

POLICY PAPER

The Path to Excise Tax Reform: Ending Preferential Treatment for Hand-Rolled Kretek Cigarettes

Gea Melinda, Fariza Zahra Kamilah, Beladenta Amalia

Center for Indonesia's Strategic Development Initiatives (CISDI)
August 2025

Policy Paper

The Path to Excise Tax Reform: Ending Preferential Treatment for Hand-Rolled Kretek Cigarettes

Gea Melinda

Fariza Zahra Kamilah

Beladenta Amalia

Center for Indonesia's Strategic Development Initiatives (CISDI)

August 2025

Recommended citation:

Center for Indonesia's Strategic Development Initiatives. (2025). The Path to Excise Tax Reform: Ending Preferential Treatment for Hand-Rolled Kretek Cigarettes. Jakarta: CISDI

Funding Information:

The Center for Indonesia's Strategic Development Initiatives (CISDI) receives funding from the Campaign for Tobacco-Free Kids (CTFK) to conduct tobacco control research in Indonesia. CTFK is a partner of Bloomberg Philanthropies in reducing tobacco consumption. The views expressed in this document do not reflect the official position of CTFK or Bloomberg Philanthropies.

Table of Contents

List of Tables	5
List of Figures	5
Executive Summary	5
Background	7
Objectives	8
Methodology	8
Discussions	9
Introduction to hand-rolled kretek cigarettes	9
Definition	9
Brief history	9
Health risks from hand-rolled kretek cigarettes	10
Harmful substances in hand-rolled kretek cigarettes that increase health risks	12
Health issues associated with hand-rolled kretek cigarettes	12
Economic downfalls linked to hand-rolled kretek cigarettes	13
How smokers' switch to hand-rolled kretek drives down government revenue	13
Industry tactics to maintain low cigarette prices and encourage downtrading	15
Hand-rolled kretek's unrewarding economy for its workers and farmers	16
Poor welfare conditions faced by hand-rolled kretek workers	16
Losses suffered by clove farmers	17
Excise tax reforms for better health and economy	18
Scenarios to raise excise tax and simplify cigarette excise tariff	18
Transition strategies for hand-rolled kretek workers and clove farmers	20
Coordination and collaboration strategies	24
Conclusion	24
Recommendations	26
References	28

List of Tables

Table 1. Nicotine and tar levels in cigarettes as shown in Indonesian Food and Drug Authority internal presentation	18
Table 2. Tobacco excise rates for machine-made kretek, white cigarettes, and hand-rolled kretek under Minister of Finance Regulation No. 97 of 2024	19

List of Figures

Figure 1. Production trends based on cigarette type, per billion cigarettes (internal data)	14
Figure 2. Cross-ministry collaboration scheme for sector and commodity transition	23
Figure 3. Collaboration scheme for providing financial assistance	24

Executive Summary

Background: As of 2025, Indonesia's tobacco excise tax structure consists of eight tariff layers. Additionally, the current tobacco excise system gives preferential treatment to the hand-rolled kretek cigarette industry by setting the lowest tax tariff and minimum price compared to other cigarette products. This policy paper was prepared to prove that the tobacco excise policy favoring the hand-rolled kretek industry has resulted in negative impacts. It does so by describing: (a) the definition and history of hand-rolled kretek cigarette; (b) the negative impacts on health and economic linked to hand-rolled kretek; (c) the lack of benefits that the hand-rolled kretek cigarette economy provides to workers and clove farmers; (d) schemes of excise tariff increase and simplification of the structure tobacco excise tax structure, as well as its transition process; and (e) the recommended fiscal policies that are pro-health and pro-economic for the people.

Methodology: The researchers conducted literature reviews from May to August of 2025. This policy paper was prepared using approximately 30 documents, consisting of research papers, official reports from government and non-government institutions, and internal presentations from relevant stakeholders that are restricted in nature.

Findings:

- Hand-rolled kretek cigarettes are cigarettes with cloves, rolled manually by hand. Historically, kretek cigarettes were a home-based industry that gradually underwent mechanization. Although once popular in international markets, many countries have now banned the sale of kretek cigarettes for the additional flavoring substances they contain.
- From a health perspective, several components in hand-rolled kretek, including sauce ("*saus*"), eugenol, and high levels of nicotine and tar, are recognized as factors that increase health risks. Health issues associated with smoking hand-rolled kretek include oral cancer, cardiovascular disease, coronary heart disease, respiratory illnesses, dental and oral disorders, and metabolic syndromes.
- From an economic standpoint, higher levels of hand-rolled kretek consumption threaten state revenue due to its significantly lower excise tariffs and the resulting downtrading. The situation is made worse by the industry's exploitation of the tobacco excise tax structure to keep cigarette prices low. Industry tactics include manipulating production processes, product attribution, or production volume; shrinkflation; and undershifting.
- Employment in the hand-rolled kretek industry or clove farming comes with economic and health risks. Only a minor portion of hand-rolled kretek worker households depend entirely on income from the sector. These households tend

to have lower incomes compared to households with earnings from other sectors. Additionally, working in hand-rolled kretek factories comes with a high risk of work-related accidents. The same applies to clove farming households, with only a minority depending solely on clove farming as their sole source of income. Approximately one-third of clove farming households live below the poverty line. Clove farming also poses high occupational hazards that can threaten farmers' lives.

- Earlier studies have recommended several schemes for increasing tobacco excise tariffs and simplifying its tariff layers. Examples include the World Bank's proposal of six tariff layers and up to 150 percent hike in hand-rolled kretek tariff, the World Health Organization's (WHO) recommendation of a five-layer tariff system and a 25-percent increase, and gradual simplification to three layers as recommended by experts.
- The government can adopt several strategies to alleviate economic pressure on the two affected professions. These include mapping out alternative industries or commodities, training workers with skills relevant to targeted industries, offering business capital and direct cash assistance, and providing guidance to farmers looking to diversify or switch crops.
- In the process of reforming the excise policy, the government must collaborate with all relevant institutions by forming a task force and establishing objectives. All activities related to excise reform, such as transitioning hand-rolled kretek workers and clove farmers, can be funded through the state budget, the Tobacco Excise Revenue Sharing Fund, or the cigarette tax fund.

Conclusion and Recommendations: The tobacco excise tax policy's preferential treatment towards the hand-rolled kretek industry has numerous negative effects on public health and the economy. The researchers urge the government to reform the tobacco excise tax policy by: (a) simplifying the tobacco excise tax tariff structure gradually by prioritizing the simplification of hand-rolled kretek cigarettes excise tariffs into two tiers; (b) raising the tobacco excise tax and minimum price tariffs for all types of cigarettes significantly, with larger hikes for the cheapest products currently on the market, such as hand-rolled kretek cigarettes; (c) ensuring that price disparities between cigarette types remain moderate; and (d) transitioning affected sectors while taking socioeconomic conditions into account.

Background

In 2021, tobacco consumption among the Indonesian population reached 34.5 percent (1). Excessive tobacco consumption affects not only individual health, but also households' well-being. A study by the Center for Indonesia's Strategic Development Initiatives (CISDI) (2) found that households with smokers allocate less of their budget to non-tobacco items, such as food, compared to those without smokers. Reduced spending on food and other necessities in smoking households has the potential to lower nutritional intake and investment in human resources. Indonesia also bears the economic burden of tobacco-related diseases, which amounted to IDR 411 trillion in 2019 (3).

Raising cigarette excise taxes is among instruments recommended by the World Health Organization (WHO) as a means of controlling tobacco consumption (4). High excise taxes can drive up cigarette prices thus curbing affordability, particularly among children and adolescents. In Indonesia, however, using cigarette excise taxes to cut tobacco consumption remains an underutilized potential. Indonesia's cigarette excise tax rate had only risen by an average of 10 percent in 2023 and 2024, significantly lower than the WHO's recommended annual increase of 25 percent (5). As of 2025, Indonesia's tobacco excise tax structure remains multilayered, consisting of eight tiers. This structure does not align with the WHO's recommendation that pushes countries to adopt a uniform excise tax rate (4).

Indonesia's complex excise tax structure provides preferential treatment for hand-rolled kretek cigarettes in the form of lower excise rates and minimum price. Per the Minister of Finance's Regulation No.97 of 2024 (6), hand-rolled kretek cigarettes are subject to the lowest Tier III excise rate of IDR 122 per cigarette and the lowest minimum price of IDR 860 per cigarette. Since 2022, hand-rolled kretek cigarettes have consistently enjoyed the lowest excise tax hike compared to other tobacco products, with an increase of no more than 5 percent. The Ministry of Finance argues that low excise tariff and minimum price are necessary to protect jobs in the hand-rolled kretek industry, as it is labor-intensive and is often operated by small and medium scale enterprises. The tobacco industry also supports this argument and has continued to push this narrative to the public to maintain its business.

The availability of cheap cigarettes, such as hand-rolled kretek, can be detrimental to public health as it compromises the effectiveness of excise and price hikes in controlling cigarette consumption. Earlier studies have shown that countries with a single excise tax system are more likely to succeed in reducing smoking prevalence than countries with a multi-tiered system (7). Additionally, low excise rates can also harm a country's economy because they potentially reduce state

revenue (7). This has come to the attention of the Ministry of Finance, which has become wary of the effect that the increased consumption of hand-rolled kretek in recent years has had on the decline in tobacco excise tax revenue.

This policy paper argues for the importance of reforming tobacco excise policy. The researchers examined the impact of the preferential treatment afforded to the hand-rolled kretek industry, covering its brief history, its health and economic impacts, and its workers' conditions. The researchers hope this document will serve as a reference for the Ministry of Finance and other relevant stakeholders when formulating tobacco excise policies for 2026 and beyond—policies that favor the health of the Indonesian people.

Objectives

The primary objective of this policy paper is to outline the negative impacts of excise tax policies easing for hand-rolled cigarettes and to provide recommendations for excise tax policies that are pro-health and pro-people's economy.

The secondary objectives of this research include:

1. Describing hand-rolled kretek products by identifying their characteristics and providing a brief history of the industry,
2. Explaining the negative health and economic impacts of hand-rolled kretek cigarettes in Indonesia,
3. Exploring the economics of hand-rolled kretek cigarettes, which are less favorable to workers and clove farmers,
4. Outlining several schemes for tariff increases and simplification of the cigarette excise structure, taking into account the transition process for hand-rolled cigarette workers and clove farmers.

Methodology

The researchers conducted a literature review from May to August 2025. A non-systematic search was conducted using Google Scholar and Google Search with the keywords "hand-rolled clove cigarette," "clove cigarette," "tobacco industry," "downtrading," "exit strategy," "mitigation plan," "health," "economy," "employment," "worker," and "farmer." The searches were also conducted using keywords in their Indonesian equivalents. The articles that met the inclusion criteria were in Indonesian or English, fully accessible, and contained information that could answer the research questions of this study, and were not subject to publication date restrictions

This policy paper was compiled using approximately 30 documents. These documents consisted of research articles, official reports from government and non-governmental institutions, and internal presentations from relevant stakeholders that were restricted and not publicly accessible.

Discussions

Introduction to hand-rolled kretek cigarettes

Definition

Indonesian kretek cigarettes are filtered or non-filtered cigarettes made from a blend of cut tobacco, ground cloves, and additives, rolled in cigarette paper. The distinctive characteristics of kretek cigarettes include their unique, spicy aroma and taste, as well as the '*kretek*' or crackling sound that the cloves make when the cigarette burns (8). Kretek cigarettes are categorized into two types based on their production method: the manually hand-rolled kretek cigarettes and the machine-rolled kretek cigarettes that are manufactured through mechanized processes (9).

In the 2020 Indonesian Standard Industrial Classification, the government assigned code 12011 to the hand-rolled kretek cigarette industry. This classification covers the production of kretek made from cut tobacco, *krosok* (sun-dried or air-dried) cut tobacco, cut cloves, and added flavoring substances, rolled using various wrapping materials (*ambri/papir/tipping*) (10).

Brief history

Initially, kretek cigarettes were hand-rolled exclusively in home industries. The growing demand for these cigarettes led to the mechanization of the industry in 1968. Companies that played a role in the early stages of large-scale production included Djarum, Bentoel, Gudang Garam, and Sampoerna (11).

In 1979, the Directorate General of Customs and Excise issued a regulation mandating a production ratio of 1:2 for machine-rolled and hand-rolled kretek cigarettes. This meant that for every machine-rolled kretek produced, a company was required to produce two hand-rolled cigarettes. The policy aimed to secure jobs for tobacco rollers and curb the dominance of machine-made cigarettes, allowing the hand-rolled kretek market to survive and provide income for small and medium-sized industries. However, this mandate did not apply to large-scale cigarette industries, which harmed the growth of small and medium-sized industries that could not compete with the production speed of large factories (12).

The government eventually revoked the regulation on hand-rolled and machine-rolled production, focusing instead on implementing an excise tax on tobacco products introduced in 1987. That year, an excise tax of 5 to 7 percent of the minimum price was applied to hand-rolled kretek cigarettes, while machine-rolled kretek cigarettes were taxed between 35 and 37 percent of the minimum price. Although excise rates have increased annually, the more lenient policy for hand-rolled kretek has remained in place to date. The government argued that this was done to preserve the hand-rolled kretek market and jobs for tobacco rollers (11).

Kretek cigarettes once gained popularity in the global market, but this was short-lived as many countries banned their sale. They were especially popular in Australia during the 1970s and in California in the 1980s, peaking in 1985. Kretek's brief international success ended when several countries prohibited the sale of cigarettes containing additional flavorings such as cloves, sauce, and other additives (9). Countries that implemented such regulations include members of the European Union, the United States, Canada, and Brazil (9,13).

Today, many local companies that once dominated kretek cigarette production have shared ownership with multinational corporations. Philip Morris International is now the controlling shareholder of Sampoerna, British American Tobacco holds a majority stake in Bentoel, while Japan Tobacco International has full ownership of two medium-sized companies, Karyadibya Mahardhika (KDM) and Surya Mustika Nusantara (9,14).

Health risks from hand-rolled kretek cigarettes

Harmful substances in hand-rolled kretek cigarettes that increase health risks

Several components in hand-rolled kretek cigarettes, such as sauce, eugenol, as well as higher levels of nicotine and tar, have the potential to exacerbate the health risks inherently present in tobacco products. Details of these three components are as follows:

The sauce is an undisclosed ingredient in kretek cigarettes because it acts as a flavoring agent, providing taste and a unique sensory experience. The sauce blend is regarded as a key component in determining the commercial success of a kretek brand, as it distinguishes one brand from another (9,15). This has led companies to keep their exact compositions a secret, even registering them as intellectual property (16). The secrecy surrounding the exact chemical composition of a sauce has sparked discourse about the safety of kretek products. Earlier studies have noted the difficulty of

conducting toxicological evaluations and testing on kretek cigarettes, as well as determining potential health effects arising from pharmacological interactions when components are concealed (9). For hand-rolled kretek cigarettes, which are produced manually, it is difficult to measure the levels of sauce and other components systematically, making it even more difficult to know their content and associated risks with certainty.

Kretek cigarettes also contain eugenol, which appeals to novice smokers due to its specific characteristics. Eugenol possesses analgesic (pain-relieving), antiseptic (inhibiting microbial growth), and anti-inflammatory (reducing inflammation) properties (13). Like menthol, eugenol can affect pain receptors, temporarily numbing the mouth and throat. Its presence also masks the harsh sensation of smoke entering the respiratory tract, making kretek cigarettes easier for beginners to inhale and continue smoking (13,16,17). Moreover, smokers tend to inhale more deeply and hold the smoke longer in their lungs when consuming kretek cigarettes. This can indirectly increase exposure to nicotine, tar, and other carcinogenic substances contained in the product. Eugenol has also been recognized to have potential toxicity in animals and humans (18), for example causing pulmonary hemorrhage, infection, and severe inflammation of the respiratory system.

In addition, the levels of nicotine and tar in hand-rolled kretek cigarettes are known to be much higher than in other types of cigarettes. Table 1 shows the results of tests conducted by the Indonesian Food and Drug Authority and industry reports presented at a limited meeting. Both results consistently indicate that nicotine levels in hand-rolled cigarettes can be 2.4 times higher than those found in machine-made white cigarettes and 1.4 times those found in machine-rolled kretek. As for tar levels, Indonesian Food and Drug Authority and industry records show that hand-rolled kretek contains 4.1 times more tar than machine-made white cigarettes and 1.4 times more than machine-rolled kretek. While cigarettes with lower nicotine and tar levels also pose significant health risks, the higher levels of nicotine and tar in hand-rolled kretek have the potential to increase health risks significantly, including a greater risk of lung cancer (19,20).

Table 1. Nicotine and tar levels in cigarettes as shown in Indonesian Food and Drug Authority internal presentation

Cigarette Type	Food and Drug Authority Test Results (2024)		Industry Report (2024)	
	Nicotine (mg/cigarette)	Tar (mg/cigarette)	Nicotine (mg/cigarette)	Tar (mg/cigarette)
Hand-Rolled Kretek	0.51-2.74	12.90-57.00	1.50-3.49	18.90-72.30
Machine-rolled Kretek	0.58-2.19	5.80-51.41	0.71-2.14	12.22-43.50
Machine-made White Cigarettes	0.16-1.57	1.64-18.32	0.17-1.01	2.21-13.20

Hand-rolled kretek cigarettes also have significantly higher nicotine and tar levels than the maximum limits for conventional cigarettes in many other countries. Hand-rolled kreteks in Indonesia have nicotine and tar levels that are 3.5 and 7 times higher, respectively, than the maximum limits applicable in some countries. These standards refer to internal data presented by the Indonesian Food and Drug Authority. To address issues related to nicotine and tar levels, Indonesia is currently in the process of establishing nicotine and tar maximum limits in cigarettes through Government Regulation of the Republic of Indonesia Number 28 of 2024, which governs the Implementation of Law Number 17 of 2023 on Health.

Health issues associated with hand-rolled kretek cigarettes

It is important to note that very limited research focuses exclusively on the health impacts of hand-rolled kretek cigarettes. This is because many surveys, reports, and studies categorize and analyze hand-rolled kretek alongside conventional or clove cigarettes. Among the kretek-related studies the researchers reviewed, some had limited sample sizes and a high risk of bias, which raises concerns about the quality of the research (21). Furthermore, the global prevalence of hand-rolled kretek consumption is lower than that of other cigarettes (9). For these reasons, this section will discuss the health impacts associated with smoking and being exposed to kretek cigarettes in general.

Numerous studies have found that smoking kretek cigarettes causes health issues such as oral cancer, cardiovascular disease, coronary heart disease,

respiratory disease, dental and oral problems, as well as metabolic syndromes (8,9). Previous studies have found that kretek smokers are twice as likely to develop oral cancer compared to other types of smokers (9); this risk can increase up to threefold in individuals who have smoked kretek cigarettes for more than 10 years (22). This is believed to stem from the higher nicotine and tar content in kretek cigarettes, as well as smokers' tendency to inhale them deeper, slower, and more frequently (9,17). Another study showed that smoking kretek cigarettes increases the risk of developing asthma compared to smoking other types of cigarettes (9).

Kretek cigarettes are not only dangerous to smokers, they also produce particulate matter (PM), which is classified as a harmful pollutant that other people can inhale. Research found that most kretek cigarette pollutants are smaller than one micrometer and classified as very fine particles (PM1), and their levels are higher than those in regular cigarettes. The smaller the particle, the more dangerous it is. PM1 is small enough to be inhaled through the respiratory tract and penetrate lung tissue, entering the bloodstream. Consequently, PM1 carries a greater health risk when inhaled (23).

Hand-rolled kreteks that are sold at lower prices also have a harmful impact on public health because they make it difficult for smokers to quit. When cigarette prices rise, smokers often switch to cheaper products, such as hand-rolled kretek, instead of quitting. Empirical evidence from the UK supports this argument by proving there is a strong correlation between rising cigarette prices and the number of people consuming cheaper cigarettes, such as hand-rolled cigarettes (24).

Economic downfalls linked to hand-rolled kretek cigarettes

How smokers' switch to hand-rolled kretek drives down government revenue

Figure 1 illustrates the rapid surge in hand-rolled kretek production, while the production of machine-rolled kretek and machine-made white cigarettes gradually declined. This increase in production reflects a growing market demand for hand-rolled kretek and indicates the phenomenon of downtrading. Downtrading, whereby consumers switch to cheaper cigarettes such as hand-rolled kretek, negatively impacts the excise revenue realization. According to government reports, the tobacco excise target for 2023 was not achieved, reaching only 91.78% of the State Budget target for that year (25, 26). Although the 2024 target was met (approximately IDR 216 trillion), the revenue was lower than in 2022 (IDR 218.62 trillion)

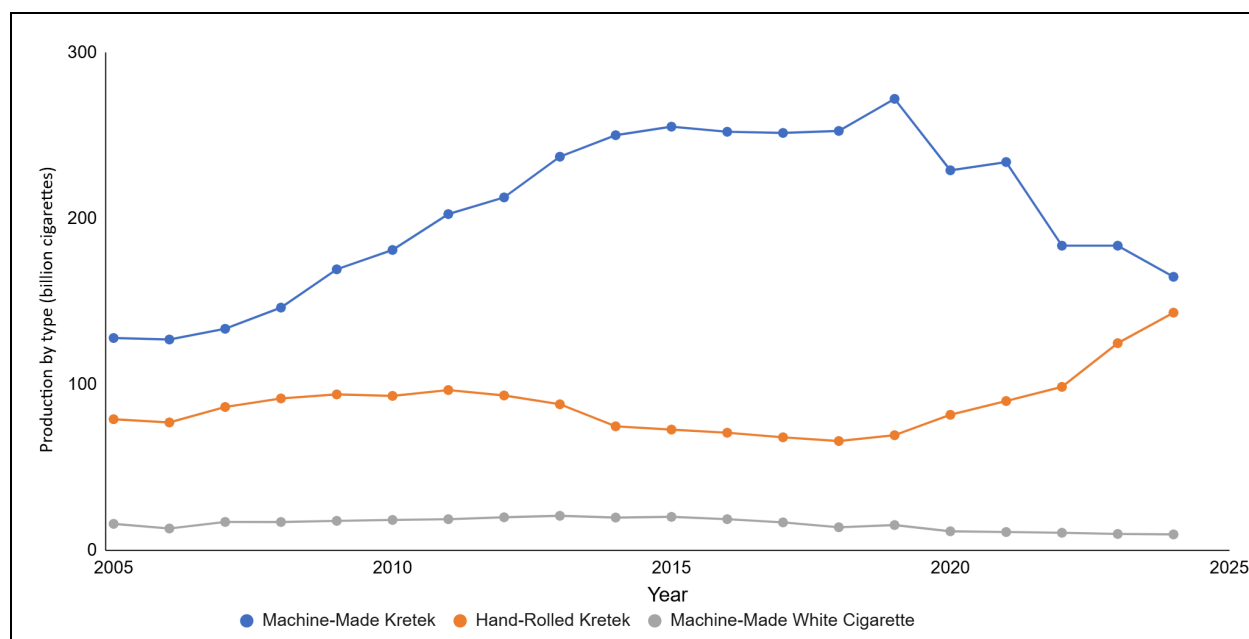


Figure 1. Production trends based on cigarette type, per billion cigarettes (internal data)

In addition to downtrading, the much lower excise rate for hand-rolled kretek cigarettes compared to the other two types of cigarettes is another factor potentially preventing the tobacco excise revenue target from being met. According to the 2025 excise rates, the difference in rates between the most expensive cigarettes (machine-made white cigarettes Tier I) and the cheapest cigarettes (hand-rolled kretek Tier III) is enormous. Machine-made white cigarettes Tier I are subject to an excise tax of IDR 1,336, while hand-rolled cigarettes Tier III are subject to an excise tax of only IDR 122 or just one-eleventh of the former. Despite the high sales of hand-rolled kretek, the government receives a small portion, resulting in lower-than-expected tobacco excise revenue

If downtrading is not addressed, hand-rolled kretek consumption could dominate the market and cause state revenues to decline further. Similar phenomena have occurred in other countries, which should serve as a warning to the Indonesian government. A study using data from 2009 to 2012 illustrated the downtrading trend experienced by Bangladesh (27). Like Indonesia, Bangladesh also has a tiered excise system. In the first year of the study (2009), medium-priced cigarettes dominated consumption at 46 percent. By the end of the observation period in 2012, however, the situation had changed, with low-priced cigarettes dominating consumption, which increased from 30 percent in 2009 to 43 percent.

The increase in hand-rolled kretek consumption is linked to the product's characteristics: low price and high nicotine and tar content. This aligns with previous research, which found that in the event of financial shocks or increased cigarette prices, consumers tend to adapt. However, smokers' behavioral responses are not homogeneous, as they are influenced by factors such as individual characteristics, the initial cigarette price, and the distribution of cigarette price increases across different tiers (7). Changes in smoking behavior may include the following: (a) switching to cheaper cigarettes, (b) switching to cigarettes with higher tar or nicotine content to satisfy their cravings by smoking fewer cigarettes, (c) switching to other types of tobacco products, (d) reducing consumption, or (e) maintaining current consumption levels consumption (7, 28).

Industry tactics to maintain low cigarette prices and encourage downtrading

Price manipulation by the industry can hinder tobacco control efforts to reduce consumption and potentially weaken government revenue growth. Changes in consumer behavior, where smokers tend to switch to cheaper cigarette products, are accommodated by industries involved in the supply chain. The industry can exploit complex excise tax structures to keep cigarette prices low.

Manipulating production processes, product attribution, or production volume are strategies commonly used. For instance, companies that initially produced large quantities of cigarettes by machine may switch to manually rolling cigarettes and cutting their output in order to qualify for the hand-rolled kretek category, allowing them to sell their products at a lower price (29).

Shrinkflation, the tactic of keeping prices unchanged while reducing the size or number of cigarettes per pack, is also commonly practiced by the industry (29). The industry has the freedom to do this because kretek cigarettes, including hand-rolled kretek cigarettes, are not subject to Indonesia's minimum requirement of the number of cigarettes per pack. In contrast, white cigarette products must have at least 20 cigarettes per pack. The 2023 retail survey (30) found that 44 percent of cigarettes sold in packs of 12-stick packs were hand-rolled kretek. Their smaller size allows hand-rolled packs to be sold at a lower price than other types of cigarettes.

Industries may also resort to undershifting, a pricing tactic to absorb some of the cigarette excise tax increases in order to keep prices low and the market segment intact (29,31). The 2023 retail survey found that more than half of cigarettes were sold below the minimum retail price (30). The same survey also found that the price of Tier III hand-rolled kretek fell by 5.5 percent, despite having their excise tax raised by 3 percent.

Hand-rolled kretek's unrewarding economy for its workers and farmers

Poor welfare conditions faced by hand-rolled kretek workers

Data in 2025 shows that with 880 factories, hand-rolled kretek factories accounted for 67 percent of the total cigarette factories in Indonesia. This information is contained in an internal presentation by the Coordinating Ministry for Economic Affairs of the Republic of Indonesia. Despite the dominance of the hand-rolled cigarette industry, the researchers could not find national or internal ministry data reporting the number of workers in the industry. The researchers only found data from Statistics Indonesia from 2023, which revealed that 9.33 percent of Indonesia's manufacturing industry workers are employed in the tobacco sector. Reports about the working conditions of these employees are also difficult to find. However, a 2017 World Bank report provides insights into the economic background of kretek workers' households based on surveys conducted in Kudus and Malang (11). Additionally, a 2024 ethnographic study titled *Kretek Capitalism* highlights the kretek cigarette industry's capitalism (including hand-rolled kretek), especially from a labor perspective (32).

The demographic data on hand-rolled kretek workers shows that:

- Most workers are women, older in age (average 40 years), and have low levels of education (the majority are elementary school graduates).
- Their average tenure is 18 years, reflecting their loyalty to the hand-rolled kretek industry.
- Their motivation for working in hand-rolled kretek factories is the proximity of the factories to their homes, as many of the workers are local residents born and living in the surrounding areas. Another reason is the flexible working hours.

The economic conditions of hand-rolled kretek workers' households:

- Wage systems vary from daily, weekly, or monthly. If non-cash benefits are included, the median income is IDR 40,000 for daily-paid workers, IDR 350,000 for weekly-paid workers, and IDR 1,670,000 for those under a monthly wage scheme.
- Only one-third of hand-rolled kretek workers are employed full-time, and only a few have written contracts with the company. Having an employment contract increases the likelihood of receiving various non-cash benefits, such as paid leave or holidays.
- Only 22 percent of hand-rolled kretek workers' households rely entirely on income from this work. Households that are fully dependent on earnings from the hand-rolled kretek sector tend to have lower household income compared

to those with income from other sectors. This illustrates how the earnings from the hand-rolled kretek sector are not enough to support its workers' livelihoods.

- Poverty among households of hand-rolled kretek workers is strongly associated with lower education levels, a higher number of dependents under 15 years old, female-headed households, and a higher proportion of income from the hand-rolled kretek sector relative to total household income.
- Although most workers—particularly those with longer tenure—are reluctant to change jobs, about 38 percent would consider quitting if the government offered training and job placement programs. Additionally, around 40 percent of hand-rolled kretek workers have experience in other sectors, equipping them with the ability to adapt to new employment.

Health risks faced by hand-rolled kretek factory workers:

- Workplace accidents, such as cuts, hand deformities, dehydration, nerve disorders, and kidney problems. Despite this, companies emphasize that worker safety is the individual's responsibility.
- Workers also suffer mental stress from the pressure to meet high production quotas despite low wages.
- Wages depend heavily on the number of cigarettes rolled or the number of hours logged. Consequently, workers with health issues often hesitate to seek treatment from the company doctor for fear of being placed on temporary or permanent leave.

Losses suffered by clove farmers

Indonesia is the world's largest producer of cloves, accounting for approximately 72.8 percent of the global supply. The Food and Agriculture Organization of the United Nations (FAO) reported this data in 2023 (33). Around 90 percent of Indonesia's clove harvest is absorbed by the tobacco industry. To understand the conditions of clove farmers, the researchers refer to a 2017 national survey by the World Bank (34) and the book *Kretek Capitalism* (32).

The demographic characteristics of clove farmers are as follows:

- Almost all clove farmers are men, mostly between the ages of 36 and 60, and half of them are elementary school graduates.
- Nearly all farmers own their own land for clove farming. However, less than one-quarter of their land is planted with cloves, while the rest is used to cultivate other crops throughout the year.

The economic conditions of clove farmers:

- Only a small portion of clove-farming households rely on clove cultivation as their primary source of household income.
- Income from clove farming accounted for less than 20 percent of total earnings in more than half of households.
- Individuals who claim clove farming as their main source of income earn slightly more per day (USD 7.93) compared to workers who rely on other sectors as well (USD 7.32). However, clove farm workers are employed for less than four months per year, as clove is a seasonal commodity.
- Around 37 percent of clove-farming households live below the poverty line according to national indicators. This figure was obtained by realistically calculating total household income, factoring in expenses for farming or other household businesses. This is backed up by calculations of household income from cloves versus the costs of clove farming, which show that households lose around USD 2 per kilogram.
- Although these calculations demonstrate that clove farmers experience losses, 70 percent of them have not considered crop switching due to the perception that clove farming is profitable.
- Farmers interested in switching crops are those who allocate a smaller share of their land to clove cultivation, those owning larger sizes of land, and those already earning higher income from other agricultural commodities or from non-agricultural sectors.

Health risks faced by clove farmers:

- There have been cases of farmers or clove pickers falling from heights when harvesting cloves from tall trees (8 to 12 meters) using makeshift bamboo ladders without protective gear. Such accidents can result in broken bones or even death.

Excise tax reforms for better health and economy

Scenarios to raise excise tax and simplify cigarette excise tariff

The urgency to reform Indonesia's cigarette excise system is supported by the Organization for Economic Cooperation and Development (OECD). The organization recommends that Indonesia increase and harmonize the excise tax on hand-rolled kretek cigarettes, as it considers the current tax to be too low and disproportionate to the tax on other types of cigarettes. This increase is necessary to boost state revenue, as outlined in the 2024 OECD Indonesia Economic Survey (35). Table 2 shows Indonesia's current excise policy.

Table 2. Tobacco excise rates for machine-made kretek, white cigarettes, and hand-rolled kretek under Minister of Finance Regulation No. 97 of 2024

No	Tobacco Product Factory Enterprises Category		Minimum price per cigarette	Excise rate per cigarette
	Type	Tier		
1	Machine- rolled kretek	I	IDR 2,375	IDR 1,231
		II	IDR 1,485	IDR 746
2	Machine-made white cigarettes	I	IDR 2,495	IDR 1,336
		II	IDR 1,565	IDR 794
3	Hand-rolled kretek or white cigarettes	I	> IDR 2,170	IDR 483
			IDR 1,555	IDR 378
		II	IDR 995	IDR 223
		III	IDR 860	IDR 122

The following are several schemes recommended by international institutions and experts to simplify the excise tax structure and increase excise tax rates.

The World Bank in 2017 (11) recommended simplifying the tariff structure of excise tax to six layers. The existing 12-layer excise tariff structure was streamlined into two tiers for machine-rolled kretek, two tiers for machine-made white cigarettes, and two tiers for hand-rolled kretek. By 2025, Indonesia had simplified its cigarette excise tariff into eight layers. The next step is to further simplify the excise tariff structure for hand-rolled kretek cigarettes, which currently consists of four tiers.

The World Bank also pushes for an increase in excise taxes, with the highest increase imposed on Tier III hand-rolled kretek cigarettes by 150 percent or to IDR 200 per cigarette. Another recommendation is to minimize the discrepancy between the highest and lowest excise rates. For example, machine-made white cigarettes Tier I would be subject to a tariff of IDR 611, while the lowest excise rate for hand-rolled kretek III would be IDR 200, making the lowest rate approximately one-third of the highest. The gap between the excise rates for the same type of cigarette should also be narrowed. For example, the excise rate could be IDR 400 for Tier I hand-rolled kretek and IDR 200 for Tier III hand-rolled kretek. In the current tobacco excise structure, the highest category (Tier I hand-rolled kretek) is still subject to a tariff four times higher than the lowest category (Tier III hand-rolled kretek).

The World Bank predicts that this model will have a minimal impact on employment in the hand-rolled kretek industry. Based on their calculations, 0.22 percent of hand-rolled kretek workers, equivalent to 2,245 individuals, are likely to be laid off. However, the World Bank estimates that the country will gain an additional annual revenue of IDR 10.915 trillion from the simplified model and increased excise tax

rates. This amount is much larger than the total lost income of hand-rolled kretek workers, estimated at IDR 14.3 billion, or 0.1 percent of the additional income. Therefore, allocating funds to mitigate workers' loss of income from excise revenue would be feasible.

In 2020, the WHO (5) recommended simplifying the excise tax structure to five layers and increasing the tariff by 25 percent each year. However, there is no comprehensive information on which tiers would belong to each layer. The WHO model is projected to prevent over one million deaths, reduce the number of smokers by 4.8 million, and increase excise revenue by IDR 102.8 trillion.

In 2020, economic expert Abdillah Ahsan recommended gradually simplifying the system to just three layers of excise tariffs. Some of his recommendations have already been adopted by the current excise tax system. The first step is consolidating all types of machine-made cigarettes under a single tariff category, followed by dividing hand-rolled kretek into two tiers the following year. Ultimately, the excise tariff will consist of just three layers: machine-made cigarettes, Tier I hand-rolled kretek, and Tier II hand-rolled kretek.

The Ministry of Finance had planned to simplify the tobacco excise tariff structure into five layers in 2017 through PMK 146/PMK.10/2017. Unfortunately, this policy was only in effect for one year. The plan was to streamline the tobacco excise tariff structure from 10 layers in 2018 to five layers by 2021. The goal of the regulation was to classify all machine-made cigarettes, including white and clove cigarettes, into one category. That way, machine-made cigarettes would have two tariff tiers, and the hand-rolled kretek tariff would be simplified to three tiers by 2021.

Transition strategies for hand-rolled kretek workers and clove farmers

Researchers acknowledge that reforming tobacco excise policies will affect sectors that support the hand-rolled kretek industry, such as factory workers and clove farmers. However, previous studies have emphasized that increasing cigarette excise taxes will gradually reduce smoking prevalence thereby avoiding economic shock (36). Another study stated that an increased cigarette excise tax would create jobs in other sectors to absorb former hand-rolled kretek workers and generate markets for alternative products or commodities from farmers (37).

The government can adopt several strategies to alleviate the economic pressures on the two affected professions. The formulation of these strategies took into account the socioeconomic conditions of the two professions, as outlined in previous studies.

For hand-rolled kretek workers, the government can implement several strategies (11,38) such as:

- Map out alternative industries that match the profile of hand-rolled kretek workers, namely: women, taking into account flexible working hours, wages, and opportunities for long-term employment that can absorb former hand-rolled kretek workers.
- Train workers to acquire the skills needed by targeted industries. Many kretek rollers have worked in different sectors before joining the hand-rolled kretek industry. This illustrates their resilience and adaptability when changing professions.
- Provide business capital to hand-rolled kretek workers interested in becoming entrepreneurs.
- Provide temporary income until workers find new jobs. Previous studies have also shown that there are groups of hand-rolled kretek workers who are more vulnerable to falling below the poverty line. This type of support could be provided through social assistance programs that have been implemented in the past.

For clove farmers seeking to transition to other crops, the government can implement various initiatives (11,38) such as:

- Providing skills training, business capital, or direct assistance.
- Assist farmers who want to diversify or switch crops.
- Conduct research to identify areas where clove crops are less profitable, and prioritize alternative crops in those areas.
- Conduct research to identify which crops are possible to grow and have good market value according to the area where farmers reside.
- Improve production and value chains for new commodities.
- Improve agricultural services for new commodities.

Coordination and collaboration strategies

The government needs to coordinate in order to establish a shared objective agreed upon by all involved agencies. For example, the objective could be to reduce the prevalence of smoking in Indonesia. This is crucial to avoid conflicts with the targets that each agency seeks to achieve in accordance with its respective duties and functions.

Next, through ministries and other stakeholders, the government must establish a collaborative effort to adopt the aforementioned strategies. A previous study recommended forming a task force (38). The task force for hand-rolled kretek workers could be led by the Coordinating Ministry for Economic Affairs, while the task force for clove farmers could be led by the Ministry of Agriculture. This collaboration model would operate horizontally between government bodies at the central level, as well as vertically with regional governments during the transition process. This model was

chosen because it is considered more flexible and appropriate for using the Tobacco Excise Revenue Sharing Fund (38). With regards to the use of Tobacco Excise Revenue Sharing Fund, the central government could provide regional governments with training and mentoring, including needs assessment, program development, and budgeting.

As shown in Figure 2, the researchers mapped out which policymakers should be involved in the process of transitioning hand-rolled kretek workers to new industries, as well as transitioning clove farmers to other commodities.

- The Ministry of Manpower can facilitate the transition of workers to other industries, while the Ministry of Agriculture can facilitate clove farmers' efforts to diversify crops.
- Both ministries will coordinate with the Coordinating Ministry for Economic Affairs and delegate authorities to local governments as recipients of the Tobacco Excise Revenue Sharing Fund and executors of the transition.
- Local governments will require a mandate from the Ministry of Home Affairs.

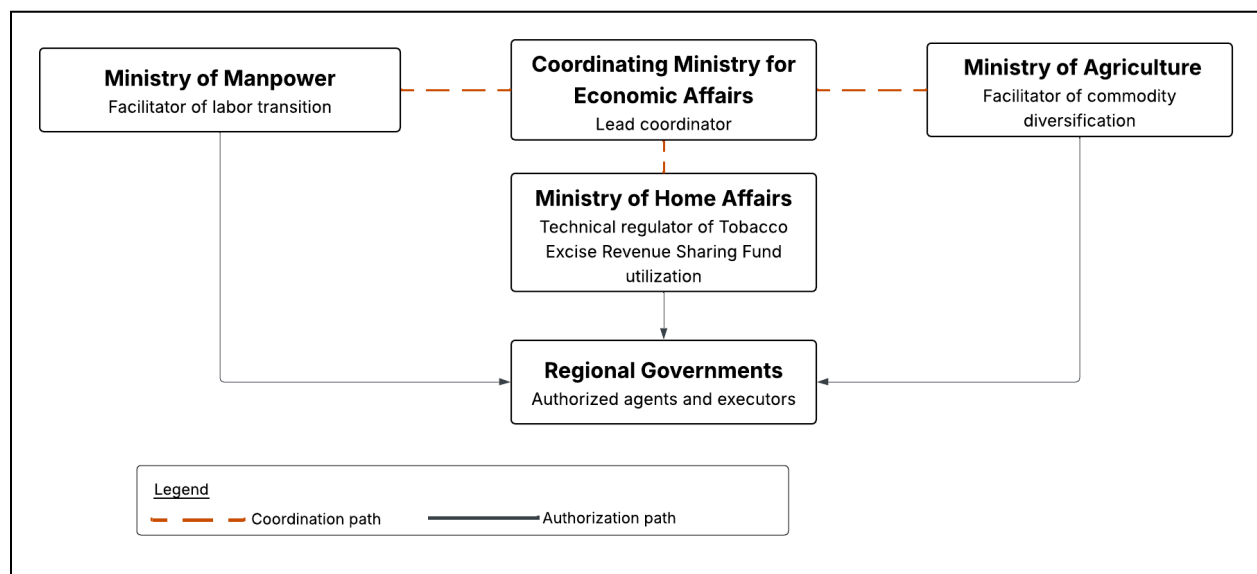


Figure 2. Cross-ministry collaboration scheme for sector and commodity transition

Additionally, relevant policymakers (Figure 3) can facilitate the provision of financial assistance to affected hand-rolled kretek workers and clove farmers under the following scheme:

- The Ministry of Social Affairs (for workers) and the Ministry of Agriculture (for clove farmers) will delegate authority to local governments.
- Both ministries must coordinate with the Coordinating Ministry for Economic Affairs and the Coordinating Ministry for Human Development and Cultural

Affairs, while local governments must obtain a mandate from the Ministry of Home Affairs.

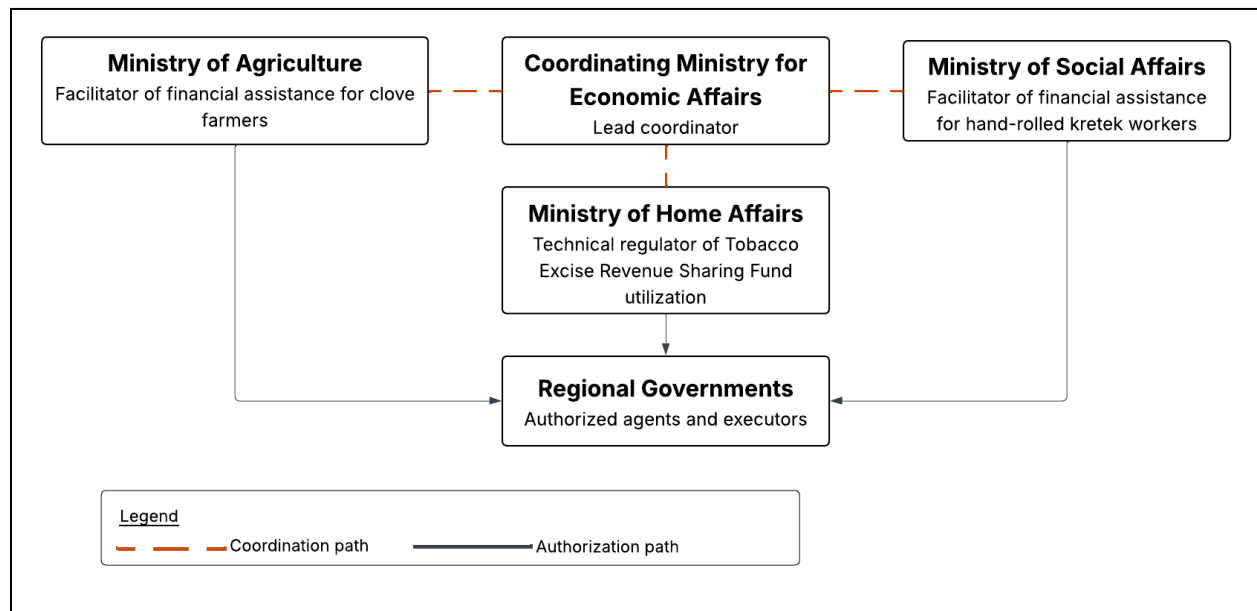


Figure 3. Collaboration scheme for providing financial assistance

Furthermore, the government needs to involve the general public and non-governmental organizations, in particular civil society organizations and groups representing affected workers. This is important to avoid miscommunication between public elements and local governments, which often occurs due to the lack of inconsistent implementation of transition strategies in respective cities/regencies (38).

Funding for the transition process may come from the state budget, the Tobacco Excise Revenue-Sharing Fund, regional cigarette taxes, or other financing schemes derived from increased excise revenues. A 2017 World Bank study estimated that providing temporary income support to hand-rolled kretek and other tobacco industry workers during the transition would require less than two percent of additional excise revenue (36). This aligns with Minister of Finance Regulation No. 72 of 2024 on Tobacco Excise Revenue-Sharing Fund, which mandates half of the regional income from that fund be allocated to worker welfare programs.

Conclusion

Preferential treatment for the hand-rolled kretek industry in the form of excise tax relief has negatively impacted the health of the population, the economy, and industry workers.

Negative impacts on health:

- Exposure to and consumption of kretek cigarettes carry the same negative health consequences as other types of cigarettes. In some cases, the impact may be worse because kretek cigarettes contain:
 - An undisclosed "sauce": The secret, proprietary flavoring blend ("*saus*") added to hand-rolled kretek has an undisclosed composition, which makes its health impact impossible to accurately measure.
 - Eugenol: The analgesic properties of eugenol make kretek cigarettes feel "lighter," which may encourage new smokers to begin and continue smoking, and encourage existing smokers to inhale more deeply and for longer periods. Eugenol also has toxic properties.
 - High nicotine and tar content: The levels of nicotine and tar in kretek cigarettes are significantly higher compared to other cigarette types. This composition also contains levels far exceeding the maximum limits regulated in many other countries.
- Smoking kretek cigarettes has been found to contribute to various health issues, including oral cancer, cardiovascular disease, coronary heart disease, respiratory disease, and dental and oral problems, as well as metabolic syndrome. The smoke from kretek cigarettes also contains harmful pollutants that expose bystanders to health risks
- The exceptionally low price of hand-rolled kretek makes it difficult for smokers to quit.

Negative impacts on economy and workers' welfare:

- The downtrading phenomenon and increased consumption of hand-rolled kretek without adequate excise tax hikes have been proven to inhibit state revenue growth.
- Industry tactics to prevent excise tax increases and to manipulate cigarette prices have kept hand-rolled kretek and other cigarettes affordable.
- Supporting sectors of the hand-rolled kretek industry, such as clove workers and farmers, experience welfare issues, including:
 - Hand-rolled kretek workers are predominantly middle-aged women with low levels of education. Only a third of these employees work full-time, and very few receive written contracts.
 - Only a fifth of the workers depend on the hand-rolled kretek industry for their primary household income. Households that are fully dependent on this industry tend to have lower incomes than those whose primary earnings come from other sectors.

- Most clove farmers are adult men with low levels of education as well, and one-third of them live in poverty. Only a small proportion of these farmers rely on clove farming as their main source of income.
- Hand-rolled kretek workers are vulnerable to health problems, which are closely related to the target-based work system. Working in clove farms also carries a risk of occupational accidents that can threaten farmers' lives.

Recommendations

CISDI urges the government to end preferential treatment for the hand-rolled kretek industry by reforming the excise tariff policy alongside a process to transition workers. This can be achieved through several ways:

- Simplifying the tobacco excise tariff structure through several stages:
 - Prioritizing the simplification of hand-rolled kretek product tiers in the first year into two excise tax tiers, resulting in a six-layer excise tariff structure.
 - The next stage is merging machine-made white cigarettes and machine-rolled kretek cigarettes into a single tax tier, resulting in a three-layer excise tariff structure.
 - Streamlining the hand-rolled and machine-rolled cigarettes into just one tier each, resulting in a two-layer excise tariff structure.
 - Subjecting all types of cigarettes to a single, uniform excise tariff, as recommended by the WHO.
- Significantly raising the excise tariff and minimum price for all types of cigarettes. This policy must consider the affordability of cigarette products and apply higher increases to cigarettes that currently have a much lower excise tax and minimum price, such as hand-rolled kretek.
- Ensuring that while a tiered structure of cigarette excise tariffs is in effect, the price gap between different types of cigarettes must not be too wide to discourage smokers from switching to cheaper cigarettes.
- Implementing a transition strategy for affected sectors, including workers and farmers, taking into account the socioeconomic background of each profession.
 - For the hand-rolled kretek industry, the government needs to identify alternative employment opportunities that offer equivalent wages and non-financial compensation, such as proximity to home and flexible working hours. The government also needs to provide workers with skills training that aligns with the needs of the target industries. Lastly, the government can offer direct cash assistance for vulnerable households that lose their jobs in the hand-rolled kretek industry, as well as provide business capital for those who wish to pursue entrepreneurship.

- Clove farmers would need support to distribute their agricultural output toward new commodities. The government should provide assistance as described above, including skills training, business capital, and direct aid. In addition, the government should conduct in-depth research on non-tobacco commodities that can absorb cloves, generate profit for farmers, raise the production and value chain of the new commodities; and provide adequate agricultural services to support their development.
- Coordinating and establishing a cross-sectoral collaboration scheme to facilitate the transition process in affected sectors, which includes establishing a task force. Community groups and non-governmental organizations should also be involved in this process.
 - The central government can provide training and guidance to regional governments regarding the use of the Tobacco Excise Revenue Sharing Fund.
 - Institutions that can be enlisted in the process of transitioning hand-rolled kretek workers and clove farmers: the Coordinating Ministry for Economic Affairs (acting as coordinator), the Coordinating Ministry for Human Development and Cultural Affairs, the Ministry of Manpower, the Ministry of Agriculture, the Ministry of Social Affairs, the Ministry of Home Affairs, and regional governments.
 - Funding for the transition process can be drawn from the state budget, the Regional Revenue and Expenditure Fund, or cigarette tax revenues, each with a modest share.

References

1. World Health Organization. 2021 GATS Fact Sheet Indonesia [Internet]. 2021. Available from: <https://www.who.int/publications/m/item/2021-gats-fact-sheet-indonesia>
2. Swarnata A, Kamilah FZ, Wisana IDGK, Meilissa Y, Kusnadi G. Crowding-out effect of tobacco consumption in Indonesia. *Tobacco Control* [Internet]. 2024 Jan 22 [cited 2024 Apr 2]; Available from: <https://tobaccocontrol.bmj.com/content/early/2024/01/22/tc-2022-057843>
3. Meilissa Y, Nugroho D, Luntungan NN, Dartanto T. The 2019 Health Care Cost of Smoking. 2021; Available from: https://cisdi.org/wp-content/uploads/2021/06/Full-Report_ENG_The-2019-Healthcare-Cost-of-Smoking-in-Indonesia24-May-2021.pdf
4. World Health Organization. WHO report on the global tobacco epidemic, 2025: warning about the dangers of tobacco. Geneva; 2025.
5. World Health Organization. Raise Tobacco Taxes and Prices for a Healthy and Prosperous Indonesia. 2020.
6. Kementerian Keuangan RI. Peraturan Menteri Keuangan Nomor 97 Tahun 2024 tentang Perubahan Ketiga atas Peraturan Menteri Keuangan Nomor 192/PMK.010/2021 tentang Tarif Cukai Hasil Tembakau Berupa Sigaret, Cerutu, Rokok Daun atau Klonot dan Tembakau Iris [Internet]. 2024. Available from: <https://peraturan.bpk.go.id/Details/311469/pmk-no-97-tahun-2024>
7. Crespi F, Liberati P, Paradiso M, Scialà A, Tedeschi S. Smokers are different: The impact of price increases on smoking reduction and downtrading. *Economic Modelling*. 2021 Apr;97:326–34.
8. Soetiarto F. The Relationship between Habitual Clove Cigarette Smoking and a Specific Pattern of Dental Decay in Male Bus Drivers in Jakarta, Indonesia. *Caries Res*. 1999;33(3):248–50.
9. Picanço JMA, Limberger RP, Apel MA. Where should I start? A scoping review about the publications on clove cigarettes. *Critical Reviews in Toxicology*. 2022 Apr 21;52(4):259–93.
10. OSS Kementerian Investasi dan Hilirisasi/BKPM. Klasifikasi Baku Lapangan Usaha Indonesia (KBLI) 2020 [Internet]. Available from: <https://oss.go.id/informasi/kbli-detail/137259bb-32cf-4047-b8f6-7ecd372993fc>
11. Nargis N, Sahadewo G, Araujo EC, Harimurti P, Drope J, Durazo J, et al. The economics of Kretek rolling in Indonesia [Internet]. World Bank; 2017. Available from: <http://documents.worldbank.org/curated/en/644791507704057981>
12. Suprihanti A, M. Sinaga B, Harianto H, Kustiari R. The Impact of Clove Import Policy on Clove Market and Cigarette Production in Indonesia. In: *Proceedings of the International Conference on Food, Agriculture and Natural Resources (FANRes 2018)* [Internet]. Yogyakarta, Indonesia: Atlantis Press; 2018 [cited 2025 Aug 5]. Available from: <https://www.atlantis-press.com/article/25907152>
13. Astolfi Picanço JM. The Risk Associated to the Lack of Information about Clove Cigarettes. *BJSTR* [Internet]. 2019 Jun 12 [cited 2025 Aug 5];18(5). Available from: <https://biomedres.us/fulltexts/BJSTR.MS.ID.003205.php>
14. JTI.com. Japan Tobacco Group Signs Agreement to Acquire Indonesian Kretek Cigarette Company. 2017 Aug 4; Available from: <https://www.jti.com/en/media/press-release/jt-group-signs-agreement-to-acquire-indonesian-kretek-cigarette-company>
15. Saniro RKK. Apasih Saus Kretek Itu? *Berita Nasional.id* [Internet]. 2023 Nov 10; Available from: <https://beritanasional.id/apasih-saus-kretek-itu/>
16. Picanço JMA, Limberger RP, Apel MA. Uncovering cloves: characterization of volatile compounds present in clove cigarettes. *Toxicology Research*. 2022 Dec 19;11(6):987–1002.
17. Malson JL, Lee EM, Murty R, Moolchan ET, Pickworth WB. Clove cigarette smoking:

- biochemical, physiological, and subjective effects. *Pharmacology Biochemistry and Behavior*. 2003 Feb;74(3):739–45.
18. Roemer E, Dempsey R, Schorp MK. Toxicological assessment of kretek cigarettes. *Regulatory Toxicology and Pharmacology*. 2014 Dec;70:S2–14.
 19. Harvard Health Publishing. Low-tar cigarettes are not a safer choice. 2017 Jan 23; Available from: <https://www.health.harvard.edu/cancer/low-tar-cigarettes-are-not-a-safer-choice>
 20. Lee PN. Tar level of cigarettes smoked and risk of smoking-related diseases. *Inhalation Toxicology*. 2018 Jan 2;30(1):5–18.
 21. Nuryunarsih D, Lewis S, Langley T. Health Risks of Kretek Cigarettes: A Systematic Review. *Nicotine & Tobacco Research*. 2021 Aug 4;23(8):1274–82.
 22. Amtha R, Razak IA, Basuki B, Roeslan BO, Gautama W, Puwanto DJ, et al. Tobacco (Kretek) Smoking, Betel Quid Chewing and Risk of Oral Cancer in a Selected Jakarta Population. *Asian Pacific Journal of Cancer Prevention*. 2014 Nov 6;15(20):8673–8.
 23. Braun M, Marsidi LL, Klingelhöfer D, Groneberg DA. Kretek Cigarettes and Particulate Matter Emissions—An Aerosol Spectrometric Study on Typical Indonesian Brands Flavored With Cloves. *Nicotine & Tobacco Research*. 2022 Mar 26;24(5):778–84.
 24. Rothwell L, Britton J, Bogdanovica I. The relation between cigarette price and hand-rolling tobacco consumption in the UK: an ecological study. *BMJ Open*. 2015 Jun;5(6):e007697.
 25. Elena M. Penerimaan Cukai Hasil Tembakau 2023 Susut, Imbas Produksi Anjlok. *Bisnis.com* [Internet]. 2025 Jan 19; Available from: <https://ekonomi.bisnis.com/read/20240119/10/1733841/penerimaan-cukai-hasil-tembakau-2023-susut-imb-PRODUKSI-ANJLOK>
 26. Kementrian Keuangan RI. ABPN Kita Edisi Januari 2024: 2023 Kaleidoskop [Internet]. 2024 Jan. Available from: <https://media.kemenkeu.go.id/getmedia/00d3acf5-5aa8-499a-b7e3-ceadc5be7094/Publikasi-ABPN-KiT-Ta-Edisi-Januari-2024.pdf?ext=.pdf>
 27. Huq I, Nargis N, Lkhagvasuren D, Hussain AG, Fong GT. The Impact of Income and Taxation in a Price-Tiered Cigarette Market: findings from the ITC Bangladesh Surveys. *Tob Control*. 2019 May;28(Suppl 1):s37–44.
 28. Cho A, Lim C, Sun T, Chan G, Gartner C. The effect of tobacco tax increase on price-minimizing tobacco purchasing behaviours: A systematic review and meta-analysis. *Addiction*. 2024 Nov;119(11):1923–36.
 29. Sheikh ZD, Branston JR, Gilmore AB. Tobacco industry pricing strategies in response to excise tax policies: a systematic review. *Tob Control*. 2023 Mar;32(2):239–50.
 30. Astuti PAS, Dewi RM, Mulyawan KH, Kurniati NM, Safitri DUR. Laporan Singkat: Survei Pemantauan Harga Rokok Indonesia 2023 [Internet]. CHED ITB; 2023. Available from: <https://ched.itb-ad.ac.id/download/pemantauan-harga-rokok-nasional-2023/>
 31. Ross H, Tesche J, Vellios N. Undermining government tax policies: Common legal strategies employed by the tobacco industry in response to tobacco tax increases. *Preventive Medicine*. 2017 Dec;105:S19–22.
 32. Welker M. Kretek Capitalism: Making, Marketing, and Consuming Clove Cigarettes in Indonesia [Internet]. 1st ed. Vol. 13. University of California Press; 2024 [cited 2025 Aug 6]. Available from: <http://www.jstor.org/stable/jj.11589108>
 33. Food and Agriculture Organization of the United Nations (FAO). Crops and livestock products [Internet]. 2024. Available from: <https://www.fao.org/faostat/en/#data/QCL>
 34. Marquez PV, Drope J, Li Q, Harimurti P, Araujo EC, Sahadewo GA, et al. The economics of clove farming in Indonesia [Internet]. World Bank; 2017 Sep. Available from: <https://documents1.worldbank.org/curated/en/166181507538499946/pdf/120318-REVISED-WP-WBGIndoCloveFarmingweb.pdf>
 35. Organization for Economic Cooperation and Development (OECD). Survei Ekonomi OECD Indonesia 2024 [Internet]. OECD Publishing; 2024 [cited 2025 Aug 5]. (OECD Economic

- Surveys: Indonesia; vol. 2024). Available from:
https://www.oecd.org/id/publications/survei-ekonomi-oecd-indonesia-2024_9d9fdbd2-id.html
36. Sahadewo G. The economics of tobacco taxation and employment in Indonesia : health population and nutrition global practice (English). World Bank Organization [Internet]. 2017 Oct 10; Available from:
<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/919961507699751298/the-economics-of-tobacco-taxation-and-employment-in-indonesia>
 37. National Cancer Institute. Monograph Series 21: The Economics of Tobacco and Tobacco Control [Internet]. Vol. Chapter 15. Available from:
https://cancercontrol.cancer.gov/sites/default/files/2020-06/m21_15.pdf
 38. Lembaga Demografi Fakultas Ekonomi dan Bisnis Universitas Indonesia. Model Tata Kelola Kolaboratif: Mitigasi Petani dan Pekerja Industri Tembakau di Indonesia [Internet]. 2023 Nov. Available from:
https://www.researchgate.net/publication/375238728_Model_Tata_Kelola_Kolaboratif_Mitigasi_Petani_dan_Pekerja_Industri_Tembakau_di_Indonesia