

Compendium of Inspiring Practices:

HEALTH EDITION

International Guidelines on Urban and Territorial Planning

Compendium of Inspiring Practices: Health Edition

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Summary

The need for simple, universally agreed principles to guide actors and decision-makers involved in the planning of towns and cities led to the International Guidelines on Urban and Territorial Planning being approved by UN-Habitat's Governing Council in 2015.

These Guidelines provide a global reference framework for improving policies, plans, designs and implementation processes that will lead to more compact, socially inclusive, better-integrated and connected cities and territories that foster sustainable urban development and are resilient to climate change. They consist of 12 key principles and 114 action-oriented recommendations targeted at four stakeholder groups: national governments, local authorities, planning professionals and their associations, and civil society and its organizations.

The evidence and lessons learned in relation to the Guidelines from various regions and contexts were documented in the publication IG-UTP: Towards a Compendium of Inspiring Practices. That document is intended to be of use to the global IG-UTP network and relevant planning constituencies.

This second collection of case studies, the ***Compendium of Inspiring Practices: Health Edition***, showcases 20 urban and territorial planning projects that positively and explicitly contribute to human health through the improvement of the built and natural environment. It is the result of an open call for case studies by UN-Habitat in mid-2018.

Four key lessons about planning and its relationship with the health of people can be learned from the cases here.

- 1) Close collaboration between health practitioners and urban and territorial planners is a key element of successful spatial development. Collaboration as a process is not only a methodology to bring together two or more parties for engagement and participation; it is also a learning tool that involves intellectual exchange and cross-fertilization of ideas from different perspectives.
- 2) Several layers of stakeholders being involved, from neighbourhood residents to local government officials, creates the advantages of ownership and involvement, among other things.
- 3) Putting health at the centre of any planning and letting it lead the process ensures health benefits are an outcome.
- 4) Putting health practices into urban policy is an effective way to improve and strengthen government systems that are aimed at achieving better health.

This edition focuses on 20 stories from countries around the world that highlight different issues as well as the approaches taken to resolve these issues or manage their associated health problems and the innovative features of each case. The stories are all very different from each other and are drawn from a wide range of countries that have different levels of development and therefore different concerns.

Introduction

Background

Different approaches to planning have been tested and implemented worldwide. While these diverse efforts provide valuable lessons to learn from, there is still a need for simple, universally agreed principles that can guide actors and decision-makers towards common goals. The International Guidelines on Urban and Territorial Planning (IG-UTP or Guidelines), approved in 2015 by UN-Habitat's Governing Council under Resolution 25/6, fill this critical gap by providing a global reference framework for improving policies, plans, designs and implementation processes that will lead to more **compact**, socially **inclusive**, better **integrated** and **connected** cities and territories that foster sustainable urban development and are **resilient** to climate change. The IG-UTP complement two other sets of guidelines adopted by the Governing Council: The International Guidelines on Decentralization and the Strengthening of Local Authorities (2007) and Access to Basic Services for All (2009).

The Guidelines were based on strong evidence and lessons learned from various regions and contexts as documented in the IG-UTP: Towards a Compendium of Inspiring Practices. They consist of 12 key principles and 114 action-oriented recommendations targeted at four stakeholder groups, namely national governments, local authorities, planning professionals and their associations, and civil society and its organizations.

Today, the IG-UTP are being used and implemented in selected cities and countries as a critical instrument for the implementation of the New Urban Agenda. Paragraph 93 explicitly acknowledges the IG-UTP as a key mechanism for its effective implementation in cities and territories. Considering the New Urban Agenda advocates for a re-invention of planning through more people-centred and integrated practices, the Guidelines represent an enabling mechanism towards this paradigm shift by bringing together actors from a diversity of sectors and different governance levels to the planning table to address key territorial and thematic issues. One example of such thematic approaches is the area of urban physical and mental health.

Resolution 25/4 of the Governing Council requested UN-Habitat "to consider health and well-being aspects, including the promotion of and access to health services, in developing policies on urban and territorial planning and human settlements". With the support of the Government of Norway, UN-Habitat, in collaboration with the World Health Organization (WHO), is working on implementing the Guidelines to generate health benefits for people through the improvement of the built and natural environment. This

will be achieved by enhancing the knowledge and building the technical capacities of actors and decision-makers in using urban and territorial planning as a tool to make cities centres for health and wellbeing. Within this initiative, the collection of inspiring practices will act as an instrument to raise awareness and build evidence, encouraging them to adopt and locally implement the Guidelines.

About the Compendium

The IG-UTP Compendium of Inspiring Practices is an ongoing and open initiative at UN-Habitat for which new experiences are constantly collected to document and share with the global IG-UTP network and relevant planning constituencies. The first IG-UTP: Towards a Compendium of Inspiring Practices is a collection of 26 experiences in urban and territorial planning that provides inventive, ambitious and unique cases that address common issues of urban and territorial development worldwide. The objective of the compendium is to support and illustrate, through an evidence base, the conditions for and benefits of applying the key principles included in the Guidelines.

This second release, the IG-UTP Compendium of Inspiring Practices: Health Edition, is a showcase of urban and territorial planning examples that positively and explicitly contribute to human health through the improvement of the built and natural environment. This sample of 20 international experiences from all regions of the world was developed with the submissions from an open call for case studies made by UN-Habitat in mid-2018.

Covering planning topics such as developing public space, mobility, greening strategies and food security among others, the cases demonstrate the inherent relationship between planning and public health at different spatial levels: supranational and transboundary, national, metropolitan and city-region, city and municipal, and neighbourhood levels. "Few architects, planners and engineers are aware of the health consequences of their technical choices, and similarly, few health officials re-informed of the potential impact of human settlements related interventions on community health." ¹

Hence, this compendium is intended for representatives of national governments and local authorities, planning and public health professionals, and civil society members in order to renew this awareness between planning, public health and interlinked sectors, and encourage them to work in close collaboration – in the multi-stakeholder spirit of the IG-UTP – in order to place health at the "heart" of sustainable urban development.

1 Human Settlements Interventions addressing crowding and health issues, Nairobi 1995

Scope and Methodology

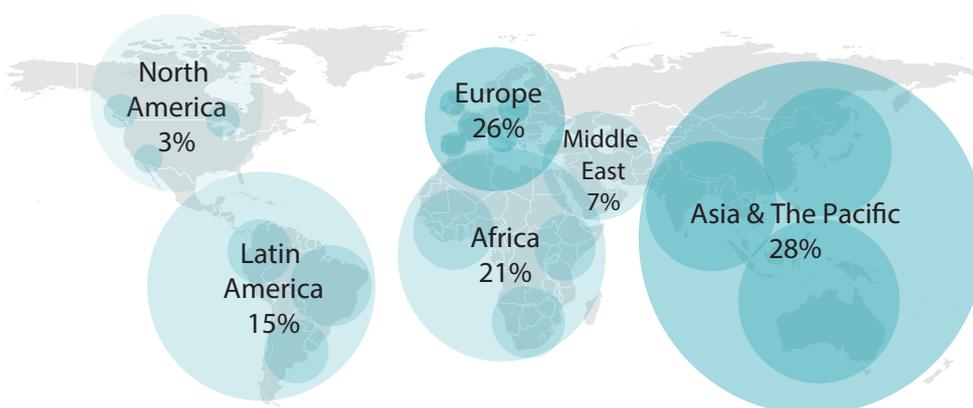
The database urban and territorial planning cases started in 2014 as part of the formulation process of the Guidelines. Nowadays, the database continues to expand, not only growing in number but also in thematic areas, with the Health Edition being the first example of this.

Beginning with a desk review and using the IG-UTP as the reference framework for the selection of case studies, a set of criteria was established to guide the collection and evaluation of case studies. Essential criteria included experiences with integrating planning and health, illustrations of strategic planning impacting multiple scales, health considerations in all phases of urban and territorial planning (i.e. not just an input or an output) and the concrete impacts of urban and territorial planning on human and environmental health.

The collection of cases on urban and territorial planning for health was made possible through an open call for case studies by UN-Habitat in collaboration with WHO, specifically directed to planning and public health actors who had formulated or implemented a planning intervention that targeted an urban health issue or that consequently contributed to the improvement of people's health in urban areas.

Finally, the inspiring cases were required to be **geographically balanced** to highlight the importance of context in urban and territorial planning, and **thematically linked to the five qualifiers of sustainable urban development** set forth by UN-Habitat: more compact, inclusive, integrated, connected and climate resilient cities and territories, **and urban health issues outlined in Health as the Pulse of the New Urban Agenda**.

Geographic Region



The Way Forward

The Compendium of Inspiring Practices: Health Edition is the second collection of case studies for the International Guidelines on Urban and Territorial Planning (IGUTP). In line with the work of the first compendium, the Health Edition is intended to function as a knowledge- and experience-sharing tool for national governments, local authorities, planning and public health professionals and civil society organizations. It is designed to illustrate how health issues can be considered at different spatial planning levels and in various types of initiatives and supports the implementation of the IG-UTP from a thematic perspective.

The collection of inspiring practices is part of ongoing work at UN-Habitat for which cases are constantly collected to document and share with the global IG-UTP network and relevant constituencies. The publication of the selected 20 cases is thus the first step, which will be followed by dissemination and the development of an online database of inspiring practices facilitated by UN-Habitat. In addition, this Health Edition is meant to serve as a reference for the development of tools, handbooks and other relevant

materials to assist actors and decision-makers in the use of urban and territorial planning as a channel to improve the built environment and benefit human health. Ultimately, it is expected that the compendium also works as a knowledge base to motivate the inclusion of health into urban policies and city strategies.

By exploring the relationship between health and urban and territorial planning, opportunities have been opened up to facilitate more integrated planning practices and strengthen both the health and planning disciplines. UN-Habitat may be called on to support countries, regions and cities to apply the IG-UTP when reviewing their urban and territorial planning frameworks and to improve planning systems through a health "lens". It is also proposed that the work of the compendium motivates other actors in the United Nations system, national and local governments, non-governmental organizations, professional associations and other UN-Habitat agenda partners to take action to improve human and environmental health.

Key Lessons Learned

The variety of cases – across different geographical locations, spatial scales, types of intervention and governance levels – showcases a wide range of challenges and findings that ultimately provide opportunities for learning lessons. The multiple themes and issues are cross-cutting and reflect common conclusions, paving the way for **four key lessons: (1) The need for collaboration between health professionals and urban and territorial planners; (2) The power of multi-stakeholder integration at different levels in one project; (3) The positive outcomes from putting “health at the centre” of planning; and (4) Mainstreaming health in urban policies.** These lessons can be applied at all planning levels, scales and locations, which has been demonstrated by the overall experiences (challenges and achievements) and processes implemented in the different projects.

Collaboration between health professionals and urban & territorial planners

Close collaboration between planning and other disciplines is a central element of successful spatial development. The consideration of human and environmental health in the formulation of planning initiatives (projects, strategies, policies, research or others) and their implementation therefore requires a joint effort between health practitioners and urban and territorial planners. The importance of this collaboration is described in the cases as being essential but, at the same time, is also perceived as a challenge due to the different approaches used by the parties involved in each initiative.

Collaboration as a process is not only a methodology to bring together two or more parties for engagement and participation, but it is also a learning tool that involves knowledge exchange and cross-fertilization of ideas from different angles. The case study **Planning for Health and Wellbeing in the United Kingdom** describes collaboration as a both a challenge, considering the difficulties faced throughout the engagement, and a solution: “...understanding the language and terminology used by the different organizations and professions [...] was partly resolved following the provision of a joint training and by each partner being willing to learn and to listen”. In the case of the **Spatial Liveability Assessment in Australia**, the challenges that emerge from a proactive collaboration are also described: “One of the challenges of working with a number of local governments has been the socio-political and individual differences and characteristics of their organizational and community environments”.

Therefore, the power of the collaboration between planners and health practitioners is demonstrated in the results of these activities and targeted from the beginning when setting goals. In the **Urban Environment and Health Programme in Spain**, the importance of activating this collaboration during the programme’s inception is stated: “The main impact we seek is to change our way of planning cities, by incorporating the health perspective and attaining healthier cities.” Bringing

public health voices into territorial and spatial decision-making processes can thus inspire successful collaborations and bring about positive results for the improvement of health in urban areas.

Multi-stakeholder integration at different levels

Significant advantages for improving urban health are generated when many levels of stakeholders are involved through integrated planning initiatives. This inclusion of different actors in spatial planning processes improves the process itself while generating wider urban outcomes. The case study of **Sanergy in Kenya** illustrates how the results of a neighbourhood-level intervention had an impact at the policy level through multi-level action: “*Sanergy has built an impressive track record with the Government of Kenya, working hand-in-hand with the Kenyan ministries of health and the environment to launch the Kenya Environmental Sanitation and Hygiene (KESH) policy (2016-2030).*”

In the cases of the **Participatory Design Process in Hong Kong**, the **PolimaraRocinha in Brazil** and the **Air Quality Management Plan in Arrubá Valley, Colombia**, the need for and benefits obtained from this integration of governance levels are explained: “*It has been widely recognized that a waste management system is more likely to be successful if an elevated level of engagement of the community is reached*” (PolimaraRocinha, Brazil). Likewise, this collaboration is identified as an important metric for the achievement of a project’s goals: “*... close articulation between the different entities of the state involved in the process was carried out in order to succeed*” (Air Quality Management plan in Arrubá Valley, Colombia).

Reaching a proactive engagement on behalf of stakeholders working at different levels is also recognized as a challenge. Still, the case study **Neighbourhood Upgrading in South Africa** demonstrates a successful collaboration through “*inclusive innovation by engaging stakeholders in every step of the way through participatory planning processes. By ensuring that all stakeholders are brought on board from the start, ownership of the process is more likely to happen*”. Thus, different snapshots of processes, methodologies, tools and activities to strengthen multi-stakeholder involvement in spatial planning are exemplified throughout the cases.

Health at the centre of urban & territorial planning

It is widely recognized that good planning practices can have positive benefits for human and environmental health. In practice, however, health is often taken for granted and treated as an expected outcome and not as part of the process, resulting in risks to attaining the foreseen health objectives. By placing health at the centre of planning from the beginning and leading the planning process, health can be dealt with as both a planning input and outcome.

The approach of health as a driver of urban and territorial planning has not yet been thoroughly explored and implemented. Still, the set of inspiring practices suggests an increasing international momentum towards considering this approach and, at a more individual level, the case studies illustrate the use of this approach on the ground, as in the **Sundarban Village Rural Development Initiative in Bangladesh**.

Dealing with health from the onset requires urban health data for diagnosis, project formulation and implementation, and monitoring progress. However, the cases emphasize the difficulties that may arise in the collection and analysis of health-specific data due to the complexity of understanding health determinants in urban areas, both quantitatively and qualitatively. The **Urban Health and Community Resilience Initiative in India** describes how “data gaps at the city level make it challenging to correlate results across scales: from neighbourhood to city and regional scales”. In **Ruwais UN-Planned in the Kingdom of Saudi Arabia**, the need for reliable qualitative data to understand real community needs is underlined, while the **Walkability Score in Belgium** focuses on the use of spatial data.

Mainstreaming health in urban policies

The inclusion of health in urban policies is an effective channel for improving and strengthening urban governance systems with a view to achieving better urban health, as mentioned in the case **Creating a Context Built Environmental Assessment in Nigeria**: “Governance was identified as a priority area for urban health interventions.”

The need for integrated urban policies is emphasized in several case studies, such as the **Urban Renewal in the City Centre of Jerusalem, Israel**, which showcases how policies and projects are interlinked and how synchronized implementation generates stronger benefits. The **Urban Environment and Health Programme in Spain** considers policies as a tool to improve human settlements and consequently human health: “Implement the Health in All Policies strategy in the planning and design of urban settlements, promote environments that encourage the population to live in a healthy way and minimize those environmental factors that can be a health risk to their inhabitants.”

In order to mainstream health into urban policies and political agendas, all the previous lessons need to be considered – close collaboration between planners and health practitioners, integrating stakeholders across levels, and putting health at the centre of initiatives – as key elements for effective policy formulation and implementation. Moreover, effective urban policies need a long-term trajectory and commitment. Often policy processes may encounter barriers for implementation, as in the case of **Planning Healthy Weight Environments in the United Kingdom**: “For a plan-led planning system, developing robust policies is a necessary prerequisite to helping create healthy weight environments but there are barriers as to whether they actually get implemented and monitored.” Therefore, urban policy implementation for the improvement of health needs to be supported through a high level of commitment on behalf of relevant actors and decision-makers, reliable and accessible data, and human-centred planning processes, tools and resources.

Key facts about the Call for Case Studies

The open call for case studies was made in May 2018 and UN-Habitat received more than 70 case studies from around the world (Figure 1) which described urban and territorial planning interventions – at multiple scales – that aimed for or achieved positive impacts on human health. The collection of cases is thus diverse and serves as a basis for inspiring future action for the improvement of health. The case studies database is comprised of a variety of interventions (Figure 2) occurring at different planning levels (Figure 3) and with the participation of multiple stakeholder groups (Figure 4). From a thematic perspective, the cases range from food systems strategies to housing, transport and urban planning initiatives, among others (Figure 5), that address or focus on a wide variety of health issues or challenges (Figure 6). This diversity highlights the importance of and available opportunities for the consideration of health challenges in urban and territorial planning.

Types of Interventions

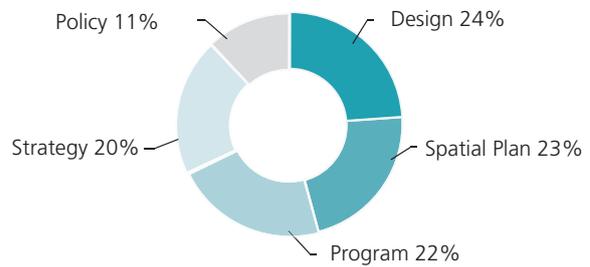


Figure 2 - Types of interventions

Planning Level of the Intervention

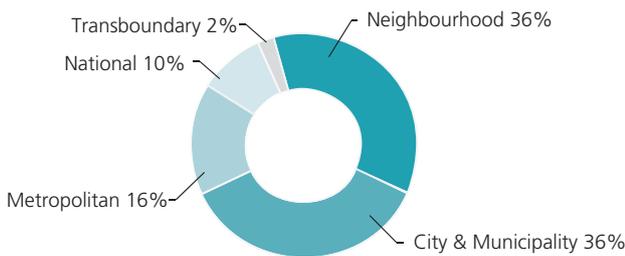


Figure 3 - Planning level of the intervention

Stakeholder Groups Involved

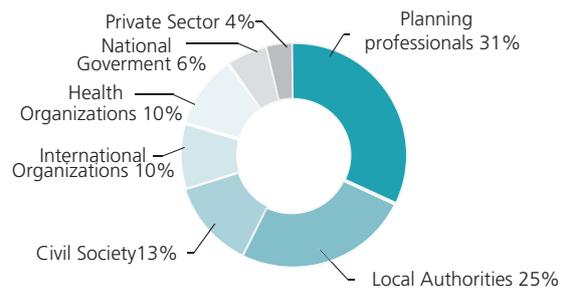


Figure 4 - Stakeholder groups involved

Areas of Intervention

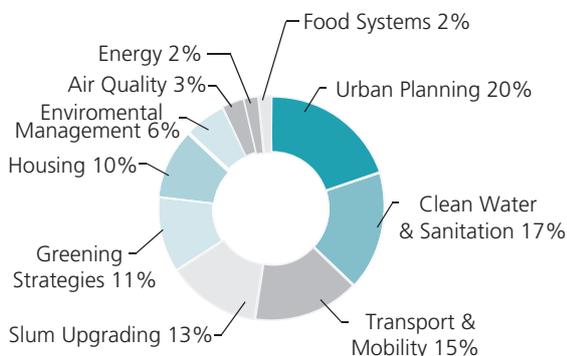


Figure 5 - Areas of intervention

Main Health Issue/Challenge Addressed

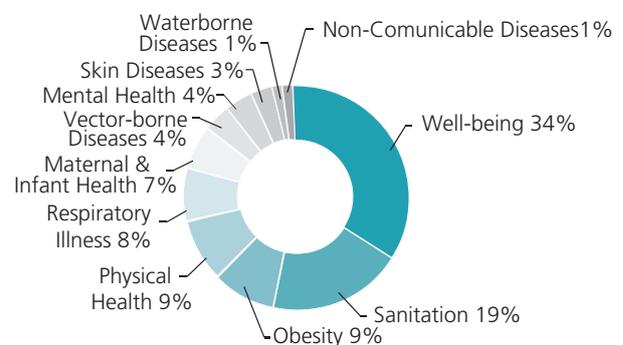
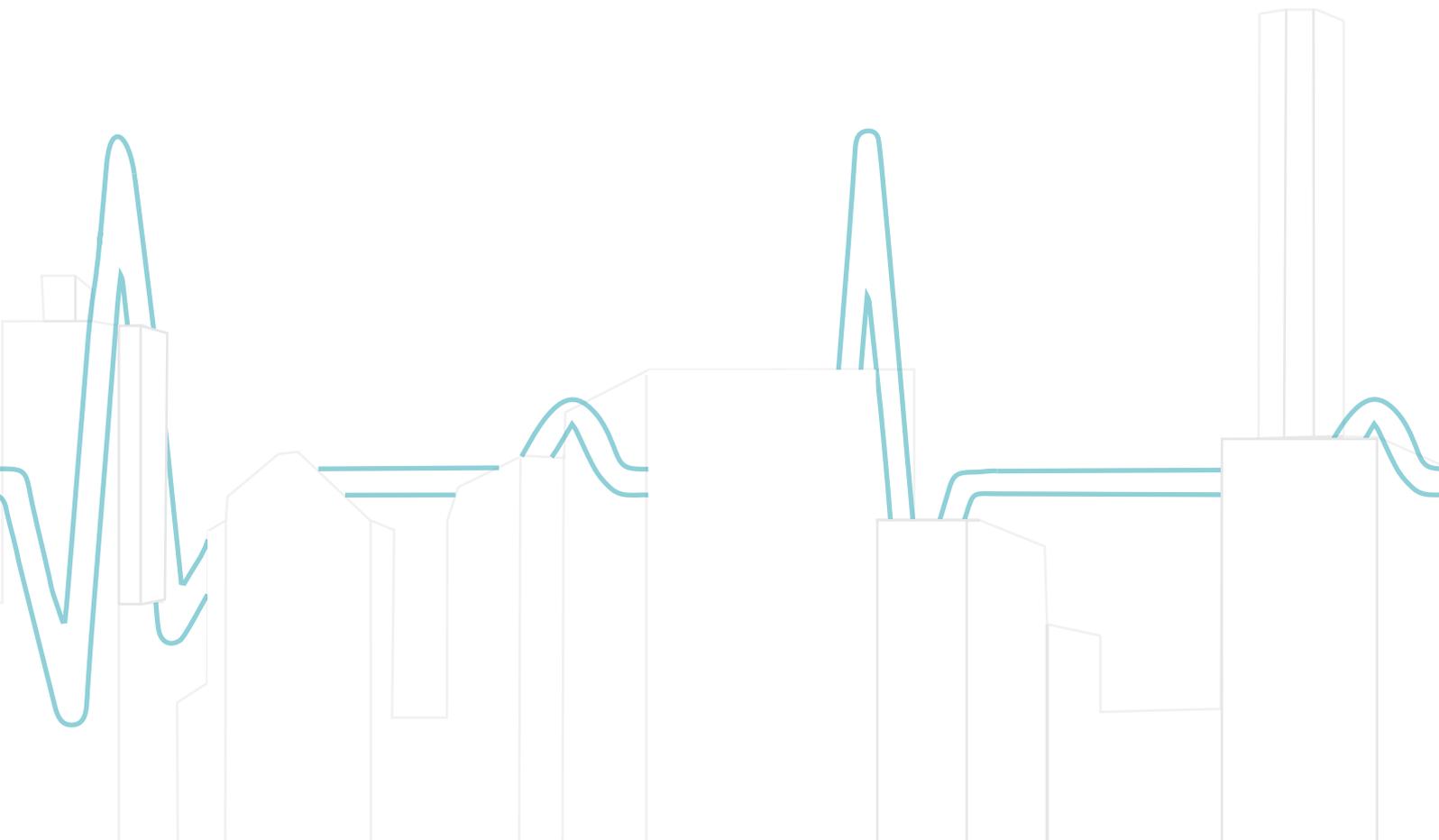
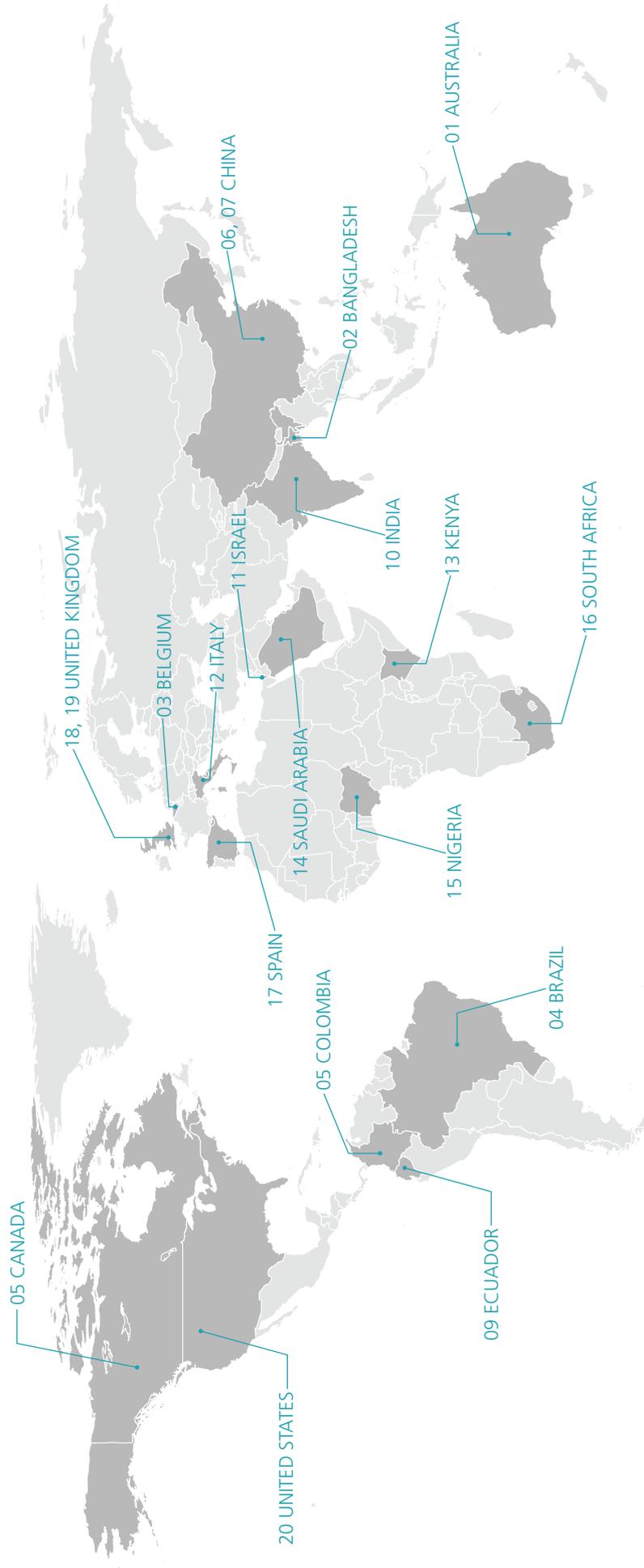


Figure 6 - Main health issue/challenge addressed

Sample of 20 Case Studies



Geographical distribution of the selected cases



USING NEIGHBOURHOOD SPATIAL LIVEABILITY ASSESSMENTS TO SUPPORT EVIDENCE-BASED URBAN HEALTH

About the Case**Health issue:** Wellness**Type of intervention:** Design, spatial plan, policy and strategy**Spatial Level:** City / municipal, neighbourhood**Key focus areas:** Liveability, social determinants of health and evidence-based policy and planning

Australia is currently experiencing rapidly rising populations in urban areas, with more than 80 per cent of the country's population living in sprawling capital cities. Growing populations and inequity are associated with housing affordability issues in well-serviced inner cities, increased traffic congestion and longer commuting times, as well as increasingly sedentary lifestyles and rising non-communicable disease rates. Yet these are not the only issues experienced in capital cities in Australia. Each day, more and more people are being economically forced to move to regional towns and cities or are choosing to move there to escape a busy city life. Most of the existing research into liveability and the use of liveability indicators is city-centric and focused on large urban areas, while little attention has been given to understanding regional liveability, strategic urban planning or health planning. In preparation for increasing populations in regional areas, a deeper understanding of their liveability is needed to plan healthy and liveable regional areas for the future.

Liveability assessments have already been completed in a number of regional municipalities and many others are planning assessments for late 2018. All partners that have been involved in this growing initiative now have a broad understanding of health and an appreciation of the importance of health's social determinants. Key contacts in municipalities have also been receptive to new methods to form stronger collaborations in the often-siloed portfolios of local government, to engage in evidence-based conversation with councillors, and to use spatial indicators as communication tools within local community engagement activities. The

representation of social determinants as liveability indicators on coloured or choropleth maps has proved to be a useful communication tool. The maps have been easy to understand and interpret for most people, regardless of whether the information is being presented to government representatives or at community forums in regional areas.

The liveability assessments have been developed to assist local governments with their planning needs and required legislation. The assessments are designed to inform whole council plans and health, strategic and statutory planning across partner local governments. They can be used to inform a plan and to evaluate the impact of planning and decision-making processes if completed as part of the planning cycle. They also provide a measurement of achievements made towards the Sustainable Development Goals by linking to the Australian National Performance Framework for Cities and, in the case of Victoria, to align with a number of outcomes of the state-wide Victorian Public Health and Well-being Plan 2015-2019.

A partnership approach was used involving all partners, and in close consultation with key members of staff to understand the liveability issues facing individual municipalities. Relevant stakeholders varied across municipalities, but most liveability assessments have been championed by health planners with a solid understanding of the importance of social determinants of health. The Victorian Department of Health and Human Services has been a valuable supporter of the assessments and brokered many introductions to interested local governments in Victoria. In the state of Tasmania, interest has been developed through the Local Government Association and Department of Health, while the Local Health District has led involvement in New South Wales. These key figures have brought a range of people together to collaborative on the relevant indicators for inclusion in a liveability assessment which is, in the end, informed and developed according to the needs of the local community context.

“

A partnership approach was used involving all partners and in close consultation with key members of staff to understand the liveability issues facing individual municipalities.

”

The spatial liveability assessments have been incorporated into municipal planning processes and all partner local governments that have been involved. The selection of indicators chosen for inclusion in the liveability assessments has required local governments to prioritize their council planning needs (strategic, council or health) and provided insights to state health departments on the connection (or sometimes disconnection) between local needs and state planning frameworks in regional areas. The liveability assessments have also proved to be useful community development tools; they have been used in public presentations and community engagement initiatives and have provided evidence to support further actions and strategies requested by community members. Sharing the spatial methodologies used to create neighbourhood level spatial liveability indicators has also been useful to increase the capacity of existing geographic information system resources within local governments.

One of the challenges of working with a number of local governments has been the socio-political and individual differences of organizational and community environments. The liveability assessments need to provide practical and useful indicators created from credible data sources that are linked to theory and existing policy and planning needs. However, in delivering results from the assessments, it is important to be respectful of each organization, their existing knowledge, the importance of local context and the social and political influences associated with future action. A dedicated qualitative research project will begin in late 2018 to gain perspectives from all key stakeholders about the benefits and limitations of the regional liveability assessments completed to date.

Key Words: [Liveability](#) | [indicators](#) | [strategic planning](#) | [health planning](#) | [social determinants of health](#) | [community planning](#) | [urban planning](#)



Melbourne, Australia © Dr. Melanie Davern

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About the Case**Health issue:** Sanitation**Type of intervention:** Design, spatial plan, strategy**Spatial Level:** Rural**Key focus areas:** Sanitation, low-cost housing upgrade, environmental awareness

Sundarban village is located in Dinajpur in the far north-west of Bangladesh. It has an estimated population of 30,000 inhabitants, of whom 40 per cent are landless workers. The economy of this rural area is based primarily on agriculture, which translates into an homogenic spatial configuration, primarily composed of small hamlets surrounded by flat extensions of rice fields.

Localized flooding and strong winds affect the area, causing deaths, injuries and disease, the loss of livestock and food supplies, and damage to housing and infrastructure. This region is also in Bangladesh's highest earthquake-risk zone.

Most constructions in the village are self-built houses of mud and untreated bamboo with thatched roofs or corrugated metal sheets, which makes households extremely vulnerable to environmental hazards. The absence of adequate insulation and ventilation means people are exposed to extreme temperature changes; the dwellings are generally humid as they are rarely waterproofed.

One of the biggest problems in Sundarban is the lack of any sanitation infrastructure; only a third of the population has access to a toilet so people are forced to use open spaces to defecate and, in the most disadvantaged sector of the village, only 17 per cent of households have sanitation facilities. Almost no one in the village has a shower – less than 1 per cent of the housing units have one.

The poor facilities are mainly attributable to the lack of a comprehensive power supply, although 38 per cent of the population has access to intermittent electricity. These conditions are linked to poverty, high child mortality, poor nutrition and diseases such as typhoid, cholera, hepatitis, polio or trachoma, frequent worm infections and diarrhoea.

The *Sundarban Village Rural Development Initiative* aimed to raise awareness of the importance of sanitation, to reduce the practice of using outside spaces as toilets, and to improve construction techniques for affordable housing and latrines. The main strategies were:

- To install demonstration toilet designs, geographically spread and within walkable distances.
- To engage local labour and upskill the community with construction techniques, incentivizing people to build their own latrines.
- To facilitate community meetings and workshops to raise awareness of the importance of sanitation for health and the environment.

The project was implemented by SAFE-Bangladesh, a local NGO dedicated to improved low-cost housing and sanitation. The German Embassy in Dhaka provided funds within the Small-Scale Projects for Development and Cooperation scheme. The beneficiaries raised part of the funds and provided labour, fostering buy-in from the community, and SAFE arranged saving schemes to help families manage their finances. Global engineering firm Arup and the organizations Engineers Without Borders and RedR provided technical support, engineering and consultancy services.

Due to the lack of planning and regulation in the region, the project set up its own framework using international guidelines for development previously studied and implemented by the organizations and consultants involved.

The project started in January 2014 and in that year, five community meetings were held and an evaluation was done of plans designed previously by the organization Health Habitat.

The biggest challenges in the initial stages were a lack of baseline information and little understanding of strategy, vision, territorial impact or long-term planning. Identifying the beneficiaries for the demonstration prototypes was a complex process due to the similarity of needs and income of most families.

Sanitation and living conditions were mapped and surveyed to determine the existing needs and track progress. The importance of sanitation and safer, more resistant and durable structures was communicated through demonstrations, community meetings and workshops.



Due to the lack of planning and regulation in the region, the project set up its own framework using international guidelines for development previously studied and implemented by the organizations and consultants involved .



It took time to communicate to beneficiaries how to use and maintain the models. Workshops provided information on the implications of common practices such as open defecation, deforestation or the use of non-local materials among other things. The programme was reviewed in September 2014 and an implementation strategy, village mapping, surveys, a plan for evaluation and next stages were completed.

Several tree planting schemes and 30 workshops with communities were held during the three months that followed and designs were reviewed and implemented by January 2015. The first evaluation took place after the work was completed and the second evaluation was done six months later. Both had a positive impact on community sanitation. Further evaluations were scheduled to be done within five years of implementation. A long-term aim of this project is to develop an aspiration among the rural population for sanitation and safer housing by demonstrating affordable and accessible solutions across the region. This would reduce the practice of open defecation and promote sanitation techniques, tackle poverty and diseases, contribute to cleaner and healthier environments, and protect farmlands and natural areas.

Sanitation security reduces pathogen exposure, particularly for women, and access to toilets has an important impact on the shame, fear and suppression they suffer from the lack of privacy.

The improvements in housing further contribute to poverty alleviation by offering better living standards. The latest addition of a kitchen model aims to improve women's environments and, ultimately, to be a first step towards their empowerment and emancipation.

The implementation strategy allowed the intervention to cover half of Sundarban village's extension, having a meaningful and lasting impact on a population of 15,000 inhabitants, and directly aiding more than 300 beneficiaries with their immediate sanitation needs.

More affordable prototypes were designed and tested with successful results. Both structural and latrine models successfully developed the aspiration for sanitation and better housing standards. The construction stage engaged not only the beneficiaries but also the greater community, by demonstrating basic building techniques to all.

Key Words: [Basic services](#) | [sanitation](#) | [rural development](#) | [upgrading](#)



Dinajpur, Bangladesh. © Marta Postigo

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About the Case**Health issue:** Physical inactivity**Type of intervention:** Spatial plan, strategy, advocacy tool**Spatial Level:** National, city-region/metropolitan, city/municipal, neighbourhood**Key focus areas:** Transport and mobility, compact cities, public space, urban planning, physical activity

Despite the numerous health benefits of sport and exercise, many people do not achieve the targets set by public health guidelines on recommended levels of physical activity.

Studies worldwide have shown that living in highly walkable neighbourhoods is related to more physical activity. A highly walkable neighbourhood is characterized by high residential density, land-use mix diversity and street connectivity. Despite the advantages of neighbourhoods with a high walkability score, Flanders (northern region of Belgium) is characterized by a spread residential pattern with high levels of “ribbon development”, i.e. lower walkability scores. This is related to higher social costs, difficulties with the efficient supply of sewerage, higher costs for public transport and higher car dependency (resulting in lower physical activity levels).

However, very few practical tools are available to policymakers to assess neighbourhood walkability scores in order to prioritize neighbourhood environmental interventions. The objective of this project was to develop a practical and objective walkability scoring tool that can be used by (local) policymakers in Flanders. The targeted users are employees of local governments, including spatial planners, health promoters and politicians. The tool is part of a larger project on healthy public spaces which focuses on topics such as stimulating a healthy food environment and a healthy climate, and aims to discourage smoking, to reduce noise and air pollution and to promote physical activity.

The development and functions of the tools

The tool was developed by the Flemish Institute for Healthy Living and the Department of Environment and Spatial Development of Flanders. Its aim is to facilitate discussion about healthy public spaces across different policy domains (e.g. health, spatial and urban planning) and to stimulate local governments in the development of a more integral local health policy (i.e. Health in All Policies). The tool also aims

to provide support for local governments in making more evidence-based decisions on spatial planning and design. In the future, the addition of other relevant health indicators will be considered.

Based on the inputs from an urban planners and policy makers panel session, the prototype walkability score tool was developed using geographical information systems (GIS). This prototype was tested and adjusted based on feedback from focus groups with civil servants in five different municipalities of different scales. The final tool was launched in September 2018. The Flemish walkability score tool is the first European tool that maps and compares the objective walkability scores of neighbourhoods in a larger region.

With the tool, the walkability-score and its three different components (land-use mix diversity, street connectivity and residential density) can be viewed. There is also a function to compare different locations on their walkability-score as well as other relevant data layers (i.e. median annual household income, number of children and elderly) at statistical-sector level (statistical sectors are the smallest administrative units at which data are available in Flanders).

Local health networks personnel are being trained to disseminate information on the project to the local governments.

Aligned to other documents

The walkability score tool is aligned to other documents. Several cities and municipalities in Flanders focus on developing more compact cities and municipalities and the tool can support and provide evidence to initiatives which target these issues.

It is also in line with the *Strategic vision of the Spatial Policy Plan for Flanders* approved by the Government of Flanders. A key element of this plan is to encourage new spatial developments in nearby locations with several sustainable mobility nodes (e.g. public transport stops, bicycle infrastructure, etc.) and functions.

Healthy Municipalities

The Flemish Institute for Healthy Living has also developed the Healthy Municipality Project through which local health networks support local governments to work on a health policy. An important instrument of this project is the “healthy municipality matrix”. As an exercise, local governments complete these matrices with actions from their local health policy on different scales (e.g. targeting the individual and specific groups, the neighbourhood, the whole municipality and the regional scale) and with different strategies (education,

environmental interventions, agreements and regulations, care and coaching). According to “Healthy Municipality”, a good policy is a mix of actions at different scales and with different strategies. The walkability score tool can be situated mainly at the strategy level of environmental interventions. Besides the use of the tool, other strategies will be necessary to create healthy municipalities (e.g. education on the importance of healthy municipalities, rules and regulations to reduce motorized transport, etc.).

Guidelines in the tool

The tool can support local decision-making processes in an evidence-based manner. Depending on the walkability score of a neighbourhood, guidelines are provided for possible future developments in the neighbourhood.

For the lowest walkability scores (open space), it is generally advised that open space be kept that way and to make it accessible by public transport and for pedestrians and cyclists for (active) recreation.

If the walkability score of a neighbourhood is low to average and the neighbourhood is located far from the centre of the municipality, it is advised that this area is not further developed. However, if the neighbourhood is located near the centre or public transport, it can be valuable to further develop this area based on three walkability indicators (street connectivity, residential density and street connectivity). Nonetheless, decisions must always be dependent on the local context.

For neighbourhoods with the highest scores, it is advised that they are further developed in consideration of street connectivity, residential density and land-use mix diversity. However, it is important to develop these neighbourhoods in a sustainable and liveable way, so micro-factors should be accounted for; for example, to provide play facilities for children, well-maintained pedestrian and cycling infrastructure, and accessible greenspaces. Attention to social and traffic safety and vulnerable groups in these high-walkability neighbourhoods is necessary.

To gain more insight into contextual factors, additional data layers with information (e.g. on the annual income of different neighbourhoods) were provided, including data on the number of children and elderly.

The data, in combination with the walkability score, can help to define priority neighbourhoods in which interventions are strongly needed. For example, if there are two comparable neighbourhoods with a high walkability score but in the first the median annual household income is low, it is advised that the focus be on this neighbourhood as the potential health gains might be bigger there. Furthermore, by focusing on lower-income neighbourhoods, a reduction of the existing health gap between higher- and lower-income areas can be attained.



[The tool's] aim is to facilitate discussion about healthy public spaces across different policy domains (e.g. health and spatial planning) and to stimulate local governments to develop a more integral local health policy (i.e. 'Health in All Policies').



Challenges

In spite of these achievements, a few challenges were encountered during the testing phase of the tool. At a local policy level, it is not common practice yet to think across different policy domains. On the one hand, it is a challenge to stimulate local health promoters in thinking about the spatial design of neighbourhoods, while on the other, spatial planners are not used to thinking about health in their planning process. This tool can stimulate and support discussion and collaboration in different policy domains.

Another challenge is that the tool cannot provide general guidelines on the further development of the neighbourhood. The walkability score needs to be interpreted in relation to other important contextual factors (e.g. score relative to the municipality and Flanders, location in Flanders, public transport services, and others).

Micro-factors (such as the state of pedestrian paths, cycle paths, aesthetics of the neighbourhood, greenspace and others) are not currently taken into account in the walkability score. However, these factors are important in the promotion of physical activity, thus the need to stress these potential interventions in the broader project of “healthy public spaces”.

Based on the results so far, it is expected that increasing the walkability score of a neighbourhood will increase the physical activity levels of its residents. It is also expected that inhabitants of neighbourhoods with increased walkability scores will be less car dependent, which may result in healthier streets with reduced exhaust gases and less noise. People will have more social contact with each other due to more physical mobility and will have easier access to healthy food due to an increased land-use mix and diversity.

At the policy level, the tool could contribute to the principle of “health in all policies”. It can bring health promoters, urban planners and civil servants of different policy domains together to think about creating healthier neighbourhoods and will support more evidence-based decisions on spatial planning and design.

Key Words: [Walkability](#) | [residential density](#) | [land use mix diversity](#) | [street connectivity](#) | [physical activity](#) | [active mobility](#) | [environmental health](#)



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About the Case**Health issue:** General well-being**Type of intervention:** Design, strategy, research project**Spatial Level:** Neighbourhood**Key focus areas:** Slum upgrading, sewerage system, transport and mobility

Rocinha, the largest single favela in Brazil, has an unofficial population of 200,000 inhabitants. It is located between two of the wealthiest neighbourhoods in Rio de Janeiro and has an area of less than 2 km². Its position, dimension and characteristics, compared to the other favelas in the city, make Rocinha a significant case study for any slum-upgrading programme.

Rocinha is an informal settlement with a very high population density and it has several interlinked problems making it difficult to describe one problem as the main one; there is a set of a problems requiring a systematic solution.

The high density creates an irregular morphology with a malfunctioning spatial system with poor connections. The favela is disconnected socially and physically from the city and lacks the infrastructure to implement safety and sanitation systems, waste collection, access to healthy food and clean water or an efficient transport system.

The lack of basic infrastructure and the inefficient waste and water management are strongly correlated with the problems of poor health and disease in the favelas. There is an acute shortage of water, sanitation, urban green spaces and adequate nutrition and housing, and the Rocinha community has one of the highest rates of tuberculosis in the world; in Brazil the rate of tuberculosis infection is 37.5 cases per 100,000 people, but in Rocinha the figure soars to 380 per 100,000 people.

Very few houses have running water and the sewage running through the streets creates a serious health hazard that makes the area prone to viral diseases spread by the mosquitoes that proliferate in the area. Water contamination, flooding caused by the obstructed drainage networks and piles of waste everywhere create an urgent need to provide the basic infrastructure that is critical for human health.

Research also highlights the negative impacts on health deriving from the unhealthy dietary trends of favelas' inhabitants and which mainly affect children and youth (the traditional healthy diet is replaced by highly processed products).

In order to tackle these issues effectively, it is necessary to target the spatial urban context first and create a flexible and connected system, and then define sub-local strategies to deal with the problems related to urban life.

Three zones inside Rocinha have been selected for the project, but with a multi-scale approach the entire favela will be affected. The proposal offers a system of integrated projects aimed at the simultaneous improvement of the environment through social involvement and improvement of the 'urban metabolism'.

The theoretical background of the project is Integrated Modification Methodology (IMM), a scientific intervention method developed at the Politecnico di Milano. IMM is a methodological interpretation of Sustainable Development Goal 11 and offers synthesis and assessment tools for built environment change. Regardless of its size, the urban context is considered as a Complex Adaptive System in IMM and is investigated based on the systemic relations across multiple spatial scales, and for which modification scenarios specific for the context under study are developed.

The PolimiparaRocinha project encompassed the following features of Rocinha: morphological structure, ecosystem services, waste management and energy. System mapping is the basis for the analysis and development of different scenarios. The project began with a systemic investigation of Rocinha's form; the malfunctioning subsystems and existing capacities were studied and this revealed the potential of intrinsic relations to be activated in order to bring about the changes needed in different areas.

The different dimensions of PolimiparaRocinha are each framed under a broader theme: ecosystem services, waste management, food production, energy and information technology. However, morphology is the common element through which each theme is related to the rest and the effect of all interventions is measured with reference to it. This systemic transformation thus offers limited, custom-made modifications and leaves the rest to adaptation and an evolving mechanism.

Considering the multidisciplinary approach of the project, IMM has been integrated with the assessment of the ecosystem services (ES) "state and trend" to support decision-making processes aimed at defining strategies and design priorities for natural resources management to retrofit ES in a future scenario. The ES considered are: habitat quality, carbon sequestration, nutrient retention and sediment retention. The assessment of ES in Rocinha showed that it needs a multiscale approach that combines the local scale investigation (which has been applied to the analysis of other research units) with a broader/large-scale analysis suitable for ES evaluation.



A valuable lesson learned from this case study is recognizing the potential of environmental integration offered by informal settlements, areas in the city which are generally underestimated.



To define the strategies and/or actions to implement in Rocinha based on the results of the ES mapping, there was a review of existing best practices that could be adapted and used in the project. The review – done by all the research groups involved in the project – aimed to identify best possible practices using the following criteria: replicability of the actions, ease and feasibility for implementation and achieving multiple benefits.

The study phase on waste management focused mainly on data collection to obtain a realistic picture of Rocinha. Several aspects were analysed: general context, waste quantification and characterization, waste management systems and social aspects. It is widely recognized that a waste management system is more likely to be successful if there is a high level of community engagement. On energy, the main strategy was to understand the local capacities of energy production (mainly use of sunlight).

The relevant stakeholders identified for potential involvement in the project are: public administration, academic institutions, civil society, non-governmental organizations and informal businesses.

By proposing the relocation of a small number of buildings in a limited area, a new system of open public spaces emerged, generating a strong structural backbone for all further interventions. Apart from increasing the area of public spaces, the street network will have better connectivity and will make room for a new transport system. It also provides a flexible context to propose an affordable sewerage system.

The project also included several integrated actions and policies to improve accessibility to fresh and healthy food and to enhance dietary approaches. In particular, the project aimed to activate local fresh food production (aquaponics production managed by local social enterprises, community gardens/urban agriculture, small rooftop food productions systems, etc.) and educational and training initiatives promoting healthier dietary behaviours that targeted children, youth and women and provided them with information on the health risks from consuming highly processed food and on the values of a healthy diet. The proposed food hub can coordinate the existing and proposed actions engaging local communities in urban agriculture, training and capacity building initiatives, and will activate small local economies based on local/healthy food activities. The aquaponics project

and urban food production can integrate the procurement of fresh food to public/private canteens of schools (and NGO centres for children and the young) to ensure a balanced and healthy diet (and sustainable costs).

The ecosystem mapping not only contributed to the sewerage system design but also provided valuable information for preventing environmental hazards and managing runoff.

The situation in Rocinha is particularly critical. The existing sewerage system is very limited and serves only a relatively small number of households; grey water and foul water is mixed with unmanaged stormwater runoff during and after intense rainstorms. Storms produce flash floods which, in a favela dominated by impervious surfaces and inadequate drainage and where the runoff is mainly conveyed through streets, pick up a significant amount of solid matter, including vegetation, eroded soil and uncollected rubbish. Hence, the construction and proper maintenance of an adequate sewerage system could have a tremendously positive impact on public health.

The project studies were based on a proposal for a system of community gardens which simultaneously produces food, involves communities and stakeholders and improves human security and ecological stability. The community gardens are a valuable resource in food strategies which aim for fresh food production and food education in schools, community centres and other initiatives (mostly to social foster inclusion and cohesion) for exchanging knowledge, skills and time in the production of fresh and healthy food. For the area of energy production, which relies on local sunlight, a smart grid with a flow management system has been proposed.

In general, by activating a local initiative, PolimiparaRocinha has an immense capacity to improve environmental and social conditions at the city scale. However, the main challenge is to raise awareness in order to gain the political and social will needed to support the integration of Rocinha into Rio de Janeiro's development, both socially and physically.

A valuable lesson from this case study is recognizing the potential of environmental integration offered by informal settlements, areas which are generally underrated. Rocinha, with its organic-like morphology and extremely high density, could play a key role in the city's urban environmental management. In terms of environmental performance, Rocinha could act as a vital organ for Rio de Janeiro. Any local modification, with consideration of the multi-scale systemic consequences, would play an important role in optimization of the whole city's environmental behaviour.

Key Words: [Integrated Modification Methodology](#) | [Systemic Approach](#) | [Holism](#) | [Social Integration](#)



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About the Case**Health issue:** Wellbeing**Type of intervention:** Strategy**Spatial Level:** City-region / metropolitan**Key focus areas:** Food security

The city of Vancouver is one of 23 jurisdictions in the third largest metropolitan area in Canada. The Metro Vancouver Region, an area with a population of 2.4 million people, is the major urban centre of western Canada. Although Vancouver already enjoys a well-established food system, challenges are posed by the socio-economic trends across Canada, including a growing income gap, social polarization, child poverty, unaffordable housing and rising rates of hunger and preventable diseases. These issues, coupled with global vulnerabilities to food security such as dramatic losses of agricultural land, climate change and extensive food supply chains, point to the critical need to strengthen the resilience of Vancouver's food system.

Demand from the local food system differs from one locality to another due to the unique characteristics each neighbourhood has. For example, Westside, one of Vancouver's wealthiest neighbourhoods, reports a number of barriers to accessing food, particularly for lower-income populations that have taken up residence in this area, e.g. seniors, room occupants, single parents and young families. Due to land-use specialization in Westside, residents cannot easily get to food stores and there is an income-related social stigma to using charitable food providers. In the middle-income Grandview Woodland, 22 per cent of the residents are food insecure while in Downtown Eastside, a reported two-thirds of the population (12,000 people) are food insecure.

In light of these challenges, the city of Vancouver worked for over a decade to support a just and sustainable food system through a number of initiatives, starting with the establishment of the Vancouver Food Policy Council in 2003, the development and adoption of the Vancouver Food Action Plan (2004), the Vancouver Food Charter (2007) and the Urban Agriculture Design Guidelines for the Private Realm (2009). Vancouver's Greenest City 2020 Action Plan aimed to be a global leader in food systems by increasing city and neighbourhood food assets by 50 per cent by the year 2020, but the lack of a coordinated food strategy to integrate policies and programmes prevented this.

The Vancouver Food Strategy (VFS) was approved in 2013 and became the city's tool for achieving social, environmental, economic and health targets for the urban area. Its goal is to

balance Vancouver's food system as a whole with the need to acknowledge and respond to each neighbourhood's individual context. The VFS integrates existing and emerging food policies into one coordinated policy framework and aligns the city's food goals with the broader policies and priorities of the housing, planning, health, and transport sectors. Actions are focused on the concept of "food access", ranging from projects for the development or improvement of urban agriculture, food processing and distribution, waste management activities, actions to be taken in parallel with community capacity-building programmes and skill-building opportunities.

The VFS was shaped through a participatory process, in line with Vancouver's history of strong community involvement and activism in urban planning and development. The "Talk Food With Us" initiative developed in partnership with the city's Food Policy Council used a number of strategies to collect information and diagnose the food system's situation, including roundtable discussions, dialogue events, toolkits and exercises, workshops and focus groups. An estimated 2,200 individuals from diverse cultural and socio-economic backgrounds participated in generating ideas for the VFS.

By November 2012, there were an estimated 17 urban farms, 97 community gardens, 9 farmers' markets, 4 community food markets, 103 street food vendors and 3 community composting sites in Vancouver. The increasing number of community gardens support food-friendly neighbourhoods, empower citizens through new knowledge and skills for growing food, promote social inclusion and community capacity building, and improve access and the consumption of healthy, affordable, culturally diverse food for all residents.

The results back up discussions to go beyond stand-alone food policies and reach wider outcomes, in alignment with a multi-functional approach to urban planning and development with the goal of increasing positive social, economic, environmental and health impacts. The wide network of food-related initiatives across the metropolitan area is thus creating jobs, building skills and supporting other green economy sectors such as small-scale food processing and human-powered delivery services, making food a centrepiece of Vancouver's green economy and sustainable urban development.



The Vancouver Food Strategy was shaped through a participatory process, in line with Vancouver's history of strong community involvement and activism in urban planning and development.





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THE SENIORS, THE DESIGNERS – A PARTICIPATORY DESIGNERS EXPERIENCE TO CREATE AN ELDERLY-FRIENDLY COMMUNITY

About the Case

Health issue: Psychological health, well-being

Type of intervention: Design; spatial plan; policy

Spatial Level: Neighbourhood

Key focus areas: Urban design, elderly community, recreational space

Hong Kong is experiencing serious challenges due to an increasingly ageing population. The number of people aged 65 or above will double from 1.2 million in 2016 to 2.5 million by 2036, which means that in the next 20 years, elderly people will make up approximately one-third of the city's population. This rapid increase in the number of elderly people requires the provision of not only more holistic medical care support, but also social services that can promote active ageing in the community. The continuous growth of this generation gives rise to a large group of relatively healthy, productive and creative elders in the society who are willing to contribute and advise on a more inclusive and elderly-friendly urban environment. Better management of older peoples' knowledge and spatial understanding will lead to a well-integrated and designed space.

The strategy of developing an elderly-friendly neighbourhood revolves around the provision of accessible spaces in the community for the elderly to enjoy regular activities, which was formulated through a participatory approach to urban planning.

The project was implemented in a public space area adjacent to a fitness zone for the elderly in Morse Park in the Wong Tai Sin District of Kowloon, Hong Kong. It was entitled "Can the Elderly be the Park Designers?" and was developed as part of the public art project "City Dress Up: Seats Together", organized by the Art Promotion Office of the Leisure and Cultural Services Department (LCSD) of the Hong Kong Government. Morse Park is a leisure park managed by the LCSD. Most of the designs in government leisure parks are standardized and often unimaginative; thus, the project aimed to change the space into a more human-centric area reflecting ideas from the community.

The project's development provided an experience for elders to enjoy the design process of creating public furniture in their neighbourhood. There were five stages, most of which facilitated multidisciplinary and collective efforts.

At each stage, all stakeholders – the elderly in the community, designers and the NGOs – were encouraged to participate and collaborate together to design and build elderly-friendly

public furniture in Morse Park in the period from November 2016 to December 2017. In addition, the programme was supported and assisted by the LCSD throughout its duration.

The first event was a briefing session held in the gathering centres of the elderly. A group of 18 people from 4 districts were recruited as participants for the design process. This session motivated all parties and encouraged them to work as a team in the next stages. Afterwards, a field visit to the area was arranged to explore different possibilities for the park and to familiarize the participants with the existing public facilities.

Two workshops were held for the elderly to brainstorm their ideas and express their opinions. Each session provided training on basic design skills. The first workshop focused on the review of the current layout of the area and identifying potential uses or activities for the site. The second workshop focused on the design of the furniture itself, where the elderly participants were invited to brainstorm on the design of park seating to enhance the aesthetics, to create spaces for gathering and to include elderly friendly elements.

At a later stage, architects and designers facilitated the transformation of the elders' sketches into people-centred design solutions. The model furniture was built on site and tested with the participants to get more detailed feedback.

Once finalized, the site was opened to the public to share the design experience with other park users and to showcase the elderly friendly park furniture to the community. All the participants, including government representatives, attended the launch and looked forward to another phase or even bigger project to promote an inclusive and people-centric design for recreational parks in the city.

Making use of the positive feedback received from various groups and the success of the first stage, the second phase of design work was planned for 2018 to be based on the participatory approach applied in the first phase. The focus this time is on direction signs, pedestrian flow in the park and other elderly friendly facilities that can be developed.

The project has resulted in both short-term results and long-term impacts from the intervention implemented in Morse Park.

As a first immediate result, the elderly people in the community enjoyed their engagement in the project as a social activity, gaining positive psychological benefits from this experience. There was a great sense of pride and recognition among them. Second, a more elderly friendly space was created through a process of strong participation, making the design of the space fitting to its users' needs. This methodology is applicable to other small-scale, urban spaces or interior built environments to enrich social cohesion and cross-generation exchange.

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In the long-term, it is expected that this initiative serves as an example to promote multidisciplinary efforts between design professionals and the end-users...

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In the long-term, it is expected that this initiative serves as an example to promote multidisciplinary efforts between design professionals and the end-users, with an NGO acting as the key coordinator of various stakeholders' meetings and design ideas for the city.

As an increasing stakeholder group in Hong Kong, the potential power of the “silver generation” could be further harnessed to develop and improve neighbourhoods. The significant increase in life expectancy demands that a sustainable and inclusive society copes with the needs of the elderly. Thus, the elderly community could continue to contribute and consequently become more independent and progressive, moving away from the social stigma of being dependent receivers and making the city's society more inclusive and energetic in the long-term.

The participatory design programme promotes the essential idea of social participation and civil engagement in outdoor spaces, which are key areas for developing aged-friendly communities as established by the World Health Organization. The elderly peoples' active participation in creating elderly friendly park furniture has had a good impact on their physical and psychological wellbeing. Psychologically, the

elderly became more active in advising and engaging in the creation of community facilities. Physically, the aged-friendly design enables the users to enjoy the environment more comfortably. It supports positive impacts on human health.

More importantly, it is an advancement of the government's policy by using a community art project as an innovative way to get the public's involvement and positive reaction to the development of an urban space. Indeed, the elderly, the designers and the community very much appreciate the government's commitment listening to people's needs.

To conclude, this project is an example of the paradigm shift needed in urban planning and design, i.e. to have the users actively engaged in the development of the built environment. In Hong Kong, it is often believed that planners and designers should be solely in charge of the process - the elderly should simply be receivers who enjoy the service outcome and NGOs should confine themselves to traditional welfare and care services. However, the project demonstrates that all these parties should cooperate and coordinate a collective effort to improve the community. Driven by the positive feedback received about this pilot project, government departments and NGOs in Hong Kong are exploring the possibility of developing more projects at different scales to be implemented through a participatory design approach. This project was well-recognized and presented at international conferences, including the 9th World Urban Forum hosted by UN-Habitat in Kuala Lumpur, the World Health Organization's seminar on age-friendly cities and communities at its 6th Age-friendly Cities and Community Conference in Sharjah, United Arab Emirates, and the 14th Global Conference organized by International Federation on Ageing.

Key Words: [Elderly-friendly communities](#) | [participatory planning](#) | [inclusive public space](#) | [collaborative planning](#)



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CHINA: LIAO-CHI-DONG, SHANDONG PROVINCE

PLANNING A HEALTHY INDUSTRIAL SITE LAYOUT IN LIAO-CHI-DONG TOWN GROUP

About the Case

Health issue: Respiratory, cardiovascular, cerebrovascular diseases and cancer risk

Type of intervention: Spatial plan

Spatial Level: City / municipal

Key focus areas: Urban wind environment, thermal environment, pollution level, and industrial land layout

Liao-Chi-Dong is an area in the west of Shandong Province in China with 2.1 million people spread over 3,173 km². It is composed of the central city of Liaocheng, Chiping County and Dongge County. Each of these three districts has a functional orientation: the central city focuses on business, Dongge focuses on culture, tourism and health medicine, and Chiping focuses on industry. It is worth mentioning that one of the largest aluminium power industrial parks in the whole of China is located here, along with numerous factories and towering chimneys in Chiping.

The industries located in the Liao-Chi-Dong group of towns are mostly high-emission and high-pollution types, so the atmospheric environment problems here generate high risks for human and environmental health. In 2015, 54 days of heavy pollution were recorded in Liao-Chi-Dong, posing serious hazards for air quality and respiratory health.

Perennial poor air quality and frequent haze are not conducive to good human health (e.g. it induces respiratory diseases, cardiovascular and cerebrovascular diseases and increases the risk of cancer). In addition, the atmospheric pollutants discharged during the aluminium smelting process generate fluoride pollution. Fluorine-containing waste water and fumes have serious effects on human health, i.e. damaging genetic, immune, reproductive and nervous systems.

In light of the poor environmental conditions and the risks to human health in the area, the city government developed the Spatial Development Strategic Plan for 2016-2030. This strategic plan aims to minimize existing risks to health and prevent other harmful effects that could be caused by poor spatial planning of the industrial area, and ultimately improve human comfort and urban liveability in Liao-Chi-Dong.

The plan specifies the appropriate space for pollution emission enterprises and, according to the current level of fluoride emissions, establishes that residential land should not be within 2 kilometres of the aluminium smelting electrolysis

workshop. This intervention protects citizens by establishing a protective distance and “green zone”, with the objective of mitigating health problems and illnesses in the population.

The intervention to guide the rational distribution of industries and improve the quality of the natural environment is aligned with the city strategy and national policy. The national New Urbanization Plan (2014-2020) clearly indicates that the spatial distribution and scale of urbanisation should be according to what is best for local natural resources and the environment.

The city government thus initiated the strategic plan's formulation and implementation. Several departments are involved, including those responsible for planning, environmental protection and meteorological issues. They provide relevant basic material (e.g. geographic information and land-use maps from the planning department, pollution emission data of the main enterprises from the environmental protection department, and climate data from the meteorological department) and have participated in the development of the site's study. Researchers from the Beijing Municipal Climate Centre integrated all the basic data and began with the analysis in order to provide the city government with recommendations for the spatial layout of the industrial site with the aim of improving the local environment. The target stakeholders for this initiative are the city government and its residents.

Based on the data from the weather station and high-resolution remote sensing data, and using statistical methods, numerical simulation and geographic technology, researchers analysed the spatial characteristics of the wind environment, urban heat islands and the diffusion simulation of industrial emissions.

Finally, sensitive areas of atmospheric environment in the Liao-Chi-Dong region were classified and the spaces where it is appropriate to put pollution emitting enterprises were specified.

The plan explicitly points out the inadequacy of the current location of the industrial land and proposes that it be relocated to an area that is less sensitive to the atmospheric environment of the entire Liao-Chi-Dong area.

“

...the implementation of the strategic plan will improve the urban environment, and more specifically the air quality in the area, and reduce risks for the health of its residents posed by the emission of polluting gases

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In the long term, the implementation of the strategic plan will improve the urban environment and, more specifically, the air quality in the area. It will also reduce risks for the health of residents posed by the emission of polluting gases.

As the Liao-Chi-Dong group of towns has been included in the Beijing-Tianjin-Hebei collaborative development zone, this project will also promote the joint prevention and control of regional air pollution.

Pursuing industrial growth and economic development is the long-term goal of the city government, particularly for relatively underdeveloped interior regions. However, this should not mean blindly focusing on industrial development, especially of the high-emission and high-pollution industries, which deteriorate the natural environment, greatly reduce the urban quality of life and may seriously damage residents'

health. How to meet the demand of urban expansion and alleviate or even avoid the problems caused by urbanization is the key issue of urban planning research in China.

In this project, through the integration of multi-source data, the characteristics of the wind, thermals and atmosphere are analysed to provide an objective and scientifically based guide for spatial planning in Liao-Chi-Dong. The lessons learned from this project are that, in order to coordinate the living environment and the comprehensive spatial layout of the city, multi-sectoral cooperation and interdisciplinary integration is necessary. To ensure that the land used to improve the urban climate and environment is legally protected and used, urban planning and construction need to be forward looking to prevent future problems. This will mean that not only is the industrial economy sustainable, but the urban climate and environment and public health are also improved.

Key Words: [Air quality](#) | [metropolitan planning](#) | [industrial area](#) | [data integration](#) | [environmental determinants of health](#)



Beijing, China © Pei Xing

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About the Case**Health issue:** Respiratory problems**Type of intervention:** Programme**Spatial Level:** City-region / metropolitan**Key focus areas:** Air quality management; public health; mobility

The Aburrá Valley is in the south-centre of the Antioquia region, in the middle of the Andes mountain range in Colombia. It has 10 municipalities: Barbosa, Girardota, Copacabana, Bello, Medellín (main city), Itagüí, Envigado, La Estrella, Sabaneta and Caldas. The area covers 1,156.7 km² and it has a population of 3.8 million people. Aburrá Valley has many pollution challenges. In the last few decades, urban growth in the valley has been unsustainable; the increased demand for goods and services has led to an increased number of sources of and concentration of atmospheric emissions in the region; the weather and the geomorphology of the area are increasing pollution levels to far higher than the limits set by the World Health Organization.

According to studies carried out by the National Department of Planning (DNP), in 2015 there were 2,105 deaths in the Aburrá Valley associated with air pollution. These represent 12.3 per cent of all the deaths in the valley, with a cost equivalent to 5 per cent (COP 2.8 billion) of the gross domestic product in the metropolitan area of the Aburrá Valley (DNP, 2017). The Clean Air Institute also conducted a study in the Aburrá Valley in the same year that revealed there were 1,790 deaths in the region that were attributable to air pollution.

To solve this problem, the Air Quality Management Plan - PIGECA (2017-2030) was developed, aiming to improve the quality of the air in the metropolitan area of the Aburrá Valley, to protect public health and the environment, and promote sustainable metropolitan development.

The plan intends to implement actions that improve air quality for the 3.8 million inhabitants of the 10 municipalities by 2030. A set of goals has been set for selected years (i.e. 2019, 2023, 2027 and 2030) to facilitate monitoring of the implementation.

The Air Quality Management Plan - PIGECA for the Aburrá Valley was approved in December 2017 and adopted by the Metropolitan Agreement N°17 of the same year. This agreement is an important instrument for environmental and public health.

For the plan's implementation, it is necessary to address a multitude of challenges that have been identified if the goals are to be achieved. For example:

- a) Closer articulation between the different entities of the state involved in the process.
- b) Reducing pollutant emissions in all economic sectors, urban activities and production.
- c) Paying attention to the structural causes of the issues and challenges that need to be urgently solved.
- d) Stronger focus on the atmospheric pollutants that can harm health.
- e) Reduce risk and effects on health and the protection of the environment, well-being and economic development at a metropolitan and national level.

As priority activities, the plan has established the following set of actions:

1. Promote the development and use of scientific knowledge as a basis for the comprehension and understanding of the problems of air pollution, as well as for the effective implementation of strategies to increase the impact on these issues. Access to timely, reliable and comprehensible information about air quality, its causes and effects, so that people can use it.
2. Formulate instruments of territorial planning and management to accelerate the transition to sustainable and low-emission development.
3. Transform the urban mobility system toward sustainable modes; raise the quality, coverage and efficiency of the urban transport system; and modernize the vehicles with technologies and energy that meet the emission standards established internationally. This requires a substantial improvement in fuel quality, taking into account that this region has specific topographical conditions.
4. Promote the use of non-motorized transport; biking and walking are the first and most safe options for short distances, followed by other modes of transport.
5. Promote the low-carbon development of industry and services by strengthening the effectiveness of programmes for the prevention and control of pollution. Improve energy efficiency and raise industries' environmental performance, productivity and competitiveness.

6. Increase the effectiveness and coverage of monitoring and control: (a) employ agents to monitor the emission of atmospheric pollutants, and (b) agents whose actions are on behalf of authorities in different sectors of the state, especially departments responsible for the environment, transport, police and urban development, among others.
7. Generate, protect, recover and restore trees and vegetation in urban and rural areas as well as public greenspaces and ecosystems in the Aburrá Valley, supported by scientific knowledge and coordinated with programmes and institutions that include all levels of state - municipal, metropolitan and regional.
8. Prevent health crises caused by air pollution, with appropriate measures that are timely and effective.
9. Reduce exposure to the effects of polluting gases produced by motor vehicles, encourage pedestrians and non-polluting transport. As a contingency, restrictions on the most polluting vehicles in high traffic areas and where there are higher levels of contamination.
10. Promote an economic system that encourages individuals and organizations to prevent and reduce pollutant emissions by promoting the use of sustainable modes of transport.

The implementation of the plan requires a joint, coordinated effort on behalf of governmental institutions at different levels, environmental authorities, transit and transport entities, health and planning professionals, the industrial sector, universities, non-governmental organizations and the community in general.

A number of actions have taken place already as part of the requirements established in the Plan.

For the improvement of fuel quality, various efforts have been made (both with Ecopetrol and the national government) to distribute fuels with lower sulphur content. In addition, the metropolitan area authority has been working with the national government to establish the Permanent Committee of Air Quality with representatives of different entities, such as the Ministry of Environment and Sustainable Development, Ministry of Transport, the Institute of Hydrology, Meteorology and Environmental Studies, and Ecopetrol, among others.

The quality of fuels has a great influence on air in the metropolitan region, but there are other factors that have an impact on emissions such as vehicular technology, driving habits, maintenance of vehicles and fixed sources of fuel consumption by the industry. Thus, the Plan has devised strategies to address these additional variables that impact the local weather conditions.



The plan intends to implement actions that improve air quality for the 3.8 million inhabitants of the 10 municipalities that are part of the region by 2030.



At a smaller spatial scale, a local project of science, education and technology entitled “Scientific Citizens” is focused on investigating air quality and works as an early warning system in Medellín and the Aburrá Valley. In 2017, 150 new sensors were installed in homes or offices, to measure the amount of particle materials in the environment. With its implementation, the project will have about 250 sensors of air pollutants spread throughout the area.

Under another of the Plan’s components, the Institutional Sustainability Programme, activities to improve air quality in the industrial sector are being developed, including:

- a) Sustainable consumption and production: To promote the incorporation of best practices for clean production and sustainable consumption.
- b) Sustainable entrepreneurship: To stimulate the environmental performance of the productive sectors.
- c) Energy efficiency measures in the industrial sector: To promote development with low emissions.

For the latter measure, policy action has been undertaken to ensure that the industrial sector makes continuous improvements to processes and efficiencies of combustion (Metropolitan Resolution 0912 of 2017). In addition, the development of a comprehensive management strategy for air quality and mobility of the region has been proposed (Metropolitan Resolution 1379 of 2017) due to the implementation of business plans on sustainable mobility resulting in new transport habits.

In terms of multi-stakeholder partnerships, through a university-industry-state collaboration, a project is being developed with the University of Antioquia to determine the actual emissions of light vehicles and motorcycles in the Aburrá Valley following a series of emission factors studies on behalf of the coalition.

Moreover, a study has been developed in collaboration with the University of Antioquia on the relationship between air pollution and health with four major components: 1) Characterization of the contamination in the Aburrá Valley; 2) Establishment of the association of morbidity and mortality with concentrations of PM10 and PM 2.5; 3) Measurement of the years of potential life lost; 4) Compilation of research related to the health effects of air pollution.

With the Implementation of the Integrated Management Plan for air quality, the reduction of atmospheric emissions and consequent benefits for the inhabitants’ health of the metropolitan area is expected. Ultimately, the project is aiming to reduce the air pollution mortality rate in the area up to 75 per cent by 2030, including a reduction of deaths attributed to poor air quality in children.

Key Words: [Air quality](#) | [metropolitan development and governance](#) | [urban environmental management](#) | [territorial planning](#) | [sustainable mobility](#)



Medellin, Colombia © Pablo Marcelo Maturana Guzman

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About the Case**Health issue:** General wellbeing**Type of intervention:** Programme**Spatial Level:** City region / metropolitan; neighbourhood**Key focus areas:** Public space

The Metropolitan District of Quito (DMQ), the capital of Ecuador, is 2,850 metres above sea level and, according to the 2010 Population and Housing Census, is the second-most populated city in the country with 2,239,191 inhabitants (15.5 per cent of the country's population). The National Institute of Statistics and Censuses estimates that by 2020, Quito will be the most populated city, with 2,824,613 inhabitants (16.1 per cent of the national population). DMQ municipalities' data indicates that social determinants of health (SDH) are different throughout the city; for example, some urban households have better access to sewerage, drinking water and garbage collection services than others.

A 2017 study on health inequalities in the DMQ shows that there are differences based on geographic location (mortality rates due to diabetes, tuberculosis, traffic accidents, cardiovascular disease and others) and in determinants of health (obesity, teenage pregnancy, years in school, access to sewerage, etc.). The DMQ health diagnosis 2016 (Diagnóstico de Salud) showed that the city has a heavy burden of chronic, non-communicable diseases, particularly cerebrovascular and ischemic heart diseases, hypertension, diabetes, obesity and traffic accidents. Data from the National Health and Nutrition Survey (MSP, INEC 2012) indicates that overweight and obesity affects 63.5 per cent of 19 to 59-year-olds and 22 per cent of 12 to 19-year-olds. In addition, a lower percentage of the DMQ's adult population (4.5%) consumes cigarettes or tobacco products, 41 per cent consume alcohol on a monthly basis, and 34 per cent of 10 to 18-year-olds and 64 per cent of 18 to 60 year-olds are sedentary (MSP, 2015).

Citizen participation and empowerment has been identified by the World Health Organization as a key contributing factor for improving health. It is also recognized that citizens engaged in their health reduce the rates of mortality and morbidity in urban areas as the likelihood of taking protective, shared health measures increases.

In the past however, in Quito the available data was not organized, shared or discussed with relevant actors and decision-makers, and citizens were thus not empowered to improve health and had no access to mechanisms for influencing public policies. In light of this, in 2015, the DMQ Health Secretariat established the "Healthy Neighbourhoods - closing the gap in health inequality" programme, which is being implemented in areas of high population density and with severe health issues.

The programme aims to improve the health and well-being of Quito's inhabitants by integrating health in urban planning, local investment decisions and the creation of local public policy that promotes community-led initiatives that can also be shared with other cities. This change is to be achieved through three interventions:

1. Increased local public policies generated and implemented with the participation of Quito residents, taking disaggregated health data and SDH into account.
2. Increased use of healthy environments (physical, economic and social) created with citizen participation and action on community health and its determinants.
3. Increased access to knowledge and best practices in urban health for local governments in the region.

The first localities where the participatory methodology was implemented were: Ponceano, Centro Histórico and Chimbacalle, each with populations of 54,438, 36,610 and 38,533 respectively. In addition to the general health profile outlined above, these areas have greater health needs. They have double the death rates and deaths from tuberculosis than the DMQ average and have area-specific problems such as respiratory diseases.

An inclusive institutional mechanism was defined by the DMQ Health Secretariat to solve issues at the local level and keep communities informed about the programme's progress. A Technical Health Committee was kickstarted in early 2017 with representatives of the municipality's Department of Promotion, Prevention and Surveillance, Department of Policies and Health Planning, Health Secretariat and about 20 divisions of the DMQ Municipality and local ministry departments responsible for SDH. City and neighbourhood community teams are kept formed and trained by the municipality to manage community participation and to promote participatory work on healthy physical, economic and social environments.



The Municipality also plans to hold meetings to share knowledge and local best practices with other cities. This knowledge exchange will strengthen and support local capacities and build networks for urban health.



The community team represents the following five sectors of each neighbourhood (or geographical area) and includes community representatives from:

1. The community: addressing SDH used by the entire community, such as access to natural foods, access to walkable or cycling spaces, smoke-free spaces or personal safety.
2. Community institutions or organizations: including those that provide social services such as day care centres, churches, senior centres, community centres and universities.
3. Local health care: including all places where people come to receive preventive care or treatment or health emergency services such as hospitals, clinics, doctors' offices.
4. Primary and secondary education: including private and public schools.
5. Workplaces: including private and public workplaces.

Other groups include opinion leaders of their sector (education, health, etc.) within the parroquia.

To generate and implement policies and programmes to address health equity in a holistic manner and with high levels of participation, the city is producing, gathering and processing health data to communicate with residents and provide space for dialogue. Through inter-sectoral coordination, the existing databases of various municipal departments are reviewed and surveys are then designed and implemented to collect missing information. The work has used the WHO Urban Health Equity Assessment and Response Tool (Urban HEART), Healthy Communities programme and the National Programme for Healthy Municipalities, Ecuador. In 2017, the municipality initiated the development of a virtual platform to display updated and accurate health data and health determinants disaggregated by localities of Quito to make the information publicly accessible, especially for slum neighbourhoods.

Residents are involved in and build ownership of the process through their own awareness raising and through local "priority setting" workshops that the municipality hosts with residents. These workshops focus on evidence gathered by the municipality but also on the issues perceived by the communities. Since 2017, the workshops review health evidence from DMQ, add or collect additional information of interest to residents, prioritize health problems of each locality and develop a road map with activities at the neighbourhood and city level. The responses are then presented to the mayor for approval and implementation.

The DMQ Municipality supports the capacity of residents to generate these intervention plans, or Community Health Plans, within their health teams. The interventions chosen are those that are seen to have a high impact or that draw on examples of promising practices from the region and from national and international evidence, such as from the Ecuadorian Association of Municipalities, the Resilient Cities initiative and from the Pan American Health Organization (PAHO). The DMQ Municipality provided incentives to promote community involvement in the development and implementation of the plans, holding events to provide wider community sensitization on health situations and launching the awards.

Currently, DMQ municipalities provide technical and financial support for implementing the healthy neighbourhood programme together with the community, which includes organizing massive events fostering participation and awareness raising on people's well-being. Along with the process of setting and implementing the participatory plans, DMQ is increasing the two-way communication between the municipality and residents.

Another of the programme's components is based on facilitating a community-led certification on "healthy spaces" (i.e. schools and markets). The criteria for certification was developed by the DMQ Health Secretariat, the Ministry of Education, the Ministry of Public Health, PAHO and the community teams. The certification process aims to support the administrators and users of spaces to prioritize how to best invest resources, promote health and address any gaps. It is expected that this effort is conducive to a working relationship between the relevant actors involved and active, even after the space is certified.

Through the programme, the DMQ Municipality expects to identify tasks for the local government and to create an agenda for the Health Secretariat. For the communities, this approach will have a wider social benefit. Health sector personnel expect to engage communities and raise awareness on the health benefits from decisions, activities and choices being made. The DMQ Municipality's key role in promoting peoples' health is fully recognized by the Ministry of Public Health as well as in linking health with its determinants in order to strengthen health promotion and improvements in the communities.

The DMQ Municipality also plans to hold meetings to share knowledge and local best practices with other cities. This knowledge exchange will strengthen and support local capacities and build networks for urban health. While the immediate beneficiaries are the 129,581 inhabitants of the localities of Ponciano, Centro Histórico and Chimbacalle, the dissemination and outreach processes mean that the work will be shared and accessed by all neighbourhoods in DMQ and their 2.78 million inhabitants by 2020.

In the short term, the project engages communities and promotes citizen participation in health. This is monitored by tracking the number of community project plans that are implemented. Overall, the work aims to achieve the following:

- A DMQ representative health team that has been formed, sensitized and is carrying out high impact actions in health policies and environments.
- 12 community health teams representing selected geographic areas in DMQ, formed, sensitized and performing high-impact actions in health policies and environments.
- 100 DMQ Municipality staff trained in tools and techniques for advocacy on health determinants.
- 12 Neighbourhood Health Action plans elaborated in a participative way with implementation and a financing schedule that involves departments of the DMQ Municipality responsible for influencing environmental and socio-economic determinants of health.
- 3,300 people, including the district's leadership, sensitized on health determinants.
- 14 schools implementing health-promotion activities.

- 15 markets taking health promotion and food safety into consideration.

In the long term, it is foreseen that community health teams continue to coordinate after the three-year project to have a positive impact on their empowerment and, ultimately, to address and contribute to decreasing health inequalities.

Challenges encountered so far include the lack of trained staff in the municipality and the barriers and level of effort required to coordinate with different municipal departments.

The approaches being applied in Quito depend on the municipality's role for orientation and competencies in population health being recognized, as well as the prevention, promotion and public health activities for this. This is critical for engaging other sectors and for participatory processes. The practices aimed at involving the community in solving their problems, on developing a culture of collective work for common goals and formulating a legal and policy framework that supports this.

Key Words: [Health](#) | [inequalities](#) | [participation](#) | [empowerment](#) | [environments](#) | [public space](#) | [health determinants](#) | [health in all policies](#)



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About the Case

Health issue: Vector-borne diseases and heat-related illnesses

Type of intervention: Policy, Strategy and Program

Spatial Level: City / municipal, neighbourhood

Key focus areas: Slum upgrading, housing, waste management, community-based disaster management and preparedness

Surat city, in the state of Gujarat on the floodplain of the Tapti River in India, is currently home to 5 million people and covers an area of 327 km². In the recent past, the city's population has doubled every 10 years, making Surat the fourth fastest-growing city in the world. It also has a large migrant population adding to its socio-economic challenges. Since the 1950s, migrant workers have driven the diamond and textile industries – the key elements of the city's economy. Due to its location, Surat is highly vulnerable to flooding during the monsoons and heat risk during extreme summers. Migrant workers residing in low-lying areas along the floodplain of the river are particularly exposed to health impacts due to these climate extremes.

The World Resources Institute in India (WRI) implemented the Urban Community Resilience Assessment (UCRA) in three communities in Surat city - namely, Morarji Vasahat, Ugat and Kosad Awas - as part of a larger project supported by the Cities Alliance. The UCRA tool helps cities to incorporate local knowledge from poor urban communities into wider city and sub-city disaster management and resilience planning. The tool aims to provide a resilience snapshot of social networks, collective preparedness mechanisms, political engagement, access to information and telecommunications, and economic resources. The analysis in Surat revealed that only 37 per cent of residents in the three low-income and at-risk communities fear climate change. Yet, more than 70 per cent of the respondents associated the impacts of climate change to their health and livelihoods. Moreover, residents claimed they lost an average of 7-8 working days during heavy rainfall or extreme heat events in the city.

The UCRA was implemented in Surat city in partnership with the Urban Health and Climate Resilience Centre of Excellence (UHCRCCE), the Surat Municipal Corporation and the City's

Health Department. The aim was to collect data on peoples' exposure to climate impacts, focusing on urban health among migrant communities who have few social and economic resources, and give this information to decision-makers.

Surat was chosen for the implementation of the UCRA because of its dynamic, learning-based approach to resilience planning. Between 2008-2016, the Surat Municipal Corporation (SMC) worked in collaboration with the Asian Cities Climate Change Resilience Network (ACCCRN) and 100 Resilient Cities to establish early warning systems, mobile health applications and a resilience strategy at the city-level to prevent the economic and social upheaval caused by floods in the past. In the context of these city-level strides towards resilience, the implementation of the UCRA was an opportunity for the city to make resilience planning processes more inclusive and mindful of differential needs and vulnerabilities.

The UCRA was executed in four phases between 2016-2018 in partnership with the Urban Health and Climate Resilience Centre for Excellence (UHCRCCE) and 100 Resilient Cities in Surat. Each phase of the UCRA relied on strategic inputs from multiple stakeholders: the SMC, city-level health experts and workers, civil society organizations, community-based organizations in the area such as the Women's Health Trust, and children's groups, local anganwadis (community centres) and residents in all three communities.

The preparatory phase of the UCRA began with a city-level stakeholder workshop to review the UCRA indicators and compile potential survey questions for each indicator. The final framework included 50 resilience indicators across three main dimensions: the vulnerability context, community resilience and individual capacity. After tailoring the UCRA framework to the context of the city, an initial round of focus group discussions was held in each community to ensure that the UCRA survey questions realistically addressed the socioeconomic and migratory context of the residents. The final survey questionnaire included sections on disaster preparedness, health responses to heat and flooding and census-style family information on age, gender, occupation and access to financial capital.

In the data collection phase, 513 household surveys were administered in all three communities, while a second round of focus group discussions was conducted to contextualize the results. The discussions assisted in understanding infrastructural limitations, individual preferences and flood and heat preparedness mechanisms. During the analysis phase, all the UCRA indicators in the framework were scored on a scale from 1-5 using survey data to develop a socioeconomic profile for each community.



The aim was to collect data on peoples' exposure to climate impacts, focusing on urban health among migrant communities who have few social and economic resources, and give this information to decision-makers.



Finally, the project planning phase exposed the results of the UCRA to the communities and to the SMC and engaged stakeholders to identify solutions. Gender-specific workshops were hosted in each community to achieve this and present the complete “resilience scorecard” to residents, pinpointing key resilience priorities at the community-level.

In all three communities, residents talked about the health and livelihood impacts of heat and flooding. Most residents experienced losses in income and illnesses in the family, but few of these respondents have access to insurance, emergency kits or savings to cope with these difficulties.

In Morarji Vasahat, residents identified flood preparedness and early warning capabilities as key priorities for the community. Since most residents had lived in the area for more than 30 years, there was an informal flood evacuation process led by the temple trust in the community. However, the only early warning that residents received was through word-of-mouth. Therefore, in order to cope with information gaps and strengthen preparedness, residents suggested establishing a formal micro-level flood plan with defined responsibilities and pre-agreed evacuation routes. Residents also mentioned during the workshop that waste management was becoming a health and sanitation challenge, and mapped a neighbourhood lane where waterlogging, overflowing community garbage bins, stagnant wastewater and mosquito breeding grounds coincided. Residents discussed the possibility of having waste segregation training and health awareness sessions in the community as a response to this issue.

In Ugat site and services area, although residents were equally concerned about flood preparedness, inadequate solid waste management and poor sanitation in the neighbourhood emerged as the main barriers to flood resilience. When asked about which improvements they wanted to see in the neighbourhood, more than 80 per cent of surveyed respondents indicated that cleanliness is their top concern. During the workshops, men and women identified health awareness programmes and waste management planning as key community-level resilience priorities. Residents reaffirmed that inadequate waste separation, irregular garbage collection and low-capacity drainage pipes presented huge health challenges during floods, especially for the many residents who own livestock. Thus, through the mapping exercise, residents identified multiple locations of overflowing garbage bins, areas where livestock roams freely and locations of

stagnant wastewater to illustrate the lack of cleanliness in the neighbourhood. Women suggested adding more community bins around the area, building platforms to raise garbage bins, ensuring regular waste collection services, setting community-based fines for improper disposal and appointing a secretary or leader for each lane to oversee sanitation standards. Men discussed the creation of community-owned spaces to care for livestock.

In Kosad Awas, even though heat and flooding presented formidable challenges, a lack of social cohesion sidelined the team's intention to focus on disaster preparedness and health. Women and men identified safety and access issues as key resilience priorities, for which women mapped lanes where they felt unsafe due to crime, violence and alcoholism.

Action plans for heat-related health risks were noticeably absent in the community-level workshops. Despite high levels of daily discomfort and illness due to extreme heat, residents perceived rising temperatures as a mere inconvenience instead of a phenomenon attributed to climate change.

In the final step of the UCRA process, a city-level multi-stakeholder planning workshop was held at the Surat Smart Cities office. Here, city officials, public health experts and representatives from community-based organizations discussed the results of the UCRA in each community and identified clear operational entry-points to enhancing resilience planning at the city-level.

One clear outcome of the UCRA was a productive conversation about a city-level heat and health action plan. Approximately half of the survey respondents reported disruptions in livelihoods due to fevers, nausea and fatigue caused by extreme heat, a key learning which later encouraged community members to view heat as a climate disaster. In the final workshop, city officials committed to working towards white-washing roofs and establishing green belts around industrial complexes to reduce heat exposure. They also discussed training medical professionals to deal with heat complaints as serious injuries and increasing the capacity of community-based organizations, such as the Women's Health Trust, to circulate heat-related messages. The findings of the UCRA will contribute to Surat city's upcoming heat action plan.

The UCRA also clearly illustrated the health impacts of poor waste management and flooding in Surat. More than half of the respondents financially invested in cleaning out blocked drainage pipes before the monsoon season to prevent wastewater stagnation. In addition to low-capacity drainage, residents identified overflowing garbage bins and inadequate waste separation processes as drivers of fevers, malaria, leptospirosis and skin infections. In response to the findings on floods, at the final workshop, city officials referred to the development of a large infrastructure project to desilt the Tapti River and design its floodplain to manage river

overflows. They also discussed capacity building schemes and neighbourhood peer groups for effective waste management. However, more work needs to be done to catalyse action around waste management at the city level.

In the long term, the UCRA has equipped Surat city with a concrete framework to assess and monitor urban resilience

capacities. Additionally, the process of the UCRA has altered the urban planning culture in Surat by integrating community level narratives and experiences into a traditionally top-down planning process. Further iterations of the UCRA may facilitate a shift towards inclusive resilience planning at the city-level.

Key Words: [Urban resilience](#) | [inclusive planning](#) | [heat action plan](#) | [urban waste management](#) | [flood risk planning](#)



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THE URBAN RENEWAL OF THE CITY CENTER AS PART OF THE DEVELOPMENT OF THE LIGHT RAILWAY TRACK

About the Case

Health issue: Well-being

Type of intervention: Design, spatial plan, and programme

Spatial Level: City-region / metropolitan, city/municipal, neighbourhood

Key focus areas: Transport and mobility, air quality, local economy

Jerusalem is recognized as one of the largest cities in Israel as well as a city with geographically sprawled neighbourhoods and a steadily growing population. In recent years, the city centre has undergone a change in land use, transforming from a residential area to an economic district hosting most of the government's institutions. Despite all this change, the city centre was deteriorating and being affected by an insufficient and inefficient transport system. It was outdated and unreliable, and the arterial road network did not provide a suitable alternative making it unable to cope with the large number of residents and vehicles traveling in the city.

Still, significant progress was made in the 1990s when the Ministry of Transport and its municipalities decided to find a solution as a response to the intolerable quantities of soot and filth in the city and constant traffic jams. The first light train line was built in 2011, crossing the city from west to north east and becoming the most efficient route of transport.

The project had two aims: providing mobility and transport solutions and renewing the city centre. Improving transport was one of the changes the city needed to be effective as mobility structures are the arteries of the city, but the transport revolution was not going to be achieved without urban renewal, i.e. changing public space into accessible-safe spaces.

The light train initiative is part of a wider process of improving public transport, accessibility and mobility at city and national scale. To cope with population growth, the Ministry of Transport and the Municipality of Jerusalem established the "Transportation Master Plan". The team in charge was composed of broad and diverse expertise to formulate and implement a municipal and metropolitan transport policy and plan, with the capacity to implement and update the transport plan as well based on urban data and economic analysis.

From the beginning, the Ministry of Transport was focused on environmental aspects (pollution) and traffic congestion, considered as priority areas in the Transportation Strategy 2020. The new traffic policy prioritized pedestrians and public transport mobility. This meant a large investment in pedestrian interventions (one example is the Jaffa pedestrian mall in the

city centre connected to the light train route) such as widening sidewalks and reducing the width of the roads.

City centre renewals are well known worldwide as contributors to the city's development by adding value and making the built environment more enjoyable for citizens. In many cities, revitalization interventions increase the number of tourists, attract private sector investment, create job opportunities, attract young people and businesses with vibrant interests such as day and night entertainment, host cultural events, and promote the development of new public spaces while preserving historical buildings. The renewal programme was thus based on international experience, mainly from Europe and North America.

In 2001, the government decided to support the municipal rehabilitation project and cooperate with the Jerusalem Municipality and the Jerusalem Development Authority "Eden" for its implementation.

As a major project using new transport means and integrating new urban conceptions, there were new challenges to cope with such as statutory issues, technology preferences, residents and merchants' disapproval, etc. In response, a steering committee was established with the City Engineer, the manager of the Transportation Master Plan and the deputy CEO of the Ministry of Transport. Experts were also consulted throughout the process, including urban planners, community workers and communication experts, among others. The project considered not only street design but also included the upgrading of storefronts, which created a unified landscape language.

Community engagement was done during the construction of the line to reduce environmental nuisances, to inform the residents and to jointly solve problems. Before launching the project, a community and educational programme instructed residents on how to use the light rail. The community also chose the shape of the carriages.

Many objectives of the New Urban Agenda have been achieved in the process of planning and implementing this project. The results have motivated decision-makers to continue working along these lines to use urbanization as the driver of development.

The project was finalized in 2011. The city centre has been transformed from a dirty, noisy and dangerous place for pedestrians into a pleasant place to walk around and suitable

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The project has also left a legacy of lessons learned for urban planners, authorities and citizens alike in Jerusalem, such as the fact that integrated infrastructure projects can create a systematic impact, greater than the original intention.

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for physical and community activities. Likewise, the project brought forth the restoration of the city centre and brought back its historical character from 100 years ago when the city's development began. This, ultimately, intends to bring the city and country closer to achieving Sustainable Development Goal 11 by enabling residents, visitors and tourists to take back the public space. Studies also demonstrate a decrease in the annual rate of emissions in the area through the analysis of data collected from a monitoring station in the Davidka square in the city centre.

According to Retail Information Systems Israel, by 2013 the daily revenue per square metre in central Jerusalem was 75 per cent higher than the national average of city centres, and was at NIS 92 per square metre on average compared to a national average of NIS 53 per square metre. Before the urban renewal of the area, local and international brands avoided opening stores in the city centre but this has changed due to the increasing popularity of the city centre. By 2017, the revenue of those stores was higher than the revenue of stores located in malls.

With regard to transport and mobility in the city, in 2011 the light train carried around 40,000 passengers per day. By 2015, however, this number increased to over 140,000 passengers per day. This success of the light train has encouraged the municipality and the transportation ministry to further expand the current line and to plan and build five new lines across the city.

The impact on health has been demonstrated through an analysis based on the human ecology model of a settlement. That model details eight determinants of health (Barton and Grant, 2006). The city centre renewal, as part of trainline development project, realised six determinants out of eight in a clear manner:

1. Lifestyle – the spatial development encourages an active lifestyle by enabling safe and pleasant pedestrian routes (walkability).
2. Community – the current spatial conditions enable meetings between people and the development of communal activities.
3. Local economy – economic activity and business owners' daily revenue increased in the city centre.
4. Activities – Access to activities in the city centre has improved; this enriched the diversity of cultural, communal, economy and leisure activities in the area.
5. Built environment – buildings, places, streets and routes were upgraded to provide a pleasant, interesting and safe environment for people.
6. Natural environment – the city centre experienced a significant reduction in air pollution.

The project has also left a legacy of lessons learned for urban planners, authorities and citizens alike in Jerusalem, such as the fact that integrated infrastructure projects can create a systematic impact, greater than the original intention. For this reason, it is important to carefully analyse and predict the outcomes of projects from the start of the planning process in order to bring about benefits to people's health and wellbeing. In the long run, it is expected that this project serves as an example for other cities and places to learn from and to formulate more inclusive, health-oriented and environmentally friendly planning projects.

Key Words: [Mobility](#) | [air quality](#) | [city centre](#) | [urban renewal](#) | [walkability](#) | [local economy](#)



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Reference:

Barton, H. and Grant, M. (2006). A health map for the local human habitat. *Journal for the Royal Society for the Promotion of Health*, 126 (6), pp. 252-253. Available from: <http://eprints.uwe.ac.uk/7863>

About the Case**Health issue:** Malnutrition, well-being**Type of intervention:** Design and policy**Spatial Level:** City-region / metropolitan, city/municipal**Key focus areas:** Greening, urban food security, urban sustainability, nutrition

According to the United Nations (2017), the world's population reached nearly 7.6 billion by mid-2017, implying that the world has added approximately one billion inhabitants over the last 12 years. The environmental impacts of cities are numerous and are exacerbated by this rapidly growing population. Cities produce less than 10 per cent of their food and rely on water, energy, fuel and construction materials from external sources (Ramaswami et al. 2016). Moreover, cities are critical hotspots for poverty and hunger even in developed countries. For example, in 2017 Italy Statistics estimated that 1.8 million residential households and 5.6 million individuals were living in absolute poverty in Italy, increasing mainly towards the south of the country (ISTAT, 2018). A cause-and-effect response from the escalating global population brings to the forefront the need to re-examine how urban spaces are developed, used and how urban inhabitants are fed (Ackerman et al. 2014).

Food insecurity is an important health problem and an under-recognized social determinant of health (Murthy, 2016). In the Campania region of southern Italy, the prevalence of malnutrition (including overweight and obesity) affects 37.4 per cent of children in the area, while at the national level this number reaches 24.7 per cent (ISTAT, 2017). Edible green infrastructure (EGI) is a planning approach that can improve resilience and quality of life in cities and can prevent food insecurity (Russo et al., 2017; Russo and Cirella, 2018a; Russo and Cirella, 2018b). Research within the Campania region has examined a few EGI-related programmes that assist in developing local community involvement and education.

Edible green infrastructure (EGI) is a sustainable, planned network of edible food components and structures within the urban ecosystem which are managed and designed to foster primarily the provisioning of ecosystem services. EGI typologies are provided and based on one macro category, EGI and urban agriculture, as well as on eight sub-classifications. Several cities have already integrated different types of EGI

into their urban plans. However, management and planning varies in each context; geographically (e.g., climatic zones), socially (e.g., community development, educational benefits and equity) and economically (e.g., employment opportunities and inexpensive food sources) requirements. As a result, urban agriculture and EGI can be used for the sustainable regeneration of urban environments (Russo et al., 2017). An example of urban regeneration via an EGI approach is De Filippo Park in Ponticelli, one of the most degraded, overcrowded and crime-affected suburbs of eastern Naples. This area has been transformed into a variety of allotment gardens which support EGI (Russo and Cirella, 2018a).

Over the last decade, the concept of EGI has become more popular; in the city of Andernach, Germany, the label "edible city" was adopted as residents started growing edible plants in public green spaces. This practice was implemented for several reasons: to raise awareness for local food in which people could harvest for free; to help people eat healthily; to integrate different sociocultural groups into using and managing the urban food system; and to inspire public debate about how to develop the urban space (Fischer et al., 2018). In the United States, since 2008 state and city planners and urban development agencies have been actively promoting urban agriculture after an increase in the availability of unused land, where innovative development revitalized brownfield sites and increased community ties after the economic downturn (Palmer, 2018). The public's health benefited from community enhancement, stress reduction and physical activity – making this a good case for community-based policies that encourage the sustainability of urban gardens through far-sighted urban planning. As a consequence, the application of such gains began with the securing of land tenure needed for community and entrepreneur gardeners to better attribute urban health practice and context driven goals (Brown and Jameton, 2000). Whether urban agriculture and EGI make economic sense is an empirical question. It depends on their profitability and the extent to which they provide food at a lower opportunity cost in term of resources, compared to other alternative means of food production (Zezza and Tasciotti, 2010).

Many Italian municipalities are now using a Food and Agriculture Organization of the United Nations- (FAO) supported tool that helps vulnerable communities to improve their own social status as well as their city (Rusciano et al., 2017). According to the Regional Law n. 5, 30 March 2012, the Campania region recognizes and supports a multifunctional approach to agriculture as a favourable context for the development of interventions and social services, socio-health

and educational issues. Furthermore, the region has created a regional observatory on social agriculture within a multi-functional platform.

In 2009, the Regional Council of Campania published several policies to create a number of “social and community gardens”, connecting vulnerable groups throughout the region and identifying beneficiaries within associated municipalities. The social assistance, planning and supervision sectors examined the financial project “social gardens” and have continued to create regional networks of urban gardening, that ensures the social inclusion of vulnerable people (Russo and Cirella, 2018a). There have been several results: the self-production of agricultural means, food and environmental education, in partnership with a third-party organization, the development of bartering among tenants, recovery of traditional crops, development of organic agriculture, promotion of new forms of sociality, training in biological horticultural techniques, and psychotherapy, psychosocial, physical and motor rehabilitations. All these skills are significant health factors to drive the implementation of an EGI system in different contexts.

Inspired by these policies, many urban agriculture projects have been developed in the region, especially throughout the provinces of Benevento and Salerno. For example, in Cava de Tirreni near Salerno, the project “Matti per l’orto” gives people with mental disorders the opportunity to learn, cooperate and interact within the community by producing alternative urban food sources. In Cilento, the project “Gardens of the Mediterranean Diet” explores dietary health and offers young people the opportunity to learn about farming and food production. In Capaccio Paestum, “OrtoMondo” is a project in which 30 migrants from a nearby migrant centre take care of 11 allotments (Russo and Cirella, 2018a).

The Campania region has expanded EGI in other ways as well by including the first community garden created inside the Archaeological Park of Pontecagnano. Covering more than 22 hectares, it is one of the most important and preserved Etruscan settlements of southern Italy. At present, the community gardens are divided as follows: 54 individual plots each of 100 m² assigned to pensioners over 55; a plot of 1,000 m² divided by waterways (named the “Ortone”) allocated to an association which gives local small groups the ability to purchase sub-plots of 50 m² each; plots for horticultural therapy of about 50 m² assigned to the Department of Mental Health; pedagogical gardens assigned to local schools; plots assigned to the Christian Associations of Italian Workers; plots assigned to the Campania Rheumatic Disease Association; and a garden that has been designed to entice the five senses made up of about 250 m² (Environmental Education Centre, 2018; Marella, 2015). The Campania region has proved to be a viable EGI resource for food security and healthy living. The development of numerous EGI-related programmes is an inspiring approach for urban planners and thinkers alike in transforming ruined, abandoned, unprotected or other types of urban-oriented landscapes into a usable food source and lifestyle advantage (Russo and Cirella, 2018a). The project EGI



The development of numerous Edible Green Infrastructure-related programmes is an inspiring approach for urban planners and thinkers alike in transforming ruined, abandoned, unprotected or other types of urban-oriented landscapes into a usable food source and lifestyle advantage.



4.0 intertwined environmental, social, human health (e.g., mental health, nutrition, outdoor activities that improves strength, mobility and flexibility) and economic benefits, and locates food sources closer to city dwellers, thus increasing food security and lessening food transport distances. It reinforces low-energy and low chemical-input practices, lessens human consumption of processed foods and teaches people from all socioeconomic levels the benefits of locally grown food. An EGI approach can therefore play a vital role in providing city planners and policy makers with further justification for green space conservation and use.

The development of using EGI corresponds with the three pillars of sustainable development in which ecosystem services can be closely integrated into an urban food network. The findings from this project linked a number of educative benefits, including the extended use of community gardens for pensioners, business development, horticultural therapy and pedagogical and experimental gardening. The “greening” of an urban landscape plays a collaborative role in public health as well as bringing intrinsic value to a community. The health benefits of urban agriculture and EGI range from educational dietary health issues to the involvement of patients with psychological and emotional fragility in horticultural therapy-oriented projects. Urban agriculture and EGI developments can help to reduce the prevalence of “food deserts” by providing accessible, healthy food within inner-city neighbourhoods, particularly to residents of low socioeconomic status (WHO, 2018). Furthermore, EGI projects in schools have the potential to conserve agrobiodiversity and positively influence the diets of urban school children, and to reduce obesity and malnutrition (Russo et al., 2017). The educative components of this practice reconnect people (especially young people) with knowledge about the food they consume. Local food know-how includes where food comes from, how it is grown or made, who produced it and when it was planted and harvested. Local, intrinsic understanding of food production can be associated with improving one’s dietary attitudes, reducing the risk of allergic disease as well as overall eating habits (Byker et al., 2010; Mie et al., 2017).

The Campania region’s EGI-integrative approach to these challenging issues is a good example of transformative urbanization from de-cementification to a “green”, garden-oriented future. Such an approach introduces “green” in replacement of non or less “green-based” development, triggering the application of nature-based solutions.

Throughout the region, development concerns and lack of financial support have plagued municipalities with concerns on how to advance and move forward, often with minimal external provision. Local efforts, however, have implemented EGI and specifically fortified aspects of the EGI 4.0 project's achievements and applicability throughout the region. Its

success can be expanded to other regions throughout Italy with few complications. At present, EGI methodologies from project expertise are ongoing, with enlargement research being conducted throughout Europe, Africa, Asia and North America.

Key Words: Food security | well-being | ecosystem services | edible green infrastructure | horticultural therapy



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About the Case**Health issue:** Sanitation-related diseases**Type of intervention:** Strategy**Spatial Level:** City Municipal;
Neighborhood**Key focus areas:** Clean water and waste
management: slum upgrading; food systems

Today, 2.5 billion people around the world do not have access to a toilet and 4.5 billion people use sanitation systems that discharge human waste back into the communities where they live. Living in these conditions is an environmental, economic and health risk. Every year, 760,000 children die of sanitation-related diseases and USD 260 billion is lost in global economic productivity. Proper management of excreta is the primary barrier to prevent the spread of pathogens in the environment, directly impacting disease transmission. However, concentration of poor populations in urban slums is associated with higher risks of transmission.

In Kenya, where Sanergy launched in 2011, over 90 per cent of the sludge from 8 million slum dwellers is being dumped untreated into waterways, polluting the environment with toxins and contaminants and costing USD 270 million in lost economic productivity each year. In Nairobi, there are more than 2 million people living in informal settlements. Nairobi's residents have a wide range of income levels and despite the city's position as a global centre it is struggling to address the challenge of rapidly expanding urban slums. Sixty-nine per cent of urban residents in Nairobi do not have access to improved sanitation and conventional approaches have failed to solve this crisis due to high population densities, insufficient land, the short lifespan of latrines and safety issues. Providing adequate sanitation services in these areas, which are densely populated and complex to navigate, is thus particularly urgent in order to safely manage waste and avoid negative consequences for the entire city.

Sanergy addresses the failure of existing approaches to fully address sanitation needs through innovative on-site sanitation solutions, including container-based sanitation which safely manages human waste across the entire value chain. Since 2011, Sanergy has rapidly expanded its network of toilets in the Mukuru and Mathare slums in Nairobi and has a network of more than 1,900 Fresh Life Toilets as of October 2018. Sanergy removes the waste in a safe manner from these toilets and treats and converts it into useful end-products, such as organic fertilizer and protein-rich animal feed.

Focusing on these informal settlements has been essential in order to reach as many people as possible with safe sanitation that is affordable, incentivizing residents to use professional services over unsafe waste-emptying methods that pollute the environment and create public health risks.

This initiative has demonstrated the potential of a financially sustainable safe sanitation value chain approach for urban areas in Nairobi and is poised to leverage their learning to develop appropriate, cost-effective models for cities throughout the developing world. Building on this, by the end of 2020 Sanergy seeks to achieve an active network of 4,900 Fresh Life Toilets that will serve approximately 40 per cent of Nairobi's population (196,000 people) at a cost of USD 20/person/year with the government bearing only USD 11/person/year of that cost. Beyond paving the way for long-term sustainability of safe, affordable sanitation in Nairobi, Sanergy is partnering with others to apply its learning to expedite progress in urban sanitation improvement worldwide.

In seven years, Sanergy has established a network of franchised facilities and removes waste from slums through cost-effective, customer-centric products and services and by linking markets to waste-derived end-products, thereby ensuring that affordable service fees collected from toilet owners and end-products sold counterbalance most of the service delivery costs. This is done by:

- 1. Offering cost-effective, quality alternatives to sewers – modular sanitation solutions that are designed to evolve as cities grow.**
- 2. Realising the entire sanitation value chain by using market-based approaches whenever possible, and reducing the financial burden on the resource-constrained public sector.**
- 3. Developing desirable sanitation services for residents of urban slums, increasing their willingness to invest in sanitation and adopt new behaviours.**

At each step of the sanitation value chain, Sanergy applies pragmatic solutions. For containment, a network of low-cost, high-quality sanitation facilities, Fresh Life Toilets (FLT) has been developed with residents investing in it to provide a value-add service to tenants or run as a business. For emptying and transport, Sanergy provides quality waste collection services that people pay for because it is professional, guaranteed and frequent; all hires are local. Finally, for treatment and reuse, Sanergy guarantees that the waste is treated and then reaches re-use markets. The waste is converted into agricultural inputs – organic fertilizer and insect-based protein – for sale to local farms, which have significant demand for both products.

The results can be observed in cleaner communities and residents leading healthier, more productive, and higher-quality lives.

- The strengthened enabling environment, strong World Bank research and strong operational results pave the way for Sanergy to increase its scale by saturating slums with safe sanitation services. To that end, they seek to continue growing the FLT network & improve the cost-effectiveness of the current FLT delivery model in Nairobi.
- Developing new sanitation products and service delivery models to increase participatory financing from actors across the value chain.
- Engaging the public sector and multilateral community for expansion and replication within Kenya.
- Partnering with others to expedite progress in urban sanitation worldwide.

4. Continue growing the FLT network & improve the cost-effectiveness of the current FLT delivery model in Nairobi.

Building on the current model, Sanergy will continue to sell or lease FLT close people homes and keep them clean and open. The network is expected to expand in the same areas in order to increase density and thus ensure safe and hygienic sanitation for the residents of Nairobi's slums in a cost-effective manner. The focus is predominantly on residential toilets – engaging with landlords who, over the last year, have adopted a new leasing model with enthusiasm. Sales are up threefold year-on-year and the pipeline for future operators is robust.

At the same time, Sanergy will continue to improve on the hallmark of its success: being customer-centric towards landlords, entrepreneurs and community leaders operating the FLT. In 2017, the renewal rate to remain in the network was of 98 per cent. By building the capacity of customer support, Sanergy expects to become more efficient as the network continues to grow.

5. Developing new sanitation products and service delivery models to increase participatory financing from actors across the value chain

Sanergy is building on the success of the FLT model to develop a suite of cost-effective products and service delivery models that ensure the safe removal of waste from the community and designed for customers in urban slums, where there is not a one size-fits-all solution for affordable, accessible and safe sanitation. The goal is to develop at least two additional solutions to the current offering.

Three initiatives are being developed to increase outreach to areas and customer segments not currently covered. These are: conversion of pit latrines to FLT; safe emptying of waste from pit latrines to reduce risks for the community; and an

in-home toilet model to enable individual households to take control of their families' sanitation. Pilots were carried out in 2017 and are now being expanded.

6. Engaging the public sector and multilateral community for expansion and replication within Kenya

The growth strategy positions Sanergy to be an affordable option for municipalities, starting in 2020. To do so, consistent operational success must be demonstrated at a credible scale to the Kenyan Government. Replication with other municipalities must also be established. Over the last six years, work has taken place hand-in-hand with the ministries of Health and Environment to develop the 2016-2030 Kenya Environmental Sanitation and Hygiene (KESH) Policy. The policy specifically recognizes the importance of cartridge-based sanitation services in Kenya's informal settlements and endorses both private participation and re-use markets.

The policy also encourages governments to use public-private partnerships (PPPs) for sanitation provision. Over the next three years, Sanergy will continue to engage the public sector and partners to implement the KESH Policy at the local level by co-convening the Urban Sanitation Technical Working Groups (TWG) for Nairobi County to help ratify this policy locally. In order to build on this policy work, a partnership will be launched with the Kenyan Government whereby the government pays for sanitation services provided by Sanergy to residents of non-seweraged urban slums.

7. Partnering with others to expedite progress in urban sanitation worldwide

Success in Nairobi sets a critical precedent: it is possible to cost-effectively deliver hygienic, appropriate sanitation services in urban slums. As operations in Nairobi increase and to strengthen the relationship with the government to expand and replicate within Kenya, lessons from this process will be shared with governments and other partners committed to addressing the urban sanitation crisis.

Sanergy has developed a strong record of accomplishment. As of October, 2018, the network of over 1,900 FLT is used 70,00 times every day. 5,000 tons of waste are safely removed from the communities each year, ensuring that the waste is treated and enters re-use markets. By ensuring that this waste is safely removed from communities, exposure to faecal pathogens is reduced and, in doing so, the risk of diarrhoea is reduced.



This initiative has demonstrated the potential of a financially sustainable safe sanitation value chain approach for urban areas in Nairobi and is poised to leverage their learning to develop appropriate, cost-effective models for cities throughout the developing world.



It has also proved that a non-seweraged approach to the urban sanitation challenge is feasible. While it costs USD 56/ person/year to provide sewerage sanitation in urban slums – and forces cities to increase their water consumption by 40 per cent – Sanergy’s approach costs only USD 28/person/ year. Compounding the efficacy, nearly 50 per cent of this delivery service is covered through market forces – investing entrepreneurs, landlords and farmers. Thus, the outstanding cost to deliver these services is USD 15/person/year, making it four times more affordable than sewers.

Finally, an impressive track record has been built with the Government of Kenya as seen in the collaboration for the development and implementation of the KESH Policy. Sanergy is working with Nairobi Water – the county’s utility – on establishing a partnership to run a small-scale pilot under their auspices. With Nairobi County, the team is working to receive full safe sanitation planning certification from the World Health Organization.

Key Words: Container-based sanitation | sludge management | sanitation value chain | environmental, social, economic and health benefits



Nairobi, Kenya © David Auerbach

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About the Case

Health issue: Sanitation, dengue fever, typhoid, cholera

Type of intervention: Spatial plan, policy, and programme

Spatial Level: Neighbourhood

Key focus areas: Public health and hygiene, waste management, sanitation and slum upgrading

Al Ruwais is an unplanned district near the heart of Jeddah, which sprawled off Madinah road during the uncontrolled expansion of the city in the late 1960s and 1970s boom. The neighbourhood covers an area of approximately 3 kms² (JDURC, 2018) and, according to local sources, its origins can be traced back to 150 years ago when it functioned as an annex village for Jeddah's historical gated centre to its south.

Due to the unplanned nature of this area, inadequate infrastructure has resulted in alarming public health hazards for the population, now reaching 35,000 residents (Al Shiehi, 2016). However, this number gives no clear indication whether it includes the number of undocumented residents who interact and serve Jeddah's community through a vital number of blue-collar jobs. A survey conducted by the municipality showed that between 52 and 59 per cent of the district's inhabitants lack essential basic services such as electricity, water and sewerage (Ghazawi, 2014). Thus, poor housing conditions, water supply, sanitation and solid waste management, as well as low awareness are the major factors behind a range of public health issues, including the proliferation of mosquitos and houseflies that transmit diseases such as dengue fever, typhoid and cholera.

In 2009, an urban plan for the district was proposed by the Jeddah Development and Urban Regeneration Company (JDURC), a state-owned company represented by the Jeddah Province Municipality and Public Investment Fund (JDURC, 2018), to develop the area into a high-profile, mixed-use and commercial hub for the city. This strategy experienced a fierce backlash from the residents of the neighbourhood due to the unfair nature of compensation, no historical acknowledgement of the area and the lack of an adequate relocation strategy by the state-owned entity (Al Shiehi, 2016). Pushback from the community eventually put the project on hold as a result of the lack of cooperation between public and private sector and residents in the area.

With this plan hold, an opportunity arises for a gradual intervention that engages the residents in a public health campaign to remove the stigma associated with the previous intervention; ultimately, to benefit and serve their well-being. Ruwais UN-Planned would be the first step, taking into account the residents' needs and not alienating the main beneficiaries. It will reintroduce trust in state bodies such as JDURC again and give a voice to the residents and the motivation to participate.

In line with the country's Vision 2030, and more specifically the vital Quality of Life Programme 2020 (QOL 2020, 2018), Ruwais UN-Planned will increase public health awareness in the area by educating the population on basic health standards as a start to this territorial planning exercise. The goal is to incorporate these practices into their daily life by providing them with the necessary tools to maintain sanitary standards, in addition to combating disease through non-intrusive control methods such as sustainable insect repellents.

This initial phase is expected to gain traction via a tailored public awareness campaign on health risk in Al Ruwais that is replicated in other parts of the city. The campaign aims to align all residents to a common vision for improving standards in Al Ruwais through simple interventions. In addition, a strategic sanitation control and cost-effective infrastructure intervention is proposed as a solution to the underlying problems regarding cleanliness, solid waste management and infrastructure remediation. The project would begin in early 2020, with initial results expected later in the year and with clear changes emerging in mid-2021.

In order to be successful, mobilizing all residents (documented and undocumented) is a key component for achieving the interventions' main objective of increasing the general health standards of the inhabitants. The approach can be categorized into three distinct and parallel phases:

1. A public awareness campaign in order to educate residents on how to reduce public health illnesses associated with poor hygiene practices, using basic epidemiological studies of the area and mitigation;
2. Sanitation control through an incentive-based recycling programme and non-intrusive pest control scheme;
3. Economical infrastructure intervention to temporarily improve the quality of roads in between slums.



Poor housing standards is the most challenging issue to overcome in Al Ruwais because of the unplanned nature of the district. The entry point to addressing this challenge is improving road connectivity.



The public awareness campaign will focus on diseases in the area being spread by mosquitos and houseflies. Posters and newspaper handouts will be the method of communication. This is inspired by *Mawbima*, a Sri Lankan newspaper which, in 2013, led a successful campaign against Dengue fever in the region. An epidemiological study of the area will be the basis to better understand the drivers of disease here and to identify a mitigation strategy. Once completed, effective posters throughout the neighbourhood and handouts – using citronella essence mixed with the ink as *Mawbima* did – will be used as an information tool and as a natural insect repellent. The handouts will include illustrated hygiene and prevention methods and will be available in various languages considering the diverse backgrounds of residents in Al Ruwais.

For sanitation control, policies and incentives will be adopted to reward those who participate in tackling the sanitary and solid waste issues Al Ruwais extensively suffers from. Due to the physical characteristics of the neighbourhood such as narrow roads, waste trucks are not able to effectively service the district, leaving waste uncollected for days or even weeks, which in turn leads to incubating diseases. Volunteer residents will be incentivized to engage in a recycling and waste-clearing programme, which will in turn reward them financially with vouchers to purchase food products and amenities from designated grocery stores participating in the programme with the support of the government. The main idea behind this is that residents have local knowledge crucial to effectively manage this process. Collection centres will be assigned throughout the district to collect the waste from local residents and disburse financial incentives. In addition, data on waste generated will be collected and analysed to inform future interventions in development plans for the neighbourhood. This will create a sustainable ecosystem where out-of-reach areas will be serviced by local residents while a more formal solution is achieved.

Because of the unplanned nature of the district, poor housing standards is the most challenging issue to overcome in Al Ruwais. The entry point to addressing this challenge is improving road connectivity. Once sanitation control is underway, data collected during this phase will be used to identify and prioritize infrastructure repairs to temporarily fix inaccessible roads and, eventually, be able to service non-connected structures. A simple first intervention would be the clean-up of dirt roads and road repairs using cost-effective subgrade material. This is a temporary solution however. The proposed activities are interim solutions to better service the area while more permanent action is being planned.

Even though Vision 2030 has been established as the first step to Saudi Arabia's journey towards a better, brighter future for the country and its citizens (Vision 2030, 2018), the strategy derived by JDURC is the only city intervention in the pipeline to convert the unplanned settlement of Al Ruwais into an emerging urban core. Hence, Ruwais UN-Planned intends to set the foundations for the area to become a success story and reconsider it as an important urban centre, without demolishing the existing neighbourhood and affecting the livelihood of its residents.

Looking at the project, the stakeholders can be classified into two distinct categories. Governmental stakeholders, that is, the state-owned entity along with its affiliates, and private stakeholders being the residents of the neighbourhood (documented and undocumented) along with volunteers from the rest of the city. Thus, the target audiences for this initiative are the JDURC, Jeddah Province Municipality, the Presidency of Meteorology and Environment (PME) as the authority responsible for environmental implications of the proposal, and the Ministry of Municipal and Rural Affairs. The newly created Al Ruwais Community Association (RCA) will represent the residents and raise their aspirations and needs to be incorporated into the proposed future plan.

The decision-making process will be guided by the creation of a steering committee, composed of government and resident representatives, and put in place to guide further development processes after the implementation of first phase of Ruwais UN-Planned. The final policy and decision-making outcomes will come from the government entity and its affiliates. However, unlike the previous strategy directed by JDURC, the residents will be integrated and empowered for the transformation of the area. With the improvement in lifestyle, a more gradual approach could be taken in the future phased improvement plan of the existing infrastructure in order to steadily increase health and well-being in the area.

Ruwais UN-Planned falls strategically under the Vision 2030 by improving the quality of life of the community. In the short term, it is predicted that the awareness campaign will educate the population regarding adequate health and sanitation practices and serve as a starting point to the revitalization of the district. In the long term, it is expected that the benefits of the programme will assist in revitalizing the area into a lively core in the city of Jeddah. This is to be achieved through knowledge sharing, disease prevention actions and community integration. If successful, these practices could be a case study to approach the other 53 unplanned settlements in Jeddah (El-Shorbagy & El-Shafie, 2014). However, this will only be achieved by understanding the true needs of the community, especially those of the undocumented and neglected residents. The involvement of undocumented residents is the main sub-factor in the success of this project as they are active within the community. Notably, these undocumented residents have been spearheading development through community interaction in the area; the government will have to grant some form of support to enable them to become a driver for success in the improvement of the neighbourhood.



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DEVELOPING A CONTEXT-SPECIFIC BUILT ENVIRONMENT CHECK FOR METROPOLITAN LAGOS, NIGERIA

About the Case

Health issue: Well-being; health equity

Type of intervention: Strategy

Spatial Level: City-region / metropolitan, city / municipal, neighbourhood

Key focus areas: Urban planning, infrastructure, environment

Sustainable Development Goal 11 focuses on the creation of inclusive, safe, resilient and sustainable cities. In line with this goal, this initiative set out to understand and audit the built environment of neighbourhoods in metropolitan Lagos as a first step towards understanding how the sustainable development of the urban area and similar contexts can be ensured.

It is widely recognized that unsustainable urban development patterns lead to poor physical and mental health outcomes for citizens. Increasing mortality rates can be attributed to issues such as exposure to polluted water and air, injuries and casualties caused by accidents with motorized vehicles, and poor access to health care for the urban poor. While cities in the African context continue to expand, there are no specific tools to measure their development and socio-spatial characteristics and identify where interventions are most needed to improve urban health.

A first step in solving this problem was to create an adapted, context-specific audit of metropolitan Lagos in Nigeria. Given the potential for neighbourhood audits to facilitate an understanding of urban environmental health as well as community empowerment (Gullon et al., 2015), this study piloted an audit proposed by Brownson et al., (2004) in metropolitan Lagos to gauge the environmental determinant of health in the area and provide recommendations for creating a healthy metropolis. The audit characterises physical features of the built environment, such as the presence of trees, litter and graffiti, pavement quality, people movement and recreational destinations and has proved to be valid and reliable in neighbourhoods in the United States.

Once the audit model was adapted to the local context, a combination of peer-reviewed literature, expert input and digital information was used for the analysis. One of the aims of this audit was to yield information on how standard built environment features may differ across contexts in order to inform healthy urban development initiatives in the context of rapidly urbanizing cities in developing countries.

The audit was piloted in Festac Town, a district in Lagos. On the day of the pilot, surveyors walked together with the lead researcher through five neighbourhoods and then reviewed the scores for each component of the audit. Data reliability was confirmed and the training was completed once there was at least 85 per cent agreement on the ratings.

Depending on the features observed, additional questions were added to the audit. For example, a section on informal businesses was added to observe petty traders, clothes sellers and nomadic tailors locally called obiomas. Other informal features included motorcycles locally called okadas, on-street parking, security guards, informal transport buses known as molues, and tricycles known as keke napeps. Different maintenance levels of dwelling were also observed, which led to adding questions such as "are residences well-maintained?" Likert Scale responses were used to note the condition of residences.

The revised audit was administered in a purposeful sample of 72 street segments altogether, classified into low-, medium- or high-income categories based on the income level that was predominant in the majority of the four wards in three local government areas. These income classifications were based on government classifications of income in each ward as documented by Nwokoro (2008). Out of the three local government areas, Eti-Osa was predominantly high income, Ikeja was medium income and the Ifako-Ijaiye area was predominantly low income.

As the sampling progressed, community members would often approach the surveyors to learn more of the activity. In some cases, they commented on built environment issues that were of concern to them. In these cases, the surveyors took note of the remarks.

The final audit is available online for researchers, activists, scholars, community members, urban planners and governments to inform planning from a health "lens".

This study aimed to contribute to the pool of global knowledge on built environments and their relationship to urban health by adapting the audit model to the context of the Lagos metropolis and, in doing so, generated a preliminary understanding of the characteristics of built environments which promote or deteriorate health in rapidly-urbanizing settings.

The study revealed that the main land-use forms in urban neighbourhoods in metropolitan Lagos are for residential, community and commercial purposes. It also identified the provision of power supply, waste management services, urban governance and road infrastructure as priority areas for urban health interventions.



On the long-term, it is expected that this initiative serves as an example to promote multidisciplinary efforts between design professionals and the end-users...



The auditing process also demonstrated that high levels of informality in service provision, security provision, transport, parking and waste management exist and must be accounted for in this context. The original audit was also revised to be able to account for informal features in the future.

The proactiveness of residents in the auditing process proved to be resourceful for building urban social capital in the neighbourhood to address some of the needs. This possibility is supported by the observation that communal domains of the neighbourhood are both under-served by the government and not catered to by individuals. In the future, it will therefore be important to explore how proactive neighbourhood behaviours may be drawn upon as a resource to build community capacity for healthy urban governance.

While residential buildings were often in good condition, communal neighbourhood domains such as waste management facilities, drainage and road infrastructure were often in need of improvement. This finding shows that the demand for

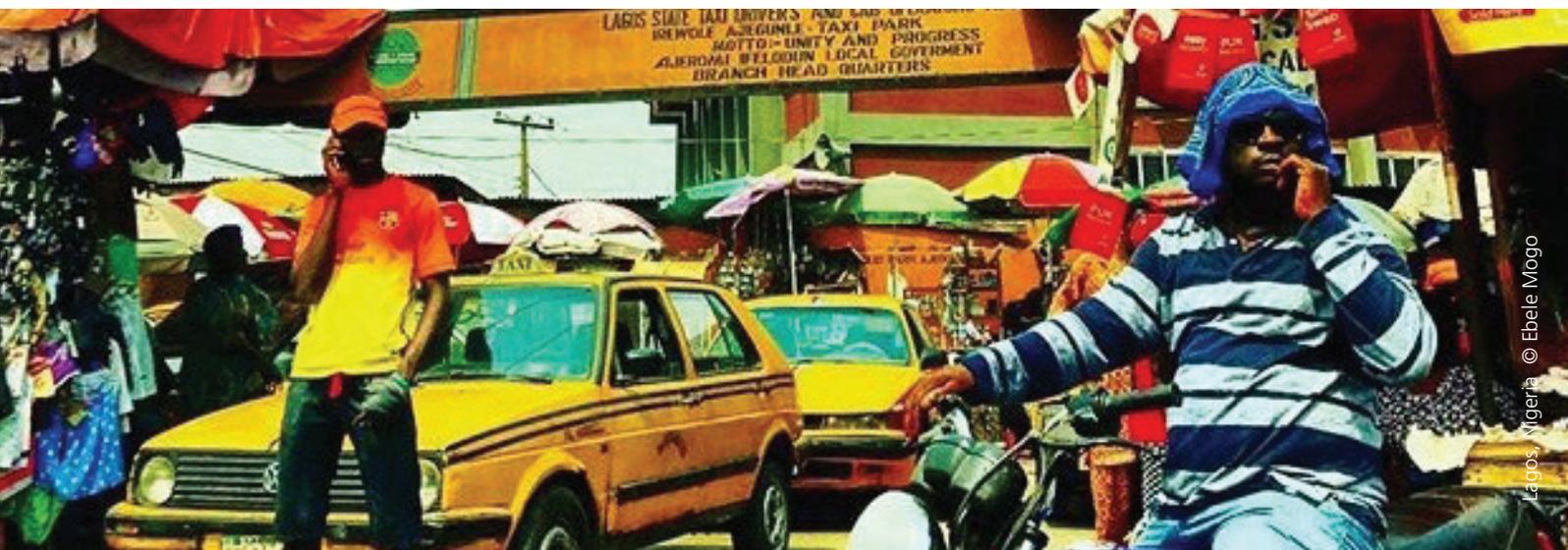
government services is higher than the supply and that there is need for interventions to focus specifically on communal facilities in order to improve the neighbourhood's health and well-being.

Active transport provisions such as those that enhance the ability to walk and cycle around were entirely missing in most neighbourhoods. While it may be argued that there is already highly effective travel modes, this further necessitates investments specifically for active transport to ensure the safety of residents and make recreational physical activity more feasible.

In the end, the initiative was disseminated through the media and through an open-access published article to inform efforts on how to characterize aspects of the built environment in metropolitan areas and to inform evidence-based efforts to integrate health and robust socioecological considerations into city and metropolitan planning.

Impact at the policy level remains to be seen, although the findings can already inform urban policy aimed at the improvement of neighbourhood health. Hence, the findings were shared with professionals in government ministries, local organizations and community partners via print and social media, as well as to academics in Lagos and the wider African region through conferences and digital channels. Collaborations to build on this work through more extensive dialogue and a more engaged policy process are foreseen in the next steps of this initiative.

Key Words: [Built environment audits](#) | [urban health data](#) | [rapid urbanisation](#) | [community engagement](#)



Lagos, Nigeria © Ebele Mogo

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About the Case

Health issue: Water and sanitation, waste disposal, access to health care & social services, child well-being and development, child malnutrition, irregular health monitoring in children

Type of intervention: Design, spatial plan, strategy, programme

Spatial Level: City / municipal, neighbourhood

Key focus areas: Slum upgrading, security of tenure, early childhood development.

Many South Africans live in unsuitable environments without access to water, sanitation or proof of address. Currently, more than 60 per cent of the country's population lives in urban centres. South Africa's informal settlements are home to about 7 million people (11 per cent); neighbourhoods where social and economic exclusion raises levels of poverty, unemployment and crime in a vicious cycle.

Access to water and sanitation is a human right, a right to which more than 10 per cent of South Africans do not have access. Moreover, 1 in 3 people have limited access to basic sanitation and 26 per cent live with sub-standard services.

Young children growing up in these informal settlements are particularly vulnerable; few have access to nurturing environments that foster learning and growth. In Cape Town's informal settlement of Monwabisi Park, only 30 per cent of children younger than 6 years old have access to early child development (ECD) programmes. There is a high rate of malnutrition amongst children in these communities, which has adverse effects on their growth and development; many children have a Vitamin A deficiency, have not been vaccinated and receive only irregular health monitoring.

Through its holistic approach the Neighbourhood Upgrading in Informal Settlements, by Violence Prevention through Urban Upgrading (VPUU), addresses a multitude of health issues, including access to drinking water, sanitation and waste removal (CitySpec), child well-being and development (ECD centres) and access to public services and health professionals via community databases and proof of address (CRO).

Ongoing neighbourhood-level interventions are being implemented in the informal settlements of Monwabisi Park and Lotus Park. Monwabisi Park is an informal settlement

of 25,000 residents on the fringes of Cape Town's biggest township, Khayelitsha. Lotus Park is located on the Cape Flats in Gugulethu and is home to 6,000 people.

VPUU has been working with these communities since 2008 and 2012, respectively. The various components of neighbourhood upgrading (as per VPUU's methodology) in both areas are ongoing and maintained through an area-based approach to urban upgrading. VPUU works in partnership with communities, government, the private sector and civil society to achieve its aims. Joint learning is intended at all levels of engagement.

The city of Cape Town's Integrated Development Plan (IDP) is the main strategic framework guiding decision making within the municipality. Through its partnership with the City of Cape Town, VPUU is well-aligned to the city's strategy, specifically in the areas of leveraging technology for progress, creating safe communities and basic service delivery to informal settlements and backyard dwellers.

The initiative's main stakeholder groups are the community and local government. VPUU serves as an intermediary between both. By voicing community needs and helping to develop the channels and infrastructure for constructive engagement, VPUU strives to strengthen accountability and cooperation between local government and the communities they serve.

Within the community, community leaders and ECD facilitators, neighbourhood centre management and staff, fieldworkers and ground staff play an important role. Adults and children are stakeholders and beneficiaries of the neighbourhood upgrading projects.

VPUU brings the expertise of its team to the process – composed of urban designers and architects, ECD experts, operation and maintenance management professionals, and GIS and knowledge management experts.

A research-based, highly participatory methodology is used to work with a community. This requires significant time investment in pursuit of a healthy development processes. The methodology can be broken down into five steps:

1. *Social compact and profiling:* The intermediary (i.e. VPUU) goes through a transparent process of assessing the existing community leadership and stakeholders, after which a representative community committee is formed and undergoes structured leadership training. A baseline household survey (10 per cent household sample) is later conducted.

2. *Planning:* In line with the leadership's vision for the community, the city's IDP and the baseline survey outcomes, a community action plan (CAP) is developed together with the community. Prioritization of individual interventions takes place considering the wider sociopolitical and financial contexts. Here, a participatory design methodology is applied.
3. *Implementation* is done via line departments, province, the intermediary, community groups, NGOs and the private sector.
4. *Operation and maintenance management:* The programme measures its success from a sustainability point of view. Sustainability in this sense includes capital infrastructure, community skill levels, social cohesion via social support, improved safety levels and economic development.
5. *Monitoring and evaluation:* There is ongoing monitoring at various levels of implementation, along with an annual review of the CAP.

The household surveys are a tool that VPUU uses in all the communities that it works with. The household surveys are as a baseline study – a “mini” census. They are also used to collect information on the health of households, as well as people's perceptions on issues related to health, public service provision and crime. VPUU's Knowledge Management team trains community members to conduct the surveys via an Open Data Kit mobile app.

In addition to this methodology, VPUU runs several parallel components to complement the efforts of the Neighbourhood Upgrading in Informal Settlements.

One component, the Emthonjenis (an isiXhosa word for the place where water originates), leads the development of socially transformed water collection points. The goal is to build social cohesion, improve safety and provide access to hygienic, dignified communal water points in dense informal settlements. They are dynamic, multifunctional spaces for gathering, playing, washing and business opportunities. Safe walkways link them to other key locations within the community, such as creches. In Monwabisi Park and Lotus Park, they provide safe spaces for early childhood development activities and encourage safe play and equitable access to education and health for children in informal settlements. The focus here is to develop small-scale solutions to improve quality of life, in partnership with local communities.

The Emthonjeni is a practical example of how to transform unsafe, underused public space into safe places of quality learning. VPUU believes spaces that hold clean and healthy water, regular quality education programmes and are consistently monitored and evaluated are catalysts for an attractive and vibrant neighbourhood. Children's wellbeing, crime prevention and healthy neighbourhoods start with early childhood development.



A research-based, highly participatory methodology is used to work with a community. This requires significant time investment in pursuit of a healthy development processes.



Another component, the Social Tech: Community Register Office, is a community owned solution bringing tenure rights to people in informal settlements. Besides opening opportunities to an increased security of tenure, the Community Register Office facilitates improved service delivery and allows people to regain a sense of belonging and ownership.

The Community Register Office (CRO) gives communities agency to hold the local government accountable in for service delivery. With the enumeration survey, CRO fieldworkers count all houses and allocate a unique house number, collect individual household data and map them using geographic information systems (GIS) technology. Monitoring population size can thus help the government to respond to needs and demands based on evidence.

The CRO Office serves as a local community information hub where residents can register their personal information for record keeping. By registering personal details on the office's database, residents have the opportunity to access legitimate and incremental land tenure. Government departments access this information to optimize service delivery; they can locate residents for distribution of grants, chronic medication and many other services. Thanks to this service, social workers have found it easier to locate residents, monitoring the wellbeing of children in foster care, etc.

Community members are trained to collect and capture data from households, manage the CRO and distribute information on request to community members and other stakeholders. Fieldworkers are trained to use different types of technologies, including GIS, the Open Data Kit application, mobiles and personal computers, and the maintenance of the electronic resident database.

The CRO's land register and tenure database plays an important role in supporting other projects by enhancing the value and interpretation of information within the CitySpec and ECD space. CRO contextualizes the communities in which projects will be implemented.

Since 2015, VPUU has assisted with the set-up of one CRO in each informal settlement, reaching a 100 per cent registration rate in both communities. In Lotus Park, 1,403 households are registered on the community database; of the 3,300 people living in Lotus Park, 613 people sought assistance with the CRO in the first year. In Monwabisi Park, 6,507 households registered and 6,470 tenure certificates have been issued by the city of Cape Town.

The impact of this project on the population was improved wellbeing (sense of belonging); with proof of tenure, residents are able to apply for bank accounts, information, SIM registration, etc.; government departments are more able to access information to locate residents for distribution of grants, chronic medication and many other services; improved service delivery; and improved security of tenure.

From this initiative, the main challenges encountered occurred during the application of the system in the community and the uptake by government departments. Gaining traction within existing institutional frameworks is also challenging.

What can be learned from this initiative is the inclusive innovation that comes through stakeholder engagement in every step of the way. Participatory planning has higher levels

of success when implemented throughout the processes, ensuring all stakeholders are brought on board from the start, which in turn increases the chances for ownership of the process.

The VPUU approach to urban upgrading is holistic and replicable. In working with local and provincial governments, VPUU aims to influence planning and strategy at a policy level. Moreover, through evidence-based implementation, VPUU's methodology allows policy to be translated into practice and caters for the unique context of each community, working hand-in-hand with participation to develop a community-led process.

Key Words: [Water and Sanitation](#) | [child well-being and development](#) | [security of tenure](#) | [participatory planning](#) | [placemaking](#) | [neighbourhood upgrading](#) | [violence and crime prevention](#)



Western Cape, South Africa © VPUU NPC

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About the Case

Health issue: Prevention, obesity, overweight, health problems, respiratory diseases, cardiovascular diseases, neuro mental illness, wellbeing

Type of intervention: Design, spatial plan, programme

Spatial Level: City-region / metropolitan, city/municipal, neighbourhood

Key focus areas: Greening, walkability, urban planning, vacant spaces.

Collective health is largely determined by policies outside the health sector. Issues such as socioeconomic factors, education and culture, the physical features of cities and towns, environmental factors, etc., have a stronger impact on people's health and quality of life than the healthcare system itself. Some studies, such as *A New Perspective on the Health of Canadians 1974* (Lalonde, 1974), indicate that the health system affects only 11 per cent of human health, compared to 19 per cent by the environment and 43 per cent by lifestyle.

The complex relationship between health and the environment in which people live and work can have very direct positive or negative impacts on human health. For example, urban environments often encourage sedentary lifestyles which contribute to major health problems such as obesity and cardiovascular diseases. These environments can also promote dependence on vehicles, which are often fossil-fuelled, causing negative environmental impacts such as air and noise pollution - two important risk factors for health. The impact can also be less obvious, such as the influence of urban transport on the isolation of individuals and social cohesion.

In high- and middle-income countries, good urban planning, infection control and immunization have minimized death attributed to infectious diseases such as smallpox, malaria, tuberculosis and cholera. However, according to an analysis of twentieth century deaths by the Wellcome Trust (2012), non-communicable diseases (NCD) are the most common causes of death. Cardiovascular diseases, diabetes, respiratory diseases, neuro-mental illness, digestive illness and certain types of cancers are on the rise. Most countries in Europe have seen an increase in NCD; some have even labelled them as lifestyle diseases (together with illnesses caused by smoking or excessive alcohol consumption) or, as Dr. Marcus Grant puts it, "avoidable diseases".

Some key examples illustrate this issue. In 2008, half of the European population suffered from obesity or were overweight; in 2012, air pollution caused 3.7 million deaths worldwide and noise pollution increased by 17 per cent the chance of cardiovascular illnesses, leading to 10,000 premature deaths every year.

Looking at these statistics, it is therefore necessary to create synergies between different areas of political action to promote healthy urban environments and contribute to improving the overall population's health. Considering health in all design elements, such as urban planning, greening, parking, transport networks and others, is part of the strategy Health in All Policies (HiAP) which requires a joint work collaboration between different professionals. This drove the project, entitled "Urban Environment and Health", a cross-cutting, multidisciplinary project of the Barcelona Provincial Council.

The main objective is to implement the World Health Organization's HiAP strategy through urban planning and design in order to promote urban spaces and places that encourage people to live healthier lives while minimizing environmental factors that may constitute a risk for health.

The main objectives are: (1) to promote a new professional profile, an adviser or expert, in urban health; (2) to make proposals and recommendations to integrate the health perspective in urban planning and management; (3) To compile and disseminate best practices in urban planning and architecture at a local level; (4) To encourage improvement processes in councils to build healthier places and cities.

The intervention is aligned with the Public Health Act of Catalonia (Law 18/2009), which promotes intersectoral work for health promotion in the region. Also, with the Towns and Urban Areas Improvement Act (Law 2/2004) – a law which provides the Catalan authorities with instruments to intervene urban areas and towns that, according to its terms, require special attention by the authorities. Moreover, it aligns with the joint action plan of the Barcelona Provincial Council, which has the mandate to improve the quality of life of citizens living within the area of Barcelona.

Specific actions have thus been taken in four areas:

1. *Training:* A continuous training programme, starting on 2011, for politicians and practitioners.
2. *Dissemination:* To teach the importance of integrating health in urban planning and design.

3. *Tools*: Making available tools to make cities healthier to local authorities.
4. *Pilot projects* to demonstrate the value of incorporating health in planning and design to generate benefits for citizens.

Due to the nature of the programme, the already extensive list of participants continues to increase as the programme progresses. Currently, some of the sectors involved are: planning and urban design decision-makers within local governments, elected representatives and technical teams of all departments involved, university and research centres, consulting services and, more generally, all actors wishing to influence urban policies with their work, train new professionals or with the aim of adapting their offer through the use of this new approach.

The programme was initially sponsored by the Public Health Service (PHS) of the Barcelona Provincial Council, with the aim of turning it into a transverse axis, cross-cutting different areas of the institution, as well as offering support to the municipalities. To achieve this, the PHS used the platform “Table for Urban Improvement” (TxMU), a transversal initiative of the Barcelona Provincial Council promoted from 2005 by the Department of Planning and Sustainability.

It assists municipalities in improving those areas that need special attention. It integrates knowledge and perspectives from different disciplines and generates proposals for transversal actions. The TxMU is composed of professionals from 37 services and offices assigned to the five areas that comprise the Barcelona Provincial Council, with the common goal of providing better services to municipalities through cross-disciplinary collaboration, exchange and work. The Public Health Service joined the TxMU in 2009, incorporating the Health in All Policies approach.

The TxMU has been recognized by different organizations as an inspiring and innovative practice in urban governance. In 2011, the TxMU promoted the creation of the Technical Exchange Area for Urban Environment and Health coordinated by the Public Health Service, which from here onwards promoted the “Urban Environment and Health Programme”.

At the beginning, 14 departments and 13 councils from the Barcelona provincial councils, technical associations, research centres (ISGlobal, Catedra Unesco of UPC University, Institute for Security Studies) and external experts were brought together to elaborate the first tool of the online guide and a capacity building scheme. The number of stakeholders involved grows with each new tool and pilot project developed. It is this cross-cutting and efficient way of working that made the group the winner of European Public Sector Award in 2015.

Training was delivered to 500 politicians and technical officers in the period from 2011 to 2017 with new additions foreseen for 2018. The programme has also been disseminated through eight local and international events.



Urban health has now been placed on the political agenda as one of the objectives of public policies, bringing people back at the centre.



The initiative aimed for the creation of multiple tools to assist in incorporating health into planning:

- a) A website with an online guide, that provides recommendations, good practices, bibliography, laws and regulations (which receives 1,000 visits per month since its launch in June 2013).
- b) An Urban Planning Health Impact Assessment Toolkit, for making an estimate of potential and existing health impacts to assist with decision-making processes.
- c) A green spaces online tool, along with two handbooks on green space management.
- d) 1 urban green masterplan guide – a tool to improve citizens’ life quality and the city’s potential for climate change adaptation and mitigation.
- e) 1 handbook to promote active public spaces as a health driver. It provides a checklist of items to consider in the promotion and design of active public spaces to increase their social capital, along with a set of good practices.
- f) 1 guide for active and temporary use of vacant spaces.

Some examples of specific projects completed as part of the programme include:

- a) Implementation of the WHO Health Assessment Toolkit (HEAT) in public space plans in one municipality.
- b) A study to identify sports & leisure pathways in the Barcelona Province and their physical features (1,316.72 kms identified).
- c) 1,000 paths project in the Osona region, to promote an active population.
- d) The pilot project “Connecting Urban City Centres to Natural Spaces” in 4 municipalities.
- e) 3 masterplans in small and medium towns using the Urban Planning Health Impact Assessment Tool.
- f) Elaboration of a methodology and indicators to measure the impact of planning actions on health with the Vic Municipality.

The Urban Environment and Health Programme acts as a think tank and it provides new tools and strategies to the sectoral departments. When a pilot project proves to be viable, the departments involved incorporate this new knowledge and procedures in their daily work to support local governments. This is the case of the urban green masterplans (22 done since 2012 and 12 more in progress, with a total budget of EUR 400,000), active temporary uses of vacant spaces (11 projects since 2014 and 4 more in progress, EUR 617,000 given to the municipalities to address 81 vacant spaces) or the sports & leisure pathways programme (17 projects since 2017 and 14 more in progress, with a total budget of EUR 145,325).

The main impact the programme aims for is to change the way cities are planned to incorporate health perspectives and achieve healthier cities. Urban health has now been put on the political

agenda as one of the objectives of public policies, bringing people back at the centre.

As this programme progresses, the first lesson learned is that the great impact on health by design decisions, planning and management of cities, and similarly, a great capacity to influence the lifestyle of the citizens through the physical configuration of the urban space. Moreover, it demonstrates that urban planning and management is not an exclusive field for planners, engineers, architects, but health practitioners are also actors that must be taken into account and have a voice in urban debates. The incorporation of these actors results in a healthier and resilient city, since it places people at the centre of decisions.

Key Words: [Healthy Urban environment](#) | [wellbeing](#) | [urban planning and design](#) | [institutional integration](#)



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About the Case**Health issue:** Obesity**Type of intervention:** Programme**Spatial Level:** City / municipal, national coverage**Key focus areas:** Housing, community engagement, greening and natural environment, transport and mobility

A third of children in England are overweight or obese, with this increasing trend showing younger generations are becoming obese at an earlier age and staying obese for longer. According to the OECD, 6.9 per cent of the overall United Kingdom's population is obese. Although the causes of obesity are complex, the UK Foresight Report on Reducing Obesity highlighted planners' role in influencing the food and physical activity environments. There is consensus that obesity is a major risk factor for a number of diseases, including type 2 diabetes, cancer and heart disease. It can also affect people's self-esteem and underlying mental health.

There is an emerging understanding that the tools available to urban planners have a significant role in preventing and reducing the impact of an obesogenic living environment. The duty of UK local governments to promote the health of its population established by the Health and Social Care Act of 2012 and National Planning Policy Framework (NPPF) opens up opportunities for action. Thus, this programme was based on a working definition: a healthy weight environment supports people to avoid being overweight or obese through the design of a place and what it provides to them. Specifically, it promotes physical activity and ensures that sustainable transport and active travel is introduced into daily life. It helps people to access and choose healthier food and community services that can support them in achieving a balanced diet, leading an active lifestyle and maintaining a healthy weight.

Making use of a systems approach at the local government level, the programme developed a multi-disciplinary approach working closely with urban planners and public health practitioners, as well as other built environment professionals in the transport and urban regeneration areas. The two-phase programme was undertaken in seven areas in 2014 and fourteen areas in 2015.

The Town and Country Planning Association (TCPA) with the support of Public Health England (PHE) developed a framework of six planning healthy weight environments elements or interventions as a checklist for consideration. For the first time, the environment was seen as an integrated and interconnected place. These six environments are:

1. Movement and access (walking and cycling environments, and local public transport services);
2. Open spaces, recreation and play (open spaces, leisure and recreational places, and play spaces);
3. Food environment (food retail and food growing);
4. Neighbourhood spaces (community infrastructure and public realm spaces);
5. Building design (homes and other buildings);
6. Local economy (town centres and high streets, and access to local employment).

At the time of the programme, no national planning and public health policy guidance focused specifically on reducing obesity through the built environment. However, since 2012 most of the policy drivers for the interventions have been set out in the NPPF. Planners are required to account for local health needs and issues set out in the statutory local Joint Strategic Needs Assessment (JSNA), including obesity, when developing local planning frameworks and to support the delivery of the statutory local Joint Health and Wellbeing Strategy. Planners are also required to promote healthy communities, as set out in Section 8 of the National Planning Policy Framework, by developing a healthy living environment. Therefore, each workshop held with the local authority was aligned to the local policy environment composed of local plans and associated policies, including the spatial planning framework for the next 15 years.

The interventions target long-term improvement to population-level obesity rates through planning and development in alignment with 13 of Public Health England's Public Health Outcomes Framework indicators, such as reductions in children excess weight, use of outdoor space and increase in physical activity.

Throughout the programme, the TCPA initiated workshops as the key activity to implement the interventions, partnering with local authorities to organize and run the set of workshops on planning healthy weight environments.

Local authority representatives were asked to work in close collaboration with planning and public health teams to identify real development examples at different stages of the development process, e.g. applications pending approval, approved applications, developments under construction, or completed developments. This diversity of examples (retrofitting the existing environment, urban regeneration, town centres/high streets, and small-scale and large-scale developments) acted as the focus of facilitated discussions. Examples of the developments used were:

- Large-scale developments including 668 dwellings, an extra-care development, 216 m² of retail space and a business park;
- Regeneration of 154 dwellings;
- A town centre redevelopment, part of an urban realm regeneration project to encourage sustainable travel between the railway station and the town centre; and
- Garden city-style development of 2,200 dwellings, mixed-use local centres providing up to 21,000 m² of commercial floorspace and retail space, schools and green infrastructure, and allotments.

The workshop concluded that developments at different stages of the process and different development types and scales will require different healthy weight environment solutions, and there is no one-size-fits-all formula that can be used. In addition, they served as a forum to facilitate a stimulating discussion against a range of criteria that broadly reflected the elements of a healthy weight environment. Depending on the development stage of the selected example, it was expected that, after the workshops, urban planners and public health professionals will continue to collaborate to ensure that healthy weight environment interventions are integrated by developers when finalising proposals.

Overall, the TCPA worked with 34 organizations throughout the entire programme to ensure a maximum stakeholder buy-in and engagement, including:

- Government agencies: Public Health England providing key links to its Healthy Places and Obesity teams;
- Representatives of special interest organizations, such as the Local Government Association, Association of the Directors of Public Health, Planning Officers Society, District Councils Network, the Canal and River Trust;
- Local authorities (statutory planning and public health functions) working together to deliver local workshops; and
- Academia and consultants, i.e. Leeds Beckett University to link with the Whole Systems Approach to tackling obesity programme and master planners, respectively.



The workshop concluded that developments at different stages of the process and different development types and scales will require different healthy weight environment solutions, and there is no one-size-fits-all formula that can be used.



For the workshops, participants were drawn from a wide range of professional backgrounds and interests which reflected the multi-agency and complex nature of tackling obesogenic environments. This also reinforced that planning healthy weight environments is a valuable topic, stimulating and promoting collaborative discussions for improving the health-promoting properties of places. Hence, local authority professionals, stakeholder organizations, private sector developers and housing associations participated in the workshop together with planners and public health professionals. For many, the workshop was the first-time professions came together in one room to discuss the influence of planning on population health and well-being and actions to tackle obesity.

Information briefings were developed to support the discussions, present key development information from submitted masterplans, design and access statements, transport assessments, open space strategies, health impact assessments (if any) and any planning conditions on planning permissions. The use of design charts during the workshops provided the opportunity to visualise debates on specific planning interventions at the level of a neighbourhood or “place”. This approach resulted in high levels of positive feedback on the usefulness and interesting nature of the workshops.

As a result, the programme provided direct support to local authority partners in order to tackle obesity through upstream interventions of the planning system by means of policy and planning decisions. The programme has also indirectly influenced the healthy design of housing developments, potentially impacting more than 25,000 households to be developed. Likewise, it encouraged active monitoring through statutory plans and monitoring mechanisms, enabling a continuous long-term tracking of improvements.

At the policy level, the project has effected changes in local policies. Haringey Council integrated the six healthy weight environments framework into its regeneration brief for Tottenham Hale. Nottinghamshire County Council developed a county-wide planning and health protocol for consideration, while Barnet Council structured its statutory public health annual report on the six elements framework.

Finally, the initiative highlighted practical and policy challenges encountered by practitioners. In a plan-led planning system, developing robust policies is a necessary prerequisite for

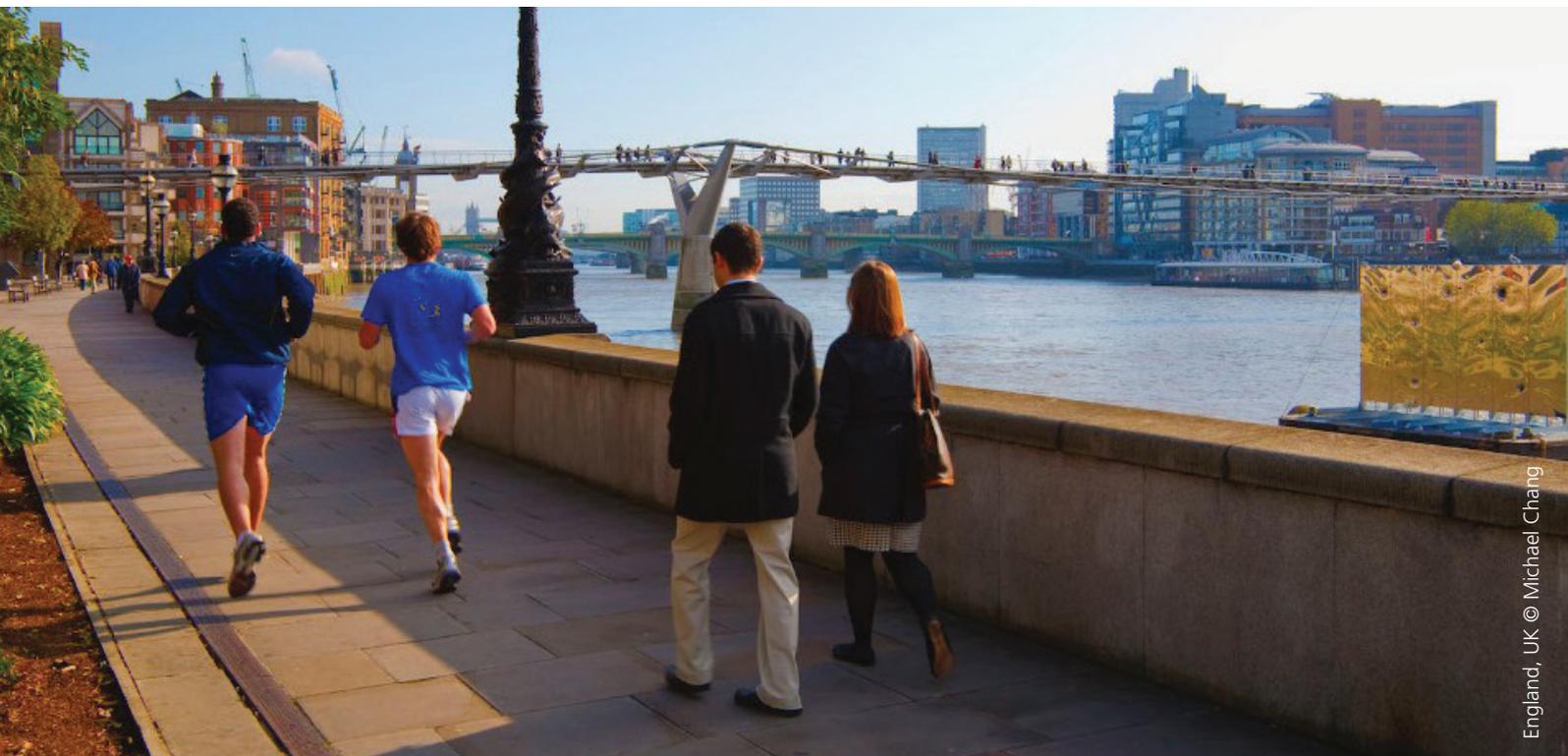
healthy weight environments, although barriers remain as to whether these are actually implemented and monitored. Therefore, the TCPA has set out key messages for local action which councils might consider taking forward:

1. Leadership is vital;
2. Whole-system policies on obesity are crucial;
3. Support public health and planning teams to collaborate effectively in development management;
4. Agree on a consistent and holistic approach to assess planning applications based on their implications on shaping a healthy weight environment;

5. Evaluate the effectiveness of healthy weight environment initiatives;
6. Develop ways to gather evidence of healthy weight environments adequate for planning;
7. Support delivery through knowledge and skills development.

While the above may orient stakeholders on the way forward, there is still much to learn about the role of the built environment and its impact on the complex causes of obesity. The TCPA and its partners thus continue to work on this issue developing a “better practice” at the local level.

Key Words: [Urban planning](#) | [healthy weight environments](#) | [place-based approach](#)



England, UK © Michael Chang

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About the Case

Health issue: Inequalities and inequities in health

Type of intervention: Policy, strategy and programme

Spatial Level: National, city / municipal

Key focus areas: Housing, active travel, access to open spaces, access to healthy food growing and retail environments, access to local healthcare services.

Wales, with a population of just over 3 million, is one of the four nations that make up the United Kingdom (UK). The Welsh Government has devolved responsibility with law-making powers for specific policy areas: health, education, economic development, transport, agriculture, housing, planning and the environment. Some of the relevant Welsh policy and legislative agenda includes the Well-being of Future Generations (Wales) Act of 2015 (2), the Public Health (Wales) Act of 2017 (3), Prosperity for all – the national strategy (4), Planning Policy Wales (5) and the Wales Spatial Plan – People, Places, Futures (6). Together, these underline commitments to wellbeing and to embedding sustainable development into the planning system.

A requirement of the planning policy is the development and adoption of local development plans at the local authority level. These plans detail local land-use priorities and are expected to address economic, environmental and social concerns, together with health and well-being considerations

This intervention is focused in Cardiff, in the southeast of Wales where the health of the population is improving but major challenges remain, including persistent health inequity. Cardiff has the third highest proportion of most deprived local areas out of all local authorities in Wales, with just over 1 in 6 (17.6 per cent) people in Cardiff living in these areas. While life expectancy is projected to continue to increase, a gap of as much as 11 years exists between the most and least deprived areas across the city – with the gap in healthy life expectancy even wider at 24 years for men. Heart disease, lung cancer and cerebrovascular disease are the leading causes of death in men and women, with unhealthy behaviours endemic among adults (7). For example, 64 per cent of adults do not eat sufficient fruit and vegetables, over half (52 per cent) are overweight or obese, and 72 per cent do not have enough physical activity to benefit health.

Moreover, the population of Cardiff is projected to increase by 33 per cent in the period between 2006 and 2026 (8), making it one of the fastest growing cities in the UK. It has been estimated that 41,000 additional homes will be required to meet this increase. These challenges are expected to continue and long-term action is required at a strategic level.

This intervention commenced in 2008 and is a long-term programme of work influencing land-use policy in Cardiff and, at the larger scale, informing planning policy in Wales. It is a partnership intervention between Cardiff Council, Cardiff & Vale University Health Board and Public Health Wales. The development of the Cardiff Local Development Plan (LDP) (7) provided the initial opportunities to influence and strengthen the well-being focus of the plan, to embed health impact and to align the plan with the Cardiff-wide “What Matters” Strategy 2010-2020 (9). Working together, partners focused on influencing the planning policy framework to support communities to walk and cycle, and to access green open spaces, food growing spaces and healthcare services from local facilities. The long-term goals of the work aimed to reduce rates of overweight and obesity, increase participation in physical activity and consumption of fruit & vegetables and improve access to healthcare services in local facilities.

The actions achieved by the work programme include:

- Successful partnership working between Cardiff Council, Cardiff & Vale University Health Board and Public Health Wales
- The provision of relevant public health data and evidence
- Delivery of joint training between planners and public health on healthy urban planning and health impact assessment; attendees included urban planners, transport planners, open space planners, third sector, health service planners and public health professionals
- Inclusion of two explicit health related policies in the LDP (7):
 - o Key Policy KP14: Healthy Living
 - o Detailed Policy C6: Health.

These policies were developed by urban planners with support from the public health sector. The policies required approval by Cardiff Council prior to inclusion and subjected to Welsh Government inspection as part of the LDP approval process.



At the policy level, recommendations from the programme have been adopted to ensure access to health care facilities as a pre-requisite in any large planning applications submitted by developers.



- The development of a process, resources and template to support the Health Board to respond to local planning applications. A “Planning for Health Financial Model” resource was created by the Health Board and public health to estimate the cost of health care service provision within any new development and a template was developed between planners and public health to support the Health Board respond to planning applications. Each response is approved by the Health Board’s Director of Strategy and Service Planning prior to submission. To date, comments on 12 planning applications have been collated
- Influenced policy to ensure access to health care facilities included as a pre-requisite in any large planning applications submitted by developers
- The development and adoption in November 2017 of the “Planning for Health & Well-being Supplementary Planning Guidance” (SPG). (9)

This SPG was developed by planners and public health, subjected to a three-month public consultation and approved in 2017 by Cardiff Council. It provides planners and developers with guidance on health and well-being considerations; its use is currently being monitored. The SPG is the first health and wellbeing SPG to be adopted by a local authority in Wales.

A more recent development is the publication “Creating healthier places and spaces for our present and future generations”. This resource has been created by Public Health Wales, with input from Natural Resources Wales, to support Public Services Boards (who are taking forward the requirements of the Well-being of Future Generations (Wales) Act of 2015 at a local level), public bodies, cross-sector organizations and individuals take forward actions that address and enhance the health and well-being opportunities afforded by the natural and built environment. The resource provides background information, summarizes some of the relevant evidence, proposes actions for implementation at strategic and operational level and signposts to further useful resources.

The challenges overcome to achieve progress within the programme include:

- Understanding the language and terminology used by the different organizations and professions. This was partly resolved following the provision of the joint training and also by each partner being willing to learn and to listen.
- Understanding the scale of the issue. The development of new housing developments the size of small Welsh towns within the boundaries of Cardiff is difficult to comprehend at times. Information, training and discussions over a long period are helping to resolve the potential difficulty.
- Developing mutual and reciprocal appreciation for professional input within this agenda. Public health was initially focused on lifestyle issues and moving to an environment focus required professional development and learning
- The development and implementation of LDPs occurs over long timescales. This is potentially a challenge given short-term health service planning cycles at local and national level. Nature and consistency of engagement of personnel by the partner organizations contributed to addressing this potential difficulty.
- Influencing national policy following local policy developments. This challenge has been resolved through discussions, commenting on national policy consultation, sharing learning and developing resources. It is a good example of the local influencing the national.

In the long term, this programme of work will impact on health and well-being of the population. The local planning policy arena has been influenced to include focus on health and well-being, the “Planning for Health & Well-being Supplementary Planning Guidance” is available to provide direction to planners and developers and templates are available to facilitate the coordination and submission of responses on planning applications

Additionally, health service planners have become engaged in the process of agreeing on the location of new healthcare facilities in large housing developments. This partnership between the Health Board and the local authority, focused on the land use planning agenda, will ensure that individuals in new communities created by large housing developments have access to healthcare services provided from local shared use facilities. Learning from the programme of work is influencing national planning policy and has facilitated the production of the resource “Creating healthier places and spaces for our present and future generations”.

Key Words: [Healthy urban planning](#) | [health and well-being](#) | [developing resources and useful tools](#) | [partnership working](#)

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About the Case**Health issue:** Obesity**Type of intervention:** Programme**Spatial Level:** City-region**Key focus areas:** Public space

Oklahoma's population in 2016 was an estimated 3.91 million people. The city is known for having one of the most sprawling urban environments with a population density of 246 people per square mile. Its citizens are very dependent on cars to move around and there is a high density of fast-food outlets.

Sixty-five per cent of Oklahoma's adults are either overweight or obese and 31 per cent of the youth are either overweight or at risk of being overweight. The Trust for America's Health Report (2009) ranked Oklahoma 6th in the United States in terms of adult obesity rate and 33rd in the percentage of obese and overweight children. The report indicated that the challenges faced in the state include a high prevalence of smoking, limited availability of primary care physicians, a high rate of preventable hospitalizations, many poor mental and physical health days, a high prevalence of obesity and a high rate of deaths from cardiovascular disease.

The economic consequences of physical inactivity include both substantial healthcare costs and even greater costs related to lost productivity and lower economic output due to illness, disability and premature death. Being overweight and obesity are associated with many health risks, such as heart disease, high blood pressure, high cholesterol, type 2 diabetes, certain types of cancers, arthritis, depression and risk of stroke. Oklahoma thus ranks 5th in adult diabetes rates and 8th in hypertension rates and the estimated cost associated with obesity in Oklahoma is USD 854 million each year. This problem affects the health of individuals, families and communities throughout the state. The estimated annual cost of obesity in the United States in 2000 was approximately USD 117 billion. Already in 2002, the Oklahoma Academy of Goals estimated Oklahoma's cost at USD 1.3 billion.

By 2007, Oklahoma ranked 15th as America's fattest city and the city with the worst eating habits. The Mayor of Oklahoma City at the time, Mick Cornett, knew something had to change quickly in the city so he challenged citizens to collectively lose a million pounds. A website was created - ThisCityisGoingonaDiet.com - where almost 47,000 residents registered to obtain healthy diet tips, the locations of public parks within city limits and answers to frequent questions regarding obesity. The mayor began to

improve the city's health infrastructure with the development of a new central park, building a downtown tram line, establishing senior health and wellness centres, and building miles of pavements connecting inner city neighbourhoods and schools. The town's citizens reached the million-pound mark in January 2012. The mayor then proposed a one cent sales tax hike to fund projects through the Metropolitan Area Projects (MAPS3). The Metropolitan Area Projects Plan (MAPS) is a multi-year, municipal capital improvement programme consisting of a number of projects that use a one cent, limited-term sales tax to pay for debt-free projects that improve the quality of life in Oklahoma.

There have been two successful cycles, with the first one being MAPS Programme (1993), MAPS for Kids (2001) and currently the MAPS 3. The MAPS 3 was approved on 8th December 2009 with several projects with a 10-year completion programme. These projects include the development of a convention centre, a downtown public park, modern streetcar and transit lines, Oklahoma state fairgrounds improvements, senior health and wellness centres, Oklahoma River improvements and the building of trails and sidewalks. The MAPS 3 Trails will promote a more active lifestyle by taking advantage of Oklahoma City's natural beauty. The trails wind through wetlands, wooded areas and natural landscapes. The trails are part of the City of Oklahoma Trails Master Plan.

The Oklahoma City Council oversees MAPS 3 with the help of a Citizens Advisory Board. The tax duration was set from April 2010 to December 2017 and the construction from 2012 to 2021. The projects under the MAPS 3 are linked to the Oklahoma Physical Activity & Nutrition State Plan. The Plan – Get Fit Eat Smart – was the result of a collaborative effort to identify strategies to promote healthy eating options and physical activity opportunities to prevent and reduce obesity and overweight. The purpose of the plan is to frame the problem of obesity in Oklahoma and provide strategies for a comprehensive, state-wide effort to create a healthy, active Oklahoma. The plan has five focus areas: physical activity, healthy eating, screen-time, breastfeeding, and surveillance and evaluation. The Healthy Oklahoma 2020 is also the city's master plan on health improvement and focuses efforts on making improvements in key strategic areas and by creating a culture of health.



The mayor began to improve the city's health infrastructure with the development of a new central park, building a downtown tram line, establishing senior health and wellness centres, and building miles of pavements connecting inner city neighbourhoods and schools.



The projects of the MAPS 3 (downtown public park, trails and sidewalks) are on schedule. The park is anticipated to be a place where the community can gather to play, hold picnics, enjoy concerts, exercise and attend festivals. It is expected it will entice the community to spend time outdoors, encourage a healthier lifestyle and improve the quality of life in the city. The construction of approximately 32 miles of new trails will provide additional trails to the city-wide system for walking, cycling and running as expanding the trail system will encourage an active culture while improving the quality of life in Oklahoma City. This project follows the recommendation of the Oklahoma City Trails Master Plan. The 70 miles of new pavements will help with the city's efforts to create a more walkable community. Expanding and improving sidewalks throughout the city will improve accessibility, safety and quality of life.

The purpose of the plan is to frame the problem of obesity in Oklahoma and provide strategies for a comprehensive, state-wide effort to create a healthy, active Oklahoma. The plan has five focus areas: physical activity, healthy eating, screen-time,

breastfeeding, and surveillance and evaluation. The Healthy Oklahoma 2020 is also the city's master plan on health improvement and focuses efforts on making improvements in key strategic areas and by creating a culture of health.

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Key Words: [Obesity](#) | [public space](#) | [active travel](#) | [community engagement](#) | [collaborative planning](#)



Oklahoma, USA © Cityimages

Annex 1

The Guidelines:

12 Key Planning Principles with 114 Recommendations

To orient and guide decision-makers in developing or reviewing urban and territorial policies, plans and designs through an integrated planning approach, the Guidelines are structured along 12 key planning principles and 114 recommendations in 5 main sections and addressed to the 4 stakeholder groups. An abridged version of the 12 guiding principles can be found below.

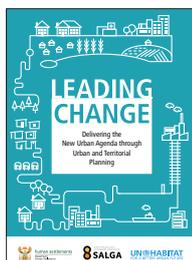
URBAN POLICY AND GOVERNANCE	
1	Urban and Territorial Planning is an integrative and participatory decision-making process that addresses competing interests and is linked to a shared vision, an overall development strategy and national, regional and local urban policies.
2	Urban and Territorial Planning promotes local democracy, participation and inclusion, transparency and accountability.
URBAN AND TERRITORIAL PLANNING FOR SUSTAINABLE DEVELOPMENT	
Urban and Territorial Planning and Social Development	
3	Urban and Territorial Planning primarily aims to realize adequate standards of living and working conditions for all through social inclusion and cohesion, recognizing the distinct needs of various groups.
4	Urban and Territorial Planning is a precondition for a better quality of life and successful globalization processes that respect cultural heritages and cultural diversity.
Urban and Territorial Planning and Sustained Economic Growth	
5	Urban and Territorial Planning provides an enabling framework for new economic opportunities, regulation of land and housing markets and timely provision of adequate infrastructure and basic services.
6	Urban and Territorial Planning provides a mechanism to ensure that sustained economic growth, social development and environmental sustainability go hand in hand to promote better connectivity at all territorial levels.
Urban and Territorial Planning and the Environment	
7	Urban and Territorial Planning provides a spatial framework to protect and manage the natural and built environment of cities and territories, including their biodiversity, land and natural resources.
8	Urban and Territorial Planning contributes to increased human security by strengthening environmental and socioeconomic resilience, enhancing mitigation of, and adaptation to, climate change.
URBAN AND TERRITORIAL PLANNING COMPONENTS	
9	Urban and Territorial Planning is a continuous and iterative process, grounded in enforceable regulations, that aims to promote more compact cities and synergies between territories.
10	Urban and Territorial Planning aims to facilitate and articulate political decisions based on different scenarios. It translates those decisions into actions that will transform the physical and social space and will support the development of integrated cities and territories.
IMPLEMENTATION AND MONITORING URBAN AND TERRITORIAL PLANNING	
11	Implementation of spatial policies and plans requires political leadership, appropriate legal and institutional frameworks, efficient urban management, and improved coordination, consensus-building approaches to respond coherently and effectively to current and future challenges.
12	Effective implementation and evaluation of Urban and Territorial planning requires continuous monitoring, periodic adjustments and sufficient capacities at all levels, as well as sustainable financial mechanisms and technologies.

Annex 2

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14	Kingdom of Saudi Arabia	Faris F. Abuzeid	Architect, Urban Planner, Real Estate Developer

	Country	Author	Institution and Designation
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18	United Kingdom	Michael Chang	MRTPI, HonMFPH at Town and Country Planning Association (TCPA)
19	United Kingdom	Susan Toner	Principal Health Promotion Specialist. Cardiff & Vale Public Health Team, Public Health Wales and Cardiff & Vale University Health Board
20	United States	UN-Habitat	Regional and Metropolitan Unit

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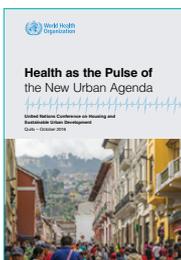
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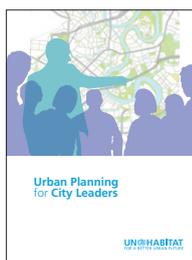
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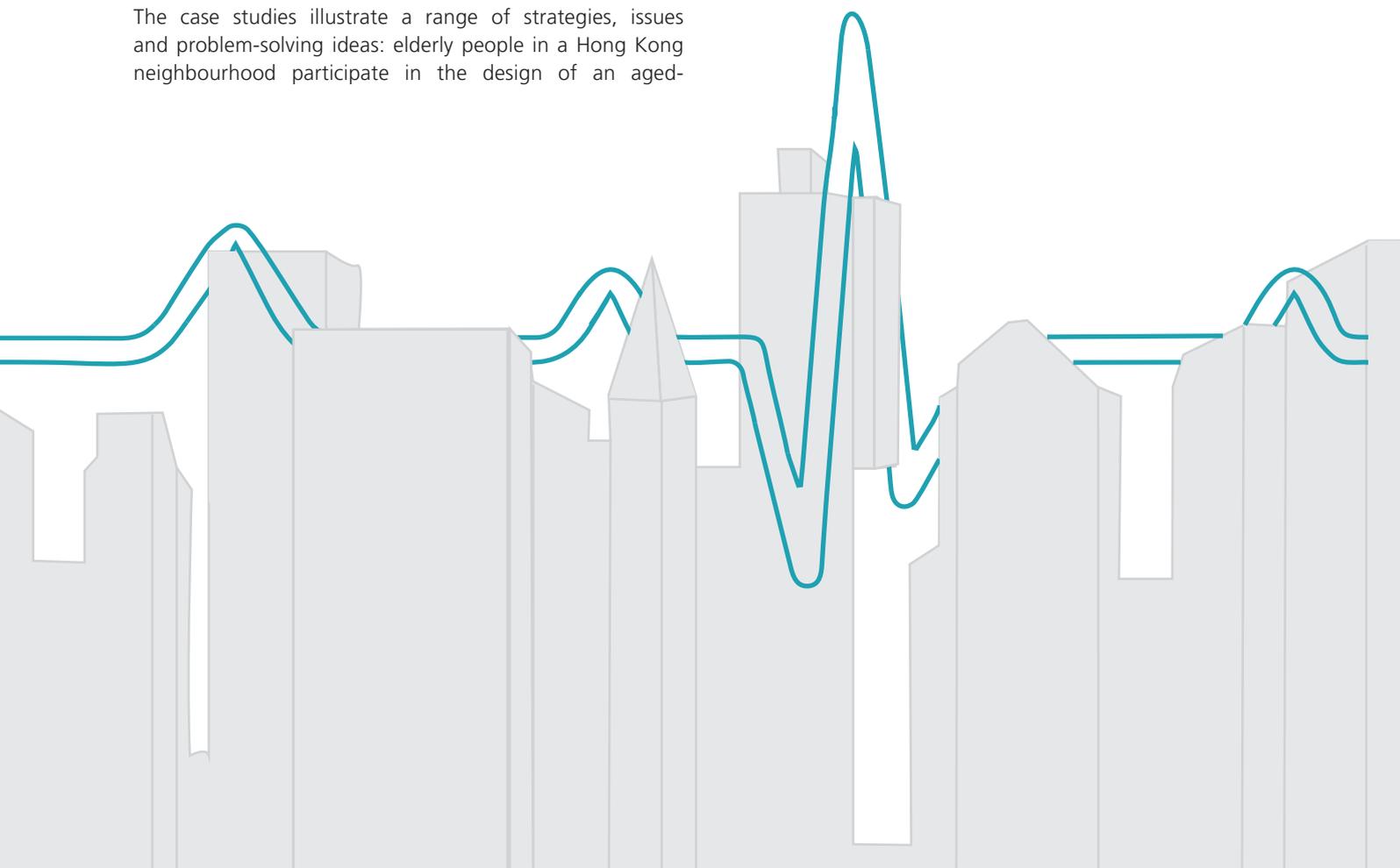
This collection of 20 case studies gives practical information to those involved in town planning on the issues encountered with an approach that puts peoples' health at the centre of design.

The main purpose of gathering such information is to illustrate concretely what is needed in order to apply the key principles of the International Guidelines on Urban and Territorial Planning that were approved by UN-Habitat's Governing Council in 2015, and the benefits that will be gained by doing so. The examples in this Health Edition are those that actively contribute to human health through the improvement of the built and natural environment.

The case studies illustrate a range of strategies, issues and problem-solving ideas: elderly people in a Hong Kong neighbourhood participate in the design of an aged-

friendly community park; a rural development initiative in a Bangladeshi village gives people an alternative to using communal spaces as toilets; city adaptations and additions provide one response to Oklahoma City's obesity problem; and in Brussels, a tool gives planners a way to determine a city's "walkability score".

Exploring the relationship between health and planning creates opportunities for more integrated planning practices and strengthens both the health and planning disciplines. These inspiring examples, and the lessons learned from them, will motivate all actors to include health into urban policies and city strategies.



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