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"Addressing noncommunicable diseases and injuries:
major challenges to sustainable development in the 21st century"
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Discussion Paper
"Noncommunicable Diseases, Poverty and the Development Agenda"
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1. Introduction

1.1 Noncommunicable disease (NCD) deaths, while dropping in developed countries, are still rapidly on the rise in most developing countries[1; 2], turning into a global epidemic that threatens the health of people and of the economy, as follows:

- **A serious threat to the health of people in developing countries**: In 2008, 60% of all deaths in the world, a total of 38 million people, died from the four main NCDs: cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. 80% of these deaths occurred in low- and middle-income countries.
- **A threat to socio-economic development**: The World Economic Forum[3], surveying the landscape of global risks for 2009, ranked noncommunicable diseases (NCDs) as the third most likely risk to come true and the fourth most severe in its impact. NCDs were seen as a threat to global well-being, exceeded only by asset price collapse, spikes in oil and gas prices, and the slowing of the Chinese economy. The World Bank estimates that one third of the poorest two quintiles in developing countries die prematurely from NCDs, which affects their families and acts as a chronic poverty trap for them[4].

1.2 Yet international aid and development agencies are "missing in action"[5] in relation to NCD prevention and control. They are virtually absent in terms of providing technical assistance to developing countries in this area. The greatest burden of preventable death and disability, in both rich and poor countries, is being caused by the very conditions that are receiving least development support. Out of US$20.6 billion in Official Development Assistance in 2006 provided by 24 OECD/DAC countries and the EC, $0.1 billion went to basic nutrition and there was no specific investment in the prevention and control of NCDs[6]. The work of international development agencies in poverty alleviation and in the control of infectious diseases is indeed essential for the world's "bottom billion", the people living in extreme poverty. Yet these agencies also have a key role in promoting balanced investment for healthy development.

1.3 In the next two decades, low-income countries of today will be overwhelmed by strokes and heart attacks in middle-aged adults. In Africa, for example, 44% of people are below the age of 15 years[7]. As these children and young people grow into adults in a few short years, they will carry with them the risks accumulated from a youth spent in increasingly unhealthy cities, adopting risky behaviours, and burdened by the metabolic legacy of under-nutrition in their childhood. In middle-age, they will become a sick generation, with early onset of diabetes, stroke, heart disease, cancer, and chronic respiratory disease. Their health systems will buckle and face bankruptcy. And the losses of human life will be more tragic because many of them are today preventable. The development world, unless it responds to the epidemic of NCDs today, risks failing a considerable proportion of its intended beneficiaries. The world has undergone a health transition, and health systems and development agencies must quickly catch up.

1.4 The epidemic of NCD is the product of failed development: of unhealthy urbanisation, of poor trade choices, of health systems that lock out those most in need of care. A fundamental economic and development choice is thus facing the world today.

1.5 The current demographic situation of developing countries thus provides a window of opportunity for prevention of NCDs, a window that will have closed within two decades. Unless this opportunity is seized, the current progress on the internationally agreed development goals will be undermined, and countries will have to face unbearable costs to their economies and health systems. The world is thus at a unique point in the history of public health, a chance to stem the tide of a predictable epidemic, an opportunity that will rapidly fade if no timely action is taken.

1.6 This discussion paper will serve as a tool to explore the views of interested parties during the Western Asia Regional Ministerial Meeting on "Preventing and Controlling Non-Communicable Diseases" (Doha, Qatar, 10-11 May 2009). This paper does not represent an official position of the World Health Organization. Specifically, this paper will:

- Review the causes of the rising burden of noncommunicable diseases with special emphasis on the situation in the Economic and Social Council's Western Asia Region and WHO's Eastern Mediterranean Region (referred to below as "the Middle East" for convenience);
- Examine how noncommunicable diseases create a poverty trap for the poor, erode economic growth, and undermine the attainment of the internationally agreed development goals;
- Recommend ways in which governments of the region, development agencies, and the United Nations can work towards a cost-effective response to the NCD epidemic in line with the Global Strategy for the Prevention and Control of NCDs and its implementation plan[8].

2. The burden of noncommunicable diseases

2.1 Since 1950, the world has experienced unprecedented epidemiologic changes that define the modern era. First, child mortality fell, and life expectancy increased by 20 years in the last 6 decades – far more than in any previous time in all of human history. Second, fertility rates declined, slowing population growth and allowing greater investments in health and education. Third, most developing countries urbanized and productivity rose rapidly in non-farm enterprises. Infectious diseases and under-nutrition have receded from the top causes of death in all but the poorest countries and, even there, they are on the decline. Most of this change occurred in less developed countries, where child deaths are declining due to investments in education, public health programmes, and better access to medical therapies.

2.2 Noncommunicable diseases cause 60% of all death globally, and 80% of these are in low- and middle-income countries[8]. According to the 2004 Global Burden of Disease Update, almost half the disease burden in low- and middle-income countries is now from noncommunicable diseases[1]. The major killers of adults in the developing world have shifted to cardiovascular disease and cancer. These NCDs lead to losses of educational investments and labour productivity among middle income developing countries, keeping millions of people from emerging confidently from poverty. And the chronic nature of these diseases leads to high levels of long term disability that continues to cost families and their societies a high social tax for years to come, a cost that prevents children from completing their schooling and a burden of care that places heavy demands on the family.

2.3 The Middle East is not spared the burden. In 2004, NCDs were estimated to account for 47% of disease burden in the WHO Eastern Mediterranean Region, and were expected to reach 60% by 2020[9]. In the occupied Palestinian territory, mortality rates are higher for noncommunicable diseases than communicable diseases in every age group, except for infants under 1 year old[10]. A recent study of the northern Gulf region found over 90% of adults over 25 years of age had at least one risk factor for cardiovascular disease[11].

2.4 **Diabetes** rates in the region are now higher than in Europe and North America[12]. WHO estimates a 190% increase in the number of people living with diabetes in Oman over the next 20 years, from 75,000 in 2000 to 217,000 in 2025[13]. With the exception of Sudan, the prevalence of diabetes in population samples aged 20 years and over, utilizing WHO diagnostic criteria, has been reported to be around 10%. Recent surveys suggest that diabetes affects up to 20% of the adult population in some countries. Higher rates are reported if pre-diabetes or impaired glucose

tolerance is included. One consistent finding of all surveys is the low detection rate, from 40% to over 60% of diabetics in the Middle East are not aware of their condition[14-19].

2.5 According to the Global Burden of Disease study, **cancer** is already the fourth most common cause of death in the WHO Eastern Mediterranean Region. This WHO Region will be the one to see the greatest increase in cancer mortality by 2020[20]. In the next fifteen years, cancer incidence will increase between 100% and 180%. Breast cancer and lung cancer are the leading causes of cancer deaths, and they are amenable to population based prevention strategies and early detection and screening programmes[21].

2.6 **Cardiovascular diseases** are also on the rise and are affecting young populations in the Middle East. In Jordan, for example, a progressive increase in coronary heart disease cases has been reported since the eighties. As early as 1989, in Queen Alia Heart Centre, almost half the patients with confirmed disease were below the age of 50 years and only 17% were above the age of 60 years[22]. In 2002, 23% of Jordanian adults aged 35-49 years had high blood pressure and 18% had high cholesterol[23].

2.7 **Obesity** is rising, with rates of overweight and obesity in some countries among the highest in the world[24; 25]. Among Saudi Arabian adults aged 18 to 74 years attending a primary health care centre, 51.5% of the men and 65.4% of the women were obese.

2.8 There has been a large increase in **tobacco consumption** over the past three decades, a significant cause of morbidity and mortality from NCDs. Children aged 13-15 years have higher rates of tobacco use than adults in Bahrain, Oman, and the United Arab Emirates. For boys, use of *shisha* was significantly more prevalent than cigarette smoking in Kuwait, Qatar, Saudi Arabia (Riyadh), United Arab Emirates and Yemen. For girls, use of *shisha* was significantly more prevalent than cigarette smoking in all countries[26]. Exposure to second-hand smoke in public places was greater than 30%, direct pro-tobacco advertising exposure was greater than 70% on billboards and in newspapers, and more than 10% of students were influenced by indirect advertising. Less than half of the students were taught in school about the dangers of tobacco use in the past year[26]. *Narghile* (water pipe) smoking has increased in adolescent boys and girls[10; 26]. The Region can combat these by implementing immediate social, economic and legislative measures such as those strongly recommended by WHO in its advisory note on *shisha* released 2006[27]. Of the 22 countries in the Region, 17 have become Parties to the Framework Convention on Tobacco Control[27]. However, further efforts are required to fully protect citizens in the Region, for example only 6 out of 22 countries in the Region have banned the use of deceitful terms such as "mild" or "light" and only 8 countries in the Region have mandated health warnings covering >30% of the pack[28].

2.9 These diseases are also the cause of preventable disability in the Region. According to WHO estimates for 2002, 3% of **blindness** in the WHO Eastern Mediterranean Region is caused by diabetic retinopathy[29]. And, conversely, 7.5-10% of diabetics have been found to be blind in two population-based studies in Jordan and Oman [30; 31].

3. The rise of noncommunicable diseases

3.1 Much development policy is designed on the erroneous assumption that NCDs are the "lifestyle diseases" of the rich or the elderly. Yet there is ample evidence in developed countries that the rich actually find ways of avoiding NCD. In fact, in mature epidemics in developed countries, the greatest burden of NCD lies in poor and disadvantaged communities.

3.2 In low-income countries, another pattern is seen. NCDs are exerting a double burden on the poor, alongside the very real issues of infectious disease, maternal mortality, and child survival. In promoting a balanced investment across the double burden of disease, it is important to dispel the notions of "affluence" and "age" as the explanations for the epidemic. As a basis for understanding the links with poverty, three points need to be made on the fundamental causes of the NCD epidemic:

1. **The policy environment directly affects the risk of NCD**. Multiple studies confirm the rise of NCDs and risk factors around the world. But the rise in risk factors is only partly explained by a change in personal behaviours. Personal behaviours are not only a

personal choice. Much larger forces are at play here. For example, an urban landless family in a slum area may emerge from a state of under-nutrition into a state where it can only find or only afford low-quality, energy-dense foods, leading to the paradoxical "obesity of poverty". The risk factors for overweight in this family are not a result of personal choice but a result of the price and availability of food, and these are determined by public policies and by the private sector. A model by David Stuckler[32] correlates the growth of NCDs with trade flows, technological change, and urbanisation. These are the features of globalization that are changing lives in low- and middle-income countries. Higher levels of urbanization, market integration, and foreign direct investment are among the factors correlated with higher NCD burdens in low-income populations.

2. **The NCD epidemic is not simply a result of ageing**. Doubtless, ageing is an important contributor to the growth in numbers of NCD cases, but, quoting a recent World Bank analysis: "An overemphasis on aging, however, could result in a mistaken belief that policy cannot make a difference"[4]. People in low-income countries are facing the diseases at a young age, earlier in life than people in developed countries. Their biological ageing is faster than their chronological ageing; they are "ageing too young". Furthermore, ageing is not in itself a disease process. With disease prevention and social protection throughout the life-course[33], major disability can be reduced considerably [34]. A modelling exercise in China demonstrated that "eminently feasible improvements in diet and smoking" can offset the anticipated adverse effects of ageing on the rising incidence of coronary heart disease in Beijing[35]. The key issues facing governments today: how to balance health development decisions today in order to prevent the young population of low-income countries from becoming the chronically ill adults of tomorrow? How to delay the incidence of NCDs to a late stage in life?

3. **Weak health care systems worsen the impact of the NCD epidemic.** Even with the best prevention in the world, there is no such thing as a disease-free future. Governments today and in the future need to respond to a high burden of NCD. There are already many indications that health systems need to be strengthened even in low- and middle-income countries. People aged 30-59 in low-income countries die from NCD at twice the rate of their counterparts in high-income countries[32]. Low- income countries have 30% greater morbidity (measured in disability-adjusted life years per 100,000). The young age at death from NCD in low-income countries may be due to weak health care (as in the case of diabetes in Africa[36], for example).

4. The links with the Millennium Development Goals

4.1 The United Nations Development Agenda, built up since 1990 via a series of world conferences, "cuts across a vast array of interlinked issues ranging from gender equality, social integration, health, employment, education, the environment and population to human rights, finance and governance"[37]. Many commitments of the world conferences were later condensed into the Millennium Development Goals, which have succeeded in galvanizing an exceptional momentum to meet the needs of the world's poorest[38]. Yet the MDGs largely fail to consider the NCD epidemic[39] which is striking at the heart of poverty in a number of ways.

4.2 The Millennium Development Goals (MDGs) have served as a strong spur to the international movement for poverty alleviation. We now can see how much a failure to address NCDs limits the achievement of the MDGs:

- Despite considerable progress made worldwide, the health-related MDGs (in goals 1, 4, 5, 6 and 8) are falling short of the targets set in many countries, leading to a gap in attainment of the aspirations, a gap that requires scaling up of programmes, strengthening of health systems across disease groups, and improved action across sectors.

- Furthermore, these goals were defined at a time when global recession and global food crises were not anticipated, when climate change was still being doubted, and when the burden and

the negative socioeconomic impact of noncommunicable conditions was not adequately recognized. Today's reality is far different and today's goals need to reflect this reality.

5. Noncommunicable diseases and poverty

5.1 The **first Millennium Development Goal** aims for the eradication of extreme poverty and hunger. This section focuses on this Goal, looking at the problem of NCD in low income countries, and in poor and near-poor populations, while the next section surveys links between NCDs and the other MDGs. Much of the discussion in this section will focus on the epidemic in low- and middle-income countries. It must be recognized from the outset that many of the ill-effects being described here (large risk, high morbidity, premature mortality, inequalities of distribution, barriers to access of care) are shared by poor populations in high-income economies[40-42]. Six points can be made:

1. **The NCD epidemic is growing faster in poor countries:** NCDs are among the leading killers in low-income countries[43] and the epidemic is growing at faster rates there than in richer ones[32]. This epidemiological transition[44] in low-income countries is taking place very rapidly; for example, NCD mortality rates in Africa are rising much faster than anywhere else in the world.[45] This makes it imperative to take urgent action to address the double burden of disease, dealing effectively with both infections and NCDs.
2. **Poor, rural populations with NCD are doubly disadvantaged:** In the mid-nineties, the Adult Morbidity and Mortality Project team reported that Tanzanian men[46], aged fifteen to sixty-four, were already dying from stroke at three to six times the rate of their counterparts in the UK. In a recent study of 45 villages in the Andhra Pradesh Rural Health Initiative[47], NCDs accounted for 55% of all deaths. Such numbers are compounded by the barriers to care for rural poor with NCD. There are higher non-clinical costs (chronic care needs more frequent contacts and thus greater transport and opportunity costs for patients). The cost of lifelong treatment drains income; in 2000, a low-income household in India would spend 34% of its income if one of its members needed diabetes care, and this number is up from 25% in 1998 [48]. Finally, any technology in NCD care is usually concentrated in hospitals due to economies of scale making it harder to reach for rural dwellers.
3. **Tobacco and poverty form a vicious circle**. Tobacco is a special case of preventable risk that disproportionately affects the poor. There is a higher percentage of daily smokers in the poorest income groups than in the highest[49], a gradient that in countries like China and India, is driving millions of poor people to premature illness and death. Such gradients are most marked in low- and lower-middle-income countries. The poorest quintiles are more likely to smoke daily and more likely to smoke larger quantities. This larger consumption of tobacco displaces expenditure on other essentials and has a high opportunity cost for poor households[50; 51]. In the Philippines, for example, the poorest households in 2003 were spending more on tobacco than on education, health and clothing combined[52]. In Nepal, in 2000, the poorest households were spending almost 10% of their income on tobacco products[53]. In China, India and Thailand, the cost of a pack of 20 local cigarettes (expressed in minutes of labour needed to purchase the commodity) was at least double that of a kilogramme of rice in 2006 [54].
4. **The costs of NCD create a poverty trap:** Studies by WHO in forty-two countries (including two in the WHO Eastern Mediterranean Region) have shown that 2%–3% of households face catastrophic health care expenditures and that 1%–2% are pushed into poverty when they become sick[55]. For those in near-poverty, the catastrophic cost of NCD care leads households to impoverishment. Work in progress in **South Asia**[56] suggests that for households with a male member with cardiovascular disease, approximately 25% experienced catastrophic spending on health (defined as spending 30% or more of annual household spending, less survival income for all household members); and one-tenth of the households that were above the poverty line at the beginning of the year slipped below. Using eight cross-sectional panel data from 1997 to 2004 from the **Russian Federation** Living Standards Measurement Study, NCDs were

found to be significantly associated with higher levels of household healthcare expenditure in Russia[57] and further analysis is indicating that this situation is worse in poorer households. In the design of *Seguro Popular*, the Popular Health Insurance scheme in **Mexico**, a burden of disease analysis found an "advanced transition" to NCDs in the poorer segments of the population and an "unmet demand [for NCD care which] has been serviced by the mostly unregulated private sector, with more than half of total spending on health paid out of pocket" [58]. Since poorer families have a higher proportion of a nation's children, the concentration of risk factors such as tobacco use, in poorer communities presents a further danger for a large number of children already suffering from social disadvantage. **Globally**, a pattern emerges, across continents, of poor populations in low income countries, burdened by NCD, lacking access to public services, paying out of pocket in the private sector, and impoverished by the cost of care.

5. **The NCD epidemic threatens to overwhelm health systems:** In the developed world, 2 to 7% of total health care costs are attributable to obesity; in the United States alone, the combined direct and indirect costs of obesity were estimated to be $123 billion in 2001[59]. A further 6-8% of the total health expenditure in the USA is spent on the medical costs of smoking[60]. This trend is not limited to the United States. For example, in Oman, it is estimated that there will be a 210% increase in the demand for health care by 2025, and treatment of cardiovascular diseases alone will account for 21% of total health care expenditures [13; 61]. At the other extreme, the health system in the occupied Palestinian territory is burdened by the cost of treatment abroad. In 2005, more than 31,000 patients were referred for treatment outside the Palestinian Ministry of Health facilities, within the occupied Palestinian territory or in neighbouring countries. The total cost was about US$60 million[10]. In low-income countries, costs are more likely to be borne by individuals themselves. In Sudan, the cost of caring for a family member with diabetes is 23% of the household income for a child and 9% of household income for an adult[62; 63].

6. **The NCD epidemic slows economic growth:** There are many ways in which NCDs create a drag on economic growth, where deaths are more usually premature than in high-income countries. NCDs reduce incentives for savings (in the expectation of a shorter life). They reduce social capital (the death of a teacher or skilled labourer eliminates the investment in the development of their skills and forgoes the benefit of their future work to society). Carers of chronically ill patients lose the opportunity to earn wages. A number of efforts have been made to correlate the burden of NCD with the drag on growth rates with consistent results; applying these models to current realities, the most recent estimate suggests that a region such as Latin America will see an annual slowdown of around 2% from the projected rise in NCD until 2030 [32].

6. The links with other Millennium Development Goals

6.1 How can a consideration of noncommunicable diseases help explain the gap in attainment in MDGs? Might the prevention and control of NCDs improve the performance of the overall development efforts? Certainly the linkages between NCDs and poverty outlined above, indicate that the preventable NCD burden and risk factors (in particularly tobacco) stand in the way of achieving MDG1 of eliminating extreme poverty and hunger. In relation to the other goals, seven connections bear considering:

1. **MDG 2 Universal primary education:** Poverty and child labour, especially in the developing world, are key reasons why children are not sent to school. Greater tobacco control could lead to a reduction in both these factors. As evidenced above, tobacco consumption displaces expenditure available to spend on education, especially for very poor families. [64; 65]

2. **MDG 3 Gender equality:** Women and children are especially vulnerable to the consequences of tobacco use. Not only are they most exposed to passive smoking[66], money spent on tobacco means less household income to spend on nutrition and medical care, and women and children are most likely to miss out[67]. Women in

developing countries are a new market for tobacco advertising, which encourages women to smoke as a sign of independence and success. The number of female smokers is expected to rise from 218 million in 2000 to 259 million in 2025[68].

3. **MDG 4-5 Maternal and Child Health:** Women's health and maternal health are also intimately and reciprocally linked to noncommunicable diseases. Gestational diabetes is associated with adverse outcomes in pregnancy, with later development of diabetes, and with foetal programming for later chronic disease[69]. Tobacco use in women, and under-nutrition in pregnant women due to household spending on tobacco, leads to miscarriage, still birth, and premature and low birth weight babies who are less likely to survive and are more prone to illness[50]. Mothers who smoke are likely to breastfeed for shorter period of time[70] and have lower quantities and less nutritious milk[71; 72]. Exposure to second hand tobacco smoke increases the risks of childhood respiratory infections (one of the largest causes of death in very poorest children) sudden infant death and asthma[73]. NCDs in women, such as chronic respiratory disease, heart disease and stroke, weaken their capacity to cope with pregnancy and care of children[50]. Smoking also increases the risk of dying from pregnancy related haemorrhage[74]. Obesity in pregnancy is similarly associated with complications for both mother and infant, ranging from increased risks of infertility, hypertensive disorders, gestational diabetes mellitus, obstructed labour, intrauterine foetal death and stillbirth[75]. Furthermore, in association with poverty, paradoxical effects are then seen: childhood under-nutrition leads to poor educational performance, impaired life chances, but also increases the risk of NCDs later in life. No maternal and child health programme is complete if it fails to provide for tobacco control and prevention and control of diabetes.

4. **MDG 6 Tuberculosis:** Significant progress is being made in controlling tuberculosis through case detection and treatment. Tuberculosis incidences has declined since 2004, but by less than 1% per year, and global targets are far more ambitious; it is "crunch time for tuberculosis control"[76]. Part of the scaling up in tuberculosis control must account for the intimate link with NCD, which is far less recognized than the link with HIV. Malnutrition, smoking, diabetes, alcohol abuse, and indoor air pollution, all impair the host immune defence against TB. In an analysis of the 22 High TB Burden Countries[77], accounting for 80% of the global TB burden, HIV infection was estimated to be associated with 7% of TB cases, yet diabetes was associated with 6% and smoking with 23%. Smoking is already implicated in over 50% of tuberculosis deaths in India[78]. Infectious and noncommunicable diseases are linked in an intimate ecology, and services to prevent and control infectious diseases will fail to reach their potential if they do not address all causes.

5. **MDG 6 HIV/AIDS:** Great gains are also being made in the fight against HIV[79]. Many countries are reporting a stabilisation or even reduction in prevalence and mortality. With the move towards universal access to care, HIV infection is becoming a chronic treatable condition. As this transition takes place, it now becomes useful to consider HIV as another chronic disease, and each case of infection as another instance of a person needing lifelong care. In this context there are many connections with NCD. Both are chronic diseases needing long-term management and share the need for health care systems able to provide such management. The anti-retroviral therapy itself increases the risk of people with HIV getting cardiovascular disease, with alteration of fat distribution and other metabolic changes[80-82]. And the link between HIV and cancer is well-established: Kaposi's sarcoma is a leading cancer in Africa[83; 84] and a recent review has concluded that "most recent and large studies have also shown a 1.7-3-fold higher risk of developing non-AIDS malignancies in HIV-infected patients as compared with the general population without a significant impact of combination antiretroviral therapy on these trends"[85]. An HIV/AIDS programme that is delivered vertically, without a direct connection to NCD at least in primary care, is thus lacking an ingredient essential for the well-being of its clients. Finally, in the transition to the principle of universal access to anti-retroviral therapy, the cost-effective mix of prevention and care

was studied[86] and debated[87-89]. A yardstick has been proposed of an intervention being considered cost-effective for developing countries if "marginal costs per additional life-year saved are less than three times the gross domestic product per capita"[90] – and there is a strong consensus that the burden of the disease in poor countries merits action anyway. This yardstick merits equal application to the prevention and control of NCDs where a number of interventions are similarly cost-effective.

6. **MDG 7 Environmental sustainability:** Land cleared for tobacco production accounts for 5% of deforestation in developing countries[91]. Tobacco production uses pesticides which cause environmental degradation and produces more than 2.5 billion kilograms of waste each year [92]. Another direct connection between NCD and sustainable development lies in the overlap between climate change and the burden of respiratory disease. Incomplete household combustion of coal and biomass in developing countries causes 1.5 million NCD deaths per year among women and children, mostly from respiratory diseases[93]. This combustion is also a significant contributor to the global emissions of black carbon, which is the second most important greenhouse pollutant after carbon dioxide[94]. Improved stoves are highly cost effective for both reducing greenhouse gas emissions and improving health[95]. Transport and urban planning contribute significantly to the NCD burden - each year there are 800,000 deaths from outdoor air pollution and 1.9 million deaths from physical inactivity[96]. Transport already contributes 13% of global greenhouse gas emissions and is expected to double between 1990 and 2020[97].

7. **MDG 8 Global Partnership:** MDG Target 8 aspires to provide access to affordable essential drugs in developing countries. The instrument that defines each country's government-approved selective list of medicines is the national Essential Medicines List which generally covers the majority of communicable and noncommunicable diseases. Access to the medicines on these lists is only selectively being achieved and international efforts to provide access to essential drugs is limited largely to AIDS, tuberculosis and malaria[98]. In a time when most death and illness even in low-income countries occurs from noncommunicable disease, it appears inequitable that a major development goal should be assessed in terms of its achievement on the basis of a minority of burden of disease.

6.2 As the momentum grows towards a review of the MDGs in 2010, it is recommended that specific recognition be given to the prevention and control of noncommunicable conditions and progress on the current goals should be reviewed with specific attention to how much the burden of NCDs correlates with MDG under-achievement.

7. Towards a balanced pattern of health development

7.1 In developing recommendations based on the above, four principles are proposed:

1. **Accept the role of government in stemming the tide of NCD**: It must first be accepted that the public sector needs to intervene in order to limit the size of the epidemic. An epidemic of this nature cannot be averted purely by personal behaviour change or by market forces; it cannot be left to the private sector or regarded as "lifestyle diseases" whose treatment is a "private good". A number of areas of market failure require that governments intervene actively to protect the health of the population[99]. **Firstly, the harm of NCD is not limited to the person with the disease, but there are external effects on other members of society**. For example, second-hand tobacco smoke and harmful use of alcohol cause disease and suffering in others: cardiovascular and respiratory disease, violence, and injury from drinking and driving. Furthermore, the opportunity cost of risk-taking behaviour such as tobacco smoking, and the risk of impoverishment creates a "quasi-externality" adversely affecting members of the household other than the smoker or the person with NCD. **Secondly, information about dangers of NCD and remedies is often insufficient or asymmetric**: many of the risk behaviours are subject to distorting marketing practices in commodities that range from fast food to tobacco. And repeated studies indicate that populations even in

countries with a high burden of NCDs are often unaware of the diseases or of their risk factors[14; 100]. **Thirdly, with regard to the dangers of NCD, people act in a time-inconsistent manner** especially in the case of children and adolescents faced with addictive behaviours such as tobacco use, taking up the risk under the influence of misinformation from the suppliers and under the mistaken belief of invulnerability, only later facing the reality and consequences of addiction. Tobacco addiction, for instance, is usually initiated in adolescence, at a time when health risks are seriously underestimated, and there is evidence that even adult smokers are not fully informed about the health risks of their smoking[101]. In contrast, there is strong evidence of a reduction in smoking prevalence following a media campaign on the dangers of smoking[4]. These areas of market failure and the inequitable burdens on the poor, justify and require that governments intervene, for example, through appropriate regulation and pricing.

2. **Invest proportionately to burden of disease**: Current development investment is centred on historical patterns and based on an erroneous under-estimate of the links between the NCD epidemic on poverty. Current patterns of investment also assign less value to the health problems of adults and of the near-poor. One solution of this imbalance is to value more strongly the health of adults in the developing world. This is one area where development agencies can see a quick impact for their investment since a range cost-effective interventions exist that can have an impact in the short or medium term. Such a people-centred investment plan would recognize that adults, who are the engines of the economy of the country, are dying and being disabled prematurely as a result of the early onset of NCD. Adults in near-poverty are risking impoverishment from chronic diseases, whether these diseases are infectious or non-infectious in origin. A development policy that values the health of adults appropriately would reap immediate benefits from the prevention of NCD and from the reduction of premature death.

3. **Seek co-benefits and common causes**: The determinants of health lie often outside the health sector, and the formulation of intersectoral policies requires the search for co-benefits and common causes. Nowhere is this synergy more topical than in the area of sustainable development and climate change. As well as facilitating progress towards MDGs, there are a number of interventions that could simultaneously alleviate a large proportion of the NCD burden and reduce climate change[94]. This includes the example of improved stoves to reduce indoor air pollution described above. Beyond the MDG link, sustainable transport systems and urban planning that encourages physical activity will provide environmental, health and social benefits. Obesity itself is increasingly recognised to have an environmental cost as fossil fuel energy is required to supply the extra food calories to maintain excess body fat and, compared with a normal population distribution of body mass index, a population with 40% obese requires 19% more food energy for its total energy expenditure[102; 103]. The alignment between NCDs and the climate change agenda means that taking action on NCDs can offer wins for both health and environmental drivers of development.

4. **Seek common systems of delivery**: There are a lot of resources already in the system that could be used more efficiently. The systems for HIV and TB care, and for maternal health, have already built an infrastructure for primary care. The addition of NCD care in these systems would reduce the overhead of a new system and take advantage of the common management of chronic conditions. Many governments and households are already spending large amounts on the care of advanced NCD. There is an opportunity to examine whether these resources are being spent cost-effectively. There is discussion of "diagonal" strengthening of health systems such that the gains being made by vertical programmes for AIDS, TB, and malaria are retained, but that the synergies of joint action are magnified. NCDs in developing countries would be a natural addition to this agenda, given that in many low and middle income countries, NCDs are already (or soon will be) the greatest burden on the health system.

8. An agenda for action.

8.1 Applying the four principles outlined above to the evidence presented in this paper, an agenda for action emerges naturally:

1. A balanced investment must be based on **evidence of the links between NCD and poverty**. In many countries, the paucity of such evidence makes it possible to deny the existence of the link: "*we don't measure the problem of NCD in the poor; therefore there is no problem of NCD in the poor*". All lives have equal value; this will not come true until all deaths are counted, and valued, equally.
2. **Governments have a role and must intervene** effectively to prevent and control the epidemic. They must use health care resources wisely, investing in the cost-effective individual interventions to manage existing disease. They must act across sectors to implement the population policies that will reduce risk and prevent NCD.
3. The international development partners must adopt **the concept of balance as a criterion for planning and evaluating aid**, alongside the principles of ownership, alignment, harmony, outcomes, and accountability. In health, this would mean aid patterns that mirror the patterns of preventable health burdens, new funds for NCDs(104), as well as the search for common causes, and common systems of delivery.
4. Finally, there must be a recognition expressed at the highest level of the United Nations, that **NCDs constitute an urgent, undeniable development issue**. The international community needs to express its balanced attention to the double burden, and usher in a new era of human development where equal suffering gets equitable relief.

8.2 Additional details are provided in annexes.

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ANNEX

ACTION POINT 1: BUILD THE EVIDENCE

1.1 A balanced investment pattern needs a global consensus on the burden of NCD. Unfortunately, existing systems, such as Demographic and Health Surveys(105) and indicators to monitor the progress towards MDGs(106), have no way of assessing the impact of NCD in developing countries. A lack of robust information from surveillance of NCDs and risk factors serves to underestimate the burden, and hampers efforts to advocate for policy changes and interventions.

1.2 Monitoring of NCDs and preventable risk factors must therefore be urgently embedded into current global surveillance systems. The information already available, both about the NCD burden and the effectiveness of interventions, is sufficient to warrant action. However, better information, particularly from low and middle income countries, is critical to strengthen and refine the evidence base for action.

1.3 Such surveillance needs to begin from the monitoring of MDGs and the MDG Review Summit of 2010. As demonstrated above, all the health-related MDGs have an intimate link with NCD. Evidence is growing that the NCD burden could even be hampering or undermining the achievement of certain MDGs. It is thus important that, at least for a select group of countries, the MDG monitoring process start to establish a set of indicators and surveillance instruments that establish a common global foundation for robust data on the diseases, their risk factors, and their relation to development. In a consultation of experts in development and NCD held in preparation for the writing of this paper, three points of consensus were reached on the subject of MDGs:

- No new MDG on NCD control is being recommended for the 2010 review; this is neither timely nor possible at this point in time.
- The 2010 review should seriously consider the intimate links between NCD and MDGs 4, 5 and 6, and consider strongly the inclusion of NCD indicators, at the very least on tobacco control, to monitor progress on the health of mothers, the survival of children, and on the progress in tuberculosis control. Furthermore the evaluation of Target 8e on Global Partnership already covers access to essential medicines(98) and this should explicitly and strongly include access to essential medicines for NCD.
- Work must proceed such that the 2015 iteration of the Goals, or their successor, would contain clear provisions, targets, and indicators that deal with NCD prevention and control in low- and middle- income countries.

ANNEX

ACTION POINT 2: RECOGNISE THE ROLE OF GOVERNMENT

2.1 Recent publications from the World Bank[4], WHO[45], and a series of reviews[107-109], have established a range of options for cost-effective action by national authorities. Effective population-based interventions (such as tobacco control and salt reduction), and clinical interventions in primary care (such as integrated management of cardiovascular risk) have been proposed. They are cost-effective and suitable for low- and middle-income countries. Deploying these interventions would have a positive impact on human and on economic development.

2.2 But there is a huge **gap between the evidence and the reality**; for example, less than 5% of the world population is covered by the five population-based policies essential to curb the tobacco epidemic[28], despite the fact that these are among the most cost-effective all public health interventions, whether for infectious or non-infectious diseases.

2.3 The most cost-effective policies will be ones that have **multiple agents acting across sectors to common benefits**. The example of transportation, and urban planning, has been cited, where a common set of people-centred policies could improve flow of goods and people, reduce noise, air pollution and greenhouse gas emissions, reduce injuries, encourage physical activity, and improve quality of life. Such opportunities for co-benefit and joint action must become a priority in the rapidly urbanising world of low- and middle-income countries.

2.4. All countries are already incurring significant costs from NCDs, whether in the public health service, or, more likely, through out-of-pocket expenditure. Analyses of policy interventions such as the ones above from WHO and the World Bank should be used to **assess how current expenditures on NCD care could be used more effectively and efficiently**. Efforts to strengthen health systems also need to be informed by these analyses, as the introduction or prevention and control of NCD may proceed more efficiently by using human and other resources already in place for chronic infectious diseases. As new funds are made available for health globally to attain the current agreed international development goals, **new investment should also favour the growing burdens in the developing world**.

2.5 The importance of **domestic financing as a basis for ensuring universal access to health care** was accepted by the Annual Ministerial Review held in Sri Lanka this year[110]. The cost-effectiveness of NCD interventions makes them rank highly as candidates for basic packages of prevention and care, and the impoverishing costs of care makes NCD control an essential component of equity-oriented health system reforms.

ACTION POINT 3: COMMON CAUSE, COMMON SYSTEMS, HARMONISE AID

3.1 A series of significant development actions are under way in parallel with this Annual Ministerial Review. These include the search for innovative sources for health financing under the International Health Partnership, the move towards integrated UN Development Assistance Frameworks (UNDAF), the MDG Review Summit of 2010, and the efforts to maximize aid effectiveness under the Paris Declaration(111) and the Accra Agenda for Action(112).

3.2 There is a danger that these movements will exclude NCDs. For example, there is little evidence that Poverty Reduction Strategy Plans or Sector-Wide Approaches are considering the burden of NCD on the poor. The UNDAF process gives examples relating to the health MDGs(113) but, since NCDs are currently not part of these goals, they could also be excluded from the UN's development assistance framework.

3.3 On the other hand, all these movements may be regarded as an opportunity to usher a new era of balanced development aid. Aid aspires to be effective, i.e. evidence-based and outcomes-oriented. It aspires to be harmonious, i.e. providing unified support from multiple donors. In health development, it should also aspire to be balanced, i.e. addressing the very real double burden of infectious and noncommunicable diseases.

3.4 Balanced action in development aid requires comprehensive assessment of health burdens. It requires action of strengthen health systems "diagonally" with common systems of delivery across diseases, and the promotion of universal access. It requires that international development partners build the capacity for intersectoral action. It requires that innovative sources of health financing should also be invested innovatively, in a balanced manner proportionate to burdens.

ANNEX

ACTION POINT 4: RESOLVE ON NCD AS A DEVELOPMENT ISSUE IN THE GENERAL ASSEMBLY

4.1 It is time to bring this epidemic to the attention of the UN General Assembly. The UN General Assembly has already discussed the problem of NCD in the historic resolution (A/RES/61/225) on diabetes[114]. The time has come to consider NCD firmly as a part of the world's development concerns and to start to ramp up responses synergistically with poverty alleviation while there is time to blunt the peak of the epidemic.

4.2 It is time to give the issue its due attention. It is time to consider NCD as an essential problem of failed development and to support governments in building a balanced, harmonious response, whether they are rich countries seeking to reduce the inequitable burdens on their poor populations or whether they are low-income countries that are disproportionately suffering from NCD-related premature death and disability.

4.3 It is time to recognize that aspirations for human development can only be attained if poor people in countries at all levels of income are relieved of the burden of preventable noncommunicable diseases.

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