

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

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Statement on any conflict of interest

This is a WHO report written by a Knowledge Network team with no commercial or other conflict of interest.

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All numbers given for GDP and costs are in recent US dollars.

Part 1 **Political briefing**

1. Urbanization can and should be beneficial for health. In general, nations that have high life expectancies and low infant mortality rates are also those where city government leaders and policies address the key social determinants of health. Within developing countries, the best local governance can help produce 75 years or more of life expectancy; with bad urban governance, life expectancy can be as low as 35 years.
2. Better housing and living conditions, access to safe water and good sanitation, efficient waste management systems, safer working environments and neighborhoods, food security, and access to services like education, health, welfare, public transportation and child care are examples of social determinants of health that can be addressed through good urban governance.
3. Failure of governance in today's cities has resulted in the growth of informal settlements and slums that constitute an unhealthy living and working environment for a 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.
4. International agreements calling for urgent action to reduce poverty such as the Millennium Development Goals can only be met through national strategies that include an urban focus and involve local governments and the urban poor themselves. Without genuine engagement with the urban poor interventions to improve informal settlements will be futile.
5. A need to address health inequalities in urban areas is evident in countries at all income levels. Urban development and town planning are keys 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.
6. Half of the world's population lives in urban settings. Achieving healthy urbanization in all countries is a global and shared responsibility. The elimination of deprived urban living conditions will require resources – aid, loans, private investments – from more affluent countries. The funding required is in the order of \$200 billion per year, which is no more than 20% of the annual growth of the GDP in the high income countries. Strong political commitment to better urban governance is crucial for the additional funds to create the intended improvements of 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.

Part 2 **Executive summary**

Which aspects of urban settings influence health equity?

This KNUS report summarizes the findings concerning structural and intermediate social determinants of health that are of importance in the urban setting. The framework of the Commission on Social Determinants of Health guided the work and while unmasking the health inequities and inequalities in urban settings, it was decided at an early stage to make a strategic focus on slums and informal settlements. One billion people live in these deplorable conditions, a number that may double in coming decades unless policies for economic, social and health equity are developed and implemented. An example of the health inequalities in these circumstances is the strong gradient in infant and child mortality rates within Nairobi, Kenya, with rates in the slums more than three times higher than the city average and possibly ten or more times higher in the richer parts of the city. Other data from Africa shows that these mortality rates among the urban poor are, on average, almost as high as the rates among the rural poor, while among the richer urban groups the rates are the lowest.

The key to improved health equity lies in optimizing urban settings for health. Urbanization can be a positive determinant of health in the appropriate circumstances. Social systems based on democracy and strong equity policies have been successful in creating more equitable urban areas in a number of countries. The KNUS process has assembled a wealth of evidence, facilitated by the fact that there is a current international focus on urbanization. However, quantitative evidence of health inequalities within cities is seldom available and more research on this topic is needed to underpin policy development.

The world is becoming urban, and recently it was estimated that more than half of the world's population lives in urban areas. While megacities with more than 10 million inhabitants are of particular importance in this context, it was found that urban growth will be highest in more than 500 smaller cities of 1–10 million inhabitants. The regions of the world with the fastest growing urban populations are also the regions with the highest proportion of slum dwellers. It was concluded that urbanization itself is a determinant of health and that poverty leads to slum formation and ill-health.

There is a web of interlinking determinants, both at structural and intermediate level, that influence urban living conditions and health. These include economic, social and environmental conditions, and the links to health impacts, negative or positive, are in many cases well established.

Why the global community needs to act

There is evidence that investments in urban health can create major returns for the economy, which was pointed out also by the WHO Commission on Macroeconomics and Health in 2001. At the same time improvements in incomes in the urban setting contribute to better health, but economic growth and better income is not enough. Pro-poor and pro-health policies need to be developed and implemented at national and local level.

Along the gradient of inequalities, the risks to health are greatest for a billion people living in unhealthy, life threatening conditions in informal settlements or “slums”, where a third of all households are headed by women. As noted in the Millennium Development Goals Task Force (MDG, 2004):

Much of urban poverty is not because of distance from infrastructure and services but from exclusion. They are excluded from the attributes of urban life that remain a monopoly of a privileged minority – political voice, secure good quality housing, safety and the rule of law, good education, health services, decent transport, adequate incomes, access to goods and services, credit – in short, the attributes of full citizenship.

Urban poverty and unhealthy living conditions are associated health determinants and urban poverty is linked to powerlessness, which holds back the community's own efforts for improvements. The key to progress is “healthy governance”, which involves not only government but all levels of society including, vitally, the poor

themselves. When governance is empowering, control over resources for health can be shared and used more efficiently.

Poverty and health inequalities within and between countries contribute a major part of national and global burden of disease. Among the urban poor, communicable diseases are a remaining concern, while emerging diseases like SARS and avian flu have threatened the population at large. One of the greatest urban health threats is HIV/AIDS, which is associated with several social determinants.

Another urban health concern is the increasing incidence of road traffic injuries in developing countries, which threatens the poor as pedestrians and bicyclists more than the rich as drivers and passengers of motor vehicles. The global trend towards motor vehicle-dependent societies in warm climate countries starts with an increase of motorcycles for the less affluent. Users of these vehicles are inherently more injury-prone than car drivers.

Urban violence and crime affect the poor in countries at all development levels and the stresses of poverty are a factor in poor mental health. Associated with these conditions is a risk of substance abuse and illicit drug use.

Poor nutrition and lack of sufficient food is another challenge for the poor in urban areas. Malnutrition and underweight among children are endemic problems in poor urban areas, jeopardizing the physical and mental development of the generation of growing children. At the same time, social conditions create emerging risks of overweight due to consumption of inappropriate foods that are promoted as a part of the processes of globalization of the food trade. This trend is further exacerbated by lack of physical activity emerging with changes in occupational and leisure activities.

The urban living environment is another challenge to the health of the poor, unless traditional hazards are eliminated by proper urban planning and infrastructure development. Lack of water and sanitation remains a major health threat for the urban poor. The poor also need access to cleaner household fuels, while the quality of housing and shelter is a strong health determinant. The poor often end up living in unsafe locations affected by flooding or industrial pollution. In addition, urban air pollution and traffic safety create new hazards with economic development. Uncontrolled workplace health hazards are also a common cause of health inequalities in low income urban settings.

In order to protect the life-supporting features and resources of the planet, it is essential to implement policies for sustainable development in all urban areas. These policies need to integrate the aim of health equity in order to ensure that the poor are not excluded from their human right to a fair share of societal resources. Global climate change has highlighted these imperatives, as the expected health hazards of climate change are a major threat to the poor in both rural and urban areas.

Health equity in urban settings cannot be achieved without access to affordable health care and health promotion activities. Prevention, treatment and rehabilitation in relation to all priority health conditions need to be made available to all people. It should also be emphasized that ill-health can be a cause of poverty and inequality: family finances are quickly exhausted by costly health care coupled with lack of ability to earn income due. The particular health needs and vulnerabilities of women also need to be considered in the health system and the development of improved living conditions. Demographic change and ageing create growing health equity challenges.

What needs to get done

Social cohesion is a firm base for urban health equity interventions, and programmes that build stronger communities at local level should be a part of any intervention package. It is clear that for the people in slums and informal settlements, improving the living environment is essential. The report highlights the creation of healthy housing and neighbourhoods as a priority. This includes provision of drinking water and sanitation, improved energy supply and air pollution control.

Other interventions need to promote and facilitate good nutrition and physical activity as well as create safe and healthy workplaces. In addition, many communities require effective actions to prevent urban violence and substance abuse.

To ensure access to essential health care services, the health system needs to be designed on an equitable basis. While communicable disease control is still a priority, new interventions concerning injuries and noncommunicable diseases are of growing importance. For the poor to acquire access to the necessary services, as well as improved nutrition, education and transport, evidence suggests that cash transfers could be an efficient intervention. If such transfers promote equity within rich countries, why not apply the system globally?

It is recognized that these interventions involve implementing different levels of health-related improvements and that extrapolating the numbers to the global population of slum dwellers is not a simple linear exercise. Nevertheless, in order to scale up actions that will help the one billion people who live in informal settlements today, and to avoid an additional billion people living in such conditions in the next 25 years, bold steps are needed to improve urban governance in ways that achieve better housing, water and sanitation, transportation, education, employment, healthier working conditions and access to health-promoting interventions as well as health services.

It should be emphasized that health inequalities are also of concern in urban areas of middle and high income countries with a gradient of ill health from the poorest to the richest. A number of issues and interventions are identified and combined interventions packages have been developed. The Healthy Cities movement has created a vehicle for health equity interventions, while proactive urban planning supported by sufficient investment can achieve healthy urbanization. Health-focused urban development planning is also essential in high income countries, and the combined impact of many interventions is maximized by good governance.

Many of the findings and recommendations in the KNUS report are similar to what has been reported in previous international documents, such as the Brundtland report in 1987, Agenda 21 in 1992, UN-HABITAT II in 1996, and the Johannesburg summit on Sustainable Development in 2002. In addition, the UN Millennium Summit in 2000 and the Millennium Development Goals created a minimum agenda for action. If these policies and actions had been implemented with sufficient support from the high income countries, much of the international inequalities in urban health would have been eliminated by now.

Goal 7, Target 11 of the Millennium Development Goals indicates the aim of: "...by 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers." Other MDGs also deal with conditions of importance to health (although it is often not taken into account that the context to achieve these other MDGs will be 60% urban setting), most of which are the result of social determinants. If the MDGs are achieved, many slum dwellers would benefit, but its target of reaching 100 million people is dwarfed by the rapid growth of slums. As of 2006, six years after the MDGs were launched, urban growth in developing countries continues to result in the growth of slums.

How to do it and what it will cost

Despite the knowledge amassed about the importance of intense community engagement and participation in interventions that work, people at the local and community level where action makes a difference are, in most cases, entirely deprived of control over decision-making processes and resources. This represents a governance deficit that must be addressed by serious and sustained efforts to invest more decision-making power over priorities and methods for addressing those priorities in urban dwellers themselves rather than leaving it solely in the hands of external support agencies or government officials. Local communities can make progressive health improvements even with limited funds.

It is concluded that an integrated approach with community participation brings lasting solutions. Real participation is created within the realm of good, "healthy" governance. The variety of intervention areas discussed in the report requires involvement from a number of sectors, and the health sector needs to

encourage and facilitate efficient collaboration between the sectors. Healthy public policy brings different sectors together for urban health equity.

To implement the Millennium Development Goals and to support other urgent interventions in the low income countries, it can be estimated that at a global level, transfer of approximately \$200 billion per year is needed from high income countries to support health equity programs in low income countries. This report indicates that such an investment in equity may in reality create economic returns of much greater magnitude.

Failure to eliminate the intolerable living conditions among the poor in the world's cities (who represent a third of the global urban population), at a time when immense financial and technical resources are available globally, suggests a deplorable disregard for the principle of health as a human right by decision-makers in the global community. Sustained improvement of health equity in urban settings can only be achieved if a global commitment to provide the necessary resources for the poor is made. With a gross world product of \$40 trillion (\$30 trillion in affluent countries alone) increasing at more than \$1 trillion per year, the financial transfer needed to eliminate intolerable living conditions for the urban poor and significantly reduce health inequality is achievable.

Moreover, this transfer would represent a mere 20% of the annual *increase* of the average economic output of the high-income countries. It is critical that the principles of social justice and health equity be elevated to the global level where inequities between and among countries take root. To date, most OECD countries have failed to deliver on the recommendation to allocate 0.7% of annual GDP to international development cooperation funding transfer.

The question, therefore, is not whether we have enough resources, but whether we are willing to invest, from our abundance of resources, in creating fair and just opportunities for health, not just for ourselves and our own countries, but for **all people**. In summary -- ***Healthy urban governance and integrated approaches to interventions are key pathways to reducing health inequity. Securing more resources for health investments in urban settings, coupled with fairer distribution of those resources, is vital.***

Part 3. Main text

1. Introduction

The framework of the Commission on Social Determinants of Health guided our work

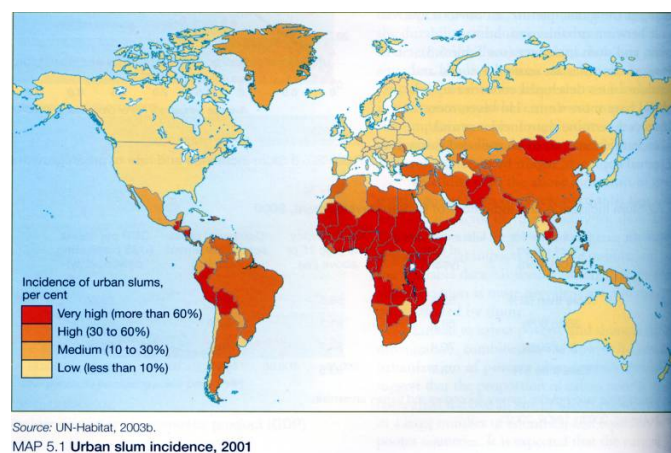
The purpose of this report is to synthesize what is known about social determinants of health in urban settings and provide guidance and examples of interventions that have been shown to be effective in achieving health equity. Health equity, as defined by WHO, is “the absence of unfair and avoidable or remediable difference in health among populations groups defined socially, economically, demographically and geographically” (WHO Equity Team working definition).

The Commission's conceptual framework (WHO, 2005d) identified two major groups of social determinants of health: “*Structural* determinants are those that generate social stratification. These include income, education, gender, age, ethnicity and sexuality. *Intermediate* determinants emerge from underlying social stratification and determine differences in exposure and vulnerability to health-compromising conditions (e.g. living and working conditions, housing, access to health care and education). Within the urban setting there are multiple structural and intermediate determinants that converge and bring about health inequity. Rapid unplanned urbanization creates social stratification (manifested by slums and informal settlements) and urbanization should be considered as a structural determinant of health, like globalization.

A strategic focus on slums and informal settlements in the urban setting

A major concern is the most extreme end of the health inequity gradient: the billion people in low-income and informal settlements (“slums”) in urban areas (Garau et al., 2005). More than half of the urban residents in many low income countries live in slums and informal settlements (Figure 1). These people face similar health challenges in our own era as the poor people of past centuries, even though the knowledge and means to eliminate these unhealthy conditions are available at the global level (WHO/WKC, 2005c; Mercado et al., 2007).

Figure 1. Percentage of urban population living in “slums” in different countries



Unmasking health inequity in urban settings

Data displaying health inequalities in urban settings is not routinely reported. There are however, examples to provide us with strong and compelling evidence of unfair 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 the average rates are lower than in Kenya rural areas, yet 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.

Table 1. Infant and under-five mortality rates in Nairobi, Kenya, Sweden and Japan

(Source: APHRC, 2002; IMR = deaths per 1000 new born; U5M = deaths per 1000 children)

Location	IMR Infant mortality rate	U5M Under five mortality rate
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

Other examples of intra-urban inequalities in both high-income and low-income countries will be presented in this report. The underlying causes of the causes are often associated with social status, discrimination or exclusion. Beyond this, social and economic restructuring of urban areas and destruction of the traditional

social fabric of cities are usually triggered by global economic restructuring, trade, agricultural and land use policies (see report from Knowledge Network on Globalization).

Optimizing the urban setting for health

Urbanization can be beneficial for health. Urban areas can provide a healthy living environment; indeed, they can improve health via their various material, service-provision, cultural and aesthetic attributes (Kirdar, 1997). The improvements over the last 50 years in mortality and morbidity 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 (McMichael, 1999), but creating healthy urban living conditions is possible, as long as a supportive political structure exists and financial resources are applied in an appropriate manner (Galea and Vlahov, 2005).

There is no universally accepted definition of what constitutes a city or an urban area. Many national definitions of “urban” consider all settlements with 1000, 1500 or 2500 or more inhabitants as urban and many nations have more than a fifth of their population living in urban centres with fewer than 50 000 inhabitants (Satterthwaite 2006). Thus, in this report, when we use the word “city”, we refer to urban areas with sizeable populations: 100 000 or more.

Inequalities in health in urban settings reflect to a great extent inequities in economic, social and living conditions (WHO, 2001a; Marmot, 2006), that have been a hallmark of most societies since urbanization began. Social systems based on democracy and strong equity policies have flourished and made great social and health achievements already during the early parts of the 20th century (e.g. the Nordic countries and New Zealand). The attempts to develop a more equitable society via the socialist ideology in some developing countries and provinces were successful in improving health equity and public health in selected places (e.g. Cuba, Sri Lanka and Kerala, India, already in the 1960s and 1970s), but the mainstream model for social and economic development in the 21st century does not focus on social equity (Vagero, 2007).

The challenge in societies at any economic level is to improve the health situation for the poorest or most disadvantaged by “leveling up” their living conditions (Dahlgren and Whitehead, 2006). Health inequalities arise not only from poverty in economic terms but also from poverty of opportunity, of capability and of security (Wratten, 1995; Rakodi, 1995; Satterthwaite, 1997; Sen, 1999; Kawachi and Wamala, 2007a). This combination of deficit in material conditions, psychosocial resources and political engagement results in a poverty of empowerment at the individual, community and national level. Thus, poverty should not be considered only in terms of “dollars per day” of income, but also in terms of these social conditions, sometimes expressed as “relative marginality” (Polit, 2005), which contributes to ill-health of oppressed people because of chronic stress, depression, and feelings of bitterness, hopelessness and desperation (Polit, 2005).

The KNUS process assembled and analyzed a wealth of evidence

The focus of the Knowledge Network on Urban Settings of the CSDH has been on interventions that reduce health inequity in urban settings. This report assembles evidence from a number of sources using the guiding principles prepared by the Knowledge Network on Measurement and Evaluation. The wealth of background material prepared during this process could not be included in this final report for reasons of space. In order to make some of this material easily available to the reader of this report, however, it was decided to include an Appendix 1 of additional materials referred to in different sections of the text. The different steps in the KNUS process are described in Appendix 2. The report is based on topics and issues proposed by the “KNUS Core Circle” at its first meeting in February 2006. This Core Circle is composed of a dozen international experts representing different geographic regions (see Appendix 3). The topics (see Appendix 4) were grouped into themes and members of the Core Circle and additional writers were commissioned to generate 14 thematic papers.

The thematic papers and real-life stories, or “voices from the urban settings”, 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, researchers and WHO regional focal points. Their main task was to review, discuss and critique the thematic papers, provide additional inputs and identify opportunities for scaling up and create ideas for “key messages” for its report (see Appendix 5). After the meeting, the thematic papers were revised and shorter versions prepared for publication in the *Journal of Urban Health* (listed in Kjellstrom et al., 2007a). From the thematic papers and other sources of evidence, the KNUS secretariat identified and systematically analyzed 80 case studies (see Appendices 6 and 8). An inventory of actions (Appendix 7) and a comprehensive bibliography (Appendix 9) were also prepared.

Current international focus on urbanization

The period of work of the CSDH coincides with an upsurge of interest in the development of urban areas as the world passes the urbanization milestone of more than half of the world's population living in urban areas. UN-HABITAT published a major report on the “State of the world's cities, 2006/7” (UN-HABITAT, 2006a). The Swedish international cooperation agency, Sida, published the book “More urban, less poor” (Tannerfeldt and Ljung, 2006). The Worldwatch Institute chose the theme “Our urban future” for its “State of the World” report (Worldwatch Institute, 2007). The United Nations Population Fund gave the title “Unleashing the potential of urban growth” to their annual report for 2007 (UNFPA, 2007). The Economist published a series of articles on urban development in May 2007. The concerns about urban health were also highlighted within the theme of “health security” for World Health Day 2007.

Limitations of this report

Data on urban populations, their health, social status and conditions is generally deficient, both in developing and developed countries. Population data was derived from UN sources or surveys carried out by international agencies. Reliability and validity could not be ascertained in many cases. In some studies, however, the results were robust and compelling, so conclusions could be drawn. As health equity is a relatively new concern and is not universally applied in public health practice as an operational concept, specific interventions to improve health equity are seldom systematically evaluated. KNUS used a wide range of indicators (e.g. governance, social perception, economic, community empowerment) to assess the effectiveness of interventions to complement health outcome indicators and data where this was available.

The limited availability of data was compensated for by the expertise and wealth of experience of the KNUS members and other contributors. However, the CSDH guidelines for the length of the report made it impossible to fully present the wealth of material presented in the thematic papers and the associated papers published in the *Journal of Urban Health*. Drafts of the report were circulated to all KNUS members and their comments incorporated.

2. Urbanization and the urban setting as health determinants

2.1 Urbanization in a global context

The world is becoming urban

Urbanization is a major public health challenge for the 21st century, as urban populations are rapidly increasing, basic infrastructure is insufficient, and social and economic inequities in urban areas result in significant health inequalities (Vlahov et al., 2006, 2007). The United Nations Population Fund predicts that almost all the world's growth in population over the next 2–3 decades will be in urban areas in developing countries (UNFPA, 2007). The urban population in developing countries is expected to grow from 2 billion in 2000 to 3.9 billion in 2030 (UN, 2006), while total world population may grow from 6 to 8 billion, with the most rapid pace of growth expected in Asia and Africa. While North America, Latin America and Europe are currently the most urbanized regions, the number of urban dwellers (1.8 billion) in the least urbanized region, Asia, is already greater than that in North America, South America, Japan and Europe combined (1.3 billion; see Appendix 1).

Urban growth will be highest in the smaller cities

In 1975 only five cities worldwide had 10 million or more inhabitants, of which three were in developing countries. The number of megacities is likely to increase to 23 by 2015, with all but four of them being in developing countries. Also, by 2015 an estimated 564 cities around the world will contain one million or more residents, 425 of them being in developing countries, and urbanization in these cities is more rapid than in the largest cities (UNFPA, 2007). Most megacities in the developing world have relatively slow population growth rates, including many that have more people moving out than moving in (Satterthwaite 2007a).

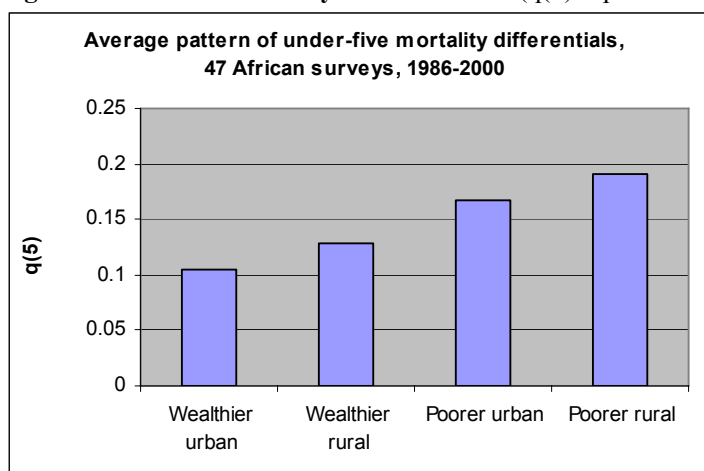
Urbanization itself is a determinant of health

The agglomeration of people, other productive resources and societal infrastructure in urban areas is both a driving force behind economic development and a result of it (Tannerfeldt and Ljung, 2006). The world would not be at the point of technical and social development it is today without the “economic engines” that urban areas have been since the industrial revolution started in the late 18th century. In this sense urbanization, in a similar way to globalization, can be seen as a structural social determinant of health that can challenge aspirations of equity due to the tendency for accumulation of wealth and power among the urban elite (Vlahov et al., 2006, 2007).

Development policies for equity acknowledge the symbiotic relationship between urban and rural areas and seek a fair balance of economic resource access between them (Tannerfeldt and Ljung, 2006). Average incomes in rural areas are often lower than in urban areas, but these averages can be misleading (Montgomery and Ezeh, 2005; Montgomery et al., 2003). Urban incomes are often especially unequal, with high urban averages created by an affluent minority. In this context, income estimates can exaggerate rural-urban differentials. The prices of basic subsistence goods, such as food, water and shelter, are generally higher in urban areas, reducing the purchasing power of urban incomes. There are also some basic necessities that the rural poor are more likely to be able to secure outside of the cash economy. Still, rural poverty can lead to significant migration from rural to urban areas (Ooi and Phua, 2006, 2007). Nevertheless, the major factor in urban population growth is natural population increase within each urban area (UNFPA, 2007).

Health conditions are on average better in urban areas, but here too averages can deceive. Among urban poor groups infant and child mortality rates often approach and sometimes exceed rural averages (Montgomery et al., 2003; Satterthwaite, 2007a). In Africa, the continent with the highest infant and child mortality rates, a recent summary of 47 surveys undertaken between 1986 and 2000 found the health gradient summarized in Figure 2 (Garenne, 2006).

Figure 2. Under-5 mortality rates in Africa (q(5) = probability of dying age 0–5; Garenne, 2006)



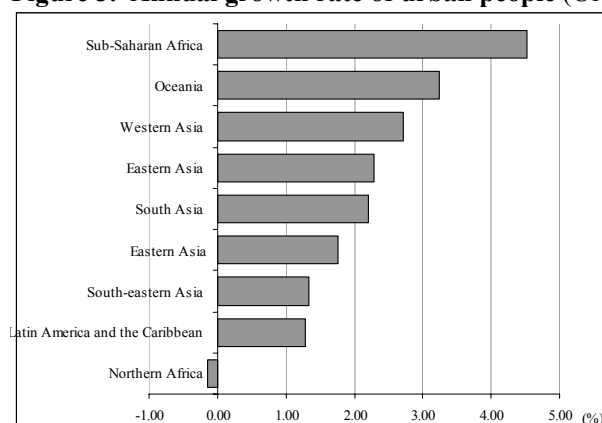
2.2 Slum formation with rapid urbanization

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 (UN-HABITAT, 2003), 43% of the urban population in developing regions lives in “slums”. In the least developed countries, 78% of urban residents are slum dwellers (see Appendix 1). Many countries do not plan for and create healthy conditions during urbanization, and urban poverty remains largely unaddressed (Garau et al, 2005). In high-income countries, where 54 million people live in slums (see Appendix 1), these inequities tend to affect immigrants in particular, at least in Europe (Eurocities, 2006). The term “slum” has been defined by UN-HABITAT (2003), but there are different interpretations of the word (see Appendix 1). It should be emphasized that the labeling of an area as a “slum” in itself creates discrimination against the “slum dwellers” (Garau et al., 2005), who most often have no political power and are disregarded in town planning and development decisions. However, the establishment of associations to create a collective voice for these deprived people is making a difference (Barten et al. 2006, 2007).

The percentage of urban people living in slums varies regionally (among the most-affected regions where such figures were supplied) between 25% in Eastern Asia (including China) and 78% in Sub-Saharan Africa (Figure 1 and Appendix 1). It is often the fastest growing urban areas in developing regions that have high concentrations of slums and slum population (Figure 3).

Figure 3. Annual growth rate of urban people (UN-HABITAT, 2003a)



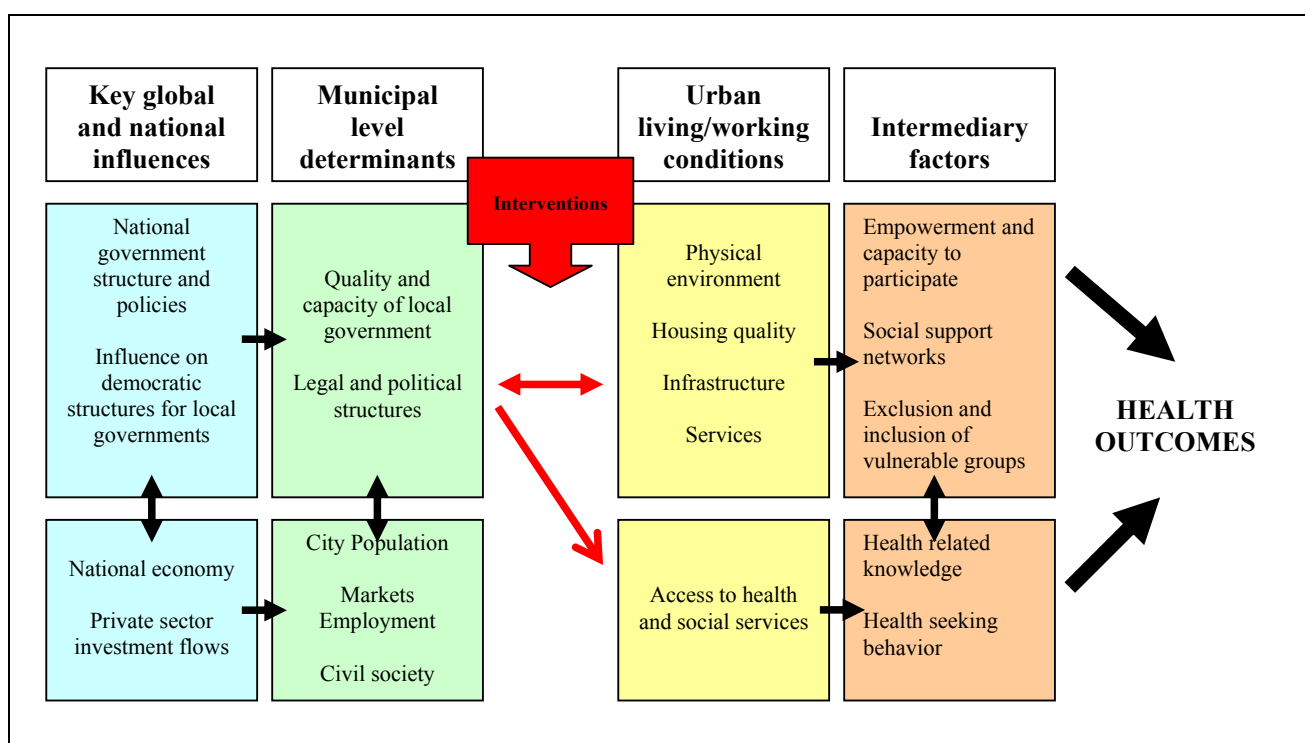
Goal 7, Target 11 of the Millennium Development Goals indicates the aim of: “...by 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers.” Other MDGs also deal with conditions of importance to health (however it is often not taken into account that the context to achieve these other MDGs will be 60% urban setting), most of which are the result of social determinants. If the MDGs are achieved, many slum dwellers would benefit, but even the 100 million target is modest considering the rapid growth of slums. Sub-Saharan Africa is the world’s most rapidly urbanizing region, and almost all of this growth has been in slums. This is also the case in Western Asia. The rapid expansion of urban areas in Southern and Eastern Asia is creating cities of unprecedented size and complexity with new challenges for providing decent living conditions for the poor. Northern Africa is the only developing region where the quality of urban life is improving by this measure: in this region, the proportion of city dwellers living in slums is decreasing by 0.15% annually (World Bank, 2006a).

2.3 A conceptual framework for urban health

A web of interlinking determinants

A conceptual framework for urban health was suggested by Vlahov et al. (2006, 2007) and was adapted for the report (Figure 4). The core concept is that the social and physical environments that define the urban context are shaped by multiple factors and multiple players at multiple levels. Global trends, national and local governments, civil society, markets and the private sector shape the context in which local factors operate. Governance interventions in the urban setting must consider national and municipal determinants and should strive to influence both the urban living and working environments as well as intermediary processes that include social process and health knowledge. The framework assumes that the urban environment in its broadest sense (physical, social, economic, and political) affects all strata of residents, either directly or indirectly. It should be pointed out that interventions can also influence the key global, national and municipal drivers. The health sector has an important role to play, for instance via the “healthy cities” approach.

Figure 4. A conceptual framework for urban health



2.4. The economics of urban health development

Investments in urban health can create major returns for the economy

The economic returns from improvements in health are estimated to be very large (Yusuf et al., 2006, 2007) and this may be of particular importance in urban settings. Whether it is an increase in life expectancy, health during early childhood, health during peak earning years or health in the twilight years, the benefits to individuals and to society are strongly positive and according to some researchers, overshadow the gains from most other investments. For example, Murphy and Topel (2005) have calculated that between 1970 and 2000, the increase in longevity added \$3.2 trillion annually to the national wealth of the United States.

In the report from the Commission on Macroeconomics and Health (WHO, 2001a) it was estimated that an investment in health services and specific treatments of \$27 billion per year would save 8 million lives or 330

million DALYs. If each DALY saved would create an economic benefit of one year's per capita income of \$563, the global economic benefit of the saved life years would be \$186 billion. Thus, the benefit/cost ratio can be calculated as $186/27 = 7$; every billion dollar invested would give a \$7 billion return each year in welfare value.

Improvements in incomes in the urban setting contribute to better health

It has also been argued that better incomes result in better health (Yusuf et al., 2006, 2007). Better health is one of several major objectives of policy-makers in developing economies and it is an objective that is closely intertwined with the increase in incomes (Deaton 2004). While microeconomic evidence suggests that healthier people on average have higher incomes, equally persuasive findings indicate that rising incomes lead through multiple channels to improved population health (see Appendix 1). Good governance, supportive public health policies and financing of health-related infrastructure is of crucial importance for this to happen.

The level of urbanization in relation to economic development has been analysed by Satterthwaite (2007a) and apparent associations with life expectancy development are discussed in Appendix 1. There is a great range of the proportion of urban people in relation to the whole population in different countries: from less than 10% in Burundi, Uganda and Trinidad and Tobago, to 100% or close to it in Singapore, Hong Kong, Kuwait and Belgium. Using the World Health Chart (Rosling et al., 2004), the trends of per capita GDP vs. life expectancy (GDP/LE-trends) were compared (see Appendix 1) for countries with higher or lower degrees of urbanization. At similar levels of per capita GDP, the trends appeared very similar, and there was no strong relationship to urbanization level. However, no country with a per capita GDP higher than \$10 000 has an urbanization level lower than 50%. More detailed analysis is needed to conclude whether urbanization level is independently associated with life expectancy after adjusting for GDP/person. Equity indicators were also unavailable in this analysis.

Economic growth and better income is not enough

Putting the equity concerns aside, some economists argue that rapid economic growth remains the most efficacious way of climbing out of poverty (Yusuf et al., 2006, 2007). But growth that only benefits the already better off may well leave the majority of the poor behind in deplorable circumstances. The increasing inter- and intra-national economic inequality of recent years (UNDP, 2006) indicates that alternative policies to reduce poverty are necessary.

The view that economic growth alone can solve the global poverty problem has been challenged by Szreter (2004), Sachs (2005) and UN-HABITAT (2006a), pointing out that pro-poor economic policies that create transfer of economic resources from the rich to the poor are necessary to reduce poverty at the pace expressly desired by governments through the Millennium Development Goals (MDGs) (UNDP, 2005). The MDGs include the crucial Goal 8 to "Develop a global partnership for development", which implies substantial increases in transfer of economic resources from high-income to low-income countries. However, as the UN-HABITAT (2006a) report states "...development assistance to alleviate urban poverty and improve slums remains woefully inadequate." In order to achieve health equity, this feature of economic inequity needs to be addressed. Szreter (2004) analyses the historical perspective in Great Britain and other developed countries and points out the importance of universally available public services that support general infrastructure and provide services for low-income groups for the improvement of health, welfare and relative equity in these countries. In countries at early stages of development, universal public services for health protection and care would be just as important for achieving health improvements and health equity as in the high income countries during their early economic development. (See report from Knowledge Network on Globalisation.)

2.5. Poverty, deprived urban living conditions and health vulnerability

Urban poverty and unhealthy living conditions are associated health determinants

The urban setting itself is a social determinant of health. The living and working conditions (e.g. unsafe water, unsanitary conditions, poor housing, overcrowding, hazardous locations and exposure to extremes of temperature) create health vulnerability especially among the urban poor and vulnerable sub-groups e.g.

women, infants and very young children, the elderly, the disabled. Unhealthy living and working conditions compromise the growth of young children, their nutritional status, their psychomotor and cognitive abilities, and their ability to attend school, which affects their future earnings while raising their susceptibility to chronic diseases at later ages (Case, et al. 2003; Keusch et al., 2006; report of Knowledge Network on Early Childhood).

Urban poverty is linked to powerlessness

Powerlessness and the inability to gain control over one's life, or resources that enable an individual to engage in meaningful activities, are key determinants of health for the urban poor. Slum dwellers and informal settlers may face stigma and social exclusion by living in a settlement for which there are no official addresses – for instance not being able to get on the voters' register in some nations or get their children into government schools or access other entitlements (Garau et al., 2005). Slum dwellers and informal settlers are usually not counted in regular municipal census activities or household surveys because they are “illegal” and there are no maps or household lists. Appendix 1 includes a diagram showing social determinants that slum dwellers' face.

2.6. Healthy urban governance

Governance is not just about government

Governance is “the management of the course of events in a social system.”(Burris, et al., 2005) 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.”(UN-HABITAT 2nd ed. 2002) Governance is a necessary consideration in any program to understand and influence the social determinants of health (Dodgson, et al., 2002; Hein 2003). “Healthy” governance means seeking an appropriate combination of health promoting actions. For instance, many Brazilian cities have virtually all their populations served with piped water supplies, good provision for sanitation and household waste collection, and primary health care. Most African and Asian urban centres have no sewers at all and very inadequate provision for safe water and waste collection – and no investment capacity to address these issues. The city of Cebu in the Philippines has focused on health services and neglected basic water supply and sanitation. It is likely that average life expectancies in poorly governed urban centres are 20–40 years less than in the Brazilian cities (Satterthwaite, 2007a).

Governance reflects social structure and acts as one of the social mechanisms that sort people into unequal health outcomes by upholding existing distributions of resources like power, money and knowledge (Burris, et al. 2002). Those with the power to shape events in the community are able to organize matters in ways that benefit them and externalize undesirable effects on those less able to exert influence (Maantay 2001). Governance is a much broader concept than government and provides the institutional framework within which health is played out.

When governance is empowering, control over the resources for health can be shared

Health outcomes depend among other things on the relationships, including power relationships, between the different stakeholders in the urban settings. The main stakeholders are civil society, the municipal and national level health sector representatives and the politicians (represented by the Mayor). Ensuring good governance requires attention to trust, reciprocity and social accountability mechanisms in both centralized and decentralized systems (Huden 1992). For this to happen, participation in governance is essential and it can be seen as a pathway “linking autonomy and social engagement to health” (Marmot 2006). Although data on the link between politics, policy and health are limited, there is some evidence that countries controlled by political parties with more egalitarian ideologies tend to have more economically redistributive policies and more equitable health outcomes (Navarro et al., 2006). There is also evidence suggesting that participation in governance may be healthy for individuals and communities (Kawachi and Berkman 2000, Lancet 2006).

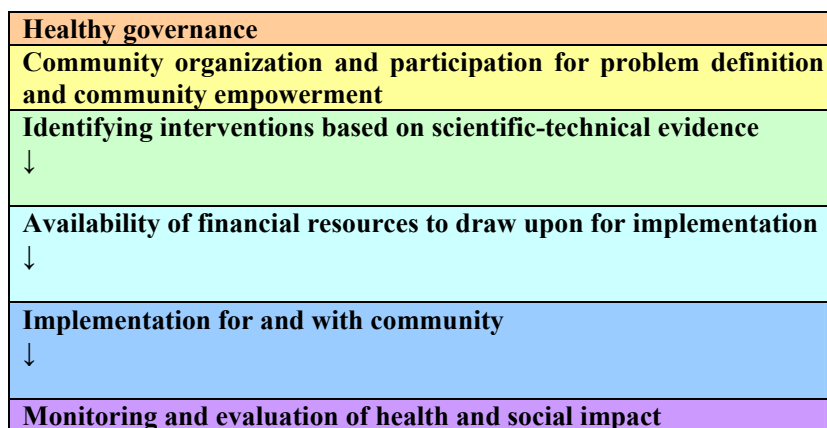
The emerging pathway for change: Healthy urban governance

KNUS refers to “healthy urban governance”, as the systems, institutions and processes that promote a higher level and fairer distribution of health in urban settings, and as a critical pathway for improving population health in cities. Key features of healthy urban governance are:

- Putting health equity and human development at the centre of government policies and actions in relation to urbanization.
- Recognizing the critical and pivotal role of local governments in ensuring adequate basic services, housing and access to health care as well as healthier and safer urban environments and settings where people live, work, learn and play.
- Building on and supporting community grassroots efforts of the urban poor to gain control over their circumstances and the resources they need to develop better living environments and primary health care services.
- Developing mechanisms for bringing together private, public and civil society sectors, and defining roles and mechanisms for international and national actors to support local governance capacity.
- Winning and using resources – aid, investment, loans – from upstream actors to ensure a balance between economic, social, political and cultural development and establishing governance support mechanisms that enable communities and local governments to partner in building healthier and safer human settlements in cities.

Steps for developing interventions based on these principles are shown in Figure 5.

Figure 5. Developing interventions for health equity in urban settings
(simplified approach prepared for KNUS)



Appropriate feedback mechanisms for communities to report their satisfaction or dissatisfaction with the interventions are needed to promote community empowerment and ownership and ensure each community's priorities and unique needs are considered. The actions and activities of bilateral and multilateral development donors may need particular scrutiny, as their large budgets can significantly impact on development outcomes and potentially undermine existing locally financed projects. Good governance with insufficient financing and evaluation can lead to mistrust and despair. Bad governance with ample funding can lead to corruption and inequities.

3. The urban health situation

Urban poverty is a cause of much of the global burden of disease

The CSDH Knowledge Network on Priority Public Health Conditions has stated (WHO, 2007a) that while it is not intending to set priorities among public health conditions, it might still be useful to look at “priority public health conditions” from certain perspectives, such as those that:

- Represent a large aggregate burden of disease;
- Display large disparities across and within populations;
- Affect disproportionately certain populations or groups within populations;
- Are associated with emerging/epidemic prone conditions; or
- Are avoidable to a significant degree at reasonable cost.

Examples of different perspectives on priority public health conditions may start with those for which the global burden of disease and injury is large. Listing the ten top causes for each of the World Bank regions (Lopez et al., 2006a,b) yields a total of 26 different leading causes of burden of disease across the six regions, reflecting the different demographic, ecological, political, social and economical circumstances in these six regions (see Appendix 1). These burden-of-disease calculations include injuries and take into account the lost years of healthy life in any age group. Diseases and injuries among children are given prominence by the greater number of years lost for each death.

Depending on the region, Priority Public Health Conditions may include cerebrovascular diseases, IHD, perinatal conditions, depression, lower respiratory infections, HIV/AIDS and malaria. In most low-income and many middle-income nations, infant and under-five mortality rates in urban areas are five to twenty times what they would be if the urban populations had adequate nutrition, good environmental health and a competent health care service. In some low-income nations, these mortality rates increased during the 1990s (Montgomery et al 2003). The urban rates are generally lower than the rural rates (see Appendix 1) and there are also nations with relatively low urban infant and child mortality rates (for instance Jordan, Vietnam, Colombia and Peru) – while there are also particular cities that have achieved very low infant and child mortality rates – Porto Alegre in Brazil, for instance.

The major disease problems of the developing world are also those that are particularly prominent among the socially disadvantaged. Poverty is a prominent determinant of the global burden of disease (WHO, 2002a). Gradients need to be rendered visible within the spectrum of poverty diseases in order to develop interventions that are sensitive to social determinants. The global burden of disease study (Murray and Lopez, 1996; WHO, 2002a) showed the importance of malnutrition in children, diarrhoeal diseases, acute respiratory diseases, HIV/AIDS, tuberculosis, malaria, and various types of injuries. Noncommunicable disease such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are rapidly increasing problems for the socially disadvantaged (WHO, 2002a). In some instances, special studies or surveys point to a heavier burden on the urban poor. Where data has been available, there is robust and compelling evidence to take action. Data on HIV/AIDS in slum and non-slum areas for example is very well documented. The impact of HIV/AIDS alone on the overall health status of a country, such as Botswana, can be devastating (see Appendix 1). In urban areas, large groups of “street-children” orphaned by AIDS are a threat to the whole community in addition to the health concerns for the children themselves.

Communicable diseases: remaining and emerging concerns

Cities can become both breeding grounds and gateways for emerging and reemerging communicable diseases. Migration and increased mobility bring new opportunities for otherwise marginal and obscure microbes (Wilson, 1995). Other contributory factors include changes in the ecology of urban environments, crowding and high population density, international travel and commerce, technology and industry, microbial adaptation to changes and breakdowns in public health measures (Morse, 2007). Migrants may be at particular risk of communicable disease and other health threats. They are not counted as part of the regular population of the cities where they work, and may spend several months in the city in deprived living conditions (Goldestein

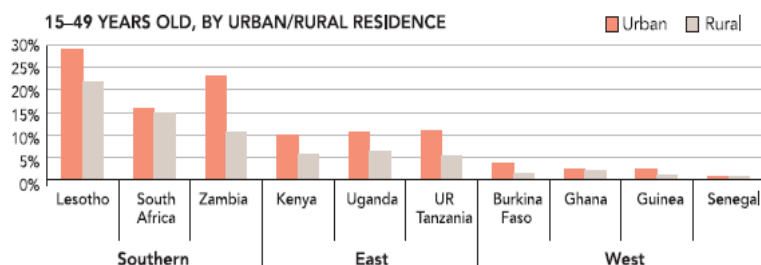
and Guo, 1992). It is reported that the “floating population” of China now numbers 140 million and they suffer from a wide range of disparities (Lei Guang, 2002).

The recent outbreak of severe acute respiratory syndrome (SARS) that was spread globally from city to city by airline passengers is a case in point (WHO, 2003). Other examples are the threat of a global pandemic of H5N1, the resurgence of tuberculosis through homeless populations and transients in cities like Osaka (Bradford and Kawabata, 2006) and the spread of multi-drug-resistant strains of tuberculosis that place the urban poor at a higher risk in India, Indonesia, Nepal and Myanmar (according to WHO data). Vector-borne diseases such as dengue and urban malaria have also been found to be increasing in many towns and cities due to migration, climate change, stagnant water, insufficient drainage, flooding and improper disposal of solid waste (Yassi et al., 2001).

Social determinants of great importance for the spread of the HIV/AIDS pandemic

HIV/AIDS accounts for about 17% of the burden of disease in Sub-Saharan Africa (see Appendix 1), and it is a major reason for the deteriorating health outcomes in some African countries (Goesling and Firebaugh, 2004). As illustrated in Figure 6, the prevalence is generally higher in urban areas. UNAIDS (2006) estimates that average urban HIV prevalence is 1.7 times higher than the rural rate. The prevalence is also considerably higher among girls than among boys. Especially in urban areas, young women are at particular risk due to different aspects of gender discrimination (Van Donk, 2006). As a sexually transmitted disease, HIV/AIDS clearly has social determinants. These social determinants go well beyond the obvious link to sexual behaviour, however. Indeed, a tendency to focus narrowly on voluntary sexual behaviour, and the ABC admonition to “Abstain, Be faithful, use a Condom”, has undermined interventions to reduce the spread of HIV/AIDS (Ambert, et al., 2007; Mabala, 2006; Van Donk, 2006).

Figure 6. HIV prevalence (%) by urban/rural residence for selected sub-Saharan African countries
Source: UNAIDS (2006).



Many of the poverty-related conditions that contribute to the spread of other infectious diseases, also contribute to the spread of HIV and the progression to and impact of AIDS. Malnutrition lowers immunity and increases viral load in HIV-infected persons, making them more contagious (Stillwaggon, 2006). Helminths (worms) associated with bad sanitation make people more susceptible to HIV, speed up progression to AIDS, and greatly increase the transmission of HIV from mothers to babies (Ambert, et al., 2006).

A range of urban conditions influence the spread of HIV or the severity of the illness (Ambert, et al., 2007):

- Overcrowding and high population density;
- Inequitable spatial access and city form;
- Competition over land and access to urban development resources;
- Pressure on environmental resources; and
- Pressure on urban development capacity and resources.

Some of the most important social determinants relate to the position of women in society, and the physical space and authority girls have to protect themselves from unwanted sexual overtures, harassment and rape (Mabala, 2006; Van Donk, 2006).

Road traffic injuries: a growing urban health threat in developing countries

Worldwide the number of people killed in road traffic accidents is around 1.2 million, while the number of injured could be as high as 50 million (WHO/World Bank, 2004). These numbers are forecast to increase significantly in the coming decades. Road traffic injuries, urban and rural, rank within the top 10 causes of death (Lopez et al., 2006). Developing countries account for more than 85% of all the fatalities and over 90% of DALYs lost due to road traffic injuries (WHO/World Bank, 2004), and road injuries affect the poor more than the affluent in developing countries (Nantulya and Reich 2002).

World Bank projections indicate that motorized vehicles in cities will increase by a factor of four by 2050 (Campbell and Campbell, 2006, 2007). In addition, economic development enables a rapid growth in the number of families that can afford a private car or motorcycle. Deaths in traffic are sensitive to road infrastructure, traffic regulations and enforcement, which are particularly lacking in low income communities.

The countries with the lowest mortality rates of road traffic injuries are the Netherlands, Sweden and the United Kingdom with rates at 5.0, 5.4 and 5.6 deaths per 100 000, respectively (WHO/World Bank, 2004). The rate in the USA is 14.5. China has a high country rate at 15.6 road deaths per 100 000, considering that the number of vehicles in relation to population is low compared with the USA and European countries. Thailand and the Republic of Korea have worse rates still at 20.9 and 22.7 deaths per 100 000, respectively.

At an early stage of urbanization and motorization, pedestrians and bicyclists are at much higher risk of injury than motor vehicle drivers and passengers (WHO/World Bank, 2004). The poor are less likely to ride in cars, which creates an injury risk gradient between rich and poor. As the economy develops in warm climate countries, private motorcycles are acquired by the less well-off and cars by the rich. The injury risk for motorcycles is much higher than for cars, so again a risk gradient between the rich and the poor develops.

Urban violence and crime affect the poor in countries at all development levels

Violence is having a devastating impact on people's health and livelihoods in many urban areas (Krug et al., 2002). It also has many other costs and can undermine a city's economic prospects. Fear of violence isolates the poor in their homes and the rich in their segregated spaces (Moser 2004). The sheer scale of violence in many low-income slums or informal settlements means that it has become "routinized" or "normalized" in daily life (Moser 2004, Esser 2004, Rogers 2004). Fear and insecurity pervade people's lives, with serious implications for trust and well-being among communities and individuals. 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 (Hume 2004). It should be pointed out that violence is not an issue only for low income countries. The situation in some high income countries is as bad as in many developing countries.

Though inadequate in many ways, homicide rates are the most immediate and practical way to measure the burden of violence. The WHO world report on violence and health (2002) indicates that for the 15–29 age group, inter-personal injury ranks just below traffic fatalities and in cities of Latin America the whole population homicide rates in the late 1990s ranged between 6 and 248 per 100 000 depending on the degree of urban violence (see Appendix 1). In Washington DC the rate was 69.3 and in Stockholm, Sweden, 3.0.

It is important to distinguish between *structural* causes of violence (generally related to unequal power relations) and *trigger risk* factors (situational circumstances that can exacerbate the likelihood of violence occurring). The extent to which it is poverty or inequality that contributes to crime and violence is debated although in reality, they frequently overlap (Moser 2004). In some cities there are unsafe spaces where rape, robbery and violent crime exist – e.g. dark paths and lanes, isolated bus stops and public latrines. Urban space is increasingly being reorganized in response to crime and violence and the lack of confidence in the state's capacity to provide security. The rich retreat to "fortified enclaves" or use sophisticated transport networks and privatized security systems to isolate themselves from the poor, who are seen as the perpetrators of violence (Moser 2004).

The stresses of poverty are a factor in poor mental health

Mental health is a growing component of the global burden of disease (Murray and Lopez, 1996; WHO, 2002a) and depression is responsible for the greatest burden attributed to non-fatal outcomes accounting for 12% of total years lived with disability worldwide (WHO, 2007b). There is a growing body of evidence to show urban predispositions for mental health problems. For example, community-based studies of mental health in developing countries show that 12-51% of urban adults suffer from some form of depression (Blue 1999). The underlying causes and risk factors for poor mental health in urban areas are 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 (Harpham, 1994).

In the more affluent countries the mental health issues of an ageing population have become a major issue that affects the lower income groups more than the affluent, who are better able to make arrangements for care of the elderly. Loneliness and depression have become common concerns, in addition to the increasing prevalence of major senility diseases, such as Alzheimer's disease.

Among the urban poor, the lack of financial resources and high costs of living, harsh living conditions, and physical exhaustion from lack of convenient access to transport are examples of conditions that contribute to sustained and chronic stress and predispose individuals and families to mental health problems. In Dhaka for example, a comparison of mental health status between slum and non-slum adolescents shows low self-reported quality of life and higher "conduct problems" among males living in slum areas. Gender and area-specific mental health difficulties are also reported (Izutsu et al., 2006).

The nature of modern urbanization may have deleterious consequences for mental health through the influence of increased stressors and adverse life events, such as overcrowded and polluted environments, poverty and dependence on a cash economy, high levels of violence, and reduced social support (Desjarlais et al. 1995). Chronic stress and easy access to harmful products in the urban setting create additional risks for substance abuse and dependency. Data from 2003–2004 show that daily tobacco smoking is most prevalent in lowest income households in developing countries. Though rural-urban disaggregation of data is not available, by inference, populations that live 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 (WHO, 2007b).

Substance abuse and illicit drug use linked to social conditions

According to estimates from the United Nations Office on Drugs and Crime, the annual prevalence of illicit drug use is 3% of the global population or 185 million people. Certain characteristics of deprived urban communities have been found to be related to drug availability, as they contribute to social dynamics that are conducive to substance abuse:

1. Physically deteriorated urban areas with concentrations of young, unemployed males, are expected to be more prone to substance abuse (Allison 1999).
2. Areas where there is physical violence or where signs of social disorder is abundant, collective life is unregulated, residents are not investing in their property, and local authorities are not investing in or maintaining public areas. The indicators of social disorder in such areas are: the presence of adults loitering, drinking alcohol in public, public intoxication, presence of gangs, adults fighting or arguing in public, selling drugs, or presence of prostitutes (Sampson & Raudenbush, 1999).
3. Areas where there are a large number of bars, suggesting licensing restrictions are less obeyed, and where there is more alcohol advertising and greater access to alcohol by youth (Alaniz, 2000).

Excessive alcohol consumption is both a symptom of and a cause of poor mental health. It causes several types of physical ill-health (e.g. damage to the liver and nervous system, and increased risk of injuries), which, combined with the mental health problems, undermine the personal and family economy and create poverty. In some countries, such as Russia, the results of high alcohol consumption have been dramatic, significantly reducing average life expectancy in recent years (Stickley et al., 2007). It can be a major factor in health inequalities between different population groups. In some countries, the negative health impact of

alcohol consumption is as large as that of tobacco smoking, and legal regulations or health promotion activities that reduce tobacco and alcohol consumption would reduce urban health inequalities.

Urban social factors associated with underweight and overweight

Millions of people have insufficient food and nutritional security due to the cost of food and the lack of finances for individuals and households to purchase or produce food. Slum children have higher levels of protein energy malnutrition, vitamin A deficiency, iron anemia deficiency and iodine deficiency disorders than the rural average (WHO, 2002a). The poor quality of available food, recurrent diarrhea due to poor environmental and housing conditions, the absence of a responsible adult caregiver due to employment pressures and the lack of adequate services, each serve to increase a child's risk of poor nutritional status.

Undernutrition is a common cause of poor child health. A study of ten nations in sub-Saharan Africa showed that the proportion of the urban population with energy deficiencies (underweight) was above 40% in all but one nation and above 60% in three – Ethiopia, Malawi and Zambia (Ruel and Garrett, 2004).

By one estimate, at least half of the urban population in eight developing countries – Brazil, India, Egypt, Indonesia, Sri Lanka, Sudan, Thailand and Tunisia – was undernourished in the 1980s (United Nations Administrative Committee on Coordination – Subcommittee on Nutrition, 1988). Studies in several large Third World cities indicate that energy intake in slums and squatter areas is as little as half of city averages. Anemia is twice as prevalent and up to 50% of children may show signs of malnutrition, 10% in severe form. In New Delhi, 40–55% of shantytown children have been found to suffer various grades of malnutrition and mortality rates among children less than five years have reached as high as 450 per 1000 (UN/ACC-SCN, 1988).

Several associated factors account for nutritional deprivation among slum dwellers. One problem is the inability to adapt to new staples and a new structure of food prices. Food purchases of the urban poor are heavily dependent on competing demand for unavoidable non-food expenditure such as transport to work, housing and remittances to relatives in the countryside. The urban poor seldom have easy access to central markets due to public transport costs and are thus compelled to buy their food in small quantities from local shops at higher prices. They may have little time to prepare food, no suitable space for cooking and no money for fuel.

The health and nutrition status of the urban poor may, in fact, be worse than that of the rural poor, despite the concentration of health facilities in cities. Research indicates that urban infants suffer growth retardation at an earlier age than their rural counterparts, and that urban children are more likely to have rickets (UN/ACC-SCN, 1988). While urban diets are often more varied and include higher levels of animal protein and fat, rural diets may be superior in terms of calories and total protein intake.

In Asia's big cities, obesity is a paradox, yet a growing problem. The overweight often live alongside the underweight, sometimes in the same household. Diseases like diabetes, frequently the result of high-fat diets, are on the rise as urbanization brings major dietary changes. The coexistence of child malnutrition and maternal overweight in the same households typifies rapid nutrition transition in developing countries. It is reportedly less common in Africa than in Latin America or Asia, but the phenomenon is still not well documented.

Currently, one billion adults in the world are overweight (WHO 2006a). In rich economies such as the United States, where around 30% of the adult population is obese, obesity drains societal resources, with healthcare expenditure associated with morbid obesity exceeding \$11 billion in 2000. In addition, large numbers of people are also becoming overweight and obese in developing countries (WHO, 2006a).

In all but the poorest settings, urban populations are experiencing adverse, “obesogenic”, shifts in dietary composition, which are “taking place at a much higher speed than potentially beneficial changes: there has been relatively little changes in levels of fruits and vegetables, but very large increases in edible oils, ASFs (animal source foods) and added sugar and caloric sweeteners over short periods of time” (Mendez and

Popkin 2004). There are numerous reasons for the urban nutrition transition (Dixon et al., 2006, 2007) and they 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.

Thus, it is not surprising that intake of processed foods, ready-to-eat meals and snacks purchased from street vendors, restaurant and fast food outlets has increased most among urban residents, magnifying their opportunities to eat a diet that features higher intakes of fat, sugars and energy (Simopoulos and Bhat 2000; WHO/FAO 2003). A shift in consumption from wild game meat or small landholder/householder-reared poultry and pork to industrially-reared beef, pork and chickens has happened in less than fifty years in post-industrial nations, and will take only about 25 years in newly industrial nations (Dixon et al., 2006, 2007). This shift generally increases the fat intake and has consequences for the environment (McMichael and Bambrick, 2005).

On the other side of the energy equation is energy expenditure. Research, generally limited to high-income countries, suggests that local urban planning and design influences weight in a number of ways. Residential density and land-use mix combined with street connectivity and walkability provides opportunities for physical activity (Frank et al., 2006); neighbourhood safety from crime, traffic, injury and a pleasing aesthetic encourages outdoor activity. Provision of and access to local public facilities and spaces for recreation and play are directly correlated with individual-level physical activity. Conversely, pervasive advertising of motor vehicles and escalating reliance on cars or motorcycles are important drivers behind shifts towards physical inactivity in both developed and developing countries (Kjellstrom and Hinde, 2007).

4. Key issues and challenges in achieving health equity

4.1. Environmental health threats in the home and neighbourhood

Lack of water and sanitation remains a major health threat for the urban poor

The WHO report “Water for Life” (WHO, 2005a) describes the dire situation for poor people without access to water. Diarrheal, worm infections and other infectious diseases spread via contaminated water and lack of water creates difficulties for families to carry out basic hygiene around the home. Almost half of the urban population in Africa, Asia and Latin America is suffering from at least one disease attributable to the lack of safe water and adequate sanitation (Table 2) (WHO, 1999; UN-HABITAT, 2003; Garau et al., 2005). In addition, lack of convenient access to drinking water means that many hours each day may be wasted on carrying water from distant sources. It is mainly women and girls that end up doing these chores. Proper sanitation is just as important for keeping infectious diseases at bay (WHO, 2005a). Women and girls are again vulnerable as many of them, for reasons of culture and modesty, will not attend to their sanitary needs during daylight hours if they are required to use a communal latrine due to lack of household toilets.

Table 2. Estimates for the proportion of people without adequate provision for water and sanitation in urban areas, 2000 (UN-HABITAT, 2003b)

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

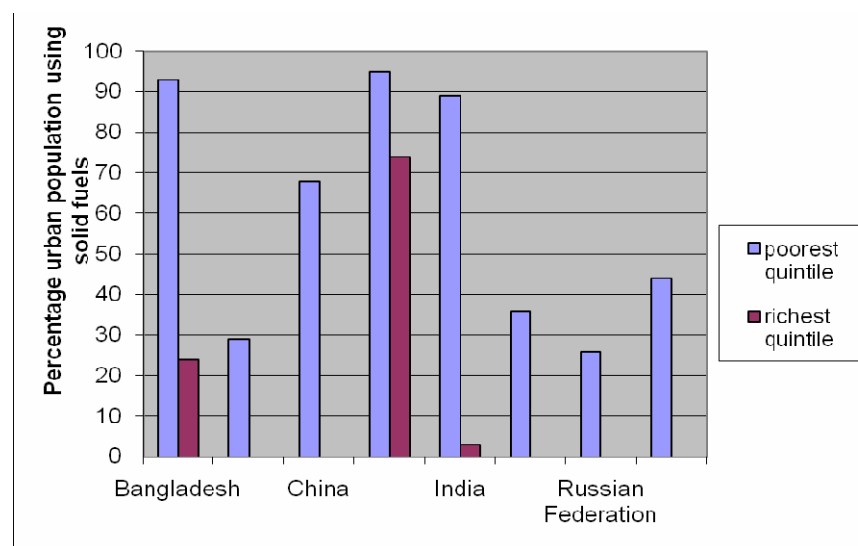
Associated with the health hazards of poor water supply and sanitation mentioned above, poor drainage in urban areas is an ongoing problem both in developed and developing countries. Large amounts of

“stormwater” need to be diverted from residential areas, and flooding is a major risk if drainage is not carried out efficiently. High population density in urban areas also creates an increasing problem with regard to solid waste that needs to be disposed of. In rural areas, much of the waste is reused as compost, or it is burnt or recycled to meet daily needs. In urban areas this is seldom possible and accumulation of waste attracts rodents and becomes a health hazard.

The poor need cleaner household fuels

The WHO report “Fuel for Life” (Rehfuess, 2006) points out that more than three billion people, living in both rural and urban areas (Figure 7), 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. 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.

Figure 7. Proportion of urban poor and rich using solid fuels in the household



Housing and shelter quality: strong health determinants

Sheuya et al. (2006, 2007) reviewed the health determinants in relation to housing and associated a number of health impacts with upstream social determinants (Table 3). They are relevant both in developed and developing countries. The Canadian Institute for Health Information (2004) showed the linkages and associations between housing quality and social determinants of health in the Canadian urban setting. The report showed strong causal relationships between ill-health and exposure to some of the following biological, chemical and physical agents: lead, asbestos and radon, house dust mites and cockroaches, temperature and ventilation and, multiple family dwellings, among others.

Table 3. Indicators of unhealthy living conditions (WHO, 1997)

<i>Principal risk factor</i>	<i>Communicable diseases</i>	<i>Noncommunicable diseases and Injuries</i>	<i>Mental health and Psychosocial disorders</i>
Defects in buildings	Insect vector diseases Rodent vector diseases Geohelminthiases Diseases due to animal faeces	Dust and damp and mould-induced diseases Injuries Burns	Neuroses Violence Delinquency and vandalism Drug and alcohol abuse

	Diseases due to animal bites Overcrowding-related diseases		
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 Geohelminthiasis Taeniasis Water-based helminthiasis Insect-vector diseases Rodent-vector diseases	Stomach cancer	
Poor fuel/defective ventilation	Acute respiratory infection	Perinatal 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, industries, etc)	Airborne excreta-related diseases Enhanced infectious respiratory disease risk	Chronic lung disease Heart disease, cancer Cancer Neurologic/reproductive diseases Injuries	Psychiatric organic disorders due to industrial chemicals Neuroses

Other features of the neighbourhood of importance for health and health equity are the conditions of schools, marketplaces, roads, transport services, etc. A “healthy settings” approach has been developed by WHO as part of the “supportive environments for health” component of health promotion programmes (WHO, 1999).

The poor often end up living in unsafe locations

Major disasters have occurred because of co-location of industry and residential areas, including informal settlements or slum areas. The Bhopal disaster is one of the more infamous examples (Dhara and Dhara, 2002) where 2000 people died and more than 200 000 were poisoned. The risks caused by industrialization in the proximity of the urban poor are often further compounded by weak regulatory and pollution control measures and lax enforcement at national and municipal levels. This results in exposures to chemicals and biological agents that pollute the ambient air, as well as extremes of noise and temperatures and industrial pollution of land and water (Kirdar, 1997). For example, Minamata disease caused by methyl mercury poisoning from eating shellfish and fish where the toxic chemical bioaccumulated, affected more than 2000 city residents in Minamata, Japan and resulted in 1784 deaths and more than 10 000 claims for financial compensation since 1956 (<http://www.nimd.go.jp/archives/english/index.html>). Last year, China reported 142 chemical accidents, resulting in 229 deaths. In the biggest disaster yet, a spill of nitrobenzene and other chemicals into the Songhua River in 2006 forced Harbin, the biggest city in the northeast, to suspend running water to 3.8 million people for five days (http://english.gov.cn/2006-07/12/content_334287.htm).

Low income families may live in buildings characterized by insubstantial and fire-prone materials, poor foundations, and hazardous locations. The poor settle in marginal lands – often subject to flood, landslides or fire – for economic and political reasons (Campbell and Campbell, 2006, 2007). Adequate safe shelter is not available at a price they can afford.

4.2. Environmental health threats in the wider urban area

Urban air pollution, traffic safety and emerging infections of concern

In the modern urban environment air pollution from motor vehicles, industry, power stations and homes is a growing concern and low income population groups face the greatest exposures in many cities (WHO, 2005f). Clean air legislation has greatly reduced much of this urban problem over the past half-century in developed countries. However, vehicle-related emissions have created new air pollution problems. Epidemiological studies in hundreds of cities around the world, both in developed and developing countries, have documented increased morbidity and mortality from motor vehicle and other air pollution, even at exposure levels that used to be considered safe (Pope and Dockery, 2006; Kjellstrom et al., 2006).

Health risk assessments in a number of countries have concluded that vehicle-related air pollution causes thousands of cardiovascular and respiratory diseases cases and deaths each year at an estimated cost of billions of dollars. Urban areas are by far the most affected and one assessment concluded that in Bangkok, as much as 29% of all cardiovascular disease deaths may be due to current air pollution (Ostro, 2004). Road traffic injuries, as mentioned in Section 3, are another issue in urban areas, which have a growing impact on urban health in developing countries with clear health equity issues involved.

Another problem in urban areas is the spread of infectious diseases related to high population density. This was a huge problem in nineteenth century cities and continues to pose health threats in the modern urban setting. While water- and food-borne infections due to poor sanitation and inadequate hygiene have receded, respiratory infections retain the potential for rapid spread in areas with high population density (see Section 3.2).

4.3. Health threats at work

Uncontrolled workplace health hazards common in low income settings

Urbanization is generally associated with poor working conditions in a large informal sector, cottage industries, child workers, and sex workers (see report from Knowledge Network on Employment Conditions). Deprived urban areas and informal settlements are often a mixture of living places and workplaces. These workplaces often create health hazards due to the use of toxic products, injury risks, noise and traffic generation. Both occupational hazards and environmental pollution develop in “cottage industries” and key problems are the lack of adequate zoning, town planning and location of industrial activities (Yassi et al., 2001). The outsourcing of parts of production processes from larger industries contributes to uncontrolled cottage industry development.

In terms of the overall significance of the informal economy, in Accra, the ratio of informal to formal workers is seven to one (Maxwell et al 1998). In Yaounde (Cameroon) 57.3% of the population is employed in the informal sector (Sikod 2001). Three quarters of those employed in the city of Karachi work in the informal sector – although it is noted that most have close links to the formal sector (Urban Resource Centre 2001). In most sub-Saharan African countries, the informal sector dominates urban employment; in countries such as Mali, Uganda and Zambia, over 70% of urban workers are informally employed (Bhorat 2005).

There is widespread evidence that the informal economy has become increasingly significant as an employer of labour (see Appendix 1). For instance, in Uttar Pradesh, India’s most populous state, “There has been a marked trend towards casualization of the workforce, with the proportion of casual labourers in UP having doubled from around 11% in 1972/3 to almost 24% in 1999–2000. Moreover, two thirds of households that primarily earn income from the casual wage sector are poor (World Bank 2002).

In “slums”, the unhealthy and unpleasant conditions often lead to ghetto-style segregation, with the poorest living close to their workplaces in the worst affected areas. Social inequity is a key feature of these types of workplace and living conditions. The multifaceted health hazard panorama of workplaces has been described

in detail in numerous reports and books (e.g. Levy and Wegman, 1988; Stellman, 1998). Many serious hazards that have been common in developed countries have now been transferred to developing countries with parallel transfer of the health risks (Hogstedt et al., 2007; also see report from Knowledge Network on Employment Conditions). The poorly controlled working conditions in informal work activities constitute major intermediate determinants of health for men, women and children (child labourers and street children) (Stellman, 1998). Globalization and urbanization may also affect child health in an indirect, generally ignored, manner through an increase in women's participation in the labour force. In East and Southeast Asia, up to 80% of the workforce in export-processing zones is female (Cornia, 2001) and adequate child care is rare.

The health impact of unemployment is another factor to consider in deprived urban areas and low income neighborhoods. A recent review by Maignan and Harnam (2006) presents data from Europe on unemployment trends and health effects, and in developing countries the situation for unemployed people is likely to be worse as social support systems are less developed.

4.4. Urban health impacts of global resource depletion and environmental change

Policies for sustainable development need to integrate aim of health equity

Global resource limits and the need for sustainable development have been widely debated during recent decades. The Rio Earth Summit in 1992 produced Agenda 21 with a great number of recommendations for protecting the global environment and improving social and economic equity. Most of these recommendations have been repeated or updated at subsequent international conferences, and their implementation is of importance for achieving health equity in urban settings. The limitations on access to fresh water, nutritious food, energy sources that do not create climate change and other essentials for human society have led to market-oriented approaches to conserve the scarce resources. It is essential that the efforts to achieve sustainable development do not create new inequities in access to the resources needed by the poor.

Global climate change, a major threat to health of the poor in rural and urban areas

Campbell-Lendrum and Corvalan (2006, 2007) 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 (IPCC, 2001; 2007) suggest that the health effects of the changing global climate are likely to be overwhelmingly negative, particularly in the poorest communities, which have contributed least to greenhouse gas emissions (McMichael and Githeko, 2001). The health threats include direct effects of heat, increased vector-borne diseases, increased air pollution, and increased severity of weather calamities. A WHO quantitative assessment, taking into account only a subset of the possible health impacts, concluded that the effects of the climate change that has occurred since the mid-1970s may have caused over 150 000 deaths in 2000. It also concluded that these impacts are likely to increase in the future (McMichael et al., 2004). The early effects occur primarily in rural areas and millions of rural poor will be affected by droughts, floods and vector-borne diseases. Many of these people will become "environmental refugees" and join the urban poor in the slums.

Many of the major cities in the world are located at the coast or along rivers and are vulnerable to climate change because of sea-level rise or increased variability of rainfall and flooding (Sherbinin et al., 2007). In Mumbai several million poor people live in squatter settlements that may be flooded. In Rio de Janeiro the most affected people would be inhabitants in low income settlements on hillsides (favelas) that are vulnerable to landslides and flash floods during extreme weather. 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 due to climate change if rainfall variability increases and water sources dry up or in the case of floods the water sources get contaminated (Sherbinin et al., 2007).

There are, however, a series of features of urban populations that should reduce vulnerability to climate effects on health, relative to rural populations. These include generally lower rates of some important infectious diseases, such as malaria, closer proximity to health services and higher overall incomes.

Conversely, they also have a series of factors that are likely to increase health vulnerability to the effects of ecosystem degradation either acting directly on the cities themselves, or “remotely” through the areas that supply their goods and services. In a recent issue of the journal *Environment and Urbanization*, a series of articles analyze the vulnerability of cities in relation to climate change. Sea-level rise will create additional flooding risks for the 600 million people living in low elevation coastal zones. Higher temperatures will increase the risk of direct heat effects (heat stroke and reduced work ability due to heat). Urban air pollution will be exacerbated. The irony is that the vast majority of the people at risk have contributed almost nothing to the ongoing global climate change (Huq et al., 2007). This is truly an issue with major inequity consequences not only for health but for economic and social equity as well.

Among the consequences of a hotter climate, heat waves are an obvious concern. They affect all populations, but in cities their effects are exacerbated by the urban “heat island” effect, resulting from lowered evaporative cooling, increased heat storage and sensible heat flux caused by the lowered vegetation cover, increased impervious cover and complex surfaces of the cityscape. Most cities show a large heat island effect, registering 5–11°C warmer than surrounding rural areas (Aniello et al., 1995). Poor people in general cannot afford air conditioning as a means to reduce the health risks, while air conditioning is in itself a contributor to the heat island effect and climate change. High temperatures also jeopardize peoples’ ability to carry out heavy work, which indirectly has negative effects on their income (Kjellstrom, 2000; Hogstedt et al., 2007).

4.5. Health care systems and emergency services

Access to affordable health care in urban settings is a key health equity issue

Many countries are decentralizing, meaning they are transferring decision-making and spending powers from national to local governments. This entails a transformation of political power, increasing the importance of cities in the conduct of public business. In health systems of the urban setting, the drama is one of balancing priorities, allocation of resources, and personnel issues between central governments and local communities (Campbell and Campbell, 2006), as city and community leadership play a growing role in health care (Bossert and Beauvais, 2002). However, many local and municipal institutions are ill-equipped to respond to population health challenges (Campbell and Campbell, 2006).

The challenges for health systems in urban settings include (Lee et al., 2006, 2007) accessibility to services, which is linked more to inability to pay rather than 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 to health care, as the urban poor would rather borrow money and go into debt to seek private provider care for serious illness that has a reputation for quality, rather than risk maltreatment, humiliation or death in local government health centers (Lee et al., 2006, 2007).

Urban health care systems are often ill-equipped and under-resourced to handle emergency conditions (e.g. acute chemical or pesticide poisoning, drug intoxication, poisoning, gun-shot wounds, maternal hemorrhage or trauma). Neither are there sufficient community-based systems to alert neighborhoods to high risk situations associated with conditions such as depression, severe malnutrition or recurrent domestic violence (Campbell and Campbell, 2006, 2007), and to involve community-based organizations in concerted action to address the underlying determinants and implement prevention and health promotion.

Ill-health can be a cause of poverty and inequality

Illness and injury are common causes of poverty in countries where health services are not free, and the inability to work means no income. This is an issue in urban areas of both developed and developing countries. In countries with social security systems that provide compensation for loss of income, the poverty-creating feature 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 for reduction and avoidance of poverty. In a study in the slums in Dhaka (Pryer, 2003) of 850 households, ill-health was the most important cause of reduced income and increased expenditures. It led to more loans being taken out, assets being sold and more adults resorting to begging (Pryer, 2003).

4.6. *Gender and women's health equity issues*

Women have particular health needs and vulnerabilities

The process of urbanization and the nature and scale of urban-rural migration have to some extent been shaped by gender role and relations. While male migration has been most prominent in Latin America, the opposite counts for Southeast Asia, where the high demand for female workers in towns has pulled women into employment (Masika, et al., 1997). Gender is often overlooked as a major determinant of health (UN-HABITAT, 2004). Four major lessons on urban health and gender emerge from urban project experiences (ADB, 2000):

- 1) Focusing on gender leads to benefits that go beyond improved urban health. Better access to urban infrastructure and services provides better living and working conditions for women. For example, reducing the time spent on water collection and sanitation management gives women more time for income-generating activities, the care of family members, or their own welfare and leisure (Fong, et al. 1996). The economy, as a whole, therefore benefits. There are also benefits to children. Freed from the drudgery of water collection and management, children, especially girls, can go to school, which is associated with better health.
- 2) Women's health will be improved by interventions that focus on households headed by females and those households' special needs. This is important in urban slum improvement projects, since many households in slum areas are headed by women (Chant, 1996). Tuberculosis causes more deaths among women of reproductive age than any other infectious disease (WHO, 2001b), yet for example, all factors being equal, the health care system in Viet Nam is less likely to test and treat women for TB than men (Long et al., 1999).
- 3) Continuous dialogue between the local authorities and the community foster participative learning that encourages sustained development initiatives. This is especially so in a context where women's participation is not the norm (www.cedar.ybuview.ac.at/habitat/gender/gender.html, accessed the 31st of May, 2007).
- 4) Women bear a primary responsibility in household management, and the design of new or improved housing and urban planning should reflect their needs. Targeting women as individuals may better increase access to services than a non-targeted approach (Haryantiningsih, 1997). This has major implications for the marketing strategy of service providers, be they public or private sector.

4.7. *Other vulnerable groups*

Demographic change and ageing: growing health equity challenges

Social determinants influence the health of other vulnerable groups: children, the elderly and the disabled. Child health has been the focus of major health development activities for the last 50 years via UNICEF, WHO and others. More recently, the health of the elderly has been given prominence in health programs of the developed countries, and currently this age group is given increasing attention also in developing countries. People with disabilities such as blindness, deafness and paraplegia are also likely to be vulnerable to health threats associated with social exclusion or discrimination. These vulnerabilities may be most prominent in urban areas due to the challenges of a high population density, crowding, unsuitable living environments (e.g. high staircases, road curbs, intense traffic) and lack of social support.

Along with urbanization, global population ageing has been a phenomenon due mainly to prolonged life expectancy and lowered total fertility rates. Population ageing is expected to continue during the coming decades (WHO/WKC, 1998). According to United Nations estimates, the number of older persons (60+) will double from the current 600 million to 1.2 billion by 2025, and again, to 2 billion by 2050. The vast majority of older people live in their homes and communities, but in environments that have not been designed with their needs and capacities in mind (http://www.who.int/ageing/projects/age_friendly_cities/en/index.html). There has been no major systematic review of urban-rural differentials of elderly populations, though there are initiatives e.g. the World Cities Project (2007) that attempt to unpack issues related to health, quality of life and social services of the ageing in major OECD countries.

In slums and informal settlements, the aged constitute a vulnerable sub-group who are prone to prejudice, stigma, neglect and abuse. Lack of access to basic health services or essential drugs and medicines for chronic conditions, lack of access to transport, hazardous living conditions and physical barriers to neighbourhood mobility constitute key determinants of health of older persons who live in urban poverty.

In deprived urban settings, particularly in Africa, not much attention has been paid to the elderly who are an almost invisible socio-demographic group. This is partly due to two misconceptions: 1) that life expectancy rates are low hence there is a very small percentage of the elderly who survive; and 2) that the elderly are located in rural areas. The data however shows that Africa currently has the highest elderly annual population growth rate in the world. At the same time, the growth in the number of older persons living in areas classified as urban is projected to accelerate (UNFPA, 2007).

Historically, during early stages of urbanization with economic development in developed countries, there was a relative decline in resources going to the aged, but in later stages, social support such as pensions and other entitlements have been provided. Formal institutional support systems and increased government support gradually replaced informal support given by family members or relatives. Many changes of family structures have been observed and these are more accentuated in urban than in rural areas (UN, 1991). Urbanization often splits families, with the young moving to the cities and the elderly left behind in rural areas.

5. A broad spectrum of interventions

5.1 Building trust, social capital and social cohesion

Social cohesion, a firm base for urban health equity interventions

One of the main reasons that otherwise good politicians enact bad policies in countries all over the world is that they face significant constraints in their effort to bring about change. These constraints are shaped by the degree of social cohesion in a country and the quality of its institution (Ritzen, Easterly and Woolcock, 2000). The proposition that social capital is one of the important factors for improving the social determinants of health in urban settings is not new and is derived from observation and empirical data in many studies that indicate improvement in health outcomes following improvements in social capital/cohesion (Kawachi and Wamala, 2006). An analysis of the case studies presented in the 14 thematic KNUS papers confirms this. Sensitizing the political environment to the importance of social capital/cohesion for better urban health and well-being resonates strongly with the current debates around values in public health policy that inform the way that we understand the causes below the causes of ill-health and seek to address them.

At the city level, there is an increasing emphasis among governments, donors and people from academia for partnering with informal dwellers with the aim of creating intermediary organizations and network that can represent the weakest links and stakeholders through community participation and empowerment building approaches (Boonyabancha, 2005; Pridmore et al., 2007). Social capital/cohesion interventions through participatory educational processes have shown to work in urban areas such as in CODI (Community Organizations Development Institute) in Thailand (Boonyabancha, 2005). Horizontal linkages and formation of peer groups among the urban poor were key factors in changing access to and control over resources through shifting power relationships. Another success story is CORO (Committee of Resource Organizations) in India who successfully joined other like-minded organizations to form a trust that provides technical support, research and advocacy to its members (personal communication, Sujata Khandahar, Director, CORO). These services have enabled members to access better housing and have demonstrated improvements in health. In South Africa, success has been achieved through a group-based microfinance scheme combined with a participatory learning and action training programme. A consistent improvement in household economic well-being was observed together with increased levels of both cognitive and structural social capital including community mobilization (Pronyk et al., 2006). Furthermore, there were consistent changes in all measures of empowerment over the course of the study.

The accumulating evidence presented here shows that there are clear benefits from including social capital as part of a wider health and social sector program implementation (Pridmore et al., 2006, 2007). Such a program could be specifically targeted at enhancing the social capital/cohesion of communities using a social educational approach, sharing knowledge and skills and intervening in sectors that are considered relevant for improving the health in urban settings and especially for vulnerable population groups. Local forms of social cohesion can be developed via local groups and networks to respond to weak and dysfunctional government structures. Building micro- and meso-level social cohesion can also help the functioning of the state (Grootaert and van Bastelaer, 2002).

To promote the importance of social capital/cohesion in urban health development and planning there is a need to measure and monitor these variables and the health impacts. There is a key role for health workers and the health sector here, in documenting health outcomes and disseminating findings to increase recognition of the value of social sector interventions. There is also room for other sectors such as water and sanitation, transport and education to recognize the role they have to play in social and health development for better health equity.

5.2 *A range of specific interventions*

Improving the living environment is essential

Health protection and improvement requires that a number of population-level health hazards are considered when planning and managing cities. The traditional challenges of 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 areas in cities around the world. Interventions that provide these key elements of infrastructure are therefore major steps towards reduced health inequalities. This has been highlighted in the Millennium Project report on “Improving the lives of slum dwellers” (Garau et al., 2005), the reports from the International Institute for Environment and Development (IIED) (e.g. Harday et al., 2004, and papers in their journal *Environment & Urbanization*, e.g. Hasan et al., 2005), and reports from WHO (e.g. WHO, 2002b; Hutton, 2000), UNICEF, UN-HABITAT, UNDP, UNEP, the World Bank and others.

Interventions to improve water access, quality and sanitation need to be informed by the WHO water quality guidelines (WHO, 2006) and the WHO report on “Domestic water quantity, service level and health” (Howard and Bartram, 2003). An analysis of cost-benefit of different interventions (Hutton and Haller, 2004) indicated that in developing regions of WHO the benefit of a \$1 investment was in the range \$5 to \$28.

Creating healthy housing and neighbourhoods

From 1996, UN-HABITAT has been documenting best practises that effectively address the most critical health and other problems in human settlement development. The database (<http://bestpractises.org/bpbriefts/analysis.html>) is very comprehensive and includes more than 1700 initiatives from nearly 200 countries. An analysis of the database shows that interventions concerning the environment, housing, urban governance and urban planning, in that order, top the list. The interventions in the developing world address issues related to slum upgrading (through the provision of basic infrastructure and services and tenure security); promotion and capacity building of community-based organisations (CBOs); adopting enabling building codes and planning standards; solid waste management; promotion of informal businesses; issuance of microfinance and integrating transport and land use planning, and more.

Experience shows that interventions concerning the physical environment alone hardly constitute best practice: to become successful they have to incorporate the social dimension, and in the context of this particular study, the empowerment of slum dwellers and their associations. Empowerment in this context means “an increase in influence and control through an acquisition and application of knowledge and skills” (Lyons, et al. 2001). Where the slum dwellers are not organized or where they have not yet established their own associations, efforts should be made to facilitate their formation.

Governments have four different options in relation to “slums”: remove them, upgrade them, prevent them or ignore them. In reality, most governments implement a mixture of these – although few have policies with the foresight and scale to prevent them. Upgrading is now recognized as the most effective way to improve conditions in most instances – in part because it is cheaper to build onto existing investments, in part because this avoids the dislocations that moving slum populations inflict on their livelihoods and social networks. Upgrading also recognizes the importance of the informal economy (and implicitly “informal housing”) for cities’ economies and for the livelihoods of much of the population.

Over the last twenty years, there are an increasing number of examples of upgrading programmes implemented as partnerships between local governments and organizations and federations of “slum” and shack dwellers. In some cities and nations, upgrading has been supported by changes in legislation and in institutional structures to allow it to be larger in scale and less ad hoc – for instance in Brazil (Fernandes 2007, Budds and Teixeira 2005) and in Thailand (see Box 1). The innovations in these two nations in creating national and citywide frameworks for upgrading have particular importance in that these seek change on a scale that can greatly reduce the proportion of urban households living in slums. In India, a major new federal government fund is seeking to provide a much stronger basis for large-scale upgrading – the Jawaharlal Nehru National Urban Renewal Mission.

Regularizing tenure is often an important part of upgrading because it allows official (public or private) utilities to extend infrastructure and services there. Official water and sanitation utilities are often not allowed to provide services to those in illegal settlements.

Box 1. Slum upgrading in Thailand

The Thai government is implementing one of the most ambitious upgrading initiatives currently underway (Boonyabancha 2005). Managed by the Thai Government’s Community Organizations Development Institute, the initiative channels government funds in the form of infrastructure subsidies and housing loans direct to community organizations formed by low-income inhabitants in informal settlements who plan and carry out improvements to their housing and to water and sanitation or develop new housing. It has set a target of improving housing, living and tenure security for 300 000 households in 2000 poor communities in 200 Thai urban centres. This initiative has particular significance in three aspects: the scale; the extent of community involvement; and the extent to which it seeks to institutionalize community-driven solutions within local governments so this addresses needs in all informal settlements in each urban centre in which it is implemented. It is also significant in that it draws almost entirely from domestic resources – a combination of national government, local government and community-contributions.

Air pollution control benefits the poor

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. Beyond meeting the users’ immediate energy needs, 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 (Rehfuess, 2006). 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 (see Appendix 1). Studies of the benefits and monetary costs of major air pollution control efforts in countries (Kjellstrom et al., 2006b) concluded that the benefits in terms of cleaner and healthier neighborhood air, at least in developed countries, have far outweighed the costs.

While motorization is sometimes considered a direct cause and consequence of economic development, there are a wide range of technological and planning options that supply mobility needs, all of which are compatible with high levels of prosperity, but have very different implications for greenhouse gas emissions and for health. For example, the proportion of people walking or cycling to work varies from 32% in Copenhagen, to 22% in Tokyo, to 0.3% in Atlanta. Values in developing countries are equally variable, from 30% in Santiago

to 2% in Brasilia. The percentage of urban trips by motorized private transport as opposed to walking, cycling or public transport (which is typically 3–5 times more energy efficient than private transport), ranges from 89% in the USA, to 50% in western Europe, 42% in High Income Asia, to 16% in China (Newman and Kenworthy, 1999). Investment in improved public 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). With a pro-poor approach to service delivery and pricing, public transport can be of particular benefit to low income groups.

Peden et al (2002) set three strategic objectives for interventions in this arena: (1) to build capacity at national and local levels to monitor the magnitude, severity, and burden of road traffic injuries, (2) to incorporate road traffic injuries prevention and control into public health agendas around the world, and (3) to promote action-oriented strategies and advocate for prevention and control of the health consequences of motor vehicle collisions.

Promoting and facilitating good nutrition and physical activity

Achieving food security is imperative in poor urban settings. To eradicate the problem of food insecurity, there is a need to focus on the development of policies covering enhanced productivity, increased levels of 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 as well as social, economic and recreational values is being recognized and appreciated globally. 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 (UPA). The forum provides access to an elementary training course on urban agriculture and livestock keeping. Farmers are trained in farming as a business, group dynamics, basic skills in crop and animal husbandry and environmental management (see Appendix 1).

Another route to achieving food security is through social movement support of locally valued, existing agricultural and culinary traditions. Strengthening existing rural food production has the benefit of keeping food producers in rural areas rather than migrating as unemployed laborers to the cities. The Italian-based Slow Food Movement (SFM) uses a number of strategies in order to reconnect food consumers to the land where the food was produced (Dixon et al., 2006).

Creating safe and healthy workplaces

Interventions on workplace health hazards often focus on specific hazards (lead, asbestos, organic solvents, silica dust, accidents/injuries, etc.). Numerous reports and handbooks provide guidance on prevention methods, including materials from WHO and ILO (e.g. Stellman, 1998). Prevention of harmful exposures to the specific hazards would improve health equity, because low-income people generally end up working in jobs with the greatest health risks (Hogstedt et al., 2007).

The International Labour Organization develops conventions and guidelines for specific and general interventions to improve occupational health and safety. An important intervention at the local urban level is creation of a labour inspectorate (ILO, 2005) that is well-resourced and well-staffed. In addition, local associations of specific industries, employers or workers (trade unions) can take on important roles in information and advice on suitable interventions in the local context.

The informal economy sometimes has its own “formality” through organizations that emerge out of common interests in markets, slums, and workplaces (including trade unions). This provides opportunities to work with local groups that can implement interventions (see WHO report on informal economy in Africa). 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.

A major social determinant in relation to workplaces is the income level that work provides (see report from the Knowledge Network on Employment Conditions). The exploitation of workers, who have to make do with

salaries that barely cover, or are even less than, the minimum cost of living, is a common situation within the social systems of many developing countries. Here, creating fair income structures is a key intervention.

Preventing urban violence and substance abuse

As with other health issues, violence prevention involves education and integrated strategies based on civic involvement that incorporate psychological and social factors (Cano 2000; Moser et al., 2004; and Krug et al., 2002). 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 (for instance in India, community-policing in slums achieved through partnerships between community-organizations and local police stations (Roy, et al., 2004). Tactics such as early closing of nightclubs and bars, gun control, community awareness programs, and community policing have all been developed, some with good success (WHO, 2007c). From the standpoint of treatment, trauma centres are expensive to maintain and likely to be more difficult to reach as cities spread with lower density settlements. Prevention is clearly the most cost effective pathway, yet this strategy also requires an organized civil society, high levels of social capital, and local government leadership with vision. In many developing countries, more effective violence prevention has to reverse the almost universal distrust in the state's capacity to control or prevent crime and violence. A variety of approaches to reduce substance abuse, and alcohol and tobacco consumption are presented in recent WHO documents.

5.3 Interventions via primary health care

A health system that is equitable

A comprehensive primary health care system can integrate the efforts of different parties and stakeholders within and outside the health sector (Lee et al., 2006, 2007). Different components of the primary health care team would work closely with individuals and families as well as community groups. This synergistic effect would not only lead to delivery of more effective and efficient primary health care, but also strengthen human and social capital development. The model can then serve to combine the efforts of different approaches to improve population health.

The complex dynamics of cities, with their concentration of the poorest and most vulnerable (even within the developed world) pose an urgent challenge to the health community. While retaining fidelity to the core principles of disease prevention and control, major adjustments are needed in the systems and approaches to effectively reach those with the greatest health risks (and the least resilience) within today's urban environment (David et al., 2006, 2007). At a meeting between UN-HABITAT and WHO in July 2007 on "Sustaining action on social determinants of health in urban settings", convened by the WHO Centre for Health Development, three relevant interventions to jumpstart a response from the health sector are an urban health equity assessment and response tool ("Urban HEART"), that will enable Ministries of Health to track areas of rapid urbanization and monitor health inequity; a global report on urban health; and a joint UN-HABITAT/WHO global meeting on healthy urbanization that could coincide with the biannual World Urban Forum of UN-HABITAT, possibly in 2010. The Centre has also produced tools for reducing health inequity in urban settings i.e. a "social technology grid" and a training module (the "Healthy Urbanization Learning Circle") for linking public health and community efforts at the municipal level.

Communicable disease control a priority

Controlling and preventing HIV/AIDS, tuberculosis and vector-borne diseases like malaria are among the key health priorities in poor urban settings (David et al., 2006, 2007). The challenge for infectious disease control in slums and informal settlements is in identifying interventions that work, and ensuring that slum dwellers get access to these interventions. It requires that slum dwellers are captured in health statistics that define disease epidemiology and that they are provided opportunities equal to the rest of the population to access proven interventions. Viewed within the framework of the "social determinants of health" model, this requires broad and integrated interventions that address the underlying causes of inequity that result in poorer health and worse health outcomes for the urban poor.

Primary health care services for all

The PHC approach aims at developing a broad service for all priority health problems, which contrasts with the “vertical programs” approach of some Global Health Partnerships (GHPs), such as the Global Fund to fight AIDS, malaria and tuberculosis which “concentrate their efforts on getting quick results rather than building up the wider systems needed to address the broader burden of disease” (Yamey, 2002). Moreover, these legally independent development donors, who are often partnered with business, are set up to reflect the national interests of developed countries, undermining poor-country sovereignty and local empowerment. (Ollila, 2005; Yamey, 2002)

As the GHPs provide an estimated 90% of total development assistance for health services (Michaud, 2003), they have become major actors in global health policy (Ollila, 2005). Therefore, critical appraisal of political, institutional and global obstacles to good governance should not be overlooked (Bendana, 2004). Participatory budgeting should also be applied to funds received from the GHPs.

5.4. Conditional cash transfers: global social welfare support

If cash transfers promote equity within rich countries, why not apply the system globally?

Cash transfer programmes were developed as an intervention to improve “social protection” and particularly food access for poor people. The rationale for cash transfer is that the state must take some responsibility for their well-being. This is increasingly recognized to be the case not only in an emergency context but also in situations of chronic poverty and illness. Cash transfer schemes in urban settings are partly a response to the growing unmet need for social protection and partly a reaction against institutionalized food aid. Both conditional and unconditional cash transfer schemes have been implemented in Latin America, Africa and Asia. *Conditional cash transfer* means that the recipient has to comply with certain requirements in order to get the cash. This may involve immunizing the children of the household or ensuring that they go to school. *Unconditional cash transfers* do not have such requirements. One argument in favour of cash transfer is that it empowers poor people to buy what they need from local sources, and not only food. The cash is put to a wide range of uses, from purchase of food, groceries, clothes and seeds to meeting the cost of services like education and health (Rawlings and Rubio, 2003).

Cash transfer programmes in urban areas tend to be sponsored by private donors and NGOs. Some are on a small scale and benefit a relatively small number of people, while other programmes have been country-wide and run by governments (see Box 2). The purchasing power of cash transferred varies over time (e.g. season to season) and from place to place (between and within urban areas). This variability in purchasing power, both within and across programmes (from under \$3 per month in Mozambique’s Food Subsidy Programme to \$111 in South Africa’s social pension), means that their impact on household well-being varies, but they undoubtedly support the poor towards more equitable incomes. “Social welfare” schemes of this type supported by the government exist in all affluent countries. Cash transfer from sources in affluent countries to poor people in the developing countries is basically a global application of the same equity-promoting approach.

Box 2. Examples of an urban cash transfer programme: the Government of Mozambique’s Food Subsidy Programme (INAS)

When the programme was designed, beneficiaries of the Food Subsidy Programme were to be those who were “extremely food insecure”, i.e., “consuming only 60% of their minimum caloric requirements”. Programme designers argued that “inadequate food consumption in urban areas is principally due to lack of purchasing power and therefore, a cash transfer was judged to be the appropriate intervention”.

In each urban center of Mozambique, the money needed to pay all registered beneficiaries of the INAS Food Subsidy Programme is deposited into a dedicated bank account and withdrawn each month by local INAS officials, under police escort. Distribution occurs at various “pay points” around town. Sometimes these are under a tree in the open air. No pay point should be further than 30

minutes' walk from a beneficiary's home. Official identity documents (including birth certificates to verify age) must be produced, firstly to enroll on the INAS programme and secondly to collect benefits. Where necessary, INAS officials assist applicants to obtain these documents, including getting photographs taken and completing the forms. Payments are usually made on the same day each month, and waiting times range from under half an hour to two hours but can take longer. This regularity and predictability is appreciated by beneficiaries, who point out that they depend on the money and that it helps them to plan their spending if they know the money is definitely coming on a certain day. (sources: HelpAge, IDS and SCF-UK, 2005).

5.5. Healthy settings and healthy cities approaches to interventions

The healthy cities movement has created a vehicle for health equity interventions

To provide a healthy living environment for all requires policies and actions at community level, as well as at city, national and global level supported by substantial financial resources. The WHO Healthy Cities programme aimed at fostering such policies (see WHO Healthy Cities website at www.euro.who.int/healthy-cities, or PAHO, 2005, Healthy Municipalities description or the Alliance for Healthy Cities <http://www.alliance-healthy-cities.com/>). The community itself needs to be driving the agenda, whether it is in a “slum” or more affluent neighborhood, and governments at all levels need to develop appropriate methods to encourage and facilitate community involvement while major financial and other resources are channeled to the infrastructure, housing and service developments via government structures. Low and middle income countries are not likely, in the near future, to be able to provide all the funds needed to create a truly healthy living environment. Funding from the more affluent countries will be required to back up the plans made by peoples and governments in the less affluent countries (Sachs, 2005).

“Healthy settings” referring to the places and social contexts that promote health is a relevant approach for improving health in neighbourhood and communities. Building on the work of WHO in the 1980s, the settings approach has been applied to cities, municipalities, villages, marketplaces, schools, hospitals, prisons, restaurants and public spaces. WHO regional programmes on Healthy Settings have adopted the approach in different ways and with different areas of emphasis. Healthy cities networks for example are strong in Europe (European Network of Healthy Cities), the Americas (Healthy Municipalities Network) and the Western Pacific Region (Alliance for Healthy Cities). Community-based health initiatives are very popular and effective in the Eastern Mediterranean Region and use principles that are similar to that of Healthy Settings. Healthy villages initiatives have been developed in Africa and are linked to a regional programme on healthy environments for children. Evaluation and assessment of Healthy Settings have been conducted at city and regional levels, and while there has been no systematic review of Healthy Settings at the global level, the approach is widely popular and has been sustained through local and national efforts with minimal support from external donors or partners.

5.6 Urban development planning and investment to avoid new slum formation

Proactive urban planning with genuine engagement of the urban poor supported by sufficient investment can achieve healthy urbanization

Urban planning and the regulatory framework it provides on land use, land development, housing and building standards and infrastructure standards should reduce inequities in living conditions. Their core purpose is to ensure health and safety, including land-use regulations that prevent buildings on unsuitable sites (for instance flood plains) and ensure land is available for infrastructure and services and open/public space (Barton and Tsouros, 2000).

But urban planning and regulation enforcement often work to increase inequality – for instance by setting minimum standards too high or development controls that are unrealistic, costly or open to corrupt practices. Ironically, housing conditions can be better in cities where regulations are not enforced than where inappropriate regulations are enforced. For any growing city, what is worse than expanding “squatter

settlements” is government authorities preventing squatter settlements – which will mean poor families doubling and tripling up within the existing housing stock.

Urban planning and land use regulations can improve living conditions and prevent new slum developments by increasing the supply of land for housing and reducing its cost – while also ensuring provision for infrastructure. For instance, in Namibia, the city authorities in Windhoek recognized that to reach low-income households, they had to cut unit costs in their government-funded serviced-site programme, because they had to recover costs from the land they developed for housing (Satterthwaite et al., 2006). A new policy, developed with the Shack Dwellers Federation of Namibia, allowed smaller minimum plot sizes and lower infrastructure standards with provision for these to be upgraded, when resources were available – and this greatly increased the number of low-income households that could afford a legal housing plot with infrastructure (Mitlin and Muller 2004). In the city of Ilo in Peru, the local government, knowing that it lacked resources, pooled its limited funding in partnerships with community management committees in each district to improve living conditions in such areas as water, sanitation, electricity, waste collection, public space, reduced air pollution and street paving. It also designated a large empty site close-by provided with basic infrastructure for low-income households seeking land on which to build their homes. Despite the city’s rapid population growth, there were not land invasions or occupation of risk-prone areas by poor groups (Díaz Palacios and Miranda 2005).

Squatter and slum housing provide solutions for the poor and low-wage workers in cities (Ooi and Phua, 2006, 2007). Cities and their populations are caught in an upwardly moving spiral of housing needs and escalating costs that excludes lower wage urban dwellers from securing adequate housing. This is true also in affluent countries like Sweden, the United Kingdom and New Zealand (Housing NZ, 2005). The lack of affordable housing is exacerbated by the private sector comprising real estate developers who are more interested in providing for the middle and high-income sector of the housing market. These developers more often than not, are competing for the scarce supply of land in highly accessible parts of the city (Ooi and Phua, 2006, 2007). Costs of land inevitably rise in central areas of the city as well as along its major roads. Singapore is an city state that is unusual in that it successfully dealt with its slum conditions in the 1970s (Ooi and Phua, 2006, 2007) (see Appendix 1). Other nations that have managed to reduce the proportion of urban people living in slums are Tunisia and Thailand (see Box in Section 5.2).

Creating safe, accessible and attractive environments is an issue for all cities, rich and poor. *Healthy by Design: a planners’ guide to environments for active living* (*Healthy by Design*) was released by the National Heart Foundation of Australia (Victorian Division) in 2004. The development of *Healthy by Design* was assisted by key stakeholders representing planning, recreation, health, transport and community building sectors and with support from the Planning Institute Australia - Victoria Division. This design tool has been widely adopted by local government and developers in Victoria, Australia (Dixon et al., 2006).

Health focused urban development planning also essential in high income countries

While the most serious urban health problems are to be found in low- and middle-income countries, and particularly their slums, building healthy urban settlements is also a challenge in high income countries. Persistent poverty and inequality can create pockets of ill health, and steep health gradients. Even in comparatively affluent countries, economic inequalities are often associated with health inequalities, though the mechanisms by which economic inequality effects health are still debated (Lynch, et al., 2004; Marmot, 2006; Wilkinson and Pickett, 2006).

However, several issues of importance have already been discussed: housing quality, access to child care, schools, shops, health services, recreational facilities, parks, transport system and walkability, residential segregation, safety from violence, environmental hazards, sprawling suburbs and sustainability. When new residential areas of growing urban areas are planned and built, all of these issues need to be considered in order to achieve truly health-promoting living conditions.

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 for example waste dumps and incinerators, were being sited disproportionately in areas populated by ethnic and racial minorities (Shrader-Frechette, 2002). Some aspects of urban development are also a threat to the health of the more affluent residents. Health risks that have been ascribed to urban sprawl include air pollution, obesity, traffic accidents, declining water quality, driving-related stress, and the loss of social capital that might otherwise be used to improve health (Frumkin, et al., 2004; Appendix 1). Several studies have found that urban sprawl is linked to reduced physical activity and increased obesity (e.g. Frank et al., 2006; Ewing et al., 2006), but other factors whose link to sprawl is unclear are important, including for example access to recreational facilities (Roemmich, et al., 2006). Sprawl may threaten water resources, but this does not necessarily result in water-related health hazards. Driving-related stress is clearly a problem, but dense settlement can also amplify certain sources of stress. Similarly, while sprawl may undermine social capital, dense settlement does not necessarily create social capital.

5.7. Good governance bringing together all interventions

Combined impact of many interventions maximized by good governance

Promoting healthy urban governance begins with the recognition of the actors and institutions that the landscape of governance is littered with governance deficits, gaps between people's stake in governance and their access to governance institutions (Wood and Shearing 2007). Reinventing urban governance for health is in practical terms a matter of building relationships and redistributing resources through trust, reciprocity and accountability mechanisms. In the urban setting, this can mean that poorer residents gain a greater share of decision-making in matters that affect them as well as control over resources. At the national and global levels, urban governance can turn on local governors' ability to influence the upstream determinants that indirectly influence health in the urban setting. Many governance innovators have focused on developing models of governance that ensure that people have "substantial and equal opportunities to participate directly in decisions that affect them." (Burris et al., 2005; Devas 1999; Fung 2004)

The prescription is clearly not as simple as "democracy" and yet it seems rather obvious that a society is likely to be healthier to the extent it ensures that everyone with a stake has a voice and otherwise creates the conditions for effective collective problem-solving. This is consistent with the aim of health promotion as espoused in the Ottawa Charter – enabling people to take control over their health.

Good governance is the foundation for successful action. Participatory approaches can create ownership and empowerment if specific interventions are aligned with the community's expressed needs and demands. In addition, it is important to ensure that resources, including finances, are available from within and outside the community. This creates "hope" for improvements. KNUS suggests the following elements for building good governance:

1. *Assessing the urban context*, as in 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 implementation of the underlying urban health policies or strategies.
2. *Identifying stakeholders*, as in clarifying the people, groups, and organizations that have interest and control of urban health impacts.
3. *Developing the capacity of stakeholders to take action and build social capital and cohesion*, because action on policy change requires that sufficient knowledge, skills and resources are in place.
4. *Assessing institutions and creating opportunities to build alliances and ensure intersectoral collaboration*, since it is institutions that determine the frameworks in which policy reforms take place.
5. *Mobilizing resources* necessary for social change. This may require better redistribution of resources.

6. *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.
7. *Advocate for up-scaling and change* of policy and advocacy to relevant stakeholders at different levels
8. *Monitoring and evaluating of process and impacts* including opportunities for setting up systems for monitoring at an early stage.

6. Approaches and policies to make interventions happen

6.1 Toward an integrated approach to reducing health inequity in the urban setting

An integrated approach with meaningful community participation brings lasting solutions

The future of urban health will rest with choices in policy and practice that, in turn, are dependent upon the position of urban settings in systems of power and governance (Barten et al., 2006, 2007). Typically, cities are subject to the power of higher governmental bodies and economic actors who determine to a considerable extent the problems that cities need to address and the resources cities will have to deal with these problems. These "higher actors" have a duty and a responsibility to ensure that local governments and local communities are given the mandate to create healthier urban settings, and the means to do so. There are many stakeholders and actors that can contribute to dealing with the health problems and their social determinants. Transparency is key and meaningful engagement of stakeholders and actors in different phases of urban development projects – planning, budgeting, implementation, monitoring and evaluation – is essential. Local government may have the primary role in ensuring that an efficient cooperative approach is developed and maintained (see Appendix 1).

Building consensus around a shared vision for urban health e.g. a "healthy city", in ideal terms is also highly relevant.

- Security from crime, as well as from domestic and civil strife
- A sustainable healthy environment, including pure air, clean drinking water, hygienic waste disposal systems, and access to recreational opportunities
- Suitable, sustainable housing; such housing is environmentally as well as economically sustainable, in so far as it is constructed in a way that insures that residents are not vulnerable to floods, earthquakes, landslides and other dangers associated with poorly sited or constructed housing
- Generalized access to nutritious foodstuffs
- A healthy economy with generalized economic opportunity
- Free, quality public education
- Safe modes of transportation
- An appropriate health care and public health infrastructure (*cf. World Health Organization Regional Office for Europe 3rd Edition, 1997*).

6.2 Health, a rallying point for achieving improved life quality

Healthy public policy brings different sectors together for urban health equity

From the over 80 cases studies reviewed by KNUS (see Appendix 6 and 8), 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 and discourse inevitably arise on methods, terminology, resources and priorities for achieving better health, invoking "health as a social goal" and pointing out the imperative for "fairer health opportunities for all" is a powerful lever for

addressing social determinants of health. The case studies show that different approaches can build social capital and where health is used as a “rallying point”, sustained action has been noted.

The debate on issues related to social determinants of health in the urban setting needs to be elevated to the level of public policy, for *healthy public policy* (refer Ottawa Charter). New objectives for the promotion of health need to set, and the capacity to do this from within the health sector needs to be strengthened and supported.

The following represent a range of actions that emerge from the case studies (see Appendix 6) that may contribute to strengthening the role of the health sector:

1. Creating trust by facilitating dialogue among stakeholders;
2. Empowering communities through engagement and participation;
3. Using a “healthy settings approach”;
4. Advocating for social and financial accountability (i.e., for health funds at local levels);
5. Pushing non-health equity drivers into the domain of public policy i.e. land use policy, land tenure, human rights;
6. Using local data and local situations to articulate the links between health and other sectors, e.g. transportation, housing, public services;
7. Supporting regulations that protect people from threats and hazards (in the workplace, communities, schools, etc.);
8. Engaging in political processes that impact on social determinants: violence prevention, employment, child development, gender.

6.3. *Microfinance and local investment*

The local community can make step-wise health improvements even with limited funds

The various interventions in social and other determinants will naturally require resources, human and financial. Some of these resources can be raised within the poor communities themselves. The story of the Parivartan programme in Ahmedabad city in India presented at the second KNUS meeting gave a hopeful picture of what a community can achieve when well-organized (SEWA, 2002). Other initiatives in Brazil and the Philippines providing cost-effective, sensible solutions to improving slum conditions with limited financial support were also presented at the KNUS meeting (see case studies, Appendix 8). In slum areas with 60 000 people (10 000 families) major investments to provide water supply, toilets in each household, sewerage lines, electricity, solid waste collection system and improved road surfacing were carried out at a cost of \$500 per household (SEWA, 2002). Microfinance available to households was an essential element of this slum improvement scheme that was eventually almost completely (90%) funded by the poor community itself. The cost per person would have been approximately \$80. If the same cost structure applies in other low income countries, the conditions and health for the one billion inhabitants in slums could be greatly improved, with a total investment of \$80 billion (over a number of years). A mechanism for low-cost community support is presented in Box 3.

Box 3. Supporting grassroots-driven improvements: the International Urban Poor Fund

Over the last six years, an International Urban Poor Fund has supported low-income urban dwellers to secure land for housing, either through obtaining tenure of land they already occupy or on alternative sites, and assists them to build or improve their homes and access basic services. Since this Fund was initiated with the support of the Sigrid Rausing Trust, it has channelled around \$4.6 million (£2.6 million) to over 40 initiatives in 17 countries.

The funding allocations are small – typically \$10 000–50 000. The initiatives seek to keep down unit

costs, which can be as little as one-seventh of that of professionally-managed initiatives. Community members contribute their savings and labour – and where possible use this external funding to leverage contributions from local government. Supported activities include:

- Tenure security (through land purchase and negotiation) in Cambodia, Colombia, India, Kenya, Malawi, Nepal, Philippines, South Africa and Zimbabwe.
- “Slum”/squatter upgrading with tenure security in Cambodia, India and Brazil.
- Bridge finance for shelter initiatives in India, Philippines and South Africa (where government support is promised but slow to be made available).
- Improved provision for water and sanitation in Cambodia, Sri Lanka, Uganda and Zimbabwe.
- Settlement maps and surveys in Brazil, Ghana, Namibia, Sri Lanka, South Africa and Zambia.
- Exchange visits by established federations to support urban poor groups in Angola, East Timor, Mongolia, Tanzania and Zambia develop initiatives.
- Community-managed shelter reconstruction after the tsunami in India and Sri Lanka.
- Federation partnerships with local governments in shelter initiatives in India, Malawi, South Africa and Zimbabwe.

The Fund is unusual in that funding goes directly to grassroots savings groups who have a central role in project development and management and who manage the political process, persuading local politicians to have an interest in the work but preventing them from controlling activities. In addition, decisions about what should be funded are made by the federations of slum and shack dwellers, through their own international umbrella group (Shack Dwellers International).

Source: Mitlin and Satterthwaite, 2007

6.4. The global investments required for health equity

At global level, approximately \$200 billion per year of funding transfer from high income countries is needed to support health equity programs in low income countries

It is expected that an additional billion people will move into slum conditions by 2030. Based on the Parivartan experience referred to above it may be that an additional \$80 billion would be needed to ensure improved living conditions for the slum dwellers. If the Parivartan experience can be multiplied across the world, much of these resources will actually 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? The most detailed costing of the “gaps” interventions was made by Devarajan et al. (2002) for the Millennium Development Goals (United Nations, 2005b). Table 4 summarizes the goals, their targets and the estimated costs.

Table 4. Estimated annual additional (above current foreign aid) costs of implementing the Millennium Development Goals and another global programme that promotes health equity by 2015

MDG, Target, other program	Estimated cost at global level, US\$, billions	Reference
MDG 1. Eradicate extreme poverty <i>Target 1. Halve proportion of people at < \$1/day</i> <i>Target 2. Halve proportion of people suffering hunger</i>	39–54	Devarajan et al., 2002
MDG 2. Achieve universal primary education = <i>Target 3</i> MDG 3. Promote gender equality and empower women <i>Target 4. Education for all of both sexes</i>	10–30	Devarajan et al., 2002

MDG 4. Reduce child mortality <i>Target 5. Reduce by two thirds the under-five mortality rate</i> MDG 5. Improve maternal health <i>Target 6. Reduce by three quarters the maternal mortality rate</i> MDG 6. Combat HIV/AIDS, Malaria and other diseases <i>Target 7. Begin to reverse the spread of HIV/AIDS</i> <i>Target 8. Begin to reverse the incidence of malaria etc.</i>	20–25	Devarajan et al., 2002
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 et al., 2002
MDG 8. Develop a global partnership for development <i>Seven targets, including those about better trade conditions for developing countries, more aid and debt relief</i>	0.7% of GDP = \$175 billion, addition = 85	Commitment at United Nations in 1972
All MDG Targets	40–60	Devarajan et al., 2002
All MDG targets	48 in 2006 50 in 2010 74 in 2015	Sachs, 2005
Public health programme with “essential interventions” available to all people	27	WHO, 2001 (Commission on Macroeconomics and Health)

The estimates by Devarajan et al. took into account the potential for double counting of costs for the goal of poverty reduction on the one hand and the goals for education, health and environment on the other hand. The notion was that if poverty was reduced as targeted, then the other goals would be met because the communities could afford to provide the services required. This may be an over-optimistic notion, and the slightly less poor people may spend their new incomes on other consumer items than those required for education, health and environmental improvement.

In discussing the MDG goal relating to “slum dwellers”, it should be noted that the goal is to improve the lives of 100 million slum dwellers and to take steps to ensure that the growth in urban population does not result in slum growth. With one billion people currently living in slums and the number possibly increasing to two billion by 2020, this MDG target would appear rather modest. The estimated costs for MDG 7, Target 11, (Table 4) may therefore need to be increased considerably to make a more significant difference to the majority of people living in slums. The “essential interventions” public health program (WHO, 2001) may also be seen as a means of achieving the MDGs on health, so the additional \$27 billion may duplicate some or all of the \$20–25 billion referred to in the table. Sachs (2005) estimates of the annual additional funding needs are increasing over time, but on average appear similar to the estimates by Devarajan et al., (2002) (Table 4).

Recent analysis by UN-HABITAT (presented at the Inter-Agency meeting on Urbanization in New York, February 2007) shows that the countries that have made progress in attaining MDG 7, Target 11, have to a great extent used national and local resources for the improvements. The successful countries were these with a long-term political commitment to slum upgrading and pro-poor land and housing reforms. Local resources are crucial, but external financial support is also required to upscale the efforts to meet the MDGs, Human Rights and social justice imperatives.

Whichever number is used to quantify additional annual funding needed to reduce health inequalities (\$40, 60, or 100 billion) it is clear that the current level of access to funding is not sufficient. This has been pointed out by several international agencies and reports in recent years. The WHO Commission on Macroeconomics and Health (WHO, 2001) stated: “With globalization on trial as never before, the world must succeed in achieving its solemn commitments to reduce poverty and improve health. The resources – human, scientific and financial – exist to succeed, but now must be mobilized.” The Helsinki Process on Globalization and Democracy (Cheru and Bradford, 2005) stated: “It is imperative to seek innovative ways of mobilizing public

and private sources of finance for development to complement efforts to increase official aid.” UN-HABITAT (2006a) stated: “... development assistance to alleviate urban poverty and improve slums remains woefully inadequate.” The World Bank (2006a) stated: “The year 2005 has been a watershed for scaling up aid commitments and deepening debt relief to low income countries. Over US\$50 billion was pledged in new commitments by 2010 ... but these commitments risk remaining unfulfilled. Aid commitments may fall victim to donor-country efforts to cut deficits...” These various reports concerned with funding MDG implementation all point out the importance of improved governance, control of corruption, and improved quality and timing of the interventions.

A new feature of the global funding for health equity has recently been acknowledged. Global climate change will affect the poor more than the rich. Developing 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 (2007) estimated the annual cost of adaptation to climate change in developing countries at approximately \$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 (2007) argues that the cost of current needs for adaptation in developing countries should be financed by the high-income countries. This \$50 billion is required in addition to the MDG implementation funds listed in Table 4. Thus, total external funding of approximately \$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.

6.5 *A fairer distribution of resources for health*

The funding transfer requirement is only 20% of the increased economic output of the high income countries

In the early 1970s the UN General Assembly recommended that high-income countries should provide 0.7% of their GDP to development aid and this was later reiterated in other fora, including the Rio Earth Summit in 1992. The level never reached more than 0.36% or \$90 billion (OECD, 2006). The accumulated shortfall of aid since 1975 is about \$2 trillion, which can be considered as a debt from the rich to the poor. The annual gross world product is approximately \$40 trillion, \$30 trillion of which is created in the high-income countries. Aid at 0.7% of GDP would amount to \$210 billion per year, which is more than double the current aid level. The combined GDP of the high income countries is increasing by \$1 trillion each year, which means that the \$200 billion required for aid is only 20% of the annual wealth increase of the high income countries.

If personal taxation in the high income countries to meet the additional aid requirements is not politically acceptable, what are the alternatives? The Helsinki Process report (Cheru and Bradford, 2006) and recent debate point to a number of options: some type of global tax, carbon taxes, international air travel taxes, debt cancellation, special drawing rights from the IMF, the International Finance Facility, or a Global Premium Bond. UN-HABITAT (2006) proposes additional mechanisms: the Slum Upgrading Facility, local support via Cities Alliance, and effective use of the Poverty Reduction Strategy Papers (PRSPs).

As an example of the options, one way to collect additional resources for aid would be a small tax on foreign exchange transactions, the so-called Tobin tax (after the economist James Tobin, who suggested this more than 25 years ago). This tax was meant to discourage speculative foreign exchange transactions while the influence on long-term cross-border trade and investments would be minimal (Ul Haq et al., 1996). Approximately \$2 trillion in foreign exchange transactions are carried out each day (BIS, 2005). A superficial estimate indicates that a Tobin tax of 0.02% would collect \$400 million per day, or \$150 billion per year, similar to the aid commitment made by the high-income countries in the 1970s. However, a detailed analysis is required to make a more reliable estimate.

It is the will to share the wealth of the people in the affluent countries around the planet and the political leadership to make the sharing happen that have failed so far. An equitable sharing of wealth and resources globally is the greatest inequity challenge facing the world (UN, 2005a). Poverty has also been identified as

the most important determinant of ill-health (WHO, 2002). The Millennium Development Goals process, with its focus on poverty reduction and health improvement, is one step in the direction of a more equitable world (UN, 2005b). One might conclude that one of the most important social determinants hampering efforts to improve health among the poor is the lack of true solidarity of the more affluent countries and peoples with the plight of the poor and disadvantaged.

7. Conclusions and recommendations

Conclusions and recommendations concerning how to improve health equity in urban settings have been discussed by KNUS at all stages of the review process. This section of the report draws on the evidence presented in the main report as well as in all of the Appendices and the additional case studies and background materials (including the thematic reports) available to KNUS. A draft of this section was discussed at the second KNUS meeting in Dar es Salaam and additional material has been included in consultation with KNUS members during the following months.

The urban setting as a health determinant

During the period of the work of the CSDH, the world's population passed an important milestone: more than half of the population now lives in urban settings -- ***The world is becoming urban***

The world has two dozen megacities with more than 10 million inhabitants. Most of these cities are in developing countries. Their population will grow, but at a slower pace than in the 500 smaller cities with one to ten million inhabitants -- ***Urban growth will be highest in the smaller cities***

The urban setting is a lens that magnifies or diminishes other social determinants of health. Urban environments have a number of contextual and compositional attributes such as size, density, complexity and verticality that affects health equity in both positive and negative ways. Urban settings have distinct qualities, resources, and problems; as a place made by people, urban settings can also be modified, enhanced, and transformed. -- ***Urbanization itself is a determinant of health***

Health inequity leads to a gradient of inequalities in most societies at all levels of economic development. Slums are the most extreme form of poverty related health deprivation, and is therefore the strategic focus of this KNUS report -- ***Poverty leads to slum formation and ill-health***

The report unmasks health inequity in urban settings and highlights how the urban settings can be optimized to protect and promote health. The inequity operates through a number of social determinants of health that can be categorized as structural or intermediate, which are linked to each other -- ***a web of interlinking determinants***

Health-promoting social and living conditions are one of the stipulated human rights and should be supported for that reason alone. In addition, good health is a determinant of the individual and societal economic status -- ***Investments in urban health can create major returns for the economy***

There is a strong association between a country's level of GDP per person and the country's life expectancy, particularly at GDP level below \$10 000. This may be particularly relevant in urban settings -- ***Improvement in incomes in the urban setting contribute to better health***

It is also clear that improvements in health are dependent on policies that create healthy living environments and access to health services for all -- ***Economic growth and better income is not enough***. The KNUS report also highlights that ***urban poverty and unhealthy living conditions are associated health determinants*** and that ***urban poverty is linked to powerlessness***

Governance is the key to making improvements in unhealthy social and environmental conditions in urban settings. This involves the community at all levels and not just formal government entities -- ***Governance is not just about government***

The future of urban health will rest with choices in policy and practice that, in turn, are dependent upon the position of urban settings in systems of power and governance. Typically, cities are subjected to the power of higher governmental bodies and economic actors who determine to a considerable extent the problems that cities need to address and the resources cities will have to deal with these problems -- ***When governance is empowering, control over the resources for health can be shared***

Urbanization is a key factor in health equity development: current development models contribute to the proliferation of informal settlements and intolerable living conditions for millions of people -- ***the emerging pathway for change: Healthy urban governance***

The urban health situation

Patterns of future urban growth can be expected to have a multiplier effect on many dimensions of ill-health and disease. The global burden of disease analysis indicates which health conditions are of priority in different urban settings. Achieving health equity requires the elimination of unnecessary diseases and injuries in population groups made vulnerable or particularly exposed to health hazards due to social discrimination or disadvantage. The major disease problems of the developing world are also those that are particularly prominent among the socially disadvantaged -- ***Urban poverty is a cause of much of the global burden of disease***

Communicable diseases, including HIV/AIDS can be expected to continue to require attention, but the relative preponderance of injuries and noncommunicable health issues will increase -- ***Communicable diseases: remaining and emerging concerns***

The global burden of disease study showed the high ranking in importance of malnutrition and underweight in children, diarrhoeal diseases, acute respiratory infections, HIV/AIDS, tuberculosis, malaria, and various types of injuries -- ***Social determinants of great importance in the spread of the HIV/AIDS pandemic***

However, injuries and noncommunicable disease such as cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are rapidly increasing problems for the socially disadvantaged. The range of issues of importance for health equity includes: ***Road traffic injuries: a growing urban health threat in developing countries; urban violence and crime affect the poor in countries at all development levels; the stresses of poverty are a factor in poor mental health; substance abuse and illicit drug use linked to social conditions; urban social factors associated with underweight and overweight***

In summary: ***Reducing the burden of disease, disability and death in urban settings requires attending to the social determinants of health as well as the provision of health services.***

Key issues and concepts of health equity impacts

Some of the most important intermediate social determinants of health are those that influence the quality of the living environment. A number of international assessments and recommendations during recent decades have provided ample evidence and guidance for communities, governments and the international community to implement appropriate preventive policies. This includes Agenda 21, UN-HABITAT reports, WHO Commissions, UNEP assessments, ILO conventions and UNDP calls for action. However, the list of remaining action areas includes: ***Lack of water and sanitation, a major remaining health threat for the urban poor; the need for cleaner household fuels among the poor; Housing and shelter quality: strong health determinants; the poor accommodated in unsafe locations; Urban air pollution, traffic safety and emerging infections of concern; Uncontrolled workplace health hazards common in low income settings***

A new dimension to the structural social determinants of health has emerged via the evidence on the resource limitations of planet Earth and the need to find appropriate approaches to protect the life-supporting features of this planet, which include both social and environmental features -- ***Policies for sustainable development need to integrate the aim of health equity***

One of the greatest current challenges for the international community is climate change, which, while primarily being the result of the past and current greenhouse gas emissions of high income countries, affects poor people in developing countries first and most severely -- ***Global climate change, a major threat to health of the poor in rural and urban areas***

Disease control initiatives, such as the special programmes for HIV/AIDS, TB and malaria, will play a role in reducing certain aspects of global health inequity, but more general programmes of health protection and disease control are required for comprehensive improvements to be achieved, and good quality health care is essential -- ***Access to affordable health care in urban settings is a key health equity issue***. Without health care and appropriate rehabilitation and social protection systems, the disease victims and her/his family may lose their livelihood -- ***Ill-health can be a cause of poverty and inequality***

Within urban communities there are people with different level of vulnerability due to social or cultural practices -- ***Women have particular health needs and vulnerabilities***

Other vulnerable people include children, the aged and the disabled. Children may have been the focus for special health policies and actions for decades, but demographic change means that health inequities affecting the aged and disabled will require more attention in urban settings -- ***Demographic change and ageing: growing health equity challenges***

A broad spectrum of interventions

Empowered urban communities can be active stakeholders in improving health and promoting social cohesion. Investments in community empowerment and opportunities for participation must be provided by governments and other key stakeholders. This can be a catalyst for releasing the community capacity for development in health. Poverty can limit community participation and therefore reduce social cohesion. This is particularly pertinent for those groups already marginalised because of discrimination in the job market, for example. Therefore, addressing the social determinants of inequity within poor communities is fundamental to building social capital -- ***Social cohesion, a firm base for urban health equity interventions***

The KNUS analysis has highlighted the link between structural social determinants of health and the intermediate determinants in people's living environment -- ***Improving the living environment is essential***

The areas of interventions identified by KNUS are listed below under sub-headings of different settings of the living environment. A number of the interventions will require actions by other sectors than the health sector (infrastructure, housing, energy, transport, industry, agriculture). The need for multi-sectoral policies and actions to improve health equity is a fundamental aspect of the social determinants of health.

Creating healthy housing and neighbourhoods:

The provision of safe, sufficient, accessible and affordable drinking water, proper sanitation, solid waste removal, drains for wastewater and control of vector-borne diseases, especially in informal settlements, is essential to reducing health inequity.

Affordable, dependable and clean household energy alternatives are critical to achieving significant improvements in health and well-being among the poor -- ***Air pollution control benefits the poor***

Adequate, healthy and affordable housing should include the use of safe and sustainable building materials, sound construction practices and appropriate energy conservation considerations. In addition, the poor should not be relegated to building in swamps, flood-prone areas, on unstable hillsides, next to toxic industries or other hazardous locations.

Facilitating the provision of new affordable housing is an important complement to upgrading low-income informal settlements. Urban policy should aim to prevent the formation of informal settlements through new housing while upgrading existing informal settlements and recognizing their legal status. Upgrading programs should be coordinated and comprehensive in order that health risks are minimized.

Partnerships at the neighbourhood level and between community groups and municipal organizations are crucial to creating sustainable housing solutions for the urban poor. Nongovernmental organizations, neighbourhood groups and the provision of “sweat-equity” by home owners should be supported as important factors in enabling families to improve their housing and living conditions.

Environmentally-friendly public transport and walking and cycling facilities are key elements in providing transport for the poor and reducing the adverse health impacts of a “car society”, including reduction of road traffic injuries and urban air pollution.

Informal settlement improvement projects that only address local environmental health problems in a partial manner, such as providing water supply and improving road surfaces, are not sufficient to reduce health inequalities in a sustainable manner. The best way forward is comprehensive physical infrastructure improvement (including better drains, household toilets, sewage disposal, vector control, solid waste collection, electricity supply and primary health care services), coupled with empowerment of the community to identify key problems, design appropriate solutions, implement them and maintain the built infrastructure.

Recognizing the particular impact of global climate change on the urban poor, coordinated national and international policies to minimize the severity of climate change need to be developed and implemented as a matter of urgency, consistent with the UN Framework Convention on Climate Change and related protocols. Every city should consider developing a Municipal Adaptation Plan for climate change.

Promoting and facilitating good nutrition and physical activity:

The health and agriculture sectors should jointly promote national food systems based on principles of: 1) self-sufficiency in dietary diversity (where environmental conditions permit) and 2) the provision of livelihoods through the production and distribution of food, providing the optimal conditions for food security in rich and poor countries alike. Self-reliant food systems contribute to stronger local economies and to greater control over the price of foods.

The food security, good nutrition and health of urban people would be enhanced through environmentally-friendly “urban agriculture” programmes and locally-controlled distribution hubs that foster food system self-sufficiency and sustainability; these also contribute both to the availability of higher quality food (particularly fruits and vegetables) and local economic vibrancy.

The viability of local food vendors and food markets should be enhanced through:

- Urban planning that encourages multiple forms of transportation;
- Food safety protocols that are appropriate for local conditions,
- Control and better governance of the local activities of multinational supermarkets and food suppliers; and
- Support for cooperative ventures among small traders.

Governments and nongovernmental organizations should create opportunities for recreation, physical activity and participation in the arts and other cultural activities to enhance livelihood, social cohesion, health and well-being.

Creating safe and healthy workplaces:

Measures to ensure the provision of safe and healthy working environments, particularly in relation to cottage-based industries, need to be an integral component of initiatives to reduce health inequity. The exposure of the local population, often the poorest, to pollutants emitted from workplaces is another concern for health equity.

Urban planning needs to consider how the environment, poverty, health and time to care for children are affected by travel distances and travel modes for work commuting. In addition, insufficient income from work to cover the cost of living is a key social determinant.

Preventing urban violence and substance abuse:

Governments have a fundamental obligation to ensure safety and security from crime and violence at the societal, community, family/relationship and individual level. This obligation involves the role of service-provider, regulator, as a partner with civil society, or as a facilitator or financial resource for community-provided crime prevention and dispute resolution services.

Interventions for improving safety and security at the community level often involve engagement of local leaders in dispute resolution, investing in lighting and neighbourhood watch initiatives, educational and recreational activities (including job training opportunities), and licit and illicit drug use prevention and harm reduction, but there are local contexts where other approaches are needed.

Poor housing conditions, cramped living space and the lack of privacy in small dwelling places in informal settlements may contribute to the perpetuation of sexual, physical and psychological violence at home. In some instances however, housing proximity favours prevention by allowing neighbours' organizations to react protectively when it occurs.

Preventing and managing disputes that may arise when culturally diverse populations are expected to live harmoniously within confined urban areas – the product of migration by different ethnic, religious and language groups from their homogenous homelands – requires context-specific programmes and policies that promote social cohesion, in order to minimize the potential physical and mental health consequences of such interactions.

A health system that is equitable

In urban communities, where highly prevalent diseases have diminished human capital, health promotion, disease control and prevention are entry points for community mobilization and are a prerequisite for social development -- ***Communicable disease control a priority***

Primary health care systems must be comprehensive, continuous, family- and community-centred, health-promoting, innovative, and focused on providing equitable access to health services for the most vulnerable populations -- ***Primary health care services for all***

Evidence is developing that a new approach to poverty alleviation, conditional and unconditional cash transfers, can be used to enable poor people to make their own choices for better nutrition, education, housing, etc. -- ***If cash transfers promote equity within rich countries, why not apply the system globally?***

The Healthy Cities movement has created a vehicle for health equity interventions:

Fostering opportunities for information and experience exchange and networking between cities and communities is a powerful strategy to promote mutual learning and implementation of best practice. Urban populations include highly mobile and diverse groups and evidence indicates that the “healthy city”, “healthy municipality” or “healthy settings” approaches provide effective frameworks for integrative health promotion. They also constitute a platform for generating healthy urban policies.

Proactive urban planning supported by sufficient investment can achieve healthy urbanization:

Future urban development needs to consider means to reduce unsustainable energy and resource use and supply of renewable energy. The indirect effects on global public health in the long run can no longer be ignored. Current and emerging eco-friendly approaches to town planning, housing design and workplace developments need to be systematically applied in order to minimize health inequalities in the future -- ***Health focused urban development planning also essential in high income countries***

Urban planning and land use policy should be forward looking, anticipating economic, demographic and technological change, and providing a mechanism for coordination of services and infrastructure development. Particular attention should be paid to accounting for migration trends and peri-urban areas. In

this context, national and sub-national governments should collectively address the push-pull factors behind rural-urban migration.

Land-use planning should address the links between “planning/design for health” and design for sustainability, design for safety and walkability. The application of theories of New Urbanism and smart growth to planning are not only good for the environment, they are also good for health. Planning schools need to train planners explicitly to consider the health and equity impacts of their design and learn to plan/design for health. The same applies to the training of engineers, architects and other professionals involved in urban planning and design.

Urban planning should support home ownership on the one hand and rental accommodation on the other. In relation to home ownership, urban planning should provide for choice of location, enable the coordination of services and infrastructure development and be underpinned by appropriate public finance frameworks that include, among other things, micro-financing for housing.

In order to achieve all these interventions – *the combined impact of many interventions can be maximized by good governance.*

To support the work of Member States, it is recommended that WHO jumpstart the mainstreaming of urban health in health systems development through:

1) the development and global application of the urban health equity assessment and response tool (“Urban HEART”), that will enable Ministries of Health to track areas of rapid urbanization and monitor health inequity and appropriateness of responses/interventions in urban settings;

2) a global report on urban health; and

3) a joint UN-HABITAT/WHO global meeting on healthy urbanization that could coincide with the biannual World Urban Forum of UN-HABITAT, possibly in 2010.

Approaches and policies to make interventions happen

An integrated approach with community participation brings lasting solutions:

Promoting equity in urban settings requires an integrated, multi-level approach to problem-solving that involves a variety of stakeholders. There are no single-model, quick-fix, one-dimensional solutions. An effective strategy for achieving equity in urban settings requires sensitivity to and respect for local context, an inclusive approach and an explicitly pro-poor orientation. These are key elements of good governance, without which health equity cannot be achieved.

Healthy public policy brings different sectors together for urban health equity:

Healthy public policy and urban governance, or the systems, institutions and processes that promote a higher level and fairer distribution of health in urban settings, is a key and critical pathway for reducing health inequity in cities. Key features of healthy urban governance include:

- putting health and human development at the centre of government policies and actions;
- building on and supporting community grassroots efforts to develop healthy urban environments and infrastructure;
- developing mechanisms for bringing together private, public and civil society sectors, and defining roles and mechanisms for international and national actors to support local governance capacity;
- higher levels of government providing local governments with both the mandate and the means to improve health;
- participatory budgeting and other civic engagement processes as important means to engage the local community.

The local community can make step-wise health improvements even with limited funds:

Community-based participatory surveillance of urban health determinants should be a component of health and social outcome surveillance initiatives, including the monitoring of intra-urban differentials to produce comparative analyses. In monitoring progress, community involvement promotes empowerment, engenders the sustainability of interventions and ensures ownership.

Appropriate feedback mechanisms for communities to report their satisfaction with the actions and activities of bilateral and multilateral development donors – whose large budgets can significantly impact on development outcomes but potentially undermine existing projects – also promote community empowerment and ownership by ensuring each community's priorities and unique needs are considered.

Civil society organizations are an essential means of mobilizing existing knowledge and capacity in poor communities. Significant investment should be made in “micro-governance” interventions to support robust institutions of local governance for people in urban settings, especially the poor.

Formal and informal mechanisms should be developed to facilitate transmission of knowledge regarding social determinants and health and how these may be modified, with particular attention given to meeting the challenges presented by decentralized settings and services.

Mechanisms should be strengthened to inspire, encourage and support the release of the capacities and energies of the poor and indigenous peoples themselves in order to accelerate sustainable community development and give people hope for a better future. The role of civil society in this work is fundamental.

At global level, approximately \$200 billion per year of funding transfer from high income countries is needed to support health equity programs in low income countries:

Several reports from the UN and other agencies have quantified the financial resources needed to make major improvements in health equity as expressed in the Millennium Development Goals. The resources needed (approximately \$200 billion) exceed current levels (\$80 billion) of development aid. Feasible ideas for finding these resources at global level need to be urgently identified and implemented.

The funding transfer requirement is only 20% of the increased economic output of the high income countries:

Failure to eliminate intolerable living conditions among the poor in the world's cities (who represent a third of the global urban population) at a time when immense financial and technical resources are available globally, suggests a deplorable disregard for the principle of health as a human right by decision-makers in the global community. Sustained improvement of health equity in urban settings can only be achieved if a global commitment to provide the necessary resources for the poor is made. With a gross world product of \$40 trillion (\$30 trillion in affluent countries alone), increasing at more than \$1 trillion per year, the resource transfer needed to eliminate intolerable living conditions for the urban poor and significantly reduce health inequality (approximately \$200 billion per year) is achievable. The financial transfers required represent no more than 20% of the annual *increase* of the average economic output of the high-income countries, which would seem a reasonable commitment from the rich to assist the poor.

It is critical that the principles of social justice and health equity be elevated to the global level where the inequities between and among countries take root. To date, most OECD countries have failed to deliver on their commitment to allocate 0.7% of annual GDP to international development cooperation.

In summary -- ***Healthy urban governance and integrated approaches to interventions are key pathways to reducing health inequity. Increased resources and a fairer distribution of resources for health investments in urban settings is vital.***

References

ADB. *Gender Checklist on Water Supply and Sanitation Projects*. Manila: Asian Development Bank (ADB), 2000

Alaniz ML. Community-identified alcohol issues in the Mexican-American community: Research design and utilization. *Substance Use and Misuse*, 2000, 35(1&2):157-169

Allison KW et al. Adolescent substance use: Preliminary examinations of school and neighborhood context. *American Journal of Community Psychology*, 1999, 27(2):111-141.

Alperstein G and Nossar V. Can the Families First Initiative contribute to reducing health inequalities? *NSW Public Health Bulletin*, 2002, 38-41.

Ambert, Cecile, Katja Jassey and Liz Thomas. *HIV, Aids and urban development issues in sub-Saharan Africa*. Sida, Stockholm, 2006.

Ambert, Cecile, Katja Jassey and Liz Thomas. *HIV, Aids and urban development issues in sub-Saharan Africa: Beyond sex and medicines: Why getting the basics right is part of the response!* Sida, Stockholm, 2007.

Aniello C, Morgan K, Busbey A, Newland L. Mapping Micro-Urban Heat Islands Using Landsat TM and a GIS. *Computers & Geosciences*. Oct 1995, 21:965.

APHRC, *Population and Health Dynamics in Nairobi's Informal Settlements*. African Population and Health Research Center, Nairobi, 2002.

Arrossi, Silvina, Inequality and health in Metropolitan Buenos Aires. *Environment and Urbanization*, 1996, Vol.8, No.2, October, pages 43-70.

Barten F, Mitlin D, Mulholland C, Hardoy A and Stern R. (2006) Healthy governance/participatory governance, towards an integrated approach of social determinants of health for reducing health inequity. [Thematic paper for KNUS second meeting.] Abridged version: Integrated approaches to address the social determinants of health for reducing health inequity. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Barton H and Tsourou C. *Healthy urban planning*. London, SPON Press, 2000

Basta, Samir S. Nutrition and Health in low income urban areas of the Third World. *Ecology of Food and Nutrition*, 1977, Vol. 6, pp113-124.

Beaglehole R, Bonita R. and Kjellstrom T. *Basic Epidemiology. Revised Update*. World Health Organization, Geneva, 2000.

Beall J and Fox S. *Urban poverty and development in the 21st century*. Oxfam research report. Oxford: Oxfam, 2007.

Bendana A. "Good governance" and the MDGs: contradictory or complementary? Focus on the Global South [website], 12 October 2004.

Bhorat H. *Poverty, Inequality and Labour Markets in Africa: A Descriptive Overview*, Development Policy Research Unit, Development Policy Research Unit, March 2005, Working Paper 05/92.

BIS. *Triennial central bank survey of foreign exchange and derivatives*. Basel, Switzerland, Bank of International Settlements, 2005.

Blue T. *Intra-urban differentials in mental health in Sao Paulo, Brazil*. [PhD thesis]. South Bank University, London, 1999.

Boonyabancha, Somsook. Baan Mankong; going to scale with 'slum' and squatter upgrading in Thailand. *Environment and Urbanization*, 2005, Vol. 17, No. 1, pages 21-46.

Boonyabancha S. Scaling up slums and squatter settlements upgrading in Thailand leading to community-driven integrated social development at city-wide level. Paper presented at the New Frontiers of Social Policy: Development in a Globalized World, Arusha, 2005.

Bossert T and Beauvais J. Decentralization of health systems and Ghana, Zambia, Uganda and the Philippines: a comparative analysis and decision space. *Health Policy and Planning*. 2002, 17 (1) 14-31

Bradford R and Kawabata M. 2006. From exclusion to participation: activities of the Kamagasaki Community Regeneration Forum. Case study for Pridmore et al. *Social Capital and Healthy Urbanization in a Globalized World*, thematic paper for the Knowledge Network on Urban Settings, WHO Centre for Health Development, 2007
(http://www.who.or.jp/knusp/docs/00_12KNUS_Case_Studies_130307ed.pdf)

Bradley, David, Carolyn Stephens, Sandy Cairncross and Trudy Harpham. *A Review of Environmental Health Impacts in Developing Country Cities*. Urban Management Program Discussion Paper No. 6, The World Bank, UNDP and UNCHS (Habitat), Washington DC, 1991.

Bruce NG, Perez-Padilla R, Albalak R. Indoor air pollution in developing countries: a major environmental and public health challenge. *Bulletin of the World Health Organization*, 2000, 78:1078-109

Bruce N et al. Indoor air pollution. In: Jamison DT et al., eds. *Disease control priorities in developing countries*. 2nd ed. New York, Oxford University Press, 2006.

Budds, Jessica with Paulo Teixeira and SEHAB. Ensuring the right to the city: pro-poor housing, urban development and land tenure legalization in São Paulo, Brazil. *Environment and Urbanization*, 2005, Vol. 17, No. 1, pages 89-114.

Burris, Scott, Peter Drahos and Clifford Shearing. Nodal Governance. *Australian Journal of Legal Philosophy*, 2005, 30:30-58.

Burris, Scott, Ichiro Kawachi, and Austin Sarat. Integrating Law and Social Epidemiology. *Journal of Law, Medicine & Ethics*, 2002, 30:510-21.

Burris S et al., (2006) Emerging principles of healthy urban governance. [Thematic paper for KNUS second meeting.] Also in *Journal of Urban Health*, vol. 84, no.3, May 2007

Buvinic M, Morrison A and Shifter M. *Violence in Latin America and the Caribbean: A Framework for Action*. Sustainable Development Department, Inter-American Development Bank, Washington, D.C., 1999.

Caldeira, Teresa PR. Building up walls: the new pattern of spatial segregation in Sao Paulo. *International Social Science Journal*, No. 147, March 1996, 55-66.

Campbell T and Campbell A (2006) Emerging health risks in cities of the developing world. [Thematic paper for KNUS second meeting.] Abridged version: Emerging disease burdens and the poor in cities of the developing world. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Campbell-Lendrum D and Corvalan C. Climate change and developing country cities: implications for environmental health and equity. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Cano, Ignacio. *Letalidade da Ação Policial no Rio de Janeiro: A Atuação da Justiça Militar*. Rio de Janeiro: Instituto de Estudos da Religião-ISER, 2000.

Carlson P, Vagero D. The social patterns of heavy drinking in Russia during transition. *European Journal of Public Health*, 1998, vol. 88, no. 4, pp280-285.

Case A, Fertig A and Paxson C. (2003). *From Cradle to Grave? The Lasting Impact of Childhood Health and Circumstance*. NBER Working Paper 9788. Cambridge, MA: National Bureau of Economic Research.

Chant S. *Gender, Urban Development and Housing*. Publication Series for Habitat II, Volume 2. United Nations Development Programme, 1996.

Cheru F and Bradford C. *The Millennium development goals: raising the resources to tackle world poverty*. London, Zed Books, 2005.

Commission for Environmental Protection. *Children's health and the environment in North America*. Montreal, Commission for Environmental Protection (produced in collaboration with PAHO), 2006.

Cornia GA. Globalization and health: results and options. *Bulletin of the World Health Organization*, 79, no. 9 (January 2001): 834-41.

Corvalan C, Briggs D and Kjellstrom T. Development of environmental health indicators. In: Briggs D, Corvalan C and Nurminen M. *Linkage methods for environment and health analysis*. WHO, Geneva, 1996.

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

David AM, Mercado SP, Becker D and Edmundo K. (2006) Approaches to prevention and control of HIV/AIDS, TB and vector-borne diseases in slums and informal settlements. [Thematic paper for 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, no.3, May 2007.

Deaton A. *Health in an Age of Globalization*. NBER Working Paper 10669. Cambridge, MA: National Bureau of Economic Research, 2004.

Deaton A. *Global Patterns of Income and Health: Facts, Interpretations and Policies*. NBER Working Paper (The WIDER lecture), National Bureau of Economic Research, Cambridge MA, 2006.

Desjarlais, R et al. *World mental health: problems and priorities in low-income countries*. NY: Oxford University Press, 1995.

Devas, Nick. *Who Runs Cities? The Relationship between Urban Governance, Service Delivery and Poverty*. University of Birmingham School of Public Policy, Birmingham, 1999.

Devarajan S, Miller MJ and Swanson EV. *Development goals: history, prospects and costs*. Policy research paper. Washington DC, World Bank, 2002.

Dhara VR, Dhara R. The Union Carbide disaster in Bhopal: a review of health effects. *Archives of Environmental Health*, 2002, 57(5): 391-404.

Díaz Palacios, Julio and Liliana Miranda. Concertación (reaching agreement) and planning for sustainable development in Ilo, Peru. In: Steve Bass, Hannah Reid, David Satterthwaite and Paul Steele, eds, *Reducing Poverty and Sustaining the Environment*. Earthscan Publications, London, 2005.

Ding, WL, Lehrer SF, Rosenquist JN, and Audrain-McGovern J. *The Impact of Poor Health on Education: New Evidence Using Genetic Markers*. NBER Working Paper 12304. Cambridge, MA: National Bureau of Economic Research, 2006.

Dixon J. *The changing chicken: chooks, cooks and culinary culture*. Sydney, University of New South Wales Press, 2002.

Dixon J et al. (2006) The health equity dimension of urban food systems. [Thematic paper for KNUS second meeting.] Abridged version: The health equity dimensions of urban food systems. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Dodgson, Richard, Kelley Lee, and Nick Drager. *Global Health Governance: A Conceptual Review*. London School of Hygiene & Tropical Medicine, London, 2002.

Dorling D. Worldmapper: The human anatomy of small planet. *PLoS Med*, 2007, 4(1).

Economist. Dream Machines: Cars in China. Special Report. *Economist*. Sept 18, 2006:1.

Esser, Daniel. The city as arena, hub and prey – patterns of violence in Kabul and Karachi. *Environment and Urbanization*, 2004, Vol. 16, No. 2:31-38.

Eurocities. Eurocities calls for multilevel commitment for integration of migrants and immigrants. Press release, 10 October 2006. <http://www.eurocities.org/main.php>

Ewing Reid, Ross C Brownson and David Berrigan. Relationship Between Urban Sprawl and Weight of United States Youth, *American Journal of Preventive Medicine*, 2006, Vol 31, No 6:464-474.

Fernandes, Edesio. Implementing the urban reform agenda in Brazil. *Environment and Urbanization*. 2007, Vol. 19, No. 1.

Fong M, Wakeman W and Bhusman A. Toolkit on Gender in Water and Sanitation. In World Bank, ed. *Gender Toolkit Series* (Vol. 2). Washington DC: The World Bank, 1996.

Fotso JC. Urban-rural differentials in child malnutrition: Trends and socioeconomic correlates in sub-Saharan Africa. *Health & Place*, 2007, Vol 13, No 1, pages 205-223.

Frank, Lawrence, Kavage, Sarah and Litman, Tod. *Promoting public health through Smart Growth: Building healthier communities through transportation and land use policies and practices*. Vancouver BC: SmartGrowth BC, 2006.

Frumkin H, Frank L and Jackson R. *Urban sprawl and public health: designing, planning and building for healthy communities*. Washington DC, Island Press, 2004.

Fung, Archon. *Empowered Participation: Reinventing Urban Democracy*. Princeton: Princeton University Press, 2004.

Galea S and Vlahov D. *Handbook of urban health*. New York, Springer, 2005.

Garau P, Sclar ED, and Carolini GY. *A home in the city: Report from the UN Millennium Project*. London, Earthscan Publications, 2005.

Garenne, Michel (2006), Migration, Urbanisation and Child Health: An African Perspective. In Marta Tienda, eds. *Africa on the Move: African Migration in Comparative Perspective*. Wits University Press, Johannesburg, South Africa, pages 252-279.

Garza, Gustavo. Social and economic imbalances in the metropolitan area of Monterrey. *Environment and Urbanization*, Vol.8, No.2, October 1996, pp. 31-41.

Goesling, Brian and Glenn Firebaugh. The Trend in International Health Inequality. *Population & Development Review*, 2004, Vol 30, No 1, pages 131-146.

Goldestein A, Guo S. Temporary Migration in Shanghai and Beijing. [*Stud Comp Int Dev*](#). 1992 Summer; 27(2):39-56.

Grootaert C and van Bastelaer T, eds. *The role of social capital in development: an empirical assessment*. Cambridge: Harvard University, 2002.

Gwatkin DR, Guillot M. *The burden of disease among the global poor: current situation, future trends and implications for strategy*. Washington DC, World Bank, 2000.

Hajat S, Armstrong BG, Gouveia N, Wilkinson P. Mortality displacement of heat-related deaths: a comparison of Delhi, Sao Paulo, and London. *Epidemiology*, 2005, 16:613.

Hardoy, Jorge E. and David Satterthwaite. *Squatter Citizen: Life in the Urban Third World*. Earthscan Publications, London, UK, 1989.

Hardoy JE, Mitlin D and Satterthwaite D. *Environmental problems in an urbanizing world*. London, Earthscan Publications, 2004.

Harpham T. Urbanization and mental health in developing countries: a research role for social scientists, public health professionals and social psychiatrists. *Social Science and Medicine*, 1994, 39(2), 233-245.

Haryantiningsih. *Urban Water Supply: Experiment to Investigate Women's Roles as Customers*. In World Bank (ed.), *Final report to the World Bank*. Jakarta: The World Bank, 1997.

Hasan A, Patel S and Satterthwaite D. How to meet the Millennium Development Goals (MDGs) in urban areas. *Environment and urbanization*, 2005, 17, 3-19.

Haughton G and McGranahan G. Urban ecologies. *Environment and urbanization*, 2006, 18, 3-8.

Hawrylak M and NeAvoy W, eds. *Human security for an urban century: Local challenges, global perspectives*. Humansecurity-cities.org. Ottawa, Foreign Affairs and International Trade Canada, 2006.

Hein, Wolfgang. Global Health Governance and National Health Policies in Developing Countries: Conflicts and Cooperation at the Interfaces. In W. Hein and L. Kohlmorgan, eds. *Globalization, Global Health Governance and National Health Policies in Developing Countries: An Exploration Into the Dynamics of Interfaces*. Hamburg: Deutschen Uebersee-Instituts, 2003.

HelpAge, IDS and SCF-UK. *Making Cash Count: Lessons from cash transfer schemes in East and Southern Africa for supporting the most vulnerable children and households* (Report). London: HelpAge, IDS and SCF-UK, 2005.

Heymann DL, Rodier GR. Hot spots in a wired world: WHO surveillance of emerging and re-emerging diseases. *Lancet Infect Dis*, 2001, 1(5), 345-353.

Hogstedt C, Wegman DH and Kjellstrom T. The consequences of economic globalization on working conditions, labour relations and workers' health. In: Kawachi I and Wamala S eds. *Globalization and public health*. New York, Oxford University Press. 2007.

Holden J, Howland L et al. *Foodstuff: Living in an age of feast and famine*. London, Demos, 2002.

Housing NZ. *The New Zealand Housing strategy*. Wellington, Housing New Zealand, 2005.
<http://www.hnzc.co.nz/hnzc/web/home.htm>

Howard G and Bartram J. *Domestic water quantity, service level and health*. Document WHO/SDE/WSH/03.02, Geneva, World Health Organization, 2003.

Hume, Mo. "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*, 2004, Vol. 16, No. 2, pages 63-72.

Hunt P (2006) Neglected diseases: a human rights analysis. Document WHO/TDR/xxx. Geneva, World Health Organization (in press).

Hutchins V. Paediatricians' involvement in Promoting Community Access to Child Health (CATCH). *Paediatrics*, 1999, 1369-1432.

Hutton G. *Considerations in evaluating the cost-effectiveness of environmental health interventions*. Document WHO/SDE/WSH/00.10. World Health Organization, Geneva, 2000.

Hutton G and Haller L. *Evaluation of the costs and benefits of water and sanitation improvements at the global level*. Document WHO/SDE/WSH/04.04. World Health Organization, Geneva, 2004.

Huq S, Kovats S, Reid H and Satterthwaite D. [Editorial] Reducing risks to cities from disasters and climate change. *Environ & Urbanization*, 2007, 19, 3-15.

ILO. *Unity beyond differences: The need for an integrated labour inspection system*. Geneva, International Labour Office, 2005.

IPCC. *Climate Change 2001: Mitigation: Contribution of Working Group III to the Third Assessment Report*. Cambridge: Cambridge University Press, 2001

IPCC. *Climate Change 2007: Fourth Assessment Report*. Cambridge, Cambridge University Press, 2007.

Izutsu T et al. Mental health, quality of life, and nutritional status of adolescents in Dhaka, Bangladesh: Comparison between an urban slum and a non-slum area. *Social Science and Medicine*, 2006, vol. 63, no. 6, 1477-1488.

Jacobs J. *Cities and the Wealth of Nations* New York, Random House, 1984.

Jiménez J and Romero MI Reducing Infant Mortality In Chile: Success In Two Phases. *Health Affairs* 26, no. 2 (2007): 458–465; 10.1377/hlthaff.26.2.458]

Kawachi I and Lisa Berkman. Social Cohesion, Social Capital and Health. In: L. Berkman and I. Kawachi, eds. *Social Epidemiology*. New York: Oxford University Press, 2000.

Kawachi I and Wamala S. *Globalization and health*. New York, Oxford University Press, 2007a.

Kawachi, I. and Wamala, S. Poverty and inequalities in a globalized world. In: *Globalization and health*. New York: Oxford University Press, 2007b.

Keusch, Gerald T et al., eds. *Disease Control Priorities in Developing Countries*. New York: Oxford University Press, 2006.

Kirdar U. *Cities fit for people*. UNDP, New York, 1997.

Kjellstrom T. Climate change, heat exposure and labour productivity. *Proceedings of ISEE 2000, 12th Conference of the International Society for Environmental Epidemiology*, Buffalo, USA, August 2000.

Kjellstrom T and Corvalan C. Framework for the development of environmental health indicators. *World Health Statistics Quarterly*, 1995, 48, 144-154.

Kjellstrom T, van Kerkhoff L, Bammer G, McMichael T. Comparative assessment of transport risks – how it can contribute to health impact assessment of transport policies. *Bull World Health Organ*, 2003, 81:451-7.

Kjellstrom T, Lodh M, McMichael T, Ranmuthugala G, Shrestha R and Kingsland S. Air and water pollution: burden and strategies for control. In: Jamison et al., eds. *Disease control priorities in developing countries*. Second edition. New York, Oxford University Press, 2006.

Kjellstrom T and Hinde S. Car culture, transport policy and public health. In: Kawachi I and Wamala S, eds. *Globalization and public health*. New York, Oxford University Press, 2007.

Kjellstrom T, Friel S, Dixon J, Corvalan C, Rehfuess E, Campbell-Lendrum D, Gore F, Bartram J (2006) Improving the living environment. [Thematic paper for KNUS second meeting.] Abridged version: Urban environmental health hazards and health equity. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Kjellstrom T, Mercado S, Sami M, Havemann K and Iwao S. Achieving health equity in urban settings. *J Urban Health*, vol. 84, no.3, May 2007 (2007a).

Kretzmann, John P and John L McKnight. *Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets*. Evanston, IL: Institute for Policy Research, 1993.

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

Lee L, Lin V, Wang R, Zhao H. *Public Health in China: History and contemporary challenges*. In: Beaglehole R. *Global Public Health: A new era*. Oxford University Press, 2003.

Lee A, Kiyu A, Molina Milman H and de la Jara J. (2006) Improving health and building human capital through an effective primary care system and healthy setting approach. [Thematic paper for KNUS second meeting.] Abridged version: Improving health and building human capital through an effective primary care system. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Lee A, Fu H, Ji CY. *Report of Health Promotion activities in China from Ottawa Charter to Bangkok Charter: Revolution to Evolution*. Commissioned by the International Union for Health Promotion and Education (IUHPE) and the Canadian Consortium for Health Promotion Research (CCHPR), 2007.

Lei Guang. 2002. Strangers in the City: Reconfigurations of Space, Power, and Social Networks within China's Floating Population. Review in *Journal of Asian Studies* 61, no. 4 (November 1): 1364-1366 (accessed May 2, 2007).

Leitmann J (2006) Learning from post-disaster response in Indonesia. [Thematic paper for KNUS second meeting.] Cities and calamities: learning from post-disaster response in Indonesia. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Levy BS and Wegman DH. *Occupational health*. Boston, Little, Brown and Co., 1988.

Long NH, Johansson E, Lonnroth K, Eriksson B, Winkvist A, Diwan VK. Longer delays in tuberculosis diagnosis among women in Viet Nam. *Int J Tuberc Lung Dis*. 1999, 3(5):388-393.

Lopez A, Mathews C, Ezzati M, Jamison DT, Murray CJL. Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. *Lancet*. 2006, 347: 1747-1757.

Lopez A, Mathers C, Ezzati M, Jamison DT, Murray C. *Global burden of disease and risk factors*. New York, Oxford University Press and the World Bank. 2006b.

Lynch, John, George Davey Smith, S. A. M. Harper, Marianne Hillemeier, Nancy Ross, George A. Kaplan, and Michael Wolfson. Is Income Inequality a Determinant of Population Health? Part 1. A Systematic Review, *Milbank Quarterly*, 2004, Vol 82, No 1, pages 5-99.

Lyons M, Smuts C, Stephens A. Participation, empowerment and sustainability: (How) do the links work? *Urban Studies*, 2001, 38, 1233-1251.

Maantay J. Zoning, equity, and public health. *American Journal of Public Health* 2001, 91:1033-41.

Mabala, Richard. From HIV prevention to HIV protection: addressing the vulnerability of girls and young women in urban areas, *Environment and Urbanization*, 2006, Vol 18, No 2, pages 407-432.

Maignan C and Harnam N. Literature review: Unemployment and health. Copenhagen, World Health Organization, 2006.

Marmot M. Harveian oration, Health in an unequal world. *Lancet*, 2006, 368, 2081-2094.

Masika R, de Haan A and Baden S. *Urbanization and Urban Poverty. A Gender Analysis* (BRIDGE report). Brighton: Institute of Development Studies, 1997.

Maxwell et al. *Does urban agriculture help prevent malnutrition? Evidence from Kampala*. Food Consumption and Nutrition Division Discussion Paper 45. International Food Policy Research Institute, Washington DC, 1998.

McDougall D. Success in a slum. *Guardian Weekly*, 16–22 March 2007: 29.

McMichael AJ. Urban Environmental Health in a Globalising World. *Urban Health and Development Bulletin*, 1999, 2: 3-11.

McMichael AJ, Githeko A. Human Health. In: McCathy JJ, Canziani OF, Leary NA, Dokken DJ, White KS, eds. *Climate Change 2001: Impacts, Adaptation and Vulnerability*. Cambridge: Cambridge University Press, 2001.

McMichael A and Bambrick H. Meat consumption trends and health: casting a wider risk assessment net. *Publ Health Nutr*, 2005, 8, 341-343.

McMichael A, et al. Climate Change. In: Ezzati M, Lopez A, Rodgers A, Murray C, eds. *Comparative Quantification of Health Risks: Global and Regional Burden of Disease due to Selected Major Risk Factors*. Geneva:World Health Organization, 2004.

MDG. *Interim Report of the MDG Task Force 8 on improving the lives of slum dwellers*, Feb 1, 2004, p 2

Mendez M and Popkin B. Globalization, urbanization and nutritional change in the developing world. *Electronic Journal of Agricultural and Development Economics*, 2004, 1(2): 220-241.

Mercado S, Havemann K, Sami M and Ueda H. Urban poverty: an urgent public health issue. *Journal of Urban Health*, vol. 84, no.3, May 2007.

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

Mitlin, Diana and David Satterthwaite. Strategies for grassroots control of international aid. *Environment and Urbanization*, 2007, Vol. 19, No. 2.

Montgomery, Mark R, Richard Stren, Barney Cohen and Holly E. Reed, eds. *Cities Transformed; Demographic Change and its Implications in the Developing World*. The National Academy Press (North America)/Earthscan (Europe), Washington DC, 2003.

Montgomery, Mark R. and Alex C Ezeh. The Health of Urban Populations in Developing Countries: An Overview. In: Sandro Galea and David Vlahov eds. *Handbook of urban health: populations, methods, and practice*. Springer, New York, 2005.

Morse, Stephen. Factors in the Emergence of Infectious Diseases, <http://www.cdc.gov/ncidod/eid/vol1no1/morse.htm> (accessed on 2 May 2007)

Moser, Caroline ON. [Editorial] Urban violence and insecurity: an introductory roadmap. *Environment and Urbanization*, 2004, Vol. 16, No. 2, pages 3-15.

Mukheibir P and Ziervogel G. Developing a municipal adaptation plan (MAP) for climate change: the city of Cape Town. *Environ & Urbanization*, 2007, 19, 143-158.

Murphy, Kevin M. and Robert H. Topel. *The Value of Health and Longevity*. NBER Working Paper 11405. Cambridge, MA: National Bureau of Economic Research, 2005.

Murray CJL, Lopez A. *The global burden of disease*. Boston, Harvard School of Public Health, 1996.

Nantulya VM and Reich MR. Equity dimensions of road traffic injuries in low- and middle-income countries. *Inj Control Safety Prom*, 2003, 10, 13-20.

Navarro, Vicente, Carles Muntaner, Carme Borrell, Joan Benach, Águeda Quiroga, Maica Rodríguez-Sanz, Núria Vergés, and M Isabel Pasarín.. Politics and health outcomes. *Lancet*. 2006, vol. 368 no. 9540:p1033-1037.

Newman P, Kenworthy J. *Sustainability and cities: overcoming automobile dependence*. Washington DC, Island Press, 1999.

New York Times. Modern Ways Open India's Doors to Diabetes. *New York Times*, September 10, 2006:1.

Ngwenya BN and Kgathi DL. HIV/AIDS and access to water: A case study of home-based care in Ngamiland, Botswana. *Physics and Chemistry of the Earth, Parts A/B/C*, 2006, Vol 31, No 15-16, pages 669-680.

OECD. *Development aid at a glance. Statistics by region, 2006 edition*. Paris, France, Organization for Economic Cooperation and Development, 2006.

Ollila E. Global health priorities – priorities of the wealthy? *Global Health*, 2005;1(6).

Ompad DC, Galea S, Caiaffa WT and Vlahov D (2006) Social determinants of the health of urban populations: Implications for interventions. [Thematic paper for KNUS second meeting.] Abridged version: Social determinants of the health of urban populations: methodologic considerations. *Journal of Urban Health*, vol. 84, no.3, May 2007

Ooi GL and Phua KH (2006) Urbanisation and slum formation. [Thematic paper for KNUS second meeting.] Abridged version: Urbanization and slum formation. *Journal of Urban Health*, vol. 84, no.3, May 2007

Ostro B. *Outdoor air pollution*. WHO Environmental burden of disease series No 5. Geneva, World Health Organization, 2004.

Oxfam. *Adapting to climate change. What's needed in poor countries and, and who should pay?* Oxfam briefing paper 104. Oxford, Oxfam, 2007.

PAHO. *Healthy municipalities and communities: Mayor's guide for promoting quality of life*. Washington DC, Pan American Health Organization, 2005.

Peden M, Krug E, Mohan D, et al. *A Five-Year WHO Global Strategy for Road Traffic Injury Prevention*. Geneva: World Health Organization, 2001.

Petit-Mshana EJ, Cassels AK and Magoma FJ. Contribution of health promotion to the achievement of Millennium Development Goals. *Proc. Sixth Global Conference on Health Promotion*, Bangkok, 7–11 August 2005.

Philipson TJ and Soares RR. The Economic Costs of AIDS in Sub-Saharan Africa: A Reassessment. In: Lopez-Casasnovas, Guillem, Berta Rivera, and Luis Currais, eds. *Health and Economic Growth*. Cambridge, MA: MIT University Press, 2005.

Piquet, Leandro. 2000. Violent Crime in Latin American Cities: Rio de Janeiro and Sao Paulo. *Mimeo*. <http://www.worldbank.org/laccrime>

Polit, Karin M. The effects of inequality and relative marginality on the well-being of low caste people in Central Uttaranchal. *Anthropology and Medicine*, December 2005, 12(3): 225-237.

Pope C and Dockery D. Health effects of fine particulate air pollution: lines that connect. *Journal of the Air and Waste Management Association*, 2006, 56:709-742.

Pridmore P, Thomas L, Havemann K, Sapag J and Wood L. (2006) Social capital and healthy urbanization in a globalized world. [Thematic paper for KNUS second meeting.] Abridged version: Social capital and healthy urbanization in a globalized world. *Journal of Urban Health*, vol. 84, no.3, May 2007

Pronyk P, Hargreaves JR, Kim JC, Morison LA, Phetla G, Watts C, Busza J and Porter JD. *Effect of a structural intervention for the prevention of intimate partner violence and HIV in South Africa: a cluster randomized trial*. Paper presented at the International Aids Conference, Toronto, 2006.

Pruess-Ustun A and Corvalan C. *Preventing disease through healthy environments: Towards an estimate of the environmental burden of disease*. Geneva, World Health Organization, 2006.

Pryer J. *Poverty and Vulnerability in Dhaka Slums; the Urban Livelihoods Study*. Ashgate, Aldershot, 2003.

Pryer J. The impact of adult ill-health on household income and nutrition in Khulna, Bangladesh. *Environment and Urbanization*, Vol. 5, No. 2, October 1993, pp. 35-49.

Rakodi, Carole. Poverty lines or household strategies? A review of conceptual issues in the study of urban poverty. *Habitat International*, 1995, Vol.19, No.4, pp. 407-426.

Rawlings LB and Rubio GM. *Evaluating the impact of conditional cash transfer programs. Lessons from Latin America*. World Bank Policy Research Working Paper 3119, August, 2003.

Rehfuess E. *Fuel for life*. Geneva, World Health Organization, 2006.

Rehfuess E, Mehta S, Prüss-Üstün A. Assessing household solid fuel use – multiple implications for the millennium development goals. *Environmental Health Perspectives*, 2006, 114(3):373–378.

Ritzen J, Easterly W and Woolcock M. *On "Good politicians" and "Bad policies". Social Cohesion, Institutions and Growth* (Policy Research Working Paper 2448). Washington DC: WBI, 2000.

Rodgers, Dennis. Disembedding the city: crime, insecurity and spatial organization in Managua, Nicaragua. *Environment and Urbanization*, 2004, Vol. 16, No. 2, pages 113-124.

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

Rosling H, Rosling-Ronnlund A and Rosling O. New software brings statistics beyond the eye. *Proceedings OECD World Forum on Indicators: Statistic, Knowledge and Policy*, Palermo, Italy, November 2004. Paris, OECD. <http://www.oecd.org/dataoecd/39/48/33843977.doc>

Roy AN, A Jockin and Ahmad Javed. Community police stations in Mumbai's slums. *Environment and Urbanization*, 2004, Vol. 16, No. 2, pages 135-138.

Ruel, Marie T and James L Garrett. Features of Urban Food and Nutrition Security and Considerations for Successful Urban Programming. *Electronic Journal of Agricultural and Development Economics*, 2004, Vol. 1, No. 2, pages 242-271.

Sachs JS. *The end of poverty: How we can make it happen in our lifetime?* London, Penguin Books, 2005.

Sampson RJ, and Raudenbush SW. Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology*, 1999, 105(3):603-651

Satterthwaite, David. Urban Poverty: Reconsidering its Scale and Nature. *IDS Bulletin*, Vol.28, No.2, April 1997, pp. 9-23.

Satterthwaite, David. *Outside the Large Cities; the demographic importance of small urban centres and large villages in Africa, Asia and Latin America*. Human Settlements Discussion Paper; Urban Change-3, IIED, London, 2006.

Satterthwaite, David with Arif Hasan, Perween Rahman and Sheela Patel. *Appropriate sanitation technologies for addressing efficiencies in provision in low- and middle-income nations*. Human Development Report Office Occasional Paper, 2006/30.

Satterthwaite, David. In pursuit of a healthy urban environment. In: Peter J. Marcotullio and Gordon McGranahan, eds. *Scaling urban environmental challenges: from local to global and back*. Earthscan, London, 2007a .

Satterthwaite, David. *The Transition to a Predominantly Urban World and its Underpinnings*, Human Settlements Discussion Paper, IIED, London, 2007b.

Sen A. *Development as freedom*. New York, Alfred A Knopf Publ, 1999.

SEWA. *Parivartan and its impact: A partnership program*. Ahmedabad, India, Self Employed Womens Academy, 2002.

Sherbinin A de, Schiller A and Pulsipher A. The vulnerability of global cities to climate hazards. *Environ & Urbanization*, 2007, 19, 39-64.

Sheuya S, Patel S, and Howden-Chapman P (2006) 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, no.3, May 2007.

Shrader-Frechette K. *Environmental justice: creating equality, reclaiming democracy*. Oxford University Press, New York, NY.

Sikod, Fondo. Constraints to managing urban poverty in Cameroon. *Environment and Urbanization*, 2001, Vol 13, No 1, pages 201-208.

Simopoulos AP, Bhat RV, eds. *Street Food*. Basel: Krager, 2000.

Singh, Abha Lakshmi, Shahab Fazal, Farooque Azam and Atiqur Rahman. Income, environment and health; a household level study of Aligarh City, India. *Habitat International*, 1996, Vol.20, No.1, pp. 77-92.

Smith KR, Mehta S, Feuz M. Indoor air pollution from household use of solid fuels. In: Ezzati M et al., eds. *Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors*. Geneva, World Health Organization, 2004.

Solar, Orielle and Alec Irwin. *Towards a Conceptual Framework for Analysis and Action on the Social Determinants of Health*. Geneva: Commission on Social Determinants of Health, 2005.

Songsore, Jacob and Gordon McGranahan. Environment, wealth and health; towards an analysis of intra-urban differentials within Greater Accra Metropolitan Area, Ghana. *Environment and Urbanization*, 1993, Vol. 5, No. 2, October, pp. 10-24.

Stein, Alfredo. Participation and sustainability in social projects: the experience of the Local Development Programme (PRODEL) in Nicaragua. *Environment and Urbanization*, 2001, Vol 13 No 1, pages 11-35.

Stein, Alfredo with Luis Castillo. Innovative financing for low-income housing improvement: lessons from programmes in Central America. *Environment and Urbanization*, 2005, Vol. 17, No. 1, pages 47-66.

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

Stephens, Carolyn. Healthy cities or unhealthy islands: the health and social implications of urban inequality. *Environment and Urbanization*, Vol.8, No.2, October 1996, pp. 9-30.

Stephens, Carolyn, Ian Timaeus, Marco Akerman, Sebastian Avle, Paulo Borlina Maia, Paulo Campanerio, Ben Doe, Luisiana Lush, Doris Tetteh and Trudy Harpham. *Environment and Health in Developing Countries: an Analysis of Intra-urban Differentials*, London School of Hygiene and Tropical Medicine, London, 1994.

Stephens, Carolyn, Marco Akerman, Sebastian Avle, Paulo Borlina Maia, Paulo Campanerio, Ben Doe and Doris Tetteh. Urban equity and urban health: using existing data to understand inequalities in health and environment in Accra, Ghana and Sao Paulo, *Environment and Urbanization*, Vol.9, No.1, April 1997, pp. 181-202.

Stickley A, Leinsalu M, Andreev E, Razvodovsky Y, Vågerö D, McKee M. Alcohol poisoning in Russia and the countries in the European part of the former Soviet Union, 1970-2002. *Eur J Public Health*. Feb 27 2007; [Epub ahead of print]

Stillwaggon, Eileen (2006), Reducing environmental risk to prevent HIV transmission in Sub-Saharan Africa, *Africa Policy Journal*, Vol 1, pages 37-57.

Szreter S. Health, economy, state and society in modern Britain: The long-run perspective. In: Chopra M, Sundin J and Willner S, eds. *Hygiea Internationalis*, 2004, 4 (1), 205-228 (special issue).

Tang KC, Nutbeam, Kong LZ, Wang RT, Yan J. Building capacity for health promotion – a case study from China. *Health Promotion International*, 2005, 20(3): 285-295.

Tannerfeldt G, Ljung P. More urban less poor: an introduction to urban development and management. Sida/Earthscan Publications, 2006.

Thomson H, Petticrew M, Morrison D. Health effects of housing improvement: systematic review of intervention studies. *British Med J*, 2001, 323, 187-190.

Thomson H, Petticrew M, Morrison D. Health impact assessment of housing improvements: incorporating research evidence. *J Epidem Comm Health*, 2003, 57, 11-16.

Thomson H, Petticrew M, Morrison D. Do urban regeneration programmes improve public health and reduce health inequalities? A synthesis of the evidence from UK policy and practice (1980-2004). *J Epidem Comm Health*, 2006, 60, 108-115.

Tipping D et al. *Achieving healthy urban futures in the 21st century*. UN-HABITAT, 2005.

Todd, Alison. Health inequalities in urban areas: a guide to the literature. *Environment and Urbanization*, Vol.8, No.2, October 1996, pp. 141-152.

Ul Haq M, Kaul I, Grunberg I. *The Tobin tax*. New York, Oxford University Press, 1996.

UNAIDS. *2006 Report on the global AIDS epidemic*, UNAIDS, Geneva, 2006. Accessed April 2, 2007. (http://www.unaids.org/en/HIV_data/2006GlobalReport/default.asp.)

UNDP. *Human Development Report 1998*. New York, United Nations Development Programme, 1998.

UNDP. *UN Millennium project – Investing in development: a practical plan to achieve the Millennium Development Goals*. London, Earthscan, 2005.

UNDP. *Human development report 2006*. New York, United Nations Development Program, 2006.

UNFPA. *State of the world population*. New York, United Nations Population Fund, 2004.

UN-HABITAT. *The Global Campaign on Urban Governance: Concept Paper* (2nd ed). UN-HABITAT, 2002.

UN-HABITAT. *The challenge of slums: Global report on human settlements*. Nairobi, UN-HABITAT, 2003.

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

UN-HABITAT. *Gender, Culture and Urbanization*. Paper presented at the World Urban Forum, Barcelona, 2004.

UN-HABITAT. *State of the worlds' cities 2006/7. The Millennium development goals and urban sustainability*. Nairobi, UN-HABITAT, 2006a.

UN-HABITAT. *Meeting development goals in small urban centres – water and sanitation in the world's cities 2006*. Nairobi, UN-HABITAT, 2006b.

United Nations. *The inequality predicament. Report on the World Social Situation 2005*. New York, United Nations, 2005a.

United Nations. *The Millennium Development Goals Report*. New York, United Nations, 2005b.

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

United Nations Administrative Committee on Coordination – Subcommittee on Nutrition, Rapid Urbanization Poses Challenge to Health, Nutrition. *SCN News* No. 1, 1988.
[<http://www.unsystem.org/SCN/archives/scnnews01/ch2.htm>]

Urban Resource Centre (Karachi). Urban poverty and transport: a case study from Karachi. *Environment and Urbanization*, 2001, Vol 13 No 1, pages 223-233.

Vagero D. Health inequalities across the globe demand new global politics. *Scand J Public Health*, 2007, 35, 113-115.

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

Vasconcellos, Eduardo A. *Urban Transport, Environment and Equity: the case for developing countries*, Earthscan Publications, London, 2001.

Vlahov D, Freudenberg N, Proietti F, Ompad D and Galea S (2006) A conceptual framework for organizing determinants of urban health. [Thematic paper for KNUS second meeting.] Abridged version: Vlahov D, Freudenberg N, Proietti F, Ompad D, Quinn A, Nandi V and Galea S. Urban as a determinant of health. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Vukan V. *Transportation for livable cities*. Centre for Urban Policy Research, New Brunswick, NJ, USA, 1999.

Wackernagel M and Rees W. *Our Ecological Footprint: Reducing Human impact on the Earth*. Philadelphia, PA, New Society Publishers, 1996. 160 p.

Wamala S and Kawachi I. Globalization and women's health. In: Kawachi I and Wamala S. *Globalization and health*. New York, Oxford University Press, 2006

WHO. *Our Planet, Our Health*. Report of the WHO Commission on Health and Environment, World Health Organization, Geneva, 1992. 282 pages.

WHO. *Health and Environment in Sustainable Development*. Document WHO/EHG/97.8. Geneva, World Health Organization, 1997.

WHO. Health promotion glossary. Geneva, World Health Organization, 1998.

WHO. Creating healthy cities in the 21st Century. In: David Satterthwaite, ed. *The Earthscan Reader on Sustainable Cities*, Earthscan Publications, London, 1999.

WHO. Macroeconomics and health: Investing in health for economic development. Report of the Commission on Macroeconomics and Health. Geneva, World Health Organization, 2001a.

WHO. The World Health Report 2001. Geneva, World Health Organization, 2001b.

World Health Organization. *A Human Rights Approach to Tuberculosis*. Geneva, Switzerland: World Health Organization, 2001b.

WHO. The World Health Report 2002. Geneva, World Health Organization, 2002a.

WHO. *Managing water in the home: accelerated health gains from improved water supply*. Geneva, World Health Organization, 2002b.

WHO Western Pacific Regional Office. Healthy Cities and SARS. A presentation made at the Meeting on a Regional Mechanism for Healthy Cities, Western Pacific Region, 2003.

WHO. *Water for life*. Joint WHO and UNICEF publication. Geneva, World Health Organization, 2005a.

WHO. *Celebrating water for life: the International Decade for Action 2005-2015*. Geneva, World Health Organization, 2005b.

WHO/WKC. *A billion voices*. 25 August 2006. Kobe, World Health Organization, 2005c.

WHO/CSDH. 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.) 2005d.

WHO. *Preventing chronic diseases – a vital investment*. Geneva, World Health Organization, 2005e.

WHO. *Health and environment linkages initiative, HELI*. Geneva, World Health Organization, 2005f.

WHO. *World Health Statistics 2007*. Geneva, World Health Organization, 2007.

WHO. *Preventing injuries and violence*. Geneva, World Health Organization. 2007c.

WHO/FAO. *Diet, Nutrition and The Prevention of Chronic Diseases. Report of a Joint WHO/FAO Expert Consultation*. Technical Report Series 916. Geneva, World Health Organization, 2003.

WHO/World Bank. *World report on road traffic injury prevention*. Geneva, World Health Organization, 2004.

Wilkinson RG and Pickett KE. Income inequality and population health: A review and explanation of the evidence. *Social Science & Medicine*, 2006, Vol 62, No 7, pages 1768-1784.

Wilson ME. Infectious diseases: an ecological perspective. *British Medical Journal*, 1995, 311: 1681–1684.

Wood, Jennifer and Clifford Shearing. *Imagining Security*. Portland, Oregon: Willan, 2007.

World Bank Poverty Reduction and Economic Management Sector Unit, South Asia Region. *Poverty in India: The Challenge of Uttar Pradesh*. World Bank, Washington, 2002

World Bank Water and Urban Unit 1. *Inside informality: Poverty, jobs, housing and services in Nairobi's slums*. World Bank, Washington DC, 2006

World Bank. Social Accountability: An Introduction to the Concept and Emerging Practice. World Bank, Washington, DC, 2004.

World Bank. Global monitoring report 2006. Millennium development goals. World Bank, Washington DC, 2006a.

World Bank. The Social Accountability Sourcebook, vol. 2006: World Bank, Washington DC, 2006b.

World Cities Project (WCP). A joint venture of the International Longevity Center-USA and New York University's Wagner School of Public Service, examines the impact of population aging and longevity on New York, Paris, Tokyo and London – the four largest urban agglomerations of the wealthy nations belonging to the Organization for Economic Cooperation and Development (OECD), 2007.

Worldwatch Institute. *State of the world: Our urban future*. Washington DC, Worldwatch Institute, 2007.

Wraith C, Murphy E. Working together to support children and families in disadvantaged communities. *NSW Public Health Bulletin*, 1998, 9, 131-133.

Wratten, Ellen. Conceptualizing urban poverty. *Environment and Urbanization*, Vol.7, No.1, April 1995, pp. 11-36.

Yapi-Diahou, Alphonse. The informal housing sector of the metropolis of Abidjan, Ivory Coast. *Environment and Urbanization*, Vol.7, No.2, October 1995, pp. 11-29.

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

Yusuf S, Nabeshima K and Ha W. (2006) What makes cities healthy? [Thematic paper for KNUS second meeting.] Abridged version: Income and health in cities: the messages from stylized facts. *Journal of Urban Health*, vol. 84, no.3, May 2007.

Search strategy used

Each KNUS member searched in the scientific literature for evidence of health equity issues and interventions in relation to their assigned topic in the thematic papers. Internet, libraries, journals and other written materials were searched and the relevant evidence containing documents are in the reference list. Personal experiences were also used to seek and interpret evidence.

Case studies with additional qualitative evidence were requested from all KNUS members, participants in our two meetings, WHO Regional Offices and other sources.

It is likely that not all the available evidence has been identified, but we believe that the evidence identified is sufficient for drawing the conclusions.