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# Towards action on social determinants for health equity in urban settings

TORD KJELLSTROM AND SUSAN MERCADO

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**ABSTRACT** More than half of the global population now live in urban settings. Urbanization can and should be beneficial for health. In general, nations with high life expectancies and low infant mortality rates are those where city governments address the key social determinants of health. Better housing and living conditions, access to safe water and good sanitation, efficient waste management systems, safer working environments and neighbourhoods, food security and access to services such as education, health, welfare, public transportation and child care are examples of social determinants of health that can be addressed through good urban governance. Failure of governance in today's cities has resulted in the growth of informal settlements and slums that constitute unhealthy living and working environments for one billion people. A credible health agenda is one that benefits all people in cities, especially the urban poor who live in informal settlements. International agreements calling for urgent action to reduce poverty, such as the Millennium Development Goals, can only be met through national strategies that include both urban and rural commitments and involve local governments and the poor themselves. Health inequalities in urban areas need to be addressed in countries at all income levels. Urban development and town planning are key to creating supportive social and physical environments for health and health equity. Achieving healthy urbanization in all countries is a shared global responsibility. Eliminating deprived urban living conditions will require resources – aid, loans, private investments – from more affluent countries in the order of US\$ 200 billion per year, no more than 20 per cent of the annual increase in GDP in high-income countries. Creating global political support for a sustained and well-funded effort for social, economic and health equity is one of the greatest challenges of this generation.

**KEYWORDS** climate / disease control / economics / environment / equity / food / governance / health services / housing / slums / social determinants / urban health / urbanization

## I. INTRODUCTION

The Knowledge Network on Urban Settings (KNUS) is one of nine networks established to provide evidence to the WHO Commission on Social Determinants of Health (CSDH). This paper is an abridged version of a KNUS report that was submitted to the CSDH and published by the WHO Centre for Health Development, Kobe, Japan.<sup>(1)</sup> The purpose of the report was to synthesize what is known about social determinants of health in urban settings and provide guidance and examples of interventions

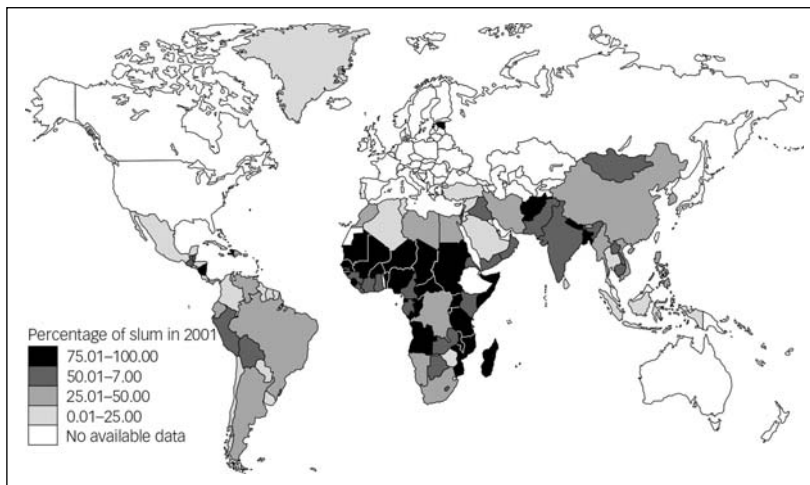
that have been shown to be effective in achieving health equity. Health equity, as defined by the WHO, is "...the absence of unfair and avoidable or remediable difference in health among population groups defined socially, economically, demographically and geographically."<sup>(2)</sup>

The report assembles evidence from all over the world, using the guiding principles prepared by the Knowledge Network on measurement and evaluation and, where appropriate, citing the work of other CSDH Knowledge Networks. The KNUS process started with a meeting in early 2006 and the generation of 14 thematic papers on different aspects of social determinants of health in urban settings.<sup>(3)</sup> Real-life stories, vignettes and case reports or "voices from the urban settings", commissioned through civil society groups, journalists and communities, were presented at a second meeting of the KNUS "Synergy Circle" in Dar es Salaam, Tanzania in November 2006. This group included practitioners, policy makers, community-based organizations, civil society, health advocates, researchers and WHO regional staff. After the meeting, the thematic papers were revised and shorter versions published in the *Journal of Urban Health*.<sup>(4)</sup>

**Focusing on slums and informal settlements in the urban setting.** The work of KNUS has a strategic focus on the most extreme end of the health inequity gradient: the billion people in low-income and informal settlements ("slums") in urban areas.<sup>(5)</sup> More than half the urban residents in many low-income countries live in slums and informal settlements (Figure 1). These people face health challenges similar to those faced by poor people in cities in past centuries, even though the knowledge and means to eliminate these unhealthy conditions are now available.<sup>(6)</sup>

**Unmasking health inequity in urban settings.** Data on health inequalities in urban settings are not routinely reported. There are, however, examples to provide us with strong and compelling evidence of unfairly

policy and programme development at local, national and international levels, and has expertise in health promotion and health communication. She is currently Regional Coordinator for the Tobacco-Free Initiative of WHO-Western Pacific Regional Office (WPRO). She has worked previously as Team Leader, Urbanization and Health Equity of the WHO Centre for Health Development, Kobe, Japan; as hub leader of the Knowledge Network on Urban Settings of the WHO Commission on Social Determinants of Health (2005-2007); and as Acting Regional Adviser for Health Promotion at the WHO-WPRO (2002-2004). Prior to this, she served as Undersecretary and Chief of Staff at the Department of Health, Republic of the Philippines, and Assistant Professor at the National Institute of Health, the Philippines. Her first job as a physician was to run an urban primary health care programme in the slums of Metro Manila.



**FIGURE 1**  
Percentage of urban population living in "slums" in different countries, 2001

SOURCE: Turkstra, Jan and Martin Raithelhuber (2004), "Urban slum monitoring", UN-HABITAT paper accessible at <http://gis.esri.com/library/userconf/proc04/docs/pap1667.pdf>.

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distributed health opportunities. The extraordinary difference in health status within Nairobi and between Kenya, Sweden and Japan (Table 1) is a case in point. Kenya has, on average, infant and child mortality rates 15 to 20 times higher than Sweden and Japan. In Nairobi, while the average rates are lower than in Kenyan rural areas, the city has a strong gradient from poor to rich: in the slums of Kibera and Embakasi, the rates are three to four times the Nairobi average and much higher than the Kenyan rural average.

**Making our cities healthier.** Urbanization can be beneficial to health. Urban areas can provide healthy living environments; indeed, they can improve health via their various material, service provision, cultural and aesthetic attributes.<sup>(7)</sup> Improvements over the last 50 years in mortality and morbidity rates in highly urbanized countries like Japan, Sweden, the Netherlands and Singapore are testimony to the potentially health-promoting features of modern cities. Health hazards remain and new health challenges have developed,<sup>(8)</sup> but creating healthy urban living conditions is possible if a supportive political structure exists and financial resources are applied appropriately.<sup>(9)</sup>

Inequalities in health in urban settings reflect to a great extent inequities in economic, social and living conditions,<sup>(10)</sup> which have been a hallmark of most societies since urbanization began. Already during the early parts of the twentieth century, social systems based on democracy and strong equity policies have flourished and achieved great social and health progress (e.g. the Nordic countries and New Zealand). The challenge in urban areas at any economic level is to improve the health situation for the poorest or most disadvantaged by “levelling up” their living conditions.<sup>(11)</sup> Health inequalities arise not only from poverty in economic terms but also from poverty of opportunity, of capability and of security.<sup>(12)</sup> The net effect of deficits in material conditions, psychosocial resources and political engagement is the powerlessness that underpins the vicious cycle of poverty and ill-health.

**TABLE 1**  
**Infant and under-five mortality rates in Nairobi (Kenya), Sweden and Japan**

Location	Infant mortality rate (deaths per 1,000 newborn)	Under-five mortality rate (deaths per 1,000 children)
Sweden	5	5
Japan	4	5
Kenya (rural and urban)	74	112
Rural	76	113
Urban (excluding Nairobi)	57	84
Nairobi	39	62
High-income area in Nairobi (estimate)	Likely to be less than 10	Likely to be less than 15
Informal settlements in Nairobi (average)	91	151
Kibera slum in Nairobi	106	187
Embakasi slum in Nairobi	164	254

SOURCE: APHRC (2002), *Population and Health Dynamics in Nairobi's Informal Settlements*, African Population and Health Research Centre, Nairobi.

## II. URBANIZATION AND THE URBAN SETTING AS HEALTH DETERMINANTS

The world is becoming urban. Urbanization is a major public health challenge for the twenty-first century; populations are increasing rapidly, basic infrastructure is insufficient and social and economic inequities in urban areas result in significant health inequalities.<sup>(13)</sup> Almost all the world's growth in population over the next two to three decades is predicted to be in urban areas in low- and middle-income countries.<sup>(14)</sup> The population in these areas is expected to grow from 2 billion in 2000 to 3.9 billion in 2030,<sup>(15)</sup> while total world population may grow from 6 to 8 billion, with the most rapid growth expected in Asia and Africa. While North America, Latin America and Europe are currently the most urbanized regions, the number of urban dwellers in the least urbanized region, Asia (1.8 billion), is already greater than that in North America, South America, Japan and Europe combined (1.3 billion).

**Urbanization itself is a determinant of health.** The agglomeration of people, resources and infrastructure in urban areas is both a driving force behind economic development and a result of it.<sup>(16)</sup> The world would not have reached today's level of technical and social development without the "economic engines" that have been urban areas since the beginning of the industrial revolution. Urbanization, like globalization, can be seen as a structural social determinant of health, challenging aspirations of equity due to the tendency of the urban elite to accumulate wealth and power.<sup>(17)</sup>

Development policies for equity acknowledge the symbiotic relationship between urban and rural areas and seek a fair balance between them of access to economic resources.<sup>(18)</sup> Average incomes in rural areas are often lower than in urban areas, but these averages can be misleading.<sup>(19)</sup> Urban incomes are often especially unequal, with high urban averages, created by an affluent minority, exaggerating rural-urban differentials. The prices of basic subsistence goods (food, water, shelter) are generally higher in urban areas, reducing the purchasing power of urban incomes. Some basic necessities can also be secured by the rural poor outside of the cash economy. Still, rural poverty can lead to significant migration from rural to urban areas,<sup>(20)</sup> although the major factor in urban population growth is natural increase within each urban area.<sup>(21)</sup>

**Poverty leads to slum formation and ill-health.** Many cities are affected by severe urban poverty, pervasive and largely unacknowledged. According to the 2003 Global Report on Human Settlements,<sup>(22)</sup> 43 per cent of the urban population in developing regions live in "slums"; in the least developed countries, the figure rises to 78 per cent. Few countries plan for healthy conditions during urbanization, and urban poverty remains largely unaddressed.<sup>(23)</sup> The labelling of an area as a "slum" in itself creates discrimination against "slum dwellers",<sup>(24)</sup> who most often have no political power and are disregarded in planning and development decisions.

**A framework for urban health.** A conceptual framework for urban health was suggested by Vlahov et al.<sup>(25)</sup> and adapted for the report by Satterthwaite and colleagues (Figure 2). The core concept is that urbanization does not occur in a vacuum. Multiple drivers and pathways affect the urban setting and its social and physical environments. The urban health system itself may act as a barrier or an arbitrator for fairer health

1. WHO (2008), *Our Cities, Our Health, Our Future. Acting on Social Determinants for Health Equity in Urban Settings*, Report to the WHO Commission on Social Determinants of Health from the Knowledge Network on Urban Settings (KNUS), WHO Kobe Centre, Kobe, Japan.

2. WHO/CSDH (2005), "Towards a conceptual framework for analysis and action on the social determinants of health", draft Discussion Paper 1.7.2005 (a later version from 2006 exists), World Health Organization, Geneva.

3. Kjellstrom, T, S Mercado, M Sami, K Havemann and S Iwao (2007b), "Achieving health equity in urban settings", *Journal of Urban Health* Vol 84, Supplement 1, pages i1-i6.

4. *Journal of Urban Health* (2007), Vol 84, Supplement 1, May.

5. Garau P, E D Sclar and G Y Carolini (2005), *A Home in the City: Report from the UN Millennium Project*, Earthscan Publications, London.

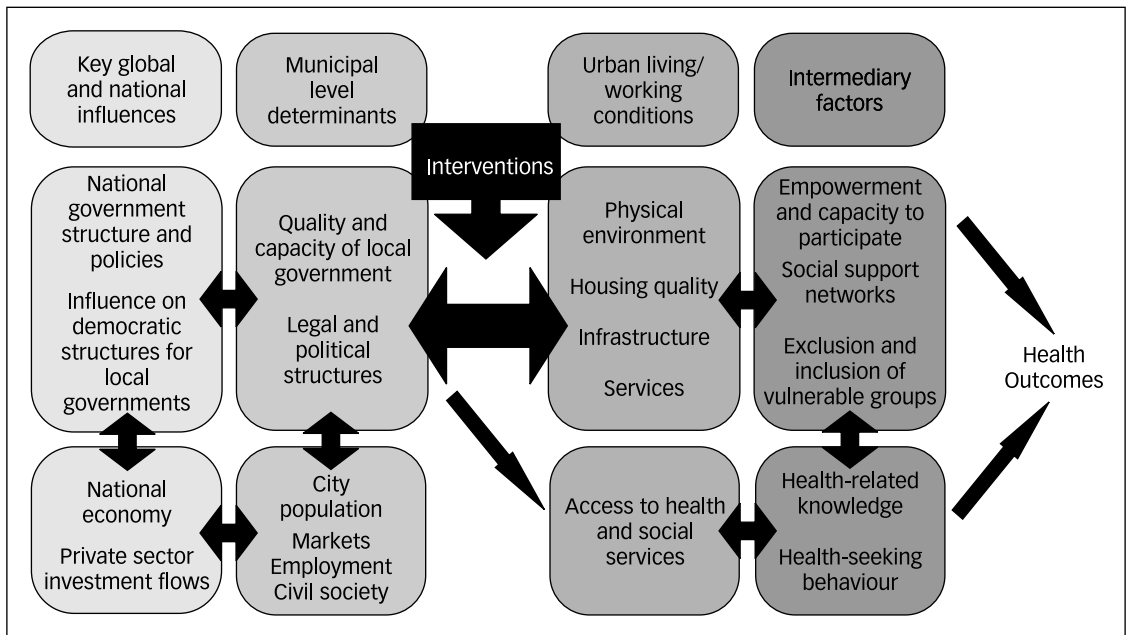
6. WHO/WKC (2005), *A Billion Voices*, World Health Organization, Kobe, Japan; also Mercado S, K Havemann, M Sami and H Ueda (2007), "Urban poverty: an urgent public health issue", *Journal of Urban Health* Vol 84, Supplement 1, pages i7-i15.

7. Kirdar, U (1997), *Cities Fit for People*, UNDP, New York.

8. McMichael, A J (1999), "Urban environmental health in a globalizing world", *Urban Health and Development Bulletin* Vol 2, pages 3-11.

9. Galea, Sandro and David Vlahov (editors) (2005), *Handbook of Urban Health: Populations, Methods and Practice*, Springer, New York

10. WHO (2001a), "Macroeconomics and health: investing in health for economic development", Report of the Commission on Macroeconomics and Health, World Health Organization, Geneva; also Marmot, M (2006), "Harveian oration, health in an unequal world", *Lancet* Vol 368, pages 2081-2094.



**FIGURE 2**  
A framework for urban health

SOURCE: Suggested by Vlahov et al. and adapted for the report by Satterthwaite et al. See Vlahov, D, N Freudenberg, F Proietti, D Ompad and S Galea (2007), "A conceptual framework for organizing determinants of urban health" (thematic paper for the KNUS second meeting), abridged version: Vlahov, D, N Freudenberg, F Proietti, D Ompad, A Quinn, V Nandi and S Galea (2007), "Urban as a determinant of health", *Journal of Urban Health* Vol 84, Supplement 1, pages i16-i26.

11. Dahlgren, G and M Whitehead (2006), "Levelling up: strategies for tackling social inequalities in health", Paper prepared for the WHO-EURO Office for Investment for Health and Development, Venice.

12. Wratten, Ellen (1995), "Conceptualizing urban poverty", *Environment and Urbanization* Vol 7, No 1, April, pages 11-36; also Rakodi, Carole (1995), "Poverty lines or household strategies? A review of conceptual issues in the study of urban poverty", *Habitat International* Vol 19, No 4, pages 407-426; Satterthwaite, David (1997), "Urban poverty: reconsidering its scale and nature", *IDS Bulletin* Vol 28, No 2, pages 9-23; Sen, A (1999), *Development as Freedom*, Alfred A Knopf, New York; and Kawachi, I and S Wamala

opportunities. The health sector has a crucial role to play in mediating work among various sectors that have jurisdiction over determinants of health, and holding local governments more accountable for health.

**Economic growth and better income is not enough.** Some economists argue that rapid economic growth remains the most efficacious way of climbing out of poverty<sup>(26)</sup> – but this view has been challenged.<sup>(27)</sup> The increasing inter- and intra-national economic inequality of recent years<sup>(28)</sup> indicates that alternative policies are imperative. To reduce poverty at the pace expressly desired by governments through the Millennium Development Goals (MDGs),<sup>(29)</sup> a transfer of economic resources from the rich to the poor is necessary.<sup>(30)</sup>

The MDG's crucial Goal 8, to "Develop a global partnership for development", implies substantial transfers of economic resources from high-income to low-income countries. However, as the UN-HABITAT<sup>(31)</sup> report states: "...development assistance to alleviate urban poverty and improve slums remains woefully inadequate."

**Governance is not just about government.** Governance<sup>(32)</sup> is a necessary consideration in any effort to understand and influence the social determinants of health.<sup>(33)</sup> "Healthy" governance means seeking an appropriate combination of health-promoting actions at many different levels, particularly at the local level.<sup>(34)</sup> For instance, many Brazilian cities have



virtually universal piped water supplies, good provision for sanitation and household waste collection, and primary health care. This is the result of local investment in health infrastructure supported by national policies and resources. Most African and Asian urban centres lack such provision and have no investment capacity to address these issues. It is likely that average life expectancies in poorly governed urban centres are 20–40 years less than in those Brazilian cities with good governance.<sup>(35)</sup>

### III. THE URBAN HEALTH SITUATION

#### Urban poverty: an unseen risk factor underlying the global burden of disease?

Poverty is a prominent determinant of the global burden of disease,<sup>(36)</sup> and this link needs to be rendered more visible in the urban context. The global burden of disease study<sup>(37)</sup> showed the importance of malnutrition in children, diarrhoeal diseases, acute respiratory diseases, HIV/AIDS, tuberculosis, malaria and various types of injuries. Non-communicable diseases such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are rapidly causing increased problems for the socially disadvantaged.<sup>(38)</sup> The impact of HIV/AIDS alone on the overall health status of a country such as Botswana is devastating and is most pronounced in cities. Large numbers of children have been orphaned by AIDS and many have little chance of surviving without action on social and community conditions in urban areas.

**Cities as breeding grounds and gateways for communicable diseases.** Higher population densities, coupled with ease of movement within and between cities, create new risks for communicable disease transmission.<sup>(39)</sup> Changes in the ecology of urban environments, crowding and high population densities, international travel and commerce, technology and industry, microbial adaptation to changes and breakdowns in public health measures are also factors.<sup>(40)</sup> Migrants may be at particular risk of communicable diseases and other health threats.<sup>(41)</sup> They are not always counted as part of the regular population of the cities where they work, and may spend a long time in the city in deprived living conditions.<sup>(42)</sup>

**The HIV/AIDS pandemic as an urban phenomenon.** HIV/AIDS accounts for about 17 per cent of the burden of disease in sub-Saharan Africa and is a major reason for the deteriorating health outcomes in some African countries.<sup>(43)</sup> The prevalence is generally higher in urban areas (Figure 3) – about 1.7 times higher than the rural rate according to UNAIDS.<sup>(44)</sup> It is also considerably higher among girls, who, especially in urban areas, are at particular risk due to gender discrimination.<sup>(45)</sup> Exposure to urban poverty, low literacy, sexual violence, domestic abuse and powerlessness are clearly determinants of greater risk of HIV/AIDS; and yet efforts to address the pandemic in many places still stress individual behaviour change interventions, a strategy that has undermined interventions to reduce the spread of HIV/AIDS.<sup>(46)</sup>

**Motorization and the acceleration of morbidities and mortalities from road traffic injuries.** The number of people killed in road traffic accidents worldwide is around 1.2 million, while the number of injured could be as high as 50 million.<sup>(47)</sup> These numbers are forecast to increase significantly in the coming decades. Road traffic injuries, urban and rural,

(editors) (2007), *Globalization and Health*, Oxford University Press, New York.

13. Vlahov, D, N Freudenberg, F Proietti, D Ompad and S Galea (2007), "A conceptual framework for organizing determinants of urban health" (thematic paper for the KNUS second meeting), abridged version: "Urban as a determinant of health", *Journal of Urban Health* Vol 84, Supplement 1, pages i16–i26.

14. UNFPA (2007), *State of the World Population 2007. Unleashing the Potential of Urban Growth*, United Nations Population Fund, New York.

15. United Nations (2006), *World Urbanization Prospects: the 2005 Revision*, United Nations Population Division, Department of Economic and Social Affairs, United Nations, New York (CD-ROM Edition – Data in digital form (POP/DB/WUP/Rev.2005)).

16. Tannerfeldt, G and P Ljung (2006), *More Urban Less Poor: An Introduction to Urban Development and Management*, Sida/Earthscan Publications, London.

17. See reference 13.

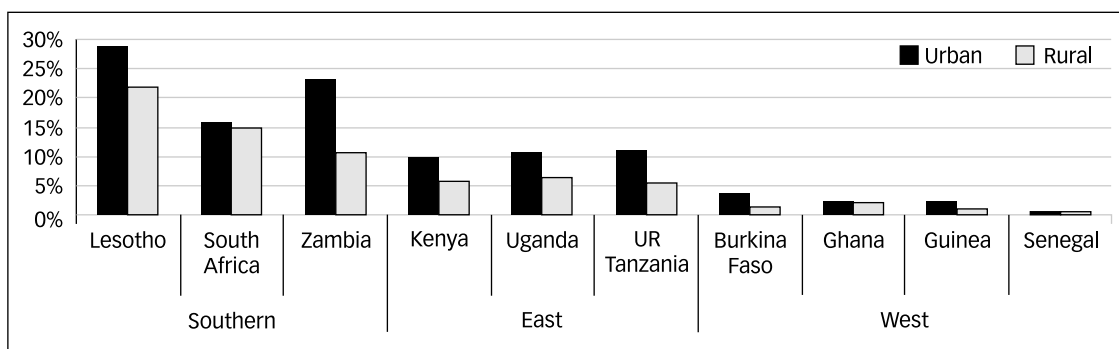
18. See reference 16.

19. Montgomery, Mark R and Alex C Ezeh (2005), "The health of urban populations in developing countries: an overview", in Galea and Vlahov (editors), see reference 9; also Montgomery, Mark R, Richard Stren, Barney Cohen and Holly E Reed (2003), *Cities Transformed; Demographic Change and its Implications in the Developing World*, the National Academy Press and Earthscan, Washington DC.

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21. See reference 14.

22. UN-HABITAT (2003a), *The Challenge of Slums*, 2003 Global Report on Human



**FIGURE 3**  
HIV prevalence (%) for selected sub-Saharan African countries, 15–49 years-old, by urban/rural residence

SOURCE: UNAIDS (2007), *2006 Report on the Global AIDS Epidemic*, UNAIDS, Geneva, accessed 2 April 2007 at [http://www.unaids.org/en/HIV\\_data/2006GlobalReport/default.asp](http://www.unaids.org/en/HIV_data/2006GlobalReport/default.asp).

Settlements, United Nations Centre for Human Settlements.

23. See reference 5.

24. See reference 5.

25. See reference 13.

26. Yusuf, S, K Nabeshima and W Ha (2007), "What makes cities healthy?" (thematic paper for the KNUS second meeting), abridged version: "Income and health in cities: the messages from stylized facts", *Journal of Urban Health* Vol 84, Supplement 1, pages i35–i41.

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28. UNDP (2006), *Human Development Report 2006*, United Nations Development Programme, New York.

29. UNDP (2005), *UN Millennium Project – Investing in Development: A Practical Plan*

rank within the top 10 causes of death.<sup>(48)</sup> Developing countries account for more than 85 per cent of all the fatalities and over 90 per cent of DALYs (Disability Adjusted Life Years) lost due to road traffic injuries;<sup>(49)</sup> and road injuries affect the poor more than the affluent in developing countries, particularly pedestrians.<sup>(50)</sup>

**Urban violence and crime as health hazards in rich and poor cities.** Violence devastates people's health and livelihoods in many urban areas.<sup>(51)</sup> It may also undermine a city's economic development prospects. Fear of violence isolates the poor in their homes and the rich in their segregated spaces.<sup>(52)</sup> The sheer scale of violence in many low-income slums or informal settlements means that it has become "routinized" or "normalized" in daily life,<sup>(53)</sup> with serious implications for trust and well-being. What Taussig calls "terror as usual" can exhibit itself through street crime, a growing gang culture and high levels of violence in the private realm.<sup>(54)</sup> The situation in some high-income countries is as bad as in many low-income countries.

**The stresses of poverty contribute to poor mental health and tobacco consumption in cities.** Mental health is a growing component of the global burden of disease,<sup>(55)</sup> and depression is responsible for the greatest burden attributed to non-fatal outcomes, accounting for 12 per cent of total years lived with disability worldwide.<sup>(56)</sup> A growing body of evidence shows urban predisposition to mental health problems. For example, community-based studies of mental health in developing countries show that 12–51 per cent of urban adults suffer from some form of depression.<sup>(57)</sup> Underlying causes and risk factors have been linked to lack of control over resources, changing marriage patterns and divorce, cultural ideology, long-term chronic stress, exposure to stressful life events and lack of social support.<sup>(58)</sup>

**Social conditions conducive to substance abuse.** Chronic stress and easy access to harmful products in the urban setting create additional risks of substance abuse and dependency. Studies show that daily tobacco smoking is most prevalent in lowest-income households in developing countries. Although rural–urban disaggregation of data is not available,



by inference, populations living in poverty in the urban setting would be likely to exhibit higher prevalence rates of tobacco use and have less access to health care, thus perpetuating the vicious cycle of illness–poverty.<sup>(59)</sup>

According to estimates from the United Nations Office on Drugs and Crime, 3 per cent of the global population, or 185 million people, are involved in illicit drug use annually. Certain characteristics of deprived urban communities have been found to be associated with substance abuse. Physically deteriorated urban areas with concentrations of young, unemployed males, are expected to be more prone to substance abuse.<sup>(60)</sup> Drug availability is known to be higher in areas where there are signs of social disorder, e.g. the presence of adults loitering, drinking alcohol in public, public intoxication, presence of gangs, adults fighting or arguing in public, or the presence of prostitutes.<sup>(61)</sup> Parts of the city where there are a large number of bars suggest that licensing restrictions are obeyed less, alcohol advertising is greater and access by youth to both alcohol and drugs may be greater.<sup>(62)</sup>

**Nutrition as an outcome of social factors in cities.** Millions of poor people in cities have insufficient food security due to a lack of finance. In some countries, children in slums have higher levels of protein energy malnutrition, vitamin A deficiency, iron deficiency anaemia and iodine deficiency disorders than rural children.<sup>(63)</sup> The poor quality of available food, recurrent diarrhoea due to unsafe water, lack of access to drugs and medicines, poor environmental and housing conditions, the absence of a responsible adult care giver due to employment pressures, and the lack of adequate services each serve to increase a child's risk of poor nutritional status, which contributes to poor child health. A study of 10 nations in sub-Saharan Africa showed that the proportion of the urban population with energy deficiencies (underweight) was more than 40 per cent in all but one nation and above 60 per cent in three – Ethiopia, Malawi and Zambia.<sup>(64)</sup>

In rich economies such as the United States, where more than 30 per cent of the adult population are obese, obesity drains societal resources. But large numbers of people are also becoming obese in low-income countries. Currently, one billion adults in the world are overweight.<sup>(65)</sup> Diseases such as diabetes, frequently the result of high-fat diets, are on the rise as urbanization brings major dietary changes driven by both economic and social factors. The paradoxical coexistence of child malnutrition and maternal overweight in the same household typifies rapid nutrition transition in low-income countries. In all but the poorest settings, urban populations are experiencing these adverse “obesogenic” shifts, reasons for which include enhanced access to non-traditional foods as a result of lower prices, changing production and processing practices, trade, and the rise of supermarkets and hypermarkets.<sup>(66)</sup>

#### IV. KEY ISSUES AND CHALLENGES IN ACHIEVING HEALTH EQUITY

**The unfinished agenda of water and sanitation.** Almost half of the urban population in Africa, Asia and Latin America suffer from at least one disease attributable to the lack of safe water and adequate sanitation, and young children are at particular risk (Table 2).<sup>(67)</sup> Contaminated water spreads diarrhoea, worm infections and other infectious diseases; lack of water creates difficulties in carrying out basic hygiene around the home.

to Achieve the Millennium Development Goals, Earthscan, London.

30. See reference 27.

31. See reference 27, UN-HABITAT (2006).

32. Governance is defined as: “The management of the course of events in a social system”. See Burris, S, T Hancock, V Lin and A Herzog (2007), “Emerging principles of healthy urban governance” (thematic paper for the KNUS second meeting), abridged version: “Emerging strategies for healthy urban governance”, *Journal of Urban Health* Vol 84, Supplement 1, pages i154–i163. In the urban setting, it is:

“The sum of the many ways individuals and institutions, public and private, plan and manage the common affairs of the city”. See UN-HABITAT (2002), “The global campaign on urban governance”, Concept Paper (2nd edition), UN-HABITAT, Nairobi.

33. Dodgson, Richard, Lee Kelley and Nick Drager (2002), *Global Health Governance: A Conceptual Review*, London School of Hygiene and Tropical Medicine, London; also Hein, Wolfgang (2003), “Global health governance and national health policies in developing countries: conflicts and cooperation at the interfaces”, in W Hein and L Kohlmorgan (editors), *Globalization, Global Health Governance and National Health Policies in Developing Countries: An Exploration into the Dynamics of Interfaces*, Deutschen Uebersee-Institut, Hamburg.

34. See reference 32, Burris et al. (2007).

35. Satterthwaite, David (2007), “In pursuit of a healthy urban environment”, in Peter J Marcotullio and Gordon McGranahan (editors), *Scaling Urban Environmental Challenges: From Local to Global and Back*, Earthscan, London.

36. WHO (2002a), *The World Health Report 2002*, World Health Organization, Geneva.

37. Murray, C J L and A Lopez

(1996), *The Global Burden of Disease*, Harvard School of Public Health, Boston; also see reference 36.

38. See reference 36.

39. Wilson, M E (1995), "Infectious diseases: an ecological perspective", *British Medical Journal* Vol 311, pages 1681–1684.

40. Morse, Stephen (2007), "Factors in the emergence of infectious diseases", accessed 2 May 2007 at <http://www.cdc.gov/ncidod/eid/vol1no1/morse.htm>.

41. For instance, Guang reports that the "floating population" of China now numbers 140 million and they suffer from a wide range of disparities, including higher risks of HIV–AIDS, tuberculosis and other infections. See Guang, L (2002), "Strangers in the city: reconfigurations of space, power and social networks within China's floating population", *Journal of Asian Studies* Vol 61, No 4, pages 1364–1366.

42. Goldestein, A and S Guo (1992), "Temporary migration in Shanghai and Beijing", *Studies in Comparative International Development* Vol 27, No 2, pages 39–56.

43. Goesling, Brian and Glenn Firebaugh (2004), "The trend in international health inequality", *Population and Development Review* Vol 30, No 1, pages 131–146.

44. UNAIDS (2007), "2006 report on the global AIDS epidemic", UNAIDS, Geneva, accessed 2 April 2007 at [http://www.unaids.org/en/HIV\\_data/2006GlobalReport/default.asp](http://www.unaids.org/en/HIV_data/2006GlobalReport/default.asp).

45. Van Donk, Mirjam (2006), "'Positive' urban futures in sub-Saharan Africa: HIV/AIDS and the need for ABC (A Broader Conceptualization)", *Environment and Urbanization* Vol 18, No 1, April, pages 155–175.

46. Ambert, Cecile, Katja Jassey and Liz Thomas (2006), *HIV, AIDS and Urban Development Issues in sub-Saharan Africa*, Sida, Stockholm; also Mabala, Richard (2006), "From HIV

**TABLE 2**  
**Estimates of the proportion of people without adequate provision for water and sanitation in urban areas, 2000**

Region	Number and proportion of urban dwellers without adequate provision	
	Water	Sanitation
Africa	100–150 million (~35–50%)	150–180 million (~50–60%)
Asia	500–700 million (~35–50%)	600–800 million (~45–60%)
Latin America and the Caribbean	80–120 million (~20–30%)	100–150 million (~25–40%)

SOURCE: UN–HABITAT (2003b), *Water and Sanitation in the World's Cities: Local Action for Global Goals*, Earthscan, London.

In addition, lack of convenient access to drinking water means that many hours each day may be wasted on carrying water from distant sources, especially by women and girls. Proper sanitation is just as important for keeping infectious diseases at bay.<sup>(68)</sup> Again, women and girls are vulnerable as many of them, for reasons of culture and modesty, will not attend to their sanitary needs during daylight hours if they lack household toilets.

**Indoor air pollution.** The WHO report *Fuel for Life*<sup>(69)</sup> points out that more than 3 billion people, living in both rural and urban areas, depend on solid fuels including biomass (wood, dung and agricultural residues) and coal to meet their most basic energy needs: cooking, boiling water and heating. The inefficient burning of solid fuels on an open fire or traditional stove indoors creates a dangerous cocktail of hundreds of pollutants that causes respiratory diseases, particularly in young children and women who spend the longest times close to cooking fires. These families are faced with a terrible dilemma: cook with solid fuels or pass up a cooked meal. With increasing prosperity in some regions, cleaner, more efficient convenient fuels are gradually replacing traditional biomass fuels, coal and other less efficient and more polluting energy sources.

**Poor quality of housing and shelter.** Sheuya et al.<sup>(70)</sup> describe how housing and shelter quality impact on health (Table 3). Poor quality housing is a key challenge in high- as well as low-income countries. The Canadian Institute for Health Information<sup>(71)</sup> has reported strong causal relationships between ill-health and exposure to some of the following agents: lead, asbestos and radon, house dust mites and cockroaches, temperature and lack of ventilation.

**The poor often end up living in unsafe locations.** The housing of low-income families may be characterized by insubstantial and fire-prone materials, poor foundations and hazardous locations. The poor settle in marginal lands – often subject to flooding, landslides or fire – for economic and political reasons.<sup>(72)</sup> The frequent co-location of industry and poor residential areas is another problem, often resulting in exposure to extremes of noise and temperature as well as to harmful chemical and biological agents, often at disastrous levels.<sup>(73)</sup> The Bhopal disaster is one of the more infamous examples,<sup>(74)</sup> where 2,000 people died and more

**TABLE 3**  
**Indicators of unhealthy housing and shelter**

Principal risk factor	Communicable diseases	Non-communicable diseases* and injuries
Defects in buildings	Insect vector diseases Rodent vector diseases <i>Geohelminthiases</i> Diseases due to animal faeces Diseases due to animal bites Overcrowding-related diseases	Dust and damp and mould-induced diseases Injuries Burns
Defective water supplies	Faecal-oral (waterborne and water-washed) disease Non-faecal-oral water-washed diseases Water-related insect vector diseases	Heart disease Cancer
Defective sanitation	Faecal-oral diseases <i>Geohelminthiases</i> <i>Taeniases</i> Water-based <i>helminthiases</i> Insect vector diseases Rodent vector diseases	Stomach cancer
Poor fuel/defective ventilation	Acute respiratory infections	Peri-natal defects Heart disease Chronic lung disease Lung cancer Fires/burns Poisoning
Defective refuse storage and collection	Insect vector diseases Rodent vector diseases	Injuries Burns
Defective food storage and preparation	Excreta-related diseases Zoonoses Diseases due to microbial toxins	Cancer
Poor location (near traffic, waste sites, industry, etc.)	Airborne excreta-related diseases Enhanced infectious respiratory disease risk	Chronic lung disease Heart disease Cancer Neurological/reproductive diseases Injuries

\*In addition to these examples, poorly designed and located housing and shelter can lead to various mental health problems, including stress-related conditions, violence, delinquency and vandalism, and drug and alcohol abuse.

SOURCE: WHO (1997), *Health and Environment in Sustainable Development*, Document WHO/EHG/97.8, World Health Organization, Geneva; also Sheuya S, S Patel and P Howden-Chapman (2007), "The design of housing and shelter programmes" (thematic paper for KNUS second meeting), abridged version: "The design of housing and shelter programmes: the social and environmental determinants of inequalities", *Journal of Urban Health* Vol 84, Supplement 1, pages i98–i108.

than 200,000 were poisoned. The risks caused by industrial activity in proximity to the urban poor are often compounded by weak regulatory measures and lax enforcement at national and municipal levels.

**Continuous community exposure to workplace hazards in informal settlements.** In many countries, informal settlements are home to the thriving informal economies that dominate urban employment.<sup>(75)</sup> These workplaces, especially those in close proximity to living quarters, often present health hazards through the use of toxic products, the

prevention to HIV protection: addressing the vulnerability of girls and young women in urban areas", *Environment and Urbanization* Vol 18, No 2, October, pages 407–432; and see reference 45.

47. WHO/World Bank (2004), "World report on road traffic injury prevention", World Health Organization, Geneva.

48. Lopez, A, C Mathers, M Ezzati, D T Jamison and C J L Murray (2006a), "Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data", *Lancet* Vol 347, pages 1747–1757; also Lopez, A, C Mathers, M Ezzati, D T Jamison and C Murray (2006b), *Global Burden of Disease and Risk Factors*, Oxford University Press and World Bank, New York.

49. See reference 47.

50. Nantulya, V M and M R Reich (2003), "Equity dimensions of road traffic injuries in low- and middle-income countries", *Injury Control and Safety Promotion* Vol 10, pages 13–20.

51. Krug, E, L Dahlberg, J Mercy, A Zwi and R Lozano (2002), "World report on violence and health", World Health Organization, Geneva.

52. Moser, Caroline (2004), "Urban violence and insecurity: an introductory roadmap", Editorial, *Environment and Urbanization* Vol 16, No 2, October, pages 3–15.

53. See reference 52; also Esser, Daniel (2004), "The city as arena, hub and prey – patterns of violence in Kabul and Karachi", *Environment and Urbanization* Vol 16, No 2, October, pages 31–38; and Rodgers, Dennis (2004), "Dis-embedding the city: crime, insecurity and spatial organization in Managua, Nicaragua", *Environment and Urbanization* Vol 16, No 2, October, pages 113–124.

54. Hume, Mo (2004), "It's as if you don't know, because you don't do anything about it: gender and violence in El Salvador", *Environment and Urbanization* Vol 16, No 2, October, pages 63–72.

55. See reference 37; also see reference 36.

56. WHO (2007a), *World Health Statistics 2007*, World Health Organization, Geneva.

57. Blue, T (1999), "Intra-urban differentials in mental health in Sao Paulo, Brazil", PhD thesis, South Bank University, London.

risk of injury, noise and the generation of traffic. Women and children who live in these settings are exposed to these hazards throughout the day. Key problems are the lack of adequate zoning, town planning and the location of industrial activities.<sup>(76)</sup> The outsourcing of parts of the production processes from larger industries contributes to uncontrolled cottage industry development.

The impact on health of unemployment is another factor to consider and, in Europe, unemployment has been shown to have health effects.<sup>(77)</sup> In low- and middle-income countries, the situation for unemployed people is likely to be worse as social support systems are less developed.

**Global climate change threatens the health of the poor in rural and urban areas.** Campbell-Lendrum and Corvalan<sup>(78)</sup> point out that the observed and expected changes in climate over the next century are likely to have significant effects on urban health. Reviews of the likely impacts of climate change by the Intergovernmental Panel on Climate Change<sup>(79)</sup> suggest that the health effects (related to heat, increased vector-borne diseases, increased air pollution and increased severity of weather calamities) are likely to be overwhelmingly negative, particularly in the poorest communities.<sup>(80)</sup> A WHO assessment of a sub-set of the possible health impacts concluded that the effects of climate change since the mid-1970s may have caused 166,000 deaths in 2000, and that these impacts are likely to increase.<sup>(81)</sup> The early health effects in rural areas are likely to be the result of droughts, floods, food insecurity, diarrhoeal diseases and vector-borne diseases. Many people from affected areas will become "environmental refugees" and will join the urban poor in the slums.

People in urban areas will also be affected by reduced food supplies (and higher prices), the wider spread of vector-borne diseases, increased urban air pollution, the direct effects of extreme heat (which causes cardiovascular deaths), and the effects of weather extremes and sea-level rise. Many major cities in the world are located on the coast or along rivers and are vulnerable to sea-level rise or increased variability of rainfall and flooding.<sup>(82)</sup> In Mumbai, for example, several million poor people live in squatter settlements that may be flooded. In Rio de Janeiro, the most vulnerable people are inhabitants of low-income settlements on hillsides (*favelas*), which are at risk of landslides and flash floods. In Shanghai, most people live in low-lying areas, and flooding in the Yangtze River has caused massive health and economic impacts in recent years. Drawing on groundwater for water supplies has caused land subsidence, which adds to the flood risk. Ironically, these megacities are also at risk of water shortages if rainfall variability increases and water sources dry up or, in the case of floods, become contaminated.<sup>(83)</sup>

**Weak urban health systems.** Many countries are transferring decision making and spending powers from national to local governments. This decentralization entails a transformation of political power, increasing the importance of cities in the conduct of public business. For health systems in the urban setting, the drama is one of balancing priorities, the allocation of resources, and personnel issues between central governments and local communities,<sup>(84)</sup> as city and community leadership play a growing role in health care.<sup>(85)</sup> However, many local and municipal institutions are ill-equipped to respond to population health challenges.<sup>(86)</sup> These challenges include access to services, which is linked more to ability to pay than to proximity to facilities. Double standards for care (i.e. the rich can afford tertiary hospital care and the poor must settle for poor quality and "free"

government services) create additional barriers, as the urban poor would rather borrow money and go into debt, and seek private provider care for serious illness that has a reputation for quality, than risk maltreatment, humiliation or death in local government health centres.<sup>(87)</sup>

**Ill-health causes poverty and inequality.** The cycle of powerlessness, poverty and ill-health comes full circle in deprived urban communities. Illness and injury are common causes of poverty in countries where health services are not free, and the inability to work means no income. In a study in the slums of Dhaka,<sup>(88)</sup> ill-health was found to be the most important cause of reduced income and increased expenditure. It led to more loans being taken out, assets being sold and more adults resorting to begging. In countries with social security systems that provide compensation for loss of income, the poverty-creating potential of ill-health is of course less, but compensation systems are seldom, if ever, complete. Workers' compensation systems that provide cover for injuries and diseases caused by work may be of particular importance in the reduction and avoidance of poverty.

**Gender as a structural determinant of health.** Among the urban poor, gender is a major determinant of disadvantage. In slums and informal settlements, many households are headed by women who usually have a low status and must earn money and care for their family in deplorable living and working conditions. Women serve as primary care givers in low-income communities and often render many hours as volunteer community health workers. Yet they have limited access to health care. Tuberculosis causes more deaths among women of reproductive age than any other infectious disease,<sup>(89)</sup> yet the health care system in Viet Nam, for example, is less likely to test and treat women for TB than men.<sup>(90)</sup>

**Vulnerability across the life course.** Other vulnerable groups in cities are children, the elderly and the disabled. There are 400 million urban children worldwide living in poverty who are at disproportionate risk from a range of health-related hazards, many of which can have long-term developmental consequences. The threats are especially severe for children under the age of five. The number of healthy life years lost to children under the age of five due to environmental risk factors is estimated to be five times greater than for the population at large.<sup>(91)</sup> The millions of children who have been orphaned or abandoned by their parents and who may end up as homeless street children are also at particular risk.<sup>(92)</sup> The built environment also poses many challenges to older persons, especially where transport, housing and sidewalks are developed with no thought concerning accessibility for the elderly. People with disabilities are also likely to be more vulnerable to health threats associated with social exclusion or discrimination, and to the challenges of high population densities, crowding, unsuitable living environments (e.g. high staircases, road curbs, intense traffic) and lack of social support.

## V. A BROAD SPECTRUM OF INTERVENTIONS

As indicated in Figure 2, multiple interventions at multiple levels are needed to create fairer health opportunities in the urban setting. Examples of what works are presented below, within a broad spectrum of interventions.

58. Harpham, T (1994), "Urbanization and mental health in developing countries: a research role for social scientists, public health professionals and social psychiatrists", *Social Science and Medicine* Vol 39, No 2, pages 233–245.

59. See reference 56.

60. Allison, K W et al. (1999), "Adolescent substance use: preliminary examinations of school and neighbourhood context", *American Journal of Community Psychology* Vol 27, No 2, pages 111–141.

61. Sampson, R J and S W Raudenbush (1999), "Systematic social observation of public spaces: a new look at disorder in urban neighbourhoods", *American Journal of Sociology* Vol 105, No 3, pages 603–651.

62. Alaniz, M L (2000), "Community-identified alcohol issues in the Mexican-American community: research design and utilization", *Substance Use and Misuse* Vol 35, No 1 and 2, pages 157–169.

63. See reference 36.

64. Ruel, Marie T and James L Garrett (2004), "Features of urban food and nutrition security and considerations for successful urban programming", *Electronic Journal of Agricultural and Development Economics* Vol 1, No 2, pages 242–271.

65. WHO (2006), *Strategy on Obesity Prevention*, World Health Organization, Geneva.

66. Mendez, M and B Popkin (2004), "Globalization, urbanization and nutritional change in the developing world", *Electronic Journal of Agricultural and Development Economics* Vol 1, No 2, pages 220–241; also Dixon J, A M Omwega, S Friel, C Burns, K Donati and R Carlisle (2007), "The health equity dimensions of urban food systems" (thematic paper for the KNUS second meeting), abridged version: "The health equity dimensions of urban food systems", *Journal of Urban Health* Vol 84, Supplement 1, pages 1118–1129.



67. WHO (1999), "Creating healthy cities in the 21st century", in David Satterthwaite (editor), *The Earthscan Reader on Sustainable Cities*, Earthscan Publications, London; also UN-HABITAT (2003b), *Water and Sanitation in the World's Cities: Local Action for Global Goals*, Earthscan, London; and see reference 5.

68. WHO (2005), *Water for Life*, joint WHO and UNICEF publication, World Health Organization, Geneva.

69. Rehfuess, E (2006), *Fuel for Life*, World Health Organization, Geneva.

70. Sheuya, S, S Patel and P Howden-Chapman (2007), "The design of housing and shelter programmes" (thematic paper for the KNUS second meeting), abridged version: "The design of housing and shelter programmes: the social and environmental determinants of inequalities", *Journal of Urban Health* Vol 84, Supplement 1, pages i98–i108.

71. Canadian Institute for Health Information, Housing and Population Health (2004), *The State of Current Research and Knowledge*, CIHI, Ottawa.

72. Campbell, T and A Campbell (2007), "Emerging health risks in cities of the developing world" (thematic paper for the KNUS second meeting), abridged version: "Emerging disease burdens and the poor in cities of the developing world", *Journal of Urban Health* Vol 84, Supplement 1, pages i54–i64.

73. See reference 7.

74. Dhara, V R and R Dhara (2002), "The Union Carbide disaster in Bhopal: a review of health effects", *Archives of Environmental Health* Vol 57, No 5, pages 391–404.

75. See, for instance, Borat, H (2005), *Poverty, Inequality and Labour Markets in Africa: A Descriptive Overview*, Development Policy Research Unit Working Paper 05/92, World Bank, Washington DC; also Maxwell, D et al. (1998), "Does urban agriculture help prevent malnutrition? Evidence from Kampala", Food Consumption and Nutrition

**Build social cohesion and trust at all levels.** The proposition that social capital is important for improving health in urban settings is not new and is derived from many empirical studies.<sup>(93)</sup> An analysis of the case studies presented in the KNUS papers confirms this. Sensitizing the political environment to the importance of social capital for better urban health and well-being resonates strongly with current debates in public health policy that inform our understanding of the "causes of the causes" of ill-health.<sup>(94)</sup> The political constraints against equity-enhancing policies are shaped by the degree of social cohesion in a country and the quality of its institutions<sup>(95)</sup>

**Improve the living environment.** Health protection and improvement require that a number of population level health hazards are considered when planning and managing cities. Access to clean and sufficient drinking water, appropriate sanitation and sewage systems, solid waste disposal, and safe and healthy housing continue to be major problems for one billion people living in deprived urban areas around the world.<sup>(96)</sup> Providing this key infrastructure is fundamental in reducing health inequalities.<sup>(97)</sup>

**Support healthy housing, neighbourhoods and other local settings.** Since 1996, UN-HABITAT has been documenting best practices that effectively address the most critical health and other problems in human settlement development.<sup>(98)</sup> The condition of schools, market places, roads, transport services and other neighbourhood features has been identified as important for health and health equity. A "healthy settings" approach has also been developed by WHO as part of their health promotion programmes.<sup>(99)</sup>

**Invest in clean air.** Practical solutions to the indoor smoke problem from burning biomass and coal must meet the needs of users at least as well as the energy sources available. Interventions should also cut the amount of fuel needed, minimize the risk of fires and burns, and make the fuel affordable and convenient to access. Such interventions do exist.<sup>(100)</sup> Switching from wood, dung or charcoal to more efficient modern fuels such as kerosene, LPG and biogas brings about the largest reductions in indoor smoke. Studies of the benefits and monetary costs of major air pollution control efforts in high-income countries<sup>(101)</sup> have concluded that the benefits in terms of cleaner and healthier neighbourhood air far outweigh the costs.

A wide range of technological and planning options supply mobility needs; all are compatible with high levels of prosperity but have very different implications for air pollution, greenhouse gas emissions and health. The proportion of people walking or cycling to work varies from 32 per cent in Copenhagen to 0.3 per cent in Atlanta, from 30 per cent in Santiago to 2 per cent in Brasilia. The percentage of urban trips by motorized private transport ranges from 89 per cent in the USA to 50 per cent in western Europe, 42 per cent in high-income Asia to 16 per cent in China.<sup>(102)</sup> Investment in improved public transport (three to five times more energy efficient than private transport) can create great improvements in air pollution exposure, as well as traffic crash injury prevention and improved daily physical activity for public transport users (they walk more than motor vehicle users).

**Promote easy access to higher quality food.** Achieving food security is imperative in poor urban settings and calls for policies that address enhanced productivity, increased employment and improved access to



food and the market. The importance of urban and peri-urban agriculture and livestock keeping in sustaining the urban poor is being recognized globally.<sup>(103)</sup>

**Create safe and healthy workplaces.** Prevention of harmful exposure to workplace health hazards (such as lead, asbestos, organic solvents, silica dust, accidents/injuries) would improve health equity because low-income people generally work in jobs with the greatest health risks.<sup>(104)</sup> Numerous reports and handbooks provide guidance on prevention methods, including material from WHO and ILO.<sup>(105)</sup> Trade unions or informal community organizations are natural partners for awareness raising and local action, as well as for promotion at government level of healthy work policies and legislation.

**Adopt comprehensive strategies to reduce urban violence and substance abuse.** Violence prevention involves education and integrated strategies based on civic involvement.<sup>(106)</sup> Newer approaches include conflict transformation (reflecting increasing concern with political and institutional violence), crime prevention through environmental design, and community-based approaches to rebuilding trust and social capital.<sup>(107)</sup> Tactics such as early closing of nightclubs and bars, gun control, community awareness programmes and community policing have all been developed, some with good success.<sup>(108)</sup>

**Develop more equitable urban health systems.** Controlling and preventing HIV/AIDS, tuberculosis and malaria are among the key health priorities in poor urban settings.<sup>(109)</sup> However, the “vertical programmes” approach of some Global Health Partnerships (GHPs), which “...concentrate their efforts on getting quick results rather than building up the wider systems needed to address the broader burden of disease”,<sup>(110)</sup> need to be complemented by a broader strengthening of the urban health system. A comprehensive primary health care system, combining different approaches to improve population health, can integrate the efforts of different stakeholders within and outside the health sector,<sup>(111)</sup> leading to more effective and efficient primary health care, and strengthening human and social capital development.

**Use innovative financing schemes, e.g. cash transfers.** Cash transfer programmes, developed to improve “social protection” and particularly food access for poor people, are a way for the state to take responsibility for well-being, not only in emergencies but also in situations of chronic poverty and illness. A “conditional cash transfer” means that the recipient must comply with certain requirements in order to get the cash (for example, immunizing their children or ensuring they go to school.) An “unconditional cash transfer” does not have such requirements. An argument for cash transfers is that they allow poor people to buy what they need from local sources, whether food, clothes, seeds or the cost of services such as education and health.<sup>(112)</sup> “Social welfare” schemes of this type, supported by the government, exist in all affluent countries. Cash transfers from sources in affluent countries to poor people in developing countries are basically a global application of the same equity-promoting approach.

**Hold urban planners accountable for health.** Urban planning and regulatory frameworks on land use, housing, building and infrastructure standards should reduce inequities in living conditions. Their core purpose is to ensure health and safety, as well as availability of land for infrastructure and services and open/public space.<sup>(113)</sup> In Namibia, the

Division Discussion Paper 45, International Food Policy Research Institute, Washington DC; and Sikod, Fondo (2001), “Constraints to managing urban poverty in Cameroon”, *Environment and Urbanization* Vol 13, No 1, April, pages 201–208.

76. Yassi, A, T Kjellstrom, T de Kok and T L Guidotti (2001), *Basic Environmental Health*, Oxford University Press, New York.

77. Maignan, C and N Harnam (2006), “Literature review: unemployment and health”, World Health Organization, Copenhagen.

78. Campbell-Lendrum, D and C Corvalan (2007), “Climate change and developing country cities: implications for environmental health and equity”, *Journal of Urban Health* Vol 84, Supplement 1, pages i109–i117.

79. IPCC (2001), *Climate Change 2001: Mitigation: Contribution of Working Group III to the Third Assessment Report*, Cambridge University Press, Cambridge; also IPCC (2007), *Climate Change 2007: Fourth Assessment Report*, Cambridge University Press, Cambridge.

80. McMichael, A J and A Githeko (2001), “Human health”, in J J McCathy, O F Canziani, N A Leary, D J Dokken and K S White (editors), *Climate Change 2001: Impacts, Adaptation and Vulnerability*, Cambridge University Press, Cambridge.

81. McMichael, A et al. (2004), “Climate change”, in M Ezzati, A Lopez, A Rodgers and C Murray (editors), *Comparative Quantification of Health Risks: Global and Regional Burden of Disease due to Selected Major Risk Factors*, World Health Organization, Geneva.

82. de Sherbinin, A, A Schiller and A Pulsipher (2007), “The vulnerability of global cities to climate hazards”, *Environment and Urbanization* Vol 19, No 1, April, pages 39–64.

83. See reference 82.

84. See reference 72.

85. Bossert, T and J Beauvais (2002), "Decentralization of health systems in Ghana, Zambia, Uganda and the Philippines: a comparative analysis and decision space", *Health Policy and Planning* Vol 17, No 1, pages 14–31.

86. See reference 72.

87. Lee, A, A Kiyu, H Molina Milman and J de la Jara (2007), "Improving health and building human capital through an effective primary care system and healthy setting approach" (thematic paper for the KNUS second meeting), abridged version: "Improving health and building human capital through an effective primary care system", *Journal of Urban Health* Vol 84, Supplement 1, pages i75–i85.

88. Pryer, J (2003), *Poverty and Vulnerability in Dhaka Slums; The Urban Livelihoods Study*, Ashgate, Aldershot.

89. WHO (2001b), *The World Health Report 2001*, World Health Organization, Geneva.

90. Long, N H, E Johansson, K Lonroth, B Eriksson, A Winkvist and V K Diwan (1999), "Longer delays in tuberculosis diagnosis among women in Viet Nam", *International Journal of Tuberculosis and Lung Disease* Vol 3, No 5, pages 388–393.

91. Prüss-Üstün, A and C Corvalán (2006), *Preventing Disease through Healthy Environments. Towards an Estimate of the Environmental Burden of Disease*, World Health Organization, Geneva.

92. Pangaea (2007), *Street Children – Community Children*, accessed 15 February 2007 at [www.pangaea.org](http://www.pangaea.org).

93. Kawachi, I and S Wamala (2007), "Poverty and inequalities in a globalized world", in Kawachi and Wamala (editors), see reference 12; also Pridmore, P, L Thomas, K Havemann, J Sapag and L Wood (2007), "Social capital and healthy urbanization in a globalized world" (thematic paper for the KNUS second meeting), abridged version: "Social capital and healthy urbanization in a globalized

city authorities in Windhoek greatly increased the number of low-income households that could afford a legal housing plot with infrastructure by allowing smaller minimum plot sizes and lower infrastructure standards, with provision for these to be upgraded.<sup>(114)</sup>

Environmental conditions in rapidly developing urban areas are of major importance. The environmental justice movement in the United States grew out of concerns that urban environmental hazards, including waste dumps and incinerators, were being sited disproportionately in areas populated by ethnic and racial minorities.<sup>(115)</sup>

**Address urban sprawl.** Health risks that have been ascribed to urban sprawl include air pollution, traffic accidents, declining water quality, driving-related stress and the loss of social capital that might otherwise be used to improve health.<sup>(116)</sup> Several studies have also found that urban sprawl is linked to reduced physical activity and increased obesity;<sup>(117)</sup> other factors are also important, including, for example, access to recreational facilities.<sup>(118)</sup>

## VI. APPROACHES AND POLICIES TO MAKE INTERVENTIONS HAPPEN

**Healthy urban governance as the overarching framework for interventions.** Reducing health inequity in the urban setting and addressing urbanization as a determinant of health requires a systems approach that goes beyond the jurisdiction and mandate of the health sector.<sup>(119)</sup> Good governance and empowered and strengthened local governors are usually in a better position to solve problems, negotiate for change and develop solutions with the people themselves, especially the urban poor.

Promoting healthy urban governance begins with a recognition of the actors and institutions that litter the landscape of governance, of governance deficits and of gaps between people's stake in governance and their access to governance institutions.<sup>(120)</sup> Interventions for health equity need to be carried out in an integrated manner.<sup>(121)</sup> KNUS suggests the following elements for building good governance:

- **assessing the urban context:** evaluating the current equity issues in urban health and health impacts, the prominence of urban health equity in the government's policy agenda, and the timing and urgency of implementing the underlying urban health policies or strategies;
- **identifying stakeholders:** clarifying the people, groups and organizations that have interest in and control of urban health impacts;
- **developing the capacity of stakeholders to take action and build social capital and cohesion:** action on policy change requires that sufficient knowledge, skills and resources are in place;
- **assessing institutions and creating opportunities to build alliances and ensure inter-sectoral collaboration:** since institutions determine the frameworks in which policy reforms take place;
- **mobilizing resources necessary for social change:** this may require better redistribution of resources;
- **implementation, including strengthening the demand side of governance:** assessing and ensuring people's participation from the organizational and legal perspective, taking into account the issue of access to information and data that can ensure social accountability;

- **advocate to relevant stakeholders to scale up effective interventions:** this would involve changes of policy in order that population health gets a higher priority among decision makers; and
- **monitoring and evaluating process and impacts:** setting up systems for monitoring at an early stage.

**Healthy public policy as a rallying point for different sectors.** From the more than 100 case studies reviewed by KNUS, it was concluded that “health” can unite individuals, communities, institutions, leaders, donors and politicians, even in complex and hostile contexts where structural determinants of health are deep and divisive. While debate inevitably arises on methods, terminology, resources and priorities for achieving better health, the case studies show that where health is used as a “rallying point”, sustained action is possible.

**Support localized and step-wise health improvements.** Some of the resources to support health equity can be raised within poor communities. The Parivartan programme in Ahmedabad city in India, presented at the second KNUS meeting, shows what a well-organized community can achieve.<sup>(122)</sup> In slum areas with 60,000 people (10,000 families), major investments to provide a water supply, toilets in every household, sewerage lines, electricity, a solid waste collection system and improved road surfacing were carried out at a cost of US\$ 500 per household.<sup>(123)</sup> Microfinance was essential to this scheme, which was eventually almost completely (90 per cent) funded by the poor community itself. If the same cost structure applied in other low-income countries, conditions and health for the one billion slum inhabitants could be greatly improved with a total investment of US\$ 80 billion (over a number of years). A mechanism for low-cost community support is the International Urban Poor Fund.<sup>(124)</sup>

**Advocate for funding transfers from high-income countries to low-income countries.** It is expected that an additional one billion people will live in slum conditions by 2030 – calling for an additional US\$ 80 billion to ensure their improved living conditions. If the Parivartan experience can be multiplied across the world, most of these resources will come from within the poor community itself.

How does this rough estimate compare with more detailed calculations of the global costs of interventions that can reduce the socially determined health inequalities for the poorest in the world? A costing of the interventions needed to accomplish the Millennium Development Goals<sup>(125)</sup> has been made by Devarajan et al.<sup>(126)</sup> (Table 4).

The estimates by Devarajan and colleagues took into account the double counting of costs for the goal of poverty reduction on the one hand and education, health and environment on the other. In addition to these costs, the WHO Commission on Macroeconomics and Health<sup>(127)</sup> estimated that a global programme of “essential health interventions” would cost US\$ 27 billion per year, making the total approximately US\$ 100 billion. Allowing for the need to improve the lives of 1,000 million slum dwellers rather than only 100 million might require another US\$ 50–100 billion.

Whichever number is used to quantify the additional annual funding needed to reduce health inequalities (US\$ 40, 60, 100 billion or more), it is clear that the current access to funding is not sufficient, as pointed out by several international agencies and reports in recent years.<sup>(128)</sup> These

world”, *Journal of Urban Health* Vol 84, Supplement 1, pages i130–i143.

94. Ompad, D C, S Galea, W T Caiiffa and D Vlahov (2007), “Social determinants of the health of urban populations: implications for interventions” (thematic paper for the KNUS second meeting), abridged version: “Social determinants of the health of urban populations: methodological considerations”, *Journal of Urban Health* Vol 84, Supplement 1, pages i42–i53.

95. Ritzen, J, W Easterly and M Woolcock (2000), “On ‘good politicians’ and ‘bad policies’. Social cohesion, institutions and growth”, Policy Research Working Paper 2448, World Bank Institute, Washington DC.

96. See reference 3.

97. This has been highlighted in the Millennium Project report on improving the lives of slum dwellers (see reference 5); the reports from the International Institute for Environment and Development (IIED) (see, for example, Hardoy, J E, D Mitlin and D Satterthwaite (2004), *Environmental Problems in an Urbanizing World*, Earthscan Publications, London; also papers in their journal *Environment and Urbanization*, for example, Hasan, A, S Patel and D Satterthwaite (2005), “How to meet the Millennium Development Goals (MDGs) in urban areas”, *Environment and Urbanization* Vol 17, No 1, April, pages 3–19; reports from WHO (see, for example, WHO (2002b), *Managing Water in the Home: Accelerated Health Gains from Improved Water Supply*, World Health Organization, Geneva; also Hutton, G (2000), “Considerations in evaluating the cost-effectiveness of environmental health interventions”, Document WHO/SDE/WSH/00.10, World Health Organization, Geneva); and reports from UNICEF, UN-HABITAT, UNDP, UNEP, World Bank and others.

98. The database <http://bestpractices.org/bpbriefts/analysis.html> is very comprehensive and includes more than 1,700 initiatives from nearly 200 countries.

**TABLE 4**  
**Estimated annual additional (above current foreign aid) costs of implementing selected Millennium Development Goals by 2015**

MDG, target, other programme	Estimated cost at global level (US\$ billions)	Reference
MDG 7. Ensure environmental sustainability <i>Target 9. Principles of sustainable development in country policies</i> <i>Target 10. Halve proportion of people without water and sanitation</i> <i>Target 11. Improve the lives of 100 million slum dwellers</i>	5–21	Devarajan, S, M J Miller and E V Swanson (2002), "Development goals: history, prospects and costs", Policy Research Paper, World Bank, Washington DC
MDG 8. Develop a global partnership for development <i>Seven targets, including those concerning better trade conditions for developing countries, more aid and debt relief</i>	0.7% of GDP = US\$ 175 billion, addition = 85	Commitment at United Nations in 1972
All MDG targets	40–60	Devarajan et al. (2002) (as above)
All MDG targets	48 in 2006 50 in 2010 74 in 2015	Sachs, J S (2005), <i>The End of Poverty: How We Can Make it Happen in Our Lifetime?</i> , Penguin Books, London

SOURCE: Devarajan S, M J Miller and E V Swanson (2002), *Development Goals: History, Prospects and Costs*, Policy Research Paper, World Bank, Washington DC.

99. See reference 67, WHO (1999).

100. See reference 69.

101. Kjellstrom, T, M Lodh, T McMichael, G Ranmuthugala, R Shrestha and S Kingsland (2006), "Air and water pollution: burden and strategies for control", in D T Jamison et al. (editors), *Disease Control Priorities in Developing Countries*, Second Edition, Oxford University Press, New York.

102. Newman, P and J Kenworthy (1999), *Sustainability and Cities: Overcoming Automobile Dependence*, Island Press, Washington DC.

103. For example, the Nairobi and Environs Food Security, Agriculture and Livestock Forum (NEFSALF), initiated in January 2004, represents a mix of actors from the community, government and market sectors whose aim is to promote urban and peri-urban agriculture.

various reports concerned with funding MDG implementation all point to the importance of improved governance, the control of corruption, and improved quality and timing of the interventions. It should be emphasized that the suggested increase in funding would have little impact without a very considerable strengthening of local governance capacity for good health care, emergency services and environmental health, and a greater willingness by local government to work with low-income groups.

A new challenge for the global funding of health equity has been acknowledged recently. Global climate change will affect the poor more than the rich. Low-income countries are likely to face increasing costs for adaptation to the ongoing climate upheaval in order to protect the livelihood and health of affected people. A recent report from Oxfam<sup>(129)</sup> estimated the annual cost of adaptation to climate change in low- and middle-income countries at approximately US\$ 50 billion per year. Almost all of the greenhouse gases that are causing climate change have been emitted by high-income countries. Some developing economies, such as China, India and Brazil, are becoming substantial contributors, but from an equity point of view, Oxfam<sup>(130)</sup> argues that the cost of current needs for adaptation in low- and middle-income countries should be financed by the high-income countries. This US\$ 50 billion is required in addition to the funding needs referred to above. Thus, total external funding of approximately US\$ 200 billion per year would be required to move towards health equity for all. A large part of these funds is required for equity investments in urban areas.

**Hold high-income countries accountable for global health inequity.** In the early 1970s, the UN General Assembly recommended that

high-income countries provide 0.7 per cent of their GDP to development aid; this target was later reiterated in other fora, including the Rio Earth Summit in 1992. The level has never reached more than 0.36 per cent, or US\$ 90 billion.<sup>(131)</sup> The accumulated shortfall since 1975 is about US\$ 2 trillion, which can be considered as a debt from the rich to the poor. Aid at 0.7 per cent of GDP would amount to US\$ 210 billion per year, more than double the current level. The combined GDP of the high-income countries is increasing by US\$ 1 trillion each year, which means that the US\$ 200 billion required for aid is only 20 per cent of the annual income increase of the high-income countries. In addition, the evidence from WHO<sup>(132)</sup> indicates that the funds spent on improving global health and health equity may in due course create substantial increases in global GDP. Funding transfers can therefore be seen as investments rather than costs.

## VII. SUMMARY AND CONCLUSIONS

- More than half of the global population now live in urban settings. Urbanization can and should be beneficial for health. In general, nations with high life expectancies and low infant mortality rates are those where city governments address the key social determinants of health. Within low-income countries, with the best local governance, life expectancy can be 75 years or more; with bad urban governance, it can be as low as 35 years.
- Better housing and living conditions, access to safe water and good sanitation, efficient waste management systems, safer working environments and neighbourhoods, food security and access to services such as education, health, welfare, public transportation and child care are examples of social determinants of health that can be addressed through good urban governance.
- Failure of governance in today's cities has resulted in the growth of informal settlements and slums that constitute unhealthy living and working environments for one billion people. National government institutions need to equip local governments with the mandate, powers, jurisdiction, responsibilities, resources and capacity to undertake "healthy urban governance". A credible health agenda is one that benefits all people in cities, especially the urban poor who live in informal settlements.
- International agreements calling for urgent action to reduce poverty, such as the Millennium Development Goals, can only be met through national strategies that include both urban and rural commitments and involve local governments and the poor themselves. Without their genuine engagement, interventions to improve unhealthy living conditions will be futile.
- Health inequalities in urban areas need to be addressed in countries at all income levels. Urban development and town planning are key to creating supportive social and physical environments for health and health equity. The health sector needs to establish partnerships with other sectors and civil society to carry out a broad spectrum of interventions.
- Achieving healthy urbanization in all countries is a shared global responsibility. Eliminating deprived urban living conditions will

104. Hogstedt, C, D H Wegman and T Kjellstrom (2007), "The consequences of economic globalization on working conditions, labour relations and workers' health", in Kawachi and Wamala (editors), see reference 12.

105. Stellman, J (1998), *ILO Encyclopaedia on Occupational Safety and Health*, International Labour Office, Geneva.

106. Cano, Ignacio (2000), *Letalidade da Ação Policial no Rio de Janeiro: A Atuação da Justiça Militar*, Instituto de Estudos da Religião-ISER, Rio de Janeiro; also see reference 52; and see reference 51.

107. In India, for instance, community policing in slums has been achieved through partnerships between community organizations and local police stations. See Roy, A N, A Jockin and Ahmad Javed (2004), "Community police stations in Mumbai's slums", *Environment and Urbanization* Vol 16, No 2, October, pages 135–138.

108. WHO (2007b), "Preventing injuries and violence", World Health Organization, Geneva.

109. David, A M, S P Mercado, D Becker and K Edmundo (2007), "Approaches to prevention and control of HIV/AIDS, TB and vector-borne diseases in slums and informal settlements" (thematic paper for the KNUS second meeting), abridged version: "The prevention and control of HIV/AIDS, TB and vector-borne diseases in informal settlements: challenges, opportunities and insights", *Journal of Urban Health* Vol 84, Supplement 1, pages i65–i74.

110. Yamey, G (2002), "The world's most neglected diseases", *British Medical Journal* Vol 325, pages 176–177.

111. See reference 87.

112. Rawlings, L B and G M Rubio (2003), "Evaluating the impact of conditional cash transfer programmes. Lessons from Latin America", World Bank Policy Research Working Paper 3119, August, World Bank, Washington DC.



113. Barton, H and C Tsourou (2000), *Healthy Urban Planning*, SPON Press, London.

114. Mitlin, Diana and Anna Muller (2004), "Windhoek, Namibia: towards progressive urban land policies in Southern Africa", *International Development Planning Review* Vol 26, No 2, pages 167–186.

115. Shrader-Frechette, K (2002), *Environmental Justice: Creating Equality, Reclaiming Democracy*, Oxford University Press, New York.

116. Frumkin, H, L Frank and R Jackson (2004), *Urban Sprawl and Public Health: Designing, Planning and Building for Healthy Communities*, Island Press, Washington DC.

117. See, for example, Frank, Lawrence, Sarah Kavage and Tod Litman (2006), *Promoting Public Health through Smart Growth: Building Healthier Communities through Transportation and Land Use Policies and Practices*, Smart Growth BC, Vancouver BC; also Ewing, Reid, Ross C Brownson and David Berrigan (2006), "Relationship between urban sprawl and weight of United States youth", *American Journal of Preventive Medicine* Vol 31, No 6, pages 464–474.

118. Roemmich, James N, Leonard H Epstein, Samina Raja, Li Yin, Jodie Robinson and Dana Winiewicz (2006), "Association of access to parks and recreational facilities with the physical activity of young children", *Preventive Medicine* Vol 43, No 6, pages 437–441.

119. See reference 32, Burris et al. (2007).

require resources – aid, loans, private investments – from more affluent countries in the order of US\$ 200 billion per year, no more than 20 per cent of the annual **increase** in GDP in high-income countries. Strong political commitment to better urban governance is crucial for the additional funds to create the intended improvements in living conditions and health equity. Creating global political support for a sustained and well-funded effort for social, economic and health equity is one of the greatest challenges of this generation.

120. Wood, Jennifer and Clifford Shearing (2007), *Imagining Security*, Willan, Portland, Oregon.

121. Barten, F, D Mitlin, C Mulholland, A Hardoy and R Stern (2007), "Healthy governance/participatory governance, towards an integrated approach of social determinants of health for reducing health inequity" (thematic paper for the KNUS second meeting), abridged version: "Integrated approaches to address the social determinants of health for reducing health inequity", *Journal of Urban Health* Vol 84, Supplement 1, pages i164–i170.

122. SEWA (2002), "Parivartan and its impact: a partnership programme", Self-employed Women's Academy, Ahmedabad, India.

123. See reference 122.

124. Mitlin, Diana and David Satterthwaite (2007), "Strategies for grassroots control of international aid", *Environment and Urbanization* Vol 19, No 2, October, pages 483–500.

125. United Nations (2005), *The Millennium Development Goals Report*, United Nations, New York.

126. Devarajan, S, M J Miller and E V Swanson (2002), "Development goals: history, prospects and costs", Policy Research Paper, World Bank, Washington DC.

127. See reference 10, WHO (2001a).

128. For instance, the WHO Commission on Macroeconomics and Health (see reference 10, WHO (2001a)); also the Helsinki Process on Globalization and Democracy (see Cheru, F and C Bradford (2005), *The Millennium Development Goals: Raising the Resources to Tackle World Poverty*, Zed Books, London); see reference 27, UN–HABITAT (2006); and World Bank (2006a), *Global Monitoring Report 2006 – Millennium Development Goals*, World Bank, Washington DC.

129. Oxfam (2007), "Adapting to climate change. What's needed in poor countries and who should pay?", Oxfam Briefing Paper 104, Oxfam, Oxford.

130. See reference 129.

131. OECD (2006), "Development aid at a glance. Statistics by region, 2006 edition", Organization for Economic Cooperation and Development, Paris.

132. See reference 10, WHO (2001a).



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