco products such as betel quid—may be considered a complementary crop to

tobacco. Historically, betel quid was quite popular in Indonesia. After the introduction of cigarettes, however, its consumption has become nominal (although it retains its popularity in nearby India). Indonesia still produces about 132,601 tons of areca (FAO 2020). Details on its contribution to the tobacco supply chain appear limited.

C. Tobacco-Related Employment and Socioeconomic Impact on Farmers

Studies on the quality of tobacco-related employment in Indonesia suggest that it is far from ideal. A disproportionate number of tobacco farmers are impoverished (72.2% fell below the poverty line, compared with 11.1% of the general population), are dependent on some form of social assistance, and suffer from food insecurity. Many are also exposed to occupational hazards inherent to tobacco farming, such as green tobacco sickness, a constellation of symptoms associated with significant absorption of nicotine across the skin while handling tobacco leaves (World Bank 2018).

Studies suggest that smallholders are impoverished as a result of tobacco farming. A nationally representative household survey of 1,350 smallholder farmers across all the major tobacco-growing districts revealed that smallholder tobacco farmers were not prosperous when direct costs were considered, and their earnings plunged further when indirect costs were included, trapping more than half of them in a cycle of poverty requiring further capital (World Bank 2018). The survey also showed that tobacco farmers who had switched from tobacco because of low prices to alternative crops as economically attractive alternatives were doing much better (World Bank 2018).

The same study showed that an average annual household income for tobacco farmers is $10.40 a day (this does not incorporate any costs of farming) (World Bank 2018). In contrast, farmers who diversified to other crops or to non-agricultural income were relatively better off than tobacco-growing households (World Bank 2018). In addition, under the current policy regime, Indonesia imports a large amount of tobacco (World Bank 2018) ranging from 45% to 75% of total domestic tobacco production, and this potentially dampens the prices of tobacco and the incomes of farmers.

A similar dynamic appears to characterize clove farming in Indonesia. A nationally representative study of 600 clove farmers in Indonesia in two of the largest clove-growing regions— central Java and north Sulawesi (World Bank 2018a) —found that clove farming does not represent an economically promising path for farmers in Indonesia. Clove farming households were disproportionately poor, with 37% living below the poverty line (compared with 11.1% of the general population). After incorporating indirect input costs such as household labor, the income of farmers dropped by more than $2 USD per kilogram. A shift to different crops would be an improvement for farmers, because they would be engaged in varied economic activities and likely to be able to reallocate factors of production (World Bank 2018a).

References

Chapter 1

Asian Development Bank. (2020). Indonesia and ADB. https://www.adb.org/countries/indonesia/poverty#:~:text=In%20Indonesia%2C%209.8%25%20of%20the,die%20before%20their%205th%20birthday.

CIA. (2022). Indonesia. https://www.cia.gov/the-world-factbook/countries/indonesia/.

Embassy of the Republic of Indonesia. (2014) Facts & Figures. https://www.embassyofindonesia.org/index.php/basic-facts/.

Embassy of the Republic of Indonesia. (2022) People. People – Embassy of the Republic of Indonesia | Washington D.C. (embassyofindonesia.org/people)

Oxfam Briefing Paper. (2017). Towards a More Equal Indonesia. https://www-cdn.oxfam.org/s3fs-public/bp-towards-more-equal-indonesia-230217-en_0.pdf.

United Nations Development Programme. (2020) The Next Frontier: Human Development and the Anthropocene. Indonesia. Human Development Report 2020. http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/IDN.pdf.

World Bank. (2014). Indonesia: Avoiding the Trap. Development Policy Review 2014. https://www.worldbank.org/content/dam/Worldbank/document/EAP/Indonesia/Indonesia-development-policy-review-2014-english.pdf. Published May 2014

World Bank. (2016). Indonesia's Urban Story. https://www.worldbank.org/en/news/feature/2016/06/14/indonesia-urban-story.

World Bank. (2020). Data. Indonesia. https://data.worldbank.org/country/indonesia.

World Bank. (2020a) Gross Domestic Product 2020. https://databank.worldbank.org/data/download/GDP.pdf.

Chapter 2

Amere GA, Nayak P, Salindri AD, Narayan KMV, Magee MJ. (2018) Contribution of smoking to tuberculosis incidence and mortality in high-tuberculosis-burden countries. *Am J Epidemiol.* 2018;187(9):1846-1855.

Agustina R, Dartanto T, Sitompul R, et al. (2019) Indonesian Health Systems Group. Universal health coverage in Indonesia: concept, progress, and challenges. Lancet. 2019;393(10166):75-102. https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)31647-7.pdf

Centers for Disease Control and Prevention (2022). Global Tobacco Surveillance System Data (GTSSData). Fact Sheets. Global Health Professions Student Survey (GHPSS). Indonesia – dental students. https://nccd.cdc.gov/GTSSDataSurveyResources/Ancillary/DataReports.aspx?CAID=1.

Global Burden of Disease. (2019). SDG Collaborators. Spatial, Temporal, and demographic patterns in prevalence of smoking tobacco use and attributable disease burden in 204 countries and territories, 1990-2019: A systematic analysis from the Global Burden of Disease Study 2019. Lancet.

Global Burden of Disease. (2019a). Global Health Data Exchange. https://ghdx.healthdata.org/

Kristina SA, Endarti D, Prabandari YS, Ahsan A, Thavorncharoensap M. (2015). Burden of cancers related to smoking among the Indonesian population: premature mortality costs and years of potential life lost. Asian Pac J Cancer Prev. 2015;16(16):6903-6908. https://www.ncbi.nlm.nih.gov/pubmed/26514465 http://journal.waocp.org/article_31519_fc7b3b973113dba8f5254be80a0f276d.pdf.

IHME: Institute for Health Metrics and Evaluation. (2019). Country Profile: Indonesia. https://www.healthdata.org/indonesia.

Mboi N, Murty Surbakti I, Trihandini I, et al. (2016). On the road to universal health care in Indonesia, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet. 2018;392(10147):581-591.

Meilissa Yurdhina, et al. (2021). The 2019 Health Care Cost of Smoking in Indonesia. https://tobacconomics.org/files/research/701/the-2019-healthcare-cost-of-smoking-in-indonesia.pdf

Ng N, Prabandari YS, Padmawati RS, et al. (2007). Physician assessment of patient smoking in Indonesia: a public health priority. Tob Control. 2007;16(3):190-196. https://openknowledge.worldbank.org/handle/10986/25363.

Prabandari YS, Nichter M, Nichter M, Padmawathi RS, Muramoto M. (2015). Laying the groundwork for tobacco cessation education in medical colleges in Indonesia.

Suryanto, Plummer V, Boyle M. (2017). Healthcare system in Indonesia. Hosp Top. 2017;95(4):82-89. https://www.tandfonline.com/doi/abs/10.1080/00185868.2017.1333806?journalCode=vhos20.

World Health Organization. (2018). Noncommunicable Diseases (NCD) Country Profiles, 2018. Indonesia. https://www.who.int/nmh/countries/2018/idn_en.pdf?ua=1. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30595-6/fulltext#seccestitle170.

World Health Organization. (2019). 2019 Health SDG Profile: Indonesia. https://apps.who.int/iris/bitstream/handle/10665/327758/SDG%20Profile_Indonesia-eng.pdf?sequence=1&isAllowed=y.

World Bank. (2020b) Life expectancy at birth, female (years) https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN?locations=ID.

World Bank. (2020c). Current health expenditure (% of GDP). https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=ID

Chapter 3

Amindoni A. (2016). FCTC Ratification Must Consider National Interests: Jokowi. The Jakarta Post. Published June 14, 2016. https://www.thejakartapost.com/news/2016/06/14/fctc-ratification-must-consider-national-interests-jokowi.html.

Ayuningtyas D, Purnamasari CD, Misnaniarti. (2019). Conflict and resolution on politics of tobacco control in Indonesia. Pertanika Journal of Social Sciences and Humanities. 2019;27(1):637-647. https://scholar.ui.ac.id/en/publications/conflict-and-resolution-on-politics-of-tobacco-control-in-indones.

Barraclough S, Morrow M. (2010). The political economy of tobacco and poverty alleviation in Southeast Asia: contradictions in the role of the state. Glob Health Promot. 2010;17(1 Suppl):40-50. https://journals.sagepub.com/doi/pdf/10.1177/1757975909358243.

Byron MJ, Cohen JE, Gittelsohn J, Frattaroli S, Nuryunawati R, Jernigan DH. (2015). Influence of religious organisations' statements on compliance with a smoke-free law in Bogor, Indonesia: a qualitative study. BMJ Open. 2015;5(12):e008111. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4679994/. Accessed April 7, 2021.

Ecigerette Intelligence. (2021). Market report: open pods and local brands on the rise in Indonesia. https://ecigintelligence.com/market-report-open-pods-and-local-brands-on-the-rise-in-indonesia/

Euromonitor International. (2021). Country Report: Tobacco in Indonesia. https://www.euromonitor.com/tobacco-in-indonesia/report.

Euromonitor International. (2021a). Country Report: Cigarettes in Indonesia. https://www.euromonitor.com/cigarettes-in-indonesia/reportError! Hyperlink reference not valid.

Foundation for a Smoke-Free World. (2018). Global Trends in Nicotine. https://www.smokefreeworld.org/sites/default/files/fsfw-report-trends-in-nicotine-1005201811.pdf. Published 2018.

Global Adult Tobacco Survey (GATS). (2011). Indonesia Report 2011.1 (who.int).

Global Youth Tobacco Survey (GYTS). (2019). Fact sheet Indonesia 2019. https://www.tobaccofreekids.org/assets/global/pdfs/en/Indonesia_GYTS_2019.pdf. Accessed April 5, 2021.

Ministry of Health Indonesia. (2018). Riskesdas 2018. https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-riskesdas-2018_1274.pdf.

Oxford Economics. (2018). Asia: Illicit Tobacco Indicator 2017: Methodological Overview. OXFO5877_Methodology_2018_Final.pdf (oxfordeconomics.com).

Sreeramareddy CT, Pradhan PM, Mir IA, Sin S. (2014). Smoking and smokeless tobacco use in nine South and Southeast Asian countries: prevalence estimates and social determinants from demographic and health surveys. Popul Health Metr. 2014;12:22. Error! Hyperlink reference not valid. https://pophealthmetrics.biomedcentral.com/track/pdf/10.1186/s12963-014-0022-0.

Sinha DN, Gupta PC, Ray CS, Singh PK. (2012). Prevalence of smokeless tobacco use among adults in WHO South-East Asia. Indian J Cancer. 2012;49(4):342-346. http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2012;volume=49;issue=4;spage=342;epage=346;aulast=Sinha

United Nations Treaty Collection. (2003) Chapter IX: Health. 4. WHO Framework Convention on Tobacco Control. https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IX-4&chapter=9&clang=_en.

World Health Organization.(2019). WHO Report on the Global Tobacco Epidemic, 2019. https://www.who.int/tobacco/global_report/en/. Published July 26, 2019.

World Health Organization. (2021). Country Profile Indonesia for WHO 2021 https://cdn.who.int/media/docs/default-source/country-profiles/tobacco/who_rgte_2021_indonesia.pdf?sfvrsn=c47730ae_5&download=true

Yayasan Pembangunan Indonesia. (2021). Tobacco Economic Ecosystem in Indonesia: A Scoping Study Report. https://www.smokefreeworld.org/wp-content/uploads/2021/09/Indonesia%20Scoping%20Study%20Final%20Report.pdf

Chapter 4

Food and Agriculture Organization of the United Nations. (2020). Food and Agricultural Data. http://www.fao.org/faostat/en/#home.

Shah R, Bartone D, Ferguson R. (2019). Global Trends in Tobacco Production and Trade. Foundation for a Smoke-Free World. https://www.smokefreeworld.org/sites/default/files/uploads/fsfw_report_9.9.191.pdf.

World Bank (2018). The economics of tobacco farming in Indonesia. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/161981507529328872/the-economics-of-tobacco-farming-in-indonesia

World Bank (2018a). The Economics of Clove Farming in Indonesia. https://openknowledge.worldbank.org/handle/10986/28570