

ASH Fact sheet: Tobacco and the Developing World

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SUMMARY

- Around 1.1 billion people aged 15 and over smoke, with 80% living in LMICs (low and middle income countries). Tobacco growing and consumption have become concentrated in the developing world where the health, economic, and environmental burden is heaviest and likely to increase.
- Evidence shows that the number of smokers in LMICs has been rising and is likely to continue rising without the enforcement of stringent tobacco controls. Adolescent smoking is also considerably high in LMICs, over four times the level in the UK.
- The health burden of smoking is disproportionately high in the developing world. By 2030, it is estimated that tens of millions of people in the developing world would have died from tobacco consumption. The majority of child deaths from second-hand smoke also occur in Africa and South-East Asian alone.
- Smoking in the developing world has been shown to reinforce poverty as already deprived smokers spend less on healthcare, children's education, food, and clothes.
- Almost all tobacco farming now takes place in low and middle-income countries. This causes massive environmental damage such as mass deforestation and air pollution, and the industry's poor safety practices leave tobacco farmers – many of which are children – prone to developing serious life-threatening illnesses.
- Transnational tobacco companies have been shown to target women and children in developing countries. They also undermine efforts to curb the harms of tobacco through litigation against governments around the world.
- Whilst some progress has been made towards better tobacco control in the developing world, LMICs still lag significantly behind high-income Countries

INTRODUCTION

There is no standard definition of a 'developing country' and classification varies from one organisation to another.¹ For instance, the World Trade Organisation requires its members to self-identify as 'developed' or 'developing';² the United Nations system has no established convention for designating developed and developing countries but in common practice, North America, Europe, Australia, New Zealand, and Japan are generally considered 'developed'.³ In 2016, The World Bank stopped distinguishing between 'developed' and 'developing' countries,⁴ but continues to classify countries by income levels: low, lower-middle, upper-middle, and high income.⁵ The latter classification is widely used in public health literature and the low- and middle-income countries (LMICs) are often referred to as 'developing'. Generally, these countries tend to have poorer economies, higher rates of poverty and mortality, and generally lower standards of living relative to high-income countries.

Smoking is the leading cause of preventable death worldwide. The World Health Organisation (WHO) estimates that over 1.1 billion people worldwide aged 15 and over smoked tobacco in 2016, with around 80% of these living in LMICs.⁶ The tobacco epidemic is the biggest global public health threat the world has ever faced, killing more 7 million people each year, with more than 6 million of these dying as a direct result of tobacco use.⁶

While demand for tobacco has fallen in developed countries over time, tobacco growing and consumption is becoming increasingly concentrated in the developing world. The tobacco epidemic poses environmental, health, and economic costs in the developing world to an extent greater than ever before – and due to rising populations, growing incomes, and relatively poor tobacco controls, the smoking burden is likely to increase. This is a price developing nations can ill afford to pay.

HISTORY

Northern Europeans adopted the practice of pipe smoking in the 16th century using tobacco imported from Native America. In the same century, tobacco was introduced to China, and East Africa by the Portuguese and Spaniards, and to the Middle East by the Turks.⁷ By the beginning of the 17th century, it was being grown in Asia, the Middle East, and Africa.⁸ The commercialisation of smoking in the developing world began after the invention of tobacco rolling machines in late 19th century America. This led to multi-national British and American companies selling their products globally – especially in India, China, and the British dominions.⁸

The entry of a multi-national tobacco company into a new market was typically accompanied by sophisticated and effective advertising and promotional activities⁹. As a result, overall expenditure on advertising increased with a corresponding rise in tobacco consumption and a huge impact on human health.⁹

Cigarette manufacturing in Africa began predominantly in the 1930s, and most manufacturers were private European-American enterprises, many of whom remain active in Africa. Tobacco commercialisation increased after World War II, leading to smoking-induced public-health problems in many nations.¹⁰

Tobacco consumption

Whilst LMICs have historically had lower smoking rates than High-income Countries (HICs), current prevalence trends for LMICs are a cause for concern. Between 2000 and 2015, there was a net reduction of 62 million smokers in HICs, whereas there was an increase of 33 million in LMICs.¹¹

Tobacco consumption by region

Levels of cigarette consumption in the European and American WHO regions decreased by 33% and 44% respectively between 1980 and 2016. In that same time consumption in the Eastern Mediterranean and African WHO regions – where the majority of low-income countries (LICs) are found – saw increases of 65% and 52%, respectively.¹² Smokeless tobacco users also disproportionately reside in LMICs with a massive 90% of global smokeless tobacco users living in the South-East Asia region alone.¹³

It is likely smoking prevalence will increase in many developing countries in the future because of population growth, income growth, increased tobacco affordability, and aggressive marketing and political lobbying in those countries. For example, one report estimates that smoking prevalence in the African region will increase by about 39% by 2030 without concerted action to introduce and enforce tobacco controls.¹⁴

Tobacco consumption by sex

Male smoking rates are similar in developing and developed countries, with average percentages in the low 30s. However, one analysis of WHO data shows that for men, decreases are projected for most countries in almost all regions except Africa.¹⁵ Female smoking prevalence is significantly lower in developing countries than in developed countries, around 3% compared to 17% according to one study.¹⁶ This low prevalence has been attributed to gendered social and cultural norms¹⁶, which the tobacco industry has exploited by specifically targeting women with advertising (see *Tobacco Industry and Marketing* section below). As a result, the growing tobacco epidemic is increasingly recognised as a particular threat to girls' and women's health in LMICs,¹⁷ and rises in female smoking in some developing countries have been reported.^{17 18} In the Eastern Mediterranean WHO Region in particular, rapid increases in smoking rates are expected for women alongside men.¹⁵

Tobacco consumption by age

Most smokers begin to consume tobacco before the age of 18, and developing countries tend to have much higher rates of adolescent smoking than developed countries.¹⁹ For example, whilst adult smoking prevalence is significantly lower in the WHO Africa region than in the Europe region,²⁰ the opposite is true for children: smoking amongst 12-15 year olds is around double the percentage in Africa than in Europe.²¹ It is estimated that on average 13.6% of 12-15 year olds in LMICs are smokers, with this figure reaching as high as 44.7% in some countries.²¹ For comparison, 3% of 11-15 year-olds are regular smokers in the UK.²² There is therefore an urgent need to curb adolescent smoking alongside adult smoking in the developing world.

HEALTH EFFECTS

Smoking tobacco harms almost every organ in the body and is the leading cause of preventable death. In 2016, over 7.1 million deaths (12.5% of all deaths) were attributable to smoking worldwide.¹⁹ By 2030, the WHO projects that 8 million people will be killed by tobacco every year.⁶

It is estimated that tobacco will have killed around 40 million people in the developed world between 2005 and 2030. In the developing world, this number is more than 3 times higher at around 135 million.²³ Although smoking prevalence is decreasing in some LMICs, relatively high levels of population growth in the developing world means that the number of smokers, and thus the number of smoking attributable deaths and illnesses will continue to rise. This public health epidemic will place a heavy burden on the health systems and economies of the developing world when smokers begin to suffer from tobacco-caused illnesses. Because there is a time lag between smoking initiation and when people begin to experience the health effects of smoking, the full health and economic burden will not be realised for some time – and some of it might still be preventable.

Smoking causes harm in several ways to both smokers and non-smokers. Since 2005, the number of Disability-Adjusted Life Years (years lost due to ill-health or early death) attributed to smoking for men has decreased by about 12% in high sociodemographic index (SDI) countries but has increased in low and low-middle SDI countries.¹⁹ Second-hand smoke (SHS) also poses grave risk to non-smokers, particularly women and children. 47% of all SHS deaths occur in women and 28% in children, compared to 26% in men.²⁴ About 60% of these child deaths occur in Africa and South-East Asia alone.²⁴ In China, up to 75% of pregnant women are exposed to SHS, which can have adverse reproductive effects, decrease infant birth weight, and increase the risk of preterm delivery.²⁵ As well as being the leading cause of lung cancer in smokers, smoking

can also lead to cancer in non-smokers. Most of the lung cancer deaths due to SHS and indoor air pollution occur in LMICs, particularly China. Lung cancer mortality is also likely to greatly increase in Sub-Saharan Africa if appropriate tobacco control programs are not implemented and enforced.²⁶

Smoking also contributes to poor health as smokers in some of the poorest countries divert money away from nutritional needs to fund their smoking habit. In many cases, expenditure on tobacco is the difference between having an adequate diet and living with malnutrition.²⁷ In Bangladesh, for example, it was found that the average poor smoker could add over 500 calories to the diet of one of their children with his or her daily tobacco expenditure, and that this would save 350 children's lives each day.²⁸ In Indonesia, paternal smoking was associated with an increased risk of being severely underweight and severe stunting in children in rural areas.²⁹

EFFECTS ON POVERTY

Smoking has been shown to reinforce wealth inequality and poverty. One study found that the poorest households in Bangladesh were twice as likely to smoke as the wealthiest households, and the average male smokers spent twice as much on cigarettes as per capita spending on clothing, housing, health and education combined.²⁸ In India, an estimated 15 million people are pushed into poverty because of tobacco consumption.³⁰

Households whose main income providers are daily tobacco users also spend less on children's education, contributing to intergenerational poverty³¹ and decreasing individual earning potential and economic output at the national level. One study found that smoking reinforced a cycle of deprivation in Cambodia: expenditure on tobacco crowds out expenditure on education, and lower education is associated with higher levels of smoking, in turn increasing expenditure on smoking.³²

Contrary to the claims of the tobacco industry that tobacco farming brings positive economic benefits to developing countries, most of the profit goes to large multinational companies, while many tobacco farmers remain poor and in debt²⁷ (see *Tobacco farming* section below). Furthermore, economic gains from the tobacco industry are offset by the considerable environmental and public health costs caused by the industry.

Reducing tobacco consumption makes sound economic sense. Most nations would derive net economic gains as economic losses would be offset by gains at household and national levels³³. Moreover, the WHO estimate that in all but very few countries dependent on tobacco farming, there would be no net loss of jobs if tobacco consumption fell.³⁴ In fact, tobacco constitutes around 1% of agricultural employment worldwide: in China, the largest tobacco producer in the world, only about 1% of agricultural output is tobacco; in Brazil, another major producer, less than 2% of the total agricultural labour force produces tobacco.³⁴

ENVIRONMENTAL IMPACT

Over the last 50 years, tobacco farming has shifted from HICs to LMICs, partly because poor farmers see it as a cash crop. However, a growing number of studies have documented the widespread environmental damage caused by tobacco farming in the developing [world](#).³⁵ Tobacco farming and cigarette manufacturing in particular results in large amounts of energy and water use, as well as large amounts of waste [generated](#).³⁶

Deforestation is one of the largest contributors to carbon dioxide (CO²) emissions and climate change and at least 200 thousand hectares of forest are lost every year for tobacco agriculture and curing.³⁷ Tobacco smoking leads directly to the emission of 2.6 million tonnes of CO² into the atmosphere.³⁷

Loss of biodiversity as a result of tobacco-driven habitat fragmentation has been reported in developing countries, such as Zimbabwe³⁸ and Bangladesh.³⁹ Tobacco cultivation and curing are some of the most environmentally destructive agricultural practices in LMICs.⁵⁰ For example, the Miombo ecosystem in central-southern Africa (the world's largest contiguous area of tropical dry forests and woodland) hosts 90% of all tobacco producing land on the continent, and high levels of tobacco-driven deforestation have led to half the total annual loss of forests and woodland.⁴⁰ In Malawi where tobacco production accounts for the largest share of agricultural land, farming is estimated to have caused up to 70% of national deforestation to 2008.⁴¹

Tobacco production in LMICs also disrupts natural ecosystems which inhabitants are so dependent on. Unlike many food crops, tobacco offers no replenishment to the soil and the biomass (stalks or plant residue) left after harvest is of no food value to livestock and poultry. Farming tobacco in place of other food crops therefore diminishes animal resources, reducing the animal manure which is essential to maintaining soil health.⁴²

The environmental damage done by plastic waste, particularly to marine life, is now well documented and there is a global move to curb the use of plastic. Tobacco products contribute to this epidemic. In India, civil rights groups were so concerned by the scale of plastic pouch litter from tobacco that they took the matter to court, and the Supreme Court of India banned the use of plastic material in smokeless tobacco packaging in 2010.⁴³ Cigarette butts, which contain a form of plastic, are also the most littered item in the world and are the number one man-made contaminant in the world's oceans.⁴⁴ In one study, nearly 6500 cigarette butts were collected across two beaches in Thailand over a less than 8-hour period.⁴⁵ Given that cigarette consumption is predicted to increase in LMICs, it is paramount that tobacco control policies are enforced to curb this environmental burden.

Despite being one of the wealthiest global industries, the tobacco sector continues to avoid its full environmental responsibilities. There is a lack of accountability and transparency about the environmental damage tobacco companies cause and a comprehensive report by the WHO recommends that governments should mandate thorough reporting from the tobacco industry on the environmental impacts of their operations.⁴⁶

(For further information on the environmental impact of tobacco see ASH Fact Sheet: [Tobacco & the Environment](#))

TOBACCO FARMING

Tobacco is now grown in about 65% of countries, and there has been a systematic shift in tobacco farming to LMICs. Around 90% of tobacco farming now takes place in low-income countries (LICs).³⁶ Between 1995 and 2012, the area under tobacco cultivation decreased globally by 10.6%, but in Africa it increased by 65.3%.⁴⁷ The percentage of land devoted to tobacco growing has almost doubled in China, now the world's largest producer of tobacco, and also in Malawi and Tanzania since the 1960s.⁴⁸ This increase in tobacco farming in LMICs has been driven by intensive lobbying by multinational tobacco companies along with market liberalisation. However, whilst tobacco farming brings some short-term economic benefits for farmers, there are often long-term social, economic, health, and environmental costs which outweigh these.⁴⁹

Tobacco farming is extremely labour intensive and requires expensive inputs such as fertilizers and pesticides which are usually sold in advance to the farmer by the tobacco industry, often through a loan which leaves them indebted.⁵⁰ Farming tobacco is hazardous for adults, and more so for children. An immediate health risk is Green Tobacco Sickness (GTS), a form of nicotine poisoning from the leaves of the tobacco plant with symptoms including nausea, vomiting, and difficulty breathing. A study found that each day, a tobacco worker who plants, cultivates, and harvests tobacco may absorb as much nicotine as

found in 50 cigarettes.⁵¹ Moreover, farmers in the developing world are often exposed to chemicals such as pesticides, herbicides, fumigants and growth inhibitors which are usually applied without the use of necessary protective equipment.³⁵ Child farmers also face serious chronic health consequences, including high risk of cancer, reproductive issues, and permanent neurological damage.⁵²

Tobacco farming has also been shown to yield little economic benefit to farmers, contrary to the claims of the tobacco industry. A study on Kenyan smallholder tobacco farmers found that farmers' expected profit was 9 times higher than actual profit and contract farmers actually made a net loss once labour was taken into account.^{53 54}

Tobacco farming in the developing world has adverse effects on women. For example, in China (the largest producer country in the world) women can work 16+ hours a day in the field during farming season, and can work nearly twice as long as men while getting less pay.⁵⁵ Moreover, 40% of female tobacco farmers in China said they are not aware of the negative health effects of tobacco farming, and over 70% of female farmers in both Tanzania (the second largest tobacco growing African country) and Kenya have worked on tobacco farms whilst pregnant, some even beyond 6 months.⁵⁶

Child labour is also common in many tobacco-growing countries, although accurate data is scarce because of underreporting and a lack of labour law enforcement. Tobacco companies benefit greatly from child labour, and between 2000 and 2010 child labour is estimated to have saved the tobacco industry over US\$10 million in Malawi, alone.⁵¹ In poor families who depend on tobacco farming, children work on tobacco farms from a very early age with some taken out of school to do so.^{56 57} In 2006 it was estimated that about 60% of Kazakhstan's tobacco workforce were children⁵⁸ and a 2018 study found that 63% of children in Malawian tobacco-growing families were involved in child labour.⁵⁹ Whilst many tobacco companies, such as Philip Morris and British American Tobacco (BAT) have signed up to tackling child-labour in the industry, there is yet to be meaningful change. For instance, although BAT co-founded the Eliminating Child Labour in Tobacco Growing (ECLT) Foundation in 2000, one analysis of internal tobacco industry document found that the company did so in order to support its 'corporate social responsibility agenda' rather than to accept responsibility and take meaningful steps to eradicate child labour.⁶⁰

TOBACCO INDUSTRY

The tobacco industry has greatly expanded into LMICs over the last few decades, due to the various opportunities presented there. The global industry is dominated by four privately owned transnational tobacco companies (TTCs) – Philip Morris International (PMI), British American Tobacco (BAT), Japan Tobacco International, and Imperial Tobacco. Because tobacco consumption is falling in most HICs, TTCs have been exploiting opportunities in Asia, Africa, and the Middle East, where consumption has been increasing and where tobacco controls are relatively lax.⁶¹

Although the tobacco industry claims it markets to existing smokers to encourage brand switching, evidence shows that it pursues marketing tactics to encourage people to take up smoking, particularly in the developing world. Because smoking rates have historically been low amongst women in LMICs (see above), TTCs have conducted targeted marketing to women by creating more 'feminised' products including cigarette packs resembling lipsticks or perfume, as well as 'light' ultra-thin cigarettes.^{62 63 64} They have also marketed cigarettes as a tool for gender empowerment in order to normalise smoking amongst women in the developing world.⁶² In India, where smoking amongst women is often taboo, companies have even offered to deliver them to the [home](#).⁶⁵

The tobacco industry has also been shown to target children. Sub-Saharan Africa's rapidly expanding young population makes it a prime target for the tobacco industry. In many African countries, high numbers of children are offered free cigarettes by tobacco company representatives – for example, nearly a quarter of children in Guinea and Gambia said this had happened to them.⁶⁵

The WHO acknowledges that the tobacco industry actively undermines efforts to implement tobacco control policies through, for example, exaggerating the economic importance of the industry; manipulating public opinion; discrediting scientific research; and intimidating governments through litigation.⁶⁶ For instance Philip Morris and BAT, the two largest tobacco companies in the world, made an agreement with the Ministry of Health in Mexico to help fund medical services to uninsured people in exchange for abandoning tax increases and graphic warning labels on cigarette packages.⁶⁷ Tobacco companies are also aggressive litigants, and have brought legal challenges against many LMICs' efforts to curb the burdens of smoking – examples include Sri Lanka's efforts to increase the size of health warnings⁶⁸; efforts to restrict public smoking in Kenya and Uganda; and controls on tobacco marketing in South Africa and a number of South American countries.⁶⁹

A recent report by the Tax Justice Network uncovered a range of mechanisms used by British American Tobacco (BAT) to reduce tax paid within low-income countries. Whilst TTCs are among the world's most profitable companies and have long stressed that they make an economic contribution to countries through tobacco duties, the recorded profits and corporate tax they pay in is small in comparison to the economic damage done by smoking. Furthermore, the report estimates that tax losses per year due to BAT profit shifting methods amount to around £10.5 million in Indonesia; £4.5 million in Bangladesh; and £2 million in Kenya. One of the report's recommendations is for both governments and the international community to 'review and renegotiate tax treaties that are excessively disadvantageous to lower income countries'.⁷⁰

Corporate Social Responsibility (CSR) practices are generally philanthropic activities undertaken by companies in order to fulfil some social and/or ethical ends such as improving living standards or the environment. However, the WHO recognises that CSR initiatives by tobacco companies are insincere and are often created to promote their companies and increase their power.⁷¹ Such initiatives include sponsoring students' education; undertaking community development projects; building medical facilities; and investing in public health.⁷¹

TOBACCO CONTROL AND THE FRAMEWORK CONVENTION ON TOBACCO CONTROL

The Framework Convention on Tobacco Control (FCTC), which came into force on 27th February 2005, is the first international public health treaty negotiated through the WHO. It was developed in response to the global tobacco epidemic and provides a systematic evidence-based framework of obligations and guidelines for countries to enact comprehensive tobacco control legislation and resist the pressures of the tobacco industry.⁷² Currently there are 181 Parties to the FCTC, covering 90% of the world population.⁷³ The integration of the FCTC in the 2015 Sustainable Development Goals (SDGs) reaffirmed the importance of tobacco control for achieving sustainable development.⁷⁴

There has been good progress in LMIC's tobacco control policies. Since 2014, 10 LMICs that previously had no comprehensive tobacco control policy have introduced one or more best-practice MPOWER [measures](#) (a set of 6 high-impact measures to reduce tobacco demand) at the highest level. 59% of people in LMICs are now covered by at least one best-practice MPOWER measure.⁷⁵

However, there is still a long way to go in terms of tobacco control in the developing world, particularly in LICs. For example, whereas over 70% of HICs are adequately monitoring tobacco use, only one LIC (Uganda) has an effective monitoring system. Also, around 30% of LICs have no tobacco dependence treatment, whereas all HICs have at least Nicotine Replacement Therapy (NRT) and/or some cessation services. In over 40% of LICs, there are no national bans on tobacco advertising, promotion and sponsorship (TAPS) activities, compared to around 10% of HICs.⁷⁵ More stringent tobacco controls are therefore necessary to ensure that developing countries are not left behind in the alleviation of the global harms of tobacco.

REFERENCES

- 1 WHO. *Definition of regional groupings*. [Accessed 17th October 2018]
- 2 WTO. *Who are the developing countries in the WTO?* [Accessed 17th October 2018]
- 3 United Nations Statistics Division. *Millennium Development Indicators: World and regional groupings*. [Accessed 17th October 2018]
- 4 Lynn, M. [Why the title of 'developing country' no longer exists](#). *The Telegraph*. 23 May 2016. [Accessed 17th October 2018]
- 5 The World Bank. *World Bank Country and Lending Groups*. [Accessed 17th October 2018]
- 6 WHO. *Tobacco*. [Accessed 17th October 2018]
- 7 WHO. *The History of Tobacco*. [Accessed 17th October 2018]
- 8 Encyclopedia Britannica. [A social and cultural history of smoking](#). [Accessed 17th October 2018]
- 9 Jha P, Chaloupka F. Tobacco advertising and promotion. in Jha P, Chaloupka F. (eds.) *Tobacco control in developing countries*. New York: OUP, 2000.
- 10 Duvall CS. [Cannabis and Tobacco in Precolonial and Colonial Africa](#). *Oxford Research Encyclopedia of African History*. 2017.
- 11 WHO. *WHO Global Report on Trends in Prevalence of Tobacco Smoking 2000-2025, Second edition*. 2018
- 12 The Tobacco Atlas. *Issue: Prevalence*. [Accessed 17th October 2018]
- 13 WHO South-East Asia. *90% of smokeless tobacco users live in South-East Asia*. 2013. [Accessed 17th October 2018]
- 14 Mendez D, Alshanteqy O, Warner KE. [The potential impact of smoking control policies on future global smoking trends](#). *Tobacco Control*. 2013 Jan;22(1): 46-51.
- 15 Bilano V, Gilmour S, Moffiet T, d'Espaignet ET, Stevens GA, Commar A, Tuyf F, Hudson I, Shibuya K. [Global trends and projections for tobacco use, 1990–2025: an analysis of smoking indicators from the WHO Comprehensive Information Systems for Tobacco Control](#). *The Lancet*. 2015 Mar 14;385(9972):966-76.
- 16 Hagen EH, Garfield MJ, Sullivan RJ. [The low prevalence of female smoking in the developing world: gender inequality or maternal adaptations for fetal protection?](#) *Evolution, medicine, and public health*. 2016;1: 195-211.
- 17 Amos A, Greaves L, Nichter M, Bloch M. [Women and tobacco: a call for including gender in tobacco control research, policy and practice](#). *Tobacco Control*. 2012 Mar 1;21(2):236-43.
- 18 Goel S, Tripathy JP, Singh RJ, Lal P. [Smoking trends among women in India: Analysis of nationally representative surveys \(1993–2009\)](#). *South Asian journal of cancer*. 2014 Oct;3(4):200.
- 19 GBD 2016 Risk Factors Collaborators. [Global, regional and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016](#) *Lancet*. 2017;
- 20 WHO. *World Health Statistics data visualizations dashboard: Tobacco smoking*. [Accessed 17th October 2018]
- 21 Xi B, Liang Y, Liu Y, Yan Y, Zhao M, Ma C, Bovet P. [Tobacco use and second-hand smoke exposure in young adolescents aged 12–15 years: data from 68 low-income and middle-income countries](#). *The Lancet Global Health*. 2016 Nov 1;4(11):e795-805.
- 22 NHS Digital. *Statistics on Smoking – England, 2018 [PAS]*. 2018. [Accessed 30 October 2018]
- 23 Mathers CD, Loncar D. [Projections of global mortality and burden of disease from 2002 to 2030](#). *PLoS medicine*. 2006 Nov 28;3(11):e442.
- 24 Öberg M, Jaakkola MS, Woodward A, Peruga A, Prüss-Ustün A. [Worldwide burden of disease from exposure to second-hand smoke: a retrospective analysis of data from 192 countries](#). *The Lancet*. 2010;377(9760):139-46.
- 25 Zhang L, et al. [Exposure to secondhand tobacco smoke and interventions among pregnant women in china: A systematic review](#). *Preventing chronic disease*. 2015;12.
- 26 Islami F, Torre LA, Jemal A. [Global trends of lung cancer mortality and smoking prevalence](#). *Translational lung cancer research*. 2015 Aug;4(4):327.
- 27 WHO. *Tobacco and poverty: A vicious circle*. 2004.
- 28 Efrogmson D, Ahmed S, Townsend J, Alam SM, Dey AR, Saha R, Dhar B, Sujon AI, Ahmed KU, Rahman O. [Hungry for tobacco: an analysis of the economic impact of tobacco consumption on the poor in Bangladesh](#). *Tobacco control*. 2001 Sep 1;10(3):212-7.
- 29 Best CM, Sun K, De Pee S, Sari M, Bloem MW, Semba RD. [Paternal smoking and increased risk of child malnutrition among families in rural Indonesia](#). *Tobacco control*. 2008 Feb 1;17(1):38-45.
- 30 John RM, Sung HY, Max WB, Ross H. [Counting 15 million more poor in India, thanks to tobacco](#). *Tobacco Control*. 2011 Jan 1:tc-2010.
- 31 Do YK, Bautista MA. [Tobacco use and household expenditures on food, education, and healthcare in low-and middle-income countries: a multilevel analysis](#). *BMC public health*. 2015 Dec;15(1):1098.
- 32 John RM, Ross H, Blecher E. [Tobacco expenditure and its implications for household resource allocation in Cambodia](#). *Tobacco control*. 2012 May 1;21(3):341-6.
- 33 The World Bank. *The Economics of Tobacco Use & Tobacco Control in the Developing World*. 2003.
- 34 WHO. [Tobacco increases the poverty of countries](#).
- 35 Lecours N, Almeida GE, Abdallah JM, Novotny TE. [Environmental health impacts of tobacco farming: a review of the literature](#). *Tobacco control*. 2012 Mar 1;21(2):191-6.
- 36 WHO. *Tobacco and its environmental impact: an overview*. 2017
- 37 Mathers CD, Loncar D. [Projections of global mortality and burden of disease from 2002 to 2030](#). *PLoS Med*. 2006 Nov;3(11):e442.
- 38 Kamusoko C, Aniya M. [Land use/cover change and landscape fragmentation analysis in the Bindura District, Zimbabwe](#). *Land degradation & development*. 2007 Mar;18(2):221-33.
- 39 Motaleb MA, Irfanullah HM. [Tobacco cultivation in Bangladesh: is it a threat to traditional agro-practice?](#) *India Journal of Traditional Knowledge*. 2011;10(30): 481-485.
- 40 Mayes MT, Mustard JF, Melillo JM. [Forest cover change in Miombo Woodlands: modeling land cover of African dry tropical forests with linear spectral mixture analysis](#). *Remote Sensing of Environment*. 2015 Aug 31;165:203-15.

- 41 BSS Economic Consultants. *Tobacco and Forests: The role of the tobacco industry regarding deforestation, afforestation and reforestation*. 2010.
- 42 Akhter F, et al. *From Tobacco to Food Production: Assessing Constraints and Transition Strategies in Bangladesh*. International Development Research Centre. 2008.
- 43 Sambyal SS. [Environment ministry order bans use of plastic packaging for tobacco gutkha](#). *DownToEarth*. 13 October 2016. [Accessed 24 October 2018].
- 44 Rainey J. [Plastic straw ban? Cigarette butts are the single greatest source of ocean trash](#). *NBC News*. 27 August 2018. [Accessed 17 October 2018]
- 45 Hamann S, Kungskulniti N, Charoenca N. [Environmental damage from tobacco pollution of air and water on Thailand beaches](#). *Tobacco Induced Diseases*. 2018;16(1):A700.
- 46 WHO. *Cigarette smoking: An assessment of tobacco's global environmental footprint across its entire supply chain, and policy strategies to reduce it*. 2018.
- 47 WHO, UN. *Status of Tobacco Production and Trade in Africa: Factsheets*. 2015.
- 48 Novotny TE, Bialous SA, Burt L, Curtis C, Costa VL, Iqtidar SU, Liu Y, Pujari S, Tursan d'Espaignet E. [The environmental and health impacts of tobacco agriculture, cigarette manufacture and consumption](#). *Bulletin of the World Health Organization*. 2015;93:877-80.
- 49 Lecours N. [The harsh realities of tobacco farming: a review of socioeconomic, health and environmental impacts](#). In: Leppan W, Lecours N, and Buckles D. (eds) *Tobacco Control and Tobacco Farming*. London, UK: Anthem Press; 2014. p.99-138.
- 50 Kulik MC, Bialous SA, Munthali S, Max W. [Tobacco growing and the sustainable development goals, Malawi](#). *Bulletin of the World Health Organization*. 2017 May 1;95(5):362.
- 51 McKnight RH, Spiller HA. [Green tobacco sickness in children and adolescents](#). *Public Health Rep*. 2005 Nov-Dec;120(6):602–5.
- 52 Ramos AK. [Child labor in global tobacco production: A human rights approach to an enduring dilemma](#). *Health and Human Rights Journal*. 2018 Aug. [Accessed 17 October 2018]
- 53 Magati P, Lencucha R, Li Q, Drope J, Labonte R, Appau AB, Makoka D, Goma F, Zulu R. [Costs, contracts and the narrative of prosperity: an economic analysis of smallholder tobacco farming livelihoods in Kenya](#). *Tobacco control*. 2018;0:1-6.
- 54 The Tobacco Atlas. *Issue: Growing*. [Accessed 17th October 2018]
- 55 Hu T, Lee A. [Women in tobacco farming: Health, equality, and empowerment: A study conducted in China, Tanzania and Kenya](#). *Centre for International Tobacco Control; Public Health Institute*. 2016.
- 56 Lee K. [Pushing tobacco control up the development agenda](#). *Id21 Insights Health*. London: School of Hygiene and Tropical Medicine. February 2007.
- 57 Boseley S. [Child labour rampant in tobacco industry](#). *The Guardian*. 25 June 2018. [Accessed 17 October 2018]
- 58 Amon JJ, Buchanan J, Cohen J, Kippenberg J. [Child labor and environmental health: government obligations and human rights](#). *International journal of pediatrics*. 2012 Dec 18;2012.
- 59 Boseley, S. [Special report: The children working the tobacco fields: 'I wanted to be a nurse'](#). *The Guardian*. [Accessed 17 October 2018].
- 60 Otanez MG, et al. [Eliminating child labour in Malawi: a British American Tobacco corporate responsibility project to sidestep tobacco labour exploitation](#). *Tob Control*. 2006 Jun;15(3):224-230.
- 61 Gilmore AB, Fooks G, Drope J, Bialous SA, Jackson RR. [Exposing and addressing tobacco industry conduct in low-income and middle-income countries](#). *The Lancet*. 2015 Mar 14;385(9972):1029-43.
- 62 Toll B, Ling M. [The Virginia Slims identity crisis: an inside look at the tobacco industry marketing to women](#). *Tobacco Control*. 2005;14: 236-43.
- 63 World Health Organization. *Women and Tobacco*. 1992.
- 64 WHO. [Gender, women and the tobacco epidemic](#). 2010.
- 65 Centers for Disease Control and Prevention. [Ever offered a free cigarette by a tobacco company representative](#). [Accessed 30 October 2018]
- 66 WHO. *Tobacco industry interference: A global brief*. 2012.
- 67 Sebríe E, Glantz SA. [The tobacco industry in developing countries](#). *BMJ*. 2006;332:313-4.
- 68 Perera M. [British American Tobacco undermines tobacco control in Sri Lanka](#). *Action on Smoking and Health*. 28 April 2017. [Accessed 17 October 2018]
- 69 Tumwine J. [Implementation of the framework convention on tobacco control in Africa: current status of legislation](#). *International journal of environmental research and public health*. 2011 Nov 17;8(11):4312-31.
- 70 Tax Justice Network. [Ashes to Ashes: How British American Tobacco Avoids Taxes in Low and Middle Income Countries](#). 2019.
- 71 WHO. [Tobacco industry and corporate responsibility... an inherent contradiction](#). 2004.
- 72 WHO Framework Convention on Tobacco Control. *WHO Framework Convention on Tobacco Control*. [Accessed 30 October 2018]
- 73 WHO Framework Convention on Tobacco Control. *Parties to the WHO Framework Convention on Tobacco Control*. [Accessed 30 October]
- 74 Framework Convention Alliance. [Tobacco control and the SDGs: an advocacy toolkit](#). [Accessed 17 October 2018] .
- 75 WHO. *WHO report on the global tobacco epidemic, 2017*. 2017.