

## Non-Communicable Diseases 1

# Embedding non-communicable diseases in the post-2015 development agenda

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This is the first in a **Series** of five papers about non-communicable diseases

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The post-2015 development agenda will build on the Millennium Development Goals (MDGs), in which health is a core component. This agenda will focus on human development, incorporate the components of the Millennium Declaration, and will be made sustainable by support from the social, economic, and environmental domains of activity, represented graphically as the strands of a triple helix. The approaches to prevention and control of non-communicable diseases (NCDs) have been elaborated in the political declaration of the UN high-level meeting on NCDs and governments have adopted a goal of 25% reduction in relative mortality from NCDs by 2025 (the 25 by 25 goal), but a strong movement is needed based on the evidence already available, enhanced by effective partnerships, and with political support to ensure that NCDs are embedded in the post-2015 human development agenda. NCDs should be embedded in the post-2015 development agenda, since they are leading causes of death and disability, have a negative effect on health, and, through their effect on the societal, economic, and the environmental domains, impair the sustainability of development. Some drivers of unsustainable development, such as the transport, food and agriculture, and energy sectors, also increase the risk of NCDs.

## Introduction

In this report we argue that non-communicable diseases (NCDs) should be central to the post-2015 development agenda because they affect health so severely; without their prevention and control, health can neither be attained as a result of human development, nor can health serve as a means to achieve that development.<sup>1–3</sup> The principal NCDs that we discuss—cardiovascular disease (heart disease, hypertension, stroke), diabetes, cancer, and chronic respiratory diseases—were given global prominence in the political declaration from the UN high-level meeting on the prevention and control of NCDs<sup>4</sup> in September, 2011. The declaration focused on these four diseases because they share common risk

factors and contribute substantially to the burden of disease, especially in low-income and middle-income countries.<sup>5</sup> At the World Health Assembly, the call for targets in the political declaration was answered by the governments, who adopted the global goal of a 25% reduction in relative mortality from NCDs by 2025 (the 25 by 25 goal). The declaration also acknowledged the importance of mental health as a chronic health problem that causes a large proportion of the global burden of disease.<sup>4,6,7</sup> The post-2015 development agenda should be informed by analysis of the current Millennium Development Goals (MDGs).

## Building on the past: the MDGs

The eight MDGs derived from the Millennium Declaration are: (1) eradicate extreme poverty and hunger; (2) achieve universal primary education; (3) promote gender equality and empowerment of women; (4) reduce child mortality; (5) improve maternal health; (6) combat HIV/AIDS, malaria, and other diseases; (7) ensure environmental sustainability; and (8) develop a global partnership for development. To understand the MDGs, the global policy environment in which they were developed needs to be considered. Concerns were raised about the decrease in official development assistance, and poverty was the global issue agitating the minds and pricking the conscience of the international community.<sup>8</sup> The flagship publication of the World Bank—the *World Development Report*—had poverty as its major theme for the third time in 2000.<sup>9</sup> Throughout the previous decade several conferences and declarations addressed development, but none resulted in a vision statement or concrete goals that captured international attention.

The MDGs have been successful in many ways in many regions (panel 1). They have led to universal

## Key messages

- The post-2015 development agenda should be a human development agenda that builds on the Millennium Development Goals, but goes beyond them to address emerging challenges.
- Human development is made sustainable through the interaction of social, economic, and environmental factors, which can be conceptualised as intertwined strands in a triple helix.
- Since health is both a contributor to achieving and an outcome of human development, it will be a key dimension of a new development agenda.
- Non-communicable diseases are crucial determinants of human health; they affect or are closely linked to social, economic, and environmental factors (each of the strands of the helix) that sustain human development and should therefore be included in any health aspect of the post-2015 development agenda.
- The post-2015 development agenda should include measurable targets for prevention and control of non-communicable diseases that lead to the achievement of the global goal of a 25% reduction in relative mortality from non-communicable diseases by 2025 (the 25 by 25 goal). The three strategic approaches to achieve this goal are advocacy, the formation of effective partnerships, and political leadership.

agreement on an international social norm that sees poverty as unacceptable in a decent and just society.<sup>11</sup> They have helped to increase development aid and have formed the framework for much of the planning and programming of major financial institutions and development agencies.<sup>12</sup> They have stressed the usefulness of goals, targets, and monitoring and evaluation in international work, advocating a system of results-based management.<sup>13–15</sup>

Concerns about the MDGs as a framework for a new development agenda relate to how they were developed. The issues include who played the major part in formulating them, whether there had been widespread participation and consultation, and the degree to which it was a transparent process.<sup>16,17</sup> Country-level targets were based on national averages, so a country could seem to be on track while leaving large segments of its population neglected,<sup>18,19</sup> thus, hiding inequalities and disadvantaging poor people.<sup>20</sup>

The MDGs ignored several components of the Millennium Declaration, including some major issues that negatively affect development (eg, freedom, human rights, inequity, and a commitment to democracy). Two items were taken from the Millennium Declaration—development and poverty eradication, and protecting the environment—to create eight goals with relevant targets. The 2010 MDG summit *Keeping the Promise: United to Achieve the Millennium Development Goals* in the UN General Assembly (New York, NY, USA; Oct 19, 2010) “reaffirmed the importance of freedom, peace and security, respect for all human rights, including the right to development, the rule of law, gender equality and an overall commitment to just and democratic societies for development”. These principles are essential to development and were considered in the Millennium Declaration. A follow-up agenda must address other aspects of development that are not in the MDGs.<sup>21</sup> For example, it should recognise the failure to address key environmental indicators, and it should aim to improve health, reduce inequities, and alleviate poverty within ecological constraints.<sup>22</sup> We review the prospects of a follow-up arrangement to the MDGs, and provide evidence for why such an arrangement should include NCDs if it is to achieve universally agreed development goals.

### A follow-up agenda to the MDGs

There will be a post-2015 development agenda. The basic work of the MDGs will not be finished by 2015. For example, despite a large reduction,<sup>23</sup> poverty is still a problem but its locus has changed; most poor people now live in middle-income countries.<sup>24,25</sup> Inequalities are increasing within and between many countries; new challenges need to be faced and old challenges need to be reconceptualised. For example, in 2000, HIV/AIDS was the major disease to be addressed, with millions of people not receiving appropriate treatment. The notion of social determinants of health and disease was still

#### Panel 1: Achievements of the Millennium Development Goals (MDGs)<sup>10</sup>

The MDGs are based on a framework of human development and human rights. In this context they have:

- reaffirmed the importance of human wellbeing and human dignity;
- represented a global agreement between developed and developing countries to work together towards achievement of the goals. They reinforce the point that reduction of human poverty is a shared responsibility;
- provided a framework to introduce policies aligned with resources and supported by institutions to make progress towards the goals;
- provided a mechanism to assess and monitor progress, gaps, and disparities, in absolute and relative terms, in various aspects of human deprivation;
- developed a framework for gathering data—both aggregated and disaggregated—for various aspects of human deprivation in different societies and reporting them through MDG country reports;
- provided an opportunity for healthy competition among countries to surpass each other in ensuring a better life for their citizens and a platform for global comparisons;
- represented a movement—involving people, communities, and society—for holding governments accountable for their commitments to the Millennium Declaration.

embryonic, although it has since advanced with the publication of the report of the WHO commission on the Social Determinants of Health and the adoption of the Rio Political Declaration on the Social Determinants of Health in October, 2011.<sup>26</sup>

Ban Ki-moon, the UN Secretary-General, established the UN system task team in September, 2011, to support UN system-wide preparations for the post-2015 UN development agenda. This team will contribute to the work of the high-level panel recently appointed by the Secretary-General to advise on the global development agenda after 2015, and will also provide technical input to the development of sustainable development goals. These goals were agreed on in *The Future We Want*, an outcome document from the Rio+20 UN Conference on Sustainable Development (Rio de Janeiro, Brazil; June 20–22, 2012), which also acknowledged that the global burden of NCDs is one of the major challenges for sustainable development in the 21st century. The task team entitled its first report to the Secretary-General in June, 2012 (*Realizing the Future We Want for All*), and emphasised that this future should embrace the fundamental principles of human rights, equality, and sustainability. The report recognises that the MDGs did not adequately address several important issues, including the increase in NCDs.<sup>27</sup>

Whatever the nature of the follow-up arrangement and the method of fashioning it, the post-2015 development

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### Panel 2: Anticipating non-communicable diseases in Rwanda

Rwanda has made major gains in health outcomes in recent years, stabilising the prevalence of HIV, tuberculosis, and malaria. Child mortality decreased by half (from 108 to 54 deaths per 1000 livebirths) between 2005 and 2011, and malaria cases fell by 87.5% between 2005 and 2011 (from 1 669 614 to 208 858). More than 400 health centres, 42 district hospitals, 45 000 community health workers, and 15 000 community social workers now serve the country's 11 million people.<sup>34</sup> As of April, 2012, 90.6% of the population was enrolled in the national community-based health insurance programme, *mutuelle de santé*.

While sustaining successes in the control of infectious diseases, Rwanda recognises the urgency of addressing the growing burden of non-communicable diseases (NCDs). Present estimates show that NCDs account for roughly 25% of the national burden of disease. WHO estimates that Rwanda's age-adjusted mortality is 106.9 deaths per 1000 people for ischaemic heart disease and 134.2 deaths per 1000 people for stroke.<sup>35</sup> The age-standardised incidence of cervical cancer is estimated to be 34.5 per 100 000 people, making it the most common cancer among women. The age-standardised cervical cancer mortality rate of 25.4 deaths per 100 000 people ranks Rwanda among the highest in the world.<sup>36</sup> In its programme to reduce the incidence of cervical cancer, Rwanda became the first low-income country to roll out the human papillomavirus vaccine nationwide, building on the strengths of its robust vaccination system, which had already achieved 90.1% coverage for nine other vaccines. The vaccination campaign achieved 93.2% coverage in eligible girls in its first year.<sup>37</sup> For the first time, NCDs occupy a prominent place in the Rwandan health sector's strategic plan and in its economic development and poverty reduction strategy, the implementation of which will involve cooperation between many sectors. The programme of NCD prevention and control is integrated at the primary, secondary, and tertiary care levels, and the ministry of health's health management information system provides accurate data for NCDs. A publicly sponsored plan ensures accessible and affordable lifelong treatment and managed care for chronic NCDs. Rwanda is tackling some prevention issues relevant to NCDs, including improvement of household cooking stoves and universal access to treatment for streptococcal pharyngitis, because of the high prevalence of rheumatic heart disease. The Ministry of Health has worked to pass legislation prohibiting smoking in public places and introducing a tax on cigarettes and alcohol that helps to subsidise *mutuelles de santé*.

The major challenge now is to equip the health system infrastructure and develop the human resources needed for continued prevention and chronic care of NCDs while maintaining progress against infectious diseases. Securing access to essential medicines to address NCDs and use of innovative financing mechanisms to provide care in rural settings will be key to meeting this challenge.

agenda should focus on human development and address many, if not all, the issues in the Millennium Declaration (eg, human rights and inequalities) that did not find place in the MDGs. The name is important. The term development without qualification is contextually neutral. Development has many aspects. To qualify development by attaching sustainability as a descriptor is not enough. The agenda should be known as the post-2015 human development agenda to be addressed through sustainable human development goals.

Political momentum exists among the UN member states for development of a set of sustainable human development goals as one outcome of Rio+20.<sup>28</sup> Originally proposed by the Governments of Colombia and Guatemala, sustainable human development goals could

“provide a logical sequence and structure to the process launched almost 20 years ago”<sup>29</sup> and serve as a meaningful framework to catalyse commitment and action around sustainable development issues. The sustainable human development goals would not replace the MDGs, but rather complement them and augment progress toward achieving the MDGs fully. They would be universal in their application and provide for different national approaches to sustainable development. The 2012 report of the Secretary-General's high-level panel on global sustainability endorsed the creation of sustainable human development goals.<sup>30</sup> Although they might not include NCD prevention and control as a stand-alone goal, because of the importance of health for human development, the sustainable human development goals should include health and under that heading appropriate targets and indicators for reducing the burden of NCDs.

Progress is being made towards specific, measurable targets for the NCD response, most notably the decision by the 65th World Health Assembly in 2012 to adopt a global target of reducing premature mortality from NCDs worldwide by 25% by 2025.<sup>31,32</sup> However, if equity is not incorporated as a key indicator by which progress is measured, the poorest people could be further marginalised and disparities might continue to grow.<sup>33</sup> Furthermore, the chances of the global target being achieved will be improved if the programmes in developing countries are strengthened. Panel 2 shows some aspects of such strengthening in Rwanda.

### Human development and sustainability

The central focus of the post-2015 development agenda should be human development, and it should clarify the nature of such development and how it can be made sustainable.<sup>38,39</sup> Much of the discussion about this issue has taken place at the Earth Summit (Rio de Janeiro, Brazil; June 3–14, 1992), Johannesburg Summit (Johannesburg, South Africa; Aug 26–Sept 4, 2000), and Rio+20 conferences. Although the original idea of sustainable development included concern for social and economic issues, the focus was mainly on preservation of the physical environment. During the past 20 years, sustainable development has clearly become broader than concern for the physical environment (panel 3).<sup>39,46</sup>

Health is valued very highly universally. The Gallup International Millennium survey of 57 000 adults, representing 1.25 billion people, showed that health was what mattered most in life, followed by a happy family environment.<sup>47</sup> Health is both a result of, and contributor to, sustainable human development. According to Amartya Sen, “health is in general freedom-enhancing, by expanding our capability to do what we have reason to do”.<sup>48</sup> NCDs affect health so much that their presence makes it impossible for health to be fully achievable as an end or goal of human development; they prevent health from playing its part as one of the means by which human development can be made sustainable.

### Panel 3: Sustainable development versus sustainable human development

The original accepted definition of sustainable development was development that met the needs of the present without compromising the ability of future generations to meet their needs.<sup>40</sup> It was grounded in concerns for the physical environment and the limits of the earth's resources. Over time, the focus shifted and the idea presented in Human Development Reports by Mahbub Ul Haq (UNDP) that development was about people became the accepted definition.<sup>41</sup> Indicators of human development were related to health, education, and income.<sup>42</sup> Over time, the concept and nature of human development have been explored and conceptualised more clearly and it is now seen in terms of the freedoms described by Sen,<sup>43</sup> which permit people to expand their choices and become agents of their lives and embrace the essential capabilities described by Nussbaum<sup>44</sup> that enable them to do so. Health is included in Sen's freedoms and Nussbaum lists life, bodily health, and bodily integrity as the first three of her ten Central Human Capabilities. Now, the most common approach to defining sustainability of development is the idea of three domains—the social, the economic, and the environmental. The Johannesburg Sustainable Development Conference of 2002 referred to them as three pillars, and it was the interaction among them that made human development sustainable. They have been portrayed in many different ways: as pillars, or concentric interlocking or overlapping circles. More recently Achim Steiner, Executive Director of the United Nations Environment Programme, has proposed that the three domains be seen as the intertwined strands of a triple helix,<sup>28,45</sup> thus emphasising the close relations between social, economic, and environmental factors.

### NCDs in the sustainable human development agenda

As affirmed by the first principle of the 1992 UN Declaration on Environment and Development, "human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."<sup>28</sup> However, chapter six of agenda 21—about protecting and promoting human health as the framework for action of the Rio declaration—made no reference to NCDs.<sup>49</sup> Before and immediately after the Johannesburg conference in 2002, a case was being made for considering NCDs as important for development.<sup>50,51</sup> The feasibility of effective prevention and control of NCDs and the steps to be taken nationally and internationally have since been clearly explained.<sup>52</sup>

The arguments for including NCDs in the post-2015 development agenda are based on two premises. First, the magnitude of the health problem in terms of morbidity, mortality, and distribution. Much or all of the data for morbidity, mortality, and distribution of NCDs

### Panel 4: Morbidity, mortality, and distribution of non-communicable diseases (NCDs)

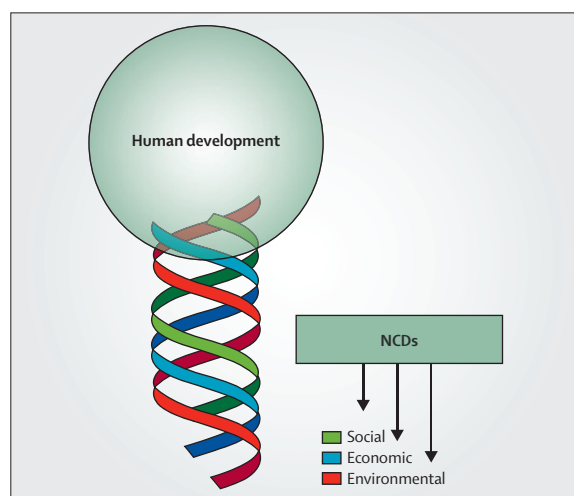
- 34.5 million of the 52.8 million deaths that occurred worldwide in 2010 were attributable to NCDs<sup>54</sup>
- NCDs are the leading cause of death globally, and 80% of deaths and 90% of early preventable deaths occur in low-income and middle-income countries
- NCDs as a share of total deaths is projected to increase by more than 50% in low-income and middle-income countries by 2030
- A quarter of NCD deaths occur in people aged younger than 60 years
- Overall, age-specific NCD death rates are nearly twice as high in low-income and middle-income countries than in high-income countries, and NCDs account for 50% of all disability
- Inequity and the magnitude of the health problems caused by NCDs is greatest among poor people
- Addressing risk factors that affect only large populations could render the populations most vulnerable to less prevalent but equally deadly diseases (which together constitute the so-called long tail of global health equity) even more neglected<sup>55</sup>
- Little care—particularly palliative care—is available, especially in poor and disadvantaged populations

have been assembled by WHO,<sup>5</sup> the World Bank,<sup>53</sup> and in previous series in *The Lancet* (panel 4).<sup>52,56</sup>

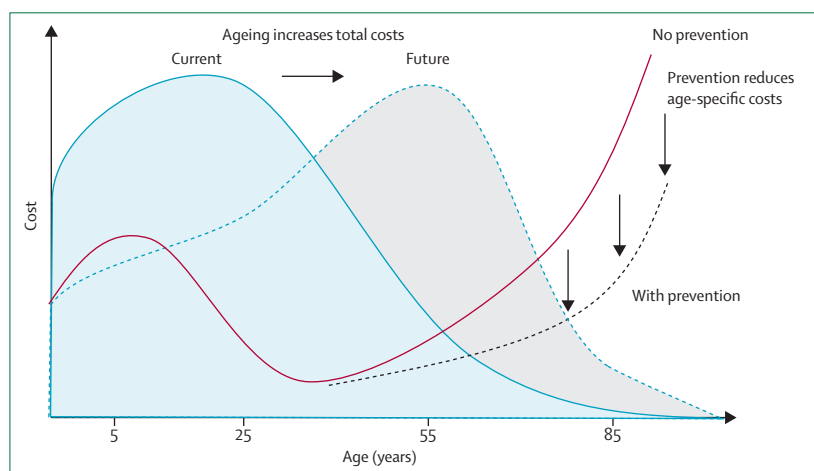
Second, the three strands of the helix (social, economic, environmental) that make human development sustainable (figure 1). Since human development is sustained by the factors in the triple helix, then the adverse effect of NCDs on each of the strands and the combined effect will seriously impair the possibility of sustainability. The effect of social determinants on health and NCDs is well described.<sup>57</sup> Similarly, the effect of economics and the environment on NCDs has been delineated.<sup>58</sup> We aim to show the effect of NCDs on these three strands, while being aware of the possibility of reverse causality.

NCDs lead to unfair distribution of opportunities in life and therefore contribute to inequity. They have a disproportionate effect on poor people, who are more likely to be exposed to risk factors for NCDs with a consequently higher burden of disease, yet they have fewer resources to deal with them. NCDs—especially diabetes and cancer—weaken social cohesion through stigma and discrimination.<sup>59,60</sup> Women with diabetes can face double discrimination.<sup>61</sup> Stigma promotes a culture of secrecy that can create a barrier to diagnosis, treatment, employment, and marriage, and prevent people with NCDs from playing an active part in society. The need for chronic care, such as dialysis, and the consequent burden imposed on families can contribute to social disruption.<sup>62</sup> NCDs are affected by and contribute to gender inequality.





**Figure 1: The effects of NCDs on the sustainability of human development**  
The representation of the three strands of the helix that make development sustainable and the effect of non-communicable disease (NCDs) on the strands. Courtesy of Knowledge Management and Communication, PAHO/WHO.



**Figure 2: Population ageing, prevention, and the cost of non-communicable diseases**  
Shaded areas are population age distributions; solid line depicts hypothetical age-specific expenditure based on an inverted U cost curve (before age 25 years) and J-shaped cost curve (after age 40 years).

People with NCDs often need chronic care, which is usually given by women and girls who might therefore forego education or employment opportunities, thus becoming more at risk of financial insecurity later in life. Widowhood is often associated with poverty;<sup>63,64</sup> premature, preventable male deaths from NCDs can lead to early widowhood and poverty, creating a social problem, especially in countries without adequate social policies. NCDs also impair human security<sup>52</sup> and are a foreign policy concern. The UN Secretary-General's report on global health and foreign policy identifies NCDs among the health-related challenges that must be addressed by foreign policy makers.<sup>65</sup>

NCDs have economic effects at the national level and for individual and household wellbeing. Economic costs imposed by NCDs are expected to soar over the next two

decades and financial effects of NCDs are likely to be exacerbated by the present global financial crisis.<sup>66</sup> The economic toll for low-income and middle-income countries alone is projected to reach US\$21 trillion by 2030.<sup>67</sup> This cost is a huge strain on the development process and diverts resources that could otherwise find more productive uses.

NCDs affect national economies because people with such diseases are likely to be less productive at work, lose their job, and retire prematurely, decreasing household earnings and increasing the risks of poverty.<sup>53,68–70</sup> Because NCDs affect people in low-income and middle-income countries during their prime working years, the reduction in productivity from chronic illness could have worse consequences for the economy than in high-income countries. Almost half of all deaths caused by NCDs in low-income and middle-income countries occur in people younger than 70 years, and nearly 30% occur in people younger than 60 years.<sup>5</sup> An indirect effect on productivity can occur when young people limit their education and economic engagement to care for older people with chronic disease.

Most NCD deaths are preceded by long periods of ill health, which is costly in terms of both family finances and health system capacity. Strong evidence<sup>5</sup> suggests that the hidden costs of caring for people with NCDs can push families into poverty. In most low-income and middle-income settings, proper diagnosis and treatment are unaffordable.<sup>57,71,72</sup> A World Bank study of India noted that cardiovascular disease led to between 1.4 million and 2.0 million people spending more than 30% of household income on health care (catastrophic expenditure), impoverishing between 600 000 and 800 000 people.<sup>73</sup> Cancers imposed catastrophic expenditures on an additional 600 000 people and led 400 000 to fall into poverty. Health-care costs are only one financial risk to households. Spending on care for people with NCDs, as well as on consumption of the products that cause such diseases (eg, tobacco and alcohol) displaces funds that might have otherwise been used for children's education and food.<sup>74–76</sup>

Thus, to provide appropriate care for NCDs, government spending will need to increase for two reasons. First, as populations age, age-specific health expenditure will increase, driven mainly by NCDs. Although each country has a unique set of age-related health-care costs, the costs of care tend to be low after birth and subsequently increase with age. Figure 2 shows how such a shift will happen; a shift of the blue shaded population distribution will result in increased overall costs.

Second, the age-specific NCD-related costs of care will increase in many low-income and middle-income countries as their populations age, even though some of it will be attenuated by use of generic drugs for secondary prevention. However, such countries should find innovative solutions to provide high-quality care without imitating actions taken in high-income countries, which

provide expensive, technologically advanced care for complications of NCDs. Although some governments are making efforts to increase public health spending (such as the rapidly growing economies of India and China), health budgets will still be stretched if they are to address NCDs while improving the effectiveness of their health systems.

Therefore, governments in low-resource settings should adopt new strategies to manage the increasing financial burden of NCDs. Expanding financial coverage for health care can help to free up resources. When households have health-care insurance or publicly provided health care, they rely less on other social safety nets to help to pay for medicines and on payouts for disability when adequate care is not provided.<sup>57</sup>

Population ageing will increase financial pressure, but an emphasis on prevention could help to lower the age-specific costs of care. Preventive services could reduce health-care costs by preventing illness (figure 2). Although these savings have been calculated for tobacco and alcohol,<sup>69</sup> whether prevention can reduce overall costs for risk factors of other NCDs is less clear. However, the benefits of intervention in some areas, including tobacco taxation, salt reduction, treatment of acute myocardial infarction, and secondary treatment for heart disease, all outweigh the programme costs.<sup>77</sup> Results from the Copenhagen Consensus of Nobel Laureates<sup>77</sup> show that the full social benefits of reduction of tobacco consumption far outweigh the costs of imposing a tobacco tax. The Consensus also suggests that the combined health-care savings and tobacco tax revenue could exceed revenue from tobacco production and would be more fairly distributed.

The best evidence of an effect of NCDs on the environment relates to obesity. A population in which 40% of people are obese needs an estimated 19% more food energy than does a population with a normal distribution of body-mass index.<sup>78</sup> Greenhouse-gas emissions from food production and car travel due to increased adiposity in a population of 1 billion people are estimated to be between  $0.4 \times 10^9$  and  $1.0 \times 10^9$  kg of carbon dioxide equivalents per year.<sup>78</sup> However, the closest link between NCDs and the environment is through the effect of the predisposing risk factors for NCDs on the environment.

The effect of tobacco on the environment has been well described.<sup>79</sup> Cigarettes contribute to litter and are toxic waste. All phases of tobacco production can contribute to climate change. Clearing of land to grow tobacco removes trees; curing of tobacco requires wood and the trees used could have removed carbon dioxide. A growing amount of evidence shows the close relation between risk factors for NCDs and greenhouse-gas emissions in sectors such as household energy, electricity generation, transport (especially in urban environments), and food and agriculture.<sup>80–85</sup> Fine particulate air pollution results from burning coal or from vehicle emissions, which are also responsible for large amounts of greenhouse-gas

emissions. Sedentary lifestyle—a risk factor for several NCDs—are partly a result of the increasing use of cars. Increased active travel can prevent several NCDs and substantially reduce costs to health services.<sup>86</sup> Poor communities that are dependent on inefficient combustion of solid fuels (coal and biomass) have high levels of indoor air pollution, which is a major risk factor for chronic obstructive pulmonary disease and contributes to climate change through emission of black carbon and other pollutants.

Food production has major adverse effects on the environment, and the consumption of large amounts of animal products contributes substantially in some populations to the epidemic of cardiovascular disease.<sup>82</sup> Production of animal-based products is also a major contributor to climate change. The seminal Food and Agriculture Organization report—*Livestock's Long Shadow*<sup>87</sup>—establishes the links clearly. “At virtually each step of the livestock production process, substances contributing to climate change or air pollution are emitted into the atmosphere or their sequestration in other reservoirs is hampered. Such changes are either the direct effect of livestock rearing, or indirect contributions from other steps on the long road that ends with the marketed animal-product.”<sup>87</sup> About 75% of agricultural land is devoted to raising animals, including the production of animal feeds. Slowing or halting of land clearance in the tropics—which is responsible for 98% of carbon dioxide emissions caused by deforestation—will reduce both climate change and loss of biodiversity.<sup>88</sup> Shifting of crop production away from animal feed, bioenergy production, and other non-food uses could increase food energy production by 49%.<sup>89</sup> This increase could be used to meet the needs of people who have insufficient food while improving the diets of those consuming excessive foods of animal origin.

## Strategies for embedding NCDs in the post-2015 development agenda

### Advocacy

The acceptance both nationally and internationally of the need to embed NCDs in the post-2015 development agenda will depend on the input of many people and groups and the persuasion of many parties. The creation or stimulation of an epistemic community—consisting of a broad coalition or network of informed knowledgeable professionals—to include health and the NCDs in the post-2015 development agenda could be crucial for advocacy. Such a community does not ignore the relevance of NCDs to other aspects of development or the sustainability of that development. The importance of such a community for HIV/AIDS has become apparent,<sup>90</sup> and the basis for one already exists in the NCD Alliance, the Endemic NCD Group, and *The Lancet* NCD Action Group.

The NCD Alliance unites four international federations, each representing one of the four main NCDs. Because the

Alliance has a common but broad interest, advocates could be widely engaged and a successful civil society campaign mobilised to lobby for the UN high-level meeting on NCDs. With its network of 2000 organisations, presence in almost every country, and effective communication strategy, it is well placed to mobilise support for policy change. A major task for this emerging NCD community is to continue to maintain awareness of the relevance of NCDs to existing and emerging development priorities,<sup>91</sup> act as a safeguard against duplication of the shortcomings of the present framework, and bring cohesion to the mobilisation of aid for NCDs and health in development programmes.

Official development assistance is likely to be scarce in the future and even now bilateral agencies are reluctant to direct resources to NCD prevention and control. Thus, advocacy needs to be coordinated within the NCD community and across the health community as a whole. Fragmentation of requests and direction for aid can compromise its effectiveness.<sup>12</sup>

### Effective partnerships

If the NCD community is to be effective in promotion of NCDs in the post-2015 development agenda, it must stimulate partnerships.<sup>92</sup> Although the specificity of the health-related MDGs was beneficial for directing aid and interventions, such focus obscured the important relations between diseases (eg, NCDs and HIV; infectious agents and cancer), and the individual disease approach might have obscured the importance of health in general.<sup>18</sup>

NCD advocates should also partner with the environmental community. Because present development pathways are unsustainable, policies that simultaneously address major environmental threats (such as climate change) and NCDs will help to make sustainability achievable. A similar case can be made for agriculture. Sustainability, agriculture, and food production are closely linked to nutrition-related NCDs, but the latter two also demand substantial environmental resources and determine the livelihood of rural farmers. Choices have to be made about whether food and food policy will lead to more NCDs or to making healthy and sustainable diets affordable and available to all. Links between health and other pillars of sustainability must feature prominently in the post-2015 development agenda.<sup>93</sup> WHO has developed several draft indicators linking sustainability and health, some of which are relevant to NCDs.<sup>94</sup>

The political declaration reinforced the need for partnerships to advance the NCD agenda and called for establishment of goals and targets. Much emphasis has been placed on mortality; however, in terms of prevention, partnerships should be made with the maternal and child health communities and emphasis placed on the life-course approach, which entails addressing NCD risks that begin as early as in utero and continue throughout life into old age. The worldwide increases in metabolic risk factors for NCDs, such as obesity, show no sign of abatement but the health sector

continues to focus on individual responsibility and changes in the environment that will facilitate the individual making the appropriate healthy choice. The life-course approach has not been given sufficient emphasis in discussions so far, even though it is probably an effective and long-term means to address NCDs and their metabolic risk factors.<sup>95</sup> However, the life-course approach should not be detrimental to obtaining short-term gains from secondary prevention of the NCDs.<sup>96</sup> Strong partnerships should be formed with adolescents and young people, not only because they are the adults of the future, but also because many of the risk factors and patterns of consumption that contribute to NCDs begin in adolescence.<sup>97</sup>

### Political leadership

The need for national and international political leadership was clear before the UN high-level meeting, and the fact that the meeting occurred is an indication of that leadership.<sup>52</sup> Such political leadership seems to be continuing, as shown by the adoption of the global goal of reducing mortality from NCDs by 25% by 2025.<sup>31</sup> The UN Secretary-General continues to emphasise the importance of NCDs for development.<sup>98</sup> The heads of WHO and the UNDP, in a joint letter to their organisations, have stated that “the growing awareness that premature deaths from NCDs reduce productivity, curtail economic growth and pose a significant social challenge in most countries means that they must be taken into account when the post-2015 development agenda is being devised”.<sup>99</sup>

### Conclusions

A post-2015 development agenda that incorporates the MDGs will constitute the basis for the sustainable human development goals. Health must be central in the agenda because it is essential to human development and is an end as well as a means of achieving development. NCDs must feature prominently in the post-2015 development agenda and any sustainable human development goals because of their major contribution to ill health and their close relation with the social, economic, and environmental strands of the triple helix that sustain development. Inclusion of NCDs in the post-2015 development agenda will be assisted by advocacy by communities provided with sound evidence, functional partnerships within the NCD community and other relevant groups, and committed political leadership.

#### Contributors

GA had the idea for the report. All authors drafted the report and approved the final version.

#### Conflicts of interest

We declare that we have no conflicts of interest.

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