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A Policy Perspective on Tobacco Farming and Public Health in Indonesia

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GLOSSARY AND ABBREVIATIONS

- ENDS : Electronic nicotine delivery systems
ETS : Environmental Tobacco Smoke also known as passive smoker
Kretek : Cigarettes made of tobacco and clove
Riskesdas : *Riset Kesehatan Dasar* / Basic Health Research
Secondhand smoke : Smoke coming from the burning tobacco products, such as cigarettes, cigars, and/or pipes. It is also smoke that has been exhaled by the person smoking.

CUSTOMS

- CHT : Excise Rates for Tobacco Products
DBHCHT : Revenue Sharing Funds of Tobacco Products Excise
Computer Security Incident Response Team
IHT : Tobacco Products Industry

TOBACCO PRODUCTS

- CRT : Cigars
HPTL : Other tobacco processing products including e-cigarettes
KLB : Hand-rolled corn husk cigarettes
KLM : Rhubarb cigarettes
SKM : Machine-rolled *kretek* cigarettes
SKT : Hand-rolled *kretek* cigarettes
SKTF : Hand-rolled *kretek* filtered cigarettes
SPM : White cigarettes
SPT : Hand-rolled white cigarettes
SPTF : Hand-rolled white filtered cigarettes
TIS : Shag tobacco or loose tobacco

Sources retrieved from Centers for Disease Control and Preventions (2018), Ministry of Finance (2018), and Ministry of Health (2015).

EXECUTIVE SUMMARY

Indonesia produced 152,319 tonnes of tobacco leaf in 2017, making it the sixth largest tobacco leaf producer in the world. However, outdated technology pushes productivity in the tobacco farming industry far below levels of the other tobacco leaf producing countries and Indonesian farmers continue to struggle to make a living from these labor intensive crops.

The cigarette industry in Indonesia is a significant contributor to employment, economic growth and tax revenue collection. However, smoking cigarettes remain as the leading cause of death and serious diseases in Indonesia. The cigarette industry is responsible for the enormous public health and economic costs. Health expenditures directly related to smoking cigarettes in Indonesia amount to approximately USD 1.2 billion per year, and it is also responsible for another USD 6.8 billion in indirect economic costs.

Indonesian policies targeting the tobacco farming and cigarette industries appear uncoordinated. Excise revenues from tobacco products reached IDR 143.66 trillion or USD 10.33 billion in 2019 and were responsible for 95.5% of all excise revenues. This makes cigarettes an important source of government revenue. Moreover, the Ministry of Industry reported that 1.7 million people worked in both tobacco leaf and cloves production in March 2019. Tobacco farmers receive support from local governments, funded through a 2% share of tobacco excise revenues.

The Indonesian government has responded to the costs of cigarette consumption with Regulation No. 109/2012, which restricts the advertisement and promotion of tobacco products, prohibits sales of cigarettes to U-18, and mandates graphic health warnings on the packets. Chapter VI of the regulation also stipulates public awareness programs aimed at discouraging consumers from smoking, but smoking prevalence in Indonesia remains at almost 50% above global levels. To make matters worse, a significant increase in underage smoking reveals serious enforcement problems.

The following recommendations respond to the dilemma between policies to reduce the prevalence of cigarette consumption in Indonesia and the importance of cigarette production for employment and excise revenue collection.

1. Ministry of Health to more effectively execute its duties and responsibilities under Chapter VI of Regulation No. 109/2012. In particular, it needs to re-evaluate and improve its public awareness campaigns, which have so far not achieved their objectives.
2. Ministry of Health to undertake more enforcement campaigns against retailers who sell cigarettes to minors. Moreover, the Ministry of Finance must assess the effect of increased prices and tariffs on smoking prevalence and on sales of illicit, cheaper, and potentially more harmful tobacco products.
3. The Ministry of Health to evaluate potential health effects of harm-reducing alternatives. In response to positive experiences in the United Kingdom (UK), the Indonesian government should study whether consumers should be encouraged to switch from inhaling harmful tar to using electronic nicotine

delivery systems (ENDS). The government should also research ways to reduce risks associated with ENDS products and to restrict their use to adult consumers. A total ban of electronic cigarettes is not recommended as it would eliminate harm reduction options.

4. Finally, tobacco farmers need technical support. Upgrading their skills and technology would allow them to grow tobacco used for renewable sources of energy or to extract nicotine for ENDS products rather than for use in cigarettes. Financial support for tobacco farmers could be secured through measures such as earmarking taxation proceeds to fund tobacco transition programs, where needed.

OVERVIEW OF TOBACCO IN INDONESIA

Tobacco is a double-edged sword for Indonesia. It generates economic benefits as the highest contributor to excise-based state revenues—tobacco excise reached IDR 143.66 trillion (USD 10.33 billion)¹ in 2019, 95.5% of all excise revenue for the year (Kementerian Keuangan Republik Indonesia, 2019). It also creates both upstream and downstream employment. However, tobacco products like cigarettes also cause societal harm through environmental, health, and economic damages.

Environmental damages are mainly the result of cigarette waste. International Coastal Cleanup, which occurs annually in 122 countries, reported that cigarette butts found in the coastal areas have increased from 2.4 million in 2018 to 5.7 million in 2019, making it one of the most collected categories of trash polluting the coasts (Ocean Conservancy, 2018; Ocean Conservancy, 2019).

In terms of health, there is an international consensus that smoking cigarettes poses serious health risks for both active and passive smokers who are exposed to secondhand smoke (Centers for Disease Control and Prevention, 2006). Cigarette consumption also leads to negative economic effects, especially for the poor. Reality Check Approach (2016) calculated that Indonesian families spend around 30%² of their daily expenses on cigarettes. Statistics Indonesia (*Badan Pusat Statistik/BPS*) recorded that cigarettes were the product responsible for the third highest per capita expenditure in 2014, after prepared foods and rice grains (Kosen, Thabrany, Kusumawardani, & Martini, 2017). Tobacco-related expenses were the second largest contributor to poverty after rice expenditures in 2019 (Alika, 2019).

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However, tobacco remains one of Indonesia's important cash crops which is further processed to become cigarettes. Cigarettes are the most popular tobacco product, sought after by 1.1 billion users around the world. While the prevalence of smoking is declining in the Americas, Europe, and the Western Pacific region, tobacco consumption is growing steadily in Africa, the Eastern Mediterranean region, and Southeast Asia, where the number of smokers grew from 317 million in 2000 to 364 million people in 2015 (World Health Organization, 2019). According to the Tobacco Atlas, in 2016 alone the worldwide consumption of cigarettes peaked at approximately 5.7 trillion sticks (Drope et al., 2018). This led to growing demand for tobacco leaves from growth regions such as Indonesia.

Indonesia's Technocratic National Medium-Term Development Plan (*Rancangan Teknokratik Rencana Pembangunan Jangka Menengah Nasional/ RPJMN Teknokratik*) 2020–2024, prepared by the National Development Planning Agency (Bappenas), stipulates that the regional development policy on the islands of Java and Bali is meant to strengthen their role as the centers for industrial and service-based economic development, including through the development of manufacturing in the tobacco processing industry and leather industry, wholesale and retail sectors, tourism, and the food industry (Kementerian PPN/Bappenas Republik Indonesia, 2019). This plan seeks the growth of the tobacco processing industry but a crucial question remains: is it realistic?

¹ Based on BI Foreign Exchange Rate on December 2019, USD 1 equals to IDR 13,901. Retrieved from <https://www.bi.go.id/en/moneter/informasi-kurs/transaksi-bi/Default.aspx>

² Based on the Reality Check Approach study, families in the poor quintiles spend between IDR 5,000 to IDR 20,000 (equivalent to USD 0.37 to USD 1.46) per day on cigarette consumption.

A. Tobacco's Production and Productivity

In Indonesia, tobacco farming is regulated and supervised by the Directorate General of Estate Crops at the Ministry of Agriculture (MOA) (Kementerian Pertanian Republik Indonesia, 2019). Tobacco is a seasonal crop that is sensitive to external factors (Djajadi, 2015). There are many varieties of tobacco planted in archipelagic Indonesia. Differences in the ecological characteristics of tobacco planting areas affect crop yield and quality.

The government publishes two datasets³ regarding tobacco production in Indonesia, the MOA dataset with data on the national and local levels, and a dataset by Statistics Indonesia (BPS) that is used by the Food and Agricultural Organization (FAO) of the United Nations for international comparison with data from national statistical bureaus around the world (Glorya & Nugraha, 2019; Interview 1, 2019). This study uses data from both sources for different purposes: MOA data are used to estimate the national and local production and cultivation areas, while FAO data provide an international comparison of Indonesian tobacco with other top producers.

Based on the latest data published by MOA, small-scale farmers own most of Indonesia's tobacco cultivation areas, with 201,825 hectares, while plantations owned by the government and run by state-owned enterprises (SOEs) account for only 84 hectares. Farmers produced 180,854 tonnes of tobacco in 2017 (Kementerian Pertanian Republik Indonesia, 2018), while government plantations produced only 75 tonnes. Tobacco plantations are usually developed in partnership with cigarette companies operating in Indonesia and smallholders (Ministry of Agriculture and Statistics Indonesia; Interview 3; Interview 2, 2019; ISFCRI, 2019).

Of the 34 provinces in Indonesia, only 15 produce tobacco (Kementerian Pertanian Republik Indonesia, 2018). Tobacco production is concentrated in the provinces of East Java, West Nusa Tenggara (*Nusa Tenggara Barat* or NTB), and Central Java, which generated 174,600 tonnes or 90% of national production in 2015. The remaining 10% are produced in the remaining 12 provinces.⁴

The three leading provinces provided 182,200 hectares of the planted area of tobacco or 89% of the total tobacco acreage in 2015 (Ahsan, Wiyono, & Veruswati, 2019).

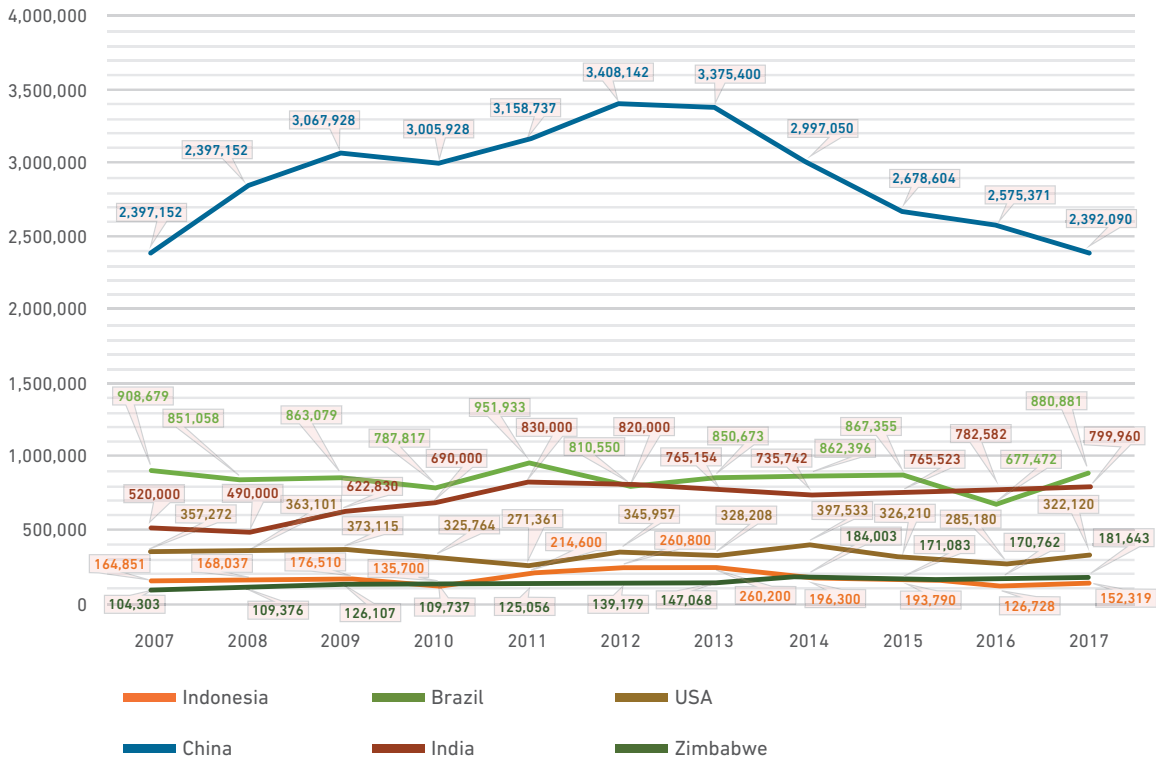
Indonesia's tobacco production volume and productivity were both the lowest out of the top six producers in 2017, and despite significant regional disparities Indonesia has consistently achieved the lowest productivity.

Comparison with the world's leading tobacco producers is essential to assess Indonesia's tobacco production and productivity, and so we use the FAO dataset to make this comparison. The latest data on worldwide tobacco production shows that Indonesia ranks sixth, behind China, Brazil, India, USA, and Zimbabwe in 2019 (Statista, 2019). China has the highest yield at 2,392,090 tonnes in 2017 (Figure 1), while the USA has the highest productivity level (Figure 2). Indonesia's tobacco production volume and productivity were both the lowest out of the top six producers in 2017, and despite significant regional disparities Indonesia has consistently achieved the lowest productivity.

³ In an interview, Statistics Indonesia confirmed that differences between the data sets are the result of different methodologies for measuring commodities, including tobacco. However, there is no information about how the data is gathered and processed.

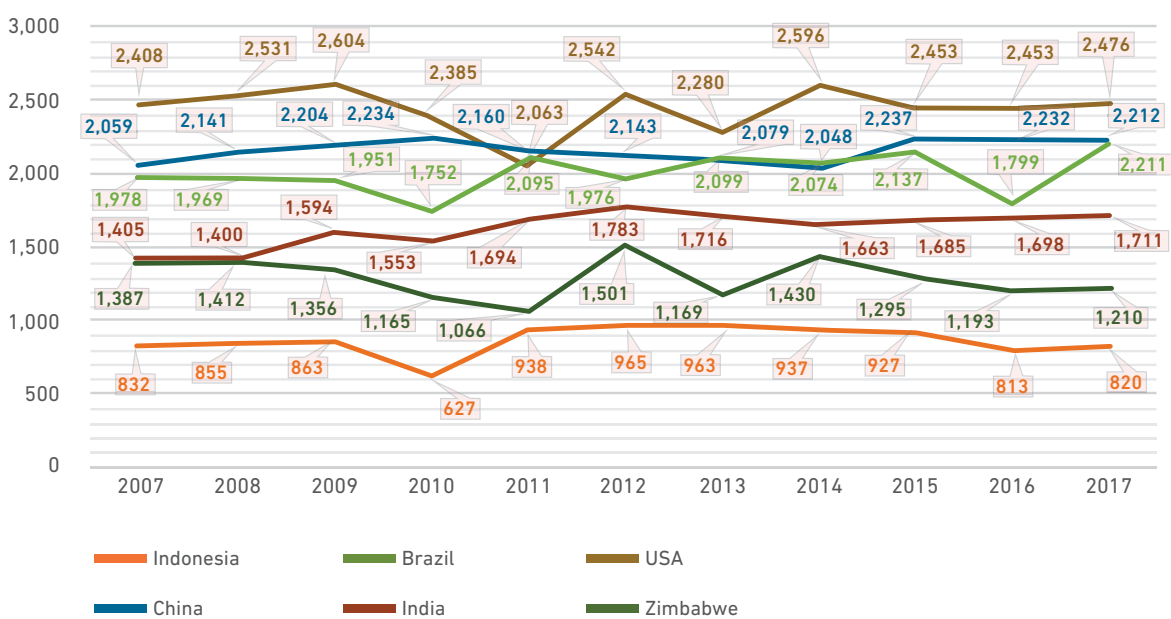
⁴ In no particular order, the other 12 tobacco producing areas are Aceh, North Sumatera, West Sumatera, Jambi, South Sumatera, Lampung, West Java, Special Region of Yogyakarta, Bali, East Nusa Tenggara, Central Sulawesi and South Sulawesi (Kementerian Pertanian Republik Indonesia, 2018).

Figure 1
Unmanufactured Tobacco Production 2007–2017 (in tonnes)



Sources: FAO Food and Agriculture Data on Tobacco Crops, 2019. Retrieved and processed from FAOSTAT <http://www.fao.org/faostat/en/#data/QC>

Figure 2
Unmanufactured Tobacco Productivity 2007–2017 (in kg/ha)



Source: FAO Food and Agriculture Data on Tobacco Crops, 2019. Retrieved and processed from FAOSTAT <http://www.fao.org/faostat/en/#data/QC>

Observing area harvested, yield/ha, and production levels of tobacco in Indonesia over the past decade (Table 1) suggests that tobacco production and planted area declined from 2013 to 2016. Even though the numbers improved in 2017, the area, yield, and production had still declined compared to 2007. Production declined significantly in 2010, 2014, and 2016. This decline was correlated with reduced harvest area in 2014 and 2016, but in 2010 production suffered despite increased harvest area due to heavy rainfall during the dry season caused by a climate phenomenon called Indian Ocean Dipole (IOD), similar to El Niño⁵ (Muttaqin, et al., 2019).

Table 1
Area Harvested, Yield and Production Level of Indonesia's Tobacco 2007–2017

Indonesia	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Area Harvested (ha)	198,054	196,627	204,450	216,300	228,800	270,300	270,200	209,400	209,095	155,950	185,708
Production (tonnes)	164,851	168,037	176,510	135,700	214,600	260,800	260,200	196,300	193,790	126,728	152,319
Yield (kg/ha)	832	855	863	627	938	965	963	937	927	813	820

Source: FAO Food and Agriculture Data on Tobacco Crops, 2019. Retrieved and processed from FAOSTAT <http://www.fao.org/faostat/en/#data/QC>

“ In Indonesia, one explanation for declining tobacco production is farmers' preferences changing to prefer higher return commodities such as palm oil (Indonesia Investments, 2015). ”

Between 2007 and 2017, tobacco production from top producers declined, except for India and Zimbabwe (Figure 1). In the United States (US), many tobacco farmers have been looking to diversify their commodities in response to rapidly declining demand for US tobacco leaves in the international market (Fisher, 2000). US leaf tobacco exports went down from 189,378 tonnes in 1999 (Foreign Agricultural Service, 2000) to 104,696 tonnes in 2019 (International Trade Center, 2019). In Indonesia, one explanation for declining tobacco production is farmers' preferences changing to prefer higher return commodities such as palm oil (Indonesia Investments, 2015). Research in other countries also supports the theory that tobacco farming is not profitable for most smallholder farmers and so they shift to other crops (Goma, et al., 2015; Magati, et al., 2016; Chavez, et al., 2016).

B. Condition of Tobacco Farmers

Indonesian tobacco farmers experience three key challenges: decreasing revenues, inevitable climate risks, and a lack of productivity-boosting technology.

Farmers continue growing tobacco in spite of declining revenue from the crop because it is grown in the dry season while other crops grow during the wet season. This allows farmers to secure extra revenues from tobacco during the dry season, when other crops have not been harvested

⁵ Indian Ocean Dipole (IOD) is also known as Indian Niño. It drives a change in the difference of Indian Ocean's sea surface temperatures of the tropical western and eastern Indian Ocean. This sets up a shift in temperature difference across the Indian Ocean that leads to a change in the climate of Indonesia and Australia (Australian Government Bureau of Meteorology, n.d.).

yet (Goma, et al., 2015; Magati, et al., 2016; Chavez, et al., 2016). Decreasing revenues for tobacco farmers challenges the notion that farmers growing industrial crops are wealthier than those growing food crops. A World Bank report concluded that Indonesian tobacco farmers generated, on average, USD 3,798 or IDR 51,689,071 in total annual household income from tobacco crops in 2016, but in 2018, this fell to USD 2,921 or IDR 39,753,496 (World Bank Group, 2018).

Decreasing revenues for tobacco farmers challenges the notion that farmers growing industrial crops are wealthier than those growing food crops.

The second challenge is the threat posed by climate change. In 1992, 154 member states of the United Nations (UN) adopted the UN Framework Convention on Climate Change (UNFCCC) and defined it as, “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere”. According to the Intergovernmental Panel on Climate Change report (IPCC, 2001), developing countries in Asia are 20 to 30 times more likely to be affected by extreme weather events than developed countries. This includes increasingly intense rainfalls and the drastic shift of weather (NASA’s Jet Propulsion Laboratory, n.d.). Indonesia’s tropical climate variability includes regular monsoon seasons, as well as changing patterns caused by El Niña, El Niño and IOD, which hamper the productivity of tobacco crops because tobacco can only grow during the dry season. In the end, farmers lack the competencies, infrastructure and technologies to effectively respond to unpredictable weather and so suffer from crop failure (Muttaqin, et al., 2019; Interview 3 & Interview 5, 2019; Kementerian Pertanian Republik Indonesia, 2016).

The lack of modern technology on small tobacco farms usually sized less than 2 hectares result in extremely low productivity levels in Indonesia (Nur & Salim, 2014). An average yield of 820 kg/ha in 2017 compares poorly to yields of well over 2 tonnes/ha in the US, China, and Brazil. Indian tobacco productivity is more than twice as high as in Indonesia. Government agencies, including the Ministry of Industry (MOI), MOA, and *Aliansi Masyarakat Tembakau Indonesia* (AMTI), Indonesia’s tobacco community alliance, see the dire need for technological advancement for tobacco farmers. They underline the importance of technological progress for improving both tobacco yields and tobacco farmer income (Interview 3 & Interview 5, 2019; and Interview 8, 2020).

C. Tobacco Products

According to the Global Adult Tobacco Survey (Asma, et al., 2015), there are two main categories of tobacco products: smoking products and smokeless products. Table 2 describes the sub categories under each of the main categories.

In Indonesia, only four categories of tobacco products are officially acknowledged: cigarettes, cigars (CRT), Roll-Your-Own (RYO) cigarettes, and Other Tobacco Processing Products (*Hasil Pengolahan Tembakau Lainnya* or HPTL). Other tobacco processing products include products such as e-cigarettes and vapes. These categories are regulated by the Ministry of Finance (MOF) under the Directorate General of Customs and Excise with MOF Regulation No. PER-20/BC/2018 (Kementerian Keuangan, 2018). The next chapter will address cigarette categorization specifically.

Table 2
Tobacco Products Classification

Global Classification		Indonesia Classification
Smoking	Smokeless	
Manufactured cigarettes	Chewing tobacco	Cigarettes
Kreteks		
Roll-Your-Own (RYO) Cigarettes	Moist snuff	Cigars
Bidis		
Waterpipes	Snus	Roll-Your-Own (RYO) Cigarettes
Cigars		
Pipes	Dry snuff	Other Tobacco Processing Products
Electronic Nicotine Delivery System (ENDS)		
Electronic Non-Nicotine Delivery System (ENNDS)	Dissolvables	

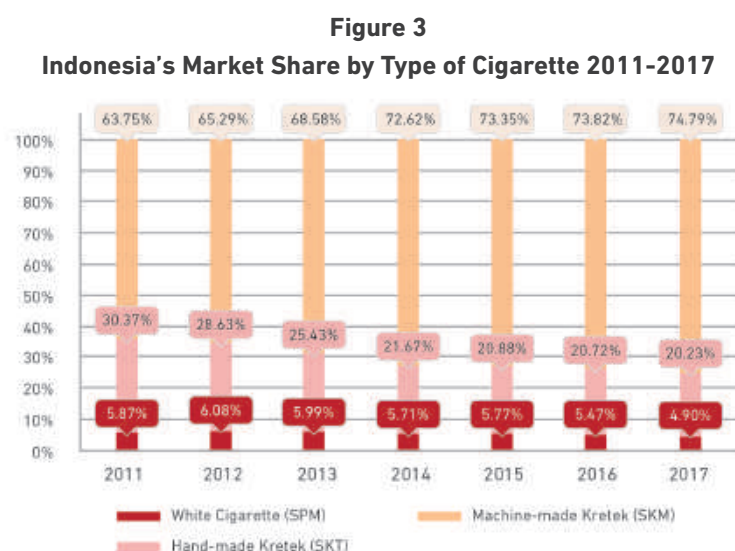
Source: Retrieved and processed from CDC Foundation, 2015, "Global Adult Tobacco Survey Atlas" and Directorate General of Customs and Excise Regulation No. PER-20/BC/2018.

INDONESIAN CIGARETTE PRODUCTION AND THE LANDSCAPE OF THE CIGARETTE INDUSTRY

A. The Classification of Indonesian Cigarettes

There are nine types of cigarettes produced in Indonesia, categorized by how they are produced and the ingredients used: machine-rolled *kretek* cigarettes (SKM); white cigarettes (SPM); hand-rolled *kretek* cigarettes (SKT); hand-rolled *kretek* filtered cigarettes (SKTF); hand-rolled white cigarettes (SPT); hand-rolled white filtered cigarettes (SPTF); shag (TIS); hand-rolled corn husk cigarettes (KLB); and rhubarb cigarettes (KLM).

The Indonesian cigarette market mainly consists of three types of cigarettes, which are the two types of *Kretek* (SKM, SKT) and to a much smaller extent white cigarettes (SPM). According to the Ministry of Finance (2018), these three types account for nearly all of Indonesian cigarettes (Figure 3).



Source: Retrieved and processed from MOF and World Bank Cigarette Affordability Indonesia (Zheng, et al., 2018).

Kretek, particularly SKM and SKT, are the most popular domestically-produced cigarette types and are made using tobacco, cloves, and other ingredients. From 2011–2017, the market share shifted towards machine-made *Kretek*, which rose from 63.75% in 2011 to 74.79% in 2017. These gains were made at the expense of hand-made *Kretek* and white cigarettes. The SKT market share decreased from 30.37% to 20.23%, while SPM, which are mostly produced by international brands, fell from 5.87% to 4.90%.

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Most SKM are mass-produced by companies classified Category I by the Ministry of Finance Regulation No. 205/2014, with production capacity of over 2 billion sticks per year. As SKT and SPM are also produced by companies in the same category, almost all cigarettes are produced by big corporations and not small or medium-sized industries.

While Indonesia's cigarette consumption rose from 296.5 billion in 2011 to 339.4 billion sticks in 2016 (Zheng, et al., 2018), production also increased from 279.4 billion to 342 billion sticks over the same period. The production of machine-made SKM increased by nearly 25%, while hand-rolled SKT production decreased by 27% and SPM maintained production levels.

B. The Absorption of Domestic and Imported Tobacco

MOA Regulation No. 23/2019 on Technical Recommendations Regarding Import requires tobacco importers to absorb domestic tobacco as raw materials for clove cigarettes and white cigarettes. However, inconsistent or poor quality often prevent domestically produced tobacco from being used by the cigarette industry. Determining the quality of tobacco leaves is difficult and regulated under Indonesian National Standards (SNI) for tobacco.

The SNI outlines two quality considerations: sensory determination and specific qualities that may change with each harvest season. The SNI determines the quality of the leaves according to the type of tobacco, characteristics of planting areas, position of the leaves on the stem, cultivation techniques used, chlorine residues, and contamination with pesticides and non-tobacco materials (Tirtosastro & Widowati, 2016). The quality is the basis for the prices offered by the graders from each cigarette company (Drope, et al., 2018; Ahsan, et al., 2019; Kementerian Perindustrian Republik Indonesia, 2012; Djayadi, et al., 2018).

If the farmers cannot meet companies' standards, they cannot sell their harvest.

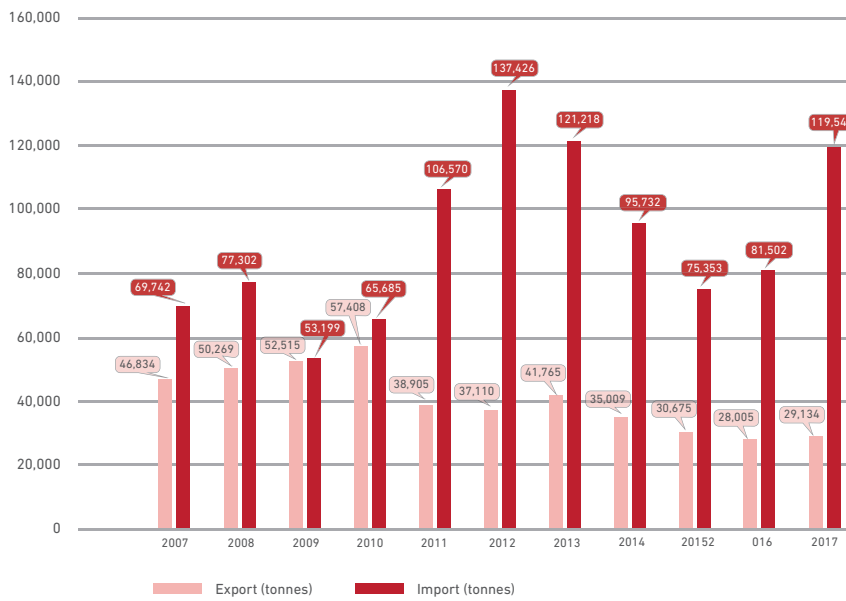
Farmers need training in how to achieve the best-selling quality and meet the standards of producers, but this is complicated by differing product mixes and quality standards set by each cigarette company. If the farmers cannot meet companies' standards, they cannot sell their harvest. This problem has been observed globally and is not unique to Indonesia (FAO, 2003).

In Indonesia tobacco leaves are classified into two types by the government: local leaves and introductory leaves. Local leaves are named after the area where they are planted, such as Temanggung, Deli, Maesa, and Madura. Introductory leaves consist of Virginia, Oriental, and Burley leaves that do not originate from Indonesia but are widely used and cultivated for local cigarettes in Indonesia.

The demand for tobacco leaves for cigarettes cannot be met by domestic production alone. Indonesia imports the Virginia, Oriental, and Burley tobacco leaves favored by the industry. Indonesian imports far outnumber the exports of tobacco leaves, both by volume and by value (Figures 4 and 5). Cigarette manufacturers generally maintain a stockpile of two seasons worth of tobacco leaves, in which each season spans for nine months' duration, amounting to roughly 18 months of total stock duration. The low productions are followed by greater imports. The correlation can be seen from juxtaposing Table 1 with Figure 4. For example, 2010 had the second lowest production in Indonesia in the decade between 2007 to 2017 with 135,700 tonnes

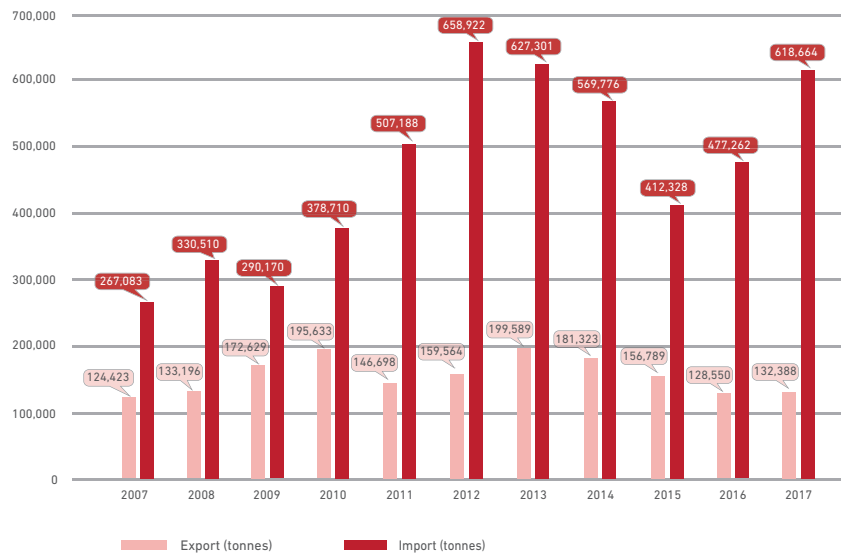
(Table 1). This is followed by higher imports in 2011 and 2012 (Figure 4). Similar condition also appeared after 2016 where Indonesia had the lowest production of tobacco during that same decade with 126,728 tonnes (Table 1) which is then followed by a higher import in 2017 (Figure 4).

Figure 4
Indonesia's Tobacco Export and Import by Volume in 2007–2017



Source: Retrieved and processed from Statistics Indonesia and MOA (2018).

Figure 5
Indonesia's Tobacco Export and Import by Value in 2007–2017

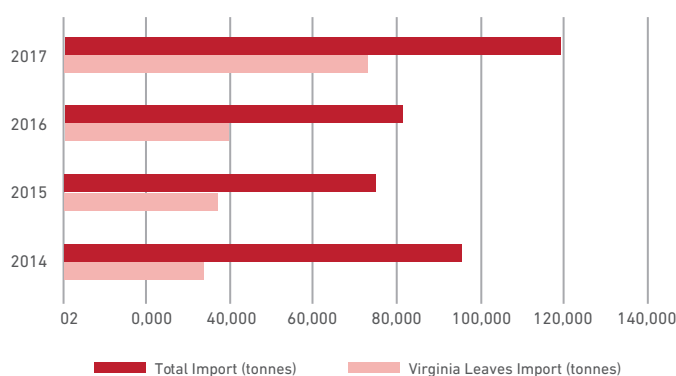


Source: Retrieved and processed from Statistics Indonesia and MOA (2018)..

Virginia leaves, which are widely used as a carrier of aroma and flavor for both white cigarettes and *Kretek* cigarettes, are the most in-demand of the leaves Indonesia imports. Virginia leaves made up 70% of total tobacco leaf imports between 2011 and 2017. Twenty percent were Oriental leaves, and the remaining 10% were Burley leaves. Few tobacco plantations in Indonesia can grow these three types,⁶ and most plantations have low-level processing technology (Kementerian Pertanian Republik Indonesia, 2018), which is why Indonesia still imports most of these leaves (Figure 6).

“A decline in suppliers is not associated with reduced cigarette consumption in Indonesia. Setting aside the top five players, the number of small and medium-sized businesses in the tobacco industry fell from 2,540 to 487 between 2011 and 2017 as tobacco excise rates were gradually increased (Kementerian Perindustrian Republik Indonesia, 2018).”

Figure 6
Indonesia's Virginia Leaf Import



Source: ITC calculations based on UN COMTRADE statistics, MOA and Statistics Indonesia 2017.

C. Cigarettes Industry and Price Dynamics

Five cigarette companies control three quarters of the cigarette market in Indonesia (Tjandra, 2018). The market leader is PT Hanjaya Mandala Sampoerna, Tbk.⁷, owned by Philip Morris International, which holds 92.5% of its shares. Sampoerna is followed by PT Gudang Garam, Tbk.⁸ and PT Djarum, and the last two major players in the cigarette industry are PT Bentoel Internasional Investama,⁹ in which British American Tobacco owns a 92.48% share, and PT Nojorono Tobacco International.

A decline in suppliers is not associated with reduced cigarette consumption in Indonesia. Setting aside the top five players, the number of small and medium-sized businesses in the tobacco industry fell from 2,540 to 487 between 2011 and 2017 as tobacco excise rates were gradually increased (Kementerian Perindustrian Republik Indonesia, 2018). Larger companies increased productivity and sold cigarettes at affordable prices while cigarette consumption remained consistent.

⁶ There are only three provinces that are suitable for the cultivation of Virginia, Burley and Oriental tobacco leaves: East Java, West Nusa Tenggara, and Bali (Ahsan, Wiyono, & Veruswati, 2019).

⁷ According to HM Sampoerna Annual Report 2018, the company leads the Indonesian cigarette market with 33% of market share (PT. HM Sampoerna, Tbk., 2018).

⁸ According to Gudang Garam Annual Report 2018, it has a 23.1% share in the Indonesian cigarette market (PT. Gudang Garam, Tbk., 2018).

⁹ The market share of Bentoel Group products is approximately 8% as indicated in their 2018 Annual Report (Bentoel Group, 2018).

Indonesia has long been known for its cheap cigarette prices compared to other countries (Blecher & van Walbeek, 2004; & Zheng, et al., 2018). In a comparative study of 70 countries, Indonesia had the third most affordable cigarette prices among low-income countries during 1999–2001 (Blecher, 2004). Using data provided by Euromonitor from 2002–2015, a World Bank study observed that cigarette prices relative to household income decreased from 6.31% in 2005 to 3.87% in 2015.¹⁰ Overall, that study showed that cigarette affordability increased by half from 2002 to 2016, accompanied by a 21% increase in per capita cigarette consumption (Zheng, et al., 2018).

D. Economic Impact of the Tobacco Industry

Although the cigarette industry may be seen as a sunset industry (Kementerian Perindustrian Republik Indonesia, 2018), it remains economically significant in Indonesia, generating both state revenue and employment.

1. Excise taxation and revenues

Both of Indonesia's Excise Law No. 11/1995 (Article 4) and Excise Law No. 39/2007 imposes excise taxes on tobacco products, ethyl alcohol, and beverages that contain ethyl alcohol. The law originally intended to limit the distribution of tobacco products while also adding a revenue stream for the country. As a result, tobacco excise has become a considerable source of state revenue.

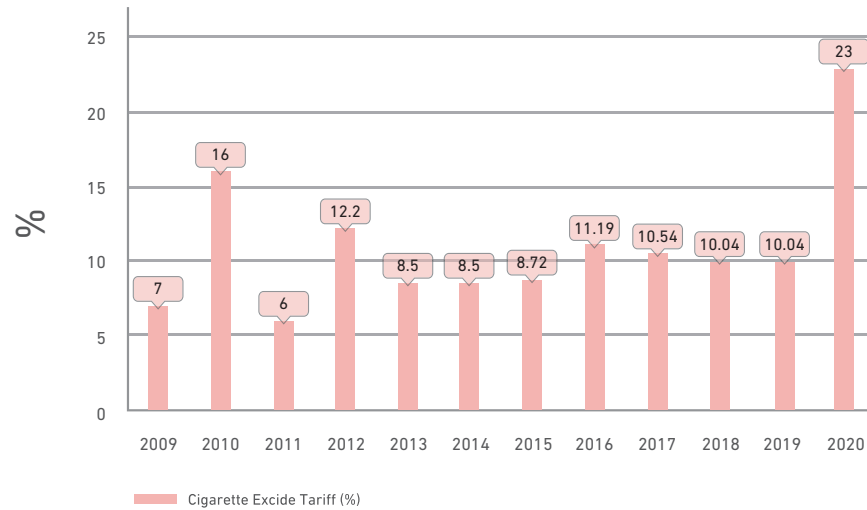
Government excise rates for cigarettes have been fluctuating but the latest rate hike in 2020 has more than tripled the rate from 2009 (Figure 7). The government imposed 11 tiers of excise tariffs for tobacco products in 2020, giving Indonesia one of the most complex cigarette excise tax structures in the world. Those tiers apply for SKT, SKM, SPM and SPTF/SKTF, as stipulated in MOF Regulation No. 152/2019. The classifications are based on the types of cigarettes, the volume of cigarette production, and the per-unit retail price. The tiers in the cigarette excise tax structure aim to accommodate small-scale cigarette firms,¹¹ especially those producing hand-rolled SKT, which are more labor intensive than other types of cigarettes (Interview 6, 2020).

MOF Regulation No. 152/2019 took effect in January 2020 and raised the retail price of cigarettes across all categories (*harga jual eceran/HJE*) by an average of 35% while also increasing the excise tax on tobacco products (*cukai hasil tembakau/CHT*) by 23%. A 57% excise tax is still levied on other tobacco products classified as HPTL.

¹⁰The Relative Income Price has become the most widely used measurement of cigarette affordability. It was invented by Blecher in 2004 by calculating the percentage of GDP per capita required to buy 100 packs of cigarettes. The lower the percentage, the more affordable the cigarettes are in an observed country.

¹¹ According to Statistics Indonesia, there are four classifications for companies in the processing industry, which include cigarette companies: Micro: 1-4 workers; Small: 5-19 workers; Medium: 20-99 workers; Big: 100 and more workers. (<https://www.bps.go.id/subject/9/industri-besar-dan-sedang.html>)

Figure 7
Indonesia's Cigarettes Excise Rate 2009–2020¹²



Source: Ministry of Finance Regulations No. 181/2009, No. 179/2012, No. 147/2016, No. 146/2017, No. 156/2018, No. 152/2019 retrieved and processed from Databoks. (Jayani, 2019)

In addition to generating revenue, tobacco taxes may also help to attain public health objectives by reducing the consumption of tobacco products with adverse health and social impacts. A World Bank study on ‘sin taxes’ found that “taxes do more than generate revenue” (Bird, 2015).

There is considerable disagreement regarding the size of the effects of tobacco-related taxes on consumption behavior. Callison and Kaestner (2012) estimated that a 100% tax increase would be required to reduce adult smoking by 5%. The World Bank (2018) predicted that raising cigarette taxes by an average of 47% and simplifying the cigarette tax structure from 12 to six tiers would reduce cigarette demand by 2%, increase government revenues by 6.4%, and reduce gross employment in the tobacco manufacturing sector by less than 0.5%. While the magnitude of the effects is uncertain, in general there is agreement that increased taxes and prices reduce tobacco use (Chaloupka, Yurekli, & Fong, 2012).

“ Indonesian tobacco excise taxes have certainly raised significant revenues.

Numerous governments in high-income countries and also in a growing number of low-income and middle-income countries have significantly increased tobacco taxes to increase government revenues and to reduce tobacco consumption. Indonesian tobacco excise taxes have certainly raised significant revenues. The 2019 national budget raised tobacco excise tax rates and set a revenue target from excise taxes of IDR 165.5 trillion from tobacco products, ethyl alcohol and beverages that contain ethyl alcohol, which was 3.7% higher than in 2018. In addition, the government intensified its fight against illicit cigarettes in order to increase excise revenues.

¹² There was no increase in excise rate between 2013–2014 and 2018–2019, thus the percentages remain the same for those particular years.

By mid-2019, the government was 56.27% of the way to reaching its ambitious revenue target—as of August 31, 2019, the Ministry of Finance recorded excise revenues amounting to IDR 93.12 trillion (Rahma, 2019). At the end of the year total excise revenues met the target with IDR 165.7 trillion collected. Revenues from tobacco products alone reached IDR 143.66 trillion or USD 10.33 billion. Tobacco excise contributed 95.5% of all excise revenues for 2019, making it the biggest contributor to state revenue from the excise stream (Badan Pusat Statistik, 2020; Kementerian Keuangan Republik Indonesia, 2019).

The important contribution of tobacco excise taxes to total excise revenues creates a dilemma for the government, which would give up an important source of income if it met the goals of dramatically reducing tobacco consumption for the protection of public health.

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2. Employment

Employment effects of the tobacco industry are becoming less important to the Indonesian economy. The falling market share of hand-rolled SKT reflects the increasing preference of Indonesian consumers for machine-made cigarettes. Because producers of hand-rolled cigarettes employ almost the entire workforce in the Indonesian cigarette industry, this change in demand reduces overall employment.

From 1985 to 2012, labor absorption by the tobacco processing industry was relatively stable, increasing only slightly from 0.23% to 0.25% of the total industrial sector workforce (Tobacco Control Support Center - IAKMI, 2014). A World Bank study in 2018 included the farming households that dried, cured, and cut the tobacco leaves for cigarette manufacturing and found 642,000 people employed, which was a 0.6% share of economy-wide employment in the tobacco manufacturing sector in 2014. An estimated 94% of tobacco manufacturing workers were based in Central Java, East Java, and West Nusa Tenggara (World Bank, 2018; Interview 7 & Interview 9, 2020).

If both cloves and tobacco processing industries are included, the tobacco industry is responsible for 5.3% of employment in the Indonesian manufacturing sector. The Ministry of Agriculture counted 492,590 tobacco farmers in 2017, spread across fifteen tobacco growing provinces (Kementerian Pertanian Republik Indonesia, 2018). The Ministry of Industry included both tobacco and cloves production in their calculations and reported that 1.7 million people worked in the tobacco plantation sector in March 2019 (Kementerian Perindustrian Republik Indonesia, 2019).

All of this means that while the workforce involved in cigarette production may be losing its strategic influence on government policy making, the importance of cigarette sales to national budget revenues drives the government to continue supporting national tobacco production.

GOVERNMENT PROGRAMS TO SUPPORT INDONESIA'S TOBACCO FARMING INDUSTRY

Indonesia's Plantations Law No. 39/2014 includes tobacco along with palm oil, coconut, rubber, cocoa, coffee, and sugarcane as the country's strategic estate commodities. They are considered to play a significant role in social, economic, and environmental development. Article 52 of the law stipulates that the central government facilitates the formation of a commodity council that serves as a forum for all plantation stakeholders, including tobacco.

However, unlike other estate crops, since 2015 tobacco is no longer included in the list of priority crops released by MOA. Instead, the Strategic Plan of Estate Crops 2015–2019 (Kementerian Pertanian Republik Indonesia, 2016) treated the development of sugarcane with utmost urgency due to increasing demand from the food and beverage industries.

There are no interventions by the national government to enhance tobacco production and productivity except for Virginia leaf tobacco. Since Virginia leaf makes up a large share of Indonesia's tobacco imports, the government promotes an import substitution program in the Tobacco Road Map 2019–2024 (Kementerian Pertanian Republik Indonesia, 2018). It persuades local farmers to cultivate Virginia leaf tobacco in order to satisfy the demand and to increase income for tobacco farmers. The Road Map covers short-term and long-term targets, strategies, and operational steps to achieve those targets (MOA Interview 3, 2019).

While the central government does not directly support tobacco production and productivity, governments at provincial and district levels can use the Revenue Sharing Fund of Tobacco Products Excise (*Dana Bagi Hasil Cukai Hasil Tembakau / DBHCHT*) to stimulate tobacco farming.

“According to MOF Regulation No. 222/2017 Article 2, at least 50% of the disbursed funds must be allocated to support health programs in that particular area.”

The DBHCHT is collected from 2% of the total tobacco excise at the national level, as established by the Directorate General of Fiscal Balance, Ministry of Finance (MOF). The funds will be transferred to governments of provinces that contributed to excise revenue and to tobacco producing areas in accordance with their weighted contributions. The higher the contribution from a certain province or district, the higher the amount they receive back from the DBHCHT.

According to MOF Regulation No. 222/2017 Article 2, at least 50% of the disbursed funds must be allocated to support health programs in that particular area. The other remaining funds can be used to support:

- a. improving the quality of raw materials;
- b. industrial development;
- c. social environment development;
- d. socialization of excise provisions; and / or
- e. eradication of illicit goods.

Each local government that meets the entitlement criteria will receive the funds on an annual basis. MOF calculates their share based on contributions by MOF and MOA offices at the provincial level (Interview 6, 2020). The regulation does not further specify minimum allocations outside those for public health programs, which gives each local government flexibility in how to use their DBHCHT funds. There is no specific directive from the central government that forces the local governments to use the funds for enhancing tobacco production and productivity. Farmers and farmer associations have been requesting a clear directive by the central government over the use of DBHCHT funds but MOA is still in the process of deliberations to coordinate with other ministries (Interview 3, 2019).

As in other public policy areas, Indonesian tobacco policies appear uncoordinated between regulators. MOA has a road map for 2019–2024 aimed at import substitution for Virginia leaf tobacco. MOI has a Tobacco Product Industry Roadmap 2015–2020 that is supposed to be updated. Meanwhile, Bappenas aims to foster tobacco product markets in Java and Bali as stipulated in the Technocratic RPJMN 2020–2024. It seems every ministry articulates their own goals that could be integrated into a comprehensive road map for tobacco farming and its products.

Stronger and more coordinated government efforts at both the national and local level may benefit tobacco farmers and cigarette producers, but they also contribute to the public policy dilemma, given the adverse effects of cigarette consumption on public health.

GOVERNMENT PROGRAMS TO REDUCE CIGARETTE CONSUMPTION IN INDONESIA

A. Cigarette Consumption and Public Health

Cigarette consumption remains one of the most important public health challenges worldwide. It increases preventable mortality and morbidity. There is a scientific consensus that cigarette consumption damages health and leads to serious non-communicable diseases (NCD) in both developed and developing countries (Barnett et al., 2017). NCDs caused 41 million or 71% of the world's 57 million deaths in 2016 (WHO, 2018). Tobacco use is one of the key behavioral risks that cause NCDs, along with the harmful use of alcohol, unhealthy dietary behaviour, and physical inactivity.

“Tobacco use is one of the key behavioral risks that cause NCDs, along with the harmful use of alcohol, unhealthy dietary behaviour, and physical inactivity.”

In Indonesia, smoking has likewise been a major contributor to NCDs. Studies prove that tobacco consumption affects oral health, lungs, heart and blood vessels, stomach, kidney, bladder, pancreas, maternal health, depression, and cognitive decline. Those negative effects also harm people exposed to environmental tobacco smoke (ETS). The actual number of people affected by cigarette consumption might be higher than recorded because diseases attributable to smoking include hypertension, acute respiratory infection, coronary diseases, cardiovascular diseases, selected cancers, and perinatal disorders (IAKMI, 2014; Kosen et al., 2012; Kristina et al., 2015).

B. Efforts to Reduce Cigarette Consumption

While the Indonesian government has expressed a commitment to public health, Indonesia is the only ASEAN member state that has not signed the Framework Convention on Tobacco Control (FCTC) (Tan & Dorotheo, 2018). Although 181 other countries have signed and ratified the global convention, Indonesia remains as one of the only nine countries which are not involved in (FCTC, 2019).

While Indonesia is not party to FCTC, the government has implemented two out of three FCTC principles, namely, excise policy to curb consumption and pictorial health warning. The third principle that Indonesia has yet to implement is harm reduction. Indonesia's approach to reducing cigarette consumption has largely been through regulatory controls and public awareness campaigns.

The Health Law No. 23/1992 mandated that the government develop detailed and practical regulations to limit the impact of tobacco on public health. This was followed up by Government Regulations No. 81/1999 and No. 38/2000, which set maximum levels of nicotine content, limited the advertisement and promotion of tobacco products, and established a non-governmental body responsible for further research on tobacco products. These regulations were later amended in Government Regulation No. 19/2003 concerning Safety Measures for Smoking and Health, which regulates nicotine and tar content, requirements concerning the production and sale of cigarettes, restrictions for the tobacco industry's ability to advertise and promote their products, and smoke-free areas (Achadi, 2008).

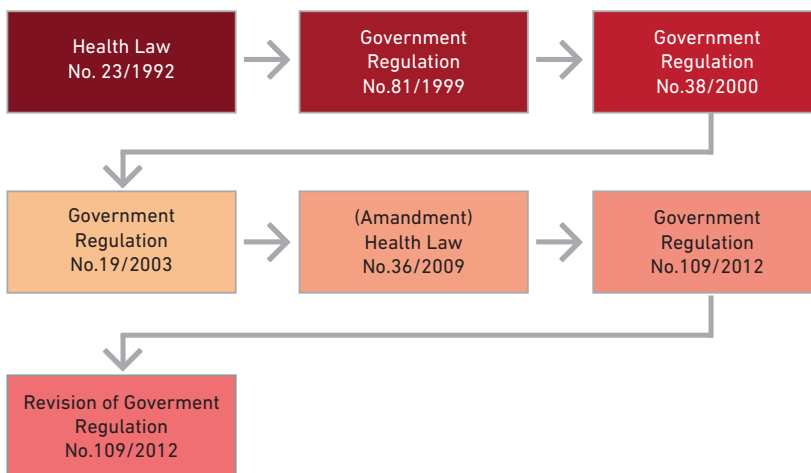
The Health Law No. 36/2009 revised the 1992 law to address the impact of tobacco on public health. Article 113 mandates that addictive substances, including tobacco and products that contain tobacco, shall be restricted to reduce risks for the health of individuals, families, the community and the environment. The Health Law also mandates health warnings (Art. 114) and smoke free areas in health service facilities, places of educational activities, places designated for children playing, places of worship, public transport, places of work, and public areas and other places (Art. 115). Article 116 calls for a government regulation regarding handling of material containing addictive substances.

In line with Article 116, in 2012 the government enacted Government Regulation No. 109/2012 concerning Control of Materials that Contain Addictive Substances in Tobacco Products in the Interest of Health. That particular regulation has since become the key reference for tobacco industries in Indonesia.

In Chapter VI on Guidance and Oversight, Article 57 stipulates that relevant government agencies provide guidance on the administration of control of tobacco products by establishing smoke free areas; preventing people from beginning to smoke and counselling smokers to quit; providing information, education, and development of the capacity of the community to lead healthy lives; working with international agencies or institutions or community organizations to administer control of tobacco products; and giving awards to persons or entities who have been instrumental in assisting the administration of control of tobacco products. The regulation also establishes the legal minimum age for smoking at 18 years old (Article 46), and prohibits anyone from giving tobacco products free of charge to children, adolescents, and pregnant women (Article 45). Further, minors under the age of 18 are not allowed to participate in activities sponsored by tobacco products and/or intended to promote tobacco products.

“The regulation also establishes the legal minimum age for smoking at 18 years old (Article 46), and prohibits anyone from giving tobacco products free of charge to children, adolescents, and pregnant women (Article 45).”

Figure 8
Regulations Pertaining to Tobacco Control in Indonesia



Following Regulation No. 109/2012, the Indonesian government took a broad range of measures too varied to provide a complete list here. They prohibit, for instance, smoking on public transportation, in healthcare and educational facilities, and places of worship. Tobacco advertising on TV and radio can only take place between 9:30 p.m. and 05:00 a.m. and must not show cigarettes, the shape of cigarettes, tobacco product branding, or smoking. Print and outdoor advertising is further restricted. Pictorial health warnings must cover 40 percent of the main display areas on most tobacco products. There are five different health warnings that should be distributed equally across tobacco products. Terms such as “light” and “low tar” are prohibited.

Moreover, Indonesia launched its first anti-tobacco mass media campaign in October 2014. This was followed by a second campaign with TV and radio advertisements in May 2015. It also involved a social media campaign called *Suara Tanpa Rokok* (Voices without Cigarettes) on Facebook, Twitter, and YouTube channels. A website provided online resources and collected stories from (‘voices’ of) the public regarding the harm they experienced from smoking and second-hand smoke (World Health Organization, 2017).

C. A Persistent Challenge

Unfortunately, there are substantial concerns regarding the effectiveness of regulatory restrictions and government programs. The Ministry of Health surveyed 300,000 households across 34 provinces, 416 districts, and 98 cities in Indonesia as part of a basic health research (Riskesmas) conducted every five years. The prevalence of smokers aged 10 years and older reportedly decreased from 29.3% in 2013 to 28.8% in 2018 (Kementerian Kesehatan, 2018). This decline falls far short of the global decline in tobacco smoking. In the world population, smoking at age 15 and above reduced from 27% in 2000 to 20% in 2016 (World Health Organization, 2018). It appears that this global trend does not sufficiently transpire in the Indonesian context.

“Underaged smoking prevalence in 2018 was almost twice as high as the 5.4% target in the government’s development plan (RPJMN) for 2015–2019.”

Worse, the results for underage smokers (aged 10–18 years) increased from 7.2% in 2013 to 9.1% in 2018 (Kementerian Kesehatan, 2018). Underaged smoking prevalence in 2018 was almost twice as high as the 5.4% target in the government’s development plan (RPJMN) for 2015–2019. Presidential Regulation No. 18/2020 endorsed the RPJMN for 2020–2024 and set the government target for the prevalence of smokers aged 10–18 years at 8.7%. While it is unfortunate that the target had to be raised, this is more realistic than the previous target of 5.4%. All ministries and related institutions will now have to respond to the RPJMN with strategic, specific, and practical plans.

Given levels of cigarette use and the impact of tobacco consumption on public health in Indonesia, more effective government intervention is needed. Current policies have not managed to significantly reduce smoking prevalence in Indonesia.

RECOMMENDATIONS TO REDUCE HARMFUL TOBACCO CONSUMPTION

Several government interventions aim to reduce harmful tobacco consumption and are commonly recognized and applied around the globe: school programs, excise tax increases, large pictorial health warnings, restricting the tobacco industry's ability to advertise, tobacco control campaigns, and smoke-free policies (Pierce, White, & Emery, 2012). This set of tobacco control efforts has also been recommended by the FCTC (World Health Organization, 2003).

Studies undertaken in Australia and the US State of California, for instance, showed that comprehensive tobacco control programs de-normalised cigarette smoking and decreased the adolescent smoking rate (Pierce, White & Emery, 2012). Consistently high rates of smoking in Indonesia prove that existing government programs and restrictions are not effective. The following recommendations aim to improve the effectiveness of government efforts to reduce cigarette consumption while mindful of the benefits of continued tobacco production in Indonesia.

A. Cigarette Consumption and Public Health

Before continuing or re-implementing previous awareness campaigns, the outcomes of past campaigns should be thoroughly assessed. The Indonesian experience should also be compared with international experiences that might suggest adjustments or alternatives to previous campaigns.

The government should evaluate the implementation of Article 57 of Government Regulation No. 109/2012, which advises the government at all levels to prevent people from beginning to smoke and counselling smokers to quit. For example, a toll-free consultation hotline provided by the Ministry of Health is known as QUIT-LINE (Kementerian Kesehatan Republik Indonesia, 2018). It is supposed to provide public counselling on how to quit smoking. A study found that the service needs to be integrated with the national healthcare system and that health workers involved should be equipped with professional guidance (Olam & Khairani, 2018). It also appears there are serious technical challenges.¹³

Evaluations of existing programs should inspire coordinated activities in a National Tobacco Road Map that needs to replace existing and sometimes contradictory policies from various ministries. It should set and harmonize guidelines for each ministry and government agency and secure strong coordination among all parties involved. This harmonized policy must involve all stakeholders (Interview 4 & Interview 5, 2019; Interview 6, 7, 9, & 10, 2020) and be coordinated through a comprehensive action plan with measurable targets set against baseline figures, with specific measures aimed at meeting each target.

Evaluations of existing programs should inspire coordinated activities in a National Tobacco Road Map that needs to replace existing and sometimes contradictory policies from various ministries.

¹³In fact, calls to this hotline often remain unanswered.

B. Reducing Youth Access, Preventing Illicit Markets, and Understanding the Effects of Reduced Affordability of Cigarettes

A strong focus must be put on the improvement of law enforcement capacity, especially to reduce youth access to tobacco products.

Increased minimum prices and excise tariffs on tobacco products in 2020 must be complemented by simplification of the taxation system, a reform halted in late 2018 (Perkumpulan Prakarsa, 2019). The complexity of tobacco product tax tiers allows smokers to switch to lower-taxed, cheaper, and potentially more harmful cigarettes.

“Increased minimum prices and excise tariffs on tobacco products in 2020 must be complemented by simplification of the taxation system, a reform halted in late 2018 (Perkumpulan Prakarsa, 2019).”

Tax increases also need to be aligned with efforts to restrain the growth of markets for illicit tobacco products. In 2019, Perkumpulan Prakarsa studied the size of the markets and the demand for illicit cigarettes by collecting cigarette packs from 1,201 smokers in six districts (Malang, South Lampung, Tangerang, Gowa, Bandung and Banyumas districts). The packs were checked to identify illicit cigarettes through the validity of excise tapes and health warning images. This study found that tax increases have not caused a significant switch to illicit tobacco products. Their market share in Indonesia was less than 2% in 2018 and the consumption of illicit cigarettes was not a long-term behavior.

Oxford Economics came to different conclusions in their two studies in 2017 and 2018, which used the empty pack survey methodology and also looked at the excise tapes. The study used research findings from Gadjah Mada University, which collected 10,000 empty packs in Indonesia’s largest 45 cities. The first study estimated that around 286.8 of 326.8 billion cigarettes were legally produced and obtained but 39.7 billion illicit cigarettes had been consumed in Indonesia in 2016. This was about 12.2% of total cigarette consumption. A year later, Oxford Economics (2018) calculated that this number had decreased to 9.7% in 2017.¹⁴

Experts remain sceptical about whether restricting access to tobacco products will lead to increased smuggling and illicit cigarette purchases. Some argue that these assumptions are brought forward by tobacco companies or in studies funded by tobacco companies, which also overstate the scale of illicit tobacco consumption (Gallagher and Gillmore, 2018). Ideally, higher rates will bring additional revenues while also decreasing the number of smokers. The high levels of smoking prevalence in Indonesia cast doubt on the ability to achieve these effects in Indonesia. Indonesian tobacco demand may be relatively inelastic, as suggested by consumption habits and the lack of close substitutes for tobacco products (Sahadewo, et al., 2018).

With 85 million smokers, Indonesia has some of the highest cigarette consumption in the world (World Bank, 2019). Things seem to be improving among adults—the WHO age-standardized prevalence for daily adult smoking in Indonesia was 33% in 2013 and fell to 28% in 2017 (World Health Organization, 2015, 2017, and 2019). However, there is no evidence about whether this decrease was caused by tobacco prices and excise taxes or by other factors, such as general health awareness levels, that have been responsible for a global trend among middle classes to lead healthier lives.

¹⁴ Collecting cigarette packs has been generally criticized both because there is no way to know the representativeness of the sample collected (sampling method) and the unknown origin of the packs (Ross, 2015).

More studies are needed to understand smoking trends and to establish the causality involved. In particular, the effects of general health awareness versus raised minimum prices and increased Indonesian cigarette excise tariffs that entered into force in January 2020 on the smoking prevalence in Indonesia should be better understood.

C. Studying Harm-Reducing Alternatives

The Ministry of Industry Road Map 2007–2020 aims to protect consumers from the adverse health effects of smoking through its “Vision 2020” policy, which also resonates with the FCTC principles of harm reduction that were previously mentioned in Chapter 4. Presidential Decree No. 28/2008 on National Industry Policy seeks to develop the tobacco product industry while also considering public health, employment, and state revenues. One of the aims of these policies is to investigate less damaging alternatives to smoking tobacco, or a harm reduction strategy for tobacco consumption to complement efforts encouraging cessation.

The concept of tobacco harm reduction is based on the understanding that “people smoke for nicotine, but they die from the tar” (Russell, 1976). Electronic cigarettes are designed to provide inhaled doses of vaporized nicotine without exposing smokers to the risks of tar consumption (Britton & Bogdanovica, 2014). Several products exist that produce a vapour with a heating element which atomizes a liquid nicotine solution or that heats up actual tobacco instead of burning it.

Tobacco harm reduction is a relatively new policy idea in Indonesia and other Southeast Asian countries, seldom referenced by governments. Available publications and studies about tobacco in Indonesia instead revolve around on-farm technicalities, socio-economic dynamics, and the adverse effects of smoking. Harm reduction strategies offer a new approach for Indonesia. Existing policies have failed to reduce smoking, but new technologies may be able to provide adult smokers who are unable to quit or wish to continue smoking with alternative products that eliminate the intake of tar.

Although there are alternative products available in the Indonesian market, there is no specific regulation regarding other tobacco processing products (HPTL) or e-cigarettes except for the special excise tariff rate of 57%. In 2009 and 2010, the UK government added electronic nicotine-delivery systems (ENDS) to the indications for a Nicotine Replacement Therapy (NRT). It was regarded as “an effective intervention in achieving sustained smoking abstinence for smokers who have no intention to stop completely, or who are unable to attempt an abrupt quit.” (The Government of UK, 2014). After the “Tobacco Control Plan for England” recognized that many smokers may not want, or be able, to quit smoking, but they need safer alternatives to combustible cigarettes (HM Government, 2011), the National Institute for Health and Care Excellence in the UK recommended the long-term use of medicinal nicotine when needed to “help people stop, cut down prior to quitting, reduce their level of, or temporarily abstain from, smoking,” (NICE, 2013). The new policy included the use of licensed nicotine-containing products and electronic cigarettes that are licensed and have fulfilled the necessary quality and safety standards. Although further research and medical evidence is needed, the UK’s example could be further examined for smokers in Indonesia.

Despite the growing market for ENDS in Indonesia (Interview 5, 2019) there is a significant regulatory gap regarding these products and their effect on public health in Indonesia. Government Regulation No. 109/2012 includes tobacco processing products other than cigarettes (HTPL). They contain *nicotiana tabacum*, *nicotiana rustica*, and other species or their processed products as well as manufactured synthetics of the same or similar type and nature as those produced by *nicotiana* species. Further provisions concerning these products will be regulated under a ministerial regulation (Article 5), but there is no indication of which ministry should be responsible.

“Despite the growing market for ENDS in Indonesia (Interview 5, 2019) there is a significant regulatory gap regarding these products and their effect on public health in Indonesia.”

Necessary standards and restrictions of the products need to be addressed by a government regulation to ensure that HPTL or ENDS products are well supervised in the Indonesian market. Age restrictions need to be strict and adolescents have to be protected while ensuring these products remain accessible for adult smokers. In the United States, cigarette consumption among young adults 18 to 24-years-old went down considerably from 18.9% in 2011 to 13.1% in 2016

and 10.4% in 2017 (U.S. Department of Health and Human Services, 2020). The youth smoking rate also dropped from 5.9% in 2016 to 5.4% in 2017. However, nicotine vaping among middle and high school students in the US significantly increased by 9.9%, 7.9%, and 2.6% in 12th, 10th, and 8th grade, respectively (Schulenberg, et al., 2019). The use of e-cigarettes increased by 78% among high school students, from 11.7% in 2017 to 20.8% in 2018 (Centers for Disease Control and Prevention, 2018).

In a policy environment in which regulators were already alarmed by the increased use of e-cigarettes by minors, the US experienced a national outbreak of “E-cigarette, or Vaping, product use-Associated Lung Injury” (EVALI) in August/September 2019. As of February 2020, 2,807 people had been hospitalized with 68 confirmed deaths. The US Centers for Disease Control and Prevention established that the EVALI outbreak was not caused by legally purchased e-cigarette products¹⁵ (Centers for Disease Control and Prevention, 2020), but the US government is nonetheless considering plans to ban liquid e-cigarette flavors considered to be popular with young consumers. Several states have implemented bans within their jurisdictions.

As news about the EVALI outbreak spread across the world, the harm-reducing effects of tar-free electronic nicotine delivery systems (ENDS) lost global attention. Instead, in September 2019 the government of India banned the production, import, sale, and advertising of e-cigarettes in the domestic market. Other countries were considering similar bans.

¹⁵ CDC instead established that cannabis or “tetrahydrocannabinol (THC)-containing e-cigarette, or vaping, products, particularly from informal sources played a major role in the outbreak”. Moreover, “Vitamin E acetate was also strongly linked to the EVALI outbreak.”

“Necessary standards and restrictions of the products need to be addressed by a government regulation to ensure that HPTL or ENDS products are well supervised in the Indonesian market. Age restrictions need to be strict and adolescents have to be protected while ensuring these products remain accessible for adult smokers.”

In Indonesia, a total ban of these products would eliminate harm reduction options. The Indonesian government should aim, instead, to provide accurate information regarding risks of ENDS compared to conventional cigarettes and the special danger posed by illicit ENDS products. Consumer protection measures need to ensure the safety of all types of electronic cigarette tools and materials. Nicotine and nicotine-related impurities (Goniewicz et al., 2013; Trehy, et al., 2011) vary considerably across brands worldwide. Nicotine content has also been inaccurately labelled by some manufactures and there is a possibility that metals or chemicals in the delivery device may be inhaled (Williams, Villarreal, Bozhilov, Lin, & Talbot, 2013). The government can play an important role by commissioning extensive research on tobacco harm reduction efforts and products in Indonesia. The research needs to consider local factors that might differ from other countries in order to maximize the potential public health improvements.

The government through MOF classifies ENDS as HPTL and imposes the maximum excise tariff under MOF Regulation No. 146/2017 Article 6 (3) and MOF Regulation No. 156/2018. If research in Indonesia proves that ENDS products can help smokers to cut down prior to quitting, reduce their level of, or temporarily abstain from, smoking, as was established in the UK, then MOF Regulation No. 146/2017 and its following regulations should be revised to lower excise tariffs for ENDS products. Affordable prices on less harmful alternatives, paired with increased prices for smoking tobacco, both allow and encourage adult smokers to switch.

D. Provision of Technical Support for Farmers

In response to the challenges faced by tobacco farmers (climate risks; productivity challenges; decreasing revenues) the government should consider earmarking DBHCHT funds in support of farmers' transition out of tobacco or improving on-farm technology, such as on-farm storage and dryers for curing tobacco leaves. Improved technology helps farmers improve productivity and the quality of the harvested leaves.

District governments of the five largest tobacco growing provinces¹⁶ are already supporting local tobacco production with DBHCHT funds. The local government of Aceh Besar district/ Aceh province used tem to provide equipment for the mechanization of tobacco plantations in 2014 (Pemerintah Provinsi Aceh, 2014). The government of Rembang District / Central Java province reported the use of these funds for the provision of 64 tractors, 72 cultivators, 109 units of machine cutters, and ten ordinary hand tractors in 2016 (Pemerintah Kabupaten Rembang, 2016). West Java province disseminated six superior mole tobacco varieties¹⁷ called Hanjuang, Kenceh, Temangi, Citrasari, Kubangsari, and Sigalih in June 2019. They were provided to the four districts of Pangandaran, Majalengka, Garut, and Sumedang (Indonesia Sweetener and Fiber Crops Research Institute, n.d.).

In Temanggung, Central Java, the government distributed 296 tonnes of fertilizer, 240 tonnes of special tobacco fertilizer NPK Fertila and 56 tonnes of potassium nitrate KN03 in support of tobacco plantation crops (Suyitno, 2017). The Sampang district in East Java province handed out

¹⁶ In order of production: East Java, Central Java, West Nusa Tenggara, West Java, and Aceh.

¹⁷ Tobacco that is cultivated in West Java Province is referred to as Mole Tobacco.

32 tonnes of fertilizers in 2019 (Pratama, 2019). West Nusa Tenggara (NTB) province engaged in a partnership with the private sector. The NTB Agriculture and Plantation Office cooperated with a local cigarette company and promoted a Virginia Tobacco Intensification program in the 2017 planting season (Radar Lombok, 2017).

MOA should consider supporting the production of tobacco for products other than cigarettes.

Finally, MOA should consider supporting the production of tobacco for products other than cigarettes. The Indonesian state-owned enterprise PT Perkebunan Nusantara in East Java (PTPN X) is researching the use of tobacco briquettes as an alternative source of energy. These briquettes can potentially reduce the demand for coal briquettes, which are widely used for industrial purposes (Indahsari, 2017). If tobacco leaves can be processed into briquettes it will benefit tobacco farmers.

Tobacco is also needed for ENDS products, because it is extracted from the nightshade family of plants (Solanaceae), predominantly from tobacco. The ENDS industry uses tobacco crops (Hana, 2019) to produce nicotine extract or liquids. Hence, MOA could project if this industry provides a viable alternative use of tobacco leaves. This would be in line with Article 58(1) of Government Regulation No. 109/2012 that calls for diversification of tobacco products benefitting tobacco farmers.

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