



SEATCA
SOUTHEAST ASIA TOBACCO CONTROL ALLIANCE

**The Collaborative Funding Program for
Southeast Asia Tobacco Control Research**

**REGIONAL SUMMARY OF
STUDIES ON
EMPLOYMENT IN THE
TOBACCO SECTOR IN
ASEAN COUNTRIES**

**Hana Ross, Ph.D.
John Ross**

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Hana Ross, Ph.D.

Jonathan Ross

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Introduction

The impact of tobacco control on employment has been the subject of debate and speculation for decades. The World Bank's *Curbing the Epidemic* (1999) addressed the issue and summarized research evidence up through the late 1990s:

Policymakers traditionally raise several concerns about acting to control tobacco. The first of these concerns is that tobacco controls will cause permanent job losses in an economy. However, falling demand for tobacco does not mean a fall in a country's total employment level. Money that smokers once spent on cigarettes would instead be spent on other goods and services, generating other jobs to replace any lost from the tobacco industry. Studies for this report show that most countries would see no net job losses, and that a few would see net gains, if tobacco consumption fell. (Jha & Chaloupka (1999) p. 8)

This seminal publication has been in wide distribution in local languages the world over. However, the conclusions stated above might be seen as too general for policymakers who require data from *their own country* before for decision-making. They wish to have reliable information about the number of jobs in the tobacco sector, the earnings of farmers and other workers, the impact on poverty reduction, the implications for tax revenue, and prospects for the future, among other data. In order to assist these officials in weighing competing factors, the South East Asian Tobacco Control Alliance (SEATCA) has commissioned several studies of tobacco employment in SE Asia.

The purpose of this summary is three-fold:

- To summarize SEATCA-commissioned research on tobacco-related employment in specific countries in the South East Asia region
- To highlight common trends and differences among the countries examined
- To highlight conclusions which are important for policy makers and other stakeholders to consider in shaping current and future tobacco control policies.

Literature Review

Prior to the research that is the subject of this summary, only a limited number of studies have examined the topic of tobacco-related employment in SE Asia. However, some general publications have contained data pertinent to tobacco-related employment in the SEATCA countries.

- The International Labour Office (ILO) of the United Nations published a review of employment trends in the tobacco sector in a number of countries throughout the world (ILO 2003). The review concluded that tobacco workers in developing and transitional economies do not benefit from the high profit made from tobacco sales, and that employment in tobacco manufacturing is declining, despite the sector's expanding markets and increasing output. (ILO 2003:11). With regard to SE Asia, the study highlights the contrasting situations of Cambodian tobacco farmers who contract with BAT as opposed to those who don't. The first group gets technical assistance as well as reasonable prices and a secure market for their product; the second group is subject to the price fluctuations and insecurities typical of the free market.
- Maeda et al. (2003) provided more specific data on numbers of persons engaged in agriculture and hunting, using the 2000 Cambodia Labour Force Survey; however, the report relies on BAT internal estimates for its figures on the number of persons engaged in tobacco growing, manufacturing, wholesaling, and retailing. As a measure of magnitude of the tobacco sector, the study quotes the *National accounts of Cambodia 1993-2000* by the National Institute of Statistics estimate that tobacco as crop contributes 0.4 per cent to 0.7 per cent to the national economy every year. The study also cites surveys from 1995 and 1999 showing contraction in the tobacco sector job market in Cambodia.

- Konishi (2003) looked at tobacco as one of a number of existing economic sectors with potential for private-sector led economic growth in Cambodia. The 2003 value chain analysis identifies administrative and market barriers hindering the competitiveness of the tobacco industry, despite the existence of an integrated supply chain. The study states that 50,000 jobs can be linked to tobacco; it does not specify whether this figure represents Part-Time or Full Time Equivalents (FTE), nor their source or method of calculation.
- Sarntisart (2003) assessed the contribution to employment made by the tobacco sector in Thailand. It states that tobacco as a source of employment has been decreasing continuously and that tobacco employment is a very small fraction of total manufacturing employment. The number of Thai tobacco farmers decreased from prior higher levels to 150,000 in 1992-93 and subsequently ranged from nearly 115,000 in 1997-1998 to about 94,500 in 1999-2000. However, employment in the tobacco import trade increased in that period.
- The Tobacco Source Book (2004), published by the Ministry of Health of Indonesia contains figures on tobacco farming employment. The authors point out that agriculture is losing workers to the industrial and service sectors; the tobacco farmer estimates vary widely, and few farmers grow tobacco exclusively. The Ministry of Agriculture estimated that the number of tobacco farmers ranged from 600,000 to 900,000 between 1996 and 2002. A Full Time Equivalent (FTE) calculation based on person-workdays required to plant one hectare of tobacco found that there were 444,500 FTE farmers during the same period. About a quarter of a million workers were engaged in tobacco manufacturing in Indonesia in 2000.

- Keyser (2005) provides an extensive analysis of the tobacco value chain in Indonesia, as compared with alternate crops, both in terms of costs and potential returns. The study finds that chilli, potatoes, nilam, and oranges offer potential for similar or better net profits and rates of return than tobacco, but that markets are not as developed for these alternate crops.
- Marks (2003) focused primarily on the goal of maximization of cigarette excise tax revenue in Indonesia. However, it also considered other policy goals such as employment generation, promotion of small enterprise, promotion of public health, and tobacco tax policy. The study estimated that, if revenue maximization were pursued, a tobacco tax increase would result in as many as 89,756 jobs lost, mostly in the SKT (*kretek*) manufacturing sector. The author also calls the hand-rolled cigarette industry, “an industry in its senescence,” and recommends against perpetuating such low wage and low productivity employment. The direct employment consequences of an excise tax increase on employment in agriculture are minimal. Clove and tobacco farmers typically have diverse crop holdings, and the possibilities for alternative crops are numerous.

Studies of Employment in the Tobacco Sector commissioned by SEATCA

This summary is based on a review of the following studies:

<i>Country</i>	<i>Studies</i>
Cambodia	Samrech & Rufino 2008
Indonesia	Ahsan 2008 Husain 2009
Lao PDR	Phoydouangsy & Wongpit 2008
Philippines	Austria 2008 Espino 2008
Thailand	Prompakphing 2007
Vietnam	Hien 2008 Huong 2008

- Ahsan A, Wiyono N. (2008). *An Analysis of the Impact of Higher Cigarette Prices on Employment in Indonesia, SEATCA-funded research.*
- Austria MS, Asuncion RCO. (2008). *Measuring Employment in the Tobacco Industry: The Case of the Philippines, SEATCA-funded research.*
- Espino, MR. (2008) *Qualitative Study on Tobacco Farming in the Philippines, SEATCA-funded research.*¹
- Hien NTT, Minh, NT, Tuan, HA, and Ngoc NTB. (2008). *Impact of tobacco control measures on output and employment in Vietnam, SEATCA-funded research..*
- Huong, NTH, Minh, HV, Giang, KB. (2008). *Impact of Tobacco Growing on the Livelihood and Health of Tobacco Farmers and Environment: A Preliminary Study in Vietnam, SEATCA-funded research..*
- Husain, Muhammad. (2009). *Survey on Livelihood of Tobacco Farmers in Indonesia, SEATCA-funded research.*

¹ This study was not available in its entirety, so the summary is based on available portions.

- Phoydouangsy S., Wongpit P., Lassachack X. (2008) *A Livelihood in Tobacco Farming and Cigarette Consumption in Lao PDR, SEATCA-funded research..*
- Prompakphing B, et al. (2007) *Political Economy on Cigarette Control in Thailand.*
- Samrech, P and Rufino, RRC. (2008) *Survey on Tobacco Farming in Cambodia, SEATCA-funded research..*

Summaries of SEATCA Studies

We first present a brief summary and the key findings from each of these SEATCA-sponsored studies. Some of the studies are more macro-level and quantitative (such as those on employment figures), while others are more micro-level and qualitative (based on interviews of farmers). We then attempt to integrate the data resulting from these two approaches, supplemented with information from other sources, into a comprehensible portrait of tobacco employment across the region.

Cambodia

Samrech, P and Rufino, RRC. (2008). *Survey on Tobacco Farming in Cambodia*.

Objectives: This survey of 974 respondents was undertaken in three provinces in April 2004 to provide information about current, former, and non- tobacco farmers in Cambodia, including their socio-demographic profile, productivity, income derived from farming, and crop preferences.

Key Findings:

1. The number of tobacco farmers in the surveyed provinces declined 62.2% between 2001 and 2004; that is, in 2001, there were 16,704 tobacco farmers in the three major tobacco-producing provinces, but in 2004 there were only 6,328. Those who still farm tobacco either plant it exclusively or in combination with other crops.
2. Productivity of tobacco farmers as measured by kilograms produced per hectare declined from 1082 to 874, or 19.2% from 2001 to 2004. Income declined by 38.2%, from US\$502.91 per hectare to US\$310.88 per hectare, which affected the purchasing power of the farmers and their ability to provide for their families' basic needs.

3. Despite this decline in productivity, compared to other crops cultivated by the farmers, both gross and net income per hectare derived from tobacco growing were generally higher (Samrech 2008). However, soybean and mungbean cultivation generated income that was either higher than or at par with that from tobacco. In terms of overall income on a yearly basis, tobacco farmers had higher income (1.5-1.75-times) compared to former tobacco and non-tobacco farmers;
4. Forty-six percent of current tobacco farmers and 57% of ex-tobacco farmers do not want their children to grow tobacco due to: a) low yield and revenue; b) wants their children to engage in another vocation; and c) limited market and low price of the produce. On the other hand, those who want their children to continue growing tobacco gave the following reasons: a) traditional job in the family; b) high yield and revenue; and c) suitability of the land for tobacco production;
5. About 13% of the farmers sold their output directly to British American Tobacco Company Cambodia (BAT) which was formed in 1996 as a joint venture with a Cambodian businessman Oknga Kong Trive and Singapura Tobacco United, Ltd. BAT provided credit in the form of farm inputs and technical assistance to these farmers. BAT is the largest cigarette manufacturer in Cambodia.
6. Several health problems were perceived by farmers attributable to tobacco cultivation such as: a) dizziness/weakness; b) headache; c) fever; d) nausea; e) cough; f) flu; g) suffocation; and h) heart disease/ hypertension.

Discussion and Conclusions:

The survey provides the most recent data about the lifestyle of tobacco farmers in Cambodia and raises issues about negative health effects and the questionable future for tobacco as a

reliable source of income. It also provides data about the challenges of selling tobacco profitably in the face of bargaining inequality and logistical expenses. The role of BAT as a major buyer of tobacco, provider of seeds and assistance, and manufacturer of cigarettes is described.

Indonesia

Ahsan A, Wiyono N (2006). *An Analysis of the Impact of Higher Cigarette Prices on Employment in Indonesia*. Funded by The Rockefeller Foundation and The Thai Health Promotion Foundation (ThaiHealth).

Objectives: This study presents the impact on the output of the Indonesian economy of three scenarios featuring different potential increases in cigarette excise taxes.

Key Findings:

1. Their Best Case Scenario features a 100% increase in cigarette tax, yielding a 26% increase in the price of cigarettes. This would result in a small net gain in economic output on the order of 0.008% or Rp. 335,350 million. Most sectors would enjoy increases in output; only six out of 66 sectors would suffer a negative impact, all of which are related to the manufacture of cigarettes. Household income received from all sectors would increase by .08%, or Rp.491, 610 million over the initial state. Employment would increase by .3%, or 281,135 jobs.
2. The Optimistic Scenario examines the impact of a 50% increase in cigarette tax, yielding a 13% increase in the price of a pack of cigarettes. The net impact on the economy's output would be positive as well, by Rp. 167,675 Million, but smaller than in the Best Case Scenario above. Again, sixty sectors would enjoy net increases, and six tobacco-related sectors would have lower output. Income received from by all households from all

sectors would increase by Rp. 245, 805 million. Employment would increase by 140,567 jobs.

3. In the Pessimistic Scenario, a 25% increase in the cigarette tax would yield an 8% increase in cigarette price. Here too, the impact on sixty sectors would be positive, with only sectors related to cigarette manufacture having lower output. The net impact on the economy would still be positive, increasing the total output by Rp 100,605 million. Household income would increase by Rp. 147,483 million; employment would increase by 84,340 jobs.
4. For the majority of farmers, tobacco growing is not a full-time activity, but rather one pursued to pay for daily living expenses after growing rice for food security.
5. In Indonesia, the number of tobacco farmers is small compared to total employment in the agriculture sector.

Discussion and Conclusions:

1. All three cigarette tax increase scenarios would raise the total economic output of Indonesia. Only 6 out of 66 sectors would experience a net loss of output after a tax increase. These sectors are: fertilizer and pesticide, paper and paper products, clove farming, tobacco farming, cigarette manufacture, and trade. However, the positive impact of higher cigarette taxes on the output in the remaining 60 sectors of the economy will more than compensate for the loss in the 6 sectors related to the tobacco industry. The greatest net gain for output of the Indonesian economy would result from raising the tax 100%.

Husain, Muhammad. (2008). *Survey on Livelihood of Tobacco Farmers in Indonesia*.

Objectives: This qualitative study analyzes the income structure of tobacco farmers in Indonesia, the costs and benefits of tobacco farming, and self-reported health and environmental issues related to tobacco cultivation.

Key Findings:

1. Tobacco farming is the single largest source of income for tobacco growing households, because it is their primary activity; non-tobacco cultivation in these households is split among a number of crops. Among the sample of tobacco farmers, the income from tobacco and non-tobacco farming is about equal – each providing about 39 percent of total income. The rest of their income is from non-farming activities.
2. Unlike tobacco farmers, non-tobacco farmers are more diversified in terms of their income sources; they engage in a variety of activities to earn money, including growing rice or corn, providing services, and small-scale trading.
3. Growing tobacco is not as profitable as growing rice or corn, because of the high cost of tobacco production inputs such as fertilizer and pesticides. However, growing tobacco is *perceived* by farmers as profitable, perhaps because their gross income is higher. Tobacco farmers are familiar with the growing process, from land preparation to planting to caring for to curing and selling, which contributes to their reluctance to embrace other crops. They do not necessarily perceive themselves as “better off” thanks to growing tobacco.
4. Farmers self-reported a variety of disease symptoms related to growing tobacco at higher rates than non-tobacco farmers.

5. The “few buyers/many sellers” structure of the tobacco market allows sellers to dictate price.
6. Crop substitution efforts would be viable if the established markets for these other crops were as stable as the market for tobacco is.

Discussion and Conclusions:

1. This study shows that other crops can be more profitable than tobacco, and provides useful information for designing crop substitution programs.

Lao PDR

Phoydouangsy S., Wongpit P., Lassachack X. (2008). *A Livelihood in Tobacco Farming and Cigarette Consumption in Lao PDR.*

Objectives: The study examined the livelihood of tobacco-growing and non-tobacco-growing households in three regions in Lao PDR, using qualitative interviews of 12 farmers and surveys of 1200 farmers and of 1200 smokers. It also examined the impact of smoking expenditures on household budgets for other goods, and the contribution of tobacco tax revenue to the economy of Lao PDR.

Key Findings:

1. In most of Lao PDR, tobacco farming is a secondary activity for most farmers, done after harvesting the primary crop, rice. While survey respondents grew both tobacco and rice, rice was grown only in the rainy season in a limited area; their main crop was tobacco. The area planted in tobacco varies year-to-year, but trended downward nationally from 10,210 hectares in 1991 to 5,615 hectares in 2006. However, tobacco leaf production

increased from 8,037 tons in 1991 to a high of 28,100 tons in 2005, indicating an increase of productivity of tobacco farming.

2. Tobacco manufacturing is done by a state-owned enterprise and by a 100% Chinese-owned company; Tobacco leaf production increased from 41 million tons in 2000 to 82 million tons in 2005.
3. Rice, the primary agricultural crop, accounts for 20% of annual GDP. Tobacco contributes an estimated 2% of GDP and vegetables 5 percent of GDP. Agriculture represented 50% of GDP in 2001 but only 33% of GDP in 2005; that is, the importance of agriculture in the economy is declining.
4. Among tobacco farmers surveyed, growing tobacco generated an average profit of 25% over costs (not including self labor costs), while growing rice generated a profit of 8% over costs, among the tobacco farmers surveyed. However, this calculation does not account for rice consumed in the household that was not brought to market; therefore the profit for rice is underestimated.
5. The share of total national tax revenue contributed by cigarette taxes declined from 2.47% in 2001 to 1% in 2005. The Ministry of Finance has stipulated a 55% tax on tobacco products; however, this level of taxation is not observed in fact, due to an agreement between the National Committee for Planning and Investment and the Lao tobacco industry.
6. Smokers surveyed spent on average about 5.9% of their monthly expenditures on smoking.

Discussion and Conclusions:

Given that tobacco farming is a secondary activity for most farmers, switching tobacco farmers to other crops is feasible, although they might continue to grow tobacco for personal use. In order for the alternative crops to succeed, a robust market structure would have to exist to replace the existing tobacco marketplace. Taxes on tobacco should be increased and enforced. The apparent conflict between the Minister of Finance and the National Committee for Planning and Investment as to who has legal authority to set applicable tax rates must be resolved.

Philippines

Austria, MS and Asunción, RCO. (2008). *Measuring Employment in the Tobacco Industry: The Case of the Philippines.*

Objectives: This study estimates employment figures for the tobacco industry, using secondary data from the National Tobacco Administration (NTA), the Bureau of Agricultural Statistics (BAS) of the Department of Agriculture, the National Statistics Office (NSO), and the Bureau of Labor and Economic Statistics (BLES)

Key Findings:

1. Tobacco leaf production has been declining, with an average annual rate of decline of -4.76% between 1996 and 2005. Production in 2005 was less than two-thirds of production in 1996. However, employment in this sector has declined even faster, at -5.18% per year in the 1996-2005 period. The largest number of persons employed in tobacco leaf farming was 121,154 in 2003; employment dropped to 72,250 in 2004, for a growth rate of minus 40.4%. In 2005 it dropped to 59,937, for a growth rate of minus

17% year to year. Tobacco growing provides the majority of the employment in the tobacco sector.

2. Employment in tobacco manufacturing increased between 1999 and 2005, although the rate of growth began to slow in latter years. Women represent around 50% of the workforce in tobacco manufacturing, and labor compensation (salaries) represents a declining portion of total manufacturing costs. This may be due to the capital-intensive nature of manufacturing and points to the trend of substituting labor for capital. This industry strategy reduces employment opportunities in the tobacco sector.
3. The tobacco industry (growing and manufacturing) contributes less than 1% to total employment in the Philippines. Up until 2003, total employment in the sector was increasing, but declined from 2003 to 2005 by 31.3%. During the same period cigarette production and consumption increased at 4.1 and 8.9 percent, respectively.

Discussion and Conclusions:

Tobacco farming employment is declining; tobacco-related manufacturing jobs are increasing, but at a much slower pace than increases in manufacturing production volumes, and the trend seemed to reverse in the mid-2000s. Overall, the tobacco sector contributes less than 1% to total employment in the Philippines.

Espino, MR. (2008) *Qualitative Study on Tobacco Farming in the Philippines*.²

Objectives: This qualitative study of tobacco and non-tobacco farmers in the Philippines contains demographic and production information in addition to findings of a survey of tobacco farmers.

² This study was not available in its entirety, so the summary is based on available portions.

Key Findings:

1. Tobacco and non-tobacco farmers gave the same reasons why they plant their crop. These are profitability, access to distribution channels, accessibility of farm inputs (seeds, fertilizer, etc.), suitable climate and familiarity with the production technology.
2. A majority of the tobacco farmers surveyed said they will plant tobacco next season because of profitability, availability of market, and familiarity with the technology.
3. Current tobacco farmers who do not plan to grow tobacco next season justified their decision by high labor demand and high costs of chemical inputs required for tobacco growing. These farmers plan to grow corn or vegetables.
4. Non-tobacco farmers who are willing to shift to tobacco see tobacco as a profitable crop.
5. Those who do not plan to grow tobacco see it as laborious and requiring high investments in chemical inputs. These farmers are planning to grow corn, onion, mung bean, and vegetables instead, since these crops require less labor and chemical inputs and can be used for home consumption.

Discussion and Conclusions:

Philippine tobacco farmers surveyed continue to grow tobacco because they have forty to fifty years of experience growing the crop, and they may not necessarily conduct or rely on a cost-benefit analysis of tobacco growing as the basis for their decision.

Thailand

Prompakphing B, et al. (2007) *Political Economy on Cigarette Control in Thailand*.

Objectives: The study examines the history of tobacco growing and cigarette manufacturing in Thailand and the role of multi-national tobacco corporations and Thai tobacco farmers.

The study used both macro-level documentary data, a survey of 540 tobacco farmers in three regions, and interviews with community leaders and shop keepers.

Key Findings:

1. Tobacco farmers surveyed in the three northern provinces historically planted *ya rat*, a large-leaf variety of tobacco used for domestic consumption, barter, or sale. Over time, they began to grow a different type of tobacco demanded by local cigarette factories. In the 1930s these were operated by BAT and Chinese companies. However, since WW II, the government has established a monopoly in cigarette manufacturing, providing technical support (e.g. fertilizer and pesticides) but controlling growing quotas.
2. Tobacco farmers in the three provinces surveyed earn income from several sources, but tobacco is the main source of cash income; they also grow rice more for personal consumption. Farmers sell either to factories directly or to middle merchants.
3. Farmers say they grow tobacco because it is a familiar lifestyle passed down from their parents' generation (36.6%), and that it provides higher profit when compared to other plants (79.1%). Other reasons include receiving quotas for tobacco growing (17.7%) and having the proper soil for tobacco farming (16.9%)
4. Existing structures for tobacco marketing and distribution channels providing fertilizer and pesticide, and for providing technical assistance, could be converted to support alternate crops, however.

Discussion and Conclusions:

Given that tobacco farmers do not rely on tobacco as a sole source of income, that cigarette manufacturing does not employ large numbers of people, and that the amount of government

revenue generated by cigarette taxation is small compared to other revenue sources, Thailand should continue to pursue its vigorous posture of tobacco control.

Vietnam

Hien NTT, Minh, NT, Tuan, HA, and Ngoc NTB. (2008). *Impact of tobacco control measures on output and employment in Vietnam.*

Objectives: The objective of the study was to assess the impact of higher tobacco taxes on employment and economic output in Vietnam.

Key Findings:

1. The total employment created by the tobacco industry in 2000 was a mere 0.3 % of total employment in the economy.
2. Tobacco cultivation creates the most jobs in the tobacco sector, but even there it represents approximately 0.4% of all agriculture employment. Cultivation created about 111,000 jobs in 2000, but in 2006, the sector had only about 72,000 jobs. In all cases, the figure is far below the industry estimate of 200,000 people working in tobacco farming. The discrepancy may be due to the industry's use of headcount (including part-time) rather than Full Time Equivalent (FTEs); few people work in tobacco cultivation full-time.
3. The tobacco manufacturing sector represents a consistently small portion of the total manufacturing sector, approximately 0.3 %. It increased slightly from 2000 to 2005, then fell in 2006. Its rate of increase is much slower than the increase in manufacturing output, because cigarette manufacturing is becoming more capital-intensive.
4. A tobacco tax increase will result in net job creation, as the money formerly spent on tobacco is reallocated into other goods and services sectors. A 50% increase in tobacco

excise tax would increase national output by 0.06% (VND 604.81 billion) and increase employment by 0.3% (114,526 new jobs) as compared to the 2000 levels. A 100% increase in tax would increase national output by 0.1% (VND 1004.7 billion) and increase employment by 0.5% (190,916 new jobs) compared to the 2000 levels.

Discussion and Conclusions:

This Input-Output study shows that tobacco control, even in light of job losses in some sectors, will generate the net positive impact on the economy in the form of higher total output and employment.

Huong, NTH, Minh, HV, Giang, KB. (2007). *Impact of Tobacco Growing on the Livelihood and Health of Tobacco Farmers and Environment: A Preliminary Study in Vietnam.*

Objectives: This micro-level qualitative and quantitative study contrasts the characteristics of tobacco farmers and non-tobacco farmers, including income, expenditures and revenue, and incidence of self-reported illness. Two districts, one in a province in the North and one in a Southern province, were selected. Within each district, two communes with comparable geographic and socio-economic characteristics were chosen, with one being tobacco-farming and one not. Three villages were selected in each of the 4 communes for surveys, and 960 farmers participated. There were also 8 in-depth interviews and 8 focus group discussions.

Key Findings:

1. Tobacco farmers do not necessarily earn more than other farmers; growing tobacco increased income levels in the commune in the South, but not in the North, despite claims by the tobacco companies that, “tobacco brings prosperity to its planters.”

2. Although tobacco farmers report elsewhere that the price at which they sold tobacco was “negotiated”, this study found that they do not have bargaining power equal to that of the buyers and that the market price is unstable; some tobacco growers are in debt because of the prior year’s tobacco prices. Less than half of the farmers reported that they were satisfied with growing tobacco as an economic activity.
3. Tobacco growing is not the main source of household revenue; it represented 36% of income of tobacco farmers in the South and 47% of their income in the North of Vietnam.
4. Involvement of women and children in farming is common in the tobacco communes studied, in part because tobacco cultivation is labor-intensive.
5. Both pesticide use and deforestation impose costs that are not accounted for in analyzing the profitability of tobacco growing.

Discussion and Conclusions: This study has identified issues that merit more attention, such as the health risks of tobacco farming. It also determined that tobacco farmers are not better off compared to non-tobacco farmers.

Cross-country Comparisons

Key issues across the region

Maintaining and increasing employment and reducing poverty are key development issues, especially important to rural areas. For this reason, it is crucial for policy makers to have accurate information on the number of people employed in the tobacco sector and the costs and benefits of growing tobacco and manufacturing tobacco products.

The countries of the region vary greatly in terms of population, primary agricultural activities, weather, arable land, and history, among other factors. Because of these differences, key indicators are also presented in percentage terms rather than expressed in absolute numbers, to facilitate comparison across countries. Studies divide the tobacco leaf production value chain in different ways, which poses another challenge in comparing figures across countries. Some studies, for example, categorize curing and redrying tobacco leaves along with leaf wholesaling; others treat these activities separately. Tobacco manufacturing is also subject to a variety of classifications. While it is possible in some cases to disaggregate data and obtain figures relevant to the tobacco sector, it is not possible in other cases. In addition, the retail distribution in most countries is part of the informal sector, so reliable figures on employment are not available. For this reason, we examine employment in agriculture and manufacturing, but not employment in the distribution sector.

Conclusion # 1: The estimates of the number of people employed in the tobacco sector vary; estimates by the tobacco industry are higher compared to academic or government studies. Figures on employment are available from a variety of sources, ranging from government statistics to industry estimates to survey data gathered by

researchers. The employment estimates are not always consistent. Some of the variance is due to differences in methods of counting. As Table 1 indicates, for example, the Hien 2008 study estimates the number of persons employed in tobacco farming in Vietnam at 106,800 FTE for the year 2006, (having ranged from 65,200 in 2004 to 107,200 in 2005.) The figure offered for 2006 by the Ministry of Industry is about 72,000 persons. The Vietnam Tobacco Corporation's claim that it created 200,000 jobs in the agricultural sector (published in 2005) is at odds with these other figures. The difference may be attributable to their counting the number of persons involved even on a part-time basis, while Hien (2008) derived their estimate based on the hectares planted and labor needed per hectare, a method recommended by the World Bank. Nevertheless, such discrepant figures create confusion for policy makers who need to understand the current state of employment in the sector and the future prospects under different regulatory and economic scenarios.

TABLE 1: Employment in Tobacco Sector

Country	# Employed in Farming (Year of Data, where available)	Source	# Employed in Manufacturing (Year of Data, where available)	Source (Year of Publication)
Cambodia	21,312 to 22,600 (2004)	Samrech 2008	3,460 2,126 1,384 4,739	TA 2008 TA 2002 NIS 1995 Labor 2000
Indonesia	444,500 (2002) 624,039 (2003)	Ahsan 2006 Ahsan 2006	245,626 (2000) 265,378 (2002) 333,443 (2003) 185,086 (2000) 200,000	Ahsan 2006 Ahsan 2006 Ahsan 2006 Marks 2003 ILO 2003
Lao PDR	N/A	N/A	500	TA 2002
Philippines	57,398 62,000	NTA 2008 ILO 2003	7,172 (2005) 14,682 (2001)	Austria 2008 TA 2002
Thailand	N/A	N/A	4,513	Prompakphing 2007
Vietnam	97,600 (2000) 106,800 (2006) 72,000 (2006) 200,000	Hien 2008 Hien 2008 Vietnam Ministry of Industry 2007 Industrial Mag. 2005	12,417 (2000) 10,000 17,991	Hien 2008 Kinh 1999 Hien 2008
<p>Notes: CBS is the Central Bureau of Statistics, Indonesia TA is the Tobacco Atlas (2002) found at http://www.who.int/tobacco/en/atlas41.pdf NIS is Survey of Establishments 1995 Cambodian National Institute of Statistics, Ministry of Planning 1997, cited in Maeda 2003:4 Labor is the Cambodia Labor Force Survey 2000, cited in Maeda 2003:4 Industrial Mag. is Industrial Magazine: Vietnam cigarette industry: achievements along the development ways, 2005, cited in Hien 2008. NSO is Philippine National Statistics Office, cited in Austria 2008 NTA is the Philippine National Tobacco Administration at http://www.nta.da.gov.ph/faq.htm#link10, accessed December 2008</p>				

We have provided a range of indicators in percentage form in order to enable policy makers in to assess the weight of the available evidence (see Table 2). They include tobacco farming workforce as a percentage of total agricultural employment and of total employment, and percentage of total agricultural land cultivated in tobacco.

TABLE 2: Relative Importance of Farming Workforce in the Economy

Country	Tobacco farming workforce as % of total agricultural workforce FTE (Year of data)	Source	Tobacco farming workforce as % of total workforce FTE (Year of Data)	Source	Agriculture Land devoted to Tobacco Farming (% of total agriculture land) (Year of Data)	Source
Cambodia	N/A		N/A		0.35 (2001)	TA1 2002
Indonesia	1 to 2.5% (1996-2002) 1.20 (2005)	Ahsan 2006 Barber 2008	0.642(2003) 0.70 (2000) 0.53 (2005)	Ahsan 2006 Marks 2000 Barber 2008	0.72 (2001)	TA1 2002
Lao PDR	N/A		N/A		0.87 (2001)	TA1 2002
Philippines	1.12 (2000) 0.62 (2005)	Austria 2008 Austria 2008	0.37 (2000) 0.20 (2005)	Austria 2008 Austria 2008	0.59 (2001)	TA1 2002
Thailand	0.67 (2000)	Sarntisart 2003	0.29 (2000)	Sarntisart 2003	0.21 (2001)	TA1 2002
Vietnam	> 0.5 (1999) 0.41 (2000-2006 average)	Kinh 1999 Hien 2008	0.26 (2000-2006 average)	Hien (2000-2006 average) Hien 2008	0.41 (2001)	TA1 2002
TA1 is Tobacco Atlas 2002						

Conclusion #2: Employment in tobacco farming is small and decreasing across the region; it represents less than one percent of total employment and of total agricultural land used in all countries included in this summary. And it may not be as profitable as other crops.

In the countries studied, the majority of jobs in the tobacco sector are in farming; the exception is Indonesia, where there are more jobs in manufacturing, due to the hand-rolling of *kretek* cigarettes. Nevertheless, employment in tobacco farming currently represents less than one percent of *total employment* in all the countries studied. In addition, the data from SEA points to a declining trend in the number of tobacco farmers in Cambodia, Indonesia, Lao PDR, the Philippines, and Vietnam (Table 4).

In many countries, the amount of land devoted to tobacco varies widely year-to-year, due to market conditions, climatic conditions, or diseases attacking crops. (See, e.g. Kinh 1990, Hien 2008, Phoydouangsy 2008). For example, widespread tobacco diseases reduced area under cultivation and total tobacco output in the southern provinces of Vietnam in 2004. However, even in their years of highest output, tobacco farmers in SE Asia represent, at most, a scant one percent of the agricultural workforce, with the exception of Indonesia, where estimates range from 1 to 2.5 percent (Figure 1). In addition the percentage of agricultural land dedicated to tobacco farming in the countries studied is less than 1% of total agricultural land (Table 2).

These figures are in line with those from other tobacco-growing economies. Even in China, which alone accounts for 34% of the world's tobacco production, only about 3% of farmers grow tobacco, and tobacco constitutes only about 1% of the value of all agricultural output (Campaign for Tobacco Free Kids, 2001) . Tobacco only accounts for about 1.9% of the

total agricultural labor force and 0.44% of the total labor force in Brazil, which grows 9% of the world's tobacco (Jacobs 2000).

Tobacco farmers usually grow tobacco for reasons of tradition and familiarity with the growing process. They also often keep some of their production for personal use.

Tobacco is the largest single source of cash income for tobacco farmers in Vietnam, Philippines, Lao PDR, and Cambodia. However, the costs of the inputs for tobacco production are higher compared to other crops, and growing is more laborious as well.

(Espino 2008). It is not clear that growing tobacco is more profitable than growing other crops, but the perception persists, perhaps because of the amount of gross income (before costs of production are subtracted) is often the single largest source of income.

Table 3 compares the costs, revenues, and profits derived from selected crops grown in Cambodia (Samrech 2008) and Indonesia (Husain 2008), and compares them with figures from China (Hu 2006). The ratio of revenue to cost indicates the return on investment. The higher the ratio is, the more profitable the crop. The table shows that in Cambodia, rice, corn, mungbean, and soybean are more profitable crops than tobacco. In Indonesia, the data for rice and corn also show a better return on investment than tobacco. In China, beans are more profitable to grow than tobacco. The return on investment to tobacco growing is very similar in Cambodia and Indonesia, but higher in China.

The success of substituting from tobacco to other crops depends and will depend on the existence of stable, predictable markets and distribution channels for those other products. Child labor, occupational health issues, and deforestation all represent as-yet unquantified

costs of tobacco growing imposed on people and economies. If these costs were internalized, the profitability of growing tobacco would decline even further.

TABLE 3: Total Costs and Revenue by Selected Crops per Hectare

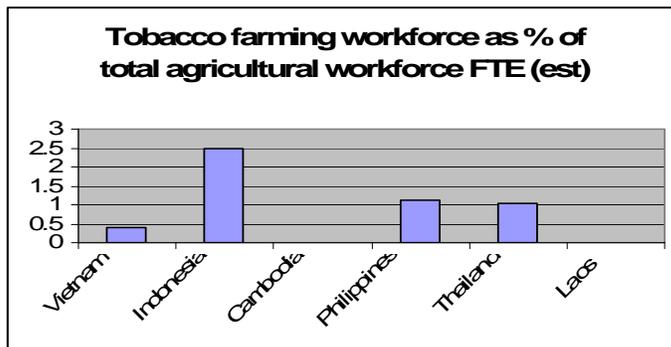
	Cambodia	Indonesia ¹	China ²
Total Cost			
-Tobacco	\$265.24	\$1260.19	\$170.93
-Rice	\$222.10	\$509.45	
-Corn	\$148.66	\$417.52	
Mungbean	\$161.81		
-Soybean (for China, bean)	\$136.745		\$5.32
Total Revenue			
-Tobacco	\$576.12	\$1337.48	\$452.54
-Rice	\$360.72	\$929.69	
-Corn	\$249.83	\$619.62	
-Mungbean	\$493.51		
-Soybean (For China, bean)	\$638.00		\$22.86
Revenue minus Cost			
-Tobacco	\$310.88	\$77.29	\$281.61
-Rice	\$138.62	\$420.24	
-Corn	\$101.17	\$202.10	
-Mungbean	\$331.17		
Soybean (For China, bean)	\$501.26		\$17.54
Revenue/Cost Ratio			
-Tobacco	1.17	1.06	2.65
-Rice	1.62	1.82	
-Corn	1.68	1.48	
-Mungbean	3.05		
-Soybean (For China, bean)	4.67		4.30

¹ Indonesian Rupiah converted to US Dollars at 9099.18 R per \$ (rate as of 1/1/2007)
² Chinese Yuan Renminbi converted to US Dollars at .121 per \$ (rate as of 1/1/2002). The data from Hu (2006).

It is likely that the tobacco industry will continue to look for ways to increase mechanization of tobacco farming, which will decrease the numbers of farmers needed to grow the same amount of tobacco.

The industry is also investing in increasing tobacco yield per hectare. For example, Hien (2008) documents that tobacco leaf output rose 64% from 2005 to 2006,

FIGURE 1



tobacco companies' effort to develop cultivation zones with high output and quality. Similarly, the yield (tons per hectare) in Lao PDR has gone from about 0.7 in the early 1990s to 5.3 to 6.0 in the 2000s

(Phoydouangsy 2008:10). Cambodia saw increases in tons per hectare of raw tobacco from 0.5 in 1980 to 0.8 in 2000 (Maeda 2003), and farmers aligned with British American Tobacco (BAT) claim yields up to 2.5 tons of raw tobacco per hectare (Konishi 2003).

The small and, in most cases, decreasing number of jobs in tobacco farming relative to total agriculture in all the countries studied suggests that weaning farmers from growing tobacco would be feasible. The case for this course of action is strengthened by three other considerations: First, the quality of the tobacco grown in SEATCA countries is generally too low for export. It can be expected that with the rising income the demand for this type of tobacco will decline over time while the demand for higher tobacco quality will grow. Second, there is volatility in the tobacco market in most countries examined as well as in world markets; falling tobacco prices and foreign exchange imbalances can exacerbate

delicate conditions ever further. Third, health and deforestation issues attached to the growing and processing of tobacco suggest that there are hidden and as-yet-unquantified costs related to continuing to grow tobacco. Thus, there is sufficient evidence for policy makers to adopt measures helping current tobacco farmers to switch to alternative products and activities.

Conclusion #3: Employment in tobacco manufacturing is less than one percent of total manufacturing jobs in all countries, with the exception of Indonesia.

Cigarette manufacturing usually consists of production and packaging activities. Within the region, production ranges from being highly labor intensive (as with hand-rolled kretek in Indonesia) to being highly capital intensive (as with “white” cigarettes in the Philippines, for example.) Table 3 provides the total number of employees (FTE) involved in tobacco manufacturing. If available, it also includes what percentage the tobacco manufacturing workforce represents of the total manufacturing workforce, and of the total labor force. With the exception of Indonesia, where large numbers of people are employed in manufacturing the hand-rolled *kretek* cigarette popular in this country, no country among those studied has more than 1% of the its manufacturing labor in tobacco manufacturing. Tobacco manufacturing jobs represent only a negligible share of the total labor force in the SE Asian countries studied. (Table Three). In addition, it is likely that the number of persons employed in cigarette manufacturing will decrease as the manufacturing process is becoming more automated. The ILO points out:

...due to a combination of slow demand growth, consolidation and higher productivity, this number [of jobs] is unlikely to increase significantly in the near future, although small increases may be expected in support industries like research

and development and equipment supplies. Fewer and fewer workers are needed per unit of production. Strides in cigarette manufacturing technology continue apace, leading to drastic shrinking of the number of employees required to produce an ever greater volume. (ILO 2003:41)

TABLE 4: Employment in Tobacco Manufacturing

Country	Tobacco manufacturing Jobs (Year of data)	Source	% of total manuf'ing jobs	Source	Manufacturing workforce as % of total workforce FTE	Source
Cambodia	3460 (1994-2001) 2126 (2001)	Samrech 2008 Tobacco Atlas 1 2002	*		.05	**
Indonesia	245,626 (2000) 185,086 (2000) 237,401 (2001)	Ahsan 2006 Marks 2003 Tobacco Atlas 1 2002	5.62 (2000)	Ahsan 2006	.22	**
Lao PDR	500	Tobacco Atlas 1 2002	N/A		.02	**
Philippines	7172 (2005) 14,682 (2001)	Austria 2008 Tobacco Atlas 1 2002	0.23	Austria 2008	.02	**
Thailand	24,033 (2001)	Tobacco Atlas 1 2002	0.11	Sarntisart 2003	.07	**
Vietnam	17,990 (2006)	Hien 2008	0.32	Hien 2008	.04 0.032	** Hien 2008

* Maeda 2003 cites survey evidence showing that employment in the tobacco manufacturing sector in Cambodia contracted between 1995 and 1999.

** Author's calculation based on CIA Factbook figure for total workforce

Conclusion #4: There are unquantified costs attached to jobs in the tobacco sector: it generates primarily low-paid jobs, and there are occupational health risks, unclear economic rates of return, unstable markets, child labor, and other factors that make tobacco-related employment unattractive.

From the perspective of overall economic development, important issues are whether tobacco-related jobs can reduce poverty, increase income, and provide sustainable livelihoods, particularly in rural areas. Are there hidden costs related to occupational health problems, environmental damage, child labor, and other social impacts?

Even though it is not clear in individual cases whether tobacco is more or less profitable than other crops, we know that the chemical inputs (pesticides and fertilizer) for tobacco growing are expensive and that markets for tobacco leaf are volatile, putting tobacco farmers at great financial risk.

Even if the returns from tobacco growing are above average, they may not be sufficient to compensate for the additional risk. Tobacco growing is sometimes *perceived* by farmers as more profitable than other crops due to the total amount of gross income generated by tobacco. Tobacco farmers may have limited experience with other crops, and they rely on an established, though volatile, market for tobacco (Husain 2008). In the Philippines, there is some evidence of a trend toward decreasing the area devoted to tobacco farming in favor of higher value cash crops (Austria 2008). These findings corroborate those of an earlier World Bank / WHO study, which found that a number of crops offer potential of similar or better profits and returns on investment than tobacco does (Keyser 2005).

Farming communes in Vietnam are already moving away from tobacco as their main source of revenue (Huong 2007). In Lao PDR, tobacco accounts for 30 to 74% of household income

for tobacco farmers, but tobacco farmers from the Central region are beginning to focus more on other agricultural and non-agricultural activities (Phoydouangsy 2008).

The compensation of employees in tobacco manufacturing is generally low and may also be in decline. In the Philippines, the share of total labor costs in total costs in total manufacturing costs is very low and declining; it went from 5.5% in 1991 to 3% in 2001 (Austria 2008). In Cambodia, wages in tobacco manufacturing were lower than those in the Food & Beverage and Textile sector, but higher than those in the Apparel sector, which employs mostly women (Maeda 2003). Ahsan (2008) reports that tobacco manufacturing workers' wages in Indonesia ranked 37th out of sixty-six sectors, that is, below most other manufacturing jobs.

There is clear evidence of occupational health risks among workers who cultivate, cure, and otherwise handle and process tobacco³. Some of these hazards are related to the use of fertilizers, pesticides, and herbicides. Others result from proximity to the tobacco plant itself.⁴

A survey undertaken among 300 tobacco farmers in Indonesia (Husain 2008) showed that they suffer from symptoms associated with green tobacco sickness (GTS)⁵: tiredness, whole body pain, headache, dizziness, and vomiting. As in Indonesia, tobacco farmers in Vietnam

⁴See, for example Schmitt NM, Schmitt J, Kouimintzis DJ, & Kirch W. Health risks in tobacco farm workers—a review of the literature. Berlin / Heidelberg: Journal of Public Health Vol 15 Number 4, August 2007. See also <http://www.ehponline.org/members/2003/111-5/spheres.html>

⁴ For a review of the literature on green tobacco sickness, for example, see McBride, Altman, Klein, & White. Green tobacco sickness. *Tob. Control* 1998;7:294-298

⁵ Green Tobacco Sickness (GTS) is a form of nicotine poisoning which afflicts those who have direct contact with tobacco plants during cultivation and harvesting. The symptoms include headache, nausea, vomiting, weakness, pallor, dizziness, increased perspiration, chills, abdominal pains, and increased salivation, among others.

reported GTS symptoms in higher percentages than non-tobacco farmers, with statistical significance found for 10 out of 13 reported symptoms (Huong 2007). The study also documents the exposure of children as young as 7 years old and women to pesticides used for tobacco growing. This creates particular concerns due to the higher probability of cancer and immune system dysfunctions and problems with nervous system.⁶ Tobacco farmers in Cambodia also reported health problems related to tobacco growing and harvesting (Samrech 2008). Seventy-five percent of Cambodian tobacco farmers mentioned dizziness, and 14.4% mentioned frequent headaches.

Deforestation is another problem linked to the tobacco sector. Geist (1999) reported that deforestation due to tobacco processing, which mainly occurs in the developing world, results in 1.7% of global net losses of forest cover or 4.6% of total national deforestation. A state of environmental criticality exists or is emerging in 35 tobacco-growing countries, some in SE Asia. The Huong (2007), for example, documents that 49% of tobacco farmers in Vietnam use wood for curing tobacco; of this supply, 75% was taken from the forest, and only 25% was purchased in the market place.

International Labour Organization standards provide that light work is appropriate for children 12 and over and non-hazardous work is appropriate for children 15 and over. (International Labour Organisation 1996). Tobacco farming as practiced in developing countries is not light work, and may be hazardous due to exposure to green tobacco and pesticides. The use of children for work in tobacco farming is well-documented in all

⁶See, for example 31 National Research Council, 1995, *Pesticides in the Diets of Infants and Children*, National Academy Press.

countries covered by this regional summary. For example, in Cambodia, about 50% of the farms surveyed used one or two child laborers (Samrech 2007). Husain (2008) reports that, “sons and nephews work with the male heads of household in farming” in Indonesia.

Conclusion #5: Increasing tobacco excise taxes would have a favorable impact on total employment and national output.

Input-Output analyses from Indonesia (Ahsan 2006) and Vietnam (Hien 2008) found that higher tobacco excise taxes would have a favorable impact on both total employment and national output. The households' expenditures currently allocated to tobacco would be spent in other sectors of the economy, creating more jobs than those lost in the tobacco sector. In Ahsan (2006), the Best Case Scenario features a 100% increase in cigarette tax, yielding a 26% increase in the price of cigarettes. This would result in a small net gain in economic output on the order of 0.008% or Rp. 335,350 million. Most sectors would enjoy increases in output; only 6 out of 66 sectors would suffer a negative impact, all of which are related to the manufacture of cigarettes. Household income received from all sectors would increase by 0.08%, or Rp. 491,610 million over the initial state. Employment would increase by 0.3%, or 281,135 jobs. Hien (2008) found that a 50% increase in tobacco excise tax in Vietnam would increase national output by 0.06% (VND 604.81 billion) and increase employment by 0.3% (114,526 new jobs) as compared to the 2000 levels. A 100% increase in tax would increase national output by 0.1% (VND 1004.7 billion) and increase employment by 0.5% (190,916 new jobs) compared to the 2000 levels.

Shifting the economic focus away from tobacco would help economic growth, given that the number of jobs available in tobacco farming and manufacturing is flat or declining in most of the countries studied (Table 4). Even where the number of jobs in the tobacco sector is increasing, it is doing so more slowly than population growth or tobacco product sales; farmers and manufacturers are making more with fewer employees.

TABLE 5: Employment Trends in Tobacco-related Economic Activities. Is the number of jobs increasing or declining?

Country	Farming	Manufacturing	Source
Cambodia	Declining	Unclear	Samrech 2008
Indonesia	Declining Flat	Declining Flat	Ahsan 2007 Barber 2008
Lao PDR	Declining	No data	Phoydouangsy 2008
Philippines	Declining	Declining	Austria 2008
Thailand	N/A	N/A	
Vietnam	Declining	Increasing	Hien 2008

Discussion

There are many factors affecting employment in the tobacco sector. For example, population growth, and increases in smoking prevalence and smoking intensity have the potential to increase tobacco-related employment. Mechanization and automation, higher crop yields, tobacco control regulations, and global competition are among the factors that could reduce the overall employment in tobacco-related industries⁷. While the interaction of these many factors is best understood on a country-by-country level, certain generalities hold true for most or all of the countries reviewed.

Based on the review of the status of and prospects for tobacco employment in SE Asia, the countries' economies can only benefit from tobacco control efforts steering the economy away from tobacco business. Especially beneficial would be raising the excise tax rates on tobacco products, since such a policy would increase total employment and output. The tobacco business has a deleterious effect on most countries (World Health Organisation 2004), and SE Asia is no exception. The industry will continue to resist regulation, and use arguments about employment generation to influence policy makers. However, it is important to be mindful that the employment and trade benefits of tobacco to developing countries are consistently exaggerated by the industry (World Health Organisation 2004, Hien 2008).

⁷ An examination of the health care costs, productivity losses, foreign exchange losses, environmental costs, etc. is beyond the scope of this review.

General conclusions and implications for public policies

- The tobacco sector overall is offering decreasing employment opportunities in SE Asia.
- Employment in tobacco farming is decreasing across the region due to higher yields, unstable markets, and global demand for higher quality tobacco than what is grown locally.
- Tobacco farming is associated with health problems among farmers, deforestation, child labor, and unstable income; if the impacts of these factors were included in the analysis, tobacco farming would not be profitable.
- Tobacco farming is not as profitable as compared to other crops.
- Employment in tobacco manufacturing will continue to decrease as a percentage of total employment due to increased automation and mechanization.
- Higher excise taxes on tobacco will not reduce total employment; on the contrary, higher tobacco taxes are likely to increase total employment and national output.
- Social, health, ecological, and economic costs of tobacco farming and manufacturing have not been quantified fully, but these costs are real and impose burdens on society as a whole.

Suggestions for future research

- A Value Chain Analysis that demonstrates who profits from tobacco business.
- Input Output Studies of the impact of higher tobacco taxes on employment and national output have been done for Vietnam, and Indonesia. Similar studies would be of interest to policy makers in the other SEATCA countries.
- Documenting the health impacts, financial risks, and other costs of tobacco growing (deforestation, child labor) would inform policy makers with respect to appropriate agricultural, trade, and poverty elimination policies.
- Assessing the profitability of alternative crops and livelihoods for tobacco farmers and the feasibility of markets for these alternatives is key to decreasing dependence on tobacco cultivation.

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About SEATCA

The Southeast Asia Tobacco Control Alliance (SEATCA) works closely with key partners in ASEAN member countries to generate local evidence through research programs, to enhance local capacity through advocacy fellowship program, and to be catalyst in policy development through regional forums and in-country networking. By adopting a regional policy advocacy mission, it has supported member countries to ratify and implement the WHO Framework Convention on Tobacco Control (FCTC)

Contact persons:

Ms. Bungon Ritthiphakdee: **SEATCA Director**

Email: bungon@seatca.org

Ms. Menchi G. Velasco: **SEATCA Research Program Manager**

Email: menchi@seatca.org; menchi55@yahoo.com

Southeast Asia Tobacco Control Alliance (SEATCA)

Address: Thakolsuk Apartment Room 2B, 115 Thoddamri Rd., Nakornchaisri
Dusit, Bangkok 10300, THAILAND

Tel./Fax: +662 241 0082

Website: <http://www.seatca.org>
