THE MILLENNIUM DEVELOPMENT GOALS AND TOBACCO CONTROL

This study demonstrates the relevance of tobacco control in achieving each of the eight United Nations Millennium Development Goals. It outlines the occurrence of the high yet increasing prevalence of tobacco use in the developing world, and documents the negative impact that tobacco cultivation and tobacco use have on poverty and development. Global partnership is deemed to be important in strengthening tobacco control, which all nations and their development agencies are urged to address as an aspect of policy. The study recommends that tobacco control should be included as a vital ingredient contributing towards the attainment of the Millennium Development Goals. To this end, countries are encouraged to become Parties to the WHO Framework Convention on Tobacco Control, which is an essential tool to bring about tobacco control in all countries, whatever their stage of socioeconomic development.

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An opportunity for global partnership

World Health Organization

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An opportunity for global partnership

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and
Stephen R Leeder

WORLD HEALTH ORGANIZATION

Tobacco control is one of the most rational, evidence-based policies in medicine.[1]

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FOREWORD

Tobacco use is an increasingly important contributor to premature death and ill-health in the developing world. The diseases for which tobacco use is an important risk factor—cancers, respiratory diseases and cardiovascular diseases—are taking an increasing toll in less developed countries and among low income groups in many countries.

Poor people are especially vulnerable to harm from tobacco use. In addition to the long-term health risks, tobacco use among low income groups can have immediate, insidious effects, through diverting scarce family resources away from beneficial uses. Household survey data show that poor families are more likely to include one or more smokers than richer families, and often allocate a substantial part of the families' total expenditures to these harmful products. If a breadwinner becomes ill as a result of tobacco use, the cost of health care and the loss of earnings and productivity can worsen poverty or push families living precariously into poverty.

The Millennium Development Goals do not include an explicit target for reducing tobacco use, but this report explains how lower tobacco use could contribute to their achievement, especially for the goals related to health outcomes, and poverty and hunger. The conclusion reached in *Curbing the epidemic: governments and the economics of health care* published by the World Bank in 1999 remains valid today: "The threat posed by smoking to global health is unprecedented, but so is the potential for reducing smoking-related mortality with cost-effective policies." For governments intent on improving health within the framework of sound economic policies, action to reduce tobacco use could ensure substantial gains for the 21st century.

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PREFACE

The rapid increase in tobacco consumption and its spread around the world represents a great concern to public health both globally and at the national level. Tobacco is a very particular good: it is legal, but its consumption represents serious health risks. Tobacco is the second major cause of death in the world and the fourth most common risk factor for disease worldwide; it kills 4.9 million persons each year, which is equivalent to one in ten adult deaths worldwide. This trend is rendered even more alarming when looking at the projections showing that the number of deaths will double in the next 20 years.

Tobacco undermines the well-being of populations. Given its high ranking in terms of causes of disease and death, tobacco weighs heavily on the health care systems of countries. The cost of treating tobacco-related illness is very high not only to governments, but also to individuals and their families. In addition, the diseases and deaths that result from tobacco consumption impose great suffering and grief on the close family of the tobacco user, effects which are exacerbated by poverty.

Evidence from a large number of countries shows that the prevalence of tobacco users is higher among poorer fractions of the population. This puts the problems perpetrated by tobacco use into the development arena, including the United Nations Millennium Development Goals (MDGs). Furthermore, a recent resolution of the Economic and Social Council (ECOSOC) on Tobacco Control, adopted in July 2004, recognized the adverse impact of tobacco use not only on health, but also on the society, the economy, and the environment, and on efforts towards poverty alleviation.

Among the eight MDGs, six are related to health, which shows how important the links are between good health and efforts to combat poverty and ensure sustainable development. While "combating HIV/AIDS, malaria and other diseases, such as tuberculosis" represents one of the eight goals, it is unfortunate to note that noncommunicable diseases, which represent 60% of global deaths, are not specifically mentioned. Given the heavy burden that noncommunicable diseases—in particular the major risk factor, tobacco, which is widely used among the poorest—impose on the health of populations and thus on development, we stress the importance of their inclusion in the agenda of the MDGs.

One of the important tools to address tobacco control is the legally binding instrument negotiated and adopted by WHO Member States, viz. the WHO Framework Convention on Tobacco Control (WHO FCTC). This treaty will enter into force and become binding international law in 2005. The WHO FCTC is a comprehensive, multisectoral treaty, which covers all the measures that aim at reducing the heavy toll imposed by tobacco use and production. Being evidence based, it includes measures proven to be feasible and effective. The entry into force and implementation of the Convention will be an important step forward in the work of the international community towards achieving better health for all.

Resources ensuring the implementation of the Convention and the enactment of comprehensive tobacco control measures should be mobilized as part of addressing the poverty and development agenda. This study clearly develops and explains the examples to support such interventions.

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EXECUTIVE SUMMARY

This study demonstrates the relevance of tobacco control in achieving the Millennium Development Goals (MDGs). It outlines the occurrence of high and increasing prevalence of tobacco use in the developing world, and documents the negative health and economic effects associated with tobacco cultivation and use. It introduces affordable and effective strategies that developing countries can employ to reduce tobacco use and promote sustainable development. Drawing on data from the poorest nations, and from the poor within nations, it illustrates how tobacco control measures will significantly enhance the effectiveness of investments in health, poverty reduction and development.

The MDGs derive from the United Nations Millennium Declaration 2000. They call on Member States to work together to eliminate extreme poverty and hunger, to improve health, and to promote human development and sustainable economic progress in the world's poorest nations. The World Health Organization (WHO) Commission on Macroeconomics and Health (CMH) in 2001 highlighted the link between poor health and lack of economic progress. It identified tobacco as a major avoidable cause of illness and premature death in low income countries, and urged that tobacco control be enacted to improve the prospects of the world's poorest billion people. Specifically, it supported the adoption of WHO's first international treaty, the WHO Framework Convention on Tobacco Control (WHO FCTC), which includes comprehensive measures to reduce demand, minimize harm, and control cross-border tobacco promotion and illicit trade.

Tobacco control as envisioned in the WHO FCTC has often been omitted from economic development agendas. Tobacco use has been simplistically portrayed as a personal choice rather than an addiction. Inaction has been excused because data on tobacco use are lacking in many very poor countries, lower tobacco use rates and fewer long-term health effects are evident in some of the poorest nations, and tobacco cultivation is assumed to be economically positive. Tobacco control, in contrast, is presented as a luxury that is too costly, given other urgent needs. Each of these arguments is seriously flawed. However, while the MDGs explicitly link health and economic progress, they do not currently address all relevant health issues, including tobacco use.[a]

[a] In this summary, "tobacco use" is used where possible, although sometimes "smoking" and "tobacco use" are used interchangeably. Forms of tobacco use other than smoking (such as chewing) are very common in a number of countries.

The impact of tobacco use in the developing world

Tobacco is highly addictive. Almost 1.3 billion (10^9) people currently smoke worldwide, the majority of whom are in countries with medium levels of human development, where the tobacco epidemic is pervasive, having moved through the developed world. The tobacco epidemic is now poised to afflict poorer developing countries with low levels of human development.

Tobacco kills one in two long-term users—4.9 million such deaths occurring each year. Tobacco is responsible for more deaths worldwide than any other risk factor except high blood pressure. While total consumption of cigarettes remained stable in the developed world between 1970 and 2000, it trebled in the developing world. Over the next 25 years, total cigarette consumption will rise by 60% in countries with medium levels of human development and by 100% in countries with low levels of human development. This latter group of nations will by then consume more tobacco than either medium or high human development countries.

One hundred million deaths were attributed to tobacco during the 20th century, mostly in developed countries. Given current patterns of consumption, one billion deaths due to tobacco are expected this century, but now mostly in developing countries. Half of these deaths will be among those in middle-age (35–69 years old), with harmful effects on national economies. Tobacco is the second leading cause of death in developed and low mortality developing countries, and sixth in high mortality developing countries. Tobacco also accounts for a large portion of the disease burden in developing countries, and is currently ranked fourth in the world in its contribution to years of life lost.

As poverty has fallen and economies have grown, the major transnational tobacco companies have expanded their influence into the developing world. Over time, they have moved into South America, Asia, Eastern Europe and Africa. Trade liberalization has placed additional pressure on the developing world. Studies in more than 80 countries show that trade liberalization increases tobacco consumption, especially in low and middle income countries.

In this study we establish links between each of the eight MDGs and tobacco. We also outline required future action in relation to tobacco and poverty to achieve the MDGs. Key points are summarized below.

MILLENNIUM DEVELOPMENT GOAL 1

Eradicating extreme poverty and hunger: the role of tobacco

In terms of MDG 1, economic growth is essential to poverty reduction. Progress since 1990 has been substantial. In 2000, 1.2 billion people in the world lived on less than US$ 1 a day.[b] However, all regions of the world are on target to achieve the goal of a 50% reduction in those living on $1 a day, except for sub-Saharan Africa, by 2015.

Malnutrition is less tractable, with less than half of the relevant nations on-track to halve it. Hunger and malnutrition are made worse where scarce resources are used on tobacco. In the year 2000, 800 million people were malnourished, of whom 140 million were children. And yet tobacco use often sits side by side with poverty and malnutrition.

Two-thirds of the poor nations for which data are available have male smoking rates above the 35% prevalence rate in the developed world. In Uganda, for example, about 50% of men smoke, while 80% of the population lives on less than $1 a day, and half of the children under five are malnourished. In Cambodia, two-thirds of the men use tobacco, while nearly half of the children are malnourished. Although smoking rates have been low in much of Africa, between 1995 and 2000 cigarette consumption jumped by nearly two-thirds.

There are many low and middle income countries with large pockets of poverty and high smoking rates. In India, the world's most populous low income country, where poverty still abounds among some sections of the population, tobacco will kill 80 million males currently aged 0–34 years. In China, 200 million people live on less than $1 a day and 300 million males, or nearly two-thirds of all males, smoke. Tobacco will kill 100 million Chinese males currently aged between 0 and 29 years, with half of these in the productive middle years. This will deprive families of breadwinners, diminish the productive workforce and slow the conquest of poverty.

Smoking rates for females in the developing world are much lower than for males, but this is set to change. Data from the Global Youth Tobacco Survey show that many girls in their early teens are taking up smoking in the developing world.

Data from many countries show that the poor are most likely to smoke. An analysis of 74 studies from 41 high, medium and low income countries found

[b] All monetary sums are in US dollars.

that, regardless of country income, poorer individuals were those more likely to use tobacco, accounting for much of the mortality gap between rich and poor. In low and middle income countries, including Brazil, Cambodia, China, India and Viet Nam, smoking rates among the uneducated or less educated outstrip rates among the more educated.

For poor people, the opportunity costs of tobacco use can be very high. In countries such as Bulgaria, Egypt, Indonesia, Myanmar and Nepal, household expenditure surveys show that low income households spend 5–15% of their disposable income on tobacco. Many poor households spend more on tobacco than on health care or education. In Bangladesh, households with an income of less than $24 a month smoke twice as much as those on much higher incomes. The average amount spent on tobacco by the poorest 10 million male smokers could buy an additional 1400 calories of rice per day, or significant amounts of protein for each family. If these men quit, and put 70% of their saved income into food, this would provide enough calories to save 10.5 million Bangladeshi children from malnutrition. Besides cutting access to food, diverting limited household income to tobacco reduces family capacity to seek medical attention for a sick child, or to send children to school.

Tobacco consumption ruins the health of poor people by causing respiratory and lung diseases, heart disease, strokes and cancers. This impacts on national economies in terms of health costs and lost productivity. In 2000, three tobacco-related illnesses—heart disease, stroke and cancer—cost the Indian government $5.8 billion. Productivity lost due to tobacco-related premature deaths is $82 billion per annum in the United States of America and already $2.4 billion in China.

Cultivating tobacco also damages people's health. Tobacco farmers use pesticides that can cause respiratory, nerve, skin and kidney damage. Those who harvest or cure tobacco experience "green tobacco sickness". Children who work in tobacco may experience stunted growth.

Tobacco has been seen as an attractive cash crop for farmers in the developing world. However, many small tobacco farmers barely recoup their investment in tobacco when they adopt it as a crop. Globally, 5.3 million hectares of arable land are currently under tobacco cultivation—land that could feed 10–20 million people.

Tobacco has a negative impact on the balance of payments of many countries. Two-thirds of 161 countries, where data are available, are net importers of tobacco, losing more hard currency in cigarette imports than they gain by exporting tobacco. Several countries, including Cambodia, Malaysia, Nigeria,

the Republic of Korea, Romania and Viet Nam, have a negative tobacco trade balance of more than $100 million.

To counter the negative economic costs of tobacco and thereby assist in achieving MDG 1, raising government taxes on tobacco stands out as the most effective measure. This will increase government revenue while at the same time discouraging smoking. The positive health and economic effects of reduced tobacco use will help to reduce poverty. Despite the addictive nature of tobacco, its consumption shows considerable price elasticity. Most developing countries do not tax cigarettes at the levels of many developed countries. Taxation especially affects the poor, where in lower income nations a 10% increase in the price of tobacco will lead to greater government revenue and up to 8% reduction in tobacco use.

MILLENNIUM DEVELOPMENT GOALS 2–7

Correlates of income poverty and the role of tobacco

MDGs 2–7 are as follows:

2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability.

Tobacco control is relevant to the achievement of all of these goals.

MDG 2. The tobacco industry employs children in cultivation and production in the developing world. Very poor families spend money on tobacco rather than education for their children. Poverty and child labour are key reasons why children are not sent to school. An increase in education correlates with economic progress and better health.

MDG 3. Advertising encourages women in developing countries to smoke as a sign of independence and success. The number of women smoking is set to increase from 218 million in 2000 to 259 million in 2025. Women in the developing world who smoke endanger their own and their families' health.

Households play a pivotal role in making decisions about health, with women central to these decisions.

MDGs 4 & 5. Poor maternal nutrition and health are major causes of infant mortality. Money spent on tobacco deprives mothers and babies of food, and possibly medical attention. Women who use tobacco have smaller babies, who are weaker and more likely to die. Passive smoke disproportionately affects women and children and increases respiratory and other diseases in children.

MDG 6. Smoking causes further illness in those with HIV/AIDS, including bacterial pneumonia and AIDS-related dementia. Smoking causes subclinical tuberculosis to advance to clinical tuberculosis and increased risk of death. Up to one billion people are estimated to have subclinical tuberculosis. Already, smoking is implicated in 50% of deaths from tuberculosis in India.

MDG 7. Globally, land is cleared for tobacco farming and wood-fired curing at the rate of 200 000 hectares per year. This accounts for 5% of deforestation in developing countries, especially among major tobacco producers such as China, Malawi and Zimbabwe. Pesticides used during tobacco cultivation lead to environmental degradation, and tobacco manufacturing produces more than 2.5 billion kilograms of waste each year.

Tobacco control can do much to assist in achieving MDGs 2–7. Health damage can be reduced if smokers are assisted to stop, and if young people are discouraged from taking up tobacco. A smoker who quits reduces his or her risk of stroke and heart attack by 50% within two years. Tobacco advice and cessation services can be incorporated into existing primary health care services at marginal additional cost. Other affordable and effective non-tax tobacco measures, including advertising bans and bans on public smoking, can improve health for both smokers and non-smokers. To ensure environmental sustainability, tobacco cultivation needs to be phased out and advice and incentives provided to farmers for alternative crops.

MILLENNIUM DEVELOPMENT GOAL 8

Establishing a global partnership for development: the role of tobacco control

Tobacco seriously threatens sustainable development in the world's poorest nations through disability and premature death, high personal and national economic costs and environmental damage. MDG implementation should incorporate tobacco control because by this means healthy development and macroeconomic gains can be made.

Careful studies conducted by the World Bank have refuted key arguments against tobacco control, as follows:

- tobacco control will not lead to massive job losses;
- tobacco taxation will increase, not decrease, government revenue;
- tobacco taxation will not lead to a large increase in tobacco smuggling;
- while tobacco taxes are regressive, the positive effects of increased taxes on the general well-being of the poor—who are more sensitive to price changes—can be considered as desirable offsets;
- increased costs to tobacco users of tobacco control measures are justified because of their societal costs and because the price will be an incentive for smokers to quit;
- tobacco control measures are both effective and efficient, and can be afforded by even very poor countries.

Modelling studies show that millions of people will avoid or quit using tobacco and millions of lives will be saved if tobacco control measures are adopted. In South Africa, tobacco control was instituted in the 1990s through tax increases, reduced advertising and health promotion. Tobacco consumption fell by over 30%, with youth and poor households most affected. Government revenue from tobacco taxation more than doubled. Many non-price measures are inexpensive to implement, such as banning advertising and limiting smoking in public places.

As evidence of the growing recognition of the importance of tobacco control for global partnerships for development, agencies including the World Bank, the International Monetary Fund (IMF), the United Nations, and major international aid donors such as the European Community (EC) and the United States Agency for International Development (USAID), now endorse it. The Economic and Social Council (ECOSOC) of the United Nations has

recognized the adverse impact of tobacco on efforts towards poverty alleviation. In a recent resolution, the Member States of ECOSOC called on United Nations agencies and other international organizations to provide ongoing support for tobacco control programmes. The Organisation for Economic Co-operation and Development (OECD) and WHO Development Assistance Committee guidelines on *Poverty and health* (2003) recognize noncommunicable diseases linked to tobacco as a significant disease burden on the poor, and recommend that development agencies support policy change on tobacco. The European Commission, in its communication *Health and poverty reduction in developing countries,* includes tobacco control among key interventions to promote public health and reduce poverty. Based on the first session of the Subcommittee on Health and Development of the Economic and Social Commission for Asia and the Pacific (ESCAP), the ESCAP Strategic Action Plan includes establishment of specific MDG targets and indicators to control important noncommunicable disease risk factors through interventions such as tobacco control.

The way forward

International agencies and developed countries can further contribute to reducing tobacco consumption and increasing development in the world's poorest countries by incorporating tobacco control into their development agendas and MDG initiatives. They should work actively for the inclusion of tobacco in the 2005 MDG review. They can provide technical assistance and financial support to developing countries to implement the WHO FCTC as a tool for development and as a public health measure. They can also cooperate on global issues such as tobacco smuggling, cross-border sponsorship and Internet sales. Developing countries that have not done so should become Parties to the WHO FCTC, explore the synergy between achieving the MDGs and tobacco control, and include both in their development agendas.

I. INTRODUCTION

The Millennium Development Goals

At the Millennium Summit in September 2000, the United Nations General Assembly adopted the United Nations Millennium Declaration,[2] which states that the central challenge facing the world today is to "ensure that globalization becomes a positive force for all the world's people".[3] The Declaration affirms a need for the global community to work together to maximize the benefits of globalization and to ensure that the world shares its costs equitably. It identifies the following principles as essential to international relations in the 21st century: freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility. Specific activities are outlined in the following priority areas: peace, security and disarmament; development and poverty eradication; protection of our common environment; human rights, democracy and good governance; protection of the vulnerable; meeting the special needs of Africa; and strengthening the United Nations. In relation to development and poverty eradication, the Declaration states:

> *We will spare no effort to free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty, to which more than a billion of them are currently subjected. We are committed to making the right to development a reality for everyone and to freeing the entire human race from want.*[4]

The Declaration includes a number of goals inherent in the achievement of the above aims, which the United Nations developed further in the "Road Map towards the implementation of the United Nations Millennium Declaration".[5] In relation to development and poverty eradication, the United Nations has promulgated the goals as the Millennium Development Goals (MDGs).[6] Their aim is to reduce poverty and promote health and human development as keys to social and economic progress. There are eight MDGs:

1. Eradicate extreme poverty and hunger.
2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. Reduce child mortality.
5. Improve maternal health.

6. Combat HIV/AIDS, malaria and other diseases.
7. Ensure environmental sustainability.
8. Develop a global partnership for development.

The first goal addresses the direct elimination of poverty, with the next six focusing on specific conditions that reflect poverty and/or contribute to intergenerational poverty. The eighth goal proposes a means of addressing the first seven, and calls on wealthy countries to work with developing countries to ensure the latter's economic progress and sustainable economic development.

None of these goals is merely aspirational: they place clear obligations on all parties. Their achievement requires developing countries to mobilize their public and private domestic resources to promote development and eradicate poverty. The goals call on all countries to commit to good governance, democracy and sound macroeconomic policies. They ask developed countries to free up trade and financial systems, to increase development assistance, to institute debt relief, and to provide essential medicines and technology transfer. Several international meetings since the promulgation of the MDGs have reaffirmed the importance of an ongoing compact among countries to work towards their realization.

There are 18 targets and 48 indicators listed under the MDGs, to enable monitoring of progress towards desirable outcomes, with 2015 set as the target date.[7] The United Nations has requested international agencies to lead efforts to achieve the goals and targets, including the World Bank, the World Health Organization (WHO), the Food and Agriculture Organization (FAO), the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the International Labour Organization (ILO).

The MDGs identify health as central to development. The message is clear: good health is a prerequisite to the economic progress and development of individuals and nations. In the same way, we can measure economic development in part by the levels of health of a population, and by access to appropriate health care. The MDGs are interdependent within a broad development agenda.

Bold, global, goal-setting initiatives such as the MDGs sharpen but also limit the focus of international activity in the short term. Despite widespread endorsement and adoption by many aid agencies, some countries consider the MDGs to be too ambitious, while other countries believe them to be

too restrictive. Several countries have argued that the MDGs should cover noncommunicable as well as communicable diseases, including tobacco-related diseases, injury and mental illness. MDG Plus is the name given to this expanded version of the MDGs. The World Health Report of 2003, while stressing the importance of WHO intensifying its cooperation with Member States to speed up the progress towards the MDGs, also acknowledges their limitations, and expresses concern about the impact of the MDGs on health initiatives agreed to in other United Nations forums, such as goals in relation to reproductive health.[8]

Alongside the achievement of MDG outcomes, a concern for social justice demands that equity is considered. Those writing the MDG targets expressed them in terms of national and regional averages. Equity demands that improvement in these averages should reflect gains among the poorest nations and the poorest people in each nation, and not just the wealthiest. Already, the Human Development Report 2003 points to huge disparities in the progress of different countries and regions in reaching the MDGs,[9] and across different income groups within countries.[10] The achievement of many of the targets for each MDG will not occur by 2015, or at least not universally. This is especially so in sub-Saharan Africa, which includes many of the world's poorest nations.

The MDGs are, none the less, an energizing international vision that demands that the developed world take seriously the plight of the poor. The MDGs make explicit the relationship between economic progress and health, but not all health issues in developing countries are included. This study puts tobacco on the MDG agenda. By outlining the link between tobacco, poverty and economic development, it shows how reducing tobacco use can improve health, reduce poverty and increase development. It demonstrates that tobacco is incompatible with sustainable development.

Today, tobacco use is not exclusively, or even principally, a problem in developed countries; it is rapidly becoming a global pandemic,[c] infiltrating even the poorest nations. This study identifies ways in which all eight MDGs carry clear implications for tobacco control, and argues that to ignore tobacco in MDG implementation will limit short- and long-term economic and health gains in many countries. We present four key arguments here.

[c] Pandemic: an epidemic occurring worldwide, or on a very wide area, crossing international boundaries and usually affecting a large number of people. Source: John Last. *A dictionary of epidemiology,* 4th ed, Oxford University Press, 2001.

- Tobacco use is on the rise in low income countries and in many middle income countries, especially among the large numbers of their populations living in poverty.
- Household expenditure surveys show that addiction causes many very poor families to spend substantial amounts on tobacco, leaving less for food, health and education. This diminishes the health and welfare of all family members and national growth and development.
- Controlling tobacco in the developing world *now* can substantially reduce the present and future pandemic of tobacco-related premature deaths and disease and its associated costs, and help lift countries and individuals out of poverty.
- Affordable, proven tobacco control measures exist that can be included within the context of MDG implementation—both in middle income countries with high levels of poverty and in the poorest nations.

We have organized the material into six sections:

- the remainder of this section briefly reviews recent global health initiatives relevant to tobacco control and to the implementation of the MDGs, in particular the WHO Commission on Macroeconomics and Health (CMH)[11] and the WHO Framework Convention on Tobacco Control (WHO FCTC);[12]
- the second section provides up-to-date information on the levels and consequences of tobacco consumption in developing countries, and on future trends;
- the third and fourth sections outline the evidence on the link between tobacco consumption and/or production, and poverty, at the national and individual levels in the context of the first seven MDGs;
- the fifth section addresses the eighth MDG, on a global partnership for development, and proposes programmes, policies and funding mechanisms to control tobacco in the context of the MDGs;
- finally, the sixth section summarizes the policy recommendations for strengthening tobacco control within the framework of achieving the MDGs.

Global health initiatives relevant to the MDGs and tobacco

In addition to the development of the MDGs, several initiatives in recent years have recognized the intersection of health, economics and development. Of particular relevance to tobacco, poverty and development are the Commission

on Macroeconomics and Health (CMH), and the WHO Framework Convention on Tobacco Control (WHO FCTC). States can become Parties to the WHO FCTC through ratification, acceptance, approval, or accession. The World Bank has also published a volume on the economics of tobacco control that we refer to later.[13] All of these initiatives have occurred within a climate of increased trade liberalization.

In its report in 2001, the CMH emphasized the interconnectedness of health and sustainable development.[14] The pervasive theme of the CMH Report was that where the national disease burden is high, national wealth and productivity are likely to be low. A sizable proportion of the huge lag in economic growth seen in Africa compared with the rest of the world between 1965 and 1990 can be attributed to high levels of sickness and premature death in many African nations.[15]

The CMH repositioned health as both a social and economic good, and health improvement as an economic imperative. It noted the two-way relationship between economic development and health. Poverty increases people's vulnerability to disease. If people are sick, they cannot work, or cannot work full-time, which affects their income. The CMH Report views current estimates of the effects of chronic disease morbidity on the workforce as grossly understated.

The CMH recommended the establishment of temporary National Commissions on Macroeconomics and Health within the Poverty Reduction Strategy Paper (PRSP) structure, which helps guide World Bank assistance to poor countries. Ministers of Health and Finance and representatives of civil society would chair these national bodies jointly, whose task would be to scale up health investments. The Commissions would assess national health priorities, establish a multi-year strategy to extend essential services, take account of synergies with other health-producing sectors, and assure consistency with a macroeconomic policy framework. They would work with WHO and the World Bank to prepare an epidemiological baseline, quantified operational targets and a medium-term financing plan. At a WHO meeting in Geneva in October 2003,[16] health and finance representatives from 40 developing countries met to discuss progress in formulating macroeconomic initiatives for health in their countries along these lines.

The CMH Report strongly emphasized the need to attend to tobacco as a correlate of poverty and illness, and stressed its importance as an avoidable cause of illness and death in low income countries. It noted that tobacco-associated illness was rising worldwide, even on an age-adjusted basis. It recognized that the developing and developed worlds share the consequences

of tobacco use, and that strategies found to be useful in achieving tobacco control in economically advanced countries may also prove to be applicable in low income countries. The CMH saw the rising prevalence of tobacco consumption as one among several deleterious consequences of globalization.

The CMH also noted that even with current knowledge and far-from-lavish resources, tobacco control would improve the health prospects of the poorest billion people in the world. Success in tobacco control has followed the adoption of higher tobacco taxes in South Africa, advertising bans and health promotion in Thailand, and strong health warnings on cigarette packets and broad, multisectoral anti-smoking campaigns in Brazil. Close-to-client (primary care) health services are ideally placed to provide advice and assistance to people seeking to quit smoking, a move that brings immediate reduction in risk from cardiovascular disease. The CMH endorsed the WHO FCTC and argued that improved surveillance of tobacco-associated illness was one source of intelligence that should be available for planning future health services. The CMH Report therefore highlighted tobacco control as one among a number of strategies for improving the health and economic productivity of the poorest people in the world.

There is considerable overlap between the aims of the CMH and those of the MDGs. Both seek to reduce the impact of health-related problems as an element of economic development policy. Both recognize the need for donor and recipient nations to work together to achieve development goals. In addition, both focus on the alleviation of poverty as a key determinant of future economic progress.

The WHO FCTC[17] responds to the rapid spread of the tobacco epidemic to the developing world, and the understanding that globalization and international trade liberalization highlight the need for greater multisectoral action and transnational cooperation in areas such as public health.[18] It recognizes that, increasingly, public health matters are not containable within national borders, but demand global responses and coordination.

Consistent with these new international imperatives in relation to public health, the WHO FCTC is the first international treaty developed by WHO, and was designed to be legally binding when 40 States become contracting Parties.[d] It is an evidence-based treaty that outlines the elements of a comprehensive

[d] The WHO FCTC was opened for signature by all Member States of the World Health Organization, or Member States of the United Nations, and by regional economic integration organizations until 29 June 2004. It is currently deposited at the United Nations Headquarters in New York and is open for ratification, acceptance, approval, formal confirmation and accession.

approach to tobacco control, involving legislative, regulatory, administrative, educational and scientific activities designed to reduce tobacco consumption, and to protect all citizens from exposure to tobacco smoke.

The WHO FCTC represents a departure from previous responses to drug control in putting the major emphasis on demand reduction strategies, although it also considers strategies to help suppliers of tobacco products adjust and to minimize harm (e.g. growers, facing decreasing demand, may have to consider growing crops other than tobacco).[19] Actions agreed to under the WHO FCTC are wide-ranging and affect all sectors of a country's economy, not only its health sector, including:

- price and tax measures;
- protection from exposure to tobacco smoke;
- regulation of the contents of tobacco products and tobacco product disclosures;
- packaging and labelling of tobacco products;
- education, communication, training and public awareness;
- tobacco advertising, promotion and sponsorship;
- demand reduction measures in relation to tobacco dependence;
- measures to contain illicit trade in tobacco products;
- bans on sales to and by minors;
- provision of support for economically viable alternatives to tobacco production;
- protection of the environment and the health of persons working in tobacco production;
- research, surveillance and information exchange about tobacco consumption and production;
- liability.[20]

Consistent with its global focus, the WHO FCTC includes within its parameters the importance of controlling cross-border activities in relation to tobacco advertising, promotion, sponsorship and illicit trade in tobacco products, and the need for international cooperation. It recognizes the responsibility of Parties to the WHO FCTC to assist developing countries in establishing the

It became law on 27 February 2005, 90 days after the treaty had been ratified by 40 States. Signature indicates a State's intention to become a Party to the Convention, but does not carry obligations. Countries that do not become a Party to the WHO FCTC will not be required to implement its provisions.

capability to implement comprehensive tobacco control through the provision of expert assistance. It advocates the integration of tobacco surveillance and cessation services into existing national (and where appropriate, international) health programmes and services. It recognizes the need to provide support to tobacco growers to produce alternative crops. Finally, it commits States that become Parties to the treaty to provide funds for implementation within their own countries, and to assist developing countries to obtain bilateral and international funding for tobacco control. It also calls for a review of existing and potential sources and mechanisms of assistance, with States emphasizing the need for sources of funding to be sustainable and predictable. The provisions of the WHO FCTC thus provide a template against which action on tobacco to improve health and stimulate development can be organized and assessed.

Few have grasped the relevance of the WHO FCTC to the MDGs in the way they did the connection between the CMH Report and the MDGs, for several reasons.

First, data on tobacco use are scant or lacking in many of the poorest nations, and where data do exist, they indicate that tobacco use is sometimes less widespread than in many middle income and developed nations, or has only become widespread in recent years. Yet the tobacco epidemic is rolling into developing countries, even the poorest nations, just as it did in developed countries decades ago. If nothing changes, the impact of tobacco on health and human productivity in the developing world is thus set to become much worse, rather than to remain constant or improve. While tobacco use contributes to the entrenchment of individuals and nations in poverty, economic growth in the world's poorest nations is likely to fuel, if unchecked, an increase in tobacco use.

Second, in countries where malnutrition and infectious diseases are rampant, and where access to clean water and sanitation is lacking, a focus on tobacco can seem a luxury. The tendency to apply developed world sensibilities to understanding tobacco use simply compounds the problem. Some see the use of tobacco as purely a personal choice, freely made, ignoring the addictive effects of nicotine, the burden smokers impose on non-smokers due to the harmful impact of second-hand smoke, and the power of commercial marketing. Others assume that theories of rational choice apply to tobacco, where users make careful and well-informed decisions that maximize their utility. These conceptions are inaccurate, but they can result in development agencies and countries dismissing tobacco as irrelevant to poverty and development.

This is not to say that tobacco control should displace programmes designed to alleviate other urgent health needs, but rather, that it has an important part to play in a broad range of initiatives designed to improve health and reduce poverty.

Third, while we have long understood the individual and national health and economic impacts of tobacco use in developed countries, only now are we seeing these consequences and costs in the developing world. Weak health and economic statistical information is all that is available in many countries, and this is consistent with the historical separation of health departments, treasuries/departments of finance, and development agencies.

Finally, tobacco cultivation, production and consumption are often portrayed as positive economic activities in developing countries, and tobacco control is often represented as costly—something that will depress developing economies. Copious proof exists to disprove both these claims. The tobacco industry greatly overstates its contributions to national economies and understates the social costs that tobacco imposes.

These prejudices against tobacco control have combined with low levels of good governance in some poorer countries to relegate tobacco control to a low priority. Governments see the macroeconomic gains from local tobacco production, but overlook its current and future macroeconomic and social costs. This study rehearses evidence that refutes these prejudices. It demonstrates that including tobacco control within the MDG framework will help make investments in health, poverty reduction and development more effective in the short term and, in particular, more sustainable in the medium to long term.

Briefly, price and tax increases in relation to tobacco products and action to reduce their smuggling will directly increase government revenue and will discourage tobacco consumption. The health and economic benefits from a decrease in tobacco use will contribute to poverty reduction. Evidence will be presented below that raising tobacco taxes is a practical and cost-effective intervention in low and middle income countries. Controls on the labelling, packaging and contents of tobacco products, together with education, training and information initiatives, and limits on tobacco advertising and sales to minors, all increase awareness of the dangers of tobacco use and decrease exposure to positive images of smoking. Action to reduce the exposure of non-smokers to smoke has positive health effects and is beneficial to the environment. Also, support for crop alternatives and concern for the environment limit the negative effects of tobacco cultivation and can help to alleviate poverty.

The global cost of tobacco is undeniable: tobacco cultivation, production and consumption deplete the planet of natural, human and economic resources. Worldwide tobacco production and consumption represents a net economic loss. A study in the early 1990s provided economic values for the benefits of tobacco—including consumer pleasure, producer profits and government revenue—and the costs, which include medical treatment and the loss of productive lives due to premature morbidity and mortality. The study calculated that the global tobacco market incurs a net annual loss of US$ 200 billion.[21] WHO noted in 1995 that this money, if redirected, would be sufficient to double the current health budgets of all the developing countries.[22] These figures highlight the economic and health imperatives inherent in tobacco control and its centrality to poverty reduction strategies that focus on the health of the populace.

II. THE SCALE AND CONSEQUENCES OF TOBACCO CONSUMPTION IN DEVELOPING COUNTRIES

Tobacco is a strongly addictive substance[23] that is cheap in many countries. Tobacco use is often culturally accepted, especially for men, and advertising aimed at encouraging people to use tobacco is ubiquitous.[24] Currently, almost 1.3 billion (10^9) people smoke cigarettes worldwide: about 1.1 billion men and 230 million women.[25] One in five of the world's 6.4 billion people[26] are smokers—one in three of all those over 15 years old. In the year 2000, just over 47% of men and 10% of women smoked, with a global prevalence rate of 29%.[27] About one in two long-term smokers will die from a tobacco-related disease, many of them before age 65.[28] Smokers inflict damage not just on themselves but on others, via second-hand smoke.

Smoking was once predominant in the developed world, but this is changing rapidly. Now, 50% of males in developing countries smoke, compared with only 35% of males in developed countries. Comparable figures for females are 9% and 22%, respectively,[29] although in addition, many women in South Asia chew tobacco.[30] Three-quarters of all tobacco users are now in developing countries, and they consume nearly 60% of the 5700 billion cigarettes worldwide smoked each year.[31]

Estimating the prevalence of tobacco use, especially in developing countries, is far from an exact science. Surveys may involve underreporting, do not necessarily use similar definitions or age groupings, and range from small-scale to standardized national prevalence studies. For such a serious problem, the poor quality of surveillance data is a sad paradox. None the less, despite a margin of error in the detail of figures on tobacco prevalence, they demonstrate the magnitude of the problem. It is also possible to estimate total and per capita tobacco consumption from production, import and export statistics, or self-report data. We use these several sets of statistics below.

The prevalence of tobacco use

The studies of Gajalakshmi et al. in 2000, using data from 1995, and Guindon & Boisclair in 2003, using data from 2000, give a clear picture of tobacco use prevalence and consumption in the developing world.[32]

Looking first at regional trends, smoking prevalence rates vary by region and sex. Gajalakshmi et al. found that male smoking prevalence in 1995 was

highest in East Asia and the Pacific (61%) and in Europe and Central Asia[e] (57%), and lowest for sub-Saharan Africa (29%). Female smoking rates were highest in Europe and Central Asia (26%) followed by Latin America and the Caribbean (21%). Less than 10% of females in all other regions smoked.[33] Globally, males accounted for more than 80% of all smokers. The authors noted that these figures are consistent with other studies of global smoking prevalence, although the lack of information on smokeless tobacco ensures that for South Asia, and probably North Africa, the figures are underestimates.

Guindon & Boisclair disaggregated countries by level of human development using the United Nations Development Programme's (UNDP's) Human Development Index (HDI), which divides countries into three groups, based on their HDIs.[f] High human development countries include the United States of America, most of Europe, Australia, Canada, Japan, and some in the Middle East. Medium human development countries include Brazil, China and India (the latter two, because of their size, contribute greatly to the overall figures), and countries such as Bangladesh, Bolivia, Ghana, Indonesia, the Islamic Republic of Iran, Nicaragua, South Africa, and Thailand. Low human development countries include all of the poorest nations in Africa, and also Haiti, Pakistan, and Yemen.[34] A summary of smoking prevalence data appears in Table 1, which indicates that most smokers, more than 850 million of them, live in developing countries that have reached the medium level of human

Table 1: **Male and female smoking prevalence by level of human development in 2000**

Level of human development	Prevalence (%)			Number of users (thousands)		
	Male	Female	Total	Male	Female	Total
High	35.6	20.3	27.8	149 073	89 442	238 515
Medium	52.4	7.7	30.2	747 951	108 326	856 277
Low	36.7	6.7	21.9	87 057	15 865	102 922
World	**47.5**	**10.3**	**28.9**	**1 005 927**	**217 755**	**1 223 682**

Source: Guindon & Boisclair.[25]

[e] These reflect World Bank country groupings.

[f] The UNDP Human Development Index (HDI) provides a rank for each country based on life expectancy, adult literacy rates, combined enrolment in all levels of education, and per capita GDP.

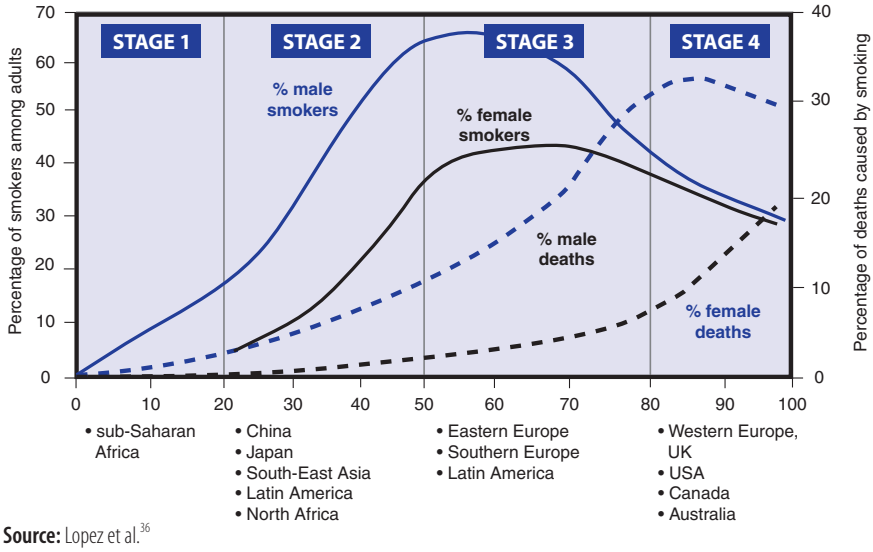
development. In many of these countries, however, poverty remains widespread (e.g. Bangladesh, Ghana, India, Lesotho, Namibia and Nicaragua) or is still evident (e.g. Bolivia, China and Viet Nam).[g]

It is not possible to appreciate fully the information in Table 1 without the understanding that tobacco uptake typically goes through several stages. One interpretation of Table 1 would be that developed countries have not been as affected by smoking as developing countries, but this is clearly not the case: 50 years ago, the highest rates of smoking prevalence were in the developed world.

In the developed world, tobacco use has generally followed a four-stage model (Figure 1). This model is instructive in terms of current and future patterns in the developing world, and is critical to considerations of tobacco control and poverty. While not all countries follow this model exactly (e.g. female smoking in China and some other developing countries is not at the rates that would be predicted),[35] it provides a good indication of likely trends.

In stage 1 of the tobacco epidemic, smoking prevalence is low (below 20%) but increasing, and there is little evidence of lung cancer and other diseases

Figure 1: **Four stages of the tobacco epidemic**



Source: Lopez et al.[36]

[g] Poverty is most commonly defined as people living on less than US$ 1 a day. Source: World Development Indicators database, World Bank, April 2002.

caused by long-term smoking. This characterizes many, but not all, of the countries in sub-Saharan Africa, where poverty is endemic. In stage 2, smoking prevalence rises to about 50% of males; there is an increase in female smoking, earlier initiation of youth into smoking, and increased morbidity and mortality attributable to tobacco. Much of Asia, Latin America and North Africa are at this stage. In stage 3, male smoking prevalence peaks at about 60% and then decreases, and female smoking decreases more slowly. During stage 3, the burden of disease attributable to smoking rises because of the delayed effect of smoking on chronic illnesses such as heart disease and lung cancer. Smoking accounts for between 10% and 30% of deaths (about 75% of these in men) in stage 3. Much of Eastern and Southern Europe and parts of Latin America are at this stage. In stage 4, smoking prevalence continues to fall, and smoking deaths peak in men at about 30–55% and in women at about 20–25%. Most Western industrialized nations are in stage 4 of the tobacco epidemic.[37]

The four-stage model of the tobacco epidemic explains the process of smoking uptake and decline in developed countries. We emphasize two points about its applicability to poverty and developing countries.

First, in countries where life expectancy is low and premature mortality and chronic morbidity are high, smoking is likely to have wider health effects earlier in the epidemic than has been the case in developed countries. For example, in India new research implicates smoking in the increasing incidence of clinical (as distinct from subclinical) tuberculosis, and in half of all tuberculosis deaths.[38] Addiction to tobacco also limits access to more beneficial goods in poor households. If pregnant women are malnourished because a portion of limited household funds is spent on tobacco products, they will be at risk of illness and their infants will be underweight and at much greater risk of early death. If children lack food because of money spent on tobacco, their life chances suffer. We discuss these matters in more detail below.

Second, the four-stage model *assumes* the institution of comprehensive tobacco control initiatives in stages 2 and 3, leading to reductions in smoking prevalence in late stage 3 and stage 4. In stage 4 of the model, smoking prevalence declines in many developed countries because a combination of increases in the price of cigarettes, restrictions on advertising and public smoking, and health information initiatives have persuaded many smokers to quit, and dissuaded large numbers of adolescents from starting. However, without these strategies, the worst aspects of stages 3 and 4 of the model will operate in unison. Very high rates of smoking will coexist with very high rates of death due to smoking. This has been the case in parts of Eastern Europe.[39]

In other words, to prevent stage 3 and to see the reductions of stage 4, countries must take concerted action to fight the tobacco epidemic and to turn it around.

Research suggests that individuals who avoid smoking in adolescence or young adulthood are unlikely to take it up. In developed countries, most smokers begin in their teens. The age of first regular tobacco use used to be higher in developing countries for which there were data (people in their early twenties), but the trend is towards younger ages.[40] The Global Youth Tobacco Survey (see below) clearly shows that large numbers of smokers in developing countries are starting to smoke in their teens.[41] Gajalakshmi et al. estimated that in 1995 between 81 000 and 98 000 20-year-olds became smokers *each day*, the vast majority in low and middle income countries.[42]

Partly because smoking takes decades to cause illness and death, smokers tend to underestimate its risks, a situation exacerbated by the young age at which many smokers begin, when feelings of invulnerability abound. Yet studies of smokers as young as 13–15 years old find that the majority of them want to stop smoking and have tried to quit.[43]

However, rates of quitting in low and middle income countries are still very low compared with rates in the developed world. For example, while between 20% and 40% of smokers have quit in a number of developed countries, surveys in the 1990s found that the percentage of men reporting having quit was only 2% in China, 5% in India, and 10% in Viet Nam.[44] In addition, research has found that without help in the form of cessation treatment, up to 98% of smokers who try to quit will have started again within a year.[45]

Guindon & Boisclair, using data for the year 2000, made careful calculations concerning past and future trends in tobacco use prevalence and consumption.[46] To determine future scenarios, they estimated likely changes in population, levels of economic development and tobacco use.[h] They found that even if global smoking prevalence and incomes remain unchanged, population increases alone would see the number of smokers worldwide increase from 1.3 billion to 1.7 billion by 2025. If just a modest increase in per capita income occurs, the figure could rise to 1.9 billion smokers by 2025. Most of this increase will be in developing countries.

The picture for tobacco-related deaths is also bleak. Extrapolations from developed countries, where tobacco use has already peaked, suggest that on current smoking rates, there will be a tenfold increase in tobacco-related

[h] The basis of their calculations is fully explained in their paper.

deaths in the 21st century compared with the 20th.[47] This is in part because the number of people reaching middle and old age will increase steeply in low and middle income countries, and partly because of the years that pass before increased mortality will be fully evident among the large numbers of young adults who have taken up smoking in recent decades.[48] Table 2 summarizes these findings.

Table 2: **Global tobacco deaths in the 20th and 21st centuries**

Source: Modified after Peto & Lopez.[49]

Period	Millions of deaths
1901–2000	100 (mostly in developed countries)
2001–2100	1000 (mostly in developing countries)

- 500 million deaths among smokers alive today
- 1 in 2 of long-term smokers killed by their addiction
- Half of deaths in middle age (35–69 years)

The implications of these trends are clear. Without action now, many people in developing countries will die prematurely from tobacco-related causes, even as other causes of premature death diminish.

If we can reduce smoking prevalence, Guindon & Boisclair offer two future scenarios, based on the medium variant of projected population from the United Nations World Population Prospects (2000 Revision), and an average annual growth rate of real GDP per capita of 2%. The first assumes a 1% global annual prevalence reduction from 2000 and the second a 2% reduction. If world smoking prevalence were to decrease by 1% a year in each year from 2000, as it has in some developed countries, and per capita income increase by 2% a year over 25 years, there would still be about 1.3 billion smokers in 2010 and in 2025; that is, the number would stay steady. A 2% annual prevalence reduction would mean 1.2 billion smokers in 2010, and 1.1 billion in 2025. These decreases would save millions of smokers' lives. Higher quitting rates would have an even greater effect.

Levels of tobacco consumption

Another way to measure tobacco use is in terms of per capita cigarette consumption. Gajalakshmi et al. report that between about 1970 and the mid-1990s the total global consumption of cigarettes and bidis (small hand-rolled cigarettes) per annum doubled—from 3 trillion to 6 trillion sticks.[50] However, per capita consumption remained more or less constant. This was because per capita consumption decreased in developed countries and increased in developing countries. Increases were especially high in some low income countries (such as Cameroon, Haiti, Indonesia, Nepal and Senegal), and also in China,[i] where in each case, the overall per capita increase was well over 100% in 25 years. Gajalakshmi et al. point out that, historically, per capita tobacco consumption has been significantly higher in the developed world. However, over the period they examined, the difference in consumption decreased from a ratio of 3.3 : 1 in the early 1970s to 1.8 : 1 in the early 1990s.

Drawing on recent data sources containing production, import and export statistics for each country, Guindon & Boisclair also found that total world cigarette consumption increased steadily from 1970 to 2000, notwithstanding a slight drop in the early 1990s—their estimate is a 75% increase to 2000. Again, total cigarette consumption remained relatively stable in the developed world, but trebled in the developing world.[51] Guindon & Boisclair found that per capita cigarette consumption had risen and fallen over the same period, remaining stable since the mid-1990s. This translates into an overall decrease in per capita consumption of just under 5%. Like Gajalakshmi et al., they found a discrepancy between trends in developed and developing countries. Per capita consumption increased by 46% in developing countries between 1970 and 2000, but decreased in both developed and transition countries. This translated into a reduction in the difference in per capita consumption between people in developed and developing countries, from about 4 : 1 in 1970 to almost 2 : 1 in 2000.

Guindon & Boisclair also provide data on trends in total consumption for low, medium and high HDI countries. In high HDI countries, such as the United States and most of Europe, cigarette consumption barely increased between 1970 and 2000, and is set to remain flat. However, for medium HDI countries (including China and India) consumption more than doubled

[i] China has recently been reclassified from a 'low income' to a 'lower middle income' country by the World Bank.

between 1970 and 2000, and is set to increase by an additional 60% between 2000 and 2025.[52] Consumption for low HDI countries remained stable until the 1990s, but has shown a significant increase in the past decade. If this trend continues, tobacco consumption in low HDI countries will increase by more than 100% between 2000 and 2025, and by 2025, low HDI countries will account for a greater proportion of total world tobacco consumption than medium or high HDI countries.[j]

Based on these trends, even assuming constant per capita tobacco consumption, Guindon & Boisclair demonstrate that there will be an increase of approximately 33% in total cigarette consumption worldwide in the period 2000 to 2025. However, a decrease of 3% in total annual consumption between 2000 and 2025, while a challenge to achieve in low and medium HDI countries, given current strong upwards trends, would dramatically alter future usage patterns in these countries and the damage caused by premature death and disease.[53] The consumption graph would be closer to a horizontal line than an upward curve. In addition, as indicated above, countries could achieve this without a dramatic drop in worldwide cigarette consumption or damage to economies that are dependent on tobacco, due to population increases. Even with such a decrease by 2025, consumption levels would be equivalent to those around 1980.

The health effects of tobacco

Estimates of mortality show that in 2000 the proportion of deaths in the developed world attributable to tobacco use were 27% of male deaths and around 12% of female deaths.[54] In many developing countries, however, as depicted in the four-stage model (Figure 1), the recent increases in smoking are yet to translate into high mortality levels. For this reason, on a global basis, tobacco is one of only two causes of death that are increasing rapidly, the other being HIV/AIDS.[55]

The annual number of deaths from tobacco, most recently estimated at nearly 5 million, is currently divided almost equally between developed and developing countries, with 84% of those who have died in the developing world being males.[56] However, on current trends, this figure will increase to 10 million a year by the early 2020s, of which an estimated 7 million will be in

[j] Percentage changes estimated from Guindon & Boisclair[25] Figures 1 and 2.

developing countries.[57] By comparison, HIV/AIDS kills about 3 million people a year at present, although much greater numbers of deaths are projected for the coming decade.

Tobacco is responsible for more deaths worldwide than any other preventable risk factor except high blood pressure.[58] As Table 3 below indicates, when countries are divided into three groups—developed countries, high mortality developing countries (related to low life expectancy and many infant and child deaths)[59] and low mortality developing countries—tobacco is ranked sixth as a cause of preventable death in high mortality developing countries, but second for both low mortality developing and developed countries.

Patterns of death and disease from tobacco vary. In the United States, vascular disease and lung cancer predominate. In China, chronic obstructive pulmonary disease causes more tobacco-related deaths than lung cancer. In India, with almost half the world's tuberculosis deaths, smoking exacerbates its effects, and causes a greater risk of death.[60] Oral cancers are also a major

Table 3: **Attributable mortality in 2000 by selected leading risk factors, high and low mortality developing countries and developed countries**

Attributable mortality ranking	Country status		
	High mortality developing	Low mortality developing	Developed
High blood pressure	3	1	1
Tobacco	6	2	2
Underweight	1	–	–
Unsafe sex	2	–	–
Unsafe water, sanitation and hygiene	4	–	–
High cholesterol	5	3	3
Alcohol	–	4	–
High body mass index	–	–	4

Source: WHO.[61]

risk in India, due to the prevalence of smokeless tobacco use (e.g. chewing tobacco).[62]

Manufactured cigarettes are not the only form of tobacco that carries significant risk. Indians smoke 8–10 times more bidis than manufactured cigarettes. While bidis contain less tobacco, they produce comparable (or higher) amounts of tar and nicotine, and in one study had a higher relative mortality risk than cigarettes. In the same study, smokeless (chewing) tobacco, used by many poor people and women in India, also carried a substantial relative mortality risk.[63]

Tobacco is also responsible for a large portion of the disease burden in developing countries.[64] Calculations of the burden of disease due to tobacco often use disability-adjusted life years (DALYs), which are years of potentially healthy life lost through death, illness and injury.

While "low weight for height" and unsafe sex (HIV/AIDS) account for the most DALYs lost in the world, as they kill many very young people, especially in high mortality developing countries, tobacco is the fourth highest contributor to global years of life lost, after underweight, unsafe sex and high blood pressure. It is the largest contributor to DALYs lost in developed countries; third behind blood pressure and alcohol in low mortality developing countries; and ninth in high mortality developing countries, after underweight; unsafe sex; unsafe water/sanitation/hygiene; indoor smoke from solid fuels; iron, zinc and vitamin A deficiency; and high blood pressure.

We can express the extent to which preventable risk factors, such as tobacco, contribute to disease, as DALYs lost attributable to each risk factor. Table 4 shows the contribution made by tobacco to the 10 leading diseases and injuries in high and low mortality developing countries, and in developed countries.

The impact of tobacco companies and trade liberalization on tobacco use

Smoking rates in many developing countries have increased in the past few decades and are set to continue. Policy-makers should expect, based on precedent, that transnational tobacco companies will act aggressively to increase their hold in developing countries, including those that are currently very poor. In fact, developing countries represent key new markets for tobacco companies.

Table 4: **Leading diseases affected by tobacco in high and low mortality developing countries and developed countries***

High mortality developing countries	Low mortality developing countries	Developed countries
Lower respiratory infections	Lower respiratory infections	
Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease
Tuberculosis	Tuberculosis	
	Chronic obstructive pulmonary disease	**Chronic obstructive pulmonary disease**
	Cerebrovascular disease	Cerebrovascular disease
		Trachea/bronchus/lung cancers

* Bold type indicates that a higher proportion of the disease occurrence is attributable to tobacco.

Source: Adapted from *The world health report 2002.*[65]

Evidence suggests that transnational tobacco companies are indeed concentrating on expanding their markets in developing countries through advertising, promotions and sponsorship, direct investment in developing countries and lobbying of governments.[66] Beginning in the 1960s, as sales in Western countries began to fall, transnational companies turned their attention to South America; then in the 1980s, they focused on countries with growing economies in Asia, such as Japan, Republic of Korea, China (Province of Taiwan) and Thailand; and in the 1990s, they targeted Eastern Europe, Africa and China.[67] In countries that have considered smoking by women to be culturally inappropriate, including China and much of Asia, tobacco companies specifically market cigarettes to young women, linking smoking with Western-style independence, stress relief and weight control.[68]

More recently, tobacco companies, keen to be seen to engage in what is known as "corporate social responsibility", have devoted a portion of their profits to activities that appear to be in the public interest, but often disguise other aims. These include engaging in ineffective youth smoking prevention programmes, offering education scholarships and research and other grants

to universities, involvement in community development projects that include attempts to increase tobacco cultivation, and investing in employee health clinics.[69] Many of these activities have taken place in developing countries that are clearly in need of assistance, and some could be interpreted as supporting or promoting implementation of one or more of the Millennium Development Goals (MDGs).

However, socially responsible initiatives, so-called by transnational tobacco companies, sit side by side with their continued involvement in aggressive advertising and sponsorship campaigns directed at young people, financial pressures they impose on countries that attempt to limit tobacco marketing, their deliberate deception in many developing countries concerning the dangers of second-hand smoke, and attempts to actively undermine the tobacco control activities of the World Health Organization (WHO).[70] For these reasons, most critics see efforts to engage in corporate social responsibility by tobacco companies as an aspect of their well-orchestrated public relations campaigns.[71] They point out that such activities have not been shown to reduce smoking uptake, and do not alleviate the suffering and death caused by tobacco use.[72] The WHO Tobacco Free Initiative has described efforts at corporate social responsibility by tobacco companies as "an inherent contradiction".[73]

In relation to the tobacco epidemic in a broader sense, trade liberalization is a two-edged sword. The freeing up of trade in goods and services, reflected in the creation of the World Trade Organization (WTO), has increased opportunities for developing countries to export goods and services and earn hard currency, and to improve their health status, for example, through potentially greater sharing of health expertise via information technology.[74] On the other hand, trade liberalization increases competition and leads to a reduction in prices of tobacco products and an increase in demand for cigarettes. Trade liberalization policies have made developing countries more vulnerable to trade in harmful substances such as tobacco,[75] and have significantly increased the spread of the tobacco epidemic into developing countries, especially the poorest nations.[76]

Trade liberalization agreements have also been used to press developing countries to accept foreign-made cigarettes. In the late 1980s and early 1990s, the United States applied trade pressures to Japan, Republic of Korea, China (Province of Taiwan) and (especially) Thailand, forcing them to lift restrictions on the importation of American cigarettes. Before then, these countries had near monopolies of domestic cigarette production and high tariffs on tobacco imports. Under Article XX(b) of GATT (the General Agreement on Tariffs and

Trade), now incorporated into the WTO Agreement, exceptions are allowed to free trade if deemed "necessary" to protect human life or health, so long as they do not represent "arbitrary or unjustifiable discrimination" or "a disguised restriction on international trade".[77]

Two key determinations from the Thai case have set important precedents. First, the ruling stated that banning imported cigarettes was "unnecessary" to the protection of human health in Thailand, because alternative strategies existed for that purpose. Second, the determination permitted Thailand to impose tobacco control regulations, but only as long as they applied equally to domestic and foreign cigarettes, and as long as Thailand used them only to protect health. Observers have cautioned against seeing either ruling as a "win" for public health.[78] The result was that United States tobacco companies gained access to the Thai market. Opening up tobacco markets led not only to a marked increase in the share of American cigarettes in Japan, Republic of Korea, China (Province of Taiwan) and Thailand due to increased competition, lower prices and multimillion dollar marketing campaigns, but also to a nearly 10% increase in average per capita tobacco consumption.[79] In the Republic of Korea, the rate of increase in smoking prevalence trebled following the opening of their markets. In two years, young male smoking rates increased from 18% to 30%, and young female smoking rates from 2% to 9%. However, the market share of American cigarettes was smaller in countries with restrictive tobacco control policies, especially the Republic of Korea and Thailand.

A study published in 2000[80] examined the impact of global trade liberalization on tobacco consumption between 1970 and 1995. It found that trade liberalization increased tobacco consumption, especially in low income countries and in middle income countries, but not in high income countries, because the latter already had more open markets.[k] The authors concluded that low and middle income countries "need to be more proactive in adopting strong tobacco control policies if reducing the health consequences of tobacco use is a priority".[81] This is made more urgent due to the fact that most developing countries currently have less stringent tobacco control regulations and enforcement regimes. A more recent study by Bettcher et al. examined the impact of trade liberalization on tobacco consumption in a much larger (80) range of countries, and found that import penetration due

[k] The definitions of low, middle and high income countries in this study were not consistent with current World Bank classifications, although there was substantial overlap.

to trade liberalization contributes to higher levels of cigarette consumption in both low and middle income countries.[82]

In what follows, we link the impact of tobacco use in developing countries to the seven MDGs that address poverty. As will be apparent, by almost any measure, tobacco is either already a serious problem in the world's poorest countries, and for the world's poorest citizens, or on recent trends is set to become so. We also look at the role of tobacco control in the eighth MDG.

III. MILLENNIUM DEVELOPMENT GOAL 1 – ERADICATING EXTREME POVERTY AND HUNGER: THE ROLE OF TOBACCO

If national economic improvements lead to greater expenditure on tobacco but not food, then the benefit of economic growth will be erased…[83]

Tobacco use in the world's poorest nations

In the year 2000, 1.2 billion people in the world lived on less than US$ 1 a day, and 2.8 billion lived on less than $2 a day.[84] Large numbers of these people lived in South Asia, although the largest proportion (51%) was in sub-Saharan Africa. More than 800 million of them were malnourished,[85] and among the poor, 140 million children under 5 years old were underweight.[86] Even so, people living on tiny incomes spend precious money on tobacco due to the impact of addiction. In fact, use of tobacco in many of the world's poorest nations sits side by side with high levels of poverty and malnutrition.

We can describe poverty at the country level in several ways: in terms of per capita income; level of human development; high or low mortality; or levels of malnutrition. Table 5 provides the latest smoking prevalence rates for those poorest countries for which data are available. All countries classified as "low income" by the World Bank at 1 July 2003 were included.[87] Low income countries had an annual per capita income of US$ 745 or less in 2002, or about $2 per person per day. The World Health Organization (WHO) has classified three-quarters of these countries as experiencing high mortality.[88] About half are also classified as having a low Human Development Index (HDI), with most of the rest in the lower half of the medium HDI category.[89]

In addition to smoking prevalence, Table 5 provides the proportion of people in each country living on less than $1 a day and the percentage of children under 5 years old with malnutrition. This information comes from the UNDP Human Development Report 2003.[90]

Table 5: **Adult smoking prevalence for low income countries (people living on less than $1 a day) and extent of child malnutrition**

	Men (%)	Women (%)	Overall	% < $1/day	Child malnutrition (%)
Yemen	77.0	29.0	–	15.7	46
Papua New Guinea	76.0	80.0	–	–	–
Indonesia	69.0	3.0	33.8	7.2	25
Solomon Islands	–	33.0	–	–	21
Mongolia	67.8	25.5	51.5	13.9	13
Kenya	66.8	31.9	54.6	23.0	22
Cambodia	66.7	10.0	35.0	–	45
Kyrgyzstan	60.0	15.6	–	2.0	11
Georgia	60.0	15.0	–	<2	3
Guinea	58.9	47.3	57.6	–	33
Uganda	52.0	17.0	–	82.2	23
Nicaragua	51.0	16.0	–	82.3	12
Viet Nam	50.7	3.5	25.7	17.7	34
Bangladesh	48.3	20.9	–	36.0	48
Zimbabwe	46.0	13.0	–	36.0	13
Sao Tome and Principe	–	–	44.1	–	–
Myanmar	42.9	21.9	31.1	–	43
Côte d'Ivoire	42.3	1.8	24.4	12.3	21
Democratic People's Republic of Korea	–	–	42.0	–	28
Lao People's Democratic Republic	41.0	15.0	38.0	26.3	40
Zambia	40.0	7.0	–	63.7	24
Uzbekistan	40.0	1.0	20.0	19.1	19
Nepal	39.5	23.8	31.6	37.7	48
Lesotho	38.5	1.0	–	43.1	18
Benin	–	–	37.0	–	23
Pakistan	36.0	9.0	–	13.4	38

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	Men (%)	Women (%)	Overall	% < $1/day	Child malnutrition (%)
Cameroon	–	–	35.7	33.4	22
Gambia	34.0	1.5	–	59.3	17
Senegal	–	–	32.0	26.3	18
Azerbaijan	30.2	1.1	–	3.7	17
India	29.4	2.5	–	34.7	53
Chad	24.1	–	–	–	28
Sudan	23.5	1.5	–	–	11
United Republic of Tanzania	23.0	1.3	–	19.9	29
Malawi	20.0	9.0	–	41.7	25
Sierra Leone	–	–	18.5	57.0	27
Burundi	15.6	11.4	–	58.4	45
Nigeria	15.4	1.7	8.9	70.2	31
Ghana	10.8	4.0	–	44.8	25
Haiti	10.7	8.6	9.5	–	17
Rwanda	7.0	4.0	–	35.7	24
Ethiopia	–	–	4.7	81.9	47

Sources: Countries listed were classified as low income economies by the World Bank at 1 July 2003. Only countries with smoking data were included.[1] Smoking figures are taken from WHO's *Tobacco control country profiles*.[91] The percentage of people living on less than $1 a day and child malnutrition (defined as the percentage of children under five who are underweight for age), come from the UNDP *Human development report 2003*.[94]

[1] More recent data are available for some of these measures. A few countries listed above have been reclassified as "lower middle income" in 2004, and for two of them, Nicaragua and Ethiopia, a significant reduction in the number of people living on less than $1 a day is evident in the UNDP Human Development Report 2004 (see http://hdr.undp.org/reports/global/2004/), in which the figures listed above are closer to the number now living on $2 a day. These changes do not affect this study's argument concerning the significant prevalence of smoking in some of the world's poorest nations.

No smoking prevalence data are available for many of the poorest countries, especially those in sub-Saharan Africa.[m] The figures we quote in Table 5 appear in the latest edition of WHO's *Tobacco control country profiles*.[91] They are the best available, but again, are not strictly comparable, as they come from a variety of studies and do not always employ the same definitions of "current smoker" or "adult". In addition, some data are obvious underestimates; for example, the figures for India are much lower than have been found in other studies. Gupta cites rural tobacco use rates in India of between 33% and 80% for men, and between 15% and 67% for women.[92] The use of smokeless tobacco in India is widespread. In a large study of Bombay residents aged 35 and over, Gupta found that 69.3% of men were current tobacco users, but only 23.6% were smokers; the rest used smokeless tobacco, mainly in the form of betel quid with tobacco. For women, 57.5% were tobacco users, but almost all used smokeless tobacco, mainly *mishri*. Bobak cites earlier prevalence figures for several poor countries that are also higher than the percentages in Table 5: Cambodia 80%, Viet Nam 73%, China 63%, and Bangladesh 60%.[93] The percentages in Table 5 are, none the less, indicative.

Table 5 is a stark reminder that poverty is no impediment to tobacco addiction. In Uganda, about 50% of the men use tobacco, despite over 80% of the population living on less than $1 a day. In Bangladesh, nearly 50% of men smoke, and yet a third of the population lives on less than $1 a day, and half the children under 5 years old are malnourished. In Zambia, 40% of the men smoke, more than 60% of the population lives on less than $1 a day and a quarter of the children are malnourished. In Yemen, three-quarters of the men smoke and nearly half of the children are malnourished. In Cambodia, two-thirds of males use tobacco, and nearly half of the children are malnourished. In Kenya, a similar number of men smoke, and over one-fifth of the children are malnourished.

The UNDP Human Development Report 2003, which focused on progress in achieving the Millennium Development Goals (MDGs), found widening gaps between the rich and the poor in Bangladesh and Uganda, and noted that Kenya and Zambia had dropped in terms of their HDIs during the 1990s.[94] It also found that in several states of the former Soviet Union with very high smoking rates, income poverty had increased between 1990 and 2001. The

[m] There are no adult smoking data presented for the following countries: Afghanistan, Angola, Bhutan, Burkina Faso, Central African Republic, Comoros, Congo, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Guinea-Bissau, Liberia, Madagascar, Mali, Mauritania, Moldova, Mozambique, Niger, Somalia, Tajikistan, Timor-Leste, and Togo.

World Bank MDG Progress Report 2003 suggested that Bangladesh as a whole has done well in reducing child malnutrition, although this has not been achieved for the poorest 20% of the population.[95] It reported that in Nicaragua and Yemen child malnutrition is increasing, and that on current trends, neither Cambodia nor Kenya will meet the MDG target for reducing child malnutrition by 2015.

Table 5 indicates that nearly two-thirds of the poorer countries for which there are data have male smoking rates above the present average in the developed world, which is 35%.[96] While approximately 55% of males smoked at the peak of tobacco use in the United States of America in the 1950s,[97] male smoking rates are higher than this in nine low income countries, in some cases markedly so.

Smoking rates for females are generally less in poorer countries than in the developed world, with seven low income countries exhibiting female smoking rates above the rate in the developed world, which is about 22%.[98] Female smoking prevalence is also more variable. In several countries, such as Indonesia, Côte d'Ivoire and Uzbekistan, female smoking rates are negligible. In others, such as Papua New Guinea and Guinea, they are high. We should keep in mind the role of smokeless tobacco in South Asia and parts of Africa, however, as the data for India presented above show.

Table 5 presents a mixed picture for the poorest continent on earth, Africa, where more than half of the world's poorest nations are situated. For these countries, smoking prevalence data are often patchy: unavailable for many, and incomplete for others. In Africa, rates of tobacco use have until recently been relatively low.[99] However, with the exception of South Africa, cigarette consumption is increasing dramatically. Between 1995 and 2000, total cigarette consumption in Africa rose by a staggering 62%.[100] Previous studies have found males are more likely to smoke in towns than in rural areas, which raise questions about the impact of urbanization on Africa. It is true that among the 12 poorest countries on earth, as measured by the HDI, data are either unavailable or smoking rates are under 20–25%. But once countries rise above an absolute level of poverty, other factors come into play. For example, despite all being very poor, Malawi's male smoking rate is 20%, Zambia's is 40%, and Guinea's nearly 60%.

India is the most populous low income country. It is estimated that on current trends, tobacco will kill 80 million Indian males currently aged 0–34 years.[101] If we are to prevent a pandemic of death and disease from tobacco in the poorest nations on earth, it will not be enough to stop young men and

especially young women from taking up tobacco use. Massive effort will need to go into encouraging and assisting current tobacco users to quit.

Poverty is not restricted to the countries listed in Table 5. There are many middle income countries with large pockets of poverty.[n] Table 6 provides the same information as Table 5, using the same sources, for a group of countries whose overall per capita income is higher, but that none the less have 15% or more of their people living on less than $1 a day, suggesting considerable internal inequality.

Table 6 shows that in Namibia two-thirds of the men use tobacco while a third of the population lives on less than $1 a day. Although it may not always be the poorest people who use tobacco, household expenditure data from a number of countries show higher tobacco-use prevalence rates among poor groups than higher income groups. In Honduras, a third of the men use

Table 6: **Adult smoking prevalence for selected middle income countries (people living on less than $ 1 a day) and extent of child malnutrition**

	Men (%)	Women (%)	Overall	% < $1/day	Child malnutrition (%)
Namibia	65.0	35.0	–	34.9	–
Peru	52.5	17.8	33.8	15.5	7
China	53.4	4.0	28.9	16.1	10
Philippines	50.6	8.0	23.5	14.6	32
Ecuador	45.5	17.4	31.1	20.2	14
El Salvador	42.1	14.8	–	21.4	12
Guatemala	37.8	17.7	26.8	16.0	24
Venezuela	37.4	23.8	30.6	15.0	4
Honduras	36.0	11.0	24.0	23.8	17
Botswana	–	–	21.0	23.5	13
Paraguay	12.0	37.0	24.0	19.5	–

Sources: see Table 5[o]

[n] The World Bank classifies lower middle income countries as those with a per capita annul gross national income (GNI) of between $746 and $2975, and upper middle income countries as those with a per capita GNI of between $2976 and $9205.

[o] More recent figures from the UNDP Human Development Report 2004 indicate a significant reduction in child malnutrition in the Philippines, with other countries remaining stable or increasing slightly. Variations in data on the number of people living on less than $1 a day are not significant.

tobacco, while nearly a quarter of the population lives on less than $1 a day, and nearly one in five of the children are malnourished. In Guatemala and Venezuela, malnutrition increased between 1990 and 2001.[102]

China has 20% of the world's population and produces and consumes about 30% of the world's cigarettes,[103] making it the world's largest national market for cigarettes. Despite China having attained "lower middle income" status, 16% (more than 200 million Chinese) live on less than $1 a day. Currently in China, over 300 million men and 20 million women smoke.[104] Nearly two-thirds of men in China smoke (the percentage in Table 6 for China, like that for India in Table 5, is conservative), and tobacco will kill half of them. Of the 300 million men currently aged 0–29 years in China, one-third will die from tobacco-related illness. The projected toll is about 100 million tobacco deaths in China in the first half of the 21st century.[105] Half of these deaths will occur when these men have reached middle age (35–69 years),[106] which will significantly affect China's productivity, leaving many families deprived of breadwinners and threatened with poverty.

Finally, mention should be made of Brazil, a middle income country with large pockets of poverty. In 2000, Brazil had nearly 10% of its population of 184 million living on less than $1 a day, and 6% of its children were malnourished. Recent data indicate that nearly a quarter of the men smoke, with smoking skewed to the lowest socioeconomic groups.[107]

Future trends

We can see future trends in smoking in impoverished and lower income countries in the smoking behaviour of young people. The Global Youth Tobacco Survey (GYTS) project, an international surveillance system under the auspices of WHO and the United States Centers for Disease Control and Prevention (CDC), has surveyed schoolchildren 13–15 years old in many countries.[108] Youth smoking rates are highest in Western Europe, where one-third of boys and nearly one-third of girls smoke.[p] For Africa, the figures for smoking are 10.4% for boys and 4.6% for girls, and for other tobacco use, 11.0% for boys and 9.2% for girls.[109] The GYTS also found especially high smoking prevalence rates in parts of Burkina Faso (more than one in four boys), in Mali (nearly half of all boys), Niger, Senegal and South Africa (about one in five boys), although

[p] Current smokers in the GYTS survey are defined as those who have smoked cigarettes or used other tobacco products more than once in the previous thirty days.

rates in South Africa are decreasing.[110] Use of other tobacco products was also high in Nigeria, and parts of Uganda and Zambia, where it ranged from one in six boys to one in four, with levels for girls sometimes as high.[111]

Particularly troubling was the finding that in just fewer than half the sites surveyed by GYTS there were no gender differences in cigarette smoking. While Africa and parts of Asia have traditionally had fewer female than male smokers, in several sites, the use of tobacco products other than cigarettes showed no gender difference at all. The rise in number of young girls using tobacco is a cause for great concern, as it affects their own health and in future the health of their babies.

Tobacco use among the poor within countries

Tobacco expenditures exacerbate the effects of poverty and cause significant deterioration in living standards among the poor.[112]

Tobacco use is widespread among many of the poorest nations and is set to increase in others. Who in these countries uses tobacco? Is it only the more affluent, or does it include the poorest of the poor? Here, as previously indicated, the evidence is clear. In the early decades of the tobacco epidemic in developed countries, smoking was concentrated among the more affluent. But since then this pattern has reversed, and now poorer people are more likely to smoke than wealthier people. While countries vary,[q] a similar pattern is now apparent in many low and middle income countries.[113]

In an analysis of 74 studies from 41 high, medium or low income countries, two key findings emerged: (i) regardless of country income, individuals at the poorer end of the socioeconomic scale, variously defined by income, education or profession, were more likely to smoke than their more affluent counterparts; and (ii) in the lower income countries analysed, including India and Viet Nam, there were greater differences between rich and poor in terms of smoking prevalence than in high income countries, with ratios varying from 1.5 : 1 to 8 : 1.[114]

[q] Some research on low and middle income countries has found that smoking is more common among the rich or that there is no relationship between smoking and educational level. For example, in China, there is a positive relationship between smoking and income.[152] In Bulgaria, there is almost no relationship between smoking rates and education or income.[243] Many recent studies have shown the same social gradient as outlined in the analysis above. Part of this difference may be explained in terms of the stages of the tobacco epidemic.

In addition, in a range of low and lower middle income countries, including China, India, South Africa and Viet Nam, smoking rates among those with no schooling or only primary education outstripped the rates found among the more educated.[115] Table 7 provides figures for males and females in Bombay in 1992–94. The close association of education with affluence means that smoking is three or four times more common among poor people in Bombay than among the rich. The use of manufactured cigarettes, which are more expensive, increases with educational level. In Chennai, India, smoking prevalence among males reached 64% among illiterates compared with 21% among those who had received more than 12 years of schooling.[116] In Viet Nam, the National Health Survey 2002 showed the same relationship between poverty and risk of smoking, a little less pronounced among those who lived in rural areas.[117] In Brazil, smoking rates vary from 24% for those in the lowest socioeconomic group to 17% for those in the highest group.[118]

Table 7: **Prevalence of all tobacco use in relation to education for males and females in Bombay, India, 1992–94**

Source: Modified after Gupta.[119]

Educational level (age)	Male* (%)	Female (%)
Illiterate	77.1 (7.1)	72.2
Primary (5–7 years)	64.7 (10.2)	52.0
Middle (8–11 years)	50.8 (13.6)	39.5
Secondary (12 years plus)	45.6 (14.0)	23.9
More than 12 years in total	25.5 (14.5)	10.0

*Male use of manufactured cigarettes in parentheses.

Reasons why the poor smoke more

Commentators have offered several reasons for why poor people smoke more. Poor people may be less aware of the risks, or they may use nicotine as self-medication for ailments they falsely believe tobacco will relieve. They may perceive tobacco as a "reward", as one of the few pleasurable things that they can do for themselves. Perhaps poor people may feel that they have less to lose from future illness, because they see no future to look forward to or for which to plan. Another theory is that poor people become more physiologically addicted to nicotine as measured by nicotine metabolites.[120]

Poverty and the opportunity costs of tobacco

Table 7 suggests that even men who live at or near the poverty line are smoking in large numbers, a finding borne out by qualitative research on impoverished households in Bangladesh and homeless children and pavement dwellers in India.[121] Male smoking rates among the poorest Bangladeshis who had household incomes of less than $24 per month in 2000 were twice those of the wealthiest, whose household incomes exceeded $118 per month—60% compared with just over 30%. For poor people, tobacco use has a very high opportunity cost, in that it diverts spending from basic needs. A number of studies have indicated that poor people are spending money on tobacco that could in theory be spent on other goods such as food, shelter, education and health care. Box 1 presents findings from Bangladesh.

***Box 1:* Choosing tobacco over food – the case of Bangladesh**

- Among Bangladeshis with household incomes of less than US$ 70 a month (the poverty level), there are 10 million male smokers. Figures for poor females are more difficult to obtain as many use chewing tobacco, but there are about 600 000 of them.
- Despite the poorest families only spending between 1.5% and 2.6% of their household income on tobacco, the opportunity cost is enormous.
- For the same money, the poor male smoker could have bought an additional 1402 calories of rice per day, or significant amounts of protein in the form of lentils, meat, milk and eggs. A female tobacco user would be able to purchase an additional 770 calories with the money she spends on tobacco.
- Hypothetically, if all poor male tobacco users in Bangladesh were assisted to give up tobacco, and were to put 70% of their freed-up income into food, which is the same as the percentage of income they now spend on food, this would provide enough additional calories to save 10.5 million Bangladeshi children from malnutrition.
- This redirected money would halve the number of deaths per annum of children under 5 years old in Bangladesh.
- With malnutrition costing Bangladesh 5% of annual GNP in lost lives, disability and productivity, the benefits of this switch in expenditure would also be economically significant nationally.[122]

Going beyond food, the poorest households in Bangladesh spend only half as much on health care as on tobacco, and ten times as much on tobacco as on education.[123] Small-scale research in India and studies in other countries confirm findings on the economic opportunity cost of tobacco from Bangladesh.

- Of 400 street children in Mumbai, most of whom earned less than $2 a day, half used cigarettes and locally made tobacco products, and some spent up to 21% of their income on tobacco, far more than they spent on nutritious food, education, clothing, or savings.[124]
- Among a group of 400 pavement dwellers in Mumbai, mostly men, half of whom earned less than $1 a day, 86% used tobacco. Their expenditure on tobacco was very high compared with money spent on food, education, household repairs, rent, and savings.[125]
- In Viet Nam, it has been found that the money spent on tobacco each year, if redirected, would purchase enough rice to feed 10.6 million people for one year. The poorest Vietnamese also spend more money on tobacco than on education.[126]
- In Egypt, among households that consumed tobacco, 10% of the amount spent on food and beverages was spent on tobacco, and the spending ratio of tobacco products to other goods was highest for the least educated households.[127]
- In Bulgaria, low income households spent 5% of their income on tobacco in 1995, compared with 3% for the richest households.[128] Unpublished data indicated that in 1995, for households with at least one smoker, the percentage of household income spent on tobacco was 10.4%.[129]
- In Nepal, the poorest smokers spend nearly 10% of their income on tobacco.[130]
- In Indonesia, where smoking has been increasing fastest among poorer groups, the lowest income group spent 15% of their total expenditure on tobacco products in 1996.[131]
- In Myanmar, the poorest urban dwellers spend about 5% of their monthly household income on tobacco, compared with 2% for the highest income group.[132]
- In Brazil, those in the lowest income group spend more of their household income on tobacco than on education or vegetables.[133]

Estimates of the proportion of household expenditure going to tobacco in poor smoking households range from around 2% in Bangladesh to 17% in the

Minhang District of China.[134] The Mumbai street children mentioned above spent up to 21% of their income on tobacco. Figures for poor households that contain tobacco users often show tobacco expenditure at around 10% of all household expenditure. For these households, the opportunity costs of tobacco addiction are very significant.

When very poor men are addicted to tobacco and purchase cigarettes rather than food and other important goods and services, women and children, in particular, suffer. There are a number of reasons for this.

First, money spent on tobacco means less security for the family with regard to food. Adequate nutrition for mothers and children improves pregnancy outcomes and reduces susceptibility to infectious diseases, including HIV/AIDS and tuberculosis.[135] Poor nutrition increases infant mortality and makes older children less likely to succeed at school.

Second, less money in the family limits other important purchasing possibilities. There is a correlation between disposable income and likelihood of seeking medical attention for a sick mother or child. If more money is spent on tobacco than on education, there is less chance that children, especially girls, will be sent to school. If money is scarce, children are more likely to be required to work to contribute to family income. These decisions can entrench families in an ongoing cycle of poverty, as the very investments necessary to lift family members out of poverty are foregone in favour of an addictive drug.

In addition, when a household member smokes, he or she exposes all members of the family to the hazards of passively inhaled tobacco smoke.

Of course, even if comprehensive quit programmes existed in developing countries, people may not automatically spend the money saved from tobacco on food and other beneficial goods. Nevertheless, the concern is that for people with tiny incomes, any money spent on tobacco is money that could keep women and children (and men) alive and healthy in the short term. Indeed, in Bangladesh, rather than concentrating on tobacco's long-term health effects, lobbying for tobacco control has focused on the short-term opportunity costs of tobacco use. This has positioned tobacco as relevant to poverty, nutrition and human rights in the present, rather than only focusing on longer range tobacco-related illnesses and deaths.[136]

Poverty and the health effects of tobacco

Tobacco users are more likely to fall ill or die from respiratory illnesses, heart attacks, cancers and other illnesses. These outcomes deeply affect families if death or disability comes in middle age to the family breadwinner. In many high and middle income countries, the risk of death for men between 35 and 69 years of age follows a gradient. The risk is low among those in higher socioeconomic groups, and then increases steadily as one steps down the socioeconomic ladder. Because diseases such as heart disease and stroke owe much to the risks imposed by smoking, differences in smoking prevalence among socioeconomic groups explain much of the mortality gradient.[137] Men in higher socioeconomic groups are more likely to quit smoking than those in lower socioeconomic groups, contributing in many countries to the widening health gap between rich and poor.[138]

The picture for women is not as clear, because in most countries large numbers of women have not been smoking for as long as men have. What is certain is that as low income countries move through the four stages of the tobacco epidemic, death and disease will fall heavily on the poorest groups, depressing national productivity and further fuelling family poverty.[139]

Illness due to tobacco is not only caused by smoking or chewing. Those who harvest and cure tobacco frequently report poor health. Nicotine absorbed through the skin, during harvesting of wet tobacco leaves and during curing, causes "green tobacco sickness".[140] Symptoms include headache and nausea, vomiting, weakness, pallor, dizziness, chills, abdominal pain, and diarrhoea. Shortness of breath and fluctuations in blood pressure also occur. In developed countries such as the United States, a quarter of all cases of green tobacco sickness require hospital admission—another costly consequence of tobacco.[141]

Pesticides used in tobacco farming also cause illnesses among farmers. Common pesticides used in tobacco farming include aldicarb and chlorpyrifos (which can cause nervous system and genetic damage), and 1,3-D (or Telone), which causes respiratory, skin and kidney damage. Symptoms of exposure to such chemicals include headache, nausea, vomiting and convulsions. Up to 16 different pesticides can be applied to tobacco seedlings, few workers wear protective clothing, and chemicals often leach into groundwater and lakes.[142] In addition, exposure to certain pesticides has been shown to increase the rates of depression and suicide among tobacco farmers.[143]

In the developing world, many children work full- or part-time, about 70% of them in agriculture. In the tobacco industry, children risk green tobacco

sickness, repetitive strain injuries that can cause permanent damage, dermatitis, and parasitic and infectious diseases. In addition, children risk exposure to chemicals, which may affect them more than adults due to their small size and immature development.[144] These findings raise serious questions for those concerned with human rights.

Finally, smokers and their families run the risk of being injured by fire. It is estimated that fires cause 1% of the global burden of disease, and research suggests that 10% of this burden is due to tobacco smoking, at a cost of between 7 and 23 billion dollars a year. Burning cigarettes account for half of the fires. Accidents with things used to light cigarettes, including matches and gas lighters, account for the other half. Children playing with cigarette lighters are often involved. In all societies, the risk of these fires and the costs of their consequences are borne disproportionately by the poor.[145]

Anything that increases the likelihood that poor people will get sick or be injured is especially problematic in low income countries, where health care, if accessible, is often very expensive, requiring significant private payments, under-the-table payments, and other outlays. The opportunity costs of seeking treatment for individuals who are injured and sick include lost income and less money for food and other essentials. Low income often stops people accessing health care, even when they need it.

Poor smokers, who are at greater risk of illness, are therefore also at greater risk of not being treated or of falling into greater poverty if they seek treatment. In poor countries, the most frequent cause of a family sliding further into poverty is the illness or injury of a family member.[146] In Viet Nam, between 1993 and 1998, health care expenses pushed many people into poverty.[147] In India, nearly 25% of people above the poverty line when admitted to hospital were below it when discharged. In Cambodia, a stay in hospital can cost as much as 88% of an average household's non-food annual budget, and more than their non-food budget for the poorest.[148]

Poverty and the macroeconomic costs of tobacco

Tobacco consumption has important consequences for national economies through its negative effects on health and productivity. Health care costs and lost productivity due to illness and early death are matters of macroeconomic as well as personal concern. Tobacco use can also negatively affect developing countries' balance of trade and access to foreign exchange.

The direct and indirect costs of tobacco use are immense. One study found tobacco-related disease in the United States accounted for 6–8% of health expenditure, more than $50 billion annually.[149] In 2002, the CDC calculated that between 1995 and 1999 in the United States, smoking accounted for $75 billion health care costs and a further $82 billion in lost productivity.[150] These figures highlight the annual health-related costs attributable to smoking. Smokers' annual health care costs are higher than those of non-smokers. This should be of particular concern to developing countries, which cannot afford any additional drain on their health systems, or the associated productivity losses, which are often significantly higher than health costs.

There has been some controversy as to whether or not smokers cause more or less cost to society over their lifetime, owing to the different longevity of smokers and non-smokers in the developed world. A recent Danish study demonstrated clearly, however, that when the full range of smoking-related illnesses is included, ever-smokers cost more than non-smokers in direct and indirect health costs over their lifetime, notwithstanding their average shorter longevity.[151]

Many developing countries are not at the stage of the epidemic where the health impact and the costs of tobacco are at their highest. However, estimates suggest that costs in some countries are already significant:

- In China, in 1989, the cost of lost productivity from nearly 900 000 premature tobacco-related deaths was estimated to be about $2.42 billion, with medical care costs estimated at $836 million. Together these costs were greater than revenues to the Chinese government from tobacco taxes, and accounted for 1.5% of GDP. The researchers noted that these figures were certain to rise in the future.[152]
- A study using data from 1998 in China found that medical costs alone for premature tobacco deaths amounted to $2.76 billion, or 6% of all Chinese medical costs.[153]
- In India, in 2000, the Indian Council of Medical Research estimated the costs of three major tobacco-related diseases (cancer, heart disease and chronic obstructive lung disease) at 270 billion rupees (US$ 5.8 billion), considerably in excess of the direct contribution of the tobacco industry to Indian government revenue of 70 billion rupees (about $1.5 billion).[154]

Where these figures do not include lost productivity when workers become ill or prematurely die, they represent significant underestimates of total costs.

Many developing countries, even those that produce tobacco, have a negative trade balance in relation to tobacco. They lose more hard currency importing cigarettes than they gain by exporting tobacco and tobacco products. WHO has calculated from data of the Food and Agriculture Organization (FAO) that in 2002, more than 100 countries of 161 surveyed, including Cambodia, Malaysia, Nigeria, the Russian Federation and Viet Nam, imported more tobacco leaf than they exported, and that 19 countries had a negative balance of trade in tobacco of more than $100 million.[155] In 1999, net importers of tobacco also included Bangladesh,[156] Indonesia and Nepal.[157] In all these countries, foreign exchange savings would result if tobacco imports and tobacco consumption were to fall.

Finally, when studying the macroeconomic impact of tobacco, we note that cigarette smuggling deprives governments of tax revenue. This is big business. It is estimated that one-third of exported cigarettes end up on the black market—an astonishingly large number.[158] In Europe alone, revenue lost to governments through tobacco smuggling is estimated at $6000 million per year.[159] In China, the estimate of lost revenue is $1.8 billion per year.[160] Smugglers sell contraband cigarettes more cheaply than legal ones, thereby acting as a stimulus to increased consumption. For these reasons, smuggling of tobacco products is both an economic problem and a serious public health issue.

Poverty and the economics of tobacco cultivation

The major transnational tobacco companies have long argued that tobacco control will damage the economies of many developing countries that cultivate tobacco. We hold that this is not the case. Eighty developing countries currently produce tobacco. China is the largest global producer, at around 39%, most of which is for internal consumption, followed by Brazil, India and the United States, which together account for about 25%. Argentina, Greece, Indonesia, Italy, Malawi, Pakistan, Turkey and Zimbabwe together produce another 15%, making 12 countries responsible for nearly 80% of world production.[161] Several other low income countries produce tobacco including Thailand (ranked 13th), the Philippines (18th), Myanmar (19th), Bangladesh (21st), Viet Nam (22nd), Cuba (23rd) and the United Republic of Tanzania (30th).[162]

However, for most of these countries, tobacco constitutes a tiny proportion of their agricultural produce, and in very few countries do tobacco exports account for as much as 1% of total export value. For only two poor countries, Malawi and Zimbabwe, does tobacco form a large proportion of total export

revenue, accounting for 16% and 63% of exports, respectively.[163] In 2000, more than 5% of Kyrgyzstan's exports were also in the form of tobacco leaf.[164]

The proportion of tobacco grown in the developing world has increased very significantly in past decades and decreased in the developed world, and this trend is expected to follow the same path in the next decade.[165] The global tobacco workforce numbers between 11 and 12 million farmers who are dependent on tobacco, with another 20 million or so involved in some way, for example as farmers of tobacco alongside other crops, or as seasonal labourers or family members who help with the tobacco crop.[166] For many farmers in Africa and India, tobacco is their predominant cash crop. But in other countries, including China, tobacco is typically grown on a small scale as part of a diversified farming strategy.[167]

Historically, tobacco has been an attractive crop because of its high yield per unit of land, which is greater than that for many food crops, and for its relatively high returns, stable prices and certain market. In Zimbabwe, tobacco is 6.5 times more profitable than the next-best alternative crop in areas with the best soil for tobacco. It is less perishable than food, fetches a stable price and attracts in-kind support and loans from tobacco companies.[168] However, even in Zimbabwe, high up-front and labour costs make tobacco expensive to grow compared with a range of food crops, especially for small farmers.[169] Large-scale tobacco farmers can make a lot of money, but for many small-scale farmers, the yield from tobacco often fails to compensate for their inputs. In addition, the recent decline in the world price of tobacco leaf has affected a number of nations, including Malawi.[170]

The care of tobacco seedlings is labour intensive, with a strong risk that the small plants will die, and harvest is also. Transnational tobacco companies are increasingly investing in developing countries. Often, they enter into a direct contract with tobacco farmers, giving them loans, seed, fertilizer, pesticides and technical support. In return, farmers must sell their entire crop to those companies, at prices outside their control, and sometimes for less than the loans they incurred, leading to "debt bondage".[171] This happens in many parts of Africa and South America, with growers complaining that they do not make enough to pay off their loans, let alone make a profit.

Despite these facts, many tobacco farmers believe that tobacco is a cost-effective crop, in part because they do not take into account the labour of family members, including children.[172] In India, one study showed that over 40% of the cost of growing tobacco is for fertilizers and pesticides; the addition of high labour costs makes tobacco more expensive by far than growing sugar

cane, the second most expensive crop.[173] District studies in Kenya show that the average tobacco farmer makes about US $120 a year, after paying off the costs of inputs. (This does not include labour costs.) In addition, women in Kenya say that they do not earn enough from tobacco to buy sufficient food for their families. Switching from food production to tobacco growing has lowered many farmers' actual incomes.[174] Even so, in Kenya, British American Tobacco has argued that tobacco cultivation itself may be a tool in the fight against poverty, citing an increase in tobacco growing as "in line with the government's poverty alleviation strategy".[175]

Finally, in very poor countries, when fertile land is used to grow tobacco rather than food, tobacco cultivation contributes directly to hunger and malnutrition. Worldwide tobacco cultivation currently takes up 5.3 million hectares of arable land.[176] Shah claimed that this land, if devoted to food production, could feed between 10 and 20 million people.[177] In many countries, such as Sri Lanka, thousands of farmers have replaced traditional food crops with tobacco, due to its commercial profitability.[178]

In short, the contribution of tobacco to developing economies, through employment and government revenue, is more than offset by the opportunity costs (tobacco versus food), public health effects, and the costs to national economies and the environment (see below).

MDG 1 and tobacco control

The MDG targets for poverty and hunger call on participating nations by 2015 to halve the number of people who live on less than US$ 1 a day, and to halve the number who suffer from hunger compared with 1990.

Economic growth is essential to poverty reduction. In countries such as China and India, growth has been substantial, with millions of individuals lifted out of poverty. The estimate in China is that 150 million people no longer live below the $1 poverty line.[179] In Africa and Latin America, however, economic growth has stagnated. Nevertheless, all regions of the world are on target to achieve the reduction in the number of people living on $1 a day by 2015 except for sub-Saharan Africa.[180]

Hunger and malnutrition are less tractable. Only 40% of countries are on target to halve the rate of these conditions by 2015, as measured by the number of children under 5 years old who are underweight for their age, although 77% of people in the developing world live in countries that are on track to meet this goal.[181] The eradication of hunger requires many things, including

a global increase in food production. The recent State of the Planet Conference at Columbia University in New York issued a consensus statement about hunger:

> *The world's food shortages are geographically concentrated in South Asia, where access to food rather than total food production is the main constraint, and Africa, where region-wide lack of food is the primary issue. Approximately half of the world's hungry people are in small-scale farms in marginal areas that the Green Revolution by-passed. An additional 22% are rural landless people, 8% are people dependent on natural resources—the pastoralists, fishers and forest dwellers—and the remaining 20% are the urban hungry. Local population growth drives the rural poor further into poverty against a relatively fixed land base, giving them little choice but to exploit their limited natural resources in an increasingly unsustainable manner.*[182]

Additional assistance from the developed world is required to ensure food security through agricultural and trade policies that promote fair trade, with priority given to small farmers.[183] But hunger and malnutrition are made worse when countries use scarce land for tobacco production rather than for growing food, when small tobacco farmers make barely enough money to eat, and when the small incomes of poor people are spent on tobacco instead of food.[184] In addition, while some tobacco is grown on land that is not arable, studies in countries such as India and Brazil demonstrate that:

- land used for tobacco can also be usefully cultivated for food crops;
- tobacco industry incentives for tobacco growing push farmers towards tobacco rather than food production;
- irrigation is often used for cultivating tobacco rather than food.[185]

In all these areas, tobacco control becomes directly relevant to the achievement of the MDG to reduce hunger and malnutrition.

Historically, as incomes have risen within different countries, the number of smokers has risen too. It would be cruelly ironic if increasing affluence in some of the world's poorest nations were to contribute to an increase in tobacco expenditure by individuals with very tight financial margins, and to impact to even a small degree on expenditure on food, education or health services. In addition, as outlined above, any increase in the number of smokers due to increased affluence will impact negatively on longer term

national economic progress through increased health expenditure and reduced productivity.

One tobacco control initiative stands out as able to increase government revenue while at the same time discouraging smoking: to raise government taxes on tobacco. The 1999 World Bank Report referred to several times above, entitled *Curbing the epidemic,* noted that most governments around the world already tax tobacco both as a means of generating revenue and due to health concerns.[186] In high income countries, the tax levied amounts to between two-thirds and four-fifths of the price of a packet of cigarettes. However, in middle and low income countries, tax accounts for half, or even less, of the cost of a packet of cigarettes. In many low income countries, cigarettes (or at least some of them) are also more affordable than in many high income countries.[187] There is therefore room for most developing countries to increase their tobacco tax.

The World Bank Report in 1999 found that the two groups of people most likely to respond to higher cigarette prices due to tax increases are: (i) those who are poor and live in low and lower middle income countries where, for a 10% increase in price, demand may fall by as much as 8%; and (ii) young people, who have less disposable income, are less addicted to nicotine, are more present-oriented, and who are more influenced by peers.[188]

These are the two groups whose willingness to give up tobacco will impact most positively on current and future economic indices. Later in this study we discuss the practicalities of raising tobacco taxes and present rebuttals to common arguments against this intervention. We also consider arguments for tobacco control that do not depend on pricing, and various demand reduction measures that are cost-effective complements to tax increases in many settings.

IV. MILLENNIUM DEVELOPMENT GOALS 2–7 – CORRELATES OF INCOME POVERTY AND THE ROLE OF TOBACCO

The six Millennium Development Goals (MDGs) that follow reflect specific aspects of poverty that may also contribute to intergenerational poverty. We now address the relevance of tobacco and tobacco control briefly in relation to each of these MDGs.

MDG 2. Achieve universal primary education

At present, many children in poor countries are not receiving schooling. Figures indicate that in 2000, 114 million school-age children were not enrolled in primary education,[189] of whom nearly 60% were girls.[190] Research has repeatedly shown how critically important education is for better health. Many studies show that mothers who are educated are more likely to make good decisions with respect to their children's health. Education is also essential to enable individuals to lift themselves out of poverty. The MDG on primary education includes a target of a 100% global completion rate for primary education by 2015. The Human Development Report 2003 notes that many of the poorest nations made good progress in the 1990s as regards enrolment and gender equality in primary and secondary education. However, some countries are struggling: 11 countries, mostly in sub-Saharan Africa, have at least one-quarter of their children not in primary school.[191]

Poverty and child labour, especially in the developing world, are key reasons why parents do not send their children to school. The findings above on household expenditures on tobacco versus food, health and education, suggest that education in very poor families is sometimes foregone or is provided on a limited basis to children, in part because of poverty and tobacco expenditure.

Worldwide, about 120 million children work full-time, and a further 130 million work part-time.[192] Many industries in developing countries rely on child labour, including the tobacco industry. Generally, automated cigarette manufacture requires little labour, but tobacco cultivation or bidi rolling (making hand-rolled cigarettes) requires a sizable workforce. Child labour is

still common in many tobacco-growing countries, including Argentina, Brazil, China, India, Indonesia, Malawi, Viet Nam and Zimbabwe.[193] A study in Malawi found that 78% of 10–14-year-olds and 55% of 7–9-year-olds who lived on tobacco estates were working full or part-time, and hence had no access or limited access to schooling.[194] Children were paid much less than adults but expected to work as hard. We enumerated the deleterious health effects of working in tobacco cultivation above.

Bidi rolling is boring, repetitive work done almost exclusively by women and children who are paid a pittance, with profits mainly going to intermediaries. Working hours are long, and long-term entrenchment in poverty offsets the short-term benefit of providing a small amount of additional income to the family. Bidi rolling is particularly common in South Asia. A study in Bangladesh found that while poverty was given as one reason for requiring children to do bidi work, other factors included lack of child care and husbands who either do not work or do not share their earnings. In the same study, children's bidi work contributed 8–40% of family income, even though children were paid at low rates, with boys on average earning just over US$ 3 a week, and girls just over $1 (partly because they also did household chores). Of the working children surveyed, 13% were below the age of 9, and half of the children aged 5–15 were not attending any kind of schooling.[195] The International Labour Organization (ILO) is working to stop bidi rolling as a cause of exploitation of children.[196]

Besides a general increase in national and individual income, measures to encourage parents to send their children to school include the removal of school fees, and providing incentives for children to attend, such as school-feeding programmes and take-home rations, which enable girls to contribute to the household while also becoming educated.[197] Clearly, in countries that grow and hand-roll tobacco, children working in tobacco should be included in national efforts to increase primary education enrolment. This must clearly involve the creation of alternative income-generating opportunities for very poor women, and incentives to send children to school.

MDG 3. Promote gender equality and empower women

In many parts of the world, families and society generally deny girls and women the opportunities given to boys and men, in particular in relation to education, health and control of financial resources. Primary and secondary education is essential to enable girls to become more empowered as women, and MDG 3 includes a target for increasing the proportion of girls in primary and secondary education. Female education is an important determinant of the success of several MDGs. This is in part because households play a pivotal role in producing health, as providers of home-based health services and as consumers of health care, with women central to these decisions.

For example, use of child health interventions is higher in households with better educated mothers, who are usually also better off.[198] Women who are more educated are more likely to feed their growing babies appropriate complementary food, to wash their hands before preparing food, to receive antenatal care, to use well-baby clinics, to be attended when giving birth, to use immunization and oral rehydration therapy, and to seek help when a child has a fever. On the other hand, lack of information about what to feed young children often underlies malnutrition, as does lack of money.[199]

Recent research has raised a question about the level of education that girls and women need, suggesting secondary education may be necessary, rather than just primary education, for improved maternal and child health. It is not that women learn health-specific knowledge at school, but rather that they rely on general literacy and numeracy skills to acquire such information later in life.[200] This suggests that the current quality of much primary schooling may be too low to give girls the necessary skills related to health.

Women can also be directly disadvantaged in relation to health. Many households in different regions of the world spend less on health care for women and girls than for men and boys.[201] This reflects women's lack of status and lack of power in homes, and may at times also reflect the decision by a breadwinner to spend money on goods such as tobacco rather than on family needs. It is women and children whom male members of the family most often expose to second-hand smoke, which affects health, including respiratory and pregnancy risks.

At the same time, women in many developing countries are being encouraged to take up smoking as a sign of increased equality. As noted above, the

Global Youth Tobacco Survey (GYTS) of youth smoking habits reported that "the most unexpected finding from this study was the lack of gender difference in rates of cigarette smoking and other tobacco use at most sites",[202] suggesting that gender differences in smoking prevalence may be decreasing. In 2000, there were about 218 million female smokers, a figure that is expected to increase to almost 259 million in 2025, even assuming an annual decrease of 1% in smoking prevalence.[203] These findings are very disturbing, as they will affect poor women, their pregnancies and their families in terms of disposable income and exposure to smoke. It is uncertain whether or not education can protect women in developing countries from pressures to smoke. Women in these countries constitute a new market for tobacco, and tobacco companies are very aware of their ability to create images that appeal to women from all levels of society. In a country such as India, it is currently women from elite backgrounds who are most likely to smoke Western cigarettes, but this trend may in time trickle down to poorer women who aspire to be more affluent and liberated.[204] In addition, women have historically used disposable income, when they have had it, for the benefit of their children.[205] If some of this income is used for consumer products such as tobacco, this will have an adverse effect on children as well.

At present, many women in the developing world have very little control over household finances, thereby limiting their ability to make healthy and productive investment choices. It is now widely recognized that giving women control over family finances, through micro-loans, income transfer schemes and pension programmes paid directly to women, is most likely to have positive effects. For example, in South Africa, a national old-age pension scheme established for whites, now benefits blacks. It is paid to women (grandmothers) rather than men and, in households where resources were pooled, is credited with improving not only the health of the pensioner, but also that of other household members, and critically, of contributing to an 8-cm increase in height among children under 5 years old in those families.[206] This programme also disproportionately benefits the very poor. In the same way, micro-credit schemes focused on women have increased the loan recipients' use of maternal health services.

The targeting of funds to poor women will help increase family prosperity, including counteracting the negative effects of tobacco use and cultivation. In addition, any tobacco control measure that discourages men and women from spending money on tobacco—which includes all the measures listed under the WHO Framework Convention on Tobacco Control (WHO FTC)—

will assist poor women. Where poor women themselves use tobacco, benefits may follow if governments were to provide cash payments to them as incentives to utilize quitting services.[207]

MDG 4. Reduce child mortality

In 2000, nearly 11 million children died before the age of 5, with malnutrition the underlying cause in more than half of these deaths.[208] Of these, 4.5 million deaths occurred in sub-Saharan Africa (42%), with a further 35% in South Asia and 13% in East Asia. Pneumonia, diarrhoea and malaria accounted for 52% of deaths, neonatal causes for 33%, measles 3% and HIV/AIDS 1%.[209] These illnesses are more common and severe among low-birth-weight babies. Nearly four million infants die in the first year of life due to the "poor health and nutritional status in the mother", limited care during pregnancy and/or delivery, and inadequate care when sick.[210]

Health experts argue that about two-thirds of child deaths could be prevented by readily available interventions, with the two most important things that households can do to improve child mortality being breastfeeding and oral rehydration therapy.[211] These in turn depend on good nutrition for the mother, clean water, knowledge/education and money. However, pneumonia and other respiratory diseases are also major causes of death among young children born into poverty.[212] While a major risk in respiratory illnesses is the use of solid fuels in unflued stoves for heating and cooking, tobacco contributes to child mortality and illness in the following ways:

- In impoverished families, money spent on tobacco may convert adequate nutrition into malnutrition for babies and young children.
- Tobacco use in women, and undernutrition among pregnant women due to money going to tobacco use in the family, leads to lower-birth-weight babies, who are more susceptible to respiratory diseases and other illnesses and more likely to die.
- Research has shown that cigarette smoking may impact negatively on breastfeeding. Smoking mothers are less likely to breastfeed their children, or tend to breast feed them for a shorter time.[213] A study showed that milk production volume was reduced among smoking mothers and that their milk contained less fat than did the milk produced by non-smoking mothers.[214] Another study found that milk output is reduced by more than 250 ml a day

in breastfeeding mothers who smoke.[215] This reduction in the quality and quantity of breast milk can weaken babies, as well as put them at risk of malnutrition and make them vulnerable to infections.

- Second-hand smoke from smokers in families increases the incidence of respiratory and other ailments in children. Second-hand smoke has been associated with lower respiratory tract infections, sudden infant death syndrome and asthma in children.[216] Passive smoking also appears to have a negative influence on breastfeeding duration.[217] There are 460 million people exposed to second-hand smoke in China alone, most of them women and children.[218]

The MDG target in relation to child mortality is a two-thirds reduction in infant and under-five mortality between 1990 and 2015. Recent data reveal that no region in the world is currently on track to reach this target, although some very poor countries such as Bangladesh and Lao People's Democratic Republic are doing very well. Mortality in children less than 5 years old has increased in low income countries, including Cambodia, Cameroon, Côte d'Ivoire, Kenya, Uzbekistan, and Zimbabwe. Many initiatives are needed to reduce child mortality, especially access to clean water (an MDG target), and access to high quality, affordable primary care services. None the less, cigarette smoking impacts negatively in both microeconomic and health terms. It would therefore be desirable for smoking cessation assistance for parents to be included with other primary care services available to them.

MDG 5. Improve maternal health

Around 600 000 women die each year of pregnancy-related causes, almost all of whom are in developing countries.[219] Many more suffer the long-term effects of delivery. The target for MDG 5 is to reduce by three-quarters the maternal mortality ratio between 1990 and 2015. On current trends this target will not be achieved in the developing world. In sub-Saharan Africa, the lifetime risk of dying from maternal causes is 1 in 16 (compared to 1 in 4000 in Western Europe). Motherless children are much more likely to die in infancy or childhood.[220]

Tobacco use among poor and impoverished families works against maternal health through:

- illnesses of women who smoke, which weaken them for pregnancy and care of infants, including chronic bronchitis, emphysema, heart disease and stroke, plus specific pregnancy-related risks such as haemorrhaging during delivery;[221]
- undernutrition/malnutrition in pregnant women, exacerbated by money spent on tobacco;
- second-hand smoke, which disproportionately damages mothers and is an important women's issue, given existing male smoking rates.

Access to prenatal and delivery services is essential to improved maternal health. Incorporating anti-smoking initiatives into primary care services for mothers makes great sense.

MDG 6. Combat HIV/AIDS, malaria and other diseases (including tuberculosis)

Smoking and HIV/AIDS

Forty million people currently alive are infected with HIV and the number continues to increase. The MDG goal seeks to halt the spread of HIV/AIDS and to have begun to reverse its incidence by 2015. The use of antiretroviral drugs for those with HIV and safe-sex practices are the main ways of reducing the incidence and mortality from this disease. The role of cigarette smoking is peripheral but, none the less, significant.

Most studies that have examined the relation between smoking and risky sexual behaviour have been positive, although whether or not smoking itself increases the likelihood of HIV infection is less clear.[222] A study of women in Haiti, however, found an independent association between smoking and increased risk of HIV-1[r] infection, suggesting a possible biological effect.[223] Smokers are more likely to have miniscule oral ulcerations, for example, that could facilitate HIV transmission.[224]

[r] HIV-1 is the predominant type worldwide. HIV-2 infections occur most commonly in West Africa and occasionally in Asia, East Africa, Europe and Latin America. Both types cause AIDS and the routes of transmission are the same. However, HIV-2 transmission is slightly less easy and the progression of HIV-2 infection to AIDS may be slower. (Source: *C/HIV: a clinical manual*, 2nd ed. Geneva, World Health Organization, 2004).

Studies on smoking and the development of opportunistic infections in HIV patients and the progression of HIV infection to AIDS have had mixed findings. A British study in the early 1990s found that the median time for progression from HIV infection to AIDS was half that in smokers compared to non-smokers,[225] an observation affirmed to this day by the United States Health and Human Services web site in their advice page to teenagers on HIV/AIDS.[226] However, this finding has not generally been replicated in other studies.[227] A recent summary statement on smoking and AIDS concluded:

> *There are conflicting findings on the effects cigarette smoking has on the incidence of Pneumocystis carinii pneumonia (PCP), Kaposi's Sarcoma (KS), and disease progression to an AIDS diagnosis and death. There is, however, a consistent association between smoking and bacterial pneumonia, hairy leukoplakia, oral candidiasis and AIDS-related dementia.*[228]

In the poorest nations in the world, treatment for illnesses such as bacterial pneumonia may be lacking, increasing the risk of death. In addition, malnutrition and other diseases such as tuberculosis and malaria can further compromise the health status of HIV/AIDS patients.

Given the complex interaction of health risks for HIV/AIDS patients in the developing world, and the known risks of certain diseases in these patients due to smoking, advice to quit smoking and many other elements of tobacco control should be included as part of a strategy against this disease.

Smoking and tuberculosis

More than one-and-a-half million people a year die from tuberculosis, the vast majority in India and China, with a significant number also in Africa. China is second to India in having 17% of global tuberculosis sufferers. The MDG target for tuberculosis is to halt and have begun to reverse its incidence by 2015. Indicators include measures of prevalence and death rates, and of the use of DOTS (directly observed treatment short course) in the treatment of tuberculosis.

Individuals who have, or who are at risk of having, clinical tuberculosis fare worse if they smoke. In China, 1 in 10 tuberculosis deaths in middle age is attributable to smoking.[229] However, this figure may increase as more Chinese smokers move into middle age.

A recent study in India found that smoking significantly increases the risk that people with subclinical tuberculosis will progress to clinical tuberculosis,

which may cause them to infect others or to die prematurely. An estimated one billion people worldwide have chronic subclinical tuberculosis infection, but most do not progress to the full disease. The study found that smoking greatly increases the risk of this progression. As a result, in India, a large epidemiological study attributed one-half of all deaths from tuberculosis to smoking, with mortality from tuberculosis among smokers being four times the rate among non-smokers.[230] The authors note that in parts of the world where tuberculosis is common, smoking kills people by damaging the lung's defences against chronic tuberculosis infection.

The implications of these findings for tuberculosis control and for MDG 6 are dramatic. Preventing smoking, or encouraging people to quit, can substantially reduce both the incidence of clinical tuberculosis and tuberculosis deaths. Physicians and public health workers should energetically apply anti-smoking interventions in populations with high levels of subclinical tuberculosis infection. Second-hand smoke at home or at work is also a risk for those with compromised respiratory systems, including patients with tuberculosis.

MDG 7. Ensure environmental sustainability

Several targets are listed under the MDG on environmental sustainability, including access to safe drinking-water and sanitation, which are essential to the health of the world's poorest people. The target of direct relevance to tobacco proposes the integration of principles of sustainable development into country policies and programmes, and the reversal of the loss of environmental resources, in particular, the amount of land covered by forest.

Tobacco farming and curing are not kind to the environment: they cause deforestation due to land clearance for tobacco cultivation and, in many countries, farmers use wood for the fires and smoke used to cure the tobacco leaves, and to build the barns in which the leaves are cured. A report on tobacco in Sri Lanka claims that the environmental consequences of tobacco include the depletion of soil nutrients, so that the tobacco industry regularly shifts from one area to another, to maintain access to fertile soil.[231] Geist argued that when farmers crop tobacco plants during cultivation to increase their nicotine content a high uptake of soil nutrients occurs, leading to the regular need for virgin soil once again because the used land has been degraded.[232] Over time,

tobacco can lead to "desertification" of land through forest removal, contributing to adverse climate changes, such as droughts.

Geist estimated in 1999 that tobacco farming destroys 200 000 hectares of forests and woodlands every year. Most of this loss occurs in the developing world. Geist notes that by the late 1990s, 90% of all land under tobacco cultivation was in developing countries, which "typically have fragile natural environments". This constitutes a very small proportion of global arable land, but proportionately it is higher in Asia and Africa, and given projections on the shift of tobacco production from developed to developing countries, is set to worsen.[233] Tobacco produced from 73% of land under tobacco in developing countries is flue/fire cured, rather than sun cured.

Geist calculated that in tobacco-cultivating countries in the developing world, tobacco contributes nearly 5% to national deforestation. Serious deforestation has occurred among major cultivators such as China, Malawi and Zimbabwe. Other countries affected include Bangladesh, Jordan, Pakistan, the Republic of Korea, the Syrian Arab Republic, Uruguay and Viet Nam.[234] Together, affected countries were responsible for more than half of all global tobacco production. Shortages of fuel wood due to deforestation are now evident in Asia, parts of Africa and parts of South America. Geist argued that tobacco-related environmental damage should be included on international environment and tobacco control agendas.

Finally, Novotny & Zhao drew attention to the waste associated with cigarette production and consumption. Using weighted averages from the 49 countries with available data, they estimated that over 80% of cigarettes consumed worldwide are filtered.[235] Cigarette butts are the most common item of litter on earth. Non-biodegradable cigarette filters, produced in their trillions each year, are common ingredients of seashore litter, cast there directly or into the ocean or, in the case of coastal cities, carried there by water used to clean streets, which then carries debris into storm-water drains that empty into the sea. Toxic chemicals removed by the filters leach into water if smokers discard their butts into the sea or an estuary. Marine animals ingesting butts incur a risk from the chemicals. The 300 000 tonnes of nicotine, resulting from the manufacture of low-nicotine cigarettes, are also hazardous unless disposed of effectively.

Clearly tobacco cultivation, curing and waste are a serious problem in many low income countries, and should be included in environmental protocols and targets in relation to MDG 7. It should be noted here that a provision on the protection of the environment is included in Article 18 of the WHO FCTC.

V. MILLENNIUM DEVELOPMENT GOAL 8 – ESTABLISHING A GLOBAL PARTNERSHIP FOR DEVELOPMENT: THE ROLE OF TOBACCO CONTROL

The Millennium Development Goal (MDG) process recognizes the need for each nation to accept ownership of the MDGs, using them to enhance and coordinate national policies and programmes. It also acknowledges the desirability that each country address the goals simultaneously, through multisectoral efforts involving a range of economic and social initiatives.[236] In addition, the MDG process calls on developed countries to join with developing countries to ensure progress. Globalization has advanced at a remarkable pace and world trade, communication and transport now interconnect nations in ways that create new imperatives. In particular, inequalities within and among nations become more difficult to defend and sustain, and the importance of international cooperation and partnership, as reflected in MDG 8, becomes paramount. In a similar way, international cooperation combined with country-level commitment is the keystone for the effective implementation of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC). This treaty provides a road map for improving the health and socioeconomic situation of tobacco users as an essential step towards development.

In this section, we propose that developed and developing countries take several priority actions and that international organizations amplify and support these to reduce tobacco consumption and production in the context of the eight MDGs. We begin with a discussion of the economics of tobacco control, and move to specific recommendations for ways to proceed.

Poverty reduction and the economics of tobacco control

> *If needless disease and millions of premature deaths are to be prevented, then it is crucial that developing countries raise tobacco taxes.*[237]

Recent economic analyses have convincingly demonstrated the efficacy and affordability of tobacco control measures in all countries, rich and poor alike. Tobacco control is both effective and cost-effective.[238] This refutes the

widespread myth that tobacco control strategies are a Western luxury, and that poor countries cannot afford them. Moreover, elements of tobacco control, in particular raising taxes on tobacco products, constitute economically sound policies as well as a public health strategy.

In 1999, the World Bank published a comprehensive report that considered the benefits and costs of tobacco use and tobacco control.[239] The report argued that consumers of tobacco do not understand the true costs of their addiction to themselves or to others owing to: (i) the young age at which they take up smoking, (ii) tobacco's addictive qualities, (iii) their tendency to underestimate the health risks to themselves and to people who inhale their smoke. Thus, it is appropriate for governments to intervene directly to encourage smokers to consume less tobacco. Using economic data, the World Bank Report refuted five common arguments against tobacco tax increases and other measures designed to reduce tobacco consumption.

Arguments regarding raising tobacco taxes

The World Bank's first refutation addressed the claim that tobacco control will lead to massive job losses in developing countries (for cultivators, producers and distributors of cigarettes and other tobacco products). The report noted that tobacco cultivation is a small part of most economies, tobacco manufacturing is highly automated, and tobacco sales are rarely a sole source of income. In addition, money no longer spent on tobacco is not lost to the economy—it is spent on other goods and services, in turn creating new employment and income opportunities. At the global level, as outlined above, population and income growth will cause the number of tobacco users to rise, even if smoking prevalence rates decrease, so that tobacco control will only affect tobacco farmers very gradually, probably over generations. For these reasons, the World Bank argued that there would be little or no negative effect on jobs due to a reduction in tobacco consumption, except in very few countries.

Only for major net tobacco exporters such as Malawi and Zimbabwe, which rely on tobacco for a large proportion of foreign exchange, would tobacco control lead to job losses, although even there, the effect would be gradual. The World Bank Report noted that where tobacco control imposes job losses, governments can seek to counteract these, for example, by helping poor tobacco farmers shift to other crops. The economic challenges of tobacco control and agricultural restructuring in these countries are considerable. For example, if Zimbabwe were consciously to reduce its production of tobacco, most

of which goes to exports, it would need to replace it with other exportable labour-intensive crops. However, incentives for tobacco farmers to diversify agriculturally include downward pressures on international tobacco prices.[240]

For net tobacco importers, which include the bulk of low income countries, a global fall in tobacco consumption would most likely lead to more jobs than before. In fact, some low income countries, like Bangladesh, which imports most of its tobacco, could benefit greatly. In addition, in many countries, farmers could transfer from tobacco to other crops relatively easily. In China, for example, the area under tobacco production decreased by 43% between 1997 and 1999, but most farmers were able to switch to other products quickly.[241]

Second, the World Bank Report in 1999 refuted the argument that tobacco control—in particular increased tobacco taxes—will so reduce sales of cigarettes and increase smuggling that government revenue will fall. In the short to medium term, this does not happen. In developed countries, the demand for cigarettes is relatively inelastic, which means that a price rise of 10% might lead only to a reduction in demand of 4%. However, in developing countries, people are more responsive to price increases, as they are usually less affluent and younger. In the developing world, a 10% cigarette price increase would see an average demand reduction of 8%, with variations from country to country. However, this still leads to additional government revenue from the higher tax on all those who continue to consume tobacco.

Even in countries where tobacco already provides up to 10% of revenue, such as Armenia, China, Ukraine and Uzbekistan, an increase in tobacco taxes would be likely to raise revenues in the short and medium term.[242] For example, careful economic modelling in Bulgaria has shown that it is possible to increase tobacco taxes substantially (by 25%) and still cause both a reduction in tobacco consumption and an increase in government revenue. The decrease in consumption is more than offset by the increase in taxes and hence government revenue. In addition, population growth and rising incomes ensure that the number of smokers worldwide keeps increasing or even, in the event of reduced prevalence, stays stable.

Raising tobacco taxes is not just a strategy for middle income countries. A number of studies supported by WHO and the World Bank since 1999 have modelled the impact of a tobacco tax increase in low income countries, including Bangladesh, Myanmar and Nepal.[243] In all cases, an increase in the real price of tobacco would reduce consumption, especially by the poor, and constitute a practical way of raising revenue. In Nepal, multiple linguistic groups are a barrier to effective mass health education programmes, and infectious

diseases and malnutrition attract resources rather than tobacco control, so an analysis by Karki et al. concluded that: "An excise-led smoking control policy would reduce smoking and simultaneously satisfy the Department of Customs requirements for what is an easily collected and bountiful source of revenue."[244] This analysis showed that increasing the tobacco tax would dramatically alter the current upward growth curve of smoking prevalence in Nepal, and would free up money for the poor to spend on food, education, health and other beneficial goods. It is important to tax all tobacco products in Nepal and other developing countries at high rates, including bidi and smokeless varieties, to discourage substitution.

In this context, the World Bank Report in 1999 considered a third argument against tobacco control—its effect on tobacco smuggling. Do higher taxes and prices increase smuggling? While this may occur, the answer is not to back away from a tax, but to address smuggling directly. Karki et al. recommended the introduction in Nepal of clear and visible excise stamps on all tobacco products, with fines on those who sell products without stamps. Other strategies include warning labels in local languages, licensing of exporters and importers, and better record keeping by manufacturers. Based on the conclusions of the World Bank in 1999, showing that corruption correlates highly with smuggling, the report called for action against the rampant corruption in Nepal. Experience in Europe suggests that collaborative effort between member countries of the European Union and the European Anti-Fraud Office has been successful in limiting smuggling in Andorra and Spain.[245]

The World Bank has recently re-examined the potential impact on smuggling of tobacco control in developing countries.[246] A modelling exercise suggested that a worldwide increase in cigarette prices of 10% would raise government revenues by 10%,[$] decrease consumption by about 3.5% and increase the amount of smuggling only slightly.

Fourth, while tobacco taxes are seen as regressive (because they weigh equally on all socioeconomic levels of the populations), in practice this is mitigated by the tendency of lower income groups to reduce their tobacco consumption. The World Bank Report in 1999 found that the impact of a tobacco tax would be greatest on low income households because they respond more strongly to price increases, with more poorer smokers reducing or quitting smoking. This means that overall, the increase in tobacco tax as a percentage of their income tends to be lower than it might otherwise be.[247] Higher taxes

[$] Tax increases would have to be considerably higher than 10% to achieve a 10% increase in prices, since tax is only a proportion of the final price.

combined with programmes to encourage poorer consumers to quit can thus achieve disproportionately significant gains for the poorest consumers, not only in providing an incentive to quit (with potential large health benefits), but also in freeing-up funds to be used for more beneficial purposes.

Fifth, one can criticize higher prices imposed as part of tobacco control, because they inflict substantial costs on individual smokers. This is true, but as indicated above, most people who smoke say they want to give it up, and if smokers consider the costs too great, this may assist them to quit. Indeed, part of the strategy of price increases is that some people will quit because of the cost.

The cost-effectiveness of tobacco control measures

Are tobacco control measures worth paying for? In the book *Tobacco control in developing countries* published on behalf of the World Bank and WHO, Ranson et al. estimated the cost-effectiveness of three interventions to reduce smoking: price increases through taxes; a package of other non-price measures, including comprehensive tobacco advertising and promotion bans, bans on smoking in public places, health warning labels on cigarette packs; public information programmes and nicotine replacement therapy (NRT).[248] The criterion for judging an intervention cost-effective was that it saved one year of healthy life for less than the average per capita GDP of the country. All the interventions assessed were cost-effective in low and middle income countries, although to different degrees.

The most cost-effective initiative, measured in terms of cost per life saved, was to raise prices through a tax increase. The arguments discussed in the 1999 World Bank Report noted that children and young people respond poorly to health education messages, and that restricting their access to cigarettes is difficult to enforce and does not seem to work. Illiterate people cannot read written warnings. Price, on the other hand, is a powerful way to discourage everyone, including young people and the poor, from starting to use tobacco and persuading tobacco users to quit. A recent study looking at Bangladesh, Indonesia, Nepal, Sri Lanka and Thailand found that higher prices in all these countries would lead to reduced tobacco consumption. Elasticities ranged from −0.50 to −0.70, with a 10% price increase in tobacco products leading to a decrease in consumption of 5% in the short-run and 7% in the long-run.[249] Studies in countries such as Brazil, China, Egypt, Mexico, Morocco, Papua New Guinea, South Africa and Turkey confirm that despite its addictive nature, tobacco has

considerable price elasticity, and that this phenomenon is especially strong among those in lower income groups, the young and possibly women.[250]

Guindon & Boisclair in 2003 estimated increases in global tobacco consumption based on various tobacco control scenarios and concluded:

> *Raising taxes to increase the price of tobacco products is the most effective way to reduce tobacco use, and the single most cost-effective intervention. It is also the most effective way to persuade young people to quit or not take up smoking. This is because young people, like others with low incomes, tend to be highly sensitive to price increases.*[251]

Ranson et al. reported modelled changes in deaths due to a 10% average increase in the price of cigarettes worldwide. They found that of smokers alive in 1995, 42 million would quit smoking and many others would not take it up. This would avoid 10 million tobacco deaths, 9 million of them occurring in middle and low income countries.[252] There were variations across countries and regions.

The World Bank estimated that in China a 10% price increase would lead to a 5% reduction in consumption and a 5% increase in revenue, enough to pay for essential health services for the poorest 100 million Chinese.[253] A recent analysis of the impact of a tobacco tax in China estimated that a 10% cigarette price increase would cause between 5.5 and 8.6 million Chinese to quit smoking and save between 1.4 and 2.2 million lives. The savings resulting in health care and lost productivity costs would be between US$ 3.9 and 5.8 billion per year. In financial terms alone, the gains in central government tax revenue would be twice the value of losses to the industry and to local government.[254] The authors stressed that using some of this revenue to pay for anti-smoking activities would further assist the Chinese government to control tobacco consumption. This is an important consideration, because in many developing countries money to fund new health initiatives is not readily available. Thailand, for example, now devotes 2% of its revenue from tobacco and alcohol tariffs to pay for a Health Promotion Fund.[255]

Ranson et al. also assessed the cost-effectiveness of a comprehensive package of non-price measures, not including NRT. They found that for smokers alive in 1995, if the measures were effective in reducing prevalence by 2%, they would reduce the number of smokers by 23 million worldwide and save about 5 million lives, the vast majority in low and middle income countries. If the effectiveness were 10%, well over 100 million people would quit or not

start smoking, and 26 million lives could be saved, again, mostly in developing countries.[256]

Finally, countries should offer treatment for those who are already dependent on tobacco, as well as dissuading others to start, to reduce worldwide smoking prevalence and to achieve rapid gains in health. A smoker who quits reduces his or her risk of stroke and heart attack by 50% within two years. In 1999, the World Bank noted that NRT was not widely available, and was expensive and highly regulated in many developing countries. And yet, some have argued that NRT has the advantages of being self-administered and not requiring assistance from health professionals.[257] Based on smokers alive in 1995, the World Bank estimated that even at 0.5% effectiveness, global availability of NRT would enable nearly 6 million smokers to quit, more than 80% in low and middle income countries. This would prevent 1.3 million deaths. If NRT effectiveness were 2.5%, more than 28 million smokers would quit and more than 6 million lives would be saved. However, recent evidence casts doubt on the long-term effects of NRT on cessation rates, especially when sold over-the-counter (rather than in the context of physician advice to quit).[258] In 2003 WHO published policy recommendations, which propose a broad framework for addressing smoking cessation and treatment of tobacco dependence.[259] It stresses the importance of developing a supportive environment to encourage tobacco consumers in their attempt to quit. It also highlights the fact that to be more effective, the treatment of tobacco dependence should be part of a comprehensive tobacco control policy that includes other measures such as taxation and price policies, advertising restrictions, dissemination of information and establishment of smoke-free public places.

The findings reviewed above are consistent with WHO's conclusions on the cost-effectiveness of different tobacco control measures. WHO confirmed that taxation was the most cost-effective intervention in all regions, although a more comprehensive package of measures was also affordable and cost-effective in most parts of the world. WHO noted that tobacco control measures are likely to be most effective in countries with a high prevalence of tobacco use, consistent with being in stages 2 or 3 of the tobacco epidemic (see Figure 1). These countries include Argentina, Bangladesh, Cambodia, China, Ecuador, Georgia, Guatemala, Hungary, Nepal, Peru, Sri Lanka, and Viet Nam.[260]

A recent project entitled *Tackling socio-economic inequalities in smoking in the European Union* was finalized by the European Network for Smoking Prevention (ENSP).[261] Based on the evidence that smoking is more common in lower socioeconomic groups, the researchers reviewed the trends in smoking

behaviour by socioeconomic groups in different European countries, made an inventory of effective smoking policies, and looked at the effect various tobacco control policies have had on the reduction of inequalities in the past 10–15 years. Five tobacco control measures were found to have considerable potential to reduce inequalities in smoking among different socioeconomic groups by having a greater effect on lower groups. The measures were: banning tobacco advertising, increasing tobacco prices, workplace cessation interventions, free supply of NRT, and telephone helplines. In particular, high tobacco taxation seemed to have the strongest impact on consumption among the poorer groups. However, the results of the review show that tobacco control policies that have been carried out in European countries in the past 15 years or so seem to have had more effect on the reduction in smoking among upper socioeconomic groups, possibly because comprehensive measures have not been fully implemented.

The ENSP project prepared a set of recommendations for effectively reducing smoking among lower socioeconomic groups, which includes measures needed to run alongside the tobacco control policies mentioned above, such as the strict enforcement of the regulations, geographical or social targeting of services and tailoring of communication approaches. The project report also noted that tobacco control policies can be more effective if they are linked to social and economic policies. This linkage can be done through different levels of governance. Tobacco control can be integrated at the local level into community-based actions, such as local support groups and actions for a safe and healthy environment. At national and international levels, socioeconomic policies should be incorporated in tobacco control measures. This specific experience of the European Union with regards to smoking among poorer groups can provide some guidance for developing countries that wish to tackle tobacco use in an efficient way and in tandem with the achievement of the MDGs.

Each developing country should make its own assessment and determine a package of tobacco control measures that fulfil poverty reduction and public health objectives, consistent with its cultural and political environment. For example, information on the dangers of tobacco may have more impact in developing countries than in developed ones, because uneducated people are often unaware of the dangers of smoking and the information will be novel and act as a "shock". For the same reason, advertising and promotion bans may also be effective, as long as they are comprehensive. In the study of Nepal by Karki et al. discussed earlier, despite a ban on cigarette advertising

in the electronic media and the application of warnings on cigarette packets, advertisements were still ubiquitous on billboards and in the print media, rendering the bans on television and radio advertising null.

There is much scope in the developing world to ban smoking in workplaces and public places. This has been very effective in the developed world in reducing people's exposure to second-hand smoke, in making it easier not to smoke than to smoke, and in changing the perception of smoking from attractive to unattractive. Such initiatives are relatively cheap to introduce and administer. In this context, the comprehensive set of measures outlined in the WHO FCTC provides a template for action.

The case study of South Africa in Box 2 exemplifies benefits that many developing countries may expect from increasing tobacco taxation combined with other tobacco control measures. Like South Africa, prior to 1994, many developing countries have allowed the real price of cigarettes and the impact of existing taxes to fall, and as noted above, tobacco tax rates tend to be lower in low income and many middle income countries than in high income countries.

***Box 2:* South Africa – the positive effects of tobacco control in a lower middle income country.**[262]

By 1993, South Africa was a country with almost no restrictions on tobacco advertising or smoking in public places, and no health warnings. A fixed tobacco excise tax had been eroded by inflation from 50% down to 20% of the retail price of cigarettes. Tobacco consumption had increased by 4.1% a year over the previous 30 years. By 1991, 51% of men and 13% of women were smoking regularly.

Two key changes occurred:

- First, in 1993, in response to intense lobbying from the medical profession and anti-tobacco groups, the South African government enacted legislation to restrict tobacco advertising, sales to minors and smoking in public places, and introduced health warnings on cigarette packets and advertising. Subsequent legislation in 1999 banned advertising and smoking in many public places.
- Second, between 1994 and 1997, the government increased the tobacco excise in real terms by 215%, so that it was again 50% of the retail price of cigarettes.

Tobacco consumption fell by one-third between 1991 and 2001, smoking prevalence fell and government revenues rose. Sixty per cent of the reduction in tobacco consumption was attributable to reduction in smoking intensity, which is the average amount of tobacco used by smokers, and 40% was attributable to a reduction in the number of people who smoke.

Youth smoking prevalence and smoking among households in the lowest income quartile both fell. Observers considered the dramatic increase in the price of cigarettes relative to other goods to be the cause. The poorest households reduced their tobacco consumption the most, reducing the regressivity of the tax.

Despite reductions in tobacco smoking prevalence and consumption, government tobacco tax revenues more than doubled during the 1990s, due to the increased tax rate per pack.

VI. THE WAY FORWARD

Tobacco control is affordable and effective for almost all countries. It will also contribute positively to the achievement of the Millennium Development Goals (MDGs). The challenge is to bring these two elements together. The MDGs have become the framework within which much development assistance is currently organized. They are the current "gold standard" against which progress is evaluated. It is therefore important that tobacco control is explicitly included within their purview.

The need for the developed world to include tobacco control in MDG activities

At the international level, there is a growing recognition of the need to include tobacco control as an aspect of development policy, although more needs to be done. The World Health Organization (WHO) has argued strongly for its relevance in countries at all levels of development, in particular through WHO Framework Convention on Tobacco Control (WHO FCTC). Apart from WHO, a number of key players have a stake in development, MDG achievement and tobacco control, including the World Bank, the International Monetary Fund (IMF) and the United Nations itself. There are also key donor groups and agencies, including the European Commission and the United States Agency for International Development (USAID). The involvement of each of these in tobacco and development is briefly introduced below, as a prelude to considering ways of integrating tobacco control into the MDG process.

The World Bank, as a major provider of world development aid, has lead agency status in relation to MDG 1 (overall poverty and hunger reduction). For more than a decade the World Bank has recognized the importance of tobacco control in global development. Since 1991, it has had a policy that involves discouraging the use of tobacco products, not funding tobacco production, processing or marketing (except in the small number of tobacco-dependent countries, which are encouraged to diversify away from tobacco), not lending indirectly for tobacco production activities and equipment, and not lending for imports of tobacco and related machinery.[263]

The World Bank's policies in other areas, however, may conflict with tobacco control, such as the privatization of state-owned tobacco companies. The World Bank and the IMF often propose the privatization of state-run

industries as part of adjustment programmes to promote efficiency and economic growth in developing countries. But unless privatization occurs within a framework of regulation (e.g. comprehensive tobacco control), the likely result is an increase in consumption of whatever goods are being produced, as competition, marketing and distribution increase. In relation to tobacco, this runs counter to public health concerns. It has been argued that for tobacco, regulations should be in place *before* privatization occurs, and that concessions to private companies that invest in state-run enterprises should not include profit-tax or other financial exemptions that reduce government revenue.[264]

The World Bank's 1999 book, *Curbing the epidemic,* provides in an annex the view of the IMF regarding tobacco taxation.[265] The IMF often includes increases of tobacco excise rates as a component of its stabilization programmes for countries that need to mobilize additional revenues to reduce their fiscal deficits. While primarily encouraging increases in excise rates to raise revenue, the IMF recognizes that health benefits obtain from reduced tobacco consumption. It also gives advice on how to use excise taxes when the primary purpose is to discourage tobacco consumption (specific excise taxes).

The IMF has supported staff in activities designed to control tobacco, including involvement in WHO tobacco initiatives, writing papers on the importance of tobacco taxation as a means of discouraging the take-up of smoking, and provided technical assistance on tobacco taxation. The IMF has also encouraged its staff to look at tobacco in the context of privatization, including the need for some regulation.

The United Nations, via its own committee structures, is working for both the achievement of the MDGs and tobacco control. The United Nations Development Programme (UNDP) is playing a central role in the implementation of the MDGs, including coordinating the development of country-level MDG reports.[266] The United Nations Economic and Social Council (ECOSOC) supports an Ad Hoc Inter-Agency Task Force on Tobacco Control. The Secretary-General's report to ECOSOC in 2002 on inter-agency tobacco control projects summarized a range of WHO activities, such as the joint WHO and World Bank analyses of the economics of tobacco control in selected countries, initiatives in relation to second-hand smoke and children, work on tobacco and trade liberalization, and the Global Youth Tobacco Survey (GYTS) undertaken through collaboration between WHO and the United States Centers for Disease Control and Prevention (CDC). Also noted was work by the International Labour Organization (ILO) on bidi workers and alternative sources of

employment, an analysis of global tobacco cultivation by the Food and Agriculture Organization (FAO), and an analysis of global cigarette smuggling by the World Customs Organization. These latter activities have to date been undertaken outside the framework of the MDGs.

The Secretary-General's report to ECOSOC in 2004 highlighted the link between tobacco, poverty and the developing world. It noted that tobacco consumption and production are both increasing in developing countries, pointing to the need for more country-level tobacco control. It reiterated the link between economic development and poverty reduction, and argued for the ill-effects of tobacco use to be addressed as a development priority. The report outlined the use of tobacco by the very poor, the pitfalls for small farmers engaged in tobacco production, the negative environmental impact of tobacco, and the dangers of the increasing use of tobacco by women in developing countries. It argued that there is a strong link between tobacco and the MDGs, in particular through the nexus of disease, poverty, hunger and gender. In the context of the implementation of the WHO FCTC, the report observed that few countries have implemented tobacco control measures that are sufficient to cause significant reductions in tobacco use. Hence there is a role for a number of United Nations agencies, as well as the World Bank and the IMF, the World Customs Organization, and the World Trade Organization (WTO), in providing technical support in conjunction with WHO to assist Party States to implement the WHO FCTC. The conclusions of the Secretary-General's report corroborate the recent statement made during the 11th quadrennial conference of the United Nations Conference on Trade and Development (UNCTAD) on 18 June 2004, which stressed the link between tobacco, poverty and the MDGs, as well as the importance of incorporating tobacco control in development programmes of countries and intergovernmental agencies.[267]

The Secretary-General's report to ECOSOC concluded that tobacco requires global regulation, due to its negative impact on health, economic growth and poverty alleviation. The report recommended the inclusion of tobacco control in programmes aimed at achieving the MDGs, and the inclusion of tobacco control on the agendas of the United Nations Development Group[t] and regional economic commissions. Following the presentation of the Secretary-General's report at the Substantive Session of ECOSOC on 16 July 2004,

[t] The United Nations Development Group (UNDG) is an instrument for reform, created by the Secretary-General in 1997, to improve the effectiveness of United Nations development at the country level. The UNDG brings together the operational agencies working on development (see http://www.undg.org).

the Member States of ECOSOC adopted a resolution on Tobacco Control. This resolution recognizes not only the adverse impact of tobacco use on health, but also on the society, the economy, the environment, and on poverty (see Annex). Consequently, it calls upon Member States to ratify, accept, approve or accede to the WHO FCTC and to strengthen their tobacco control measures. It also calls upon United Nations agencies, funds, programmes and other relevant international organizations to continue to provide support to strengthen tobacco control programmes at the national and international levels.

Major international aid donors include the European Commission (EC) and USAID. Both formally acknowledge the dangers of tobacco and have made commitments to incorporate tobacco control within their development activities.[268] The EC is the largest provider of Official Development Assistance (ODA) in the world, providing 55% of international ODA and two-thirds of grant aid.[269] The overarching goal of EC development policy is the reduction of poverty, consistent with MDG 1. In its Communication entitled *Health and poverty reduction in developing countries*, the EC focuses on improving health outcomes among the poorest people in developing countries. This document notes that tobacco causes a range of lifestyle-related illnesses that contribute to the disease burden of the poor, and places it firmly among key interventions at the country level to promote public health.[270] The EC also recognizes that tobacco control is consistent with poverty reduction.[271]

The EC's position on development and tobacco control upholds the right of each developing country to determine its tobacco control needs (consistent with "national ownership of policies"). This puts the onus on the developing country to identify a need. The document *Tobacco control in EC development policy* also notes that "the list of needs is often long and that development priorities vary from country to country". However, the EC is committed to working with governments in developing countries to help them build internal consensus and cooperation in relation to tobacco control, and to encouraging the sharing of experience by European nongovernmental organizations with those in developing countries, to bolster the role of civil society in tobacco control efforts. The EC is a strong supporter of the WHO FCTC, and in 2003, WHO and the EC formally agreed to "continue to work closely together to put tobacco control in developing countries on the international development agenda".[272] In addition, the Organisation for Economic Co-operation and Development (OECD) and WHO Development and Assistance Committee guidelines on *Poverty and health* (2003) include mention of noncommunicable diseases linked to tobacco use as causing a significant disease burden on the

poor.[273] The guidelines focus on the need for development agencies to support pro-poor health policies and health systems development in developing countries, if real economic and health progress is to be achieved.

In December 2004, during the first session of the Subcommittee on Health and Development of the Economic and Social Commission for Asia and the Pacific (ESCAP), a draft regional framework for strategic action to tackle the social, economic and environmental determinants of health was considered.[274] The Subcommittee urged that the actions on noncommunicable diseases, including tobacco control, be integrated into the MDGs. This could be done during the United Nations Summit planned in September 2005 to review the progress of the MDGs since the 2000 Millennium Declaration. It was also recommended that specific targets and indicators for tackling important risk factors for noncommunicable diseases including tobacco control should be established, and that these targets should be integrated in internationally agreed development goals. The regional framework for strategic action also encourages ESCAP members to consider ratifying, accepting, approving or acceding to the WHO FCTC at the earliest opportunity.

USAID has also made a commitment "to curb tobacco production, processing, marketing and use".[275] While noting that resource constraints limit what USAID can do in practice, the policy commits USAID to participate in national and international forums and to strengthen linkages between global anti-tobacco efforts and performance goals in its strategic plan. Importantly, USAID undertakes to cease support for the cultivation of tobacco as a cash crop, and to assist tobacco-growing countries to find alternative crops.

Many individual countries in the developed world also recognize the importance of tobacco control and have incorporated it into their development policies. The Swedish International Development Cooperation Agency (Sida), in its policy on health and development entitled *Health is wealth*, focuses on two "pillars" of development cooperation: (i) public health and health determinants, and (ii) health service delivery and systems development. Tobacco is recognized along with environmental problems, abuse of alcohol, illicit drugs, traffic injuries and malnutrition as a major health threat affecting health inequities.[276]

The Commission on Macroeconomics and Health (CMH) and the United Nations Millennium Declaration both point to the need for the developed world to increase financial assistance to developing countries. The CMH noted that "vastly increased assistance" from the world's richer countries is needed to address the health problems of those in the poorest countries. One of the

key targets of MDG 8—to develop a global partnership for development—includes increasing ODA from developed countries. The Monterrey Consensus of March 2002 included commitments from Member States of the European Union, the United States of America, and many individual developed countries (such as Australia, Canada, Norway and Switzerland) to increase ODA in real terms by around US$ 16 billion a year by 2006.[277] There has also been recognition of the need to provide recipient countries with aid and income streams that are dependable and can be sustained in the longer term. Tobacco control, as we have seen, is not only relatively inexpensive, but can be incorporated along with other macroeconomic and health initiatives as a mechanism to provide ongoing revenue, as well as to promote public health.

None of the above initiatives ensures the inclusion of tobacco control in the MDG process. But if developed countries are truly to enter into a global partnership with developing countries, the former need to be proactive in informing the latter about the tobacco epidemic, which has already ravaged their own shores. They need to be sure not to export a recipe for future public health and financial disaster in the form of tobacco-induced illness, lost productivity and death. They have a responsibility not to pass on to others a scourge that they have learned to limit for themselves. This may require more than passive acceptance of a developing country's position on tobacco control.

The WHO FCTC provides the obvious vehicle for the implementation of comprehensive tobacco control in all countries. On 27 February 2005, the date the treaty entered into force, a number of european nations, Australia, Canada and Japan had already become Parties, while countries like China, Brazil and the USA were signatories to the treaty. About 78% of the world's low income countries (World Bank classification) had signed the treaty. Out of the 58 Parties on 27 February 2005, 14 were low income countries (Bangladesh, Bhutan, Ghana, India, Kenya, Lesotho, Madagascar, Mongolia, Myanmar, Pakistan, Senegal, the Solomon Islands, Timor-Leste and Viet Nam).[278] This is an excellent beginning, which needs to be built on in the context of development assistance. The World Bank's 1999 report on tobacco control included a recommendation, which called on international organizations to review their programmes and policies to ensure that they give due prominence to tobacco control, sponsor research about tobacco use and control, and address cross-border issues such as smuggling and sponsorship.

It is important that development agencies and individual developed countries work to include tobacco control formally within MDG plans and

programmes, so that it is addressed and reported on in a coordinated manner. Several targets could be incorporated under a tobacco control MDG goal: one concerning the number of developing countries becoming Parties to the WHO FCTC (such as 50% by 2007); and another concerning reduction in smoking prevalence and/or consumption (such as a 1% per annum reduction). The CMH recognized the need to harness global resources to achieve action in relation to specific diseases such as HIV/AIDS, tuberculosis and malaria. In a similar way, Article 26 of the WHO FCTC requires all Parties to consider the enhancement of existing financial mechanisms or establishment of new mechanisms to channel funds to developing countries and countries in transition. A third target, concerning financial arrangements for developing countries, would also be appropriate.

The following recommendations seek to place tobacco control firmly on the development and MDG agenda, and to place responsibility on the developed world and international agencies to attend to tobacco control as an element of development assistance.

Recommendation 1: International organizations including WHO and other development agencies, such as the World Bank, IMF, UNICEF, UNEP, FAO and ILO, should incorporate tobacco control into all MDG and poverty reduction funding and development strategies. Agencies should also cooperate on multilateral aspects of tobacco control such as cigarette smuggling, Internet sales of tobacco products and cross-border sponsorship.

Recommendation 2: Countries in the developed world should attend to the nexus between tobacco control and poverty in their own countries, and encourage and financially support developing countries to do likewise.

Recommendation 3: International organizations and countries in the developed world should work actively through their development agencies and international cooperation units for the inclusion of tobacco and selected noncommunicable diseases in the 2005 MDG review.

Commitment to the MDGs and tobacco control at the national level

National governments are key players in economic growth, health and education, and tobacco control. Government policies affect the distribution of income and the cost and availability of health services. They determine the

existence or otherwise of health subsidies such as fee waiver programmes, health cards and health insurance schemes; they impact on what households know about a range of health and nutrition matters, including tobacco.[279] Because tobacco use is an accepted social custom in most countries, its reduction requires strong social and political commitment. There is widespread agreement that overcoming political barriers to tobacco control is a key factor in enabling change. De Beyer & Brigden, in their book of country case studies reflecting successes and setbacks in tobacco control,[280] summarize some of the key features that impact positively on moves to institute tobacco control, including:

- finding "political champions";
- gaining support from powerbrokers with diverse perspectives such as ministries of finance and health, and capitalizing on common ground between them;
- the involvement of nongovernmental organizations and committed individuals who put tobacco control on the national agenda, including coalitions between groups with diverse primary interests (e.g. women's or consumer rights groups);
- the transformative role of the media in influencing popular opinion and governments;
- effective and opportunistic advocacy;
- legislative success (e.g. to ban cigarette advertising), attained in the face of opposition from tobacco companies, sometimes with compromise required;
- vigilance to ensure that legislation is backed up with implementation and enforcement;
- collaboration with national and international agencies that can secure funding and sustain resources and action over time;
- strong research evidence, not just from overseas, but gathered locally and geared to the local situation;
- insistence on the need to implement comprehensive rather than single interventions.

A similar list of "political essentials" can be adduced for almost any broad attempt at social change, including the MDGs, which set priorities for action that sometimes challenge the political, fiscal and organizational status quo in developing countries, and which call for an acceptance of the nexus between health and economic development. The role of civil society in the social change

process is evident in many of the points above. Many similar themes are canvassed in a recent report on the importance of civil society organizations in ensuring the achievement of the MDGs.[281]

The report notes, for example, that civil society has a role to play in putting the MDGs on the public and political agenda, in contributing to strategy development, in monitoring and evaluating progress, and in making governments accountable for achieving tangible outcomes. The report asserts that effective support and data and policy analysis are needed from civil society in each country to ensure understanding of local needs. It sees the MDGs as providing opportunities for civil society organizations to focus on common ground between their own agendas and the MDG process, to strengthen their networks and to build partnerships with government and other organizations.

The commitment in each country of government, media, civil society and professional groups is essential to the achievement of both tobacco control and the MDGs. However, if international agencies and individual donor countries are to commit additional resources to development assistance, governments in developing countries need to do more than make in-principle commitments to such initiatives. They must demonstrate the capacity to use resources well, which involves several elements.

The first is the existence of a basic level of good governance, so that corruption and inefficiency do not undermine development. Good governance encompasses both national leadership and local accountability, and includes the ability to act on political and administrative commitments. Good governance relies on the existence of a functioning bureaucracy and dependable financial management systems. Evidence suggests that expenditure only translates into outcomes when policies and institutional arrangements are sound.[282]

Second, governments in developing countries, especially their treasuries and ministries of finance, need to redefine their understanding of expenditure on health and poverty reduction as an investment rather than a sunk cost. It is here that coalitions of health experts, nongovernmental and civil society organizations and others can be most effective. If governments can be convinced that additional expenditure will lead to genuine health and economic improvements, they will be more prepared to raise domestic revenue (e.g. through tobacco taxes) and to use it for health purposes, consistent with the MDGs and tobacco control.

Third, developing countries need national, state and district-level health structures to deliver services. It is essential for the achievement of many of

the MDGs and tobacco control that primary health services are available in local communities. In many of the world's poorest nations comprehensive primary care services are lacking, and where this is the case, their establishment is clearly a key goal.[283] Access to high quality, affordable health services is essential for improved maternal and child health, and for the prevention and treatment of diseases such as HIV/AIDS, malaria and tuberculosis. Where health structures and service delivery systems already exist, it is important to integrate MDG and tobacco control initiatives within established structures. This is especially important in developing countries where resources are scarce. It needs to be recognized that each new health challenge does not require a new delivery system. Rather, primary care systems can deal with infectious and noncommunicable diseases, acute and long-term care (as needed by HIV patients), and prevention and education (in relation to smoking). Economies of scale are involved in enriching health services at the local level in this way. This is also highlighted in a recent WHO publication, *Building blocks for tobacco control: a handbook*, which aims to provide policy-makers with practical advice on how to strengthen national capacity for tobacco control.[284] Based on the lessons learned from different countries, the handbook recognizes that tapping existing resources and networks is a pragmatic way of keeping down the implementation costs of national tobacco control programmes. This is important given that, in most cases, the physical and human resources needed for tobacco control programmes are already in place within ministries of health, often under related programmes, such as noncommunicable disease prevention, health promotion and control of substance abuse.

In terms of the overarching MDG, to eradicate hunger and extreme poverty, many developing countries have room to significantly increase tobacco excise, and through this, government revenue that can be used in relation to the MDGs and tobacco control. The World Bank's MDG Progress Report in 2003 recommended that development agencies and individual countries assess their revenue and expenditure status as follows: Does the country obtain a high or low percentage of government revenue from taxes? What is the percentage of government revenue devoted to health? At present, total tax revenue as a percentage of GDP ranges from 14% for low income countries to 31% for high income countries.[285] Similar questions can be raised in relation to tobacco taxation: Is the percentage of tobacco excise in real terms high or low compared with other equivalent countries, and how much of this income is devoted to health promotion in relation to tobacco (and possibly other health issues)? In cases where tax rates are low relative to other similar countries, the

report argued that there was room for increased taxation to generate revenue, rather than reliance solely on an increase in ODA.

While there are limits to direct taxation if an economy is small, the World Bank's *Millennium Development Goals for health* report noted that import taxes on luxury goods such as tobacco and alcohol are not only politically palatable, but can contribute to economic growth that may in turn enable increased direct taxation. The World Bank Report cited the example of Bolivia, where the World Bank assisted in a restructuring of the tax system, including a 50% tax on tobacco and jewellery. The restructuring led to greatly increased revenues over more than a decade, so that the government was then able to institute a progressive income tax. The 1999 World Bank tobacco report *Curbing the epidemic* recommended pragmatically that the tax level that has led to reductions in smoking consumption and prevalence in developed countries—lying somewhere between two-thirds and four-fifths of the retail price—be used as a guide in developing countries. WHO recommends that countries increase the price of all tobacco products by at least 5% in real terms each year.[286]

For national governments to commit to tobacco control, they need to do much more than increase tobacco taxes, especially if the goal is to prevent increasing national affluence translating into increased tobacco use. The report's first recommendation was that if governments decide to address tobacco use, they should adopt a multi-pronged approach. Comprehensive action involves not only higher taxes but advertising, promotion and sponsorship bans, limiting smoking in public places to reduce exposure of non-smokers to smoke, appropriate labelling and packaging (including strong health warnings), campaigns to educate the public on the dangers of smoking and benefits of quitting, and support to smokers who wish to quit. In other words, it involves the full range of activities encompassed by the WHO FCTC. This has relevance to developed countries as well as the developing world, especially in relation to moves to combat smuggling and provide support for economically viable alternative activities.

The following recommendations suggest some first steps that individual countries can take to increase their commitment to tobacco control and the MDGs:

Recommendation 4: Developing countries should review their commitment to both the MDGs and tobacco control, and identify areas of synergy and mutual enhancement. Specifically, developing countries should:

- become Parties to the WHO FCTC by ratifying, accepting, approving and acceding to the Convention;
- seek mobilization of resources from donors and development agencies, in accordance with Article 26 of the WHO FCTC, to support the implementation of comprehensive tobacco control measures;
- place comprehensive tobacco control firmly on the agenda of MDG national committees and other structures, including national action plans and other MDG implementation processes;
- incorporate progress on tobacco control in MDG annual reports.

Where they exist, MDG committees should work together with national tobacco control committees, health experts and others, to push for comprehensive tobacco control in the context of more general health improvement and poverty reduction. In the same vein, national tobacco plans should include a focus on poverty and sustainable development.

Recommendation 5: All developing countries that do not appropriately tax all tobacco products should include increases in tobacco taxation as a revenue-generating mechanism, and include it in Poverty Reduction Strategy Papers (PRSPs) and similar processes. In addition, at least some of the additional government revenues from this tax should be earmarked to health service provision and health promotion in relation to both the MDGs and tobacco control.

Recommendation 6: Developing countries should focus particularly on young people, women and the poor in their tobacco control activities.

Recommendation 7: Civil society organizations in developed and developing countries should join forces to mobilize in relation to both MDG implementation and comprehensive tobacco control, to ensure national commitment and consensus, the involvement of health, finance and other ministries, and the development of viable action plans.

Recommendation 8: In order to implement tobacco control policies effectively at national level, governments should develop the appropriate human and institutional capacities in ways that reflect national priorities and realities. National tobacco control should be incorporated into existing federal, state and district-level health structures and should link with existing positions and accountability processes. This should lend sustainability to tobacco control.

Also, the non-health sectors should be systematically involved with the health sector to reach a multisectoral acceptance of tobacco control in the country.

The need for increased global and national surveillance and research in relation to tobacco and poverty

International agencies and individual governments need to improve health information systems in relation to both tobacco use and the health problems associated with poverty. At country level, core public health functions such as health monitoring, health surveillance and public health research are needed. In relation to tobacco and poverty, there are three main requirements:

- monitoring and surveillance data in relation to tobacco use and its impacts;
- research into any specific health effects due to the interaction between tobacco use, poverty, malnutrition and/or undernutrition;
- studies of the opportunity costs of tobacco use among poor people.

In relation to monitoring and surveillance, standardized estimates of smoking prevalence (i.e. using the agreed standardized definitions of tobacco use) are needed to chart the progress of developing countries through the stages of the tobacco epidemic, and to determine specific strategies for intervention. Without these data, the extent and range of the impact of tobacco cannot be gauged. Reliable data on the number of cigarettes sold (based on manufacture, import and export data) assist countries to monitor tobacco consumption, to predict future patterns of death and disease, and to counteract smuggling. If tobacco use status is included on death certificates, this provides information relevant to a range of preventable illnesses, and enables an assessment of relative risk through retrospective proportional mortality studies. Much could also be said about the need for health information in relation to the MDGs, but this study will simply flag that the range of broader health surveillance needs is large.

A forthcoming global initiative that provides a possible mechanism for surveillance of smoking and tobacco-related disease at country level—as well as MDG monitoring—is the Health Metrics Network. This network will assist countries in establishing and coordinating health information systems. It is being formed in recognition of the fact that the MDGs, PRSPs, the Global Fund to fight AIDS, Tuberculosis and Malaria, and the Global Alliance for Vaccines

and Immunization (GAVI), to name just a few major initiatives, all place significant pressures on developing countries to collect health information and to monitor health outcomes.[287] The Health Metrics Network is a multidisciplinary and multisectoral partnership among international agencies, individual countries and major philanthropic institutions. Its focus will be on "improving the availability and utilization of sound health information for policy-making and planning, programme monitoring and evaluation, monitoring of international goals and measuring equity in health".[288] The collection of information on tobacco prevalence and consumption and on mortality from tobacco is a requirement under the WHO FCTC, and should be included in initiatives such as the Health Metrics Network.

Second, more research into tobacco and poverty is needed. Of particular concern is the lack of research into the range of health impacts of tobacco use on the very poor. This research includes examining the intersection of tobacco use and malnutrition (including various forms of comorbidity due to micronutrient deficiencies, parasitic and gastrointestinal diseases), and the impact of smoking on a wide range of respiratory illnesses (including pneumonia, chronic bronchitis, asthma and tuberculosis) among those who are poor and malnourished. It may well be that the negative health impacts of tobacco are broader and more immediate when malnutrition and extreme poverty exist than in the developed world. It is extraordinary that we are only beginning to understand the particular impact of smoking on conditions such as subclinical tuberculosis.

There is plenty of room for an increase in the amount of money devoted to research into the health effects of tobacco, even in the developed world. The 1999 World Bank Report *Curbing the epidemic* cited figures from the early 1990s suggesting that investment in research and development in relation to tobacco was at the level of US$ 50 per tobacco-related death in 1990, compared with $3000 per HIV/AIDS death. In a medical editorial in 1999, the figures cited for the United States were $30 000 per HIV/AIDS death, compared with $800 per lung cancer death.[289] The findings summarized here suggest that the impact of tobacco on heart disease and lung and other cancers warrants more research.

Finally, more research is needed into the opportunity costs of tobacco use among poor households, not only in terms of the overall economics of household budgets, important though this is. We also need to understand much more about the subtle choices made when resources are limited (due in part to tobacco use), such as the decision whether or not to seek medical help for

a child with a fever, or for a woman during pregnancy—choices that impact directly on health outcomes relevant to the MDGs. There is much more to learn about these broader effects of tobacco use in very low income households.

Recommendation 9: Information on tobacco use, the health effects of tobacco, tobacco and poverty and the effectiveness of tobacco control measures, should be included among the areas to be covered by the Health Metrics Network and other relevant health information and surveillance systems.

Recommendation 10: International agencies and donor countries should provide funds for more detailed research into the health effects of tobacco on the very poor, including those with HIV/AIDS, malaria and tuberculosis, and into the opportunity costs of tobacco use among the very poor.

ANNEX

2004/62

Tobacco control

The Economic and Social Council,

Noting with profound concern the escalation in smoking and other forms of tobacco use worldwide,

Recognizing the adverse impact of tobacco consumption on public health, as well as its social, economic and environmental consequences, including for efforts towards poverty alleviation,

Acknowledging that tobacco control at all levels, particularly in developing countries and in countries with economies in transition requires financial and technical resources commensurate with the current and projected need for tobacco control activities,

Recognizing the need for strong political commitment, at all levels, for effective tobacco control, consistent with the provision of the World Health Organization Framework Convention on Tobacco Control,[u]

Mindful of the social and economic difficulties that tobacco control programmes may engender in the medium and long term in some developing countries and countries with economies in transition, and recognizing their need for technical and financial assistance in the context of nationally developed strategies for sustainable development,

Noting with appreciation the report of the Secretary-General on the activities of the United Nations Ad Hoc Inter-Agency Task Force on Tobacco Control,[v]

Welcoming the adoption, by consensus, of the World Health Organization Framework Convention on Tobacco Control[w] by the fifty-sixth World Health Assembly,

[u] E/2004/55.
[v] World Health Assembly resolution WHA56.1, annex.
[w] See A/57/3 (Part II), chap. V.A.

Emphasizing the need for the expeditious entry into force of the Framework Convention and its effective implementation,

1. *Calls upon* Member States that have not yet done so to consider ratifying, accepting, approving or acceding to the Convention at the earliest opportunity, with a view to bringing the Convention into force as soon as possible;
2. *Urges* Member States to strengthen tobacco control measures;
3. *Also calls upon* the relevant United Nations agencies, funds and programmes and invites other relevant international organizations to continue to provide support for strengthening national and international tobacco control programmes;
4. *Requests* the Secretary-General to submit a report on the work of the Ad Hoc Inter-Agency Task Force on Tobacco Control to the Economic and Social Council at its substantive session of 2006.

51st plenary meeting

23 July 2004

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