World Health Organization

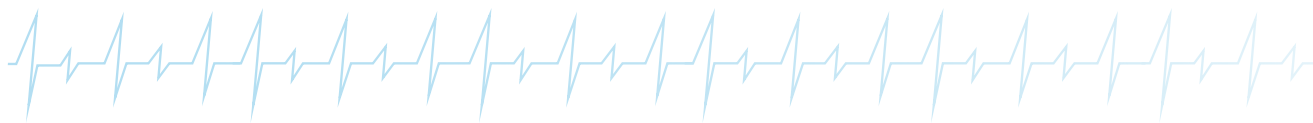# Health as the Pulse of
the New Urban Agenda

**United Nations Conference on Housing and
Sustainable Urban Development**

Quito – October 2016

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Acknowledgements

Preface

The Third United Nations Conference on Housing and Sustainable Urban Development, Habitat III, will produce a new agenda for the next 20 years of urban development. For this global strategy to succeed, the health of the nearly four billion people who dwell in cities today must be a central concern.

Decisions related to urban planning, finance and governance can create or exacerbate major health risks – or they can foster healthier environments and lifestyles, that in turn reduce the risks of both communicable and noncommunicable diseases.

Previous Habitat conferences did not address the fundamental linkages between health and sustainable urban development. The New Urban Agenda to be adopted at Habitat III, however, clarifies the importance of those linkages and that health is not only about the provision of health care services, reflecting decades of experience and advances in our understanding of how the shape and form of urban development influences the health of city residents. The NUA recognizes that effective urban planning, infrastructure development and governance can mitigate risks and promote the health and well-being of urban populations.

Those who design, plan, build and govern cities exercise great influence over the basic ingredients of a healthy life, including access to decent housing, clean air and water, nutritious food, safe transport and mobility, opportunities for physical activity, and protection from injury risks and toxic pollutants. Cities that offer these fundamentals can dramatically reduce the incidence and associated costs of a wide range of diseases – from heart disease and stroke, to vector-borne diseases and childhood illnesses – while improving health equity for those most often exposed to such risks, such as children, older people, women, people with disabilities, and the poor. Cities that offer health-enabling environments and coordinated support for healthy lifestyles can ensure that their citizenry are not only healthier and happier, but more economically productive, with far lower costs to both families and societies due to work-related illnesses and injuries.

This paper clarifies these and other critically important connections between health and urban policies. It also provides a detailed vision for integrating health into urban planning and governance, and offers practical guidance on health-promoting approaches for those tasked with implementing the New Urban Agenda in the years to come.

Habitat III comes soon after the adoption of the post-2015 Agenda for Sustainable Development, which acknowledges the importance of cities in the context of Sustainable Development Goal (SDG) 11 ("Make cities inclusive, safe, resilient and sustainable"), and health in the context of SDG 3 ("Ensure healthy lives and promote well-being for all"). To achieve these and all SDGs, cooperation between different stakeholders and institutions is urgently needed – not only to make the best use of finite resources, but to capitalize on synergies and ensure policy coherence to achieve systemic change. By explicitly acknowledging health as a central component of urban planning and governance, Habitat III will be much better positioned to deliver on its vision of sustainable urban development for all.

Contents

Executive summary

What is the most important asset of any city? At first glance, it would seem to be one of the familiar focal points for urban investment: high-quality housing, sound infrastructure and a strong workforce.

But a closer look reveals that these and all other ingredients of a successful, sustainable, vibrant city have a deeper common foundation: the most important asset of any city is the health of its citizens.

Health is essential for fostering good livelihoods, building a productive workforce, creating resilient and vibrant communities, enabling mobility, promoting social interaction, and protecting vulnerable populations *(1, 2)*.

This report considers how to integrate health into urban planning, investments, and policy decisions, so as to support the implementation and achievement of the goals and objectives of the New Urban Agenda.

Two core themes run throughout this report. First, to realize Habitat III's collective vision of sustainable, liveable and economically vibrant cities, urban decision-makers must apply a "health lens" – to fully assess the risks and opportunities posed by their policies and programs, and measure their effects. Second, achieving truly sustainable urban development will require much greater cross-sectoral coordination to protect and improve the health of vulnerable populations in the world's fast-growing urban areas.

The good health of all its citizens is one of the most effective markers of any city's sustainable development. Healthy cities are environmentally sustainable and resilient. Cities with clean air, energy-efficient infrastructure, and widely accessible green spaces can attract more investment and businesses, create more jobs, and offer more opportunity to people from all walks of life *(3)*. Healthy cities are socially inclusive – places where planning and policy-making incorporate the views, voices and needs of all communities *(1, 2)*.

Health is not only an indicator for monitoring progress, but a fundamental driver of sustainable development. Focusing on health can unlock progress to reduce inequalities in urban areas, and expand access to services and opportunities *(1, 2)*.

Ensuring the health of urban residents goes well beyond the provision of health services *(1)*. While universal access to health services is essential for maintaining and restoring good health, there is ample evidence linking the quality of urban environments with lifestyle and dietary habits, which are drivers of today's epidemics of obesity and diabetes *(1)*. Urban policies that lead to increased air pollution contribute to premature deaths from strokes, heart attacks and cancers. Poorly managed waste and stagnant water provide breeding grounds for the mosquitoes that carry Zika and dengue fever, and outdated transport strategies can lead to increased traffic deaths and injuries.

Conversely, urban planning that places health upfront – by improving access to green and open spaces, for example, and controlling the sources of pollution – offers significant opportunities for improving the health, wellbeing and economic productivity of urban populations *(3, 4)*. Sustainable, health-promoting urban policies also reduce social inequalities by ensuring better access to housing, jobs, services and education through efficient urban transit and inclusive neighbourhood design *(1)*.

Health is a unifying theme that can bring together a wide range of stakeholders. Diverse communities with different perspectives can be drawn into discussion and debate about the merits of certain plans and programs, as well as conversations that clarify trade-offs and the wider implications of policy choices.

How can policies and decisions at the city level expand opportunity for and protect the health of the 54% of humanity now living in cities? This document outlines some opportunities and basic strategies, while answering the following critical questions:

1. Why is urban development important to health and vice versa?

2. What are examples of successful urban policies and strategies that deliver environmental, economic, social and health benefits?

3. How can decision-makers apply a "health lens" to urban planning, governance and finance, and avail themselves of tools to improve health, reduce social inequalities and ensure wider access to services and opportunity?

4. What role can the health sector play in advancing healthy, sustainable urban planning?

The successful implementation of the New Urban Agenda will hinge on a clear understanding of how health can act as a driver of inclusive, sustainable development, and on the identification and pursuit of practical steps for improving the health of urban residents around the world.

Fulfilling the collective vision of healthy, safe, inclusive, equitable cities for all starts with a first step: recognizing health as the vital sign – the "pulse" – of the New Urban Agenda.

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I Why is health important for 21st century cities? And why is urban development important for health and wellbeing?

What are the challenges facing cities in the 21st century?

Fast-growing urban populations are increasing demand for limited housing, food and other resources to meet basic needs, and placing pressure on transport systems and other forms of infrastructure *(1)*. Major technological and economic shifts are eliminating some kinds of jobs while creating others, generating uncertain prospects for certain populations *(2)*. More urban dwellers are leading sedentary lifestyles, contributing to the rise in obesity and noncommunicable diseases, while rising temperatures due to climate change strengthen vectors of infectious diseases *(3, 4)*. Persistent and, in some places, growing inequality limits access to basic health care services *(1)*.

The list goes on, to include: supporting ageing populations; providing critical services to increasing numbers of migrants to the city; expanding affordable housing; upgrading water and sanitation infrastructure; reducing air pollution; meeting the growing demand for a reliable energy supply while mitigating greenhouse gas (GHG) emissions; and protecting vulnerable communities from rising sea levels and extreme weather events due to climate change.

A focus on health is key to tackling all of these challenges, and many more. Strategic decisions made in sectors such as housing, transport, energy, land use planning, urban agriculture and waste management all have significant impacts on the health of urban populations, as do policies related to education and human services *(3, 5, 6)*. Depending on how they are made, and whose voices are heard in the decision-making process, such decisions can pose risks and impose costs – or they can yield substantial health benefits, unlock economic progress and foster environmental resilience.

For the New Urban Agenda to succeed, key actors and stakeholders in urban planning, governance and finance must incorporate health as a central consideration in their decision-making processes. Expected health impacts should be assessed during the development of urban policies. Health outcomes and health equity (the attainment of the highest level of health for all people) should be key indicators used in monitoring the impact of those policies.

A focus on health is, fundamentally, a focus on opportunities. Below are seven arguments for mainstreaming health into the New Urban Agenda.

1. Healthy urban policies can significantly reduce infectious and noncommunicable diseases and enhance wellbeing.

The global pandemic of noncommunicable diseases (NCDs) such as heart disease, stroke, cancer and respiratory diseases imposes enormous costs on individuals, families and society. These diseases are the largest cause of death globally, and are on the rise in the developing world *(7)*. For example, cancer and cardiovascular disease are now the two leading causes of death in India's urban areas *(3)*. NCDs create a significant economic burden in terms of lost productivity and health care costs.

The main risk factors for NCDs (tobacco use, alcohol use, physical inactivity, poor diet, exposure to air pollution and chronic stress) are directly influenced by urban design and planning policies that are far beyond the control of individuals *(4, 8, 9)*. For instance, a lack of access to public transport and safe spaces for walking and cycling, compounded by increasing reliance on private motorized transport, promotes sedentary behaviour and increases exposure to air pollution. This also contributes to the rising number of traffic-related injuries in rapidly motorizing developing countries *(4, 6)*.

The increasing availability and heavy marketing of cheap, processed foods and drinks that are rich in fats and sugars, coupled with a lack of access to healthy fresh foods (such as vegetables, fruits, nuts and pulses) are linked to obesity and NCDs such as diabetes *(10)*. Lack of access to clean, running water results in high levels of water-borne infectious diseases and forces people to store water in or around the home *(3)*. Without effective waste management, rubbish accumulates to block streams and create stagnant water *(3)*. Together, these factors contribute to the proliferation of mosquitoes and other vectors of infectious diseases like dengue, chikungunya and Zika, all of which are on the rise.

Cities have the authority and capacity to make urban environments healthier, through taxes on the consumption of, and restrictions on advertising for, tobacco products, alcohol and unhealthy foods *(3)*. They can also incentivize the adoption of cleaner water and energy systems and housing upgrades through building permit mechanisms and structured investments *(8)*. Effective urban waste management can address environmental risk factors linked to infectious diseases *(9)*.

2. Sustainable design and proactive development can enhance health equity by protecting urban populations from health risks and the impacts of extreme weather events.

With more and more people living in cities, the coming decades will see an increasing number of people at risk of both NCDs and communicable diseases such as dengue and tuberculosis *(3, 5)*. Air pollution is a major cause of NCDs such as stroke, respiratory and heart disease; urban air contains pollutants from many different sources, and large populations live near these sources *(9)*. Urban residents thus tend to have a higher risk of experiencing associated health impacts. Recent analysis of data from 3000 cities worldwide shows that more than 80% of them have yearly average air quality that does not meet WHO guidelines

(11). This trend is heading in the wrong direction: annual average concentrations of particulates and other pollutants are increasing in many low- and middle-income cities. Meanwhile, 40% of the high-income cities of Asia, and 60% of those in Europe, have levels of fine particulate matter that exceed WHO air quality guideline levels; in North America 20% of cities have pollutant concentrations that exceed guideline levels *(11)*.

Sound urban planning strategies can turn this trend around, reducing citizens' exposure to air pollution, saving lives and significantly reducing health care costs *(6)*. Studies of European cities

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A woman wears a mask to protect herself from air pollution. (Credit: Nicolò Lazzati)

have found that reducing air pollution to WHO air quality guideline levels would result in gains of 2–22 months of average life expectancy *(12)*.

Reducing air pollution improves the health of everyone – the affluent and the poor – but the greatest benefits will be reaped by low-income and marginalized populations, who are exposed not only outdoors, but in the workplace and at home, due to dependence on polluting cooking, heating and lighting sources *(11)*. Effective policies addressing the main sources of indoor and outdoor air pollution – such as kerosene lamps, biomass stoves, vehicles (especially those powered by diesel), diesel generators, coal-fired power plants, industrial sources and waste burning – will reduce social inequalities and protect the most vulnerable segments of urban populations *(9, 13, 14)*.

Another important measure to improve social equity is expanding networks for urban public transit, walking and cycling. Particularly for vulnerable groups, including older people, women, children and people with disabilities, having access to more options for safe mobility can increase access to jobs and services, reduce risks of road injury and limit noise exposure *(4, 15)*.

Good urban planning can also reduce the health risks from climate change, through measures that mitigate risks for communities situated in areas prone to floods, mudslides and other extreme weather events *(16)*. Meanwhile, landscape design to expand urban green spaces can help reduce the urban "heat island" effect that leads to higher temperatures in cities than in surrounding areas; improve absorption of excess rainwater; make cities resilient to the risks posed by climate change and extreme weather; and foster oases free of pollution, traffic and noise, which are important for physical activity, stress relief and mental health *(6, 9, 16, 17)*.

3. Health indicators can help document how citizens benefit from urban investments in infrastructure and environmental and social protection.

In almost all cases, the types of infrastructure and urban design needed for a healthy city are the same types of infrastructure and design required for a resilient, low-carbon city *(4, 5, 18, 19)*.

Local planners can devise parking and urban core access policies that reduce the total number of vehicle miles travelled – along with the associated pollution and sedentary time for commuters – while increasing access to economic opportunities *(9, 20)*. Urban building codes that require increased insulation, greater energy efficiency and good ventilation reduce emissions of climate-warming pollutants from fossil fuel combustion for heating or cooling. These measures also improve indoor temperature management, and prevent the development of mould and damp and the accumulation of indoor air pollutants *(8)*.

Overlooking the potential risks to health from certain policies may lead unintentionally to heavy costs to society in the long run. For example, in some places, policies at the national and city level have encouraged or facilitated the adoption of diesel vehicles – partly with the aim of reducing carbon dioxide emissions, as diesel engines are more fuel-efficient than petrol-burning ones *(9)*. But diesel engines are a major source of dangerous particulate pollution, including black carbon, a significant short-lived climate-warming pollutant. In this particular case, pursuing the aim of reducing long-lived GHG emissions had the unintended consequence of compromising the health of many urban residents, as well as exacerbating near-term climate change. Alternatives exist for mitigating GHG emissions from the transport sector in urban environments that are beneficial for *both* climate and health. Incorporating a health "lens" early on in the development of such policies can avoid such counterproductive investments.

Linking health indicators to urban infrastructure projects and investments can help track the

Figure 1: Proportion of population by WHO region using polluting and clean fuels in urban and rural areas
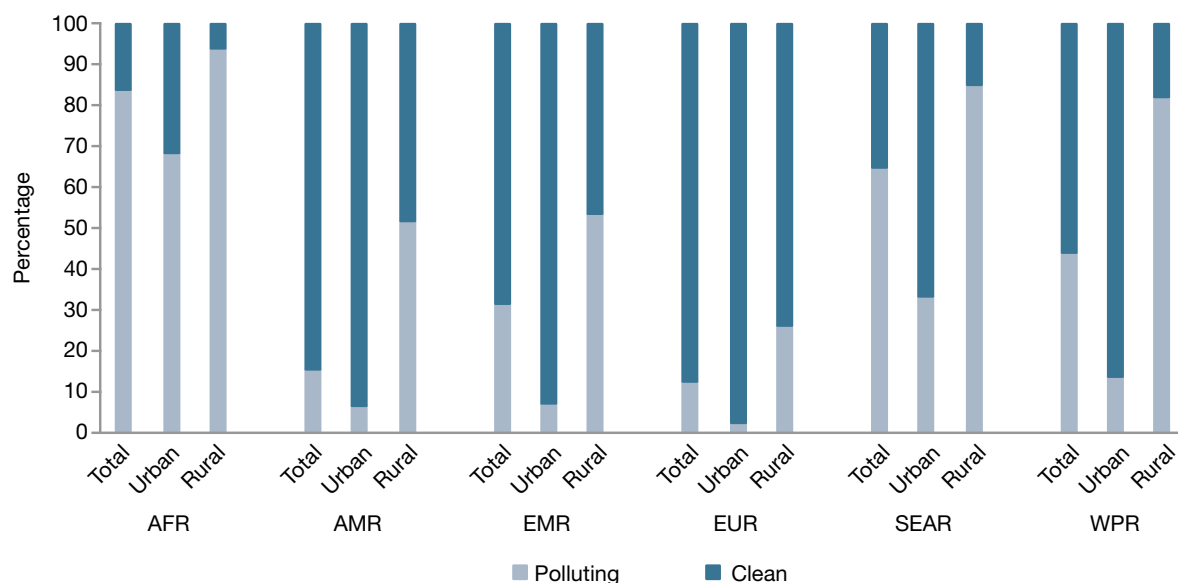
AFR, WHO African Region; AMR, WHO Region of the Americas; EMR, WHO Eastern Mediterranean Region; EUR, WHO European Region; SEAR, WHO South-East Asia Region; WPR, WHO Western Pacific Region.

Source: Burning Opportunity, WHO, 2016 *(13)*

impacts of urban changes on individuals, and identify how these changes affect their lives. Currently, urban dynamics are tracked with indicators that refer largely to population, income, consumption and physical growth, along with measures of access to services such as education and electricity. Some cities, however, are leading the way in understanding that wellbeing and quality of life are the key measures of a community's success, and health indicators can make a key contribution in this vein. Health statistics should thus be used to measure impacts of policies and the overall function of cities for their citizens. This would put people literally at the centre of the New Urban Agenda – and thereby enable people-centred planning.

4. A large body of scientific evidence on the health impacts of urban policies can clarify risks and inform decision-making for sustainable development.

There is considerable evidence on the health impacts of urban policies, synthesized by WHO and other national and international bodies, which should be considered by cities during the policy-making process. Decisions made on the basis of partial evidence can reduce the effectiveness of well-intentioned policies on housing, transport and mobility, land use, food, waste management and energy systems.

Rigorous scientific reviews can inform decision-makers about factors that increase health risks, and the levels of those risk factors that are safe for health. For example, exposure to air pollution levels above 10 micrograms per cubic metre of particulate matter with a diameter of less than 2.5 μm ($PM_{2.5}$) leads to increasing mortality and morbidity, with higher pollution levels leading to higher mortality (21, 22). There is similar scientific consensus on the safe levels of noise (23), contaminants in drinking water (13), and the risks posed by different fuels and technologies for cooking, heating and lighting in the home (14). Corresponding guidelines for health risks associated with housing will be launched by WHO in 2017. These guidelines can help decision-makers adopt targets to protect their populations' health.

Figure 2: **Proportion of cities and towns by WHO region meeting the WHO air quality guidelines for annual mean $PM_{2.5}$**
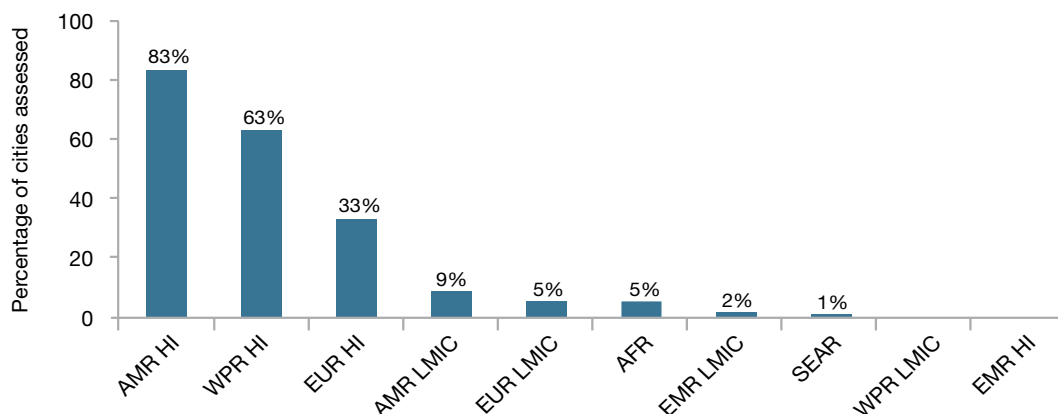
Data is for annual mean $PM_{2.5}$ and covers 3,000 cities in the WHO Air Quality Database, which represents approximately 40% of the world's urban population.
Data reflects proportions of assessed cities and towns, as per their jurisdictions, and not proportions of the urban population.

HI = high-income countries; LMIC = low- and middle-income countries

Source: WHO Global Urban Ambient Air Pollution Database (update 2016)

Such evidence can also inform estimates of the benefits to be expected from gradual improvements in air quality, water quality and noise levels, and from increasing the availability and adoption of cleaner fuels and technologies in households. Scientific research can also help clarify trade-offs. For example, the exercise-related benefits to health from cycling to work in polluted environments largely exceed the risks, up to outdoor air concentrations of around 90 micrograms per cubic metre of $PM_{2.5}$ *(24)*. Beyond that threshold, the relative benefits decrease until the concentration of $PM_{2.5}$ is around 160 micrograms, at which point the risks of exposure to heavy pollution outweigh the likely benefits *(24)*. Air pollution reduction can therefore secure even greater health gains, by making cycling safer.

5. Vulnerable populations can be afforded additional protection when health risks are fully considered in urban planning.

Healthy urban policies leave no one behind. By definition, health-promoting policies protect populations that may not always have a voice in the city-level decision-making process, despite being directly affected by those decisions. Urban planners should consider the specific needs and vulnerabilities of different population groups (such as those living in poverty, children, older people, informal sector workers and migrants) and develop policies that offer them additional support and protection.

Evidence suggests that health inequity is strongly associated with socioeconomic deprivation *(3)*. Rates of illness and premature death are significantly higher among the poorest and most marginalized groups, including residents of slums and informal settlements, recent migrants to the city and their children *(3)*. These citizens are more likely to live in places with higher exposure to occupational hazards, pollution and other risks to health, and have reduced access to good quality housing, healthy food, safe streets, decent jobs, health care services and amenities like green spaces *(3)*. Through targeted efforts, cities can improve health outcomes for their poorest and most vulnerable residents while also making progress towards meeting other Sustainable Development Goals.

Table 1: Proportion of urban population living in slums (%, 1990–2014)

Major region or area	1990	1995	2000	2005	2010	2014
Developing Regions	46.2	42.9	39.4	35.6	32.6	29.7
Northern Africa	34.4	28.3	20.3	13.4	13.3	11.9
Sub-Saharan Africa	70.0	67.6	65.0	63.0	61.7	55.9
Latin America and the Caribbean	33.7	31.5	29.2	25.5	23.5	21.1
Eastern Asia	43.7	40.6	37.4	33.0	28.2	26.2
Southern Asia	57.2	51.6	45.8	40.0	35.0	31.3
South-eastern Asia	49.5	44.8	39.6	34.2	31.0	28.4
Western Asia	22.5	21.6	20.6	25.8	24.6	24.9
Oceania*	24.1	24.1	24.1	24.1	24.1	24.1

Source: World Cities Report 2016: Urbanization and Development: Emerging Futures. Nairobi: UN-Habitat; 2016.

* Trends data are not available for Oceania. A constant figure does not mean there is no change.

Figure 3: **Trends in urban drinking water coverage by percent of population in MDG regions and the world, 1990–2015**
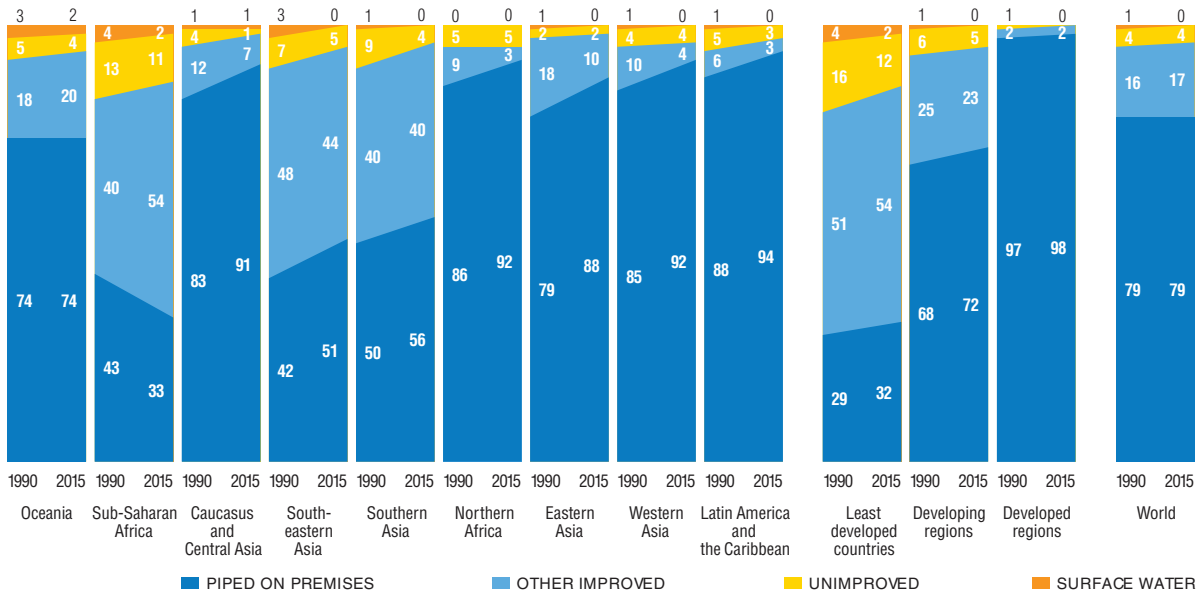
Source: Progress on sanitation and drinking water – 2015 update and MDG assessment. Geneva: UNICEF and WHO; 2015.

Figure 4: **Trends in urban sanitation coverage by percent of population in MDG regions and the world, 1990–2015**
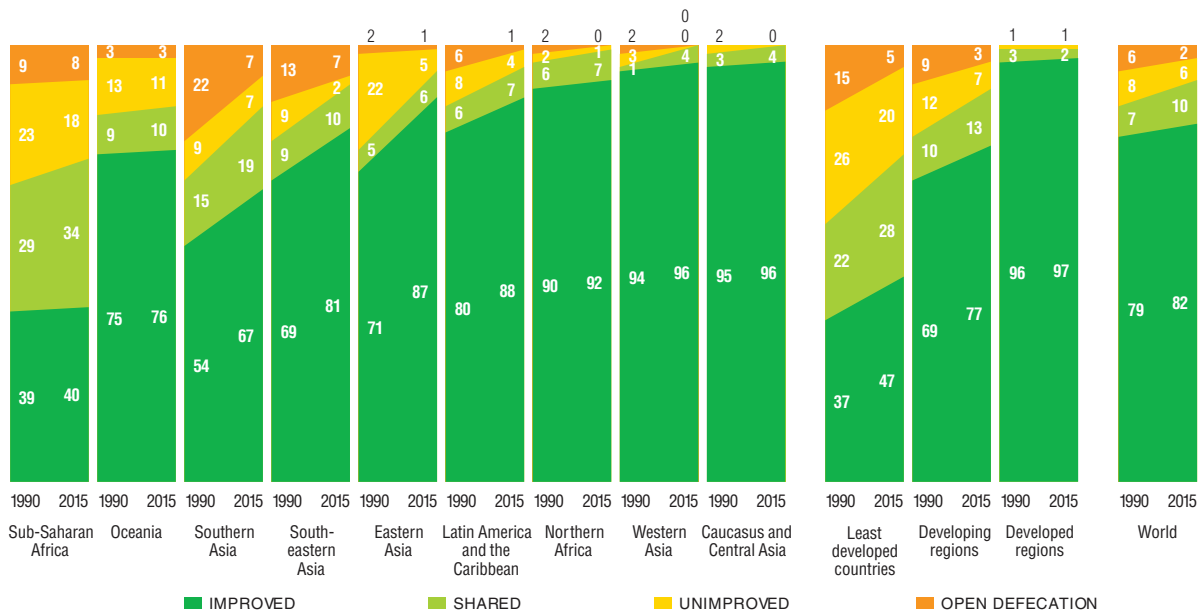
Source: Progress on sanitation and drinking water – 2015 update and MDG assessment. Geneva: UNICEF and WHO; 2015.

6. The "right to the city" includes the right to access to spaces that promote social cohesion, support healthy lifestyles and deliver economic benefits.

Policies that promote health are almost always policies that promote social cohesion. Land use planning that promotes social connectedness also facilitates healthy behaviours such as physical activity *(25)*. Equitable access to parks and green spaces is conducive to good mental and physical health for urban residents, and integral to the achievement of health equity in cities *(8)*. Policies that support and expand such access increase opportunities for human interaction, physical activity and contact with nature; increase access to effective and equitable health care services and to healthy, affordable foods; and afford all citizens the opportunity to enjoy public spaces with reduced exposure to health risks from pollution, injuries and violence. As such, they are policies that ensure the "right to health" *(26)*.

7. Considering health impacts promotes fuller participation in urban decision-making by various stakeholders and members of different communities.

Separated bike lanes, like this one in Vancouver, encourage more people to bike rather than drive.
(Credit: Paul Krueger, Flickr)

A simple fact about cities gives them an important advantage: by virtue of their density, their citizens, elected leaders, policy-makers, and members of various civic organizations and businesses all live and work together in close proximity. The conversations and interactions that result enable beneficial feedback loops of innovation, experimentation, rapid learning and iteration. Cities can leverage this advantage in the development and implementation of healthy urban policies, and generate opportunities for inclusiveness in urban governance. To effectively address persistent health issues, diverse population groups and stakeholders must be engaged in urban decision-making. Health-promoting policy-making provides a forum and platform for these citizens to share their views on proposed actions and investments – including those aimed more broadly at sustainability and economic development goals – that will directly affect their wellbeing and health.

II Which urban policies are good for public health, and which create risks?

Applying a "health lens" to urban planning can reveal opportunities to realize multiple objectives. Win–win policies come into sharper focus, and paths to achieving environmental, economic, health and social equity targets emerge.

Health-promoting urban policies that also generate environmental benefits and economic savings abound. Compact urban design capitalizes on population density to reduce GHG emissions and improve mobility and walkability, and thereby health *(4, 9)*. Efficient public transport and cycling networks lower the risks associated with air pollution, reduce traffic deaths and injuries and promote more physical activity – all while increasing access to employment, education and social services *(4)*. Better wastewater and sewage management improves public health by reducing exposure to water-borne illnesses *(8)*. Green belts in and around cities can help preserve watersheds and thus reduce drinking water contamination, saving on the costs of water purification *(27)*. Green belts also improve resilience to heatwaves, and provide a buffer against extreme weather events such as floods *(27)*. Recycling, reusing and reducing solid waste eliminates the need to burn or bury it, improving air quality, reducing water and soil contamination, and creating jobs *(9)*. Energy efficiency retrofits and improved ventilation in buildings reduce the health burden from indoor air pollution, and lower energy use and carbon emissions *(8)*.

Cities around the world have implemented strategies and systems that create safer, healthier, urban environments. They have developed and implemented these solutions in creative, collaborative and cost-effective ways. These lessons could be applied to support implementation of the New Urban Agenda while also promoting health and wellbeing. Sustainable Development Goal (SDG) 11, Sustainable Cities and Communities, also acknowledges many of these strategies in its targets and indicator *(33)*; selected examples are noted below.

Transport and mobility

SDG Target 11.2 calls on the world community to provide by 2030 "safe, affordable and accessible and sustainable transport systems for all, notably by expanding public transport, with special attention to the needs of vulnerable groups, including women, children, persons with disabilities and older persons" *(33)*. Cities can improve access to healthy transport and mobility through compact, high-density design. Urban planners can lower overall travel time and costs by investing in walking and cycling networks; investing in and expanding public transport and rapid transit systems; and engineering traffic calming measures to protect road users from the hazards of motorized transport. Transport planning that increases access to safe cycling and walking networks and to quality transit systems can reduce NCDs *(9, 26)*. High quality public transport produces less air pollution and noise than private motorized transport, while reducing motor vehicle crashes and associated injuries and deaths. Good public transport also promotes equitable access to employment, educational activity, various amenities such as parks, and human and social services *(4)*. People who walk and cycle to work engage in more physical activity, and have a lower incidence of premature mortality, as well

People board a subway car in Munich. (Credit: La Citta Vita/Flickr)

as of underlying disease conditions *(28–30)*. These "healthy transport" systems reduce congestion and traffic, make access and mobility more equitable and obviate the need for expanding and maintaining costly road infrastructure. These networks make cities more environmentally resilient, while also ensuring that citizens' mobility is not compromised by volatile fuel prices. Cities should also consider restricting the use of diesel engines for both commercial and private passenger vehicles in dense urban centres. Diesel exhaust is a carcinogen, and diesel vehicles emit more small particulates – the vehicle pollutant most significantly associated with stroke, heart and respiratory disease and deaths *(32)*.

Land use planning and landscape design

Landscape design and management solutions that expand access to parks, gardens, bodies of water, forests and other green spaces and recreational areas promote physical activity and healthier lifestyles. Access to common spaces and

BOX 1

Mexico City – Transport

Over the past decade, Mexico City has taken concerted actions to reduce traffic congestion and improve its air quality. It created five high-quality bus rapid transit corridors, serving almost one million passengers per day – 10% of whom switched from driving personal vehicles. The reduction in vehicle pollution eliminated an average of 6100 work loss days, 660 restricted activity days, 12 new cases of chronic bronchitis and 3 deaths per year. The city also developed the *Ecobici* bike sharing programme, with 100 000 members and 10 million yearly trips. The city government created one payment system covering the entire metro-rail network, bus rapid transit system and bike sharing system. These various transport options help city residents reach green spaces like the revitalized Chapultepec Park, which has 18 million users each year.

Source: Global report on urban health: equitable, healthier cities for sustainable development. World Health Organization and UN-Habitat: Geneva; 2016

green areas has been shown to improve mental health and wellbeing *(17)* – and mental ill health is the single largest cause of long-term medical care, and a major driver of health care and other social costs *(32)*. Well-designed cities help residents of all ages spend less time commuting in their vehicles and more time being productive, creative and socially engaged. Health-supporting neighbourhood development strategies foster the viability of local shops, services and amenities within cycling and walking distance. At the street level, spaces can be created that support social inclusion across and between different generations and income groups. For children, older and disabled people, good design removes physical barriers and creates inclusive, welcoming environments. Such strategies have been recognized as central to sustainable development: SDG 11.7 calls for provision, by 2030, of "universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities" *(33)*.

Food systems

Obesity and stunting create major risks to health, and often co-exist in low-resource settings *(34)*. A healthy diet is only possible if people have access

People purchasing fresh food at a farmer's market in New Jersey. (Credit: Katherine Hala/Flickr)

to healthy foods where they live and work. Urban planning can address "food deserts" – typically low-income areas where fresh food is unavailable, and only unhealthy, heavily processed foods high in sugar, fat and carbohydrates are accessible and affordable. Effective zoning and land use planning can support local food businesses and urban agriculture at every stage of the food cycle, from growing to processing to distribution and composting. In many countries, food transport

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BOX 2

Belo Horizonte – Food Security

A pilot initiative in the city of Belo Horizonte transformed the way Brazil tackles hunger and food insecurity. In 1992, the mayor started a municipal food agency to distribute food and school meals, as well as to subsidize food sales. It also launched an urban agricultural programme. More than 100 gardens and orchards were set up, many to serve vulnerable populations and supply food for school meals. A new civic forum, Urban Agricultural Space, brought together 33 government agencies and civil society organizations to integrate local agriculture into municipal programmes for health, education, employment, housing and environmental protection. The programme went on to inspire the launch of the Zero Hunger programme in Brazil in 2003, which ultimately reduced the number of Brazilians facing food insecurity by 20 million.

Source: Global report on urban health: equitable, healthier cities for sustainable development. World Health Organization and UN-Habitat: Geneva; 2016

(including the return journeys of empty food lorries) makes up a significant proportion of road transport miles, and much food goes to waste owing to inadequate refrigerated storage capacity and distribution networks. Integrated urban planning can remove these bottlenecks and support the development of local, equitable and healthy food systems.

Energy

Energy use in buildings and homes in urban areas is a major source of GHG emissions, outdoor air pollution and indoor air pollution *(13)*. Switching from fossil fuel-based energy systems (especially coal and diesel) for electricity generation and space heating to clean and renewable energy sources is an important means of reducing GHG emissions and the health impacts of both climate change and climate-warming pollution *(13)*. In some Indian cities, for example, almost one third of outdoor air pollution comes from indoor sources *(13)*. In the urban areas of the African and South-East Asia regions, biomass is still widely used as a household fuel *(13)*. Half of all childhood pneumonia deaths and more than one million chronic obstructive pulmonary disease (COPD) deaths every year are caused by exposure to household air pollution from polluting

Household air pollution from cooking with solid fuel. (Credit: Romana Manpreet/Global Alliance for Clean Cookstoves)

stoves and fuels such as biomass and coal *(13)*. Clean fuels and devices for cooking, heating and lighting can avert a large proportion of premature deaths from COPD, stroke, cancer and heart disease in developing countries *(14)*. Replacing kerosene lamps with LED lanterns powered by small solar photovoltaic panels can reduce the risk of injuries, burns, poisonings and eye diseases, in addition to reducing exposure to indoor air pollution *(13, 14)*. Such clean household

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BOX 3

Cape Town – Housing and Energy

Smart financing and public–private partnerships can leverage interventions for meeting health, environmental and economic goals. The city of Cape Town partnered with the organization SouthSouthNorth to launch a housing retrofit programme in Kuyasa, a low-income neighbourhood of Khayelitsha Township. Since 2008, 2300 units have been upgraded with insulation, CFLs and solar water heaters, with an estimated saving of 2.8 tons of carbon dioxide per household per year, and US$ 110 per household per year in energy costs. These measures have lowered the risk of tuberculosis by reducing dampness in dwellings, and improved hygiene by encouraging washing with warm water. The associated reductions in air pollution have also lowered the risk of pneumonia and other respiratory illnesses.

Source: Health in the green economy: health co-benefits of climate change mitigation – housing sector. World Health Organization: Geneva; 2011.

Construction workers work on a building in Tunisia with little safety protection. (Credit: Khaled Abelmoumen)

energy solutions are increasingly affordable and available, thanks to new public-private partnerships and innovative business models that leverage low-cost "pay as you go" financing on mobile phone platforms in urban areas in many countries, from Kenya to India *(13)*.

Housing

Construction and furnishing materials can be a source of significant health risks. Exposure to lead in paint and water pipes can lead to lower IQ, and behavioural and learning difficulties in children, and to anaemia and heart and kidney problems in adults *(8)*. Urban building-sector policies can regulate the use of dangerous materials and the retrofitting of existing housing stock to lower these risks. Appropriate building design can prevent injuries in the home, which are more frequent than road traffic injuries in many countries *(8)*. Window screens and water and waste management can reduce pest infestations (which can lead to infections and food poisoning), especially in warmer climates *(8)*. Overcrowding is a

major risk factor for social pathologies and mental ill health, and increases the risk for infectious disease transmission *(8)*. Targeted interventions to improve housing for disadvantaged populations, who are more likely to occupy substandard homes, can improve health outcomes and reduce social inequalities. Energy retrofits to improve insulation, combined with improved efficiency of appliances, can reduce GHG emissions from the housing sector, lower utility costs for residents, and improve indoor air quality, assuming that adequate ventilation is also provided and non-toxic insulation materials are used *(8)*. Better management of moisture, temperature and ventilation reduces exposure to mould, pests, air pollution, toxic chemicals and radon; lowers the incidence of infectious diseases and NCDs such as stroke, heart disease, asthma and other respiratory diseases; and can thus reduce expenditures on health care at both the household and government levels *(8)*. These measures offer considerable environmental benefits, but the health and economic savings are likely to be far more significant.

BOX 4

Nairobi – Water and Sanitation

Cross-sectoral action delivers results. Over the past decade, a coordinated effort by government ministries, development agencies and civil society groups has dramatically improved access to water and sanitation in the slums of Nairobi. Between 2000 and 2012, the proportion of slum households with access to public water taps increased from 2.7% to 59.3%, and use of flush toilets increased sixfold, even as use of pit latrines declined by 50%. These improvements contributed to observed declines in child mortality and deaths from diarrhoea.

Source: Global report on urban health: equitable, healthier cities for sustainable development. World Health Organization and UN-Habitat: Geneva; 2016

Clean water and waste management

Access to clean water is essential to protect against gastrointestinal and other water-borne diseases, such as salmonella, typhoid, cholera and polio, as well as skin infections and trachoma, while proper waste management can help prevent anaemia and undernutrition resulting from helminths in soil and contaminated foods *(36)*. These are all major causes of childhood disease and death. Local waste management policy can and should avoid uncontrolled incineration and subsequent air pollution, reduce the unnecessary transport of waste material, reduce water contamination, lower the rate of injuries among waste workers, and function as an urban climate mitigation measure *(9)*. Waste needs to be minimized, but, if properly managed, it can also be an asset that creates economic opportunities *(37)*. Construction waste can be repurposed and reused. The waste management industry provides an opportunity to create jobs and to build skills and new business models. Biodegradable waste should be separated, and can become a source of valuable biogas for power generation and heating, capturing methane that would otherwise be released from landfills. (Methane is both a powerful short-lived climate pollutant and a contributor to urban ozone pollution.) Glass, paper, metal and plastic, and toxic materials such as compact fluorescent lightbulbs (CFLs) and batteries should all be separated, recycled and reprocessed into new materials, further reducing the volume of waste that must be landfilled, and minimizing the risk of toxic contamination of soil and water.

Workplaces and workers' health

A significant but often overlooked source of health risks in urban areas is the workplace. Informal workers make up the majority of the working population in the world, and their health is key to maintaining their livelihoods, especially in low- and middle-income cities *(38)*. Many workers

A sewage treatment plant that uses solar power on the island of Majorca in Spain. (Credit: Chixoy)

labour in unsafe buildings, made with substandard construction methods and insufficient inspection procedures, in unhealthy conditions, exposed to high temperatures and indoor air pollution because of poor ventilation *(8, 14)*. Good land-use zoning and building codes, if properly enforced, can prevent or at least reduce many of these problems. As public spaces are workplaces for many informal workers (e.g. street vendors), improving the safety of pedestrian and cycling networks and upgrading parks and green spaces can have the added benefit of improving working conditions for many urban workers. Home-based enterprises are becoming more common, as are work-related accidents affecting both labourers and family members, such as fires and explosions *(39)*. Occupational health hazards and accidents are on the rise, with associated loss of income to families of the workers affected. Targeted occupational health programmes can prevent accidents and reduce disease risks in home-based enterprises, and educate and protect workers and their families from the risk of explosions, pollution and fires. Such efforts by the health sector, municipal agencies and organized groups of informal workers to prevent health problems and accidents among domestic workers and street vendors, and among workers on construction and landfill sites, enable the city to maintain services and protect the health of the wider population (e.g. through regulations on food safety, land and water contamination). As a major employer in most cities, health care facilities can also set a leadership example by providing healthy workplaces in energy-efficient buildings with ample daylight and ventilation; enacting stringent policies for reduction, separation and safe management of health care waste; promoting healthy food choices; and encouraging active travel to work *(40)*.

Slum upgrading

Around 40% of urban growth worldwide today is in slums. Nearly one billion people live in urban slums or informal settlements *(3)*. In these areas, simple but effective interventions such as insulated roofs, solar lighting and solar water

Clearing waste in a waterway, near a slum in Jakarta. (Credit: Jonathan McIntosh)

BOX 5

Lagos – Services in Slums

In Lagos, Nigeria, a study on urban inequity in 2011 resulted in a government-led urban slum initiative aiming to improve service delivery to marginalized populations. The programme engaged traditional birth attendants as health liaison personnel, linking more patients to government services through systematic referrals. Slum dwellers gained increased access to maternal and child health services, HIV treatment and sanitation services.

Source: Global report on urban health: equitable, healthier cities for sustainable development. World Health Organization and UN-Habitat: Geneva; 2016

heating can improve living standards and reduce the health impacts of heatwaves and extreme weather *(41)*. These interventions should be pursued together with investments in access to safe drinking water, sanitation and healthy transport options. Wide and meaningful participation by residents is critical to the success of slum upgrading programs. In many slums, access to basic services such as education or health care is extremely limited, but pilot programmes to provide a package of holistic health services for child development, nutrition, mental wellbeing and treatment for infectious diseases such as tuberculosis have shown great promise and are ready to be scaled up *(3)*.

Greening strategies

Urban green spaces contribute to healthy lifestyles, and prevention of a wide range of physical and mental health problems *(17)*. Mature trees filter pollutants from the air, and improve water retention and quality. Strategic planting of trees in urban areas can cool the air by 2 °C to 8 °C *(42)*, reducing the urban "heat island" impacts that lead to more extreme temperatures being experienced in cities than in the surrounding countryside. Tree planting also provides shade, reducing demand for air conditioning and hence the amount of energy used for cooling buildings. Trees also improve outdoor thermal comfort and provide windbreaks. Simple but effective siting of fountains, green corridors and ponds can also help reduce the urban "heat island" effect. Arterial parks connecting transport routes or major destinations make for safer and easier walking and cycling networks, and can be popular places for physical activity in crowded cities. Urban gardens can be used to produce fresh foods *(1, 3, 4, 8)*. Urban oases with trees, soil, and water (preferably moving), can induce feelings of relaxation and vitality, especially in areas where health risks are high and green spaces are uncommon *(17)*.

Planting trees in urban areas helps to cool the air, provide shade and reduce energy demands on nearby buildings. (Credit: Alex Indigo/Flickr)

III How can health be integrated into urban planning, governance, finance and public outreach?

Urban management and planning decisions have direct implications for citizens' health. The provision of clean water and sewage systems, the routing of high-traffic streets, the planning of bus routes and cycling and walking paths, the design of parks, the purchase of sanitation vehicles, the siting of waste processing facilities, the adoption of incentives and other financing mechanisms for energy-efficient housing – all of these and many other urban policies have important health effects.

Yet these consequential choices are often made by actors from agencies or institutions focused exclusively on one set of objectives within specific sectors, whether those relate to land use planning or transportation, housing, waste management, parks, water, sanitation or energy. These decisions are often made using a narrow lens focused on specific sector objectives, without explicit consideration of broader public health implications, and are often implemented by agencies with tightly defined mandates and without responsibility for tracking health outcomes.

Improving and protecting the health and wellbeing of citizens is part of the core business of cities, and should be recognized and articulated as such. This entails mainstreaming consideration of health impacts and outcomes into every city's approach to planning, governance, finance, communication, implementation and monitoring of its own policies.

Achieving SDG 11, and a range of other SDGs, will hinge on such coordinated action. An integrated approach across these various sectors is essential for reducing the incidence of both communicable diseases and NCDs, improving the overall wellbeing of urban populations, and reducing social inequalities and achieving environmental goals, as well.

New models of cooperation and cross-sector collaboration are needed to identify synergies across these sectors, and generate actions that result in overall gains to society, with health, environmental and economic co-benefits. Understanding the barriers to such intergovernmental action is a prerequisite for integrating health into urban development.

Good governance requires conversations across sectoral boundaries, sharing bodies of knowledge and perspectives, and establishing joint agendas – pursuing a systems approach, characterized by both vertical and horizontal integration. With improved sensitization to urban health issues, the health sector could function as a "knowledge leader" in such dialogue. Health policy-makers have well-tested mechanisms for using the best evidence to inform decisions to address health problems. When properly harnessed, this can be an enormous asset for cross-sectoral decision-making. Public health policy-makers also have long experience with community engagement, sensitization and change strategies. (This potential is addressed further in Section IV.)

Below are recommendations of good practices for working across sectors to reduce health risks and enhance health benefits from sector-based policies, drawing on experiences in a wide variety of urban settings. These include mechanisms for planning and tracking results. All represent opportunities to be seized.

1. Developing a common vision for social cohesion and health equity – a commitment to leave no one behind

Embrace the improvement of health and well-being of all citizens as part of the core business of cities. Identify and target policies to the most vulnerable groups, as they will reap the greatest benefits from health-promoting and sustainable urban policies *(43)*. Adopt a people-centred "right to health" framework that encompasses the right to use urban public spaces that promote health and do not impose health risks, and includes other human rights to:
- safe, clean drinking water
- adequate housing

BOX 6

Bristol, England – Neighbourhood Planning

In Bristol, communities are supported in using a "health lens" in neighbourhood planning. Even in middle- to high-income countries, there are many pockets of disadvantage and deprivation. Health outcomes are typically worse in such communities. In Bristol, public health officers and the local municipality have worked together closely to develop several tools to support local communities in using a "health lens" to identify local physical elements that either detract from health or promote health in the areas where they live. This has enabled their lived experiences to feed into neighbourhood planning processes.

Local community members explain to council officers and elected members features and dynamics that support or detract from health in their local neighbourhood. (Credit: Marcus Grant)

Source: Hewitt, S. and Grant, M. and Bristol Partnership. "Building health into our plans from the start: Report and review of the health impact assessment workshop on the Knowle West Regeneration Strategy." NHS Bristol/Bristol City Council/University of the West of England, Bristol; 2010. (Available from: http://eprints.uwe.ac.uk/15235)

- access healthy food
- an adequate income
- access a transportation system that minimizes the risks of air pollution, injuries, violence and physical inactivity

- access spaces that are conducive to good mental health, with opportunities for human interaction, integration, and contact with nature
- safe working conditions
- access health care services.

2. Foster commitment to healthy cities as sustainable cities – recognizing the need for actions that involve all urban sectors

Identify and implement measures that are both good for people's health and good for the environment. For example, the following sustainable development measures have positive health impacts:

- energy conservation, energy efficiency and a rapid shift from fossil fuels to clean and renewable energy sources
- sustainable urban design (e.g. compact, dense, multi-use development)

- water conservation
- pollution reduction (in air, water and soil, including reduction of toxic substances)
- waste reduction, including reduction, reuse and recycling
- sustainable transportation and mobility policies
- protection and restoration of habitats.

BOX 7

Belfast – Youth Participation

Children can and should participate in creating a healthy city for everyone's future. Cities have much to gain if they can effectively utilize the unique knowledge and insight that they can bring to planning. Children constitute a significant proportion of the population in Belfast, and almost 20% of the city's children are under 13 years old. These youth are quite literally the future of the city. Belfast developed a wide range of engagement methods for children to voice their needs for an inclusive, resilient and child-friendly city. This work offers valuable lessons for other cities, and clearly demonstrates that children can help lead us all towards cleaner, safer and more welcoming cities.

Pupils from Bunscoil Phobal Feirst display their posters from the Shaping Healthier Neighbourhoods for Children project and plant a tree to celebrate.

Source: "Taking action for child friendly places: first steps – strategic approach and action plan for Belfast." Belfast Healthy Cities; 2016. (Available from: http://www.belfasthealthycities.com/sites/default/files/publications/TakingAction.pdf, accessed 25 September 2016).

3. Assessment – mainstreaming health into urban policies

Perform health impact assessments for urban policies, including health equity assessments, linking to social and environmental impact assessments (which are required by law in many settings); involve communities in the scoping of impacts of local interest *(44)*.

Monitor and track risks to health and wellbeing of different population groups; monitor the adoption of policies and investments that tackle these health risks; and assess cities' health performance using timely data and targeted indicators *(6)*.

Develop the necessary capacity, skills, standard operating procedures, training procedures and job functions for the public health system in urban areas to support the New Urban Agenda *(45, 46)*.

National governments should strengthen the functional and financial autonomy of municipalities so they can take effective action to improve urban health. National health systems can update legal frameworks and allocate resources for implementing health policies at the local level.

Sub-national governments can promote regional coordination and partnerships to help develop responses to health risks that require actions beyond their area of jurisdiction (e.g. with trans-boundary air pollution) *(47)*.

Local governments can take on increased responsibility for health and health determinants in their jurisdictions, with support from national governments.

Urban decision-makers can raise awareness within the authorities and agencies responsible for sectors that are sources of health risks, and among the general public, about their implications and possible ways to reduce these risks. They should also develop outreach and communication mechanisms to generate public discussion of the health consequences of planning decisions.

Urban decision-makers should invest in research and innovation in the public health field, and integrate health research into their primary urban research and data collection agendas *(48)*.

4. Urban economies – financing healthy, sustainable urban development and avoiding unintended health risks

Allocate resources across sectors to account for the expected health impacts of sector-based policies. Update city budgeting practices to support the development of sectoral and cross-sectoral urban policies that integrate explicit urban health objectives and measurable health outcomes in investment and economic decisions.

Enhance knowledge-sharing and accounting for trans-boundary and intersectoral health risks, which require responses beyond their area of jurisdiction *(47)*.

Integrate disease prevention into budgeting processes, with a systems view of where health and other resources can be used most efficiently to achieve multiple benefits.

Estimate the cost of inaction – of not implementing health-enhancing urban policies in different sectors – including the added economic and health care burdens of health-harming policies and health inequalities.

Estimate the loss of productivity from ill health, and evaluate the social and economic benefits from ensuring the health of workers, including those in the informal economy *(39)*.

Monitor and track catastrophic health expenditures of individuals, families, communities and cities at large, associated with urban health risks.

Use fiscal and financial mechanisms to influence the urban determinants of health, through investments in adequate housing, energy retrofits, cycling and pedestrian networks, and mass transit, as well as taxation of unhealthy products and practices.

5. Urban planning – designing for health

Establish or update guidelines and standard procedures for planning and design of cities to take health into account *(49, 50)*.

Account for multiple possible values of scarce urban land in land use planning approaches, including the value of enabling and facilitating access to basic services, access to public spaces and parks, and access to fresh, minimally processed foods *(49)*.

Adopt a healthy spatial planning approach by engaging the health sector to identify health-enhancing urban design and planning interventions that also reduce health risks and inequalities *(50, 51)*.

Build the evidence base on the sources of diseases in the urban environment and on effective preventive strategies through natural experiments and modelling, taking advantage of changes in infrastructure and development of new information technologies.

6. Urban health resilience – managing and adapting to risks

Strengthen health systems' capacity to prepare for, anticipate and respond to health shocks and stresses in a sustainable and effective manner at the urban level, in the context of national urban resilience policies.

Prepare and engage the health sector to communicate about climate change, disaster risks and other environmental stresses, including air pollution and disease vectors such as mosquitoes.

Develop joint assessments to find the best strategies that concomitantly improve health and support mitigation of and adaptation to the risks associated with climate change, as well as disaster risk reduction measures. Health impact assessments (HIAs) can be applied to all manner of measures to respond to these needs *(59)*.

BOX 8

Ljubljana, Slovenia – Accessibility for All

In Ljubljana, a comprehensive and systematic approach was developed to improve accessibility for disabled citizens. Measures included changes to the physical environment, as well as to public services, public transport, information, communication, and the cultural and recreation sectors. The mayor's support was key and, in recognition of its achievements, the city was granted the charter "Municipality Tailor-made for the Disabled" in 2009. The city made many physical improvements, including pedestrianization, fully accessible public transport and public buildings, a city centre tactile map, and public toilet facilities. Social interventions included training bus drivers in how to assist and interact with the disabled, sign language courses for staff in health and social institutions, cultural events and programme content designed for blind and visually impaired people.

Source: Grant, M. European healthy city network phase V: patterns emerging for healthy urban planning. Health Promotion International, 2015;30 (S1). i54-i70. ISSN 0957-4824 (Available from: http://eprints.uwe.ac.uk/25655)

Middle East Cities – Development amidst Drought and Territorial Disputes

In the Middle East region, the global trends of urbanization and migration are intensified by regional patterns of rising water scarcity and food insecurity, as well as regional and civil conflicts – further complicating the quest for healthy urban development.

About 57% of the population in the Arab world currently lives in cities; this proportion is projected to reach 70% by 2030 *(1)*. In some countries, environmental and war-related migration have played synergistic roles, with "climate change-related pressures such as severe droughts undermining rural livelihoods, even as rising sea levels, floods and heatwaves threaten urban populations *(5)*. For instance, since 2006, prolonged drought in the northeastern regions of Syria, compounded by a history of poor environmental policies, wiped out a substantial proportion of the agricultural sector, leading to the migration of hundreds of thousands of people to cities *(3)*. Consequently, problems relating to unemployment, housing, health services, environmental amenities and infrastructure accelerated slum development and placed pressure on urban ecosystems, helping fuel unrest among marginalized populations across the region *(4)*.

The populations of Beirut, Damascus, and Amman have more than doubled due to the influx of refugees and displaced people from Iraq, the Syrian Arab Republic and Yemen. This has put serious pressure on existing infrastructure for water, sanitation and clean energy. Interruption to basic services has led to civil and political crises, such as one in Beirut regarding solid waste disposal, and to heavy air pollution, such as that created by diesel generators in Baghdad and Aleppo, or by the use of polluting solid fuels for both heating and cooking in the war-torn cities of the Syrian Arab Republic and Yemen *(2)*.

Due to severe water scarcity, farmers are more inclined than ever to use urban wastewater for food production in peri-urban areas. Establishment of adequate health and safety measures, however, can transform such practices, and safe wastewater management can become a source of income generation. This was demonstrated through a project implemented jointly by WHO, the Food and Agriculture Organization of the United Nations and the International Development Research Centre (IDRC) to examine treatment options for safe wastewater use in poor urban communities in four countries applying the WHO guidelines *(6)*.

References:

1. El-Zein A. et al, "Health and Ecological Sustainability in the Arab World: a Matter of Survival." Lancet, 2014; 383:458–76.
2. Sharara Sima L. et al, "War and Infectious Diseases: Challenges of the Syrian Civil War", PLOS Vol 10, Issue 11 November 2014.
3. Fammia F. et al, " Syria Climate Change, Drought and Social Unrest", the Center for Climate and Security, February 2012.
4. Khadr Z. et al, "Health Inequities: Social Determinants and Policy Implications" Book: Public Health in the Arab World, 61–74, 2012.
5. Erian E. et al, "Drought Vulnerability in the Arab Region. Special Case Study: Syria", Global Assessment Report on Disaster Risk Reduction, UN-ISDR, 2010.
6. Non treatment options for safe wastewater use in poor urban communities: WHO/IDRC/FAO project, WHO, 2010. (http://www.who.int/water_sanitation_health/sanitation-waste/wastewater/non-treatment-options-for-safe-wastewater-use/en/)

7. Participatory action for change – engaging communities and raising awareness

Good governance involves communities in the participatory planning and management of their own neighbourhoods and their city. This leads to wider support for city policies, and supports health-promoting measures and behaviours that might not otherwise be readily appreciated at the community level. For instance, policies to stop trash burning, or policies to improve pavements for children walking to school, will be more successful if they are coupled with community awareness-raising about the expected health gains associated with such measures. Decision-makers should engage with official neighbourhood and community councils, and volunteer organizations (e.g. women's groups, scouts, and faith-based groups) regarding their perceptions of local environmental health risks and means of reducing them, and of proposed plans for city infrastructure, housing and land use.

Governance mechanisms that can support this kind of dialogue include:

- formalized community councils, or new fora such as urban leadership councils, which have the shared aim of reducing major risks to health from all urban sectors;

- education system and school-based strategies, such as schemes to promote recycling and stop waste burning; to improve traffic safety; clean-up campaigns to reduce risks from vector-borne disease (e.g. old tyres or water containers that harbour mosquito larvae); and arterial parks that provide walking, cycling and leisure spaces in narrow urban corridors;
- publication of official urban data on air pollution, water quality and housing quality, to support frank, transparent discussion of targets for improvement;
- communication with mainstream and social media about urban health issues to enable a proactive response to media criticism with clear statements about policy goals, direction and implementation.

Health professionals, as members of the community who have a certain level of technical knowledge, respect and public trust, can play a special role in promoting better governance for health and engagement, and awareness raising. (This is the focus of Section IV.)

BOX 10

Kirikkale, Turkey – Healthy Public Spaces

In Kirikkale, a thriving outdoor public market had established itself on a busy boulevard every Saturday. The whole process of running the market took from Friday until Sunday. Poor infrastructure and a difficult setting meant not only an unsightly appearance, but also high volumes of traffic, compounding problems of congestion and air pollution. City life in the vicinity was paralysed. A relocation project was undertaken as part of the 2009 Kirikkale Municipality Strategic Plan. Without disrupting the habits of sellers and customers, the market was moved to a modern facility six kilometers away. The project involved landscape works to the boulevard and the creation of Bulvar Park, with a trim trail, children's play area, pools and paths for the elderly. The goal was to increase happiness, reduce stress and enhance the resilience of communities. Promoting physical activity and access to green space for recreation supported an ambition to provide better quality, high-density housing.

Source: Grant, M. European healthy city network phase V: patterns emerging for healthy urban planning. Health Promotion International, 2015;30 (S1). i54-i70. ISSN 0957-4824 (Available from: http://eprints.uwe.ac.uk/25655)

BOX 11

Gyor, Hungary – Physical and Social Regeneration

A physical regeneration programme combined with social interventions aimed to reduce health inequalities in a multicultural district of the city, where many of the social and health problems were associated with a run-down urban environment. Recognizing that there was no quick fix, the city began with thorough assessments of physical interventions, which included renovations of the physical fabric of Gyor, creating a multitude of public areas for leisure, sport and play, and general greening of the area. To complement these physical improvements, the city introduced a raft of social interventions with the main aims of community building, empowerment, and health and lifestyle improvements. These were delivered through a series of programmes focusing on young people, children, families, mothers-to-be, mothers with young children, and the Roma community. They covered sport, assertiveness, capacity building, healthy lifestyles, cooking and diet. Together, these interventions are enabling Gyor to achieve its high health equity aims.

Community scenes from the regeneration project in Gyor, Hungary.

IV What is the unique role of the health sector in implementing the New Urban Agenda?

Actors in the health sector, including those in charge of strategy and delivery of health care services and prevention of diseases, will play a key role in supporting urban decision-makers in achieving the goals of the New Urban Agenda. Health sector actors can synthesize knowledge and provide evidence-based guidance about the health impacts of sector-based strategies, policies, plans and projects.

They can conduct and share research that documents the health and equity impacts of urban policies, including implementation research to evaluate the health impacts of policy interventions. They can both estimate and document the costs to health and to health systems of policies and actions in other sectors. They can identify avoidable health costs and provide input on how to allocate resources to fund proposed policies and interventions.

Health sector actors can support the tracking of health impacts of other sector policies, contribute monitoring and evaluation data and mechanisms, as well as report regularly on outcomes. They can study and track differences in health outcomes and access to health care among vulnerable and marginalized populations, and suggest evidence-based policies to address those inequities *(52)*.

In addition, the health sector has a responsibility to reduce its own environmental impact and ensure it is an environmentally sustainable system *(53)*.

Finally, health care professionals are generally perceived as trusted opinion leaders by many in their community. Their public health advice and recommendations are generally perceived as a reliable basis for both personal and policy decision-making. As such, the health sector can help advocate and communicate with different population groups, liaising between government and other stakeholders to help create urban policies that improve both health and sustainability.

Some of the specific tools and resources the health sector can provide are listed below.

1. Promotion of clear health-based targets for clean air, water, and energy systems, for wider adoption by cities

A set of health targets can be identified for the New Urban Agenda, to focus attention on key issues that connect health and wellbeing to urban sustainability, social and health equity, economic development, and citizens' aspirations and concerns.

Such targets can crystallize goals and galvanize public support, while attracting input and mobilizing action from a wide range of stakeholders. For example, a target for attaining clean air (as defined by the WHO guidelines on air quality) can serve that purpose. Reducing concentrations of particulate matter and other air pollutants below

BOX 12

Bangladesh – Air Quality

The city of Rajshahi had dangerously high levels of PM_{10} in its air. But from 2014 to 2016 it reduced the concentrations of particulate matter by two thirds, the largest observed reduction achieved by any city in the world. How did it do it? By replacing old brick kilns with cleaner and more efficient kilns, using battery-powered electric autorickshaws, planting green strips, paving sidewalks to reduce dust and promoting pedestrian areas. Rajshahi is now building Bangladesh's first dedicated urban bicycle lane to increase the number of residents cycling and reduce the use of motorized transport.

Source: "Rajshahi: the city that took on air pollution – and won", Guardian, 17 June 2016 (https://www.theguardian.com/world/2016/jun/17/rajshahi-bangladesh-city-air-pollution-won, accessed 31 August 2016)

recommended thresholds will require a suite of policies across the energy, transport, agriculture, waste management and housing sectors, as all are important sources of air pollution. Setting a goal for the city that requires contributions from several systems and sectors can also generate jobs, economic opportunities and potential private sector engagement (e.g. businesses to deliver sustainable waste management, housing and energy), as well as generate measurable benefits for health and health equity (in terms of access to sustainable services and reduced risks to health). This visible and easily identifiable goal, centred around people's health and wellbeing, can help attract interest, commitment and engagement from a variety of stakeholders.

Similar city-scale health and development targets could be established for water quality, access to sanitation and to clean household energy, access to sustainable and healthy housing and transport, as well as to healthy food, green areas and common spaces. Some of these are already SDG indicators, but a health-based target at the city level can mobilize intergovernmental cooperation and galvanize concrete local action. The health sector can advise on practical steps for reaching these targets, provide data and mechanisms for tracking progress and ensuring transparent reporting, and propose methods for assessing the equitable distribution of benefits across urban populations.

2. Guidance on health implications of urban policies

The health sector can provide evidence-based guidance on a wide range of urban policies, following transparency and accountability procedures such as those developed and used by WHO for its guidelines on household energy, drinking water and outdoor and indoor air quality. This includes guidance to anticipate the health benefits and risks from specific city planning measures and investments. Examples include:

- Guidelines for healthy housing currently being developed by the WHO, and which should be available in 2017 *(54)*.
- Recommendations from health care workers to patients and communities about how they can avoid risks to health in the urban setting. The WHO guide "Making cities smoke-free", for example, offers practical guidance to help local government officials prepare and implement

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BOX 13

India – National Policy

National governments have an important role to play in supporting urban health. India recently launched its National Urban Health Mission to improve access to essential primary health care services and reduce treatment expenses for the poor. The programme will cover about 800 cities with populations greater than 50 000 – covering more than 200 million people, 77.5 million of whom are poor. Meanwhile, India's Ministry of Health and Family Welfare (MWFW) has also recently proposed a new integrated framework for managing air pollution that prioritizes tracking people's actual exposure to dangerous pollutants. The MHFW approach also calls for cross-sector coordination across government agencies, with leadership from the health ministry, to address both household and outdoor sources of air pollution in urban and rural areas.

Sources:

Global report on urban health: equitable, healthier cities for sustainable development. World Health Organization and UN-Habitat: Geneva; 2016.

Sagar AD, et al, "India leads the way: A health-centered strategy for air pollution", Environ Health Perspect 124(7): A116–117.

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legislation to make public spaces and workplaces free smoke-free *(55)*.

- Targeted advice to urban governments and stakeholders on a wide range of urban policy options, from housing to energy to waste management *(4, 8)*.

Frameworks such as the WHO "Health in All Policies" (HiAP) provide a vehicle by which health and health equity concerns can be considered and embedded into policy and decision-making processes across all city government departments, from transport to energy to housing and agriculture *(56)*.

3. Assessment of the costs and health impacts of urban policies and decisions

The health sector can provide tools ranging from a simple scoping on the wider determinants of health using a rapid and participatory approach, to a full-blown expert health impact assessment – including assessment of health equity impacts *(57)* – with an evidence review. These can help decision-makers apply a "health lens" to the costs and benefits of urban policy options that is as wide or as sharp as needed. Some of these tools are explained below.

- Health risk assessment methods and tools can be used to estimate the health impacts of policies already in place, enabling identification of current impacts and potential savings from policy changes *(58)*. One example is AirQ+, a

software tool developed by WHO Europe that quantifies the health effects of exposure to air pollution, including estimates of reduction in life expectancy, and the effects of both short-term changes in air pollution and long-term exposure.

- Health impact assessment (HIA) methods and tools predict the expected health impacts of the policy options under consideration, facilitating planning and community engagement *(59)*.
- Analyses of the costs of inaction related to public policies on health and health systems can be made using existing cost–benefit analysis and cost-effectiveness analysis methods, drawing on large databases on health services

costs. An example is the Health Economic Assessment Tool (HEAT), which can be used when planning new cycling and walking infrastructure to assess the health benefits by estimating the value of reduced mortality *(60)*.

4. Monitoring and tracking health impacts of sector-based policies in cities

The health sector should play a central role in documenting and reporting on key health gains, benefits and costs of urban development initiatives and infrastructure investments. Some of the relevant tools and processes are described below.

- The health sector collects information on indicators and statistics on health outcomes, such as the number of deaths, diseases and disabilities occurring in urban populations over given time periods. Data on the frequency and distribution of risk factors among populations (e.g. air pollution, tobacco smoke, unhealthy diets, fuels and technology used to provide household energy, and drinking water quality) are gathered. More than 900 such databases are contained in the WHO Global Health Observatory, which include indicators on health outcomes, health determinants, and service coverage, and 75 country profiles on urban health *(61)*.

BOX 14

Health in Urban Policies – Thailand, Tennessee and Washington, D.C.

Thailand: In 2000, Thailand launched a reform of its national health system, advocating the development of healthy public policy by injecting health concerns into non-health sectors. Health impact assessments were the tool used to facilitate intersectoral collaborations. These assessments became mandatory at all levels of government. Their use has helped combat the increasing number of health problems caused by air pollution, pesticide contamination, coal-fired power plants and other environmental hazards.

Nashville, Tennessee: The Nashville Metropolitan Planning Organization adopted health-based scoring criteria to guide selection of transportation projects for funding, resulting in a marked increase in the number of projects that included provisions for cyclists or pedestrians.

Washington, D.C.: In Washington, health mainstreaming is used to facilitate implementation of the city's sustainability plan, which contains provisions to improve health through better access to parks, addressing food insecurity and access to nutritious foods, and increasing access to safe and affordable housing for low-income residents. A multiagency taskforce coordinates across agencies to embed practices to improve health.

Sources:

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- There is rich experience with use of these indicators in local health observatories *(62)*, such as the urban health observatories for health equity *(63)*.
- Experience has also been gained with tools for monitoring health equity, such as the WHO Urban Heart tool, which also serves to facilitate community engagement around urban health issues *(64)*.
- These databases and other relevant city-level health indicators can be linked to existing frameworks for monitoring sector-based urban policies, as well as with indicators for the SDGs. Several of those linkages already exist and are reflected in the present SDG indicators set, including for air pollution (SDGs 3 and 11), water and sanitation (SDG 6), food and nutrition (SDG 2), energy (SDG 7), and decent work (SDG 8).
- Harnessing existing local health indicators to augment the information available on these cross-cutting connections can inform urban policies that protect citizens' health and well-being. Local capacity-strengthening tools are being further developed and tested as part of an Urban Health Initiative *(65),* and include HIAs and scenarios, costs of inaction and better use of local information for local policy-making. The results and analyses of indicators are presented in ways that connect with key urban audiences and with sector-specific decision frameworks. The results are communicated in the context of local decision-making.

5. Health sector community engagement and advocacy

The health sector can provide leadership for healthier urban development, drawing on training in gathering rigorous evidence on health, and using it to inform effective advocacy. Health sector professionals know about the importance of operating at a population level, as well as at the individual level.

Lessons learned from past successful public health campaigns (e.g. to expand vaccine coverage, "roll back" malaria, combat smoking and interrupt transmission of HIV/AIDS) have not yet been applied to engage governments and individuals and to provide compelling messages about what makes a city healthy.

This constitutes a missed opportunity – one that could be addressed by the formal establishment of such a consultative function in the context of the implementation of the New Urban Agenda, perhaps in the shape of Urban Health Observatories.

This could strengthen the capacity for communicating the urban policies that can help prevent modern pandemics, such as NCDs caused by air pollution, sedentary lifestyles and unhealthy foods, and address traffic injuries. The health sector can play a role in building public demand for sustainable urban policies that improve health, and it can help demonstrate results using health indicators.

Such conversations must involve a wide range of actors: health care providers who work with individual patients, and at the community or neighbourhood level; public health departments at the national, regional and urban levels; academic and research institutions; nonprofit and civic institutions; grassroots community organizations; government agencies; health insurers; utilities, investors, developers and other business interests.

Strategic amplification of evidence-based messages through social and mainstream media, to raise public awareness and engage public opinion on the linkages between health and specific urban infrastructure investments, spatial planning and other urban policy issues, can convey messages of urgency as well as hope, and can help establish broad support for inclusive approaches to facing challenges such as:

- access to quality common space, urban ecosystems, transport and housing
- escalating health care costs for both households and city governments

- addressing public security and safety to reduce injuries and violence
- spatial planning and its links to obesity, under-nutrition, access to healthy foods and food security in cities
- sources of air pollution, exposure and the related disease burden
- climate change related health impacts and benefits from action to mitigate climate change
- work-related impacts on health, especially on women and youth labouring in the informal sector.

For example, the WHO-led BreatheLife campaign aims to promote reductions in urban air pollution that benefit health as well as climate mitigation. The campaign is using videos and infographics to reach a wider audience, including youth, with

BREATHELIFE
Clean Air. Healthy Future.

familiar yet technically reliable visual aids, to help make the links between health impacts and complex air pollution data more understandable *(66)*.

The campaign is backed by WHO technical commitments to strengthen health sector leadership in support of solutions in transport, energy, agriculture, waste and other key sectors that reduce air pollution and improve health. The campaign is intended to act as an "accelerator" of local cities' campaigns and commitments to "Breathe Life" into their own cities, and set targets for reaching WHO air quality goals – while improving health and reducing emissions of harmful pollutants.

5. Capacity building to respond effectively to the needs of the New Urban Agenda

The burden of action does not fall on urban decision-makers alone. The successful implementation of a New Urban Agenda that delivers on health and wellbeing will place unique demands and expectations on those working in the health sector.

The health system needs to invest in its capacity to address the city as an instrument of public health, and to lead cross-sectoral policy interventions to obtain the maximum health gains for city dwellers. This involves further developing skills and standard operating procedures to make these functions more accessible to local authorities.

This capacity should build on the experience of the WHO Healthy Cities initiative, which began in Europe in the mid-1980s, and today includes regional networks in other parts of the world. It is a framework for coordination and community engagement that shows the benefits of applying a "health lens" to urban development.

The experience of hundreds of cities and towns over many years offers a wealth of knowledge about how to practice inter-sectoral cooperation, engage communities, and develop and adopt healthy public policies *(67)*.

Such frameworks can be updated and adapted to respond more directly to the planning challenges posed by rapidly developing cities. Some of the functions to be strengthened and more widely leveraged include:
- capacity for undertaking scenario analyses involving health impacts and the costs and benefits of policy decisions
- capacity for communicating with different stakeholders and interest groups
- establishing Urban Health Observatories and capacity for longer-term engagement of health actors in contributing to the development and adoption of healthier sector-specific policies in urban areas.

6. Environmentally responsible health care

The health sector can adopt a wide range of environmentally responsible practices when offering its health care and prevention services *(68)* and help protect and promote health through those practices.

As a major employer, the health sector can foster healthier workplaces by siting major hospitals along high-quality public transit routes, complemented by footpaths and bicycle routes, and by prioritizing neighbourhood primary clinics that are accessible on foot and by bicycle.

Health care providers can adopt medical technologies that use direct current and solar lighting *(69)*. There are many good models of international practice in greening the health sector *(70)*. Other priorities are to:

- prevent, reduce and otherwise produce less waste in the health care sector, and increase recycling programmes
- reduce energy and water usage
- build, renovate and purchase in accordance with environmentally responsible criteria (e.g. adopt sustainable building practices and include natural lighting and ventilation in health care buildings)
- engage the health community on environmental sustainability in the design, construction, and operations of health care premises
- phase out hazardous substances and toxic chemicals.

Families play in Central Park, a large urban park in New York City. (Credit: Barry Solow/Flickr)

V Conclusion

At its core, the New Urban Agenda is about creating the conditions for urban residents to lead healthier, safer and more fulfilling lives.

In pursuit of this objective, the New Urban Agenda should not stop merely at reducing health risk factors. Rather, it should unlock the full potential of the urban environment to enable city dwellers to lead healthy lives as they live, learn, work, play and interact in their city.

The physical and social structures of cities – including their governance structures – are instruments for improving public health and wellbeing. Those structures must be revamped and updated to engage the health sector more meaningfully, and leverage its unique tools and strengths.

Health sector actors can provide the relevant evidence, know-how and guidance on good practices to inform and shape healthy urban planning for the 21st century. WHO is poised to help cities around the world embrace a systems approach to their interlinked environmental, economic and health challenges, supporting coordination between sectors and across the governance, finance, planning and outreach processes.

By embracing the possibilities offered by this new urban health policy agenda, the New Urban Agenda can help cities both set and achieve their environmental, social equity and economic goals, in addition to improving the health and wellbeing of their most important "asset" – their citizens.

For decision-makers who apply a focused but flexible "health lens" to the New Urban Agenda, new opportunities – and cost-effective, inclusive ways of taking advantage of them – will come into sharp focus.

And with the coordinated effort and concrete actions outlined above, the vision of sustainable, inclusive, economically vibrant cities for all is far more likely to become a reality between now and Habitat IV.

Expanded acknowledgements

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Abbreviations

AFR	WHO African Region
AMR	WHO Region of the Americas
AQG	air quality guidelines
BRT	bus rapid transit
CBA	cost–benefit analysis
CCAC	Climate and Clean Air Coalition
CEA	cost-effectiveness analysis
CFL	compact fluorescent light
COPD	chronic obstructive pulmonary disease
EMR	WHO Eastern Mediterranean Region
EUR	WHO European Region
GHG	greenhouse gas
HEAT	Health Economic Assessment Tool

HIA	health impact assessment
HiAP	Health in All Policies
IDRC	International Development Research Centre
ILO	International Labour Organization
LED	light-emitting diodes
MDG	Millennium Development Goals
NCD	noncommunicable diseases
NUA	New Urban Agenda
SDG	Sustainable Development Goals
SEAR	WHO South-East Asia Region
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WPR	WHO Western Pacific Region

The most important asset of any city is the health of its citizens. The success of the New Urban Agenda will hinge on a clear understanding of how urban policies can foster good health, and how a vision for healthy, safe, inclusive and equitable cities can act as a driver of local sustainable development. Health is the vital sign – the "pulse" – of the New Urban Agenda.

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