Improving urban health equity through action on the social and environmental determinants of health

Final Report of the GRNUHE

July 2010
Urban development that places health equity as a central policy goal will improve health, reduce social inequity and support communities to cope with, and avert further, global environmental change.

GRNUHE 2010
## Contents

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>iii</td>
</tr>
<tr>
<td>About the Global Research Network on Urban Health Equity - GRNUHE</td>
<td>iv</td>
</tr>
<tr>
<td>GRNUHE background</td>
<td>iv</td>
</tr>
<tr>
<td>GRNUHE aims</td>
<td>iv</td>
</tr>
<tr>
<td>GRNUHE conceptual approach and focus</td>
<td>v</td>
</tr>
<tr>
<td>About this report</td>
<td>vii</td>
</tr>
</tbody>
</table>

### Section 1: Urbanization and health inequities

| The extent of urbanization in the 21st century | 1       |
| The social distribution of health in an urbanized world | 3       |
| The social and environmental determinants of urban health inequities | 6       |
| Freedoms, empowerment and the social determinants – a conceptual framework | 6       |
| Structural drivers of urban health inequities | 6       |
| Urban daily living conditions – intermediate determinants of health inequities | 8       |
| The added pressure of environmental and climate change | 13      |
| Summary                                   | 14      |

### Section 2: The determinants of urban health inequity

| The physical urban environment, urban planning and design and health inequities | 15      |
| An overview of the attributes of urban planning and design that can affect health inequities | 15      |
| The physical urban environment and equitable access to the benefits of urban life | 16      |
| The physical urban environment and access to adequate housing | 16      |
| The physical urban environment and safe living environments | 17      |
| Food and nutrition security through the physical urban environment | 19      |
| The physical urban environment, physical inactivity and urban health inequities | 21      |
| Urban planning and design and its impact on the natural environment | 22      |
| Social conditions and urban health inequities | 24      |
| Social exclusion/inclusion in relation to urban social conditions and health inequity | 25      |
| Social infrastructure and the relationship with urban health inequities | 27      |
| Social capital, social cohesion and urban health inequities | 32      |
| The added stress of environmental and climate change on urban health inequities | 34      |
| Disruption to Earth’s system and the potential challenges for urban health equity | 34      |
| Climate change and urban health inequities | 35      |
Urban governance and its relationship with health inequities 38

What do we mean by governance? 38

Governance concepts 40

Historical knowledge: The role of urban governance in addressing health inequalities 41

Participation – a critical component part of urban governance for health equity 42

Partnerships, intersectoral action, networks, and accountability 45

Empowerment and governance for health equity 48

Section 3: Urbanization for Health Equity in the 21st century 51

Action to reduce urban health inequities 51

Urban planning for health equity 53

Improving social conditions to improve urban health equity 56

Promoting urban health equity through action on climate change 59

Urban health equity through integrated action on planning and design, social conditions and climate change 60

Urban governance for health equity 62

Monitoring and evaluation – the backbone of urban health equity 66

A new approach to urbanization and development 68

Addressing the evidence gaps - recommendations for research and capacity development 69

No data, no problem, no action 69

Gaps in the evidence base on the thematic social and environmental determinants of health 69

An integrated research agenda 72

List of Figures, Boxes, and Tables 76

Appendix 1: List of GRNUHE Working Papers 78

References 79
Acknowledgements

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<thead>
<tr>
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</tbody>
</table>
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**DISCLAIMER**

The views expressed in this report do not necessarily represent those of the Rockefeller Foundation or any of the GRNUHE member’s institutional affiliations.

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The GRNUHE Final Report and working papers are available at www.ucl.ac.uk/g heg/GRNUHE.
Foreword

Urban life is now the reality for the majority of Earth’s human population. There is considerable, and growing, global recognition that attention to the way in which urbanization takes place provides a major opportunity to improve local, national and global health equity, and at the same time address environmental concerns. The World Health Organization Commission on Social Determinants of Health (CSDH) shone a global spotlight on the enormous health inequities that continue to exist today and noted that these arise because of the unfairness in the “circumstances in which people grow, live, work and age”. Drawing on the work of its Knowledge Network on Urban Settings, the CSDH, in its 2008 Final Report, emphasised the critical role that cities can play in improving health equity.

This year, 2010, is a landmark year for urbanization and health. Under the auspices and leadership of the WHO and UN-HABITAT, the World Health Day theme of “urban health matters” is being promoted throughout the year in venues such as the World Urban Forum in Rio de Janeiro, World Expo in Shanghai, WHO European Healthy Cities Networks in Sandnes, and the International Conference on Urban Health in New York. The year-long focus will culminate at the Global Forum on Urbanization and Health, in Kobe, Japan in November 2010, where municipal leaders and national ministers across multiple sectors will join in commitment to health actions in urban policies.

The urban social and physical environment influences every aspect of people’s health and well-being: the geographic setting of their location, the climate, the housing that shelters them, the danger they encounter in the street, who is available for emotional and financial support, the water they drink, what they eat, the air they breathe, where (or if) they work, how they get around and where they go for healthcare. The local exposures to social and environmental health determinants – whether for better or for worse - are increasingly understood as being connected to major external trends, such as globalization, urbanization and global environmental deterioration, including climate change.

The Rockefeller Foundation recognised that the risks associated with accelerating urbanization, especially in low and middle income countries, pose a major global challenge. The Global Research Network on Urban Health Equity (GRNUHE) was established in 2009 with support from the Rockefeller Foundation, to bring to the forefront the argument and evidence for urgent action in key societal and environmental factors – governance, urban design, social infrastructure and climate change – done in such a way as to improve the health premium from urbanization and ensure its fair distribution.

GRNUHE also highlights major gaps in the global evidence base and outlines an action-oriented research agenda.

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About the Rockefeller Foundation Global Research Network on Urban Health Equity (GRNUHE)

**GRNUHE background**

During the 1990s, it began to be recognised that intra-urban inequities were a major crisis confronting urban policy in terms of human health and quality of life (Stephens 1995). Today, urban development and planning remains a pressing health equity issue for countries and cities at all stages of economic development. Following the projected trajectory of urban growth, city populations in all countries will age, the triple threat of communicable and non-communicable diseases, and accidents, injuries, road accidents, violence and crime will grow, there will be more urban sprawl and greater numbers of people living in poverty, slums and squatter settlements (CSDH 2008; UN-HABITAT 2008; WHO 2009; WHO 2010). Health inequities are a particular challenge in cities in low and middle income countries (LMICs), where rates of urban population growth is greatest and where urbanization tends to occur in an unplanned manner and is often not accompanied by adequate investment in infrastructure and services.

Much of the published literature that demonstrates the social distribution of health outcomes in urban settings, its causes and the actions that have been taken to address these health inequities comes mainly from high and some middle income countries. LMICs as well as developed countries require scientifically robust and contextually relevant evidence to help inform urban development policy and practice that pays attention to living conditions, promotes health, reduces health inequities and ensures environmental sustainability.

Eager to build on the work of the Commission on Social Determinants of Health (CSDH) and recognising the need for urban health-related evidence and action in LMICs, the Rockefeller Foundation provided funding to initiate a global network of multi-disciplinary researchers predominantly from LMICs but also including key urban health researchers from high income countries, non-government organisations, and international development agencies. The membership of the Global Research Network on Urban Health Equity (GRNUHE) reflects the recognition that in order to promote health equity we need to connect evidence and knowledge to action and policy through political dialogue, social activism and social marketing.

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<tr>
<th>GRNUHE aims</th>
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<td>GRNUHE met three times during the course of 2009/2010. The network aimed to review current knowledge about the social and environmental determinants of urban health inequities; document what is and is not working to improve urban health equity; identify gaps in the evidence base thereby setting direction for a global research agenda, and develop collaborative action-oriented research initiatives in LMICs. Specifically, the aims of GRNUHE were to:</td>
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<td>i. provide global leadership in urban health equity that combines research, training and policy expertise within a multi-sectoral, interdisciplinary collaborative framework</td>
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<td>ii. provide an opportunity to utilise existing evidence in countries too often under-resourced in terms of evidence and capacity</td>
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<td>iii. develop both a suitable intellectual framework and a methodological approach to undertake urban health equity research in LMICs</td>
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<td>iv. support the necessary expansion of evidence in key areas relevant to emerging health and social issues in contextually different regions, countries and cities, through recommendations of collaborative action-oriented research initiatives in urban health equity.</td>
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GRNUHE conceptual approach and focus

The CSDH emphasised the critical role that cities can play in determining health and health equity through the provision of basic goods such as health and social services, by being designed in ways that build social cohesion and promote good physical and psychological well-being, and by being protective of the natural environment. The report from the CSDH noted that participatory governance was an essential component to achieve this.

Building on the work of the CSDH Knowledge Network on Urban Settings (KNUS), and the ongoing work of the WHO Kobe Centre for Health Development (which was the KNUS hub), GRNUHE shines a spotlight on the fact that the process of urbanization and subsequent conditions of daily living do not convey health benefits equally across society, particularly, but by no means exclusively, in LMICs.

Recognizing that our predominantly urban world is one characterized by global economic integration, liberalization of markets and easy transfer of people, resources, capital and knowledge, GRNUHE aimed to understand, specifically, how the urban physical form, its social infrastructure, the added pressure of climate change and the role of governance could determine maximum and equitable health benefits from urbanization in the context of globalization.

We reviewed the evidence on what works and what does not to reduce urban health inequities through these social and environmental determinants, and identified the gaps in the evidence base that supports action to address urban health inequities.

GRNUHE’s overarching research question asked: “What are the attributes of urban governance, urban daily living conditions (social and physical environments) and climate change that contribute to urban health inequities, particularly in cities of low and middle income countries?” There are four inter-connected thematic areas (demonstrated diagrammatically in Figure 1) relating to the overarching question that are of concern for urban health equity, particularly in LMICs:

1. How to put health equity at the heart of urban planning/design
2. How to ensure urban social conditions promote health equity
3. The added pressure of climate change on urban health inequities
4. How to put health equity at the heart of urban governance

Figure 1: Diagrammatic representation of GRNUHE dimensions of urban health equity
First, this model shows that the physical environment and urban planning, social conditions and changing environmental conditions (exemplified by but not limited to climate change), all interact to improve or worsen urban health inequities.

- There is a reciprocal relationship between urban social conditions and the built environment; the poor or disadvantaged almost always live in the worst housing or worst neighbourhoods, and are less likely to access public spaces and goods as a result of social and physical barriers.

- Good urban planning can help offset social disadvantage, while bad urban planning can exacerbate it. And urban planning can help mitigate climate change, depending upon how energy-efficient and carbon-intensive the city’s buildings, urban built form and transport systems are. The nature of the physical environment can also assist people in adapting to climate change.

- Similarly, the effects of climate change and other forms of environmental degradation can exacerbate health inequities that are rooted in social and economic conditions.

As we will explore later in the report, when these aspects of urban life - the natural and built environments and social and economic conditions – are well integrated, the product is both improved health and greater health equity and – even more broadly – higher and more equitable levels of human development. This is to the benefit of the citizens, their communities, local businesses and large employers, the city and indeed the nation as a whole.

Second, all three of the interacting aspects of urban life in the centre of our model are in turn nested within the broader concept of urban governance, which has the task of understanding the interactions and striking the right balance among these different aspects so that all three can be improved together. Governance is defined for our purposes as “the process of collective decision making and the processes by which decisions are implemented or not implemented”. ‘Good’, or in our case, ‘healthy’ urban governance is concerned with the equitable distribution of power and resources, and with ensuring an appropriate balance among the competing demands of the various stakeholders in the city for the health of all.

Finally, the model indicates that all of these processes of governance, the various aspects of urban life and their outcomes in terms of health equity and human development need to be measured and monitored so that evaluation and accountability are possible.
About this report

Section 1 of the report provides an overview of the nature of 21st century urbanization globally. It describes how urbanization sits within the context of globalization and how the combination of these two large global processes has contributed to urban health inequities, particularly in LMICs.

In Section 2 we demonstrate the plausible causal relationships between the four themes of GRNUHE (urban planning and design, social environment, climate change and urban governance) and urban health inequities. In Section 2 and again in the final section of the report we identify data issues relevant to the social and environmental determinants of urban health inequities.

Section 3 of this report argues that urbanization can, and must, take place in such a way that improves human health and reduces health inequities. Drawing on evidence in Sections 1 and 2, it lays out what GRNUHE considers to be essential component parts of urban management, if it were to be based on principles of health, equity and environmental sustainability. Learning from the literature and from tacit knowledge of the GRNUHE members about what works to reduce and prevent urban health inequities, it offers suggestions for actions that can be taken to reduce urban health inequities through policy and programs aimed at improving the social and environmental determinants described in Section 2. Central to action in these areas is monitoring of urban health inequities and evaluation of action.

Finally and importantly, based on gaps identified in the evidence base, especially research emanating from LMICs, GRNUHE recommends key elements of a global research agenda. The research agenda is aimed at supporting the development of urban management policy and practice in such a way that it reduces and prevents urban health inequities, particularly but not exclusively, in LMICs.

The GRNUHE Final Report draws on the working papers produced by the GRNUHE thematic working groups. A list of the working papers is included in Appendix 1 and each paper is available on the GRNUHE website www.ucl.ac.uk/ghet/GRNUHE.
Section 1: Urbanization and global health inequities

The extent of urbanization in the 21st century

We now live in a predominantly urban world. The scale and pace of urbanization over the past 50 years is unprecedented in history. By 2030 six out of every 10 people will be city dwellers, rising to seven out of every 10 people by 2050 (WHO 2010).

Karachi, Pakistan © Fareena Chanda 2010
The nature of urban change differs within and among regions. Of the expected urban population of 5.3 billion living in the developing world by 2050, Asia will host 63%. In India alone the urban population is expected to rise from 28% to 40% of the total population by 2020, whereas in Latin America the rise is estimated to be from 57% in 1970 to 81% in 2020 (CELADE 2009). Africa will host nearly a quarter of the world’s urban population, while the urban population of the developed world is expected to remain largely unchanged, rising only slightly from just over 900 million in 2005 to 1.1 billion in 2050 (UN-HABITAT 2008). In Africa and to a lesser extent Latin America, the majority of the urban population is concentrated within the largest city - usually the capital. This process – called urban primacy - is accompanied by rapid slum growth rates in excess of 4% per annum. Urbanization in Asia and much of Latin America is largely characterised by the development of multiple urban cities or city-regions (UN-HABITAT 2008). Mega-regions are growing. These are economic units that result from the growth, convergence and spatial spread of geographically linked metropolitan areas and other agglomerations: they are polycentric urban clusters surrounded by low-density hinterlands, and they grow considerably faster than the overall population of the nations in which they are located (UN-HABITAT 2010).

In the developing world, the process of urbanization is often accompanied by high levels of slum dwelling. Slums arise due to rapid population growth in urban areas which outpaces and is not supported by infrastructure development. As defined by UN-HABITAT, a slum is a densely populated area with substandard housing and a low standard of living as depicted by the absence of one or more of the following: improved water supply, improved sanitation, sufficient living area, durability of construction, and security of tenure. Although the proportion of slum dwellers in developing urban regions in the world declined from around 50% in 1990 to 36% in 2005, the absolute number of individuals living in slums has continued to rise. Between 2000 and 2010 the numbers of slum dwellers in the developing world grew from 776.7 million to 827.6 million (United Nations 2009). Sub-Saharan Africa has the highest prevalence of slums (62% of urban areas), with an annual growth rate in excess of 4%, which is a doubling time of less than 20 years. Slum prevalence is also high in South Asia (43%) and East Asia (37%) (UN-HABITAT 2008).
The social distribution of health in an urbanized world

The global movement towards urban living has provided a number of social, economic and health benefits (Leon 2008). Urbanization has benefited many local economies and businesses, with urban areas being economically more prosperous than their rural counterparts due to economies of scale, pooling of talent, skills and availability of multiple services and technologies (Bloom and Canning 2000). The world would not be at the point of technological and social development it is today without the “economic engines” that urban areas have represented since the industrial revolution started in the late 18th century (Jacobs 1985). Conditions of housing and sanitation have improved markedly as has average household income, levels of education and opportunities for women to participate in the labour force (WHO 2009).

Throughout the 20th and 21st centuries, our increasingly urban world has seen significant improvements in indicators of health and life expectancy. However there are marked geo-spatial, socio-economic and socio-cultural differences in rates of communicable and non-communicable diseases and premature mortality. In all countries, rich and poor, there is an unequal distribution of health both within countries (the urban-rural divide) and within cities (the social gradient).

Van de Poel and colleagues compared child health outcomes between urban and rural areas in 47 developing countries and found a median rural-urban relative risk of 1.4 for stunting and mortality. Whilst on average health outcomes were better in urban than rural areas of developing countries, in 9 out of 47 countries including Namibia and Paraguay, children from lower socioeconomic households in urban areas had higher rates of mortality than their rural counterparts (Van de Poel et al. 2007). Similarly, a study of socioeconomic inequality in chronic childhood malnutrition in Nigeria found a higher burden of malnutrition among urban poor children compared to those from rural areas (Uthman 2009). In Sub-Saharan African cities, children living in informal settlements are more likely to die from entirely preventable respiratory and waterborne illnesses than children in rural areas (UN-HABITAT 2006). Child mortality in Nairobi’s slums is 2.5 times higher than in other cities in Kenya, and three to four times the Nairobi average (APHRC 2002).

Using data from Demographic and Health Surveys of 15 Sub-Saharan African countries analysis by Fotso shows that urban–rural differentials in child malnutrition are considerable in all countries, that they have narrowed in most countries due primarily to an increase in urban malnutrition, and have widened in few countries as a result of sharp decline in urban malnutrition (Fotso 2007).

As Figure 2 shows, not only are there marked inequities in under-five mortality within the city of Nairobi, but the under five mortality rate is actually far worse in Nairobi’s slums and informal settlements than in Kenya as a whole or its rural areas.

Figure 2: Urban rural differences in under-five mortality, Kenya

Source: African Population and Health Research Centre, with permission
Although infectious diseases and under-nutrition will continue in particular regions and groups around the world, urbanization itself is re-shaping population health problems, particularly among the urban poor, towards non-communicable diseases and injuries, road accidents, crime and impact from ecological disaster (Campbell and Campbell 2007; WHO 2010). As the degree of urbanization and national income increase so too does the prevalence of diabetes, heart disease, obesity, mental health problems, alcohol and drug abuse and violence (Ezzati et al. 2005; Mendis and Banerjee 2007). In LMICs, the prevalence of hypertension is increasing with rates being higher in urban than rural settings (Addo et al. 2007). Stroke mortality in urban East Africa is more than five times higher than in England (Walker et al. 2000). A study of intra-urban health inequalities in São Paulo and Accra compared areas with four different levels of deprivation (in terms of income, education, overcrowding and access to services) and found marked inequities: in Accra, for example, mortality rates per 10 000 people for diseases of the circulatory system (heart failure, hypertensive heart disease, cardiovascular disease) varied from 7.0 in the least deprived areas to 16.4 in the most deprived areas (Stephens et al. 1997). As illustrated in Figure 3, the prevalence of diabetes in Buenos Aires is socially graded and increases with decreasing social status.

Figure 3: Prevalence of diabetes by monthly income, Buenos Aires, Argentina 2005

Overweight and obesity are among the most challenging health concerns to have arisen in recent decades and are a pressing problem in many cities throughout the world (Figure 4, page 5). Obesity has become increasingly more prevalent among socially disadvantaged groups (Friel et al. 2007), and often sits cheek-by-jowl with underweight among poor populations in many cities throughout the world (Mendez et al. 2005).

In 2002, an estimated 1.2 million people were killed and 50 million injured in road traffic crashes worldwide. Over the next few decades, an approximate 28% reduction of fatalities is expected in high-income countries, while a 92% and 147% rise in fatalities are anticipated in China and India, respectively. Pedestrian injuries account for 41–75% of all road fatalities in most studies from less developed countries. Pedestrians are the most frequently injured road users in Africa, the eastern Mediterranean region, Latin America, and the Caribbean. In Asia motorcyclists have especially high rates of injury in countries such as India.

Section 1: Urbanization and global health inequities
as Korea, China, and Thailand, where they also account for a high proportion of seriously injured road users (Ameratunga et al. 2006). Within poor countries, poor people - represented by pedestrians, passengers in buses and trucks, and cyclists - suffer a higher burden of morbidity and mortality from traffic injuries. In rich countries, children from poor socioeconomic classes suffer more injuries and deaths from road crashes than their counterparts from high income groups (Nantulya and Reich 2003).

Crime and violence are more pronounced in urban areas, and especially in slum areas, than in rural settings. A recent study showed that 60% of urban dwellers in developing and transitional countries had been victims of crime during a five-year period. Homicide rates are high and still growing in some cities – especially in Africa and Latin America. Young men in the favelas of Brazil are up to five times more likely to die from homicide than their urban counterparts who do not live in favelas (Unger and Riley 2007). Robbery poses a major problem in many urban centres – not least because it contributes to the general feeling of fear and insecurity (WHO 2009).

Figure 4: Prevalence of under and over-weight among women aged 20-49 years in urban areas in select developing countries

Source: American Journal of Clinical Nutrition 81: 714 –21, American Society for Nutrition, with permission
The social and environmental determinants of urban health inequities

Why do we continue to see such inequities in health outcomes within and between cities? This unequal distribution of health “is not in any sense a ‘natural’ phenomenon but is the result of a toxic combination of poor social policies and programmes, unfair economic arrangements, and bad politics” (CSDH 2008).

The systematic social patterning in health outcomes within and between cities suggests that there is something about urban living - urban physical and social environments and living conditions, and the ways of life they encourage - that cause these differences in health. These differences are by and large not explained by biological variation, which means that they can be avoided by reasonable societal-level action. That they are not [avoided] means they are unfair, unjust and, therefore, inequitable (Marmot et al. 2008).

Freedoms, empowerment and the social determinants – a conceptual framework

Urban health inequities flow from the systematically unequal distribution in power, prestige and resources associated with relative position in the social hierarchy, whether at the individual, group, city or indeed country level, manifesting in inequities in both material and psychosocial conditions.

The unequal distribution of power, status and resources impacts on people's freedom to lead lives they have reason to value (Sen 1999), to take control of their lives and to participate in the decisions that affect their lives (Marmot 2004). The WHO, in the 1986 Ottawa Charter, defined health promotion as "the process of enabling people to increase control over and improve their health" (WHO 1986). In essence the Ottawa Charter was referring to empowerment. Empowerment, which can mean both the process and the outcome whereby people or communities, or even whole countries, gain control over the decisions that affect their lives, is therefore fundamental to building health equity.

Structural drivers of urban health inequities

Addressing distributions of power, money and resources involves fostering a process of 'political empowerment', broadly defined as the process whereby people, or groups, gain control over the decisions that affect them and increase and release their 'capacity to act' (agency) in order to effect change in the areas that they define as important. Political empowerment therefore is a fundamental medium of social interaction, constituted both at the level of individuals – how much people can exercise control and decision-making over the course and content of their own lives; and of communities – how people can effectively apply their collective values and interests to the way societal resources are distributed (Social Exclusion Knowledge Network 2007). Health equity depends vitally on the political empowerment of individuals and groups to represent their needs and interests strongly and effectively and, in so doing, to challenge and change the unfair distribution of material and psychosocial resources. A wide variety of structural factors influence political empowerment and importantly the actualization of urban health equity. These include rapid globalization and economic liberalization, the push away from viable rural livelihoods and pull towards urban opportunities, each of which is now discussed in more detail. We will return to the issue of empowerment and governance in the section on governance and urban health equity.

Urbanization in the context of globalization

Arguably, political empowerment (and urban governance) has become more complex in the 21st century. Our predominantly urban world is one characterized by global economic integration, liberalization of markets and easy transfer of people, resources, capital and knowledge. Throughout the
1980s and 1990s, economic development policies encouraged developing countries to promote domestic deregulation, reduce public expenditure, introduce tax reforms favouring consumption rather than income, openness to foreign direct investment and privatization of public assets (Stiglitz 2006; Globalization Knowledge Network 2007).

Indeed, analysis of the fastest growing 245 cities in the developing world found that the main drivers of city growth were macroeconomic and industrial policies and related investments. UN-HABITAT’s Harmonious Cities report notes that “the pathways of growth for cities driven by economic development are diverse: economic reforms that facilitate access to capital markets and foreign investment; political changes that permit import and export licenses; government and corporate strategies that increase investments in strategic economic sectors; and national or local initiatives that position cities in global, regional or local spaces of economic flows” (UN-HABITAT 2008).

However, the economic, social and health gains arising from the processes of globalization and urbanization have been unevenly spread between and within countries. This is underpinned by the unequal distribution within and across national borders of gains, losses and ability to influence outcomes. Increasingly, local decisions on issues such as economics, employment, health care and food supply have been influenced by global conditions and factors (Labonte et al. 2009).

There are various pathways through which some of the processes of globalization can affect the ability of national and local governments and institutions to protect and promote urban health and health equity.

Liberalization of national economies

The record-high interest rates of the early 1980s brought on a global recession and helped to trigger the overall debt crisis. The introduction of structural adjustment loans from the World Bank and the International Monetary Fund to heavily indebted countries were conditional on the countries making their economies amenable to global integration primarily through trade liberalization and the ‘marketization’ of their economies (Babb 2005; Labonte and Schrecker 2007). Almost two thirds of urban dwellers live in developing countries, in cities that have grown at breakneck speed with limited investment in infrastructure, housing, human resources and public health. It has been argued that debt crises and falling commodity prices have resulted in governments prioritizing debt repayments over public sector spending and that pressurized marketization of economies from structural adjustment policies has resulted in reduced expenditure on public services (Globalization Knowledge Network 2007).

Push away from agricultural livelihoods

The rapid urban growth observed in developing countries throughout the latter half of the 20th century has resulted partly because of the decline in agriculture and related employment opportunities in rural areas. These declines, which vary between countries, are likely to have occurred as a result of biased conditions of global agri-trade favouring larger developed economies, mechanization of agriculture and therefore reduced need and cost of labour, and lack of national government investment in balanced rural development.

Agricultural trade liberalization (through the 1994 General Agreement on Tariffs and Trade) pledged countries to reduce tariffs, export subsidies and domestic agricultural support. This was posed as a mechanism for countries to reduce poverty and improve food security and health equity through the growth in potential markets and greater transfer of capital, technology, knowledge and people. However, tariffs and other restrictions on imports into industrialized countries remain high, limiting the ability of some developing countries to exploit a comparative advantage due to closed export markets (Borrell and Hubbard 2000; Rayner et al. 2006). This plus agricultural subsidies, particularly in the European Union and the United States, which put commodities on the world market in quantities that depress prices, undercut the competitiveness of small and poorer farmers in developing countries and erodes livelihoods (UN Standing Committee on Nutrition 2004).

Pull towards urban opportunities

Part of the pull towards cities is as a result of rising concentrations of commerce and employment opportunities in urban areas. Since the increase in global market integration in the 1970s, there has been an emphasis on productivity and supply of products to global markets. This has seen much greater outsourcing of production and deindustrialization, resulting in an asymmetry between workforce skills and employment opportunities. The transition from labour-intensive to capital-intensive development, particularly in Asia and Latin America, has resulted in the creation of a limited number of well-paid new jobs.
Urban daily living conditions – intermediate determinants of health inequities

Most of the world’s population now lives its life within the built environment - the social, economic and physical make-up of the built environment, therefore, poses a major opportunity by which to improve urban health and health equity. If done well the built environment can provide financial security and adequate material resources. And the built environment can provide much more than just economic resources. Good physical structures and social conditions of ‘place’ also contribute to individual and community empowerment that is fundamental to health equity and an enjoyable life (Tannerfeldt and Ljung 2006). A social determinants approach suggests that improving living conditions in areas such as income, housing, transport, employment, education, social support, and health services is central to improving the health of urban populations.

In reality, the restructuring of cities by the global marketplace, whilst conferring benefit for some, has led to rapid, often unplanned, urbanization and has outpaced the ability of governments to build essential infrastructure and services and provide basic needs for living. This has contributed to a growing gap between rich and poor in terms of adequate urban housing, employment opportunities, transportation, levels of pollution and sanitary conditions. Over one billion people are food insecure, a growing proportion of whom live in urban areas (FAO 2010). In some countries, urbanization is associated with improved health service coverage and service delivery. However, the uneven distribution of these urban benefits has left certain sectors of the urban population – particularly slum dwellers – vulnerable to worse health outcomes than their rural counterparts (UN-HABITAT 2006). And while city populations have tended to become wealthier than their rural counterparts, they have become increasingly unequal.

The social distribution of income and consumption is often used as a marker of inequality within locations. The Gini coefficient* is the most widely used measure to determine the extent to which the distribution of income or consumption among individuals or households deviates from a perfectly equal distribution. Differences in inequalities between urban and rural areas in the developing world are shown in Figure 5, page 9. As can be seen for the majority of developing countries in Africa, Asia and Latin America, inequalities in urban areas generally exceed the inequalities in rural areas.

Inequalities within cities of developing countries are generally high, with some regions, notably Southern Africa (Figure 6, page 9) and Latin America, exhibiting exceptionally high levels of urban inequality.

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* A Gini coefficient of 0 indicates perfect equality, whereas a Gini coefficient of 1 indicates perfect inequality. Generally, a Gini coefficient of between 0.2 and 0.39 indicates a relatively equitable distribution of resource. A Gini coefficient of 0.4 denotes moderately unequal distributions of income or consumption; it is the threshold at which cities and countries should address inequality as a matter of urgency – referred to in the graph as the International Alert Line. Cities and countries with a Gini coefficient of 0.6 or higher suffer from extremely high levels of inequality which puts them at risk of instability.
Section 1: Urbanization and global health inequities

Figure 5: Urban and rural Gini coefficients for selected developing countries

Reproduced from (UN-HABITAT 2008) with permission

Figure 6: Gini coefficient in selected African cities

Reproduced from (UN-HABITAT 2008), with permission
As can be seen, the cities within South Africa are among the most unequal in the world (Figure 6, page 9), while capital cities within Africa typically exhibit higher inequalities than the national average (Figure 7).

The inequalities within cities of Brazil (Figure 8) are characteristic of the high inequalities within Latin America and the Caribbean (Figure 9).
Conversely, Asian cities tend to reflect moderate or relatively low levels of inequality (Figure 10), as is the case in China where Gini coefficients are typically in the between 0.3 and 0.4 (Figure 11). While developed countries tend to have lower levels of inequality, there are still marked urban income inequalities between and within areas, with Gini coefficients typically between 0.3 and 0.4.

**Figure 10: Gini coefficients for selected Asian cities**

![Gini coefficients for selected Asian cities](image1)

Reproduced from (UN-HABITAT 2008), with permission

**Figure 11: Gini coefficient, select cities in China**

![Gini coefficient, select cities in China](image2)

Data source: (UN-HABITAT 2008)
These relative inequalities in social matters affect the social distribution of health outcomes. The work by Wilkinson and Pickett, although based on data from high income countries and not at the city level, demonstrates a marked correlation between income inequality within nations and health inequities (Wilkinson and Pickett 2010). The negative correlation between increasing income inequality and decreasing child well-being (Figure 12) would almost certainly hold out in cities in LMICs given the degree of income inequality observed there.

Figure 12: Correlation between income inequality and the UNICEF index of child wellbeing in 23 rich countries
The added pressure of environmental and climate change

In addition to the social causes of urban health inequities, global environmental change plays an important role. There is widespread recognition that disruption and depletion of natural environmental systems, including climate change, has profound implications for the health and indeed for the survival of people globally. These environmental disruptions encompass:

- **climate and atmospheric change** (including depletion of the ozone layer and regional acid emissions and deposition);

- **pollution and ecotoxicity** (the contamination of ecosystems and food chains – including humans – with low levels of a multitude of persistent organic pollutants and heavy metals that then bio-accumulate);

- **depletion of resources** - especially freshwater, foodlands, forests, fisheries and fossil fuels, and

- **loss of habitats, species and biodiversity**, which threatens many elements of the web of life in our ecosystems (Davies and Hancock 1997).

Moreover, these major environmental changes all tend to interact, often synergistically. The combination of these changes is already affecting the health of the population in some parts of the world, and as these trends continue, the number of people affected will grow. Changes in climatic conditions will increasingly exacerbate existing social and health inequities, with those most at health risk being in low-income countries and poor people living in urban areas, elderly people, children, traditional societies, subsistence farmers, and coastal populations (Friel et al. 2008).
Summary

A systemic failure exists in and between urban settings worldwide that is expressed as social exclusion, degradation of the environment, and health inequities. Access to the social determinants of health equity is widening between as well as within cities, while urban change is taking place in a context of other global challenges - economic globalization, climate change, financial crises, energy and food insecurity, old and emerging armed conflicts as well as the changing patterns of communicable and non-communicable diseases.

These health and social problems, in countries with different levels of infrastructure and health system preparedness, pose significant development challenges in the 21st century. The need for planned healthy and equitable urbanization has never been greater. The capacity of urban and/or multi-scalar governance to anticipate, to address or to mitigate the differential health impacts of these and other challenges has been limited so far. Evidence-informed policy- and decision-making processes aimed at reducing the inequities and improving population health are indispensable.
Section 2: The determinants of urban health inequity

The physical urban environment, urban planning and design and health inequities

The Healthy Cities movement that was initiated in the 1980s highlighted the relationship between the urban environment and health and the role of local government in promoting health at a city scale (Hancock and Duhl 1986; Hancock 1993; van-Naerssen and Barten 2002). While social and economic conditions are vitally important, there is a growing body of work across various disciplines that recognises the role of the physical urban environment in shaping health and disease and thus in contributing to health inequities (Jackson 2003; Galea et al. 2005; Galea and Vlahov 2005; Montgomery and Hewett 2005; Harpham 2009; Diez-Roux and Mair 2010).

The scope of this part of the report therefore is on the relationship between the physical urban environment and health inequity, and how planning and design of the physical urban environment can facilitate better health for all urban residents and reduce health inequities. It draws on the working paper produced by the GRNUHE Urban Planning and Design working group (listed in Appendix 1).
An overview of the attributes of urban planning and design that can affect health inequities

The physical urban environment can be shaped through various planning and design processes: urban planning (integrated city-wide planning/spatial planning/land use management); civil engineering (planning and design of infrastructure, e.g. roads and sanitation); urban design/landscape architecture (design of public spaces); architecture (building design) and transport planning.

Urban planning and design have a particularly important role in terms of influencing the urban physical environment, and thus influencing health inequities. As a general rule, the poor have usually lived where nobody else wants to live – downstream, downwind, downhill in low-lying land and floodplains (or uphill if the hills are prone to landside), in polluted and dangerous neighbourhoods, near polluting industries and so on. With regard to racial health differences in the United States, it has been noted that "A plethora of recent evidence suggests that disparities in health... have not narrowed over time, are getting worse, and are increasingly linked to the physical and social environments that fall under the traditional domain of planning" (Corburn 2004).

Good urban planning and design can prevent, or at least ameliorate, these conditions.

The physical urban environment and equitable access to the benefits of urban life

Livelihood opportunities are important determinants of inequities. The time and effort required to get to work, which depends upon the nature of the physical urban environment, is an important issue. The Texas Transportation Institute’s Urban Mobility Report found that traffic congestion cost Chicago $4.27 billion in extra fuel and person hours in 2003. Travel delay consumed 700,000 million hours in the USA in 1982, increasing to 3.7 billion hours in 2003 (Northwest Indiana Regional Development Authority 2007). A report by the Victoria Transport Policy Institute in Australia states that public transit in cities with large rail systems provides $279 per capita in congestion cost savings, while transit in bus-only cities provides only $41 per capita. Transit systems decrease congestion on highways by decreasing the number of vehicles on the road (Capon and Blakely 2007).

Another important issue is access to shops, facilities and community spaces (both outdoor and indoor). Having shops, facilities and a range of community spaces in a local area can have many direct and indirect health benefits: "Shops, services and other destinations can encourage physical activity, social interaction and conviviality... Quite apart from what is learnt in schools, including life skills and health literacy, there are health benefits associated with the physical presence of schools within communities" (Capon and Blakely 2007).

Access to health care facilities naturally also has an impact on health outcomes (Verter and LaPierre 2002). An important potential relationship of the physical urban environment to health care is the impact of density on emergency response times. Research in high income countries has suggested that people living in more densely populated cities have lower survival rates from acute cardiovascular events, perhaps due to the longer response times of emergency medical and fire services (Campbell et al. 1993; Gallagher et al. 1995).
The physical urban environment and access to adequate housing

Many cities in rich and poor countries alike are facing a crisis of access to adequate housing. This crisis will worsen the social gradient in health unless action is taken to revitalize cities and manage development with emphasis on incorporating access to affordable quality housing measures. Adequate housing is a broad concept that includes a range of issues but in terms of health inequities the key housing issues are:

- Location (presence or absence of hazards, e.g. pollution or risk of flooding);
- Access to basic services such as water, sanitation and refuse removal, and access to an energy source;
- The quality of the shelter itself – protection from the elements, and sufficient living space.

There is a vast literature exploring the issues of housing and health, highlighting that not only is the provision of shelter essential but the nature of it is a vital contributor to health (Hardoy et al. 1990; Thomson et al. 2001; Bashir 2002; Kingsley 2003; Thomson and Petticrew 2005). The World Health Organization has identified nine features of the housing environment which have important direct or indirect effects on the occupants’ physical and/or mental health (see Box 1).

Table 1, page 18, shows the nature of the disease risks arising from specific housing defects (Smith 1989). Ensuring that homes and other buildings are safe and healthy places has long been a concern of public health, and housing standards relating to the amount of space per person, fire safety, air quality, heating and so on have always had health as an underlying rationale.

Box 1: Features of the housing environment that affect health

Nine critical features of the housing environment have been identified by the World Health Organization which impact directly or indirectly on physical and/or mental health:

1. The house as a structure and shelter (which includes a consideration of the extent to which the shelter protects the occupants from the extremes of heat and/or cold, insulation against noise and invasion by dust, rain, insects and rodents).
2. The extent to which the provision of water supplies is adequate, both from a qualitative and a quantitative point of view.
3. The effectiveness of the provision for excreta, sewage, and solid waste disposal and the management of their disposal.
4. The quality of the housing site, including the extent to which it is structurally safe for housing and the extent to which provision is made to protect it from contamination (provision for drainage being one of the most important aspects).
5. Effects associated with over-crowding, including household accidents and the increasing transmission of airborne infections such as acute respiratory infectious diseases, pneumonia and tuberculosis.
6. Indoor air pollution associated with fuels used for cooking and/or heating.
7. Food safety, including the extent to which the shelter has adequate provision for storing food, to protect against spoilage and contamination.
8. Vectors and hosts of disease associated with the domestic and peri-domestic environment.
9. The home as a workplace - where occupational health questions, such as the use and storage of toxic or hazardous chemicals, and the health and safety aspects of equipment used needs consideration.

Source: (WHO 1989)
A key component of adequate housing is access to basic services such as water and sanitation. There is a large amount of research on access to water supply/sanitation and health. It is estimated that providing adequate water and sanitation can reduce diarrhoea morbidity rates by up to 46%, and there are strong linkages between improved water supply and sanitation and significant improvement in the nutritional status of children (Seager et al. 1998). One example of the strong relationship between inequitable access to water and health inequities is the example of South Africa, where it was found that households storing water (i.e. who have to collect it from a communal water source) are 4.6 times more likely to have diarrhoea than those who have an in-house water supply and do not have to store water (Thomas 1998). A survey in Bangalore in 2000 found that two thirds of households in the city reported the presence of a toilet within the premises but less than half of these have a tap in the toilet and only four percent have a flush tank (Sinclair Knight Merz and Egis Consulting 2002). Twenty-eight percent shared a toilet with other households, four percent used public toilets, and many users complained that these public toilets are dirty, not cleaned regularly and lack lights. One percent reported that they defecate in the open. These health-related sanitary issues are socially graded (Figure 13).

Slums are urban areas where problems of insecurity of tenure, poor shelter, overcrowding, lack of services and hazardous location intersect. The health problems of slum settlements are complex: “The lack of secure land tenure forces residents to occupy unused or undesirable land… Slum locations may be unused or undesirable because of their hazardous geography such as landslide - or flood-prone areas, or unsafe or polluted environment... Poor quality water is a leading cause of morbidity and mortality world wide and a defining danger of living in slums... Slum housing is densely packed and poorly built with substandard or even flammable materials” (Unger and Riley 2007). Overcrowding can also place residents at increased risk of respiratory infections, meningitis and asthma, and can fuel the spread of potentially emerging epidemic diseases such as influenza. Another review of health conditions in slums notes additionally that, “[the] harsh physical and social conditions of urban slum life lead to chronic stress in slum dwellers” (Sclar et al. 2005).

There are various case studies of the health conditions within specific slums. For example, Amuyunzu-Nyamongo and Taffa examine child health in informal settlements in Nairobi

<table>
<thead>
<tr>
<th>Housing defect</th>
<th>Health risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate heating</td>
<td>Bronchitis, pneumonia, stroke, heart disease, hypothermia, accidents</td>
</tr>
<tr>
<td></td>
<td>Dampness and mould growth</td>
</tr>
<tr>
<td>Inadequate ventilation</td>
<td>Respiratory complaints, carbon monoxide poisoning</td>
</tr>
<tr>
<td>Lack of hygiene facilities</td>
<td>Infections</td>
</tr>
<tr>
<td>Inadequate kitchen facilities</td>
<td>Accidents, food poisoning</td>
</tr>
<tr>
<td>Disrepair</td>
<td>Accidents, fire, infections</td>
</tr>
<tr>
<td>Structural instability</td>
<td>Accidents</td>
</tr>
<tr>
<td>Inadequate lighting</td>
<td>Accidents</td>
</tr>
<tr>
<td>Hazardous materials (e.g. asbestos)</td>
<td>Cancer and respiratory diseases</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>Infections, stress, intra-family violence</td>
</tr>
<tr>
<td>Inadequate means of escape</td>
<td>Injury or death by fire</td>
</tr>
</tbody>
</table>

Source: (Smith 1989)

Figure 13: Provision of toilets by socio-economic group, Bangalore

Source: (Sinclair Knight Merz and Egis Consulting 2002)
(Amuyunzu-Nyamongo and Taffa 2004), and Riley and colleagues examine a favela in Salvador, Brazil, where they found that “a large proportion of the residents of this shantytown suffered from a variety of chronic illnesses, both infectious and non-infectious” (Riley et al. 2007). Fry and colleagues provide an overview of the health of children in slums in Asia (Fry et al. 2002). Refugee camps experience similar conditions of poor shelter and inadequate access to services, and there are various case studies of health conditions in specific refugee camps.

For example, Zabaneh and colleagues describe the poor living conditions and associated health problems in an unofficial Palestinian refugee camp in Lebanon (Zabaneh et al. 2008).

Although there are a number of case studies, there is a lack of comprehensive data on health outcomes in slums. The main conclusion of Riley and colleagues is that “little is known about the spectrum and burden of disease morbidity in urban slums of the world” (Riley et al. 2007).

The physical urban environment and safe living environments

“Safe living environments” can cover a broad range of issues. For example, the International Network of Safe Communities’ guidelines for membership (Ekman and Svanström 2008) address the following issues: transport safety; home and leisure safety; children’s safety; safety of the elderly; occupational safety; crime and violence prevention; suicide prevention; and disaster preparedness and response. Essentially, however, the issue of safety is concerned with injuries and the extent to which the physical urban environment contributes to or prevents injuries.

Injuries can be broadly categorised into two forms – unintentional injuries (or what used to be called “accidents”) and intentional injuries (deliberate acts of violence against oneself or others, including both homicide and suicide). The main forms of unintentional injuries are motor vehicle crashes (with other vehicles or with pedestrians or with the surrounding environment), drowning, poisoning, falls and workplace injuries, while the main forms of intentional injury come from male-on-male violence, domestic violence (abuse of women, children and the elderly), war and civil strife.

Every year injuries due to violence, traffic crashes, burns, falls or drownings are responsible for 9% of all deaths and 16% of all disabilities. Common types of injury include (WHO 2002):

- Violence: In 1998 approximately 2.3 million people died as a result of violence. Many more people die from homicide than from attack in a war, and even more die from suicide. For every death due to war, there are three deaths due to homicide and five deaths due to suicide. However, most violence occurs behind closed doors in the family environment and often results not in death, but in years of physical and emotional suffering.

- Traffic crashes: Traffic crashes are the number one cause of death for children and youth between ages 10 and 24 years. Other vulnerable road users include older people, pedestrians, cyclists and motorcyclists. About 1.2 million people die every year as a result of road traffic crashes and up to 50 million more are injured or disabled.

- Burns: Every year over 300 000 people die from fire-related burns. Millions more are left with lifelong disabilities and disfigurements from such injuries, and often suffer from resulting stigma. Burns are the only form of injury that kill more women than men.

A study of injuries in Uganda highlighted that injury rates in Uganda are much higher than those in most Western countries, and that the urban population is at a higher risk than the rural population (Kobusingye et al. 2001). Global statistics confirm this assertion. Based on 1998 data, 88% of traffic-related deaths, 86% of suicides and 95% of homicides occurred in LMICs. For most types of injuries, people die at a higher rate in LMICs than in high-income countries. Road traffic injuries have one of the steepest socio-economic gradients, with many of the impacts falling disproportionately on poorer populations (SDC 2010). The poor are often at a high risk of injury; because they are faced with hazardous situations on a daily basis. As an example, their means of transport are overcrowded and poorly maintained; and as pedestrians on unsafe roads, they are vulnerable to being crushed by cars and buses. Their homes, often poorly constructed, are vulnerable to fire. In general, the poor have less chance of survival when injured because they have less access to health services.
The physical urban environment has direct links with all of these issues: There is a link between urban planning and design and crime and violence. Certain urban layouts facilitate “defensible spaces” while others do not (Newman 1986). Jacobs (1961) observed that where neighbourhoods are configured to maximize informal contact among residents, street crime is reduced and children are better supervised (the notion of “eyes on the street”) (Jacobs 1961). In particular, there is a vast literature on gated communities, and the extent to which they do or do not provide safety (Landman and Schönteich 2002). Urban planning/design has a very direct link to the prevalence of traffic accidents. For example, “woonerven” are streets designed specifically to be safer for pedestrians through various “traffic calming” measures.

Other types of injuries may also be linked to the built environment. There is a growing body of literature on natural and man-made disasters (earthquakes, flooding) and how urban planning can reduce and manage these risks. Community resilience towards natural disasters can vary greatly, as demonstrated by the earthquakes in Port-au-Prince, Haiti, and Santiago, Chile, during 2010. The Chile earthquake, measuring 8.8 on the Richter scale, resulted in hundreds of deaths, while the Haiti earthquake, measuring 7.0 on the Richter scale, resulted in more than 230,000 deaths (Schmall 2010). The planning and design of the built environment can contribute towards resilience to flooding and earthquakes through, for example, design of levees (the failure of which led to the flooding of New Orleans’ low-lying, and largely disadvantaged, areas during Hurricane Katrina, for example) and drainage systems, and the construction of buildings to anticipate or mitigate potential impacts (Ahern et al. 2005).

Another important safety issue is the extent to which the urban physical environment facilitates mobility for people with disabilities, children, women and seniors. There are considerable bodies of knowledge on these issues (Sandercock and Forsyth 1992; UN 2006) (www.childfriendlycities.org, www.who.int/ageing/age_friendly_cities/en; Accessible Cities Alliance www.ada411.com), but there exists a dearth of discussion in the context of LMICs.

Also important, but often neglected, is the extent to which the physical urban environment facilitates good mental health. Characteristics related to the built environment, such as crowding and noise, can affect people’s health directly and/or impact indirectly through altering psychosocial processes, such as the development of socially supportive relationships within the household, which in turn affects mental well-being (Evans 2003). Urban sprawl and the location of low-income populations a long way from their employment, compounded by inadequate and inefficient public transportation, for example, can result in long commutes that represent a form of family and community time-deprivation; a two hour commute each way is 20 hours per week, or the equivalent of two 40 hour work weeks every month.

The overall quality of the urban environment can also have impacts upon mental health. For example, a study in London found higher levels of resident depression in areas that had “less desirable” built environments (older buildings, evidence of vandalism and graffiti, few trees and gardens) (Weich et al. 2002), Access to the natural environment, and clear urban layouts that facilitate finding one’s way can also have a beneficial impact on mental health (Evans 2003). Studies in low-income communities in Chicago have shown that there is a relationship between increasing levels of green space and improvements in outcomes such as school performance, self-discipline among girls, concentration and the ability to cope (University of Illinois). In addition, as noted above, the design and layout of urban areas may also influence safety and security, which in turn can impact on psychosocial stresses.
Food and nutrition security through the physical urban environment

Changing global social and economic conditions have resulted in high levels of food insecurity for the urban poor in LMICs. Simultaneously, since the 1970s, there has been a nutrition transition characterized by greater dietary diversity and a shift toward “Western-style diets” of meat, dairy, less complex carbohydrates, and reduced fruit and vegetable intakes (Popkin 2004). The relative ease of access, especially in urban areas, to caloric energy is a major contributor to the two billion adults estimated to be overweight and obese. Fresh fruit, vegetables, meat, eggs and so on can become more expensive and less available in urban areas than rural areas, especially in poor urban areas, as has been the case in Mexico, due to differential distribution systems (Peña et al. 2007). The net result of these changes in diet has been a double burden of malnutrition and obesity for the urban poor (Doak et al. 2004).

Six major determinants of urban nutritional inequalities in industrializing and industrialized cities have been identified (Dixon et al. 2007):

- decline in national food self-sufficiency due to withdrawal of government support for agricultural sectors;
- displacement of local food retailers by supermarket and convenience store chains;
- global food safety policies that impact negatively on small food producers, retailers, and poorer consumers;
- producer subsidies, consumer demand for cheap food, and high levels of foreign direct investment in food processing firms and convenience food chains that encourages the production of high energy foods;
- loss of livelihood options in local food systems, and
- urban planning that contributes to diet-related disease and to health inequities through its support for “automobility”.

The urban food system has traditionally received little attention from urban planners (Pothukuchi and Kaufman 1999; Pothukuchi and Kaufman 2000), but recent research suggests that, for example, access to supermarkets and convenience stores has a significant impact on diet and health (Moore and Roux 2006; Morland et al. 2006; Pearce et al. 2008).

Urban agriculture can also potentially be important for food security (Altieri et al. 1999; Parthasarathy-Rao et al. 2004; Dixon et al. 2009; Redwood 2009). Urban sprawl has contributed to the conversion of agricultural lands for other purposes, and this is particularly problematic because historically cities have tended to be located where there is a good source of food available locally. When these cities grow, they may well be paving over some of the best agricultural lands in the country (Box 2).

The location of supermarkets, convenience stores, takeaway outlets, markets, and ensuring space for urban agriculture is very much an urban planning issue (Redwood 2009).

Box 2: Urban sprawl and the impact on agricultural land – the example of Toronto, Canada

The city of Toronto in Canada is situated near much of Canada's prime agricultural land. Class 1 to 3 soils are considered to be prime agricultural land and almost 80% of the Greater Toronto Area (GTA) (prior to settlement) was covered by these soil classes. This takes on added significance considering that only 5% of the Canadian landmass is classified as prime agricultural land. When combined with historic losses due to urbanization, about 243,000 hectares or 35% of the GTA's total 688,000 hectares of farmland now have urban uses. Because most of this urban growth is located south of the Oak Ridges Moraine where virtually all the land is Class 1, the GTA has lost almost 50% of its Class 1 to 3 lands.

Source: Natural Resources Canada (undated) http://geoscape.nrcan.gc.ca/toronto/pdf/plains_activ3_e.pdf
The physical urban environment, physical inactivity and urban health inequities

The most common non-communicable diseases (NCDs) - heart disease, stroke, cancer, type 2 diabetes and respiratory diseases - accounted for 60% of the 58 million global annual deaths in 2004 (WHO 2008). Current and projected growth in mortality rates from NCDs is mainly in LMICs, and the burden “disproportionately affects poor people living in urban settings” (Mayosi et al. 2009). Obesity is one of the most challenging health concerns to have arisen in recent decades, particularly for socially disadvantaged groups living in urban areas (Friel et al. 2007). It is projected that by 2015 approximately 2.3 billion adults will be overweight and more than 700 million will be obese (WHO 2008). The number of people with obesity-related diabetes is expected to double to 300 million between 1998 and 2025, with three-quarters of that growth projected in the developing world (Misra and Khurana 2008).

The escalation in NCDs in rapidly urbanizing and industrializing countries can be attributed to changes in the economy and consequently in society that have led to profound changes in individuals’ lifestyles, including the adoption of unhealthy food consumption patterns, prevalent tobacco use, alcohol abuse and physical inactivity, especially in large cities like Ho Chi Minh City (Kim and Popkin 2006; Popkin 2006; Trinh et al. 2008). Work by Allender and colleagues to examine the relationships between urbanicity and chronic disease risk in Tamil Nadu, India, found that for both men and women, urbanicity was negatively associated with physical activity (Figure 14) (Allender et al. 2010).

There is a large literature, based on research mainly from high income countries, which suggests that there is a relationship between urban planning and design, the built environment, physical activity and the associated health outcomes and their social distribution. The main characteristics of the built environment at a neighbourhood scale can be conceptualised as: density, land use mix, street connectivity, and the nature of streets (Handy et al. 2002). At a larger scale, the metropolitan or regional structure can also be important in determining movement and activity patterns. Each of these is directly influenced by urban planning.

Neighbourhoods that have a high density, a mix of land uses, a fine-grained street network and pleasant, human-scaled streets are typically regarded as pedestrian and cyclist-friendly (i.e. as having a high degree of “walkability”) and provide greater opportunities for physical activity (Duncan et al. 2005; Doyle et al. 2006; Frank et al. 2006). A review of 11 North American studies found that residents of neighbourhoods with high walkability on average walk and cycle more than 2 times as much (and up to 5 times as much) as residents of neighbourhoods with low walkability, thus potentially resulting in significant health benefits for residents (Sallis et al. 2004). Another study found that a 5% increase in the measure of walkability resulted in an average 32% increase in an individual’s walking time (Frank et al. 2006).

Whilst there has been no explicit attention in Indian urban planning to walkability or promotion of walking and cycling as major means of transportation, a study commissioned by the Ministry of Urban Development assessed footpaths and overall infrastructure, including pedestrians’ ratings of the facilities. The national average walkability index was 0.52 and the city of Chandigarh scored highest with 0.91 (WWF 2008) (Figure 15, page 23). By comparison, large international cities such as London score in the range of 1.5 to 1.7. Indians walk despite the poor pedestrian infrastructure - a survey of 30 Indian cities shows that urban travel in Indian cities predominantly happens through walking, cycling and public transport. In cities with more than 8 million population 22% always walked, 8% used cycles and 44% used public transport. While this encourages active travel and physical activity, there are equity implications - the minimum cost of public transport use accounts for 20 to 30 per cent of the family income for nearly 50 per cent of the city population living in slums (Urban-Age 2007).
Provision of and access to local public facilities and spaces for recreation and play are directly correlated with individual level physical activity (Gordon-Larsen et al. 2006). The positioning of vital community resources such as schools, parks and health centres near residential and commercial areas is important for health (Younger et al. 2008). Workplace proximity has been shown to be a major influence on the commuting decision to walk (Cerin et al. 2007). On the other side, escalating car reliance is an important driver behind shifts towards physical inactivity in both developed and developing countries (Popkin 2006). Indeed, areas with the opposite characteristics to walkable neighbourhoods are labelled ‘automobile-oriented’ in that they make walking, transit, and other alternatives to the car a practical impossibility or at least a significant challenge (Handy et al. 2002).

Generally, it is understood that “congestion, traffic jams, car costs, air pollution, ugly freeways and bare parking lots waste time and money, cause daily irritations, and limit the pleasures of living in cities” (Blanco et al. 2009).

Gordon-Larsen and colleagues’ analysis of a longitudinal, nationally representative, school-based study of USA adolescents in grades 7 through 12 found that many recreational facilities (such as recreation centres, youth centres, parks, physical fitness facilities, bicycle rentals, public golf courses, dance studios, martial arts, swimming pools, athletic clubs and gymnasiums) were unequally distributed, with high-minority, poorly educated neighbourhoods at a strong disadvantage. This inequitable distribution of facilities is significantly associated with subsequent inequities in physical activity levels and obesity measured at the individual level (Gordon-Larsen et al. 2006).

In the few studies of physical activity and the built environment in developing countries, it appears that newer urban development has often resulted in the propagation of fewer and less conducive spaces for physical activity. For example, an analysis in Mexico shows that the inequity of availability of physical activity spaces has increased rapidly in urban counties, increasing the gap between the upper and lower quartiles from 1.91 to 2.78 in only five years (Ortiz-Hernández 2005).

Recent studies have suggested that in contexts such as the United States, rich urban residents tend to live in “low walkability” suburbs, whereas poor people tend to live in “high walkability” inner city areas, but the differences in active travel may be reflective of differences in socio-economic status (e.g. car ownership) rather than differences in the built environment. In addition, many studies focus on purposive walking and cycling, whereas some studies suggest that people who do little purposive walking and cycling (e.g. due to a preference for automobile travel) may compensate through increased recreational walking or cycling.

Figure 15: Walkability index, select Indian cities

Source: (WWF 2008)
In addition to the literature on the relationship between the built environment and health at the neighbourhood scale, there are also a number of studies which examine the relationship between urban form and health at a city-scale. Low density urban sprawl in American cities is generally seen as being linked to poor health, mainly because the necessitated increased dependence on automobiles results in increased air pollution and decreased physical activity which in turn contribute to respiratory diseases and obesity respectively (Dannenberg et al. 2003; Frumkin et al. 2004).

Urban planning and design and its impact on the natural environment

The local natural environment is increasingly recognised as being important for both physical and mental health (Vlahov and Galea 2002). Urban planning/design can impact on the local natural environment in urban areas and can affect health in various ways. For example, allowing noxious industries in urban areas can result in severe air pollution and consequently acute respiratory infections and cardio-pulmonary disease (Diez-Roux 2003). Indoor and outdoor air pollution is a major environmental risk to health and is estimated to cause approximately 2 million premature deaths worldwide per year, with most of the burden of disease being in LMICs (WHO 2010). Air pollution arising from the combustion of fossil fuels in automobiles is a particularly big problem, and there is a strong link between automobile use, and the increased risk of acute respiratory infections and asthma (Smith 2004). Loosely related to air pollution is noise pollution, which is a common problem in urban areas and can have a number of negative health impacts (Passchier-Vermeer and Passchier 2000).

Dense urban development can result in high levels of polluted run-off of storm-water which then pollutes water sources (Arnold and Gibbons 1996). Water pollution (and the scarcity of clean water) is a serious urban problem, especially in LMICs, and disproportionately affects the socially disadvantaged groups (Krants and Kifferstein 1998).

In addition to the impacts of pollution at a local scale, global emissions of greenhouse gases and other pollutants are driving climate change, which is expected to result in warming of most regions of the planet. Combined cardiovascular effects of exposure to heat and air pollutants during hot seasons have been reported in many cities (Kinney 2008). The August 2003 heat-wave in Western Europe incurred an estimated excess mortality of over 70,000 deaths, especially from cardiovascular and respiratory causes, and was more common among the frail elderly and other socially vulnerable communities (Hoffman et al. 2008; Robine et al. 2008).

Urban environments amplify climate change related health risks due to the urban heat island (UHI) effect. The absorption of heat by dark surfaces results in the urban areas having higher temperatures than surrounding non-urban areas – the UHI effect (Frumkin et al. 2004). The conglomeration of non-residential buildings often results in a lack of green space as well as an accentuation of the UHI effect (Watkins 2007). Health impacts of the UHI effect are socially graded - lower socioeconomic and minority ethnic groups are more likely to live in warmer neighbourhoods and lack the sufficient resources to cope appropriately (Harlan et al. 2006). Increased green space within urban environments help reduce the UHI effect and may also help reduce health inequities. Some English based research found that those populations exposed to greenest environments had the lowest levels of socio-economic inequalities in health (Mitchell and Popham 2008).

A study of healthy urban planning in Europe notes that urban planning can contribute to “an attractive environment with acceptable noise levels and good air quality” and “reduction in emissions that threaten climate stability” (Barton et al. 2003).
Social conditions and urban health inequities

The concept of ‘place’ means more to humans than just the physical space they inhabit. The social environment describes the structure and characteristics of relationships among people within a community (Galea et al. 2005). In urban centres, the social environment provides infrastructure such as healthcare, employment, education, social networks and social interactions, which, depending on their nature, can be inclusionary or exclusionary, thereby affecting people’s physical and mental health (Vlahov et al. 2007).

GRNUHE is interested specifically in those social conditions that relate to ‘soft’ social infrastructure and social capital and how inequities in these conditions/resources contribute to social exclusion and urban health inequities. In this section we explore how the unequal distribution of access to quality infrastructure such as education, employment and health care contributes to the differential health outcomes observed within urban populations throughout the world, but particularly in LMICs. We explore how the presence of good social capital and social cohesion within communities can help moderate the negative health impact of poor urban design and unfairly distributed social resources and infrastructure. This section of the report draws on the working paper produced by the GRNUHE Social Conditions working group (listed in Appendix 1).

Social exclusion/inclusion in relation to urban social conditions and health inequity

As demonstrated in Section 1 of this report, urbanization, particularly in the developing world, is intimately related to inequality and exclusion. Rapid paced and unplanned urbanization is making cities in LMICs into places of increasing poverty, squalor and violence and causing disruption of the social fabric, thus posing an enormous challenge to the safety, security and health of its residents.

Precarious or non-existent land tenure, constant threat of demolition and dispossession and less desirable physical environment on which huts are built (in dumping grounds, close to factories other polluting or road, or pavement living) can have a large negative impact on the health of slum dwellers (Durand-Lasserve and Royston 2002; Satterthwaite and McGranahan 2006; Unger and Riley 2007). This example of vulnerability to poor health is by no means confined to slum dwellers - we could be referring to any number of socially disadvantaged groups. What is common to those urban dwellers that systematically experience poorer health than others is the consequence of unequal life conditions - differential abilities to deal with health risks, mobilization of resources, efficacy of social networks, and availability and access to health and social services. Social vulnerability in health is not a “natural” or predefined condition but arises because of the unequal social conditions that surround the daily life of socially disadvantaged and often socially excluded groups (CSDH 2008). Social exclusion is a dynamic, multi-dimensional process driven by unequal power relationships. Exclusionary processes operate along and interact across four dimensions – economic, political, social and cultural, as well as working at different levels (Social Exclusion Knowledge Network 2007). The proliferation of slums in LMICs highlights an additional dimension of exclusion – socio-spatial (See Box 3). Socio-spatial exclusion is defined as a process whereby different social groups residing in specific geographical areas in the city are being excluded from access to resources and opportunities offered by the city (Blanco and Subirats 2008).

Box 3: Living in slum settlements: shame, stigma, and spatial exclusion

Dhaka is the world’s fastest-growing megacity, and Bangladesh is predicted to become a megalopolis within 3-4 decades. Observations in the Phulbari slum settlement in Dhaka revealed that the few young women who worked in NGO offices hid the fact that they lived in slum settlements for fear of losing their jobs, as slum settlements are associated with crime and violence. In another example, one young mother reported that her son studied in a government school but they did not let the school know her slum settlement address as she feared that the school authorities would ask her son to leave. It is not uncommon to hear city residents of all backgrounds speaking disparagingly of slum settlements and people who live in slum settlements. In a number of interviews, rural migrants who live in urban slum settlements admitted that they hid their place of residence from families in the villages because they were ashamed.

Source: (Rashid 2009)
Being included in the society in which one lives is vital to the material, psychosocial, and political aspects of empowerment that underpin social well-being and equitable health. The Social Exclusion Knowledge Network of the CSDH described a continuum of inclusion/exclusion characterized by an unequal distribution of resources and unequal access to the capabilities and rights required for:

i. Human development: Nurturing the talents, skills, capacities and choices of people to live a life they value and to make a contribution that both they and others find worthwhile.

ii. Valued recognition: Conferring recognition and respect on individuals and groups.

iii. Involvement and engagement: Having the right and the necessary support to make/be involved in decisions affecting oneself, family and community, and to be engaged in community life.

iv. Proximity: Sharing physical and social spaces to provide opportunities for interactions, if desired, and to reduce social distances between people.

v. Material well being: Having the material resources to participate fully in community life.

vi. Living within environmental limits and resisting the hazards of environmental change.

There is limited research on the relationship between social exclusion and health inequities in cities in LMICs. In Bangladesh, Rashid argues that the broader political and economic conditions seriously challenge the ability of the urban poor to improve their health. These conditions include “a lack of political commitment towards alleviating the conditions of the urban poor, harsh and brutal poverty in the slums settlements with erratic employment for the unskilled population, environment insecurity with dismal or little access to basic sanitation and health services in most settlements” (Rashid 2009). Hunter explicitly investigated the relationship between exclusion and the levels of Millennium Development Goals in Pakistan and concluded that among social groups experiencing multiple processes of social exclusion, aggravated poor health outcomes were observed (Hunter 2008). In Mexico, adopting the concept of marginalized groups to capture social exclusion, Gonzalez-Perez and colleagues found that excess mortality was evident in those municipalities considered as having very high marginalization and concluded that social exclusion contributed to “notorious” health inequalities measured in terms of mortality rates related to transmissible illnesses in childhood, and produced by avoidable causes such as nutrition-related mortality (Gonzalez–Perez et al. 2008).

Ethnicity, race and caste are social determinants that enhance the exclusion and vulnerability of groups. The caste system in India remains a major indicator for health outcomes even after 60 years of independence. The Indian National Health Survey–III (2005-2006) documents lower levels of prenatal care, institutional deliveries and vaccination coverage among scheduled castes, while levels of infant and maternal mortality are higher in scheduled caste and scheduled tribes across the states (IIPS 2006). In the United States, the role of race is vital in understanding urban health inequities. About 80% of the residents of high-poverty urban areas in the USA are from minority ethnic groups - African Americans alone account for 50% of residents of high poverty urban areas nationally. By 1990, African American youths in some urban areas faced lower probabilities of surviving to 45 years of age than White youths nationwide faced of surviving to 65 years. Popularized images emphasize the role of homicide among urban youth, although chronic diseases in early and middle adulthood are key contributors to the persistence and growth of these health inequalities (Geronimus 2000).
Box 4: Slums in Dhaka — marginalization with rapid urban growth

Education figures for Dhaka’s slums are among the worst in Bangladesh. One study of four slums found that just 70% of children were enrolled at the primary level, many of them in schools run by non-government organizations. The study also found high inequality within the slums. The children of better-off families, such as those with small businesses, were far more likely to not just be in school, but in government or private schools. Children from the poorest households were less likely to be in school, and if they were, almost half those enrolled relied on schooling supplied by non-government organizations, churches or private entrepreneurs, with little government support or regulation (Figure A).

Only a quarter of Dhaka’s slums have a government school. Most of these schools are in well-established slum areas, while newer, less formal settlements are left to fend for themselves. As in other slums worldwide, insecure tenure contributes to marginalization in education. Lacking tenancy rights, slum dwellers are in a weak position to demand education and public finance. Moreover, as many city authorities periodically bulldoze informal settlements, some non-government providers are loath to invest in school buildings.

Source: 2010 Education for all global monitoring report: Reaching the marginalized © UNESCO 2010. Used by permission of UNESCO.
Social exclusion through denial of education is common in slums. Due to the lack of official residency status experienced by people living in some informal settlements, for purposes of school registration, the authorities do not recognize that these children even exist. One study of 400 slum-dwelling households in Delhi found that only half of primary school age children were in school, compared with a citywide enrolment rate in excess of 90%. Although government schools were within walking distance, only a third of children in the sample had a birth certificate, which is mandatory for admission to government schools (UNESCO 2010).

There is growing international recognition of the plight of working children. While in many countries there has been a movement for a ban on child labour, this has not always been accompanied by an analysis or understanding of the reasons for the prevalence of child labour. These children experience particularly stark forms of marginalization in education. One study covering seven cities in Pakistan found that fewer than 5% of children living on streets had completed primary education (Tufail, 2005). Providing children with a quality education, life and income-generating skills is now seen as a means of increasing the options available to working children and their families.

In general, the educational level is lower in women than in men; and among women, those who live in poverty are at the greatest disadvantage. Low schooling rates in Brazil were found to be related to having more children, to single motherhood and to low birth weight (Minuci and Almeida 2009). Low birth weight is associated with decreased visits to prenatal care and decreased quality of health care services, which in turn were found to be associated with educational level. In a similar fashion, studies conducted in Mexico and Bogotá found that education was the single most important factor for breast cancer screening and for Pap testing (Couture et al. 2008; de-Charry et al. 2008). In both studies, higher education was associated with being affiliated to either public or private health regimes and receiving both screening tests.

Urban employment and the relationship with health inequities

Urban settings concentrate a large proportion of the labour force in many developing societies, where migration from rural to urban areas is frequent in order to find better job opportunities (Todaro and Smith 2003). Employment arrangements and working conditions affect health equity, not least through the material and social empowerment that they convey. But the employment and working arrangements must be fair (Employment Conditions Knowledge Network 2007). In addition to the direct health consequences of tackling work related inequities, the health equity impacts will be even greater due to employment’s potential role in reducing gender, ethnic and other forms of social exclusion.

Contractual arrangements

Employment is closely related to health: people with better jobs have better health than those with less prominent or remunerated employment (Clougherty et al. 2010). Work stability confers health benefits, as it offers a sense of responsibility, self efficacy and personal development. Precarious situations such as unemployment, underemployment, temporary employment and part-time jobs face a high level of job insecurity. Workers under these circumstances often face lack of social security benefits (medical attention, sponsored pensions, workers compensation, paid maternity leave) and fear of job loss. Some health outcomes related with job insecurity are high blood pressure, longstanding illnesses, psychiatric morbidity and general illness symptoms (Clougherty et al. 2010).

Hernandez-Peña and colleagues studied female street vendors in Mexico City to test the associations between working as a street vendor during pregnancy, and the development of labour fatigue and low birth weight of their children. Fifty-six percent of the females studied worked more than 48 hours per week, 87% had no social security, and 68% had only primary level education. Exposures to working conditions including physical demands, the physical environment, weekly working hours, working postures and exposures to external stressors (authorities, other vendors, pressures of selling quotas) were also recorded. The risk of low birth weight increased when the vendors were reliant on selling a specific quota of merchandise (Odds Ratio 6.5, 95%CI 1.3-31); when the merchandise being sold was seasonal tools such as accessories or spare parts (OR 6.3, 95%CI 1.5-26); when the vendors had to exhibit their merchandise on the floor or to carry it (OR 7.7, 95%CI 1.8-32) and when financial support to initiate vending activities came from someone other than a close relative or friend (OR 7.4, 95%CI 1.2-44). Also, the risk of low birth weight was 23 times higher among women who travelled more than 90 minutes from home to work compared against those who travelled less (Hernández-Peña et al. 1999). The health risks...
associated with different types of occupational grade and with precarious employment are not constrained to LMICs. Work from the Whitehall study in England demonstrated many years ago that health risks increase significantly with decreasing occupational grade (Marmot et al. 1978) (Figure 16).

Financial security in urban dwellers is primarily determined, or at least mediated, by the labour market. Before the economic crisis, the share of workers in vulnerable employment was on a downward trend in all regions. Since the crisis, the number of workers in vulnerable employment may have increased between 2008 and 2009 by between 41.6 and 109.5 million (ILO 2010). The financial crisis will affect urban populations hard.

Similar to the share of workers in vulnerable employment, estimates of the proportion of the employed who are working but also fall below an accepted poverty line (the working poor) were on a declining trend before the economic crisis. Nevertheless, in 2008, 21% of people in work were classified as extreme working poor, representing a total of 633 million workers living with their families on less than USD 1.25 per day. In the case of the USD 2 per day working poor, 40% of all workers were in this category, equal to 1,183 million workers around the world. Estimates of the share of workers in extreme poverty suggest that up to an additional 7% of workers were at risk of falling into poverty between 2008 and 2009. This would translate into an additional 215 million workers, which is an alarming increase and would represent a setback of many years in reducing decent work deficits. The largest potential negative impact is in South Asia, South-East Asia and Sub-Saharan Africa, where extreme working poverty may have increased by 9% or more in the worst case scenario (ILO 2010).

**Workplace environment: physical, chemical and biological hazards**

A general classification of exposures to environmental conditions at work includes chemical, biological (germs) and physical agents (noise, heat, vibration, radiation). Some of those are very frequent and may contribute substantially to health inequalities among workers. Physical injuries are associated with physically demanding jobs, especially in manufacturing, construction, health and social services - important economic sectors in urban settings.

Figure 16: The relationship between job category and mortality from coronary heart disease, Whitehall UK

![Figure 16: The relationship between job category and mortality from coronary heart disease, Whitehall UK](source: Marmot et al. 1978)
The number of health hazards related to urban workers is large and includes a variety of acute and chronic outcomes affecting mainly hearing, respiratory, cardiovascular, nervous and hepatic functions. Occupational cancer is recognized as a major outcome associated with several occupational exposures (Partanen et al. 2003). Workers in the informal sector of the urban economy, especially the poorest, are additionally exposed to a number of urban environmental exposures such as air pollution, sunlight and non potable water (Monge et al. 2010).

**Work organization**

The establishment of workplace activities in terms of schedules, pace, resting time and shift-work in relation to production needs, as well as particular policies related to occupational health promotion (safety environments, workers information on hazards, and medical attention) are crucial as workplace health determinants. Participation of employers and employees in the planning of activities directed to improve working conditions and work environments are fundamental. Organizational culture and safety at work has been studied before, especially in health care settings. Exposures to environmental hazards, lack of safety training and low level of safety climate and safety practice, are significant risks factors for workplace related injuries (Gimeno et al. 2005).

**Health care services in urban settings and the associated health inequities**

While social and health services are frequently more available in cities than they are in non-urban areas, marked inequities in access and utilisation of services exist across a number of social categories within cities (see Box 5). In many parts of the world women have been systematically excluded from the health systems (Nash Ojanuga and Gilbert 1992). Such problems are usually associated with lack of prevention and health promotion programs and lack of or limited access to treatment for specific chronic and infectious diseases such as HIV/AIDS; particularly services for women in late stages of the infection (Silver et al. 2003) and young teenagers (Milligan et al. 2002; Bruce and Hallman 2008; León et al. 2009).

In investigating the interrelationship between caste, social exclusion and health in Kerala, Nayar found that scheduled castes and scheduled tribes exhibited higher levels of child and female anaemia, child mortality and less access to health services than the upper castes (Nayar 2007).

Traditionally, minority ethnic and racial groups have been neglected by the health system. Not only do their needs tend to be ignored, but they also face multiple access barriers. A study on health services and access conducted in Bogotá reported ethnic and racial discrimination, differences in social, economic and political status, interactions between immigration, acculturation and assimilation, violation of rights and differential exposure to quality of care. The authors concluded that ethnicity determined the levels of social vulnerability and took specific forms regarding life, health and disease, thereby becoming a structural determinant of ethnic-equity in access to health services (Ariza-Montoya and Hernández-Alvarez 2008).

Inequities in access to infrastructures and services exist within cities in the rich world too. Pockets of locational disadvantage in relation to services have been shown in across cities in New Zealand. For example, in Wellington intra-urban trends are noted for access to daycare centres (Figure 17, page 31). There is greater accessibility in the central areas of Wellington and along major arterial roads, but in areas on the outer fringes of the city access to daycare centres is among the lowest in New Zealand (Pearce et al. 2006).

**Box 5: Inequities in health among the Indian urban poor**

The Indian urban poor have an infant mortality rate of 54.6 in comparison to 35.5 for the urban non poor and 41.7 for the urban average. Despite proximity to super-specialist hospitals, 56% of children living in slums are born at home, contributing to high neonatal and maternal mortality. For instance, the under-5 mortality rate is 73 per 1000 live births among the urban poor. Only 40% of the children from urban poor households receive all recommended vaccinations and 50% of the urban poor children are under weight for age, as opposed to 46% for rural poor and 33% for urban average. Finally, nearly 60% of urban poor women aged 15-49 are anaemic, increasing the incidence of premature births, intrauterine growth retardation, and higher maternal and infant deaths.

Source: (IIPS 2006)
This becomes an equity issue when access to transport is considered. In New Zealand, public transport is poor in many urban areas and non-existent in most rural communities. Consequently, differential access to a car has potential impacts on amenities and services access, and on opportunities for social interaction - all factors that may contribute to social inequalities in health.

Figure 17: Travel time from population weighted meshblock centroids to closest daycare centre in Wellington, New Zealand

Social capital, social cohesion and urban health inequities

At the individual and family level, social exclusion combined with the daily stresses of insufficient financial resources may bring on paralyzing fatigue, anxiety, low-level depression, and other expressions of mental ill-health. At the community level, the symptoms may be expressed in the weaknesses and fragilities of local community organizations; that is, in deficiencies in what has been termed bonding social capital.

Many socially disadvantaged and excluded groups rely often on their informal, visible and invisible social capital to sustain themselves through adverse living conditions, particularly in slums and other poor neighbourhoods. They use various adaptive behaviours which can be either pathogenic or salutogenic (Coutts and Kawachi 2006). For instance, migrants who had no social contacts in Nairobi had less access to information about livelihood issues, such as housing and employment, than those migrants who had a more robust network of friends and relatives in the city. In other words, “connected” migrants have a better chance of obtaining employment and housing in cities than those who are “unconnected” (UN-HABITAT 2008).

Children attending full time schooling in many Latin American countries found their local schools to be the centre of inclusive social participation and the main instrument for stimulating and enabling their future. Recognizing that self-esteem, self-efficacy, participation, self-determination and self-expression contribute to healthy development and well-being, the introduction of after-school programs and collaborative efforts between schools and other organisations to provide arts, sports and entertainment activities are seen as making a major contribution to protecting health and countering many of the negative social conditions in the community (Meresman 2005). For the elderly in most urban environments, the family becomes the main, and sometimes the only, caring resource and the focus of their social life, especially when health deteriorates and loss of functional capacities leads to disabilities. This aspect has become important as worldwide families have been shrinking significantly, which means fewer children to care for more parents.

The proposition that social capital is important to protect health in urban settings is not new, and is derived from observation and empirical data in many studies (mainly high income countries) that indicate improvement in health outcomes following improvements in social capital and social cohesion (Kawachi and Wamala 2007). Sensitizing the political environment and urban planners to the importance of social capital and social cohesion for better urban health resonates strongly with the current debates around values in public health policy that inform the way that we understand the need to protect these resources. The political constraints against equity-enhancing policies are understood to be shaped by the degree of social cohesion in a country and the quality of its institutions (Ritzen et al. 2000).
Analyses of the “Project for Human Development in Chicago Neighbourhoods” have provided significant input into the understanding of social capital and health in cities in the USA (Sampson and Raudenbush 1997). Based on a survey of 343 neighbourhood clusters in the city of Chicago, community variation in interpersonal trust, reciprocity, and group membership were significantly correlated with overall and cause-specific mortality rates, even after controlling for levels of socio-economic deprivation, Figure 18 (Lochner et al. 2003).

In a more recent study of 21,456 individuals in 40 USA communities, “The Social Capital Community Benchmark Survey”, Kim and colleagues found that individuals who reported high levels of trust in others in the community benefited from living in a place where others also shared the same opinions. Higher levels of community bonding social capital and community bridging social capital were associated with 14% and 5% lower odds of self-reported fair and poor health, respectively (Kim et al. 2006).

In a study of 234 communities in Peru, Ethiopia, Vietnam and Andhra Pradesh (India), De Silva and colleagues explored the relationship between individual and ecological measures of social capital and maternal common mental disorders (CMD) (De Silva et al. 2007). Women and the poor are disproportionately affected by CMD, and women in low income countries are particularly at risk. The analysis shows that individual cognitive social capital is associated with reduced odds of CMD across all four countries. The results for structural social capital are more mixed and culturally specific, with some aspects associated with increased odds of CMD. This suggests that structural social capital has context-specific effects and cognitive social capital more universal effects on maternal CMD.

In the study of social capital and self-rated health in urban low income neighbourhoods in Chile, Sapag and colleagues identified five domains of social capital: perceived trust in neighbours, perceived trust in organizations, reciprocity within the neighbourhood, neighbourhood integration and social participation. Trust and reciprocity were significantly associated with better self-rated health. Neighbourhood social cohesion, measured by trust and reciprocity, is associated with higher self-rated health. However, social participation did not appear to be associated with better health in this predominantly low income neighbourhood. These findings provide preliminary support to the relevance for social capital as a determinant of health in Chile (Sapag et al. 2008).
**The added stress of environmental and climate change on urban health inequities**

Familiar long-standing local environmental risks in urban areas, including local air and water pollution, toxic materials, drainage, and solid waste continue to threaten human health and increase health inequities, mainly in developing countries (Kjellstrom et al. 2007; Marcotullio and McGranahan 2007). Details of links between these urban environmental hazards and health inequity were reviewed in the report from the WHO Knowledge Network on Social Determinants of Health in Urban Settings (Knowledge Network on Urban Settings 2007).

**Disruption to Earth’s system and the potential challenges for urban health equity**

New health equity risks are emerging as a consequence of global environmental change, which will exacerbate the already existing social inequities and health risks, and these deserve special discussion. Modern human society has seriously perturbed and depleted the planet’s biogeophysical systems – the Earth’s systems that sustain life (UNDP 2007). Our predominantly industrialized society has become increasingly dependent on ever-increasing volumes of production and consumption. This, plus increasing numbers of consumers as a result of population growth, with increasing individual and collective expectations and demands, has led to increasing over-exploitation of finite natural resources, to overloading natural environmental systems, and to critical emission levels of greenhouse gases (GHGs) (IPCC 2007; Satterthwaite 2009). The combined concentration of GHGs in the atmosphere has already committed the Earth’s mean surface temperature to a rise of at least 2°C by 2050, and a further total warming by 2100 to within the range of 1.8°C–4.0°C (Parry et al. 2009). Such temperature rises are likely to disrupt or destroy many natural environmental assets, and to critical emissions levels of greenhouse gases (GHGs) (IPCC 2007). These environmental changes pose a serious challenge to human well-being, health and equity (Friel et al. 2008).

Urbanization is both a cause of and a solution to global environmental change (IPCC 2007). Most population growth in the foreseeable future will occur in urban areas primarily in developing countries. How this growth is managed has enormous implications for global environmental change, particularly climate change, given the increasing concentration and magnitude of economic production in urban localities, as well as the higher living standards (and hence consumption practices) that urbanites - especially the middle classes - enjoy by comparison to rural populations (Guzmán et al. 2009).

Natural resources and natural resource management will be put under pressure. With increasing urban growth comes increasing demand for basic human health needs such as water, food and shelter. The provision of resources such as water, food and energy from surrounding rural and peri-urban areas has the potential to create significant spatial inequities in risk. For example, the appropriation and transport of water from peri-urban areas to meet demands of megacities such as Chennai and Delhi leaves rural populations water and energy deprived (Ruet et al. 2007).

Biodiversity may be further affected through choices made in the allocation of land for urban development. Depending on how land is developed it may or may not reduce the amount of available habitat space for different species (Chivian and Bernstein 2008). This may pose direct health challenges - reducing biodiversity limits our “ecosystem services”, reduces opportunities to get medicines from nature, and threatens health through the invasion of pest species that can spread diseases to humans, their herd animals or their crops.

The increasing scale of environmental change can result in loss of ecosystem services, desertification and flooding of low-lying river delta regions; loss of land due to sea-level rise, shoreline erosion and coastal flooding; impaired crop production and increased severity and frequency of climate-related natural disasters (IPCC 2007). These pressures allied with the persistence of poverty and disadvantage in many countries and the prospect of job opportunities will promote communities and persons to move away from situations of danger, decline or despair and may further enhance the drive towards larger cities (UNHCR 2009). The number of environmental refugees may well be in the hundreds of millions by mid-century (IPCC 2007). These displacement processes will likely have an impact on health (e.g. under-nutrition, immune depression, mental health problems), will heighten the vulnerability of displaced persons to additional health problems, and will increase the potential for civil unrest. In addition, resource scarcity and other ecological crises will likely increase the potential for regional and international conflict.
Climate change and urban health inequities

Within GRNUHE we recognize that many of these aspects of global environmental change will potentially affect human health in cities both now and in the future. However, the remainder of the report focuses only on climate change as one particular facet of global environmental change, partly because of the policy momentum gathering in this particular area, partly because the lives of millions of city dwellers will be greatly affected by what is done in relation to climate change, and partly because there remain many unanswered questions about the climate change and urban health inequity relationship. This report draws on the working paper prepared by the GRNUHE Environment working group (listed Appendix 1).

There has been increasing research and policy attention to the social determinants of urban health inequities (Frumkin et al. 2004; Knowledge Network on Urban Settings 2007; Vlahov et al. 2007; CSDH 2008), and there is a growing literature on the interface between global climate change and urbanization (Satterthwaite et al. 2007; Reví 2008). GRNUHE draws these two lines of enquiry together and asks how climate change interacts with urbanization and the social determinants of health to increase the risk of urban health inequities.

As the temperature of the planet rises there is, and will be, increased, and more severe floods, droughts, storms and heat waves. Some preliminary analyses suggest that these climate-related changes will exacerbate existing social and health inequities (Patz et al. 2007; Friel et al. 2008) but little is documented specifically in relation to urban health inequities. It is hypothesized (and we are now beginning to see evidence of this effect in some regions) that adverse health outcomes will be greatest in low-income countries and among socially disadvantaged people living in urban areas, elderly people, children and coastal populations but the exact pathways from climate-related events to health inequities remain unclear. Climate change will likely exacerbate urban health inequities in various ways (Figure 19). Some impacts are direct and immediate, while others typically occur via more complex causal pathways and have a lag period. These impacts are discussed briefly below.

**Figure 19: Pathways from global climate change through urban living conditions to urban health inequity**

Source: Adapted from (Friel et al. 2008)
Section 2: The determinants of urban health inequity

Extreme weather events and sea level rise – the health equity risks for coastal cities

Scientists are particularly concerned about the vulnerability of cities to extreme weather events. Sea-level rise has profound implications for the one third of the world’s population who live within 60 miles of a shoreline and for thirteen of the world’s twenty largest coastal cities (McGranahan et al. 2007). Low-lying cities and towns near coasts will most probably face increased risks from more frequent and more intense hurricanes, cyclones, and storm surges causing flooding, direct injury and damage to infrastructure, including roads, housing, water and sanitation systems. Poorer urban households are usually at higher direct health risk due to weaker structures, less safe city locations and building sites, and the weaker resilience of infrastructure in poorer cities to withstand damage (Costello et al. 2009).

The experiences of severe storms and floods in Manila, as well as the 2010 earthquake in Haiti have demonstrated the vulnerability of poor urban areas to major disasters. The flooding of New Orleans in 2005, and its effects on elderly rest home patients and poor people who could not evacuate because of lack of transport, gave a striking example of what might happen among socially disadvantaged communities even in rich countries (Sharkey 2007).

Extreme temperatures

Climate change, amplified by the heat island effect in inner city environments, is causing increased temperatures and urban health risks (Huq et al. 2007). Heat wave mortality and morbidity increases have been reported in cities in the USA (IPCC 2007; Luber and McGeehin 2008), Europe (Hoffman et al. 2008; Robine et al. 2008) and in developing countries (Hajat et al. 2005; Kovats and Akhtar 2008). Increasing daily temperatures are also related to other health effects besides acute heat stress, including heart disease, asthma and kidney diseases. Increased rates of hospital admissions for these health conditions have been reported (Kjellstrom et al. 2009).

Heat related health risk is greatest among the poor, the very elderly, infants, people with certain pre-existing diseases and workers in heat exposed jobs (Kjellstrom 2009). Many cities in LMICs are built in marginal lowlands, which are particularly hot, humid, and often plagued by disease, thereby exposing people who live there to a variety of heat-related health risks. Densely populated urban neighbourhoods with few trees have maximum temperatures during the day 1-3 °C higher than cities with parks or open landscape areas (US-EPA 2007). Poor neighbourhoods with weak infrastructure, buildings and unplanned settlement developments with little green spaces, and use of black corrugated steel panels for roofs and walls are likely to be more exposed to high temperatures compared to more affluent neighbourhoods, and will have less capacity to adapt to the impact (Kovats and Akhtar 2008). It is also likely that global warming will reduce winter cardiovascular disease and respiratory deaths due to anticipated milder winters, but any population health gains from this may well be offset by the extent of problems caused by increased temperatures, heat stress and other associated health conditions.

The influences of climate change on infectious diseases and implications for urban health equity

Climate change will significantly influence, and mostly increase, the range of infectious diseases (food-borne, water-borne and vector-borne) (Campbell-Lendrum and Corvalan 2007; Patz et al. 2008). Poor urban living conditions, particularly those among the one billion people living in high-density, low income urban settlements (‘urban slums’), are the breeding ground for climate-sensitive infectious diseases such as diarrhoea and dengue (Campbell-Lendrum and Corvalan 2007). Around half of the urban population of Africa and Asia lacks provision for water and sanitation to a standard that is healthy and convenient. A recent census in Dhaka reveals that nearly 60 per cent of slums lack basic drainage and are prone to flooding (Bartlett et al. 2009). In Latin America and the Caribbean, more than a quarter lack such provision. When basic infrastructure is inadequate, existing conditions of poor sanitation and drainage and impure drinking water are further stressed under conditions of extreme weather events and flooding, leading to the transmission of infectious diseases, which puts poor urban households at higher than usual risk.

Climate change pressures on urban food security

As was highlighted in the Urban Planning and Design section of this report, urban populations increasingly face pressures with regards to food and nutrition security. Urban population growth has a direct impact on the relationship between agriculture, food supply and climate change. Urban sprawl has contributed to the conversion of agricultural lands for other purposes. This has resulted in urban food supply systems being relocated to distant rural or peri-urban locations and/or being dependent on cross-border trade, supermarkets and fast food
industry dominated food chains (Dixon et al. 2007). This has contributed to consumer price volatility, a dependency on transport of food into urban environments, and increasing consumption of calorie-rich, nutrient poor foods among the poorer social groups (Brinkman et al. 2009; Ruel et al. 2010).

The food supply system is increasingly facing serious challenges from climate change (McMichael et al. 2007; Friel et al. 2009). Drought-prone and long-term drying conditions in sub-tropical regions around the world, higher temperatures, increasing frequency of flooding and acidification of oceans are already having an impact on food yields, and the availability and affordability of nutritious food (UNDP 2007). The negative impact of climate change on food yields will occur unevenly. In general, countries in the tropics and sub-tropics, where the majority of the world’s population resides, and where both warming and reduced rainfall are likely to occur, are at greatest risk (IPCC 2007).

Currently over one billion people worldwide, mainly in developing countries, do not have enough to eat (FAO 2009). As climate change impacts on food yields and subsequently on dietary quality, there will be increasing micronutrient malnutrition (or hidden hunger) and an exacerbation of pre-existing vulnerabilities that lead to poorer health, lower incomes, and reduced physical and intellectual capabilities (Brinkman et al. 2009). As the cost of fuel and water increase due to climate change pressures, and pressures increase on food stocks, the associated food price increases may compromise the nutritional well-being of urban dwellers, especially the poor (Lobstein et al. 2008; Brinkman et al. 2009; Ruel et al. 2010).
Urban governance and its relationship with health inequities

Good governance, at various levels, was highlighted by the WHO Commission on Social Determinants of Health as being critical for redressing imbalances in power, money and resources and for improving daily living conditions, thereby reducing health inequities. This section of the GRNUHE report explores in more detail the various aspects of governance – power, participation, partnerships and intersectoral action - and discusses how these can all contribute to improved health equity within and between urban settings. It draws on the work of the GRNUHE Governance working group (See Appendix 1).

First, we explore governance concepts, second we reflect on historical knowledge about the role of urban governance in addressing health inequities and third we underline the embedded, dynamic and changing nature of governance and discuss the component parts of good urban governance.

What do we mean by governance?

Governance is defined as: “the process of collective decision making and [the] processes by which decisions are implemented or not implemented”. Governance is understood as a dynamic process and structure that is changing over time and is embedded within context (Box 6, page 39). Analysis of governance should focus on the actors involved in collective decision-making and implementation processes as well as on the structures established to ensure the effective implementation of the decisions (UNESCAP 2010).

Governance is concerned with the distribution, exercise and consequences of power (Hay 2003). Analysis of the (re)production of power relations in governance is necessary (Navarro 2000). Although there appears to be general agreement that the quality of governance is important for development, much less agreement appears to exist on what governance really implies and how it should be used. The ambiguities, dilemmas and concerns surrounding the concept can be explained by the fact that many developmental agencies have employed the concept for various purposes, in different contexts and to advance their own agendas (Hyden et al. 2004). Thus, understanding urban governance from a perspective of power and power relations requires knowledge of the historical, social and economic processes that have characterized social relations and citizenship in specific local, national, regional and global contexts (Barten et al. 2002; Flores et al. 2009).

Power manifests at the level of agents and at the level of structures in which actors interact; and these multiple levels influence each other (Clegg 2007). A multi-dimensional perspective of social power is based upon the following mechanisms: the possession of superior resources (Dahl 1961), the control of participation and debate, and the capacity of shaping interests (Gaventa 1980).

Swift’s (1992) proposal, cited by (Culley and Hughey 2008), to move beyond a conventional understanding of power as ‘power over’ toward a more synergistic and relational perspective of power as ‘power with’ seems particularly relevant to the work of GRNUHE.
Box 6: Contextualizing urban governance – the example of South Africa

South Africa has followed the global trend of urban growth. This trend was exacerbated in South Africa by the underdevelopment of rural livelihoods under apartheid in combination with newly established freedom of movement of rural communities (De Swardt et al. 2005; Clegg et al. 2007). The result has been an increase in inequity, where wealthy middle class suburbs back onto poor overcrowded, informal settlements with few basic facilities (Sanders and Chopra 2006; Sangoco and People’s Health Movement South Africa 2006-2009; Puoane and Tsolekile 2008; Scott et al. 2008).

South Africa provides an interesting example of what promised to be a model of good governance. The new democracy boasts a progressive constitution and pro-equity policies and programmes, which encourage effective partnerships and participation (Matheka and Buccus ; Sanders and Chopra 2006). It also has a strong participatory culture dating back to anti-apartheid activism (Marais 1998). Unlike most Sub-Saharan countries, South Africa has the economic potential of a middle-income country. However, these opportunities have been constrained by a global and national neoliberal policy environment, which advocates for the streamlining of state functions and expenditures, privatisation and deregulation of the financial sector (Sanders and Chopra 2006; Sangoco and People’s Health Movement South Africa 2006-2009).

Local government in South African has a legal framework aimed at positively reinforcing democracy and social and economic delivery. Constraints, however, include limited resources, poor urban management and the absence of effective urban governance (Beall et al. 2000), which are exacerbated by the non-payment by the poor of rent and levies for water and electricity (Robins 2002). There is also pressure on local governments to become ‘entrepreneurial’, replacing equity with efficiency. This has led to privatisation and increased costs of basic services, creating further inequities as most private investment goes to the wealthier suburbs (Chopra and Sanders 2004).

Attempts to develop partnerships to tackle the range of problems have had mixed results. While there are some encouraging examples, there remain inherent tensions within the concept of partnership that limit their effectiveness. These include power differentials among partners - such as those among government, NGOs and community partners - which determine the nature and extent of interventions; bureaucratic systems and divisions within and between organizations which hinder collaboration; external pressures, including national, donor or commercial priorities which can dominate agendas and mistrust between partners based on any of the above (Stern and Green 2005). Buccus et al (2008) argue that despite the supportive legislative framework, there is limited commitment to meaningful participation. Civil society organizations play a critical role in mobilising communities to influence government policy. The Peoples Health Movement in South Africa (PHM SA), part of a global health advocacy movement, and the HIV/AIDS Treatment Action Campaign (TAC) are examples of organizations that are successfully mobilizing communities to influence government bodies. It has been suggested that in order to be successful, their starting point should be a different set of values to the prevailing norm (Sanders et al. 2005). In other words, they should be stressing the importance of equity, social inclusion and human rights. While endorsing these values in 1994, they have not been actually reflected in the actions of the South African government.
Governance concepts

Governance processes are embedded within context, but common characteristics (as well as challenges) also exist across these contexts. It is important to differentiate between top-down and bottom-up governance innovations. Also, scale is a particularly important variable since there are some metropolitan regions that develop across country boundaries; and so is level, since supra-local factors and decisions taken by distant and powerful actors can have a profound impact on health inequity within as well as between cities. Decentralization in practice often implied de-concentration, while the rules of the game are still defined at central level or influenced by global actors.

Governance is a dynamic process, and it is important to acknowledge the fact that governance has been changing significantly over the past two decades. Scholars worldwide, and particularly in the UK and the USA, have started to examine the driving forces and the implications of this shift from government into governance, one in which government has now become just one of the actors in the policy and decision making processes (Judge and Stoker 1995; Kooiman 2003; Healey 2006; Pierre 2009; Raco 2009). While the Healthy Cities approach in general takes a ‘governance’ rather than a ‘government-only’ approach, it is striking that few evaluations of Healthy Cities have analysed the implications of this important shift in governance for the conduct of policy, healthy urban planning and health equity (Hancock 1996; Barten et al. 2010).

The city is a contested place; land tenure, shelter and economic development are critical issues and this explains the interest in urban regeneration processes, spatial justice and governance (Baviskar 2003; Mitchell 2003; Marcuse 2009; Parnell and Pieterse 2010). Many publications have analyzed the implications of urban relocations on human rights and well-being (see Box 7).

Box 7: Governance and the right to the city

Inhabitants of informal or illegal settlements in Phnom Penh and in Nairobi have organized to oppose demolition and forced eviction, and to develop their own plans to ensure access to adequate housing and services. Commercialization of land markets, investment and public development often do not take into account the interests of the inhabitants of informal settlements. Relocation to distant and often unserviced areas deepens poverty; people become even more vulnerable as social ties are disrupted and employment opportunities are lost. In Phnom Penh the municipality, a federation of the urban poor and a local NGO worked together during 2001-2003 in an action research process that sought to understand the different driving forces and trends - as these directly affected the impoverished population, and also to identify ways for more equitable and effective solutions. Information proved to be a critical tool for strengthening governance in a city-wide settlement planning process. In Nairobi the process was even more challenging due to the divergent interests of, and struggles between, local structure holders and tenants. Exchange of experiences with representatives of urban poor federations from India and South Africa helped to mobilize local capacities for negotiating issues of land and structure entitlements on a large scale.

Source: (ACHR 2004)

As already mentioned, both formal and informal governance arrangements can exist within the space of the city. Actors are changing and new actors are appearing, with increasing roles for civil society and the influences of big, powerful, corporate actors including transnational corporations (Appadurai 2001; Williams 2001; Bassett et al. 2002; Smith 2004; Caldarovic and Sarinic 2008; Chu 2008; Das and Takahashi 2009). Rationalities, structures, mechanisms, power, interests, resources as well as agendas may differ between actors (Pierre 1999; Bevir 2006; Cowen and Bunce 2006).

What becomes clear is that the different forms of governance, and the way they are exercised, are closely linked to (multi-level) political processes (van-Naerssen and Barten 2002), and with major implications for the health of people residing in different locations (Box 8, page 41). The Mumbai example highlights both the poor living conditions and the governance challenges in settlements that are marginalized within mega cities.
Box 8: Governance and health risks among resource poor communities in India

Kaula Bandar (KB), an unregistered slum on the Eastern waterfront of Mumbai, is within 10 kms of the large financial centre of the city. KB does not receive any basic amenities such as water, sewage and solid waste disposal toilets and electricity from the local governing body. An area of extreme population density (230,769 people per square km), KB has 2,030 shanties perched one on top of another amidst lanes so narrow that residents often have to walk in a single file. In February 2010 a fire broke out in that community early in the morning. Due to lack of availability of water and extreme congestion, the fire had spread rapidly by the time it was detected. The fire brigade could not be called in since KB was not recognized by the local government. The fire destroyed 251 households and dispossessed 1,500 residents.

Source: A Patil-Deshmukh, PUKAR, personal communication, 2010

Historical knowledge: The role of urban governance in addressing health inequalities

Interest in the role of governance and its impact on the quality of life in urban centres is not new. During 1337-1348 in Siena, Italy, Lorenzetti painted the frescoes of the ‘Allegory and Effects of Good and Bad Government’. The allegory of good governance reflects peace, trade and wellbeing in the city, while the representation of bad governance underlines crime, disease and drought (Cipolla 1976).

The history of urbanization in Europe suggests that urban governance, information and social organization were essential to addressing the extreme ill health associated with urban poverty. The history of urban health in 19th century Britain shows that rapid urbanization and economic growth were associated with increasing mortality rates for the country’s poorest groups, who were increasingly concentrated in urban slums. Health improvements, according to Simon Szreter, only came when political shifts supported progressive urban governance, including sanitary improvements, and addressing the most critical public health threats in the urban slums (Szreter 1997; Szreter and Mooney 1998; Szreter 2003; Szreter 2004).

Although Szreter’s analysis is limited to the situation in British towns in the 19th century, important policy lessons can be drawn. Emphasis is placed on the importance of information systems, as well as of civic and political institutions, in influencing the health development process. Britain, for two centuries before the start of the Industrial Revolution, had a well-organized social security system, the English Poor Law, which ensured the registration of citizens and ensured accordingly “the right of identity” and some form of support in hard times (Szreter 2007). An important historical lesson was learned in Victorian England from the role played by empowered and organized groups and citizens in creating healthy social change in the face of the ravages of industrialization. Although the Health of Towns movement in the 1840s and the Sanitary Idea had resulted in the first national Public Health Act in 1848, national legislation was not nearly as important in the causal story of improved mortality rates in Britain as was the widening of the electorate in local government affairs in 1869. This proved to be decisive in changing the context of the late 1860s and 1870s, as it enabled municipality-wide action and facilitated implementation of new municipal policy for urban improvement and public health (Szreter and Woolcock 2004; Szreter 2005). It is worth noting that in Birmingham, UK, in the late 1800’s, the purchase of sewage works by philanthropist Joe Chamberlin to benefit local dwellers was critical to the introduction of infrastructure and universal services (Michael Marmot, personal communication), while at roughly the same time the medical sanitarian Max von Pettenkoffer was making a ‘return on investment’ argument in favour of sewers to the burghers of Munich. It is clear that change, and the improvement of population health did not come easily and involved many players. These changes also took considerably more time than the usual five-year project-cycles as defined by many donor agencies (Barten et al. 2007). Finally, while local government politics played a key role, national politics and central government provided leadership and support (Szreter 2005).
Participation – a critical component part of urban governance for health equity

Participation, according to Stiglitz (2002), is considered critical to the social transformation necessary for development. This arises as, among other factors, participation would contribute to building ownership and commitment, to shaping avenues for involvement in decision-making processes, and to supporting sustainability of development processes, outcomes and decisions. Although the relevance of participation has been recognized by many agencies, in practice it has been more difficult to achieve. Often participation takes place in name only, while in reality professionals, public officials and bureaucracies manipulate the concept. It is worth noting, however, that in countries characterized by deep-rooted political, social, and economic disparities such as Peru, no straightforward relationship exists between civil society and participation (Ávila 2002). The situation of Peru emphasizes the need to take into account the socio-political and historical context and to pay attention to factors such as gender, class and ethnicity in analyzing the meaning of citizenship and participation.

Two cases for social participation are now assessed: the concept of social capital as a means for understanding power relations, and participatory budgeting as a state-provided method for participation and resource allocation.

The role of social capital in improving participation

The need for a contextual and relational view of social capital and the need for understanding power relations in social networks can be exemplified by recent research investigating disparities in social capital in communities in Mexico (Wilshusen 2009). A study on social capital among urban residents in China (Chen and Lu 2007) concludes that social capital, defined as a set of civic norms and social networks among citizens, was abundant among urban residents in China. Research in Central America, highlights the strong influence of political context in shaping political capital and the importance of political rather than social capital in these countries (Booth and Richard 1998). This study shows how group participation may have an impact upon the state through political participation and democratic norms.

There is need for a contextual analysis of social participation. Interpretation of a range of research in Brazil and England, shows that “there is a tension between different principles underpinning collective public involvement in health both within and between countries” (Barnes and Coelho 2009).

Participation is integral to social justice in both countries, and while public participation appears to be more inclusive in Brazil than in England, there is still limited evidence that social justice claims have been achieved.

Local democracy can be very difficult to achieve in practice (Blanc and Beaumont 2005). It is argued that a clear analytical distinction between “top-down” and “bottom-up” governance arrangements is important as well as the acknowledgement of conflict between actors. In Indonesia, community-based approaches have been developed as a response to top-down and authoritarian approaches in order “to increase the community’s control over the development process”. The vulnerability of such an approach to “elite-capture” was examined and no linkages were found between the community’s capacity for collective action, elite control over project decisions and elite capture of project benefits; apparently “communities, where both non-elites and elites participated in governance processes, were more able to redress elite capture when it occurred” (Dasgupta and Beard 2007).

Empirical research in Mumbai, India draws attention to the role of civil society organizations in the contested control of urban space and in a context of removal of the urban poor (Anjaria 2009). It is argued that there is a need to examine the exclusion of the urban poor residents by civil groups as well. A critical analysis of women’s and men’s participation in community development planning and governance in Indonesia (Beard and Cartmill 2007) concludes that patterns of gender exclusion continue to be reinforced, in particular among women with lower educational attainment.

An examination of the extent of political participation of the urban poor in Dhaka in order to ensure access to services demonstrated that collective mobilization of the urban poor in the city of Dhaka has been effective in ensuring the participation of the poor in municipal governance. However, the impact of these initiatives may be limited in terms of securing the national political commitment to urban poverty reduction (Banks 2008).

Similarly, a USAID-sponsored study of Bolivia, Honduras, India, Mali, the Philippines, and the Ukraine, concluded that although democratic local governance has the potential to strengthen participation and accountability, “there seem to be important limitations on how much participation can actually deliver” (Blair 2000). Research suggests that organizational capacity of communities in the USA could be enhanced by coalitions if sufficient
resources were allocated for coalition building, stable participatory decision-making bodies were maintained and active involvement of local government was ensured (Zakocs and Guckenburg 2007).

**Enhancing participation through participatory budgeting**

Participatory budgeting (PB) is a state-sponsored experience that promotes the involvement of citizen assemblies in each district of a city to determine priorities for the use of a portion of the city’s revenues. PB is considered one of the most relevant innovations in Latin America for increasing participation in decision-making and local government accountability. PB started some twenty years ago in several cities in Brazil, within a context of transition from a military regime to democracy, of decentralization to sub-national governments, and of increased presence of leftist parties in local governments. In Porto Alegre, “this innovative methodology enabled democratization and social justice to be articulated” (Sintomer et al. 2008), and in particular led to the prioritisation of water and sewage provision and a marked increase in these services (Box 9).

In the setting-up and functioning of participatory budgeting in Porto Alegre, three principles were found to be critically important. The first principle was grassroots democracy, via citizens’ assemblies in the 16 districts of the city. Second, social justice was enhanced via a redistribution of allocated funds according to need, taking into account the quality of the infrastructure, the number of residents and local priorities. Third, citizen control by means of, for example the Council of Participatory Budgeting ensures the needed citizen control (Abers 2000; Souza 2001; Avritzer 2006; Sintomer et al. 2008). These principles contributed to a real empowerment of civil society (Souza 2001). It is important to note that this achievement was due to a combination of strong political commitment on the part of the local government on the one hand, and of bottom-up mobilization on the other (Santos 2005).

There are both positives and negatives to the PB processes. Low-income groups in the cities of Porto Alegre and Belo Horizonte have gained decision-making power in the allocation of a percentage of public resources (Souza 2001). Although this percentage is small compared to the total budget, PB has provided an incentive for self-organization in marginalized communities and has resulted, particularly, in improved infrastructure in previously neglected areas of the cities. Whilst expenditure of infrastructure was and remains useful, this allocation of funds did not reflect the priorities of the poorest groups in these cities - according to the results of a 1991 survey in 150 municipalities across Brazil, the poorest and the less-educated voters mentioned economic survival concerns (job opportunities, cost of living, low salaries) as their top priority, and not infrastructure (Souza 2001).

The limits on existing financial resources available for these programmes is a key issue, even if municipal governments are committed to redirecting resources to low-income areas and “to transform[ing] spending on the cities poorer areas into rights and not favours”, in reality there is only the possibility of meeting a fraction of the actual needs of these communities (Souza 2001). It is clear that, the question of resources aside, in order to achieve long-term changes in the social determinants of health and in health equity, a long-term commitment is required.

**Box 9: Participatory budgeting: the case of Porto Alegre, Brazil**

In the 1980’s the municipal government in Porto Alegre held a referendum to identify priorities for urban public investment and to guide the local government plan. The community of 1.4 million identified sanitation among the priorities. This consultation process was the beginning of the “participatory budgeting” initiative. Community demand for improvements in sanitation led to a Municipal Department of Water and Sewage project to increase black water treatment coverage. To date the municipality has invested USD160 million on new sewage systems. The work, which concludes in 2012, will support the Millennium Development Goal to reduce, by more than half, the 1990 deficit in sewage treatment. Piped drinking water is now universal, black water treatment is forecast to increase from 27% in 1990 to 83% by 2015, and universal black water collection and treatment services will be provided by 2030. “Participatory budgeting” shifted local political power and decision-making structures towards resource reallocation for community-defined priorities.

Source: Marilyn Rice (personal communication) 2010
Participatory budgeting has been adopted and adapted by many cities in Latin America, Europe and Asia. One of the most remarkable achievements of participatory planning and budgeting in Villa El Salvador in Peru has been the revitalization and renewal of popular participation in municipal governance (Hordijk 2005). However, although the participatory process of formulating the comprehensive development plan was important, it got stuck after the vision and strategic objectives were developed, and the different proposals that were developed in thematic and neighbourhood workshops were never merged into a coherent document. This highlights the inherent tension in planning and governance - how to adequately combine spatial neighbourhood with sectoral (health) planning - and the fact that participatory planning and budgeting provides no solution to this (Hordijk 2005).

The transfer of PB from Brazil to Europe has been a highly differentiated process. In Europe, participatory budgeting relies on multiple procedures, and it may be necessary to give a clear methodological definition of PB so that the 20 cities being studied can be coherently compared (Sintomer et al. 2008).

Based upon a set of criteria (origin of the process, organization of the meetings, type of deliberation, position of civil society in the procedure), six models are suggested (Sintomer et al. 2008):

1. Porto Alegre adapted Europe;
2. Participation of organized interests;
3. Community funds at local and city level;
4. The public/private negotiating table;
5. Proximity participation;
6. Consultation on public finances.

Any comparative research faces a definition problem; additional criteria** have been defined in order to give a more precise definition of the process (Sintomer et al. 2008). In Europe it appears that participatory budgeting has not yet achieved the outcomes that politicians and activists may have expected, but there are some indications of which models are more or less useful (Box 10).

**The five additional criteria are: 1. The financial and/or budgetary dimension must be discussed; participatory budgeting involves dealing with the problem of limited resources; 2. The city level has to be involved, or a (decentralized) district with an elected body and some power over the administration (the neighbourhood level is not enough); 3. It has to be a repeated process (one meeting or one referendum on financial issues does not constitute participatory budgeting); 4. The process must include some form of public deliberation within the framework of specific meetings/forums (the opening of administrative meetings or classical representative instances to normal citizens is not participatory budgeting); 5. Some accountability on the output is required.

Box 10: Six models of participatory budgeting in Europe and degrees of participatory governance

The six models of PB produced different results and outcomes, based upon several factors such as the history and tradition of participation. It was found that in two of the models ("Porto Alegre in Europe" and "Community funds at local and city level"), participatory governance could develop. In these cities, participation implied also decision-making power. Social justice however was only enhanced in some cities – especially in Spain and in Italy – where serious processes with clear rules of the game, active civil societies and cooperative local governments led to considerable results. In some cities, the process was labelled as participatory budgeting, but citizens were not consulted.

In all the other procedural models, there may be participatory governance but “it can hardly be called empowered: the proximity, participation and consultation over public finances are only consultative”. It prevents the creation of a “strong public” with increased control over the underlying social determinants of health inequity.

The public/private negotiating table was found to provide “a decisional power to the participatory device”, but “can hardly make fundamental political and social changes possible”; as “the imperative of consensus is very high and one cannot speak of a cooperative resolution of real conflicts”. Within a context of considerable power asymmetries, it is “very probable that social movements will potentially mobilize outside of participatory budgeting rather than through it”.

Source: (Sintomer et al. 2008)

Section 2: The determinants of urban health inequity
Section 2: The determinants of urban health inequity

Partnerships, intersectoral action, networks, and accountability

Intersectoral action for urban health equity is of three sorts: working across departments within city government ("whole of government" approach); across different actors (horizontal intersectoral action), and action across the different levels of policy and action concerned with urban health (vertical intersectoral action across neighbourhood, city, urban/rural, state/provincial, national/federal and international levels) (Hancock 2009).

The concept of “partnership” is frequently used in the governance literature. This is not very surprising as “intersectoral and multisector partnerships” have become a prevalent mode of governance in many countries. Partnerships across city departments are vital for reducing health inequities because many of the factors that affect health are determined to a greater or lesser extent by departments such as public works/engineering, housing, planning, parks, police, education, community development, social and health services. Solid waste management is a good example that illustrates the imperative of a joined-up urban planning approach and multi-level governance.

Effective partnerships require political and bureaucratic leadership at the highest levels as well as appropriate structures and processes. The case of solid waste underlines the need to move a technocratic approach and to address in particular the underlying systemic conditions including political, sociological and environmental relationships (Bhuiyan 2009) (Calo and Parise 2009). Critical differences between developed countries and LMICs, e.g. in terms of relative wealth, decision-making autonomy, legal and regulatory framework and economic complexity, should be acknowledged in order to overcome the real challenges and make partnerships work.

Partnerships are not always as inclusive, democratic (legitimate) and effective as they promise to be (Sorensen and Torfing 2005). Rationales differ and a normative framework, e.g. a rights-based perspective, is critical (Marcuse 2010; Parnell and Pieterse 2010). The architecture of eight urban partnerships in the UK have been analysed leading to questioning of the image of purported “democratic and administrative virtues typically associated with partnerships”: e.g. the capacity to ensure more inclusive policy making and more effective delivery of public policy and services (Whitehead 2007). This study found that the role of politics which influence and shape the operation and effectiveness of partnerships has been routinely neglected; while attention has focused on the construction and outputs of partnerships. Partnerships in the UK are often based upon hierarchical modes of organization and represent conflicting values (Davies 2004). Recent research has also begun examining the mismatch between the political rhetoric and the empirical capacity of partnerships (Cardini 2006). The study concluded that although the notion of partnerships creates a vision of public policy in which everyone seems to benefit by emphasizing efficiency, devolution and participation, the reality is different: partnerships failed to be inclusive of representative interests, they have reinforced the influence of the central government and facilitated the participation of the private sector in the delivery of public services.

The differential capacity of actors to exert power in urban renewal and decision-making has been studied in the context of Santiago, Chile (Zunino 2006). In this situation it was found that representatives from the central government and private investors controlled local redevelopment, while the local government and the people living near the urban renewal project ended up in non-influential positions.
In a comparison between UK-style partnerships and urban forms of collaboration in the USA, researchers have shown that the participation of the private sector and business activity so far has been limited in the UK in comparison to the USA (Davies 2003). The Niagara Prosperity Initiatives stresses the capacity of public-private partnerships in Canada to mobilize resources for poverty reduction (Box 11) but it is still too early to tell how successful such an approach will be.

Governance through the formation of public-private partnerships or networks can be effective and has potential to enhance democratic participation in urban policy, but it may also create conflicts and deadlocks and make public governance less transparent and accountable. In this context, investigation of the approach developed by the Welsh Assembly Government to use formal influence to create institutional spaces for inclusion is of interest (Bristow et al. 2008). Partnerships have been formally structured on the basis of strict equality across the public, private and third sectors, and as a result partnership legitimacy has improved. However, the effectiveness of these partnerships did not improve, as they remained “constrained by the prevailing emphasis on narrow managerialist implementation agendas” (Bristow et al. 2008).

Box 11: Mobilizing resources: Niagara Prosperity Initiatives

The Niagara Region of Canada encompasses twelve municipal governments and 74 distinct neighbourhoods, with a population of 427,000 people. The Regional Council took advantage of cost savings of $1.5m per year to make investments towards increasing prosperity for Niagara families living in poverty. Community Services staff established an alliance with the Business Education Council to guide strategic investment and ensure capacity building in order to address the broader determinants of health, decrease poverty and mitigate the negative effects of low income on children and youth. Each of Niagara’s neighbourhoods developed profiles to guide the prioritization of interventions. Seven key indicators were provided for each neighbourhood; indicators were assessed as “in need of attention” if they were below the average for the municipality. A Request for Proposals resulted in 45 submissions which were received from 25 agencies across Niagara. Proposals were evaluated based on the appropriateness of their response to one of the four recommendations in the “Legacy of Poverty” report, and how the projects would increase prosperity in the neighbourhoods identified as in need of attention. A total of 34 projects delivered by 20 agencies across Niagara were approved for funding. In 2008 and 2009, CAD2,038,358 was invested in these projects. While it is too early to determine the impact, the indicators will allow for tracking of the interventions over time.

Source: (BEC 2009)

It is important to underline the role and responsibility of politicians, public managers and other relevant actors in ensuring that governance networks contribute to effective and democratic governing of society (Sorensen and Torfing 2009).
Private sector involvement is not new, but privatization has never been easy; a myriad of issues, the relevance and importance of which are unique to the specific conditions of each setting, need to be considered in order to make participation of the private sector effective (Eggerth 2005). A study in Accra, Ghana of waste collection performance from 1985-2000 under two different institutional regimes - from a situation of complete public sector dependence toward increased private sector involvement - found that the public-private mix was more effective for solid waste. The collection rate and disposal improved from 51% in 1998 to 91% in 2000 (Fobil et al. 2008). The involvement of the private sector in cities’ governance in Brazil and across Latin America is evolving. The emerging Latin American and Brazilian Networks for Just and Sustainable Cities are promising and put a strong focus on the equitable distribution of resources and sustainability (Box 12).

Recent research in the UK has emphasized critical assessment of the way the partnership principle has been adopted in the UK. After surveying the contemporary regeneration literature, Ball and Maginn concluded that “the partnership ideal is considered a useful policy device but that it has to be thought through more clearly and applied in specific contexts, rather than seen as the best and universally applicable model” (Ball and Maginn 2005). The focus in this particular literature is on urban regeneration and not explicitly on health equity. However, it emphasizes the limited interest in the effectiveness of partnerships and the partial and inconclusive nature of most existing evaluations. In conclusion, the extent to which governance is “empowering” appears to be critical to the development, maintenance and effectiveness of partnerships, and therefore is important for urban health equity.

**Box 12: Changing governance in Brazil: The role of the private sector**

In Latin America, corporate philanthropic activity has been significantly increasing. In Brazil, for example, corporations themselves and their related foundations have made health their number three priority, behind only education and social assistance. More recently, the perception that good governance is a major factor for the improvement of quality of life, and the realization of their political strength and power to influence public policies and government activities has been shaping the kind of social programs supported or created by corporations. Some companies are investing resources in local development programs in municipalities or neighbouring communities. These programs usually include participatory diagnostic processes and the establishment of partnerships with civil society organizations and local government authorities. Corporate or private foundations have been developing programs to modernize public administration, offering financial resources and expertise to build the capacity of managers and policymakers in the implementation of public programs, often in health services.

Several Latin American cities are nowadays participating in governance movements, most of them initiated by the private sector. The emerging Latin America and Brazilian Networks for Just and Sustainable Cities are among the most successful experiences. Bringing together civil society organizations, private companies and media groups, with the support of academia, those movements (most of them of participatory character) have been using citizen education, panels of indicators of quality of life (many of them related to the social determinants of health) and citizen perception surveys to challenge municipal governments to increase accountability, transparency, management of public policies, with a strong focus on the equitable distribution of resources and sustainability. More than 30 cities in 8 countries are participating. In Brazil, a network of 200 smaller cities is fighting against corruption (responsible for estimated 20% loses in public funds), developing and disseminating specific governance technologies across the country. Anecdotally, one city in the state of Minas (Januária) has impeached seven mayors in two years. Little research has been on the health equity impacts of these changes in governance.

Source: (GIFE 2008; IBGE 2008)
Empowerment and governance for health equity

Different urban communities necessarily require different models of governance to respond to their varying needs. As described above, participation and partnership are essential elements of any model of governance for health equity. Beyond these, health equity depends on the growth of civil society organizations, networks, and movements, and their progressive ability to challenge inequity and push for the installation of equity in the centre of all existing and emerging political debates.

In 1978 in Niagara Falls, New York state, USA, more than 900 working class families were relocated away from a leaking toxic waste dump.

The so-called ‘Love Canal crisis’ triggered the development of a strong grassroots social justice movement that focused on protecting public health through building the power to influence federal policies at the local as well as state level. This provides an example of how common citizens, through organization, succeeded to translate knowledge into policy and practice (Gibbs 2002).

Further, the example of the Comités Comunales de Proteccion Civil in Acajutla, El Salvador (Morales 2009) illustrates how local people and communities in the aftermath of Hurricane Mitch were able to increase control over the way their cities are governed (Box 13).

Box 13: The Comités Comunales de Proteccion Civil in Acajutla, El Salvador: Risk management for equitable and sustainable development from below

In the city of Acajutla, El Salvador, 16 vulnerable communities - four of which were slums affected by deep poverty, constant floods and youth gangs - organized their own Comités Comunales de Proteccion Civil (CCPC, communal committees for civil protection). These committees were organized to implement disaster risk reduction, an essential consideration for their security and development. Supported by a consortium of NGO’s active in the region (PRVAS) and “Mesa Permanente de Gestion de Riesgos” (a national network for the integration of disaster risk management in development planning), the communities strengthened their organization and built up capacity to propose development alternatives for people-centred security. Although enshrined in law, Civil Protection was traditionally abandoned by the state. The CCPC took advantage of the law to engage in a dialogue with the municipal government, to which they responded positively, recognizing the CCPCs as part of the formal Municipal Commission of Civil Protection. The CCPCs also provided empowerment to the Community Development Associations (ADESCOS), and joined regional community networks to become an important actor in the local political arena. These governance arrangements enabled the implementation of risk mitigation activities that were not previously viable. Achievements over the past few years have included a municipal emergency plan, new channels and dikes, water provision, reduced youth violence, income generation and improved health and quality of life. The municipalities have benefitted from the training of personnel by the CCPC and their supporters. Challenges have included political changes in local government, elections, and migration of CCPC members. These local governance arrangements have strengthened monitoring of the accountability of local government. During elections, political candidates are now encouraged to sign a commitment with the communities.

Source: (Morales 2009)

Box 14: The Network of Healthy Communities of Rio de Janeiro, Brazil

Launched in 2004, the Rio de Janeiro based Network of Healthy Communities is composed of a mix of community-based organizations (CBOs) and the Centre for Health Promotion (CEDAPS) - an organization working on empowerment and health equity. The 150 member CBOs comprise a mix of Women’s and Resident’s Associations as well as cultural, religious and citizen rights groups which collectively represent a population of over 1.3 million people. The majority of the leaders of these organizations are women (68%), mostly middle-aged, and African-Brazilian (75%). Most use personal resources to develop activities for around 150,000 direct beneficiaries, on issues such as domestic or street violence, prevention of cultural and sports activities, prevention of diseases, and poor nutrition. A wide range of local development programs are among the outcomes, including HIV/AIDS prevention centres; distribution of 500,000 condoms per year; training & education; nutrition and physical activity programmes; life skills for adolescents; promoting access to health services and provision of emergency help.

Source: (David et al. 2007; KNUS 2007)
While evaluation of the health equity impact of community action is often limited, there is some evidence for improvements in the conditions of daily living and behavioural risk factors, as seen in the Network of Healthy Communities in Rio de Janeiro (Box 14) and in San Francisco (Box 15). On the other hand, a community case study of Sugar Creek, Missouri, USA, explores the role of power and public participation in a hazardous waste dispute and concludes that participation was limited (Culley and Hughey 2008). The real influence of citizens in this case was manipulated by mechanisms such as agenda setting, control of resources, and the erection of barriers to participation. In a similar vein, a comparison of the differentiated impacts of participation in middle class colonies with those in slums questioned the participatory dimension of urban governance in Mumbai and concluded that it induced double standards of citizenship (Zérah 2009). New governance arrangements have contributed to empowerment of certain sectors of the population – the middle and upper middle class - who have expanded their claims on the city and the political space, while the urban poor have not benefited.

An analysis of formal deliberative bodies in South Africa, shows that “discourses are mostly about the accommodation of existing interests,” and this will not easily contribute to co-ordinated efforts (Baccaro and Papadakis 2009). Citizens in South Africa are more likely to build communicative power in the informal public order in order to influence the formal decision-making process. Similarly, a study of the local politics of social inclusion in two UK cities, argues that empowerment may depend less on network democracy than on “strong, independent community organizations capable of acting separately and coercively against governing institutions and elites” (Davies 2007).

Finally, the implications of the changing architecture of societies – the continued fragmentation of authority in which state power is transferred to expanding commercial markets – and the health impact has been examined in the context of Iraq (Welch 2009). The de-coupling of policing and government or the dispersion of state power to the private sector in this context raises concerns for health equity.

**Box 15: Building new institutions and transforming environmental health practice in San Francisco, USA**

In the early 1990s, a set of overlapping forces combined to reframe San Francisco’s environmental health planning process from a focus on individual risk towards a focus on the social determinants of health. The residents of Bayview-Hunters Point - one of the most polluted, impoverished, and unhealthy neighbourhoods in San Francisco – formed an organization for environmental justice, and approached the San Francisco Department of Public Health (SFDPH). A survey by the SFDPH in the predominately African-American neighbourhood highlighted other priority concerns including crime, unemployment, and poor food and housing conditions. These findings were used to re-define the environmental health mandate of the agency in order to influence non-health policies including land use, housing quality and housing affordability. These activities later expanded into the city wide San Francisco Food Alliance, working to improve access to affordable and nutritious food. Community involvement, including the partnership between SFDPH and the residents of Bayview-Hunters Point was essential for moving politics towards healthy city planning.

Source: (Corburn 2009)
Section 3: Urbanization for Health Equity in the 21st century

Action to reduce urban health inequities

The health and social inequities described in this report need not exist. Over the past 25 years, two complementary urban concepts - Healthy Cities and Sustainable Cities - have emerged, showing us what a healthier, more equitable and more sustainable city could look like. Over that same period, the world-wide movements for Healthy Cities and for Sustainable (or Green) Cities have stimulated a great deal of innovation and learning. The global Commission on Social Determinants of Health highlighted the necessity of tackling the structural drivers and daily living conditions that affect health inequities and re-stated the important role of cities in that.
GRNUHE paid particular attention to the urban physical form, its social infrastructure, the added pressure of climate change and the role of governance to determine the maximum and equitable health benefits from urbanization, and sought to answer the questions of:

1. How to put health equity at the heart of urban planning and design
2. How to ensure urban social conditions promote health equity
3. The added pressure of climate change on urban health inequities
4. How to put health equity at the heart of urban governance

There are indeed things that we know can be done now in each of these areas to reduce the inequities in urban health outcomes, which at the same time will help to improve cities’ resilience to climate change, and support development. As the model shows, the physical environment, social conditions and climate change all interact to improve or worsen health equity. We outline below some of the key areas in which action can be taken to improve urban health equity and provide illustrative case studies of action that has been taken in cities around the world.
Urban planning for health equity

Reconnecting urban planning and public health

Urban planning is a crucial activity for the design of new urban development (“greenfields” development) and for the redevelopment (“retrofitting”) of existing built-up areas. It can be defined as “a self-conscious collective (societal) effort to imagine or re-imagine a town, city, urban region or wider territory and to translate the result into priorities for area investment, conservation measures, new and upgraded areas of settlement, strategic infrastructure investments and principles of land-use regulation” (UN-HABITAT 2009).

In practice, urban planning can mean many different things. In many parts of the world the traditional “modernist” form of urban planning (top-down and expert-led, and involving the preparation of rigid master plans) still holds sway in urban planners training and practice (Box 16). It has increasingly been recognised that modernist urban planning is inappropriate for current urban realities, and new, more flexible and participatory approaches to urban planning have emerged. The UN-HABITAT 2009 Global Report of Human Settlements concludes that urban planning in LMICs needs to move “away from objectives that have to do with aesthetics, global positioning, and ambitions of local elites to replicate American or European lifestyles, to the far more demanding objectives of achieving inclusive, productive, equitable and sustainable cities” (UN-HABITAT 2009).

Although the disciplines of urban planning and public health share a common origin (addressing the symptoms of overcrowding and lack of adequate sanitation in the rapidly growing cities of Europe and North America in the 19th century), there is currently little overlap between the disciplines (Corburn 2004; Sloane 2006). The importance of re-establishing the link between urban planning and public health has been recognized in recent years though (Perdue et al. 2003; Burns and Bond 2008; Frank and Kavage 2008). For example, Vol. 72 Issue 1 of the Journal of the American Planning Association was entirely devoted to urban planning’s role in building healthy cities. The editor of the special issue concludes that “New, funded, empirical research is yielding fruit”, and that “The growing partnership with health brings the promise of invigorating planning’s ability to understand and enhance the vitality of both places and their people” (Boarnet 2006).

The WHO Regional Office for Europe launched its healthy urban planning initiative in 1997, which had a number of important outputs culminating in “Healthy Urban Planning - A WHO Guide to Planning for People”, a set of guidelines which provides 12 key health objectives for planners (Barton and Tsourou 2000) (Box 17, page 54).

There is no one template for a “healthy” living environment, but the most healthful urban design may be one that provides a structure for basic services and facilities and the connectivity to access them, while providing a range of opportunities for residents to select and/or shape their homes and neighbourhoods according to their specific needs and preferences (Lindheim and Syme 1983). Urban planning and design, if done well, can not only provide these services, facilities and supports but can do it in such a way that reduces their unequal distribution, thereby helping reducing urban health inequities (Frumkin 2005).

Box 16: Urban Planning – approaches and capacity

The first urban planning university course was introduced at the University of Liverpool in 1907. There are currently 550 university urban planning schools globally. The distribution of this is extremely uneven, however. For example, the whole of Latin America has only 27 university urban planning schools, compared to 88 in the USA. In addition, the approach of urban planning schools vary considerably – many urban planning schools in developing countries still produce traditional modernist urban planners (UN-HABITAT 2009).

The case of Mexico demonstrates that addressing urban planning capacity can be a difficult process. Since 1933 there have been urban planning regulations in Mexico, and during the 1990s a national legal framework for urban planning was established. However, there is neither the organizational structure nor the professional personnel in place for it. Currently there is an Urban Development and Territorial Organization Under-Secretariat at the Federal level, and its counterparts at the state and municipal levels, but they mainly concentrate on land distribution, financing and construction supervision. A quick review across the whole country identified a total of only 9 graduate programmes on urban planning/development, the oldest one instituted as recently as 1987 (Pérez-Torres 1999) and (Santos-Burgoa C, personal communication 2010).
There have been a number of experiments at a municipal level exploring the integration of public health and urban planning. Barton and colleagues identified the need “to work with city politicians, planners, architects, environmentalists and public health professionals to apply and further explore the concept and principles of healthy urban planning and develop knowledge, skills and tools that can be used in cities across the European Region” (Barton et al. 2003). Healthy urban planning was one of the three core themes in Phase IV of the WHO European Healthy Cities Network (2003-2008), and healthy urban design is one of the core themes of Phase V (2009-2013) (WHO 2009).

Healthy and sustainable urban planning also requires partnership with economic development planners. It is argued that within urban planning and design there also has to be a consideration about the strategic economic development planning that affects not only physical areas, but how the dynamics of a city flow about the economic/productive activities, the wages of the city habitants and their lifestyles. This strategic economic development planning has to be integrated within the urban and planning designs, along with health and sustainability considerations. “Business people understand that hard decisions about economic, social and environmental priorities for land use will often have to be made in the interests of sustainable development. But they are deeply frustrated by a system that fails to make those decisions consistently in a rational, speedy and user friendly way, to help deliver genuinely sustainable development” (CBI 2001).

Corburn sees a number of key challenges facing the recoupling of urban planning and public health (Corburn 2004):

- Paying increased attention to the public health effects of “place-making” - Northridge and colleagues suggest the use of a framework to explicitly consider the public health implications of planning decisions (Northridge et al. 2003);
- Developing a coordinated, multidisciplinary approach toward eliminating health inequities;
- Democratizing urban planning practice to ensure that it is accountable to communities that have historically been excluded from decision-making but face the greatest burden in terms of inequalities.

### Integrated city-wide planning

Urban planning and design can potentially assist in simultaneously reducing poverty, encouraging physical activity and social cohesion, and reducing health inequity. It can achieve this through creating more compact and integrated cities in which all residents have more equitable access to the benefits of urban life - such as livelihood opportunities, physical infrastructure and education - through walking/cycling or through affordable and effective public transport. This is the notion of “spatial justice” as pioneered in cities such as Curitiba in Brazil and Bogotá in Colombia. A key issue in achieving spatial justice is to focus on improving the quality of life for all. There is a need to “Promote opportunities for disadvantaged residents, and seek to reduce
economic disparities by incorporating socially just solutions to regional problems… plan strategically for strong economic growth, a diversifying employment base, efficient and accessible intra-regional transportation, and a healthy environment for generations to come” (UK Government 2002).

Bogotá, the capital city of Colombia experienced an urban transformation through a shift in planning focus and expenditure from freeways and cars to bus and bicycle systems (Box 18), and through the building of hundreds of kilometres of sidewalks, pedestrian streets, green spaces and parks. In addition, programs for increasing physical activity were created, such as the “Sunday Bicycle Path”, where more than 100 km of streets were made available for nearly one million people to walk, skate or ride bicycles.

Although Bogotá’s transformation is especially noticeable in its spatial dimension, and particularly in its transportation infrastructure and public spaces, it has affected many facets of the city: physical and functional, social and economic. Bogotá’s experience makes it possible to presume that the recovery of public space and the construction of infrastructure, along with citizen education campaigns and the reduction of violence (reduction in violent death rate by 46%) can encourage physical activity and improve citizens’ quality of life and health (Montezuma 2005).

To apply the Bogotá transport model elsewhere, a city must be prepared to invest in the creation of stations and terminals (needed for a rapid bus transit system) and in designated and segregated lanes for the transit system. TransMilenio was financed by a combination of national and local resources.

Box 18: Bogotá’s bus transport and bike path systems

The city of Bogotá, Colombia, has been recognised around the world for its innovative transport policies, in particular for its bus rapid transit system (TransMilenio) and its bicycle path network (CicloRuta). The changes were initiated by Mayor Enrique Peñalosa during his term as mayor (1998 – 2000). There were 4 goals: to improve the public transport system; to restrict private automobile use; to expand and improve bicycle paths; and to enhance public space. The Municipality created the company TransMilenio S.A. to plan, organize, and construct the bus rapid transit system infrastructure, as well as to supervise the bus service. The system, which operates 18 hours every day, has dedicated lanes, large capacity buses and elevated bus stations that allow pre-board ticketing and fast boarding. Smaller units offering feeder services to main stations are integrated into the system, it also links to the bicycle path network, and all main stations of TransMilenio have guarded bike parking facilities. At the end of Phase III of the new transit systems implementation, the TransMilenio consists of 6 trunk routes for a total of 84.4 kms. The Bogotá TransMilenio system averages 1,600 passengers per day per bus, reducing travelling time by 32%, eliminating 2,109 public-service vehicles, reducing gas emissions by 40%, and making zones around the trunk roads safer thus decreasing accident rates by 90% throughout the system.

Bogotá’s CicloRuta is one of the most extensive bicycle path networks in the world. It comprises over 340 km of bicycle-only transport lanes and connects citizens to major routes, parks, and community centres. Mayor Enrique Peñalosa proposed a formal plan that invited urban planners to “make sidewalks as wide as you value your citizens”. The system is divided into three sections. The Main Network connects the key city centres – its main educational and work areas - with the most populated residential areas. The Secondary Network connects housing areas, parks and facilities and attractions with the main network. These paths are mostly designed to serve as feeders to TransMilenio. The Complementary Network links recreational networks, and external routes to the system. These paths are located along the river banks which in turn are part of the system of Linear Parks within the City. Since the beginning of the construction of the CicloRuta in 2000, bicycle use has increased 20-fold, from 0.2% in 2000 to 4% in 2007 of the total trips in the city. The number of bicycle users has increased from 22,700 to 83,500, meaning a 268% increase in 7 years or 38% per year. Speed is an interesting benefit: average bike speed is 17 km/h, while public non-massive transport runs at 13 km/h. CicloRutas play an important role for the poor people of the city. More than 23% of the trips made by the lowest income group in the city are pedestrian and by bikes. There has been a 33% decrease in deaths relating to bikes (from 115 in year 2001 to 77 in 2004), despite the large increase in CicloRutas trips. Injuries reduced 8.8% despite a 38% annual increase in bike use. It is estimated that there has been a reduction in GHGs of 36.6 thousand tonnes of CO2e.

Source: http://www.c40cities.org/bestpractices/transport/bogota_bus.jsp
The national government of Colombia allocated 70% of funds while the municipal government of Bogotá allocated the remaining 30%. The governance model used in Bogotá was one where the city partnered with the private sector that is responsible for operational aspects. In relation to CicloRutas, there are several political and technical aspects that are considered necessary in order for it to be a successful transportation option, including political will; independent paths from cars; origin-destination links (people, especially low income groups, should find the CicloRutas useful to go to school, university or to work); connection with other transportation modes; bike parking facilities in private and public premises, and good intersections and signals.

### Improving social conditions to improve urban health equity

**Improved working conditions and community empowerment**

Together with other actions to improve access to resources (e.g. education, healthcare, technology and credit), the development of women’s entrepreneurship through micro, small and medium enterprises has the potential to empower women, transform society and hence contribute to the reduction in health inequities (Walokar 2001; Tambunan 2008). The Self Employed Women’s Association in India is recognised internationally as providing a multi-pronged support for female empowerment, beginning initially with the improvement in working opportunities and conditions (Box 19).

#### Box 19: Improving social conditions through female working conditions - the example of the Self-Employed Women’s Association (SEWA), India

The Self Employed Women’s Association (SEWA) is one of the largest NGOs in Asia, having a membership of more than 1 million women working in the informal sector. In Ahmedabad, India, there are around 100,000 street vendors, forming a sizable proportion of the informal employment sector in the city. They sell fruit, vegetables, flowers, fish, clothes, vessels, toys, footwear, and many other items for daily and household use. The lives and health of the street vendors and their families are shaped by multiple forces.

Vegetable sellers in Ahmedabad start work at dawn when they buy their wares from merchants in the wholesale markets. The often borrow from the merchants at very high interest rates. They routinely face harassment and eviction from their sites by local authorities and traffic police. To support the livelihoods of the vegetable sellers, SEWA together with the vegetable sellers and growers set up its own wholesale vegetable shop in the main wholesale market-yard of Ahmedabad to link growers directly to street vendors, thereby cutting out exploitative middlemen. As a result, both vegetable growers and sellers are obtaining better prices for their produce. As the vegetable sellers were routinely harassed by local authorities and evicted from their vending sites, they, together with SEWA, campaigned for licenses and identity cards and representation in urban boards which formulate policies and laws for vendors and urban development in general. The SEWA vendors’ campaign has been strengthened by nation-wide and international alliances.

SEWA Bank provides banking to poor self-employed women, including the vegetable sellers. Rather than facing the huge interest rates demanded by the middlemen, vegetable sellers can now apply for micro-credit from SEWA Bank. The Bank is owned by the self-employed women as share holders, its policies are formulated by an elected Board of women workers and the Bank is professionally run by qualified managers accountable to the Board. SEWA also provides child care, running centres for infants and young children, which ensure that the vegetable sellers do not have to take their young children with them when they go out to sell vegetables on the streets. SEWA campaigns at the state and national level for child care as an entitlement for all women workers. The vegetable sellers live in poor areas of the city. SEWA is improving their living conditions through slum upgrading programs to provide basic infrastructure such as water and sanitation. This happens in partnerships with government, community organizations and the corporate sector.

Source: SEWA website: http://www.sewa.org/services/bank.asp
Strengthening of social capital among and across groups for the positive social transformation of societies and promotion of health can take place in many different ways and settings. The example from a socially disadvantaged urban area in Rio de Janeiro demonstrates the way in which a school-based holistic health promotion model can empower at the individual level and at the same time build community resilience and capital (Box 20).

Other settings that are known to promote well-being and social capital are community gardens. The community gardens movement has grown in recent decades primarily established as local solutions to food security issues. However, the community garden concept offers many more positive attributes that are good for health and health equity. The Garden Mosaic initiative, started in the USA, highlights how community initiatives can provide work opportunities, be educational, increase civic engagement and help build intergenerational trust — each of which is vitally important for health (Box 21, page 58). Done as part of a comprehensive multi-level and multi-pronged approach to reduce urban health inequities, community gardens and initiatives like them may help strengthen social capital and improve the inclusivity of cities.

Box 20: Building social capital through the school environment in Rio de Janeiro

Alexandre de Gusmao Municipal School is located in the Acari neighbourhood, a low-income area that houses 40,000 people and has an average life expectancy of 56-58 years. Approximately 50% of these houses are shanties and border the Acari river, which is extremely polluted. Drug trafficking is the most attractive income generating alternative for young people. This discouraging environment reinforces negative messages to the children and adolescents of Acari. The community's environment is also a barrier to human development such as succeeding in school or looking after one's health, as even the most fortunate can only dream of a very low-paid job in the informal market.

As part of the Health-Promoting Schools initiative led by the Secretary of Health in Rio de Janeiro, the Acari Alexandre de Gusmao's health promotion project was established. It applies a popular education approach, in which the school is the centre of social action and education and serves as an instrument for stimulating and enabling the future of children. The Acari project used reading as a way to promote communication and critical-thinking skills, two important health- and life-related competencies. The school initiated a Home Reading Project, which developed into a small network composed of three other schools, two churches, and a community strategy that involved teachers and voluntary parents in teaching reading. The Home Reading lends books, organizes reading gatherings, and encourages and supports children to engage in research projects. Home Reading also organizes visits to museums and libraries to stimulate children in reading. These activities expanded the scope of social interaction for the children and families and generated new and positive reference points for them. The project also used music to engage children in workshops and after-school classes. The Popular Opera Centre of Acari was created to introduce experiences that most children in the community had seen before only on television; it offered them an opportunity to be trained as singers, dancers, and in other performing-arts-related professions. The school decided to open the doors to people of all ages to participate in the initiative. Soon the school was physically not big enough to hold all these initiatives. Two community centres were rented, and soon approximately 500 people of all ages joined a wide spectrum of activities and workshops including classic ballet, guitar, singing, percussion, music history, and drama.

Recognizing that self-esteem, self-efficacy, participation and self-determination contribute to healthy development and well-being, the design and delivery of these activities are seen as making a major contribution to health promotion and countering many of the negative social factors in the community.

Source: (Meresman et al. 2008)
Box 21: Increased social capital through community gardens

Community gardens integrate environmental restoration, community activism, social interactions, cultural expression, and food security. As such, they provide a context that addresses multiple societal goals, including a populace that is scientifically literate, practices environmental stewardship, and participates in civic life.

Garden Mosaics is an intergenerational educational program taking place in urban community gardens across the USA, Canada and South Africa, which seeks to “connect youth and elders to investigate the mosaics of plants, people, and cultures in gardens”. The majority of Garden Mosaics participants are urban minority and immigrant youth and adults.

The youth participants engage in Garden Mosaics largely through out-of-school programs, including science enrichment, environmental education, youth action, gardening, and youth employment. These programs are sponsored by faith-based organizations, summer camps, community development corporations, halfway houses, and community centres.

The Garden Mosaics youth activities include learning from the practical knowledge of adult community gardeners. Community gardeners come from all walks of life, and include immigrants from developing countries. Through Garden Mosaics, these gardeners share with youth the ways in which they have adapted agricultural practices from their homeland to highly urbanized settings.

Evaluation of Garden Mosaics suggests that not only did the participants increase their social capital through civic engagement in the program, the youth and adults formed trusting relationships, hence enhancing their social capital further.

Source: (Krasny and Tidball 2009)

Making cities safer through urban planning and design

There is a reciprocal relationship between urban social conditions and the actual built environment. For example, poorly planned cities and their suburbs and inefficient public transit and road systems can result in long and expensive commutes for low-income workers that fray family and community ties, reduce the opportunity for social gatherings and for leisure and recreation, create conditions that make crime and violence – and the accompanying fear – more likely, or reduce access to basic amenities and services such as health care and education. Creating a safe urban environment is vital for health and health equity, and has three broad aspects:

i. creating an environment where unintentional injuries in public spaces and homes are prevented;

ii. creating an environment where harmonious social conditions result in low levels of crime and violence, and where the planning and design of the built environment makes it easier to avoid crime and violence and

iii. creating urban environments that are able to better cope with natural hazards.

This calls for a combination of public policies, enforcement of health-protective legislation, good urban planning/design, community action, and the development of personal and community knowledge, skills and behaviour. UN-HABITAT, as part of its Safer Cities Programme in African cities, has developed a number of planning and design suggestions. These include planning for mixed land use and activity in public places; signage and lighting; access to help; CCTV surveillance and patrols, particularly by communities; cleaning and waste removal; management of markets and public ways; and urban renewal schemes (UN-HABITAT 2007). The nature of the planning process for safe cities is important. The UN-HABITAT International Conference on the State of Safety in World Cities held in Monterrey in 2007 made the following recommendations regarding the processes of planning for safer cities (UN-HABITAT 2007):

- It is critical to involve key sectors and stakeholders, including communities and vulnerable groups. Further, it is important to promote links between practitioners in an effort to avoid fragmented interventions by different urban management sectors such as safety, transport, planning, criminal justice and urban design.

- Urban planning should be recognized and used as a mechanism for creating safer cities, with a special focus on the needs of women and children; planning approaches that recognize issues of the quality and management of public space, and use participatory mechanisms to engage communities and stakeholders, are among the most promising options for safer cities.
Promoting urban health equity through action on climate change

The projected rate of urban growth in LMICs in the coming decades poses both a challenge and an opportunity for managing city growth in these countries in such a way that it builds communities that live within their environmental limits and at the same time reduces health inequities. The challenge for existing cities everywhere is how to ensure all, not just the more powerful groups in society, are able to resist the impacts of existing and projected environmental and climate change.

Some of the underlying determinants of urban health inequities and of climate change overlap substantially. Policy responses that aim to address common determinants therefore have the potential to reduce levels of health inequities, help mitigate climate change and manage the impacts of existing climate change. Climate change mitigation is concerned with measures or actions to reduce global warming and most often involves reductions in the concentration of GHGs. Adaptation on the other hand is about enhancing resilience or reducing people’s vulnerabilities to observed or expected changes in climate. Climate change mitigation and adaptation policies and practices, depending on how they are developed and implemented, have the potential to reduce urban health inequities.

Urban planning, transport systems, physical activity and climate change mitigation

Urban planning that prioritizes humans over vehicles will not only help to reduce GHG emissions through a reduction in fossil fuel use, but will promote better and more equitable health outcomes. Designing cities to be easily walkable and safe, and with adequate provision of cycle lanes and public transport corridors and hubs, in all parts of the city, will help improve health equity and reduce GHG emissions.

Transport systems that are predominantly reliant on fossil-fuel are a major contributor to climate change and a common determinant that links the adverse health effects arising from climate change, urban air pollution, traffic injury and physical inactivity (Ewing 2007; Knowledge Network on Urban Settings 2007; Roberts and Meddings 2007; Woodcock et al. 2007). The proportion of people walking or cycling to work in developed countries varies from 32% in Copenhagen to 0.3% in Atlanta. Values in developing countries are equally variable, from 30% in Santiago to 2% in Brasilia (Newman and Kenworthy 1999; Kenworthy 2003). Poorer people are usually more exposed and more vulnerable to urban air pollution given settlements in slums and their informal sector workplaces (Bicknell et al. 2009).

Levels of air pollutants, such as ozone due to motor vehicle emissions, tend to be higher on warmer days. The number of days in which the ozone standard will be exceeded may increase, due to climate change, by 60% in cities in the South-Eastern USA and ozone related deaths may increase by ~4.5% due to climate change by the 2050s (Hogrefe et al. 2004; Knowlton et al. 2004). Woodcock and colleagues estimated that reducing CO2 emissions through an increase in urban active travel and use of lower-emission motor vehicles could achieve a 10–19% reduction in London and a 11–25% reduction in Delhi in the number of years of life lost from ischaemic heart disease (Woodcock et al. 2009).

The Bogotá transport and cycling system described previously (Box 18) offers cities an example of a planning approach that not only helps encourage spatial justice and physical activity but also lowers GHG emissions.

Improving the built environment to improve health equity and help cities adapt to and mitigate future climate change

Better management of urban buildings can provide climate change mitigation and adaptation benefits in addition to improving health and health equity. Planning and land use controls can prevent people from building in zones at risk for flooding and landslides (e.g. restrictions on building within 50 year floodplains in South Africa). Guidelines and regulations, such as a decision issued in 2006 by the Thua Thien Hue provincial authorities in Vietnam to encourage cyclone-resistant building practices, can increase cities resilience to climate change related risks and therefore health risks (UN-HABITAT 2010).

Infectious diseases are extending their range as a result of climate change. More urban households with poor sanitation and housing conditions are therefore at increased health risk. Improvements in housing conditions and sanitation are essential in order for such households to protect themselves against this climate change risk. One example of a successful approach to improving sanitation – although not within the context of climate change – is the Orangi Pilot Project in Pakistan. Residents organized to take control of their lanes and built simple sewers, with technical and administrative support, while the government took responsibility for installing trunk lines to transport sewage for treatment. This project has had an enormous impact on the sanitary conditions and their governance in the low income settlements, improving population health and reducing health inequities, and is now national policy in Pakistan (Pervaiz et al. 2008).
This will also improve the resilience of Pakistani urban dwellers to climate change-related infectious disease risks. There are also climate change specific adaptation initiatives developing world-wide (see for example Box 22) that will be potentially beneficial for urban health equity.

Urban built environments amplify climate change related health risks due to the urban heat island (UHI) effect. The UHI effect represents higher average temperatures arising due to the lack of shade and vegetation as well as dark road and building surfaces in urban settings (Watkins 2007). Urban slum dwellers and lower socioeconomic and minority ethnic groups are more likely to live in warmer neighbourhoods and in buildings that are poorly ventilated and absorb heat. Such social groups are the ones least likely to have sufficient resources to cope appropriately with the temperature extremes and are therefore at increased health risk (Harlan et al. 2006). Improved design of housing can reduce dependence on electricity through appropriate ventilation (Markandya et al. 2009). Air conditioning as a means of cooling living spaces creates major energy demand with associated GHG emissions. Retrofitting of existing homes, if done well, can improve heart and respiratory illnesses, lower the number of extreme temperature-related deaths, and help reduce GHG emissions (Howden-Chapman et al. 2007).

Box 22: Adaptation in relation to water security

Arguably, for Durban in South Africa, adaptation for changes in climate-related water availability is the most important adaptation measure. Adaptation measures to investigate include increasing the water-absorbing capacity of the urban landscape, making improvements to urban drainage, increasing the height of natural shoreline stabilization measures, utilizing storm-water retention/detention ponds and constructed wetlands, adjusting storm-sewer design, land-use planning and zoning to avoid locating structures/buildings in risky areas. Each of these actions will help improve communities’ resilience to climate-related water stress and at the same time improve conditions that contribute to health inequities.

Source: (Satterthwaite et al. 2007)

Urbanization is both a result of the concentration of manufacturing and service enterprises in one place, and a magnet for the emergence of new workplaces and workers in urban areas. For example, the economically active population living in urban areas in Latin America increased by almost 90% between 1990 and 2010 (CELADE 2009). Thus, the climate conditions in urban workplaces are a major concern as climate change makes many workplaces hotter during the hottest part of the year (Kjellstrom 2009). The type of workers that are frequently exposed to excessive heat in urban areas include
construction workers, services (sales, sanitation, recreational, communication), manufacturing workers with outdoor job activities or in confined areas, drivers and some professionals (education, social work). A number of actions may be taken to mitigate the effects of heat and to mitigate further climate change. This includes improving the design of the workplace using engineering techniques to improve ventilated indoor working areas; redesigning workplaces using special materials for walls and roofs in order to isolate the outdoor climate effect and reduce the use of air conditioning; promoting the use of clean technologies for heat reduction and providing shaded areas for outdoor workplaces. Other activities are recommended, such as increasing workers’ tolerance to heat by incorporating them gradually into heated activities; modification of working schedules which favours the performance of certain heat producing activities during the cooler times of the day; modification of shift-work (shortening) for specific physically demanding activities; providing adequate recesses within the daily working hours (length and frequency); ensuring fluid and electrolytes reposition of workers, and the use of personal protective clothing. However, many of the workers who are likely to be exposed to extreme temperatures are in the informal economy with little social protection and regulatory powers of intervention.

**Improving urban health equity through climate proofing the urban food supply systems**

Urban food security remains very reliant on rural agriculture, trade and global food supply chains. Agricultural yields are increasingly affected by climate change. Urban food security therefore is dependent on climate security and requires immediate implementation of climate change mitigation policies. The agricultural production stage represents the single biggest contributor to the global food system’s total emissions (FAO 2006; Smith P et al. 2007) and the bulk of emissions from agriculture are due to livestock production - a key climate change mitigation strategy would sensibly focus in this area (Box 23).

*Box 23: Health co-benefits of CC mitigation in the agriculture sector*

A recent international research program on the health co-benefits that would result from actions to reduce GHG emissions in a number of different sectors (Haines et al. 2009) identified that, combined with technological improvements in farming practices, a 30% reduction in production and population level consumption of animal source foods among high consuming populations would be needed to meet select national emissions targets. Modelling the health effects of that 30% reduction in consumption of animal-source foods (the major dietary source of saturated fat) estimated a 15% reduction in the years of life lost from ischaemic heart disease in the UK and 16% in Sao Paulo, Brazil (Friel et al. 2009). These dietary changes would not only reduce the risk of ischaemic heart disease but also some cancers and possibly reduce the prevalence of obesity.

Given that much of the demand for meat and dairy products is being driven by the urban middle classes in emerging economies such as China and India, policies are needed to reduce consumption of these foods among those populations. Consumption however of a small amount of animal-source foods would go a long way to reduce the under-nutrition persistent among the urban poor in most cities in LMICs. To reduce total global consumption in order to significantly reduce GHG emissions, while enabling greater equality of meat consumption between high- and low-income countries, application of a strategy of ‘contraction and convergence’ has been proposed elsewhere (McMichael et al. 2007). A complex policy response is therefore needed and must consider the equity implications of its actions.

Adaptive responses to climate change by domestic urban food systems are vital. Urban agriculture policies can help ensure the local provision of nutritious foods in climate stressed conditions whilst at the same time creating a local food supply that is environmentally sustainable. Within this approach there are issues of the economy of scale and local production of different food items may not necessarily be less carbon intensive than industrial practices. However, lessons from developing countries with extensive experience in urban agriculture for food security purposes coupled with the re-emergence of urban agriculture in high income countries provide examples of practical ways forward and a growing evidence base of what works and what doesn’t (Dixon et al. 2007; Friel in press).
Box 24: Urban planning, slum upgrading and urban governance

In the past, slum upgrading programmes focused on the provision of physical infrastructure and were often fairly top-down e.g. the Kampung Improvement Programme, the first large-scale slum upgrading programme started in Indonesia in 1969. In recent decades there has been a shift towards a more integrated and participatory approach with slum upgrading programmes. The lauded exemplar of multisectoral decentralized service delivery, which includes public, NGO, and private sector actors, the Slum Networking Project (SNP) in Ahmedabad, India, is successful, arguably, because of two principal dimensions of institutional arrangements: decentralized governance and participation (Das and Takahashi 2009). What an integrated approach means in practice is that informal settlement upgrading initiatives need to have a range of complementary programmes that address physical, social and economic development needs. Integrated slum upgrading programmes have typically included the following interventions (Smit 2006):

- **Physical development**: roads, pavements, storm-water drainage, water supply, sanitation, street lighting, solid waste management.

- **Social/human development**: setting up neighbourhood and women’s groups, youth activities, forming savings groups, pre-primary education, adult literacy, community health, mother and child care.

- **Economic development**: mobilizing community savings, supporting income generating activities through vocational training/skills upgrading and facilitating access of small businesses to finance and trade.

Urban governance for health equity

All three of the interacting aspects of daily urban life (physical environment, social conditions and the added pressure of climate change) that affect health inequities are nested within the broader concept of urban governance, which has the task of understanding and managing the interactions among these different factors so that all three can be improved together and coherently.

GRNUHE recognises urban governance itself as a structural determinant of health inequities and seeks to identify the attributes of governance that ensure the equitable distribution of power, resources and quality living conditions, and ensure an appropriate balance among the competing demands of the various stakeholders in the city for the health of all.

**Key elements of urban governance for health equity**

As highlighted in Section 2, participation, partnerships, and community empowerment are critical elements of good governance for addressing the social and environmental determinants of urban health inequities. The way in which the urban planning decisions are made is crucial for city-wide planning to be effective and spatially and socially just. Effective urban planning and design processes therefore need to be underpinned by effective and participatory urban governance systems (Corburn 2009). One of the recommendations of the CSDH for how to put health equity at the heart of urban planning is to upgrade slums and ensure adequate housing for all residents. UN-HABITAT’s quick guide for policy makers on low-income housing, based on experiences of successful upgrading of slums, clearly identifies that upgrading has to be a participatory process, which addresses first and foremost the needs of the community, as identified collectively by its members. This is the key to a project’s sustainability. Without this participation, infrastructure improvements will not be maintained, conditions will deteriorate, people will become disillusioned with local government and the investment in upgrading will be wasted (UN-HABITAT 2008). As Box 24 illustrates, participation is central to slum and community upgrading that addresses physical, social and economic development needs.

Urban governance has also assumed importance as a means to ensure equitable distribution of social resources, ensuring social justice and reinventing the city as an inclusive city (Gerometta et al. 2005). Similarly, good urban governance has become central to sustainable human settlement. The participatory processes described throughout the report are entirely applicable to the pursuit of environmental sustainability and city level climate change mitigation and adaptation (Guzmán et al. 2009). Cities like Curitiba in Brazil, who use integrated planning models have, by being inclusive and responding to the needs of local citizens, created benefits for both health and environmental sustainability (Andreatta 2005).
Addressing the determinants of urban health inequities is not the purview of any one sector. As Montgomery notes “Public health professionals cannot mandate the provision of safe water and adequate sanitation for the urban poor by themselves, nor can they reorganize traffic flows and pedestrian activities to reduce deaths and injuries, or make cities ready to adapt to upcoming threats from climate change” (Montgomery 2008).

Pursuit of urban health equity requires a form of joined-up governance that brings together the health sector and actors in other sectors of municipal, regional, and national government, that engages with the private for-profit and private non-profit groups, and, vitally, that engages and empowers the citizenry, especially the most disadvantaged and least powerful people and communities. Intersectoral action for health – coordinated policy and action among health and non-health sectors – can be a key strategy to achieve this (PHAC 2007). There are many existing intersectoral programmes and frameworks, such as Healthy Cities, Municipalities, Villages and Islands, that take a participatory social and environmental determinants approach to health and health equity. The successful intersectoral initiative to reduce urban air pollution in Mexico City demonstrates the need for long term sustained action by the many different sectors involved in addressing a major public health problem (Box 25).

An essential element of healthy urban governance is policy and sectoral coherence, where each sector pays attention to the health and health equity implications of its own activities. While health and health equity may not be the main aim of actions in non-health sectors, the actions of these sectors have strong bearing on health equity. Coherence across sectors is important in order to avoid contradictory policy and practice, and inefficient attainment of sectoral goals and ultimately urban health equity. For example urban services and their management have been traditionally guided by techno-engineering approaches. Urban ecology and environmental services have not been integrated with urban services planning. Urban service management institutions and departments are generally compartmentalised into water, sewerage, sanitation and waste disposal services. The problem with such compartmentalisation is that it fails to recognize the inherent integrated nature of urban ecology and its relationship with environmental service flows. This partial vision may lead to provision of partial services. For example, provision of water service without supplementary sewerage, sanitation or solid waste management service may lead to contamination of ground water or loss of water bodies as viable water sources in the longer run.

Box 25: Intersectoral action to reduce air pollution in Mexico City

Mexico City's fight against air pollution has been widely documented (Molina and Molina 2002). This problem is a result of inadequate planning, uncontrolled growth of motor vehicle transportation in a closed high altitude air basin, a lack of housing policies, the dispersion of jobs, services and industries. As a result there are long periods of time spent in transport and disruption of family and social life in a city that concentrates less than 20% of the country's population. The air pollution in Mexico City generates about 3,000 premature deaths. It has been estimated that a reduction of 10% in inhaled particles may save 1000 lives a year. A similar reduction in diesel and other air toxins would prevent 30-40 cancer deaths per year. The most exposed population to particles were in the industrialized north, north-east and the historical centre town where the highest density population existed (about 65% of the population) and some of the poorer neighbourhoods. In 1993, the Mexico City Metropolitan Area authorities established a Metropolitan Commission, including the federal and local government's health, transport, industry representatives, academia, and civil society representation. Three metropolitan plans have been established, with a fourth in development. Decisions have been supported on evidence generated locally as well as internationally, and for some time a research program was financed by the Commission. Action has been taken on the elimination of leaded gasoline, the avoidance of manganese methylated gasoline, emission control devices, the provision of financial incentives for new car acquisition, stringent industry emission inspections, the building of the “Metrobus” (a mass bus system), and the expansion of the electric underground subway (Metro). This has helped to reduce air pollution: the number of days with air quality measurements outside the range of “poor air quality standards” has risen from 15 days per year to 250 days (2009). This is a good example of evidence informed decision making for a major “built environment” problem, which required the modification of city governance and sustained long term policy (in place for 17 years), and that involved intersectoral work.

Source: (Molina and Molina 2002)
Health impact assessment is an approach that offers the health sector a structured, transparent method and processes to work with other sectors to predict the impacts of plans, programs and policies on the health of populations and on the determinants of health. There is increased interest in the role of health impact assessments as an approach for promoting equity, democracy and sustainability that combines both technocratic approaches and participatory processes. There are four different forms of health impact assessment that are currently in use: mandated, decision-support, advocacy, and community-led (Harris-Roxas and Harris 2010). As illustrated in Box 26, a public health critique can contribute to substantive changes in land-use decisions in such as way that they are good for urban health.

Box 26: Health Impact Assessment, San Francisco

In San Francisco, the Department of City Planning implements land-use planning and zoning and provides oversight for all local public agency environmental impact reports. The San Francisco Department of Public Health (SFDPH) routinely reviews these environmental impact reports to ensure there has been adequate study of the impacts on air quality, noise, and chemical hazards. In 2003, the SFDPH began to appraise selected land use and transportation planning and policy proposals with a more comprehensive set of criteria. The health appraisal of land use projects, plans and policies, resembles a rapid or desktop approach to a health impact assessment. When proposals for review were screened, the following criteria were considered:

- the objectives of the project,
- the potential pathways between decision outcome and health outcomes,
- the incidence of related health outcomes among the population,
- the potential magnitude and distribution of effects,
- the consideration of health issues during the decision-making process,
- the existence of health evidence,
- the associations between evidence and stakeholder positions.

The first review concerned the demolition of Trinity Plaza Apartments, which comprised 360 rent-controlled units, and the reconstruction of 1400 new condominiums. Officials from the Department of City Planning had initially concluded that redevelopment of the site would not have adverse housing impacts, because the proposal increased the total number of dwelling units. Residents and tenant advocates challenged the city’s determination in public testimony by arguing that displacement of people would physically impact the residents, leading to mental stress and the destruction of a cohesive community. The SFDPH review subsequently identified several health consequences of the redevelopment proposal: psychological stress, fear, and insecurity caused by eviction; crowding or substandard living conditions because of limited affordable replacement housing; food insecurity or hunger caused by increased rent burdens; and loss of supportive social networks owing to displacement. Furthermore, the SFDPH qualitatively assessed the health impacts of eviction through focus groups with affected tenants.

Department of City Planning officials revised their determination for the Trinity Plaza proposal and required the project’s environmental impact report to analyze residential displacement and any indirect impacts on health. The developer - who was facing tenant organizations, public criticism, the potential for adverse findings from the environmental impact report, and a possible citywide legislative moratorium on demolition - ultimately agreed to negotiate with tenants. In 2005, a revised proposal called for the replacement of the 360 rent-controlled units, continuation of leases for existing tenants, a 1000-square-foot meeting space, and a children’s play structure. This case study shows how the identification of potential health effects within the environmental impact assessment process can influence policy decisions and legitimize needs raised by marginal stakeholders.

Source: (Bhatia 2007)
Water and sanitation: an analytical lens to examine governance and health equity

In concluding this section on urban governance for health equity we use the provision of water and sanitation to serve as an analytical lens through which to examine the interplay between the different aspects (particularly participation and partnerships) and models of governance and urban health inequities.

Unequal access to water and sanitation has historically been a leading cause of urban health inequalities. To this day, household piped water and sewerage connections are the privilege of a minority in the urban centres of most LMICs (Heller 2009; Muradian et al. 2009; Nilsson and Kaijser 2009; Torregrosa and Jimenez 2009). For water, many residents make do with polluted groundwater, distant standpipes, or expensive water sold by local vendors at prices far higher than official water tariffs. For sanitation, open defecation remains common, particularly for children. Many of the practices adapted to accommodate for a lack of access to adequate water or sanitation services can be just as unhealthy, not only for the users but for their local communities. In overcrowded settlements such sanitary hazards are particularly unhealthy.

Other local deficiencies, such as solid waste collection problems, inadequate drainage, crowding, tenure disputes and income poverty amplify the effects of inadequate water and sanitation. Sanitation workers often lack the most minimal protection and are exposed to unsafe working conditions. In some neighbourhoods, this can contribute to what have been called “syndemics”, with multiple diseases, hazards and social conditions reinforcing each other and leading to sudden increases in morbidity and mortality. In others it creates endemic health problems, which contribute to long-term urban health inequalities.

An important aspect of the link between urban governance and water and sanitation provision lies in the collective nature of the challenge. By using sanitary toilets, households protect their neighbours as much as themselves. Everyone is put at risk in a neighbourhood with open defecation, poorly constructed or maintained pit latrines, flies breeding in human faeces and other unhygienic conditions. Clean water protects the user more directly, and securing it involves a somewhat different governance challenge as a result. Yet even if a household secures sufficient clean water for its own use, in many cultures children regularly drink water in other people’s homes and from public sources. Moreover, piped water networks have an inherently collective character, which in private hands can create monopolies, with individual providers having excessive powers to reduce supplies and raise prices. In any case, most water and sanitation related diseases can be transmitted person-to-person, and simply being in close contact with infected individuals is a risk. As such, within a community where people interact closely, preventing the outbreak of these infectious diseases is inevitably a collective challenge.

In economic terms, water and sanitation management are quasi-public goods and create the sort of collective action problems conventionally used to justify government intervention. Indeed, the public health benefits of water and sanitation utilities were used to help justify the creation of public utilities. These utilities, while in some cases very successful, performed disappointingly over the course of the 20th century, especially in low-income settings, particularly where economic, social and political divisions have been rife. With the rise of neo-liberalism in the late 20th century, increased private sector participation was widely promoted by international development agencies, including the World Bank. However, the resulting public-private partnerships proved no better at reaching deprived urban neighbourhoods (Budds and McGranahan 2003; Hall and Lobina 2007; Castro and Heller 2009; Swyngedouw 2009).
There are several reasons why providers may lack the incentive to serve low-income communities. Urban utilities, whether publicly or privately operated, cannot achieve universal provision when they are underfinanced or when political support is lacking. There is little political support from local elites for providing services to informal settlements when there are fears, founded or otherwise, that provision will encourage illicit land development (e.g. land invasions) by urban poor groups, or will attract unwanted migrants from the countryside. Cost is also a major factor, whether the costs are borne by users or financed through the public sector. Technical standards for water and sanitation utilities are often based on health criteria, and can appear to support health equality by prescribing a minimum standard below which no urban residential utility should be allowed to fail. Unfortunately, through raising costs, such standards can become exclusionary rather than empowering. This applies whether the providers are public or private: a public utility that is required to provide high standard sewer connections, but does not have the financial capacity to provide everyone with such connections, will almost inevitably leave the poorest groups unserved, thereby reinforcing inequalities.

Governments that are responsive to the needs of their less well off citizens can overcome many of the barriers to improving their urban water and sanitation. A prerequisite for any government-implemented programme is a viable financial strategy. The same applies when the government is partnering with private suppliers to provide water and sanitation services. Public utilities and public-private partnerships can succeed if their stated goals and targets are commensurate with the investments they are able and willing to make. This is not simply a question of competence, but very much one of governance (Beall et al. 2000; McGranahan and Satterthwaite 2006; Castro and Heller 2009). All too often, the political pressure to adopt ambitious goals and targets is far greater than the pressure to secure sufficient finance or build sufficient institutional capacity to achieve the stated ambitions. Getting the financial and institutional aspects right requires constructive and efficient negotiations between government and civil society groups. Private-public partnerships add another governance dimension to this, as they also require negotiation across the public-private divide. This is especially true where there simply isn’t going to be sufficient public or private financing to provide adequate water and sanitation services to individual households. In this case, community organization is likely to be critical, thereby involving another dimension of urban governance. The same economics that are used to justify government intervention often justify more localized community action. The low-income residents of informal settlements, most of whom do not even have secure tenure rights, are not truly in a good position to organize their own water and sanitation provision (Spronk 2009). Nevertheless, some of the more successful efforts to improve water and sanitation provision in deprived settlements have indeed come from the bottom up (McGranahan and Mulenga 2009).

In essence, the challenge to ensure sustainable, efficient and equitable provision of water and sanitation in urban (and rural) settings is a matter of multi-level governance that adapts to local conditions (UNESCO 2006). The imperative to address the often ignored or neglected structural socio-economic and political processes, or the systemic conditions that constrain the implementation of effective water and sanitation policies is critical (Castro and Heller 2009). Who participates? Who decides about how these services are to be organized, financed and governed, by whom, on what principles, based upon what interests? The constraints on decision-making and implementation processes are often defined by the participation and the power of a variety of actors (Sanz 2009).

Monitoring and evaluation – the backbone of urban health equity

Finally, the GRNUHUE model indicates that all of these processes of governance, the various aspects of urban life and their outcomes in terms of health equity and human development need to be measured and monitored so that evaluation and accountability are possible. It is clear from the literature that relatively few countries have examined their inter- or intra-urban health inequities and even fewer do so on a regular basis. There is a paucity of evidence on the social determinants of health inequities at the urban level especially in LMICs and especially among populations living in large, unplanned and informal settlements. There is even less information on the relationship between urban health inequity and climate change.

Other than this we say relatively little, explicitly, about urban health equity data issues. That is not because GRNUHUE does not think it important – data, and information systems more broadly, are vital
for a) building the case for action on urban health inequities, b) providing evidence on what can be done effectively, c) evaluating the effectiveness of action and d) ensuring public accountability. There are however other groups and networks working specifically on these issues.

The Rockefeller Foundation supported the establishment of a sister network to GRNUHE, the Roundtable for Urban Living Environment Research (RULER) to review and summarize work that has been done on metrics for urban health (see www.rfruler.org). Metrics (defined by RULER to mean both measurement and methods) play a key role in galvanizing action to achieve health. Meaningful metrics need to consider a number of issues: the goal and framework for action, operational measures, the level of area or population disaggregation, the methods for collecting and managing data, and the access to and interpretation of data. Each of these areas has technical and policy/political dimensions. RULER is considering addressing each of these issues and will report in the near future with a summary of the status of metrics for urban health, including gaps and recommendations.

One of the key urban health equity measurement initiatives in developing countries, underway since the CSDH Final Report, is that of Urban HEART (WHO 2010). Information that shows the gaps between or within cities is a crucial requirement to trigger appropriate local actions to promote health equity. In order to facilitate the process of proactively addressing health inequities, the WHO collaborated with 17 cities from 10 countries in 2008–2009 to develop and pilot-test a tool called the Urban Health Equity Assessment and Response Tool (Urban HEART). Urban HEART guides local policy-makers and communities through a standardized procedure of gathering relevant evidence and planning efficiently for appropriate actions to tackle health inequities. It is envisaged that cities in varied contexts can locally adapt and institutionalize Urban HEART, while maintaining its core concepts and principles. Urban HEART provides an opportunity for policymakers from different sectors, and communities, to use evidence to identify and prioritize interventions for tackling health inequities. Local chief executives are provided with a tool to lead and engage their governments in more efficient allocation of resources with broad-based support for action. Importantly, the tool empowers local communities to use evidence and take action on their priorities with the support of local and national authorities.

Action on the social and environmental determinants of urban health inequities will be much more effective if basic information systems are in place that can routinely capture socially-stratified city level information. These systems are essential for knowing the magnitude of the problem, understanding who is most affected, and whether the situation is improving or deteriorating over time, and for assessing entry-points for intervention. Globally, health monitoring systems are in different stages of development. UN-HABITAT provides routine monitoring of some aspects of the urban environment that affect health.

In order to assist Member States work towards the eight goals of the Millennium Declaration, the Millennium Development Goals (MDG), the United Nations set numerical targets for each goal and selected indicators to monitor progress on the goals and corresponding targets. One of the targets of Goal 7 “Ensure Environmental Sustainability,” Target 11 is “By 2020, to have achieved a significant improvement in the lives of at least 100 millions slum dwellers”. UN-HABITAT is responsible for the provision of assistance to Members States to monitor Target 11. However, recognising that the conditions of slum dwellers will not improve if no action is taken to eradicate poverty and hunger (MDG 1), to reduce child mortality (MDG 4), combat HIV-AIDS (MDG 6) and develop a partnership for official development assistance (MDG 8), UN-HABITAT widened its approach to monitoring Target 11 by integrating the Habitat Agenda indicators in the overall MDG framework. Notwithstanding data collection issues, information is available on the durability of structures, overcrowding, security of tenure, access to improved sanitation, connection to services, housing finances, homicides, travel time, and local government revenue (UN-HABITAT 2004).
A new approach to urbanization and development

We have demonstrated that urban planning and design and urban social conditions can be good or bad for human health and health equity depending on how they are set up. We have argued that climate change mitigation and adaptation need to go hand-in-hand with efforts to achieve health equity through action in the social determinants. And we have highlighted how different forms of governance can shape agendas, policies and programs in ways that are inclusive and health promoting or perpetuate social exclusion, inequitable distribution of resources and the inequities in health associated with that.

That urban health inequities, and inequities in social and environmental determinants, exist and appear to be widening particularly in cities in LMICs, suggests that the current model of urbanization being adopted in many cities throughout the world needs to be re-considered. Commitment is needed to an approach that ensures urban growth is not detrimental to health and health equity, and that avoids urban growth centres which are major drivers of climate change. This will involve paying attention to the social and environmental determinants of urban health inequity.

When these aspects of urban life - the natural and built environments and social and economic conditions – are well integrated, more equitable and sustainable levels of human development occur. This is to the benefit of the citizens, their communities, local businesses and large employers, the city and indeed the nation as a whole. Traditionally, development has been measured using indicators of wealth such as Gross Domestic Product. Perhaps an alternative way of measuring successful urban development would be improvement in the social distribution of health outcomes (Figure 20)?

Figure 20: Social, economic and environmental pathways to human development, and health equity as a marker of success

<table>
<thead>
<tr>
<th>Balanced and Fair Economic Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sustainability</td>
</tr>
<tr>
<td>Freedoms / Empowerment:</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Psychosocial</td>
</tr>
<tr>
<td>Political</td>
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<tr>
<td>Urban Social Determinants</td>
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<tr>
<td>• Urban governance</td>
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<td>• Physical environment</td>
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Marker of success: Improved Social Distribution of Urban Health Outcomes
Addressing the evidence gaps - recommendations for research and capacity development

Today, we can describe many of the features of a healthy and sustainable city, and the governance and planning processes needed to achieve these ends. But at the same time there is still much to learn, especially with respect to tailoring these concepts and applying them in the cities of LMICs.

Well-presented data can provide a stimulus for political action. However, in reviewing the peer-review and grey literature it became clear that there are indeed significant gaps in the global evidence base concerning urban health inequities.

First, it proved difficult to demonstrate systematically the socio-economic and socio-cultural distributions of a range of health outcomes in cities around the world, especially in LMICs. In general, the dominant health outcomes reported in the literature from LMICs are life expectancy and under-five mortality, and these are usually stratified as slum versus non-slum dwellers, or urban versus rural. These data do not reflect the social heterogeneity of urban dwellers nor do they properly characterize the current and projected health burden in cities all over the world, where the triple threat of communicable, non-communicable diseases, and accidents, injuries, road accidents, violence and crime is growing.

Second, a significant proportion of existing research on urban health determinants focuses on average population health outcomes rather than the distribution of urban health (urban health inequities). The range of determinants studied is limited. Much of the health literature from cities in LMICs reports on the health risks associated with local hazards such as shelter, water and sanitation. This is understandable given the size of the contribution that these resources (or lack thereof) make, particularly, to slum dwellers’ health. However, the many other social and environmental health risks that exist in urban settlements have been under-investigated in LMICs, and in countries at all stages of economic development there is a paucity of information on the pathways from and the size of impact of issues such as urban planning and design and social conditions on inequities in urban health. There is even less quantifiable evidence about the relationship between global environmental change, especially climate change, and urban health inequities. Urban governance is, as we highlighted earlier, both a key structural determinant of urban health equity and a mechanism by which to improve the social and environmental determinants of health. However, little research focuses explicitly on the relationship between governance and urban health inequities.

Finally, there are considerable evidence gaps in the exploration of action in the determinants of urban health inequities. A reasonable amount of research is available that describes local policies or programs which in essence address some of the social and environmental determinants of health. The Healthy Cities movement has been an important movement, representing a broad approach to improving health. What is consistently missing however is evaluation of the policies, programs and modes of governance with regards to health risks and health outcomes, let alone evaluation of the impact on health inequities.

No data, no problem, no action

Well-presented data can provide a stimulus for political action. However, in reviewing the peer-review and grey literature it became clear that there are indeed significant gaps in the global evidence base concerning urban health inequities.

With the exception of some research on health conditions in slums and on the health impacts of shelter and services, there has been little research on the built environment and health inequity in LMICs. The health risks of access to shelter and services are generally well understood, but there are a few gaps. We know little about the mechanisms of interaction between social factors and the effects of poor housing over the life course. There is also

Gaps in the evidence base on the thematic social and environmental determinants of health

Gaps were identified in the global evidence base relating to each of the thematic areas investigated by GRINUHE. Some of the priority thematic research issues are outlined below.

**Urban planning and design, physical environment and urban health inequity**

With a few exceptions, such as the studies of São Paulo in Brazil and Accra in Ghana undertaken in the 1990s, there have been few comprehensive, longitudinal analyses of intra-urban health inequities in cities in low LMICs. In addition, there is a clear overlap between many issues (e.g. safety and security, physical activity, mental health), so comprehensive studies that simultaneously examine a range of issues relating to health inequity are particularly important.

With the exception of some research on health conditions in slums and on the health impacts of shelter and services, there has been little research on the built environment and health inequity in LMICs. The health risks of access to shelter and services are generally well understood, but there are a few gaps. We know little about the mechanisms of interaction between social factors and the effects of poor housing over the life course. There is also
a lack of comparative information on the costs and effects of specific housing improvements. There has been some research conducted, but in general, the health impacts of slum upgrading have not been well documented. Accordingly, there is scope for future research on this topic.

There has been a considerable amount of research examining the relationship of the built environment on behaviours such as physical activity and on food insecurity, but the evidence is almost entirely from North America and parts of Europe. There is thus scope for research exploring this relationship, comparing physical activity patterns and health outcomes among residents of similar socio-economic status across different types of built environments (tools such as indices of “walkability” would, however, need to be adapted in order to be more appropriate to the urban contexts of LMICs). There is a need for research on how urban planning and design can promote better food security and nutrition in LMICs. There remains a paucity of evidence in rich and poor countries alike on the relationship between urban design, inequities in physical activity and food security and inequities in urban health outcomes.

There is a large amount of research on the built environment and safety (traffic accidents, crime and violence) and on the impact of urbanization on the natural environment. Little of this research in LMICs relates specifically to health or health inequity. Similarly there has been little or no research on the built environment and mental health in LMICs, and little anywhere on the health equity aspects of this relationship.

**Social conditions and urban health inequities**

The intersection between urban planning and design and urban social infrastructure - such as employment, education and healthcare, and the impact on health inequities is under researched in most parts of the world, and is vital if city planning is to be performed in such a way that is based on principles of equity, sustainability and health. Research is needed to identify to what extent and under what conditions urban policies have been able to address social conditions, social justice, and health inequities?

There is a real need to invest in research that examines the link between urban planning and design and work opportunities and work and health outcomes given the significant growth of ‘economic engines’ in LMICs – if done well these cities can enhance population health, which is essential for economic productivity.

We have highlighted in this report the important role of social capital for the health of socially excluded groups, but again the breadth and depth of this evidence base is in its infancy in LMICs and little of the available research pays particular attention to the urban context. There is also the need for a critical assessment of the capacity of social capital to be translated into concrete health outcomes.

Despite the strong evidence of the adverse impact of social exclusion on health, the relationship between health and social exclusion has only recently been investigated in LMICs. There is a need for better understanding of the concept and the multidimensional nature of social exclusion in these countries, and further need to thoroughly examine their relationship to urban health inequity. Research is needed that focuses on the interrelationship between the various dimensions of social exclusion and their impacts on urban health inequity, with the aim of identifying the particularities and commonalities of exclusion/health nexus in these contexts and of putting forward intervention priorities. Studies are needed in the area of socio-spatial exclusion, in particular the extent to which spatial exclusion reflected in slum residence can exert an adverse impact on health beyond that of the social dimension of exclusion.

**Climate change and urban health inequity**

There are gaps in the global evidence base in terms of understanding how different aspects of climate change contribute to urban health inequities. Research is needed that focuses on providing a better understanding of the plausible causal relationships and mechanisms by which different climate change components (temperature extremes, extreme weather, drought and flooding impacts on food and infectious disease threats) affect health and its social distribution among urban dwellers.

Work is in its infancy, internationally, to attempt to quantify climate change’s contribution to human health patterns. There is almost nothing in relation to the impact on health inequities and even less on urban health inequities.

Action-oriented research is needed that can help to develop and evaluate policy and actions to reduce the urban health impacts of different climate
change events in different socio-political and socio-economic contexts.

We need a better understanding of what can be done to mitigate and adapt to climate change such that urban health equity is improved. GRNUHE’s work has identified the need to embed considerations of urban health equity in climate change mitigation and adaptation policies. Systematic assessment is needed exploring the urban health equity impact of climate change mitigation and adaptation strategies, both qualitative and quantitative, and drawing on health equity impact assessment research internationally. Conversely, research is needed that evaluates the effectiveness of urban policies and programs to incorporate climate change mitigation and adaptation in ways that also improves urban health.

**Governance and urban health inequity**

The linkage between governance practices and health equity is under-researched and/or has been neglected. Most research comes from large cities in high income countries. It appears that researchers have only just begun to examine the innovations in urban governance and the implications for health inequity.

Critical issues such the advent of new powerful actors within the contested space of the city, power asymmetries, and the increasing influence of global processes on local policy and decision-making have been so far neglected. We need research to understand the interface between international stakeholders and national and local governance and the effect on urban health inequity. Similarly, little is known about the interface between national and local government/governance and the impacts of a ‘whole-of-government’ approach to improve health equity.

Most existing evaluations of governance arrangements are incomplete and evidence is inconclusive. Research is needed to understand what forms of governance best enhance health equity; what are the constraints and possibilities for urban governance to achieve health equity in different contexts, and what factors/mechanisms enhance governance in ways that promote health equity. A conceptual framework of governance and its inter-relation with governability is still lacking, and there is a need to understand what participatory urban governance means in theory and practice across different contexts. Further, not much research has been conducted on the context-specific factors of best practices such as participation.

The current emphasis on process, at the expense of detailed considerations of health and health equity outcomes is problematic. It can be difficult to distinguish truly influential and effective governance arrangements and practices from superficial changes that have little effect on underlying power relations, and to recognize that there are cases that merely present a more participatory gloss without really increasing the capacity to addressing or ameliorating the social determinants of health. Research on health inequities needs to both draw on and contribute to this analysis.
An integrated research agenda

As indicated above, there are a plethora of issue-specific research activities that are needed in cities throughout the world. There is however an overarching research agenda which, if performed in an integrated, comparative and co-ordinated manner, will provide essential insights into the causes and solutions to current and future urban health inequities in cities in low, middle and high income countries.

By outlining an integrated research agenda we aim to assist researchers, policy-makers, service providers and funding bodies/donors to better support, co-ordinate and undertake research that is organised around a conceptual framework that positions health, equity and sustainability as a central policy goal for urban management. Within this conceptual framework we make explicit the role of urban planning and design, social conditions, climate change and governance as key determinants of urban health equity and as areas in which policy and practice should be focused.

Generating evidence on what works to reduce urban health inequities is a complex process. Evidence on the social and environmental determinants of health can be context dependent. Understanding how context impacts on health inequities and the effectiveness of interventions requires a rich evidence base that includes both qualitative and quantitative data. In order to learn from these contextual insights and to understand which aspects of action in the urban setting can be transferred internationally, we propose that the integrated research agenda should be done through the establishment of multi-city studies that pursue operational and applied research as outlined below.

GRNUHE identified five overarching research areas:

1. The social epidemiology of urban health inequities
2. Retrospective health equity evaluation
3. Prospective action-oriented applied research - designing healthy and inclusive urban settings
4. Understanding the role of external pressures on urban health inequality
5. Knowledge translation: knowledge to action

Area 1: The social epidemiology of urban health inequities

The first research area focuses on quantifying the relationship between social and environmental determinants and urban health inequities, particularly in LMICs. The point of this research is to a) test hypotheses and b) provide baseline data from which changes in health inequities can be measured following societal level change (policy, programmatic intervention, social action). A comprehensive range of indicators is needed relating to the four GRNUHE thematic areas, as well as indicators of health status disaggregated across different social groups, and general characteristics of cities and their positioning in the global arena.

Some preliminary measures are listed below.

i. Health and socio-demographic factors: Social demographic indicators; Health status - spectrum of positive & negative health measures disaggregated by social group

ii. Social conditions: Social infrastructure (formal services) – land tenure, education, health services, employment opportunities, justice services, community participation, social services; Social capital / cohesion

iii. Built environment & typology: Density; Types of shelter (size, use, formal or temporary structures); Access / proximity to services & utilities (water, sewage, drainage, energy, communication); Urban form e.g. street connection; Measures of land-use mix; Amount of green space; Hazardous lands (dumping grounds, steep hill); Planning status & zoning (formally recognized within regulatory system or outside of it)

iv. Climate variables: Temperature; Humidity; Rainfall; Vectors; Topography

v. Governance (agency, process, structure, context): Institutional framework for participation; Design of participatory spaces; Who are the actors & what is their role; Modalities & forms of creating space including partnerships & alliances; Led by the government or bottom-up led by civil society; Capacity – what is the real capacity to act upon the recommendations; Control – sense of control and actual control; Access to information

vi. Characteristics of the city and links to the global context: Status; Economic power; Political power; Nature of industry / commerce

This type of research is partly dependent on the quality of existing information systems and should interact with ongoing initiatives in this area, such as Urban HEART, RULER and UN-HABITAT’s monitoring program, otherwise population surveys will be needed.
### Area 2: Retrospective health equity evaluation

The second area of research is concerned with understanding the impact of action that has taken place on the different potential determinants of urban health inequity, and understanding why certain actions worked in different socio-political and development contexts. The research would draw on a selection of cities in high, middle and low income countries, and aim to demonstrate changes in urban health inequities, using existing data sources, after the introduction of a change e.g. transport/urban design in Bogotá. Specific foci that could be addressed in this type of research include:

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<td>i.</td>
<td>Identifying a particular action/intervention/sectoral policy which took place, and retrospectively evaluating its impact on urban health inequity;</td>
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<td>ii.</td>
<td>Identifying a particular intervention which took place that was explicitly focused on a reduction in inequity – did it succeed in relation to urban health equity, and</td>
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<td>iii.</td>
<td>Identifying a city (cities) where health inequities have been reduced and investigating what policy/programs/changes took place that caused this reduction.</td>
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### Area 3: Prospective action-oriented applied research –designing healthy and inclusive urban settings

The third research area focuses on working with cities that are in the early stages of making changes in the way the cities function - the aim being to introduce the ideas of equity, health and sustainability into the planning and design of the action/change. This action-oriented research approach would also involve sensitising cities to these issues through advocacy and partnership building, and connecting with bodies such as the International Society for Urban Health, UN-HABITAT and Urban HEART to help push the agenda forward and identifying local urban health champions.

The focus of this research is on collaborative knowledge production and intersectoral participation (researchers, city leaders and civil society working together) and would be built around different models of governance in different socio-political and economic contexts, aimed at inclusionary urban design. The health equity impact of the change/action would be evaluated prospectively. Health equity impact assessment can play a critical role in these evaluations, such as influencing design, and would help researchers to understand how healthy city planning can be done in such a way as to include considerations of health equity, a relational perspective of place, an understanding of planning as governance, and relations of power. Possible research design models include:

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<td>i.</td>
<td>Longitudinal prospective study of an intervention specifically designed to address health inequities;</td>
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<td>ii.</td>
<td>Observed impact on health inequity in situations where it is not a core objective of the intervention;</td>
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<td>iii.</td>
<td>Prospective evaluation of the impact of cross-sectoral policies on health equity either at national or city level, and</td>
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<td>iv.</td>
<td>Adapting cities for health and climate change – working with cities to retrofit for climate change adaptation and ensuring the actions are also health equity promoting.</td>
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**Area 4: Understanding the role of external pressures on urban health inequity**

Most of the research proposed thus far has focused on within-city issues. The aim of the fourth area of research is to understand the influence of global and national factors on urban settings and how that affects urban health inequity. There are three broad research questions that need to be investigated and would involve a mixture of qualitative key informant interviews; analysis of institutional mission statements, policies and strategic plans; and network analysis, and all overlaid with city-level socially stratified health data. The three broad research areas and their underlying questions are:

i. The influence of international agencies and donors on urban health inequity:
   a. What are the international institutions’ positions on urban health equity – is it on their agenda and what processes do they follow to achieve health equity
   b. To what extent do international agencies/donors impose their agenda on cities - interaction with national and local policies, processes and programmes
   c. Progressive approaches – have they been good for urban health equity
      • Impact of inter-sectoral action
      • Priority setting; decision making processes and policies; resource allocation; ownership, information systems (type, ownership); sustainability

ii. The health equity impact of globalization on urban settings, exploring matters such as the role of new corporate actors, the implications for control of urban space and land use and implications for urban working conditions.

iii. The pressures exerted on cities - especially on capital cities - by higher levels of government (provincial/state and/or national), their policies and programs and what these pressure do to cities and their ability to address urban health equity.

**Area 5: Knowledge to action**

The fifth area identified as being a vital component of a global urban health equity research agenda relates to the translation of knowledge into action. Four key activities were identified as being strategically important for moving this agenda forward.

i. Bringing together planning and public health professionals in a single forum to address urban health equity (to support research, education & training, policy & practice);

ii. Developing guidelines and tools for urban health equity assessment and intervention;

iii. Developing a mechanism to make information for decision making purposes (including data, case studies, images etc) publicly available and in a systematic manner, and

iv. Evaluating the impact of the above on influencing policy & practice.
# List of Figures, Boxes, and Tables

<table>
<thead>
<tr>
<th>Figures</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Diagrammatic representation of GRNUHE dimensions of urban health equity</td>
<td>v</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Urban rural differences in under-five mortality, Kenya</td>
<td>3</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Prevalence of diabetes by monthly income, Buenos Aries, Argentina 2005</td>
<td>4</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Prevalence of under and over-weight among women aged 20-49 years in urban areas in select developing countries</td>
<td>5</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Urban and rural Gini coefficients for selected developing countries</td>
<td>9</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Gini coefficients in selected African cities</td>
<td>9</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Gini coefficients, national and capital city for select African countries</td>
<td>10</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Gini coefficients for select cities in Brazil</td>
<td>10</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Gini coefficient, select cities in Latin America and the Caribbean</td>
<td>10</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Gini coefficients for selected Asian cities</td>
<td>11</td>
</tr>
<tr>
<td>Figure 11</td>
<td>Gini coefficients for selected cities in China</td>
<td>11</td>
</tr>
<tr>
<td>Figure 12</td>
<td>Correlation between income inequality and the UNICEF index of child wellbeing in 23 rich countries</td>
<td>12</td>
</tr>
<tr>
<td>Figure 13</td>
<td>Provision of toilets by socio-economic group, Bangalore</td>
<td>18</td>
</tr>
<tr>
<td>Figure 14</td>
<td>Mean physical activity per day in low, middle and high urbanicity groups in seven locations in Tamil Nadu, India, 2008</td>
<td>22</td>
</tr>
<tr>
<td>Figure 15</td>
<td>Walkability index, select Indian cities</td>
<td>23</td>
</tr>
<tr>
<td>Figure 16</td>
<td>Whitehall Study results depicting the relationship between job category and mortality from coronary heart disease</td>
<td>29</td>
</tr>
<tr>
<td>Figure 17</td>
<td>Travel time from population weighted meshblock centroids to closest daycare centre in Wellington, New Zealand</td>
<td>31</td>
</tr>
<tr>
<td>Figure 18</td>
<td>Predicted all-cause death rates for persons 45–64 years by level of neighbourhood per capita civic participation, adjusted for mean level of neighbourhood deprivation, in 342 Chicago neighbourhoods</td>
<td>33</td>
</tr>
<tr>
<td>Figure 19</td>
<td>Pathways from global climate change through urban living conditions to urban health equity</td>
<td>35</td>
</tr>
<tr>
<td>Figure 20</td>
<td>Social, economic and environmental pathways to human development, and health equity as a marker of success</td>
<td>68</td>
</tr>
<tr>
<td>Boxes</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
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</tr>
<tr>
<td>Box 1</td>
<td>17</td>
<td></td>
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<td>Box 2</td>
<td>21</td>
<td></td>
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<tr>
<td>Box 3</td>
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<td>27</td>
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<td>Box 6</td>
<td>39</td>
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<td>Box 9</td>
<td>43</td>
<td></td>
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<td>Box 10</td>
<td>44</td>
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<td>Box 11</td>
<td>46</td>
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<td>Box 14</td>
<td>48</td>
<td></td>
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<td>Box 15</td>
<td>49</td>
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<td>Box 16</td>
<td>53</td>
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<tr>
<td>Box 17</td>
<td>54</td>
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<td>56</td>
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<tr>
<td>Box 20</td>
<td>57</td>
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<tr>
<td>Box 21</td>
<td>58</td>
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Appendix 1: List of GRNUHE Working Papers


The working papers are available from the GRNUHE website: www.ucl.ac.uk/gh/GRNUHE
References


Andreatta, V (2005): *Favela-Bairro, un nuevo paradigma de urbanización para asentamientos informales (Favela-Bairro, a new paradigm for the urbanisation of informal slums)*. Cuadernos internacionales de tecnología para el desarrollo humano.


Barten, F, Mitlin, D, Mulholland, C, Hardoy, A and Stern, R (2007): “Integrated approaches to address the social determinants of health for reducing health inequity”, *Journal of Urban Health* 84(3 (Suppl. 1)): 164-173.


Friel, S (in press): “Climate change, food insecurity and chronic diseases: sustainable and healthy policy opportunities for Australia”, *NSW Public Health Bulletin*.


KNUS (2007): *Our cities, our health, our future: Acting on social determinants for health equity in urban settings*. KNUS.


Pérez-Torres, D (1999) “Planificación urbana tardía en México.” Obras 324, DOI:


Pothukuchi, K and Kaufman, JL (1999): “Placing the food system on the urban agenda: The role of municipal institutions in food systems planning”, Agriculture and Human Values 16(2): 213-224.


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