URBANIZATION

HEALTHY

Understanding and building on the foundation of 'Healthy Urbanization'

Ministry of Infrastructure and the Environment (IenM) in association with **FABRIC.**

NETWORKING FOR URBAN VITALITY

Healthy Urbanization

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Foreword

In the summer of 2012 a study into Healthy Urbanization was launched, led by the Ministry of Infrastructure and the Environment (IenM). IenM's executive board described Healthy Urbanization as one of the binding themes within the Ministry. Healthy Urbanization is a subject for which cooperation is vital, in particular between all of the various directorates: for example, consider the connections between green space and water, e.g. water storage, heat stress, the spread of infectious disease carried by the tiger mosquito, etc.; and between mobility and space, e.g. healthy mobility, people moving around more due to the optimum combination of walking, cycling and use of public transport, and fewer cars on the roads; and other issues such as the impacts on noise pollution and obesity, the use of transport hubs as a focal point, and the creation of child-friendly living environments. But Healthy Urbanization also involves cooperation with other authorities, social organizations, businesses and society.

By looking for optimum, holistic connections, across all sectors and levels, the subject challenges us all to renew and to innovate.

This publication does not necessarily reflect IenM's vision of Healthy Urbanization or IenM policy. It contains the results of working trips to Dordrecht, Eindhoven and Almere, and the findings of workshops, breakfast meetings and expert meetings held on the subject of Healthy Urbanization. In total, nearly 1000 people (ranging from civil servants and city councillors, through to social organizations, companies, scientists, designers and citizens) made contribu-

tions by engaging in discussions and providing insight, advice, opinions, photographs, drawings, images, etc.

I would like to thank everybody who has contributed to this document for their images, knowledge and stories.

Introduction

Global urbanization is progressing at a rapid pace. In 40 years' time, more than 75% of the world's population will live in cities. The urbanization process is also continuing in The Netherlands. Villages are being swallowed up by ities and the open land between cities is being built upon more and more. How can we make sure that cities remain liveable, accessible and safe? The Ministry of Infrastructure and the Environment put this question to citizens, authorities, social organizations and companies in order to map the DNA of a 'healthy city'. What effects do spatial design, water, climate and traffic have on this? Which activities help cities to grow sustainably? And how can we provide room for citizens' initiatives and entrepreneurship? The insights received came partly from looking 'at eye level' and listening to people's initiatives and motives. We travelled around the country, on working trips to the cities of Eindhoven, Dordrecht and Almere, surveyed people and discussed the matter at citizens' panels, breakfast sessions, dinner debates and workshops with experts.

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Goriska van Cooten, Elien Wieringa, Marieke Francke, Eric Frijters, Olv Klijn, Bas Driessen, Ivo de Jeu, Jan Loerakker

What does Healthy Urbaniza-tion Mean?

The Ministry of Infrastructure and the Environment aims to create 'liveability' and accessibility, with free flows of traffic into a well-equipped, clean and safe environment – i.e. one which is 'safe, liveable and accessible'.

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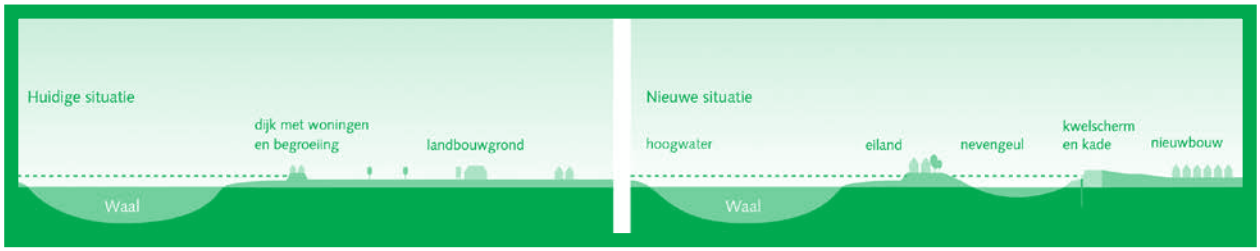

Cross-section of current and proposed situation, Nijmegen. Source: ruimtevoorderivier.nl

Impression: making room for the river, Nijmegen. Source: ruimtevoorderivier.nl

Making room for the River, Nijmegen
Within the framework of the Delta Programme, the community of Nijmegen, together with Rijkswaterstaat (the Dutch Department of National Roads and Waterways), is taking advantage of plans to move a dyke on the River Waal, so that a river park can be created in the centre of the city. The dyke is being moved 350 metres further inland so that an ancillary channel can be constructed to open up a bottleneck in the river and reduce the risk of flooding. The construction of the ancillary channel will effectively create an island on the river, and the vision is for this to serve as the location for the river park, providing support for nature, water, living, recreation and culture. On the river side of the dyke, most of the existing housing can be retained on the newly created island, whilst inland from the dyke, the community will benefit from the considerable potential for urban expansion. The risk of flooding will be dramatically reduced as the dyke will ensure a drop in the water levels of the Waal from Nijmegen to the head of the Pannerdensch canal; under extreme circumstances, the drop in water levels will be around 35 centimetres. But as well as providing a technical solution, the project creates a significant opportunity for city expansion which, in turn, will lead to a major improvement in the spatial quality of the environment by re-establishing Nijmegen on the banks of the Waal once again.

"Health, not as the only goal, but inviting healthcare experts to the table to give a project perspective. That will lead to win-win situations for, e.g. spatial planning and environmental planning, economic development, the attractiveness of a city, mobility and health."
—Marianne Donker, VWS

Sources: Dinner debate/ IenM / Experts Workshops

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Combined Opportunities

Healthy Urbanization is a vast subsection of the wider concept of 'safety – liveability – accessibility'. When weighing up all available solutions, priority is given to those which offer a combination of opportunities, i.e. solutions which make it possible to achieve more than one objective due to 'smart combinations' of complementary approaches, and which ensure that, wherever possible, current agendas are compatible with future perspectives.

It has often been recognized that the city is the 'engine' that drives the Dutch economy. If that is the case, then the surrounding landscape, with its agriculture and mining, industry and leisure facilities, is the 'bodywork'. A good-quality living environment is a basic requirement for functioning cities and an attractive investment climate. At the same time, most ecological problems have their origins in cities. It is becoming clear that solutions to the challenges of urbanization call increasingly for a holistic approach; selecting a single, specific approach is unlikely to be sufficient. If we are to develop solutions which are sustainable, it is essential that we remain open to the possibility of combining different solutions when considering the available options. For example, urbanization can no longer be approached purely from a traffic management point of view, or even from an economic perspective.

Searching for holistic solutions can often throw up the unexpected. Dare to think beyond the usual dossiers, and this can give rise to genuinely new solutions. From the point of view of water safety, reinforcement through the use of dykes can be an effective solution for the weak points in the Dutch coastal defences. But this does little to help the spatial quality of the area. Often, coastal safety scenarios are assessed and compared on the basis of cost. The best solution is often considered to be the cheapest one (short term) and not necessarily the one which ultimately creates the most value for every euro invested (long term). Indeed, it is entirely possible that a holistic coastal safety and spatial quality solution will produce the economic conditions which will themselves generate money in the long term.

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Cisco to Eindhoven
Caroline Hummels, Professor of Design Theory of Intelligent Systems at the Eindhoven University of Technology, on the reasoning behind the decision of American technology giant Cisco Systems to open a branch in Eindhoven: "As there is in Eindhoven a social construct between all stakeholders, who all want to work together and who all want to ensure a better city and a liveable city and a healthy city. And at Cisco, they couldn't find that anywhere else in the world."

Floriade 2022, Almere.
foto: MVRDV

Floriade 2022, Almere
In a joint effort between the province of Flevoland, the community of Almere and other stakeholders, the horticultural exhibition of 2022, designed by architecture firm MVRDV, will provide the opportunity to create a permanent green area of the city with unique characteristics close to the centre of Almere.

Sources: dinner debate / Frank van Oort, University of Utrecht / IenM Experts / Infrastructure and Environment consultation / Breakfast session 2 / Pieter de Greef, Municipality of Rotterdam / Working trip to Eindhoven / Workshops

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Distinctive Characteristics

Healthy Urbanization calls for healthy competition: the aim is to be distinctive, to search out specific complementary strengths in places, projects and programmes at all levels, and to create unique places and developments which supplement and strengthen each other.

As well as being ecologically sustainable, Healthy Urbanization is also future-proof. It does not conflict with a strong and robust economy; in fact it offers opportunities and ensures resilience against potential crises, now and in the long term. Healthy Urbanization ensures that The Netherlands can compete internationally, both as a whole and within its own individual regions. Adequate knowledge and skills are vital for the economy of the healthy city: they secure investments and educational opportunities which bring about the necessary innovation and creativity. This has been confirmed by Professor Caroline Hummels of the Eindhoven University of Technology. She is proud of the fact that Eindhoven stands out in the field of design and the bringing together of social and economic stakeholders. The American firm Cisco recently chose to set up a branch in this region, not just because the region is home to some of the top high-tech sectors, but also because it has grown up into a social construct of parties with a wide range of characteristics, which combine to create the optimum climate.

The Floriade of 2022 in Almere is another example. The event has been created to produce a different kind of urban development. Located on and in Weerwater Lake, the Floriade site forms a link between all the districts of Almere. What will initially provide a home to the 2022 international horticultural exhibition will go on to help to create a greener, more productive, cleaner and healthier Almere. The investments in spatial quality which have been made in connection with the international horticultural exhibition will be maintained for the city and the Weerwater district after the Floriade. The enormous efforts that have been put in to improving the quality of these now ‘unique areas’ across from the centre of Almere have come together to form a prototype ‘Green City’.

Dare to be different, and go for quality in order to avoid mediocrity. If this is done through complementarity, then unique places and developments can supplement and reinforce each other perfectly.

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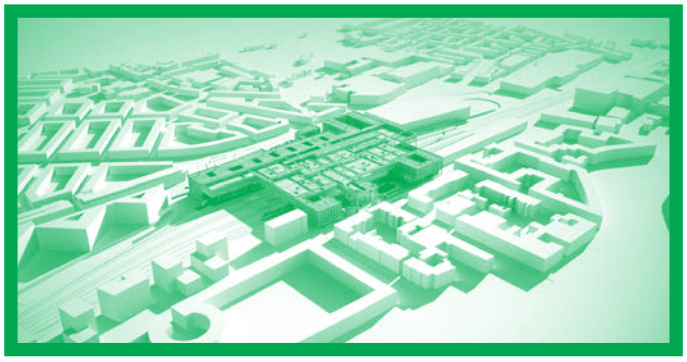

Impression of the new Centraal Station, Breda. Illustration: Koen van Velsen

Central Station
Bringing station and city together

Centraal Station Breda, Koen van Velsen
Breda's new station is an excellent example of a new-generation station building, where travelling, living, working and shopping have all been brought together. This makes the project far more than just a station; it is not just a comfortable place to catch a train, but it also brings people together and is a catalyst for the transformation of Breda's railway area. It occupies an area of around 100 hectares, right on the doorstep of downtown Breda.

Delivering packages by bicycle in a French town centre. Source: dangel.fr

The beer boat in the centre of Utrecht. Source: velomondial

A 'chain approach' to urban goods transport
In order to keep city centres accessible, a 'chain approach' to urban goods transport is vital. The introduction of small minivans in cities needs to be managed, as these are the largest in number (and the number is continuing to rise due to the growth of online shopping), create congestion and are responsible for the lion's share of air pollution in the city. For each link in the chain, we looked at the modes of transport that could be used and at what times the goods could be transported to their destination most efficiently, by applying 'smart provisioning' and considering alternative means of transport. One example of alternative transportation is the cargo hopper — an electrically powered vehicle similar to a golf cart with a range of 60 km per day at a speed of 20 km per hour, which can deliver three tonnes of goods with three trailers; one cargo hopper can do the work of between five and eight regular minivans. Another way of transporting goods within the city is to use boats as shops, like the 'beer boat' in Utrecht, which supplies the hospitality industry in the city centre. It is also possible to deliver goods using (electric) cycles with trailers. These can also be hired from IKEA, which comes in very handy in university towns.

"The greater the proportion of slow traffic and public transport, the better the traffic scores in calculating the ecological footprint of urban regions [...]. Building on areas around railway stations is more than urban compaction: it helps to create vibrant hubs, parts of town where people enjoy living, working and relaxing, with the comfort of optimum mobility."
—Ton Venhoeven in Station Centraal (published by 010, 2010)

Sources: dinner debate / IenM Experts / Marcel Westerman, MARCEL / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Peter Colon, Buck Consultants International / Workshops

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The Hub as the Centrepoint

Healthy Urbanization calls for good facilities accessible to all (health, work, leisure): a smart combination of transport systems, and a focus on the development of multi-modal hubs providing transport, hospitality, retail services and Internet access, can create places which function well, both as multi-modal interchanges and also as accessible destinations and places to live.

Maintaining and strengthening accessibility to transport, simply to get from A to B, is still the core issue for mobility matters. Within this issue, the interconnections between different modes of transport are also increasingly important. The transport interchange (or hub) is therefore becoming more and more relevant. Whether changing from car to train, to bus, metro, taxi, bicycle, on foot or vice versa, hubs mediate between all the different means of transport.

A decision to change from one mode of transport to the next will depend on several factors. The issue is about whether using a certain mode of transport is attractive, for example due to the absence of congestion and traffic incidents, or simply because it represents an economical alternative. The ideal interconnection will have at least two components. Firstly, it should provide seamless access to various transport streams located close to each other, thereby serving as a so-called 'multi-modal hub'. In this case, the ability to cross over to an alternative means of transport increases the reliability of the transport system as a whole. But interchanging also depends on there being sufficient parking capacity to accommodate all the different modes of transport that need to be available (albeit temporarily) at the time of interchanging. The greater this facility, the more robust the mobility network will be.

Hubs are increasingly evolving from places of transition into places to live. On the outskirts of many cities, people can park their cars at a 'park-and-ride' facility to enable them to travel into the city using an alternative means of transport; but is also possible to use similar facilities to transfer commercial goods from bulk carrier vehicles to transport modes which fit the scale of the city. Where additional facilities are provided, these multi-modal hubs can even become attractive business locations. On average, travellers remain at a railway station for around seven minutes. By offering more frequent connections, their stays are likely to become longer, and this in turn will benefit the retail functions at station sites. This development shows that a natural process is under way, by which hubs in mobility networks can evolve into final destinations. A business which is easily accessible, not just by car, but by slow traffic and public transport, will also have a major competitive advantage. The development of railway areas is more than urban compaction: it helps to create vibrant hubs, parts of town where people enjoy living, working and relaxing, together with the luxury of optimum mobility.

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Refurbishment of the area around the station in Apeldoorn.
Photo: Daniel Nicolas

Refurbishment of the area around the station, Apeldoorn
In Apeldoorn, the city and the station have been brought closer together. The restoration of the station included the aim of creating new, open space. A new underground bicycle park and an underpass for slow transport make it easier to switch from public transport to slow transport. The new car-free forecourt is not just a link in this interface between train and bus, but also a link between the city centre and the area beyond.

Electric cycles
Electric cycles offer users a significant range, and provide cyclists with assistance when pedalling uphill or against the wind. This makes them a viable alternative to cars and public transport, encouraging people to take more exercise, more frequently and for longer periods. Another indirect advantage is that there is less traffic on the road, which improves traffic flow and reduces noise and air pollution.

The electric cycle offers significant range.
Source: riddertweewielers

Sources: Anton van Hoorn, PBL / Healthy Urbanisation Citizens' panel / Dinner debate / Healthy City survey / Hanneke Kruize, RIVM / IenM Experts / Marcel Westerman, MARCEL / Michel Driessen, Driessenconsultancy / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Peter Colon, Buck Consultants International / Priority to healthy cities / Workshops

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Active Mobility Policy

Healthy Urbanization calls for more attention to be paid to active and local mobility: the smart (re)development of facilities and functions in the city and the surrounding area ensures that everybody can easily and actively move to, and through, the city, and enjoy improved distribution of traffic flows resulting from greater use of public transport, (electric) bicycles and walking.

Over the centuries, the different forms of mobility have always been the decisive factor in the spatial organization of our cities. In a healthy city, an attractive environment for living and working is paramount, and calls for sustainable forms of movement, such as being able to walk or cycle safely. According to various social organizations, active movement counteracts loneliness, promotes independence and reduces obesity levels. The spatial organization of our cities therefore needs to be changed in order to accommodate these active forms of mobility and to discourage passive mobility. Additionally, a more intelligent mix of living, working and leisure will itself encourage a natural development towards more walkable or cyclable cities.

At the basic level, good health can be promoted by encouraging healthy behaviour and discouraging unhealthy behaviour at the stage of (re)creating the physical environment. This requires a commitment to a more healthy living environment, in which health is as important as sustainable environmental values or quality of design. For example, the smart demarcation of areas for living, moving, doing sport and playing may be considered. Safe and serviceable cycle networks, with ample opportunity to park, are also important. Safe walking trails are also needed, right from people's doorsteps, and green public areas need to be well maintained. In addition, facilities such as car sharing, electrically powered modes of transport such as e-bikes, e-cars and electric public transport, together with cleaner and lower-emission internal combustion engines, should be promoted.
If people can be persuaded to use their own feet or (electric) cycles earlier, more frequently and for longer distances, this will also drive down traffic volumes on the roads. Consequently, noise, air and odour pollution will also be reduced. Furthermore, electric cycles are a viable alternative to cars and public transport within the urban region; they provide significant range and come into their own in strong winds and in hilly areas. Steps can also be taken at the urban planning level. Rearranging the traffic hierarchy for the roads in rural areas, for example through the introduction of safe cycle and pedestrian paths, may encourage more residents to start taking their children to school on bicycles and leave the car at home.

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Paris Rive Gauche.
Source: flickr.com

Rive Gauche,
Jardin Abbe Pierre, Parijs
Jardin Abbe Pierre is one of a set of three gardens covering a total of 12,000 m² of ecological green space forming the heart and lungs of a transformation area on the left bank of the Seine in Paris (13th arrondissement). On a former industrial site, a high-density programme of living, working, education and leisure has been brought to life. The three gardens in the project are fed exclusively with rainwater, in return delivering a green area for rest, leisure and fresh air enjoyment.

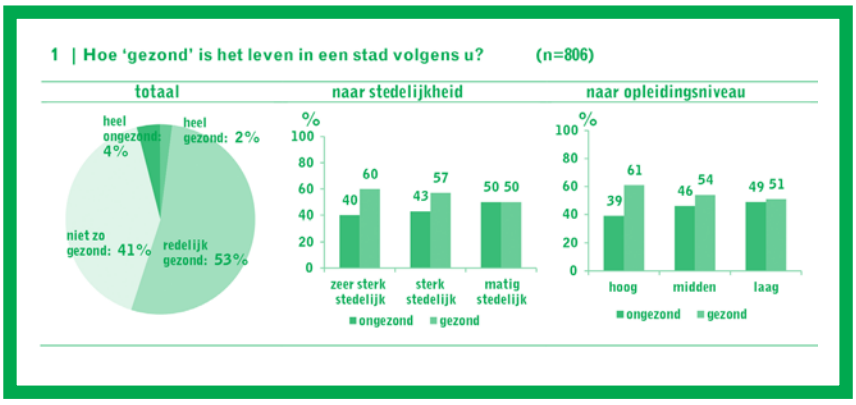

Diagram "How healthy is life in a city?"
Source: Healthy City survey, IenM

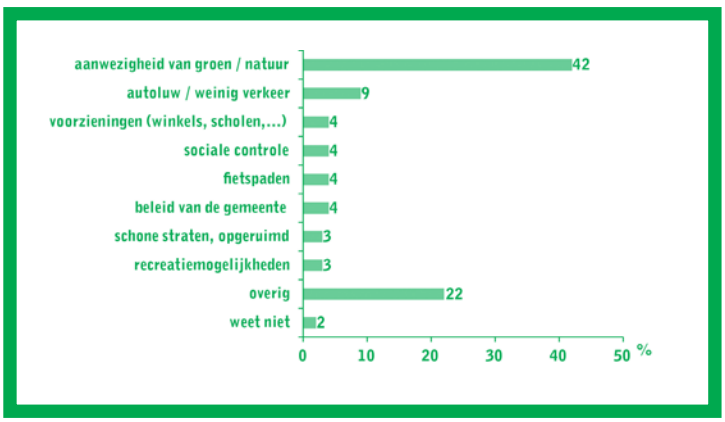

Diagram 'What makes a city healthy?'
Source: Healthy City survey, IenM

Healthy City survey
"By request of the Public Participation Centre, on behalf of the Ministry of Infrastructure and the Environment (IenM), Veldkamp carried out a quantitative investigation in August 2012 on the subject 'the healthy city'."

Sources: Alexandra van Trigt, IenM / Anton van Hoorn, PBL / Healthy Urbanisation Citizens' panel / David van Zelm van Eldik, IenM / Dinner debate/Healthy City survey / Eva Kunseler, PBL / Hanneke Kruize, RIVM / IenM Experts / Michiel van Dongen, IenM / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Working trip to Almere / Workshops

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The Healthy Environment

Healthy Urbanization calls for the direct availability of green spaces, a functioning ecosystem providing services such as clean (drinking) water, fresh air and an environment free from noise and air pollution. These considerations are part of a vast subsection concerned with availability and spatial issues related to the healthy layout of the living and working environment and the reinforcement of connections between the urban area and green/blue leisure areas.

For a city to be a healthy city, steps have to be taken to make it a clean city. Any threats to a city such as overcrowding, noise nuisance, chemical pollution and plants or animals which are harmful to nature or the health of people have to be addressed, for the benefit of good health care, quality food, sufficient exercise and relaxation. Different lifestyles call for a great deal of diversity in living environments. For example, whilst there may be a need to accommodate more dynamic pursuits, there will also be a need for places which offer relaxation, where people can live and work in close proximity and can live together tolerantly.

All residents have the same opportunities for a healthy way of life. Green areas play an important part in healthy living. Various studies have emphasized the links between human happiness and the availability of parks, meadows and other green facilities in the local area. This makes it important for urbanization at all levels to go hand in hand with the development of nature, in and around cities. The underlying trends show that, in general, Dutch people also regard water as a green amenity. For many Dutch people, managing water properly is one of the major prerequisites for a healthy life in a healthy city. The benefits of this are severalfold. For example, dykes and other measures are a recognized means of preventing flooding, and storage and buffering assure sufficient access to fresh water. Ensuring excellent water quality is also essential. Even indirectly, water offers opportunities for health, for example because the water-rich countryside doubles as recreational areas, which means that people can live by the water and take pleasure in it every day. Bodies of water in the city help to counteract heat stress, making water an important fringe benefit and a significant opportunity for a healthy city.

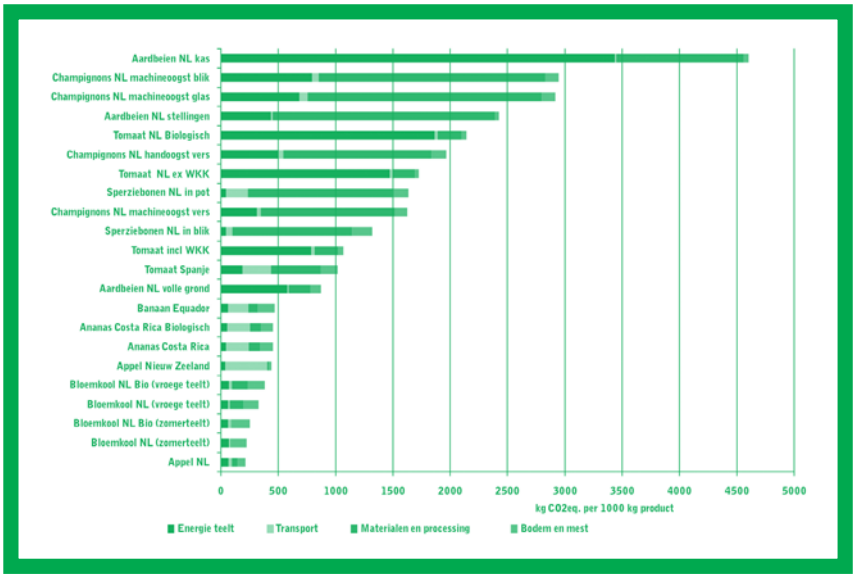
A healthy environment will help to reduce the pressure on mental and physical health. Exercise is encouraged, healthy food is available, there are plenty of green spaces and water to promote the quality of living, peace and quiet are available on tap and clean air is guaranteed. In short, the mix of facilities in a healthy city and a range of possibilities to make use of them give people enjoyment and social safety, create variety and a choice of space, and make social contact accessible.

(What)

Rooftop Farm Brooklyn NY.
Source: dakdokters

Urban Farming, Brooklyn New York

The new city is no longer based on separation, but on mixes. It should provide room for the production of food, energy, raw materials (from waste) and countless communication networks as well as room for living, working, traffic and leisure. In particular, food production through urban farming has now been demonstrated successfully in a number of cities, among them Brooklyn, a stone's throw from Manhattan, where vegetables have been produced locally and sustainably for a number of years.



Level of kg CO2 equivalent per 100 kg of produce.
Source: Blonk MilieuAdvies

The chart shows the quantity of CO2 emitted from the growth, transport and processing of 1000 kg of produce. The number of food miles is not always the decisive factor, which means that it is more accurate to refer to a carbon footprint when making comparisons between products.

Sources: Healthy Urbanization Citizens' panel / Dinner debate / Healthy City survey / Frank van Oort, University of Utrecht / IenM Experts / Martje Storm, KiM / Breakfast session 2 / Infrastructure and Environment consultation / Workshops

(What)

Basic Services

Healthy Urbanization goes hand in hand with the accessibility of high-quality food, energy, health care, education, employment and housing: this means ensuring the optimum balance between the availability of services at a local and regional level, and the distance between production and consumption.

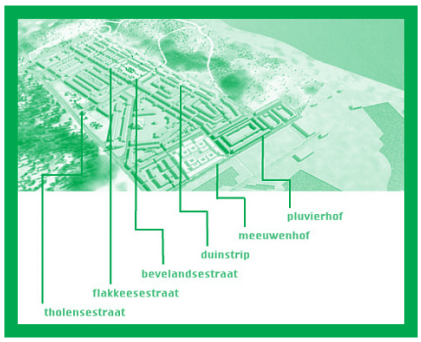
In the healthy city, there is a varied and ample range of employment opportunities and various opportunities for relaxation. There is also a good mix of housing and an efficient transport flow.

In addition, the city provides sufficient services in the fields of health care and education, both at a regional level and, in particular, at the community level. The citizens' panel revealed a preference for a healthy city that feels like 'a collection of villages', with services to support each separate area. It is becoming increasingly common for people to grow their own fruit and vegetables in their home gardens or, at a more serious level, on the open roofs of buildings and on brownfield land. Reducing food miles is not the principal motivation behind this practice of 'urban farming'. Rather, it reflects a 'green' awareness on the part of the urban dwellers, which can lead to increased wellness and well-being and promote social cohesion between the residents of a neighbourhood. The number of transport operations and food miles can of course be reduced when cities achieve their growth through compaction, and such factors can be optimized through the promotion of agricultural and livestock production in the vicinity of a city. This, in turn, is likely to increase the proportion of, and demand for, this local (seasonal) regional produce in the food supply.

(What)

A roundabout on Texel fitted with solar panels.
Source: voordewereldvanmorgen.nl

Texel: energy neutral in 2020
Texel's energy company, TexelEnergie, in cooperation with the municipality and Capgemini, plans to meet the island's energy requirements in full by 2020 using renewable energy. TexelEnergie is installing and managing technologies such as solar panels, for example on farm sheds or, as in this example, in the middle of roundabouts. The energy generated is then sold on to the residents of Texel.



New residential area Duindorp.
Source: kei-centrum

The world's first seawater thermal power plant extracts heat from the ocean using a heat pump and uses this to supply the new Duindorp residential area in The Hague with heat which is free from CO2 emissions.

Source: OMA

Seapower
Working for the Stichting Natuur en Milieu (Foundation for Nature and the Environment), the Office for Metropolitan Architecture (OMA) examined whether, by around 2050, Europe could overcome its dependence on Russian oil supplies by meeting its energy requirements using wind farms on the North Sea in combination with solar energy, tidal energy and wave energy.

Sources: Anton van Hoorn, PBL / Dinner debate / Healthy City survey / IenM Experts / Infrastructure and Environment consultation / Petrouschka Werther, IenM / Workshops

(What)

Sustainable Energy System

Healthy Urbanization calls for a healthy energy system: combining a sustainable mix of energy sources, developing smart combinations of supply networks and decentrally generating renewable energy, to create an environment in which we minimize energy use and make more efficient use of existing energy flows.

Healthy living and working is also about the responsible use of safe, affordable, reliable and sustainable energy supplies. The built environment and urban mobility both play a large part in helping to make this possible. For example, a smart spatial set-up, which aims to save energy by reducing (car) mobility is highly important. Urban areas such as Houston and Los Angeles-San Diego use up to 15 times more energy for mobility than regions with more optimal coordination of transport services, such as London, Paris and Amsterdam. By making better use of the existing infrastructure, a considerable amount of energy can be saved, which is then reflected in the ecological footprint of urban regions. Targeting energy savings at the property, regional and local levels can in each case contribute to reducing energy use.

Achieving reductions in energy use through smart coordination and combinations of approaches alone does not provide a definitive answer to the growing demand for energy. The answer has to be found in making energy supplies more sustainable in The Netherlands.

One possible way of achieving this ambition is to provide a more varied energy supply. Instead of natural gas, electricity and petrol, which are often transmitted/transported over considerable distances, more locally-produced energy is needed. Smart grids use the batteries of electrically powered cars or hydrogen fuel cells to provide a temporary buffer against fluctuations in the energy supplies from intermittent energy sources such as solar and wind power. Energy-efficient homes ensure a lower energy bill, even though people are increasingly working from home. Roofs are increasingly used for mounting solar panels and for growing cooling vegetation.

The aim is for energy to be sustainable, with solar energy, storage facilities and distribution networks ensuring an optimum supply during both peak and off-peak periods.

(What)

Source: metrosquare.blogs.pot.nl

The High Line, New York City
The High Line is a 1.6 kilometre-long park, built on a 2.3 km section of elevated railway line (now disused) on the western side of Manhattan. The line, which was laid in 1930, was decommissioned in 1980 and the track became swallowed up by vegetation. Although it was intended to be scrapped, local residents proposed an initiative in the late 1990s to transform the viaduct into a park, following the example of the Promenade Plantée in Paris. The park has since been a huge success, meeting the public demand for green areas whilst creating a link to the industrial past of that part of Manhattan.

Photo: De Kruidenier Groep

The blaarkop
By putting this ancient Dutch breed of cows back on the map, or rather the menu, the breed was saved from extinction. Biodiversity in The Netherlands has thus been given a boost by eating this particular breed of cow. Rotterdam's Kruidenier Group now produces hamburgers, steaks, beef sausage and meatballs from the blaarkop, and real blaarkop cheese is being developed.

Photo: webblast

Strijp-S, Eindhoven
When Philips moved many of its operations to Amsterdam and China, the company left behind a considerable amount of vacant space at the old Philips estate in Eindhoven. The site has since been transformed by artists and creative entrepreneurs who have worked together to create 'Strijp-S' — the largest inner-city restructuring project in the whole of Europe. Sometimes referred to as the 'Creative City in Eindhoven', Strijp-S is now a centre for creativity and culture, and provides space for living, working and relaxing whilst preserving the identity and industrial heritage of this historic site.

Sources: Healthy Urbanization Citizens' panel / David Dik, Kernteam delta workshop / Dinner debate / Healthy City survey / IenM Experts / Kees van Oorschot, Municipality of Rotterdam / Leendert van Bree, PBL / Infrastructure and Environment consultation / working trip to Eindhoven / working trip to Almere / Workshops

(What)

Sociocultural Associations

Healthy Urbanization has strong links with the historical, cultural and ecological identity of a place: the aim is to strengthen social and cultural links and identity by sharing, (re)using and (re)developing urban locations, whilst preserving recognizable landscapes, objects, crops, biodiversity, etc.

People are no longer interested merely in the 'here and now' of a place. There is a growing desire to preserve the historical identity of buildings and places both within and outside of the cities. A healthy city is, therefore, a living, dynamic city where the past and present are interlinked but where there is still room for new development, redevelopment and reassignment. A healthy city is one in which housing, business, culture and green space exist next to each other, on top of each other and through each other.

This can be achieved by redeveloping old buildings and land to redefine the space, whilst respecting the heritage and preserving historic values. Future and past, shoulder to shoulder, with and because of each other. A similar, though perhaps less practical, solution is to improve relations between city and country. For example, enabling people to experience—perhaps through reading—the historic connections between the city and the cultural landscape, may offer interesting possibilities. This can serve to stimulate an interest in the natural values and recreational experiences of the city, and also in the development of new recreational areas and routes which create links to the past and which can have a strong positive effect on the value of the city. For this reason, the municipality of Rotterdam, together with the regional council of Rotterdam and the province, is investing in new nature and leisure areas to the north of the city. Here, a green zone is being developed which will connect the existing recreational area of Rottemeren (located along the river Rotte) with the historical landscape of Midden-Delfland. Agriculture, nature conservation, urban farming and recreation will coexist on this new green site. A recreational cycle path, the Polderpad, already connects the Rotte to the Schie, and additional cycle tracks will be laid from the urban area, with improvements made to other existing connections so that residents of the city will be able to access this exceptional countryside more easily.

Region, City, Street

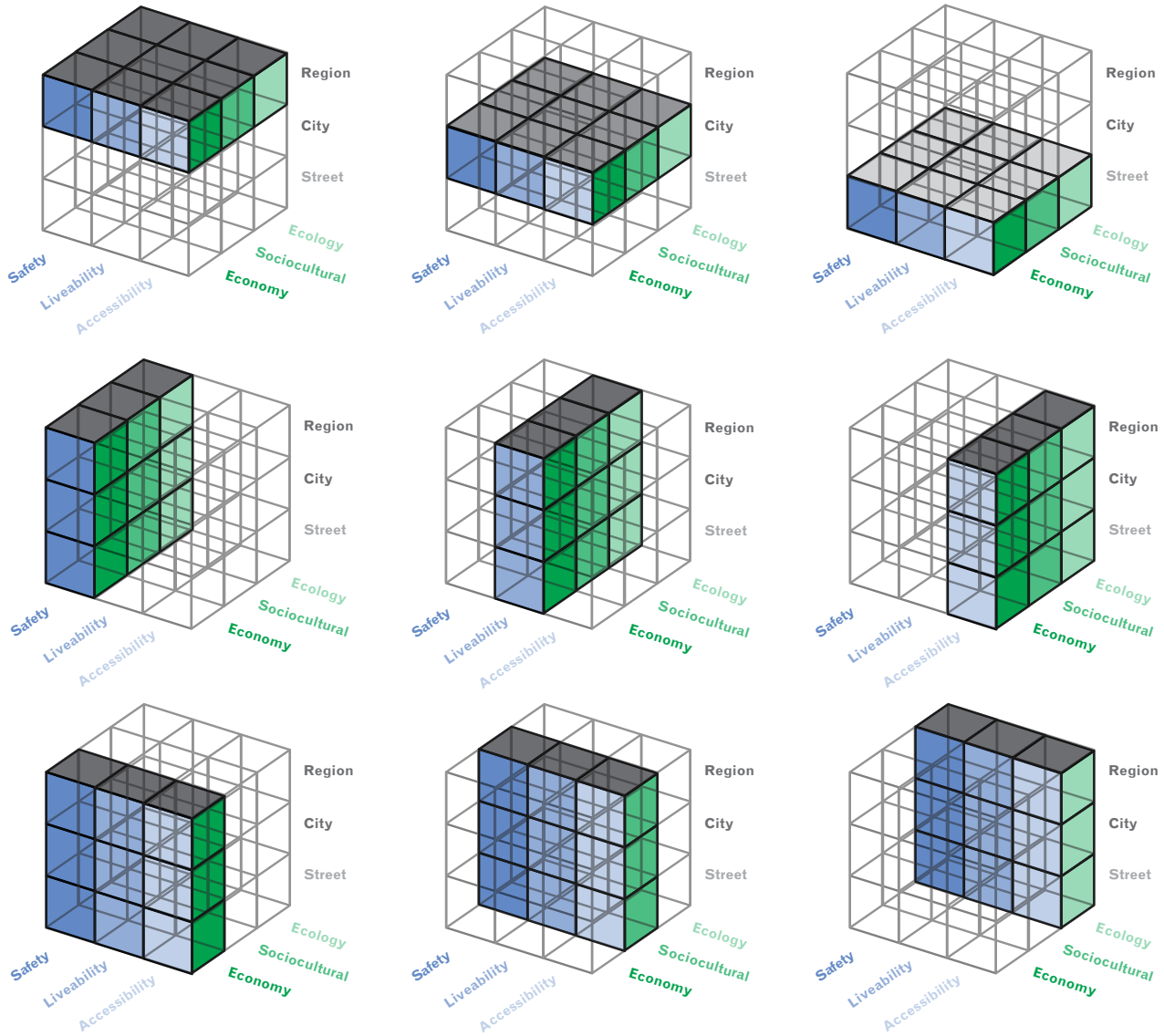
IenM's new Healthy Urbanization agenda requires nothing less than a major broadening of the conventional approach to urban design. The shaping of cities is about far more than planning and access. It is about creating a positive climate for business, and combining planning agendas with the local vision to ensure the support of all stakeholders. The many qualities of healthy urban areas are likely to be the result of a holistic approach at the various levels (region, city, street), with respect to safety, liveability and accessibility coupled with economic, sociocultural and ecological development. In short, Healthy Urbanization is as relevant for the area surrounding the city, or for the region, as it is for the city itself. The city is no longer a single 'object', but can be seen as part of a dynamic process of urbanization. This dynamic perspective starts at the regional level and works all the way to the house and street level and back again.

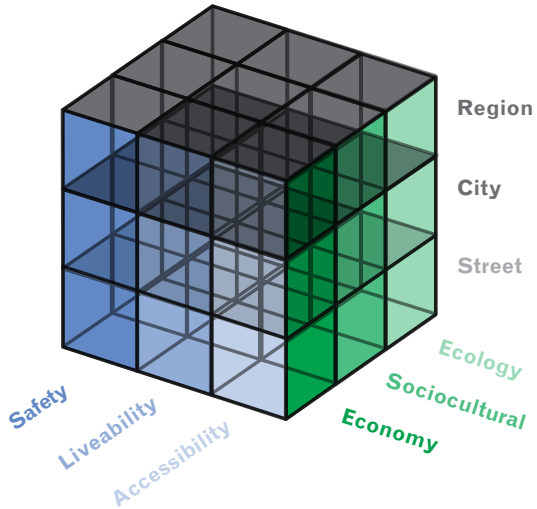
This cross-cutting approach offers a new focus for development, i.e. the approach to urbanization is no longer based on differences, but on mixes, at both the micro and macro scales. As well as the familiar categories of living and working, traffic and recreation, it encompasses the production of food, energy, raw materials (from waste) and the need for efficient communication networks. In short, Healthy Urbanization relies on a full range of urban services, so that every requirement is at hand in daily life. This reduces the need for travel, which provides for a more efficient and safer environment, free from harmful emissions.

To encourage the practice of Healthy Urbanization by decision makers, managers, developers and other interested professionals, the FABRIC consultancy has prepared 'The Healthy City Cube'. The Cube allows projects to be evaluated on the basis of the three pillars of the Ministry of Infrastructure and the Environment, i.e. Safety, Liveability and Accessibility, from an economic, sociocultural and ecological point of view at the street, city and regional levels. Projects which tick as many boxes as possible within The Healthy City Cube are most likely to represent solutions which, through smart combinations — i.e. combined opportunities — make it possible to achieve several objectives and combine as many agendas as possible.

Initial feedback suggests that there are a number of specific challenges for design. Healthy regions are those that are eventually able to establish a good range of high quality facilities that are accessible to all; this includes the availability of services both at local as well as regional levels. The challenge here is how to improve the distance between production and consumption. Another challenge is that of designing a walkable city with ample accessible green areas, clean (drinking) water and fresh air. Success in these areas would indicate promising prospects for the long term, with healthy regions sharing the ambition to be different, and each having specific complementary strengths in relation to specific places, projects and programmes at all levels. In this way, the connection with the historical, cultural and ecological identity of a particular place is reinforced by the (re)use and (re)development of urban locations, whilst preserving recognizable landscapes, objects, crops and biodiversity.
To get an impression of what this means in practice, some work has been carried out at the regional, city and street levels.

The Healthy City Cube

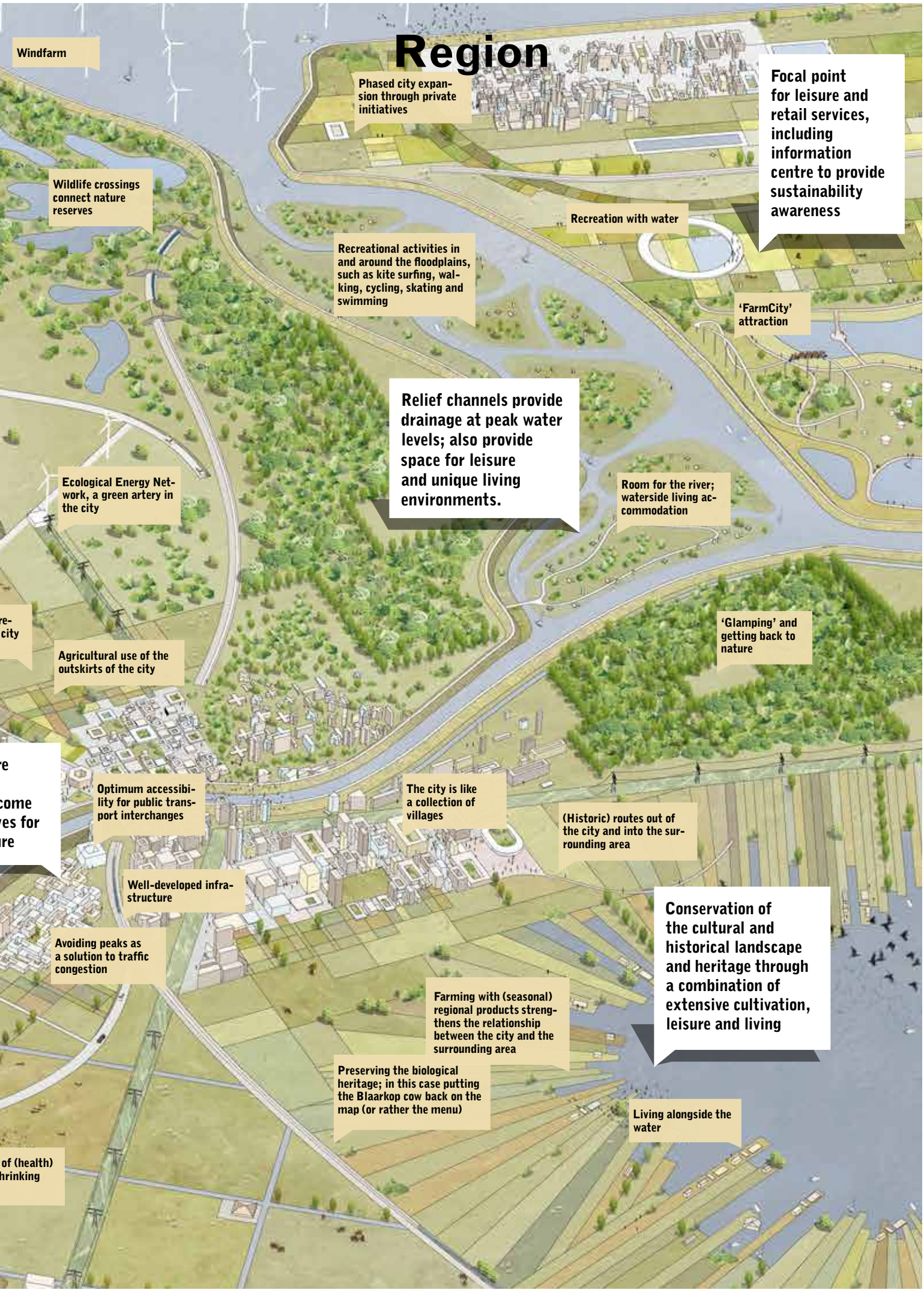


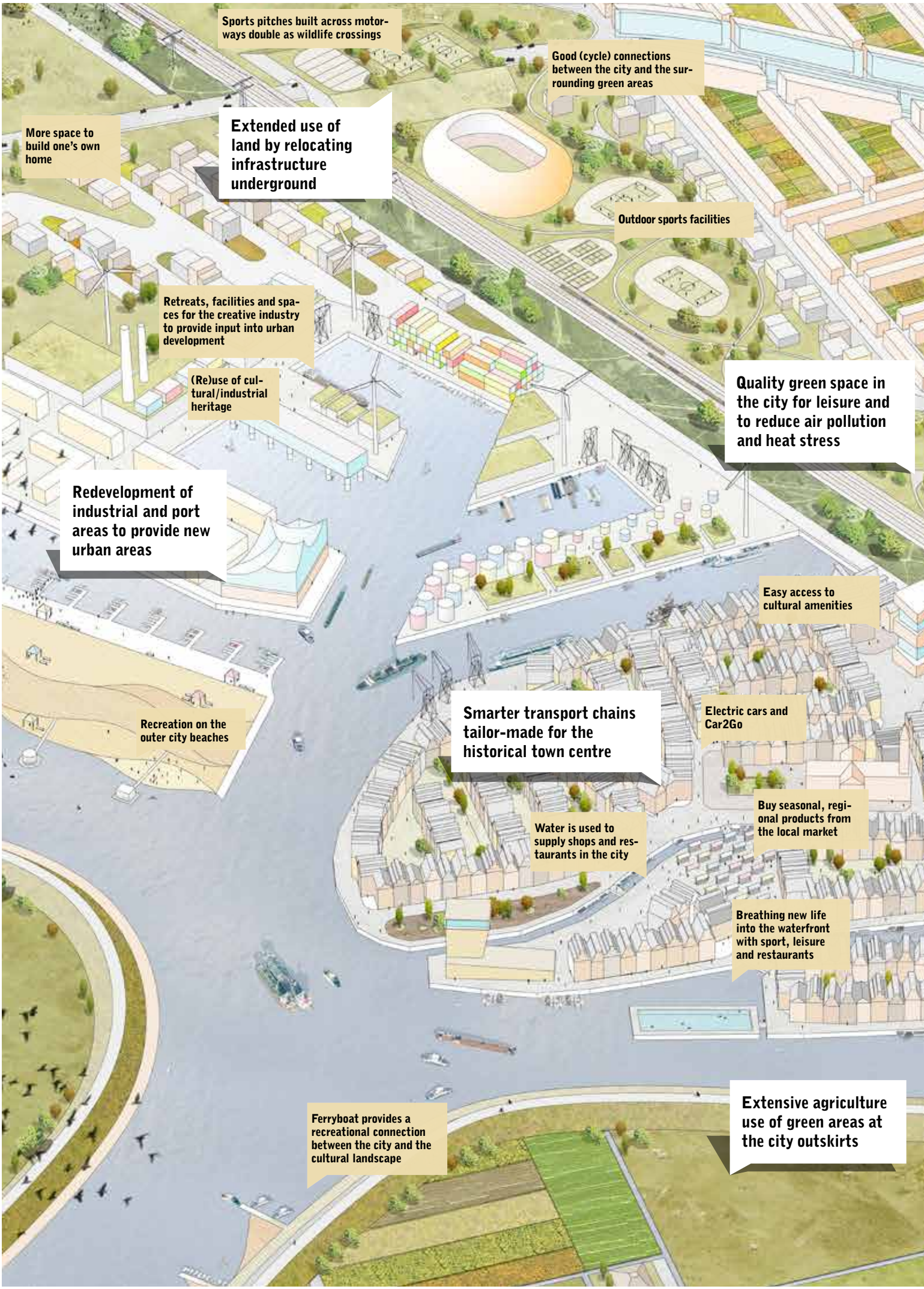


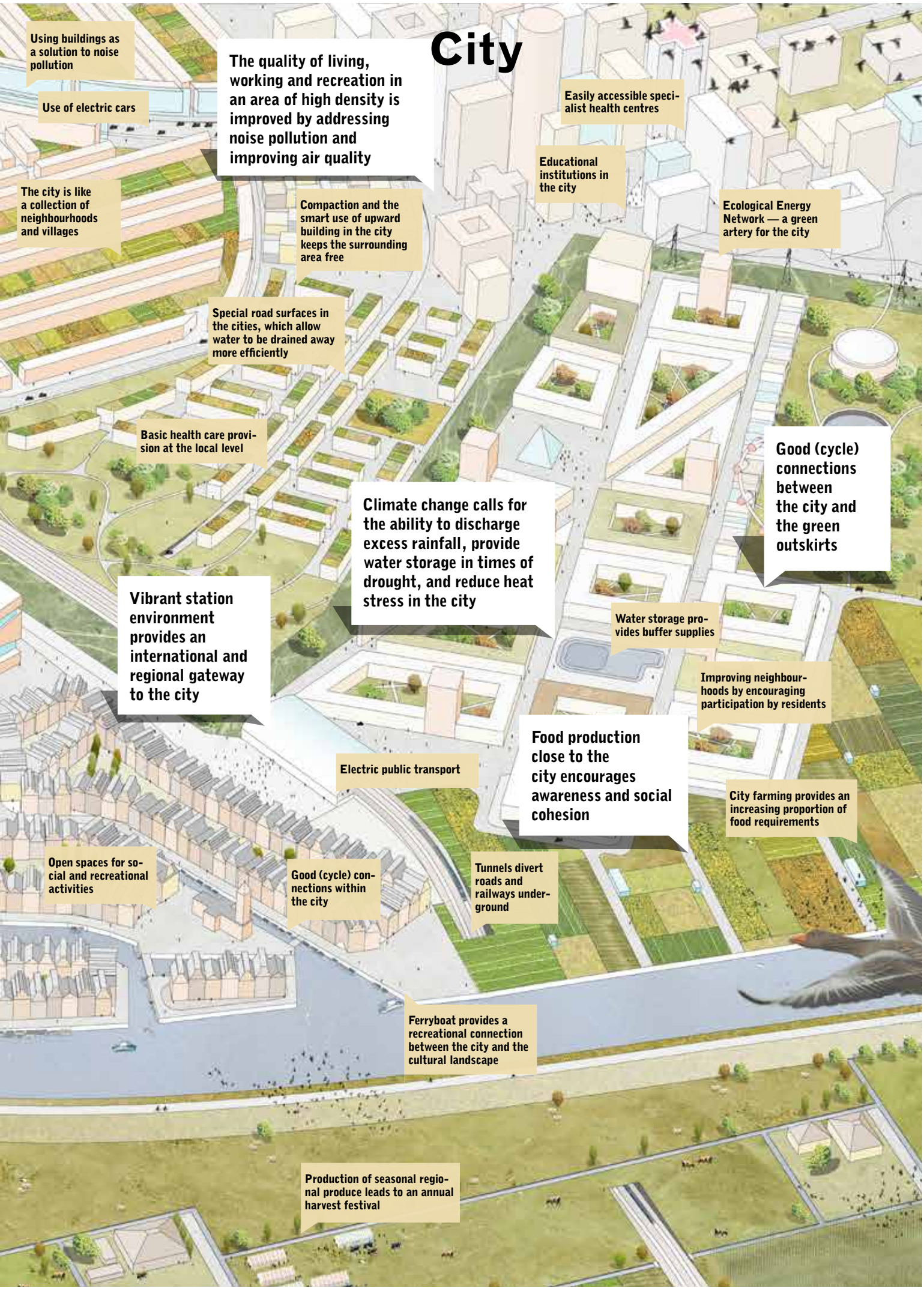
The Healthy City Cube
The Healthy City Cube was developed to assess the potential effectiveness of different projects at the regional, city and street levels, with respect to safety, liveability and accessibility, and taking economic, sociocultural and ecological aspects into account.

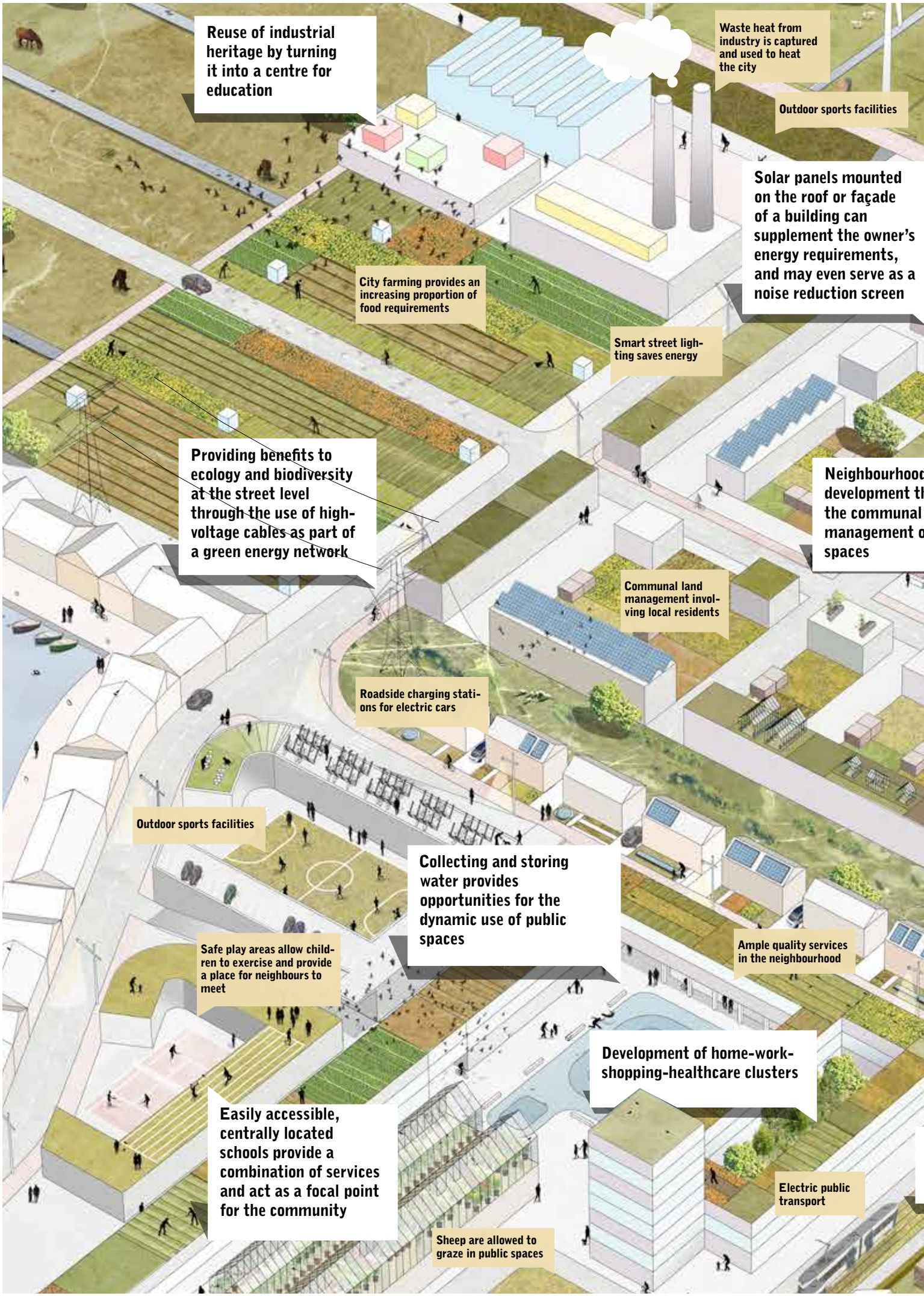
The Healthy City Cube, developed by the FABRIC consultancy

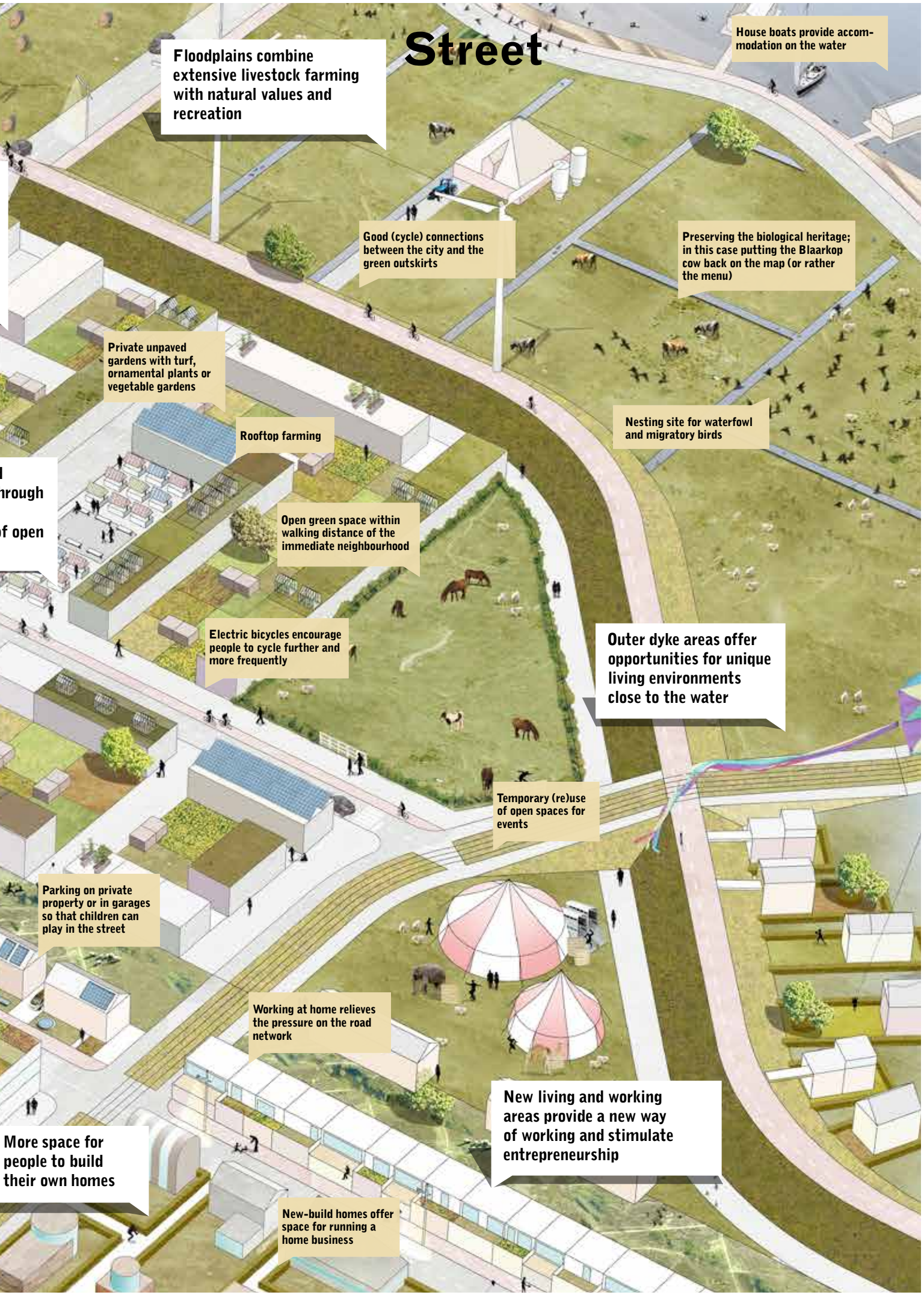

Sand engine as coastal defence
Conservation of natural amenities and increasing biodiversity
Biomass production forest
Coastal safety solutions combined with improvements in spatial quality.
The transition to wind, solar and bio-based energy calls for a smarter energy network capable of dealing with higher peak energy requirements.
Active leisure on the coast, e.g. kite surfing, walking, cycling, skating, swimming
Bespoke coastal safety at seaside resorts
Biomass energy production
Strengthening the
lationship between
and country
Developing infrastructur
hubs to provide efficient
interchanges, and to bec
destinations in themselv
living, working and leisu
Using residual heat and CO2 emissions from industrial areas, by means of CO2 and heat networks.
Making more use of inland waterways
Alternative public transport by cable car
Capturing CO2 from coal-fired power stations
Preservation
facilities in s
regions


Region
Windfarm
Phased city expansion through private initiatives
Focal point for leisure and retail services, including information centre to provide sustainability awareness
Wildlife crossings connect nature reserves
Recreation with water
Recreational activities in and around the floodplains, such as kite surfing, walking, cycling, skating and swimming
'FarmCity' attraction
Relief channels provide drainage at peak water levels; also provide space for leisure and unique living environments.
Ecological Energy Network, a green artery in the city
Room for the river; waterside living accommodation
'Glamping' and getting back to nature
Agricultural use of the outskirts of the city
Optimum accessibility for public transport interchanges
The city is like a collection of villages
(Historic) routes out of the city and into the surrounding area
Well-developed infrastructure
Conservation of the cultural and historical landscape and heritage through a combination of extensive cultivation, leisure and living
Avoiding peaks as a solution to traffic congestion
Farming with (seasonal) regional products strengthens the relationship between the city and the surrounding area
Preserving the biological heritage; in this case putting the Blaarkop cow back on the map (or rather the menu)
Living alongside the water


Sports pitches built across motorways double as wildlife crossings
Good (cycle) connections between the city and the surrounding green areas
More space to build one's own home
Extended use of land by relocating infrastructure underground
Outdoor sports facilities
Retreats, facilities and spaces for the creative industry to provide input into urban development
(Re)use of cultural/industrial heritage
Quality green space in the city for leisure and to reduce air pollution and heat stress
Redevelopment of industrial and port areas to provide new urban areas
Easy access to cultural amenities
Recreation on the outer city beaches
Smarter transport chains tailor-made for the historical town centre
Electric cars and Car2Go
Buy seasonal, regional products from the local market
Water is used to supply shops and restaurants in the city
Breathing new life into the waterfront with sport, leisure and restaurants
Ferryboat provides a recreational connection between the city and the cultural landscape
Extensive agriculture use of green areas at the city outskirts


City
Using buildings as a solution to noise pollution
Use of electric cars
The quality of living, working and recreation in an area of high density is improved by addressing noise pollution and improving air quality
Easily accessible specialist health centres
Educational institutions in the city
The city is like a collection of neighbourhoods and villages
Compaction and the smart use of upward building in the city keeps the surrounding area free
Ecological Energy Network — a green artery for the city
Special road surfaces in the cities, which allow water to be drained away more efficiently
Basic health care provision at the local level
Good (cycle) connections between the city and the green outskirts
Climate change calls for the ability to discharge excess rainfall, provide water storage in times of drought, and reduce heat stress in the city
Vibrant station environment provides an international and regional gateway to the city
Water storage provides buffer supplies
Improving neighbourhoods by encouraging participation by residents
Food production close to the city encourages awareness and social cohesion
Electric public transport
City farming provides an increasing proportion of food requirements
Open spaces for social and recreational activities
Good (cycle) connections within the city
Tunnels divert roads and railways underground
Ferryboat provides a recreational connection between the city and the cultural landscape
Production of seasonal regional produce leads to an annual harvest festival

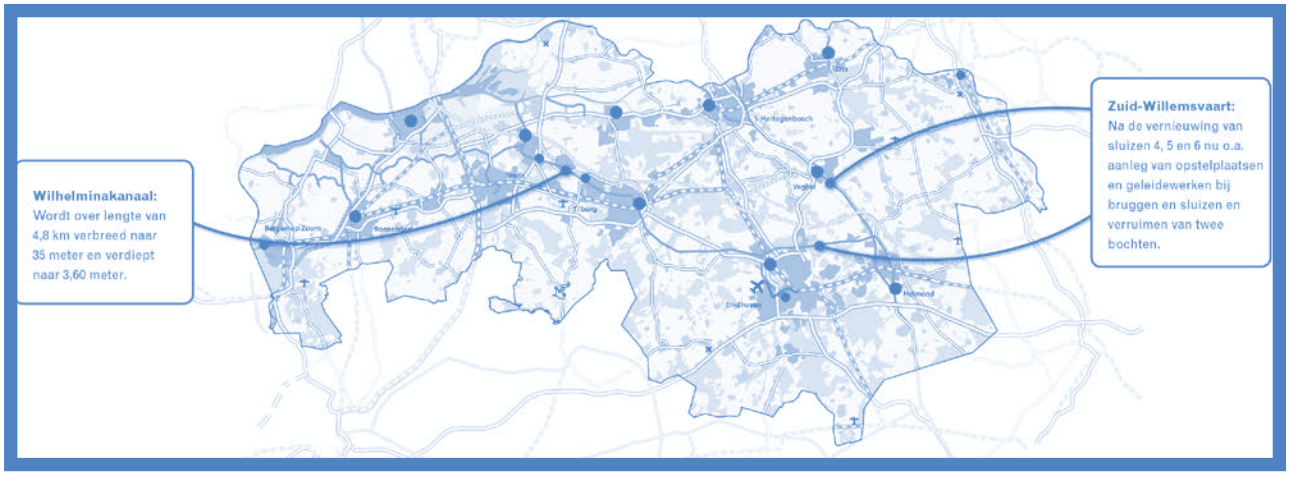

Reuse of industrial heritage by turning it into a centre for education
Waste heat from industry is captured and used to heat the city
Outdoor sports facilities
Solar panels mounted on the roof or façade of a building can supplement the owner's energy requirements, and may even serve as a noise reduction screen
City farming provides an increasing proportion of food requirements
Smart street lighting saves energy
Providing benefits to ecology and biodiversity at the street level through the use of high-voltage cables as part of a green energy network
Neighbourhood development th
the communal
management o
spaces
Communal land management involving local residents
Roadside charging stations for electric cars
Outdoor sports facilities
Collecting and storing water provides opportunities for the dynamic use of public spaces
Safe play areas allow children to exercise and provide a place for neighbours to meet
Ample quality services in the neighbourhood
Development of home-work-shopping-healthcare clusters
Easily accessible, centrally located schools provide a combination of services and act as a focal point for the community
Electric public transport
Sheep are allowed to graze in public spaces


Street
Floodplains combine extensive livestock farming with natural values and recreation
House boats provide accommodation on the water
Good (cycle) connections between the city and the green outskirts
Preserving the biological heritage; in this case putting the Blaarkop cow back on the map (or rather the menu)
Private unpaved gardens with turf, ornamental plants or vegetable gardens
Rooftop farming
Nesting site for waterfowl and migratory birds
nrough
f open
Open green space within walking distance of the immediate neighbourhood
Electric bicycles encourage people to cycle further and more frequently
Outer dyke areas offer opportunities for unique living environments close to the water
Temporary (re)use of open spaces for events
Parking on private property or in garages so that children can play in the street
Working at home relieves the pressure on the road network
New living and working areas provide a new way of working and stimulate entrepreneurship
More space for people to build their own homes
New-build homes offer space for running a home business

How does IenM contribute to Healthy Urbaniza-tion?

Healthy Urbanization is a holistic and very different approach to safety, liveability and accessibility at various levels (region, city, street), with the emphasis on connectivity from an economic, sociocultural and ecological point of view, within the urban region.

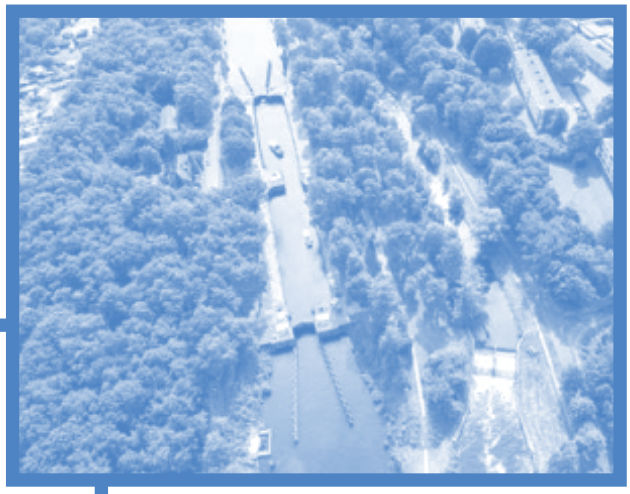
(How)



Overview of the Beter Benutten (Better Use) projects in Brabant
Source: Beter Benutten newsletter, IenM

Beter Benutten (Better Use)

The government is developing the Wilhelmin Canal at Tilburg in the framework of Beter Benutten. As a result, the canal will become suitable for larger inland vessels. Shipping saves time and will improve accessibility for businesses in Tilburg, thereby enabling the business community to reduce the number of lorries it requires on the roads.



The Wilhelmina Canal in Tilburg
Source: Beter Benutten newsletter, IenM

'Away with excessive rules and regulations'
Source: Beeldleveranciers

Sources: Healthy Urbanization Citizens' panel / Dinner debate / Healthy City survey / Eva Kunseler, PBL / IenM Experts / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Peter Torbijn, IenM / Pieter de Greef, Municipality of Rotterdam / Working trip to Almere / Working trip to Eindhoven / Workshops

(How)

The Government as Partner

Healthy Urbanization calls for a change in mindset from everybody, including the government; a shift away from problem solving, protecting and regulating, to stimulating development potentials. The government can achieve this by working as a partner, exercising its own responsibility for developments and giving others the freedom to do the same. This approach creates opportunities for entrepreneurship and innovation, and makes it possible to combine multiple objectives in projects and programmes so that each will have its own distinct characteristics.

The role of the government is changing, because community living is also changing. From a stable, segregated society, we have become an empowered, mobile, networked society with all manner of digital technology at our disposal. Projects and legislation initiated by the government alone are not enough to create and maintain a healthy city. Governments have less money, the future is increasingly unpredictable and there is increasing confidence in the self-regulation of society. The government's role is evolving, and becoming increasingly focused on scoping, initiating and, above all, facilitating. The Ministry of Infrastructure and the Environment also has a contribution to make towards the self-determining powers of the business community, citizens and parties.

Ideally, the government lays down the frameworks in terms of content and procedure, and establishes objectives whilst remaining open to the initiatives of businesses or groups of residents regarding the living environment. This is not so much a reassessment as a change in mindset. For example, a government authority might typically consider that health risks in the urban area should be addressed by the application of environmental standards; however, a stimulating and facilitating government will, above all else, see opportunities to create a residential, living and working environment which is as healthy, liveable and sustainable as possible, and tailor-made through involvement with the various players in society. The government is in the unique position of being able to bring all parties together, recognizing that they can provide valuable input to the government's policy review. In doing so, policies can develop which have the potential to influence, both intentionally and unintentionally, a range of policy areas which would otherwise lie beyond the government's scope of responsibility. In this way, IenM is developing holistic visions and scenarios, in which other authorities, businesses, citizens and organizations are welcome to become involved.

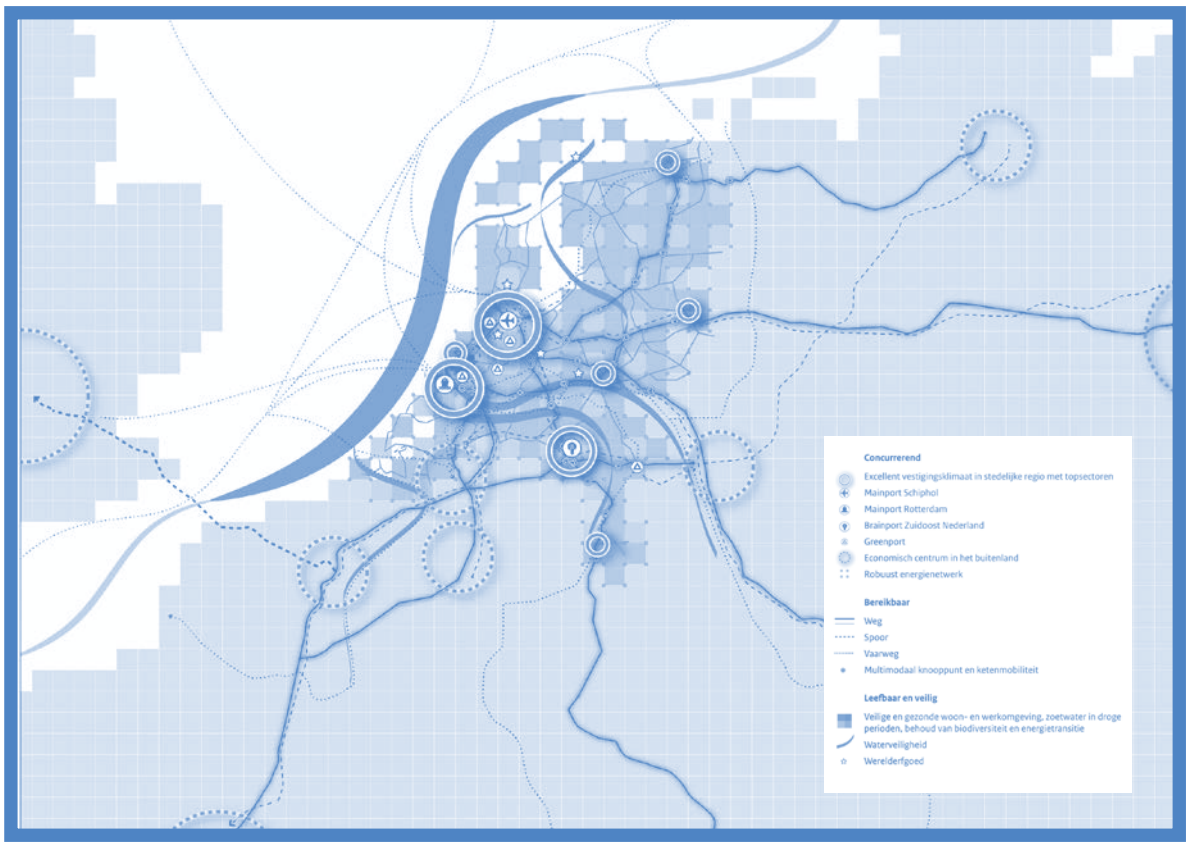
With regard to spatial development, it is the cities that are best placed to know how to make themselves healthy; above all else, the government should provide cities with the freedom to make these decisions.

(How)

The Netherlands in north-western Europe.
Source: National Policy Strategy for Infrastructure and Spatial Planning, IenM

The National Policy Strategy for Infrastructure and Spatial Planning

The Netherlands is competitive, accessible, liveable and safe due to a powerful approach which makes room for tailor-made regional policies, puts users first, strongly prioritizes investment and combines spatial development with infrastructure.



Netherlands Objective 2040.
Source: National Policy Strategy for Infrastructure and Spatial Planning, IenM

Sources: Healthy Urbanization Citizens' panel / Dinner debate / Healthy City survey / Griet Hanegreefs, Flemish government / Hanneke Kruize, RIVM / Hans Leeflang, IenM / IenM Experts / Jan Kuperus, IenM / Leendert van Bree, PBL / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Working trip to Almere / Working trip to Eindhoven / Workshopsw

(How)

IenM as a Facilitator

IenM has a responsibility to promote a safe, liveable and accessible Netherlands. This same responsibility lies with many sectors and parties at various levels. In this context, IenM is a partner, but is also able to act on its own initiative as a facilitator due to its extensive knowledge of the issue.

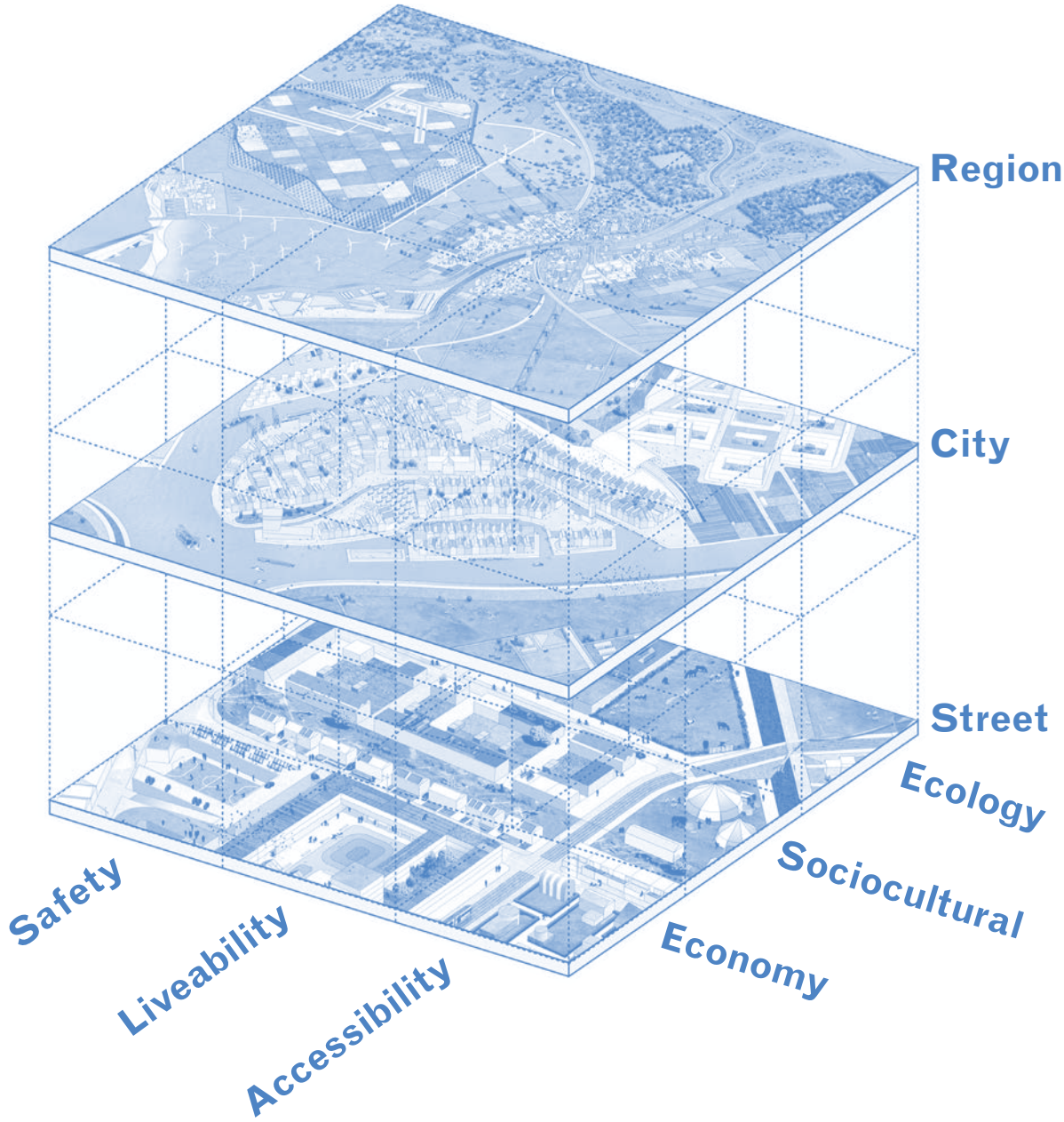
Healthy Urbanization is an issue for which interdepartmental cooperation is vital. Departments often focus first and foremost on the (sectoral) issues for which they hold primary responsibility. As a result, there is currently only a limited connection between the many issues that fall within the overall concept of Healthy Urbanization. Consider the connections between green space and water, e.g. water storage, heat stress, the spread of infectious disease carried by the tiger mosquito, etc; and between mobility and space, e.g. healthy mobility, the relationship between increased mobility due to cycling and fewer cars on the road, noise pollution, obesity, and the creation of a child-friendly living environment with safer roads and healthy school play areas. IenM can be an interdepartmental facilitator in this area.

To complement the existing Checklist for Healthy Development and the Healthy Development Guide, IenM is in a position to develop a broader vision for holistic, sustainable and healthy urban (re)structuring, followed by a research, management and policy line to provide the necessary support.

IenM can manage the connections between different policy viewpoints, whilst ensuring that we also learn from international examples. Because Healthy Urbanization is heavily dependent on the answers to real questions, regardless of whether they are raised by individuals or other players, IenM recognizes the need to adopt a welcoming approach to the initiatives of others. This will help to maintain the flexibility and diversity that is required for the effective development of Healthy Urbanization.

(How)

Healthy City Cube
Diagrammatic representation of the three key factors (i.e. the players, the levels and the pillars) that need to be considered to achieve sustainable urbanization. Through the smart combinations of all axes, several objectives can be achieved at the same time, while connecting as many agendas as possible.



Sources: Dinner debate / Healthy City survey / Sustainability and economic growth sheet / IenM Experts / Breakfast session 1 / Infrastructure and Environment consultation / Pieter de Greef, Municipality of Rotterdam / Remko ter Weijden, UCOS / Tjeerd Meester, Directorate for Sustainability DGMI / Working trip to Almere / Workshops / Zef Hemel, Municipality of Amsterdam, UvA

The Healthy City Cube developed by the FABRIC consultancy

(How)

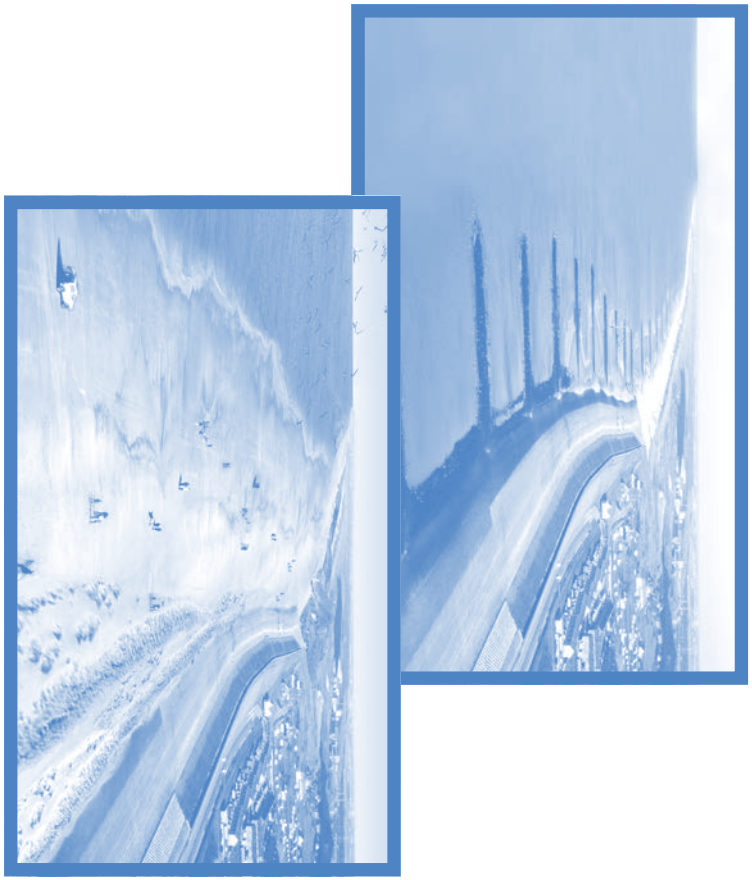
Implementation

IenM is taking responsibility for Healthy Urbanization through its own projects, and promotes consistency throughout its operations.

For years, there has been the enormous challenge of how to make The Netherlands resilient to future challenges. There is an urgent need to develop a consistent viewpoint on Healthy Urbanization by balancing and combining the various agendas. The Ministry of Infrastructure and Environment is well placed to take the lead in this, beginning with its own organization, projects and responsibilities. IenM is able to implement this objective thoroughly and ensure a clear focus on Healthy Urbanization.

Essentially, this new approach means that, for all future investments in safety, mobility and liveability, the win-win aspects from an economic, ecological and sociocultural point of view will be considered from a holistic perspective. From the start of this process, care will be taken to ensure the best possible healthy organization of the physical space. In order to make this balance more transparent, the FABRIC consultancy has developed the 'The Healthy City Cube'. On the three axes of the cube, next to the Ministry's three lines (safety, liveability and accessibility) the sustainable pillars for spatial development (economics, sociocultural issues and ecology) are plotted at the level of the street, the city and the region. This means that it can be quickly and fully determined whether projects or planned measures represent a sufficiently holistic solution. The fuller the cube, the more holistic the solution.

An example of this is the Dutch Government's Delta Programme which aims to protect the country against flooding and ensure supplies of fresh water, now and in the future. Can efforts in favour of coastal safety also offer economic, social or cultural benefits? These are key issues which can have a significant impact on the planning, funding and decision making that surround tasks of this kind. By adopting this way of working, healthy urbanization can be seen to have 'sustainable environmental value' for the vital and attractive development of urban areas.



As a result of sand supplementation, the Hondsbossche Zeewering gains a beach and Petten is able to grow into a coastal resort.
Photo: new landscapes, Miranda Reitsma / PARK

Coastal quality workshop

The coast of North Holland is hugely important. But the competitive position of the coast is under pressure, with many coastal towns having to contend with a declining population and demographic ageing. These same places also have safety issues as a result of climate change and coastal erosion. In order to try to address all of these issues, the Atelier Kustkwaliteit (Coastal Quality Workshop), working together with the consultancy FABRIC, has launched a design study to investigate the possibilities for coastal reinforcement and examine the tourist profile of four coastal resorts in North Holland, which will feed into efforts to improve quality and identity. One scenario that has been looked at for Den Helder is 'Het Geheugen van de Zee' ('The memory of the sea'), in which Den Helder becomes an island again.

Den Helder scenario 'The Memory of the Sea.
Source: FABRIC

"Look for the evidence-based policy, look for evidence that it really works. Don't be afraid of vision. With a good view of the horizon, you too can be a facilitator."
—Marianne Donker, VWS

(How)

Design-based Research

IenM embraces the power of design-based research, which makes it possible to bring the interests and combinations of opportunities into focus in a process-oriented way. Only then will we be able to anticipate changes faster and better, and tackle multiple issues at the same time in a future-oriented, innovative and inspirational way.

There are urgent spatial issues surrounding sustainability, safety, mobility and liveability. Very often, the backdrop to such matters is a complicated one, with challenging timeframes and issues which extend across all spatial levels. Design-based research is an important instrument within IenM for identifying new approaches, establishing alternatives, confronting issues and assembling solutions. In this way, design-based research can make an important contribution to sustainable decision making.

Analysis, identification, connection, confrontation and visualization are the specific characteristics of design that will lead to innovation. Design helps to create better, faster and ultimately cheaper processes. This keeps complexity in check and leads to more efficient solutions, or to a greater return on each euro invested. Design-based research also builds quality into the shaping of spatial developments, for example by making it possible to examine the various water safety issues and spatial planning challenges and to identify pathways for holistic solutions. The results of (spatial) analyses, the development and interpretation of geographical information, and the visualization of various (political) objectives will enable the various spatial consequences of these aspects to be properly understood.

Put briefly, 'connecting through illustration' is the core of the potential of design. By using a research-based design approach, such as the Delta Workshop and the design dialogue 'Making Projects', the holistic approach endorsed by IenM can be achieved.

One example of this method of working is the Coastal Quality Workshop. This workshop established a set of possible coastal defence options in response to a weakening of the coastline at various places along the Dutch coast due to the natural erosion process and climate change. These safety efforts, combined with economic, sociocultural and ecological perspectives, aim to provide the coastal resorts with a stronger tourist profile and positive ecological values.

However, design-based research does not just lead to a substantive depth of knowledge—it also strengthens communication between the various partners at all levels. By focusing more on the exploratory and inspirational power of design-based research, IenM is able to anticipate change more quickly and effectively; this enables the various stakeholders and the combinations of opportunities available at different levels to make a better contribution to a future-oriented and innovative strategy for Healthy Urbanization in The Netherlands.

(How)

The Wallisblok—a view of the communal courtyard.
Photo: Hulshof Architecten

Wallisblok, Rotterdam
Built in the 1930s, Rotterdam's Wallisblok was long overdue for renovation. Professional market players were afraid of getting their fingers burnt. But the building on the River Schie, with its stained-glass windows, bay windows and narrow staircases, was too special to be torn down. The solution was found by allowing Hulshof Architecten to work on a tailor-made solution to maintaining this housing facility, by working in collaboration with a group of buyers. The municipality ultimately supported the initiative by transferring ownership of the homes to the new residents free of charge, subject to their refurbishing the buildings up to new-build levels. The result is a block of 35 unique homes situated around a communal courtyard.

Jan Wolff, with the Muziekgebouw aan 't IJ in the background.
Source: muziekgebouw

Muziekgebouw aan 't IJ, Amsterdam
As well as housing construction, public programmes can also benefit from private initiatives. As artistic director of the Muziekcentrum de IJsbreker, Jan Wolff took the initiative himself, 25 years ago, to create a new building for contemporary classical music. The Muziekgebouw aan 't IJ, which was developed by the Danish architecture firm 3XN, opened its doors in 2005.

Sources: Alexandra van Trigt, IenM / Healthy Urbanisation Citizens' panel / Dinner debate / Healthy City survey / Griet Hanegreefs, Flemish government / IenM Experts / Infrastructure and Environment consultation / Working trip to Almere / Working trip to Eindhoven / Workshops

(How)

Private Initiative

IenM creates more opportunities for private initiatives, which means that the direct living environment can take shape under self-management, not just when building homes but also at higher levels, for example when shaping the neighbourhood or managing services.

The relationship between government and society is changing: society is becoming increasingly empowered due to new media, amongst other things, and since the start of the economic crisis, governments have been forced to (re)consider large-scale investments. This means that the government can no longer do everything itself: its new role is tending more towards facilitating, even being creative. By giving more space to initiatives proposed by citizens, businesses and social organizations, the involvement and enthusiasm of these parties for their environment is put to good use, and new initiatives can be developed. This improves social cohesion and, once again, gives people more control over their own living environment. It is therefore vital to listen to the wishes of the citizens and to coordinate the agendas of governments with these initiatives.

Under this new arrangement, the government will need to take a close look at any incompatible laws and regulations and, where necessary, restrict, adjust or simply rescind them to allow a clear way forward. This will provide the Ministry of Infrastructure and the Environment with the confidence to involve citizens, businesses and other organizations, as far as possible and from the very beginning, in the various processes of creating visions, developing policies and making decisions.

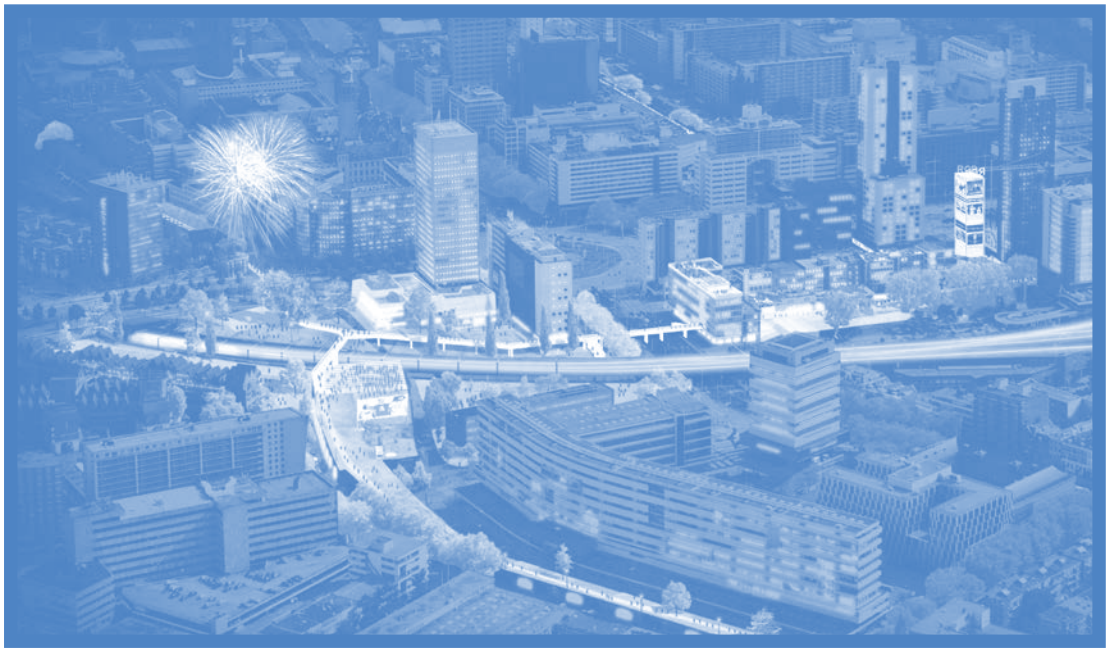
Private initiatives are now springing up across The Netherlands. 'Ik bouw zelf in Almere' ('I'm doing a self-build in Almere') is the title of an organic urban growth model in this suburb of Oosterwold. Instead of putting a completely finished plan into place, a map of outlines is used as the basis for the work, within which certain developments can take place. In this way, people are given a great deal of latitude to create and shape their own homes and their direct living environment. The suburb is being gradually developed in this way, on the basis of private initiatives from the bottom up. The ideal land locations in the municipality of Almere also make it possible to keep a close eye on progress to ensure that everything meets the requirements of the desired spatial development.

But all of this is not just about citizens. Initiatives proposed by the business community for review by the local and overarching authorities have been around for much longer. Encouraging such initiatives has led to the production of a range of broad-based plans for many spatial developments. In The Netherlands, Healthy Urbanization projects based on private initiatives are not yet commonplace. Presently, just one in three citizens has the opportunity to contribute to his or her environment. Nevertheless, contributions of this kind are essential, for example, even if it means just leaving the car at home a little more often, not dropping litter in the street, or making efforts to improve social interaction.

(How)

Participants in 'Play Noord!' work together to build their ideal community.
Photo: Play the City Foundation ('Stichting Play the City')

'Play Noord!' — Play the City Foundation and TReC ('The Responsive City' network), Amsterdam
Play Noord! was created for and with business people, residents, officials, politicians, developers, activists and designers. In this 'serious game', various stakeholders put together new future scenarios and use collective intelligence to develop the city.



A bird's eye view of the Luchtsingel in Rotterdam.
Photo: ZUS

Test Site Rotterdam T
Zones Urbaines Sensibles (ZUS) is approaching Test Site Rotterdam as a spatial and programmatic experiment in the reuse of existing buildings, a disused railway line and parking space. Through new forms of funding, such as crowd funding, for example, and on the back of local initiatives, there are plans in place for such things as roof gardens, a park and the Luchtsingel, a pedestrian bridge linking the centre of Rotterdam with the Hofbogen.

Sources: Healthy Urbanization Citizens' panel / Dinner debate / Healthy City survey / IenM Experts / Breakfast session 2 / Infrastructure and Environment consultation / Working trip to Almere / Working trip to Eindhoven / Workshops

(How)

Participation

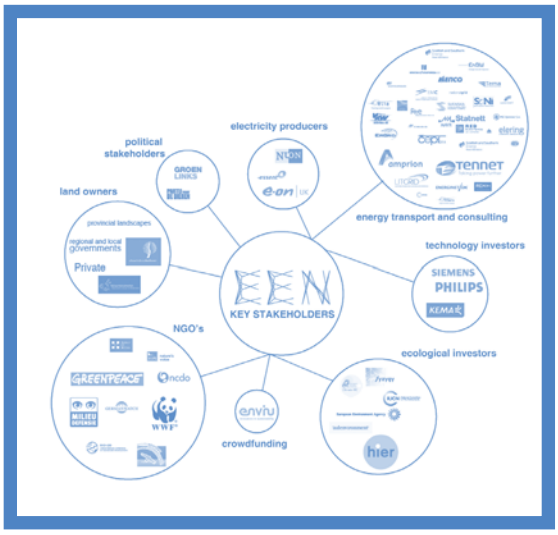
Participation is essential to enable IenM to collect knowledge and skills from society from the outset of a process, to dovetail these with existing ideas and initiatives and focus on combination opportunities by identifying smart combinations of different functions. Citizens, entrepreneurs and social organizations all become involved in government policy and decision making (public participation), and vice versa, i.e. the government takes part in societal initiatives (government participation) or establishes cooperation on an equal basis (co-creation).

Getting citizens, social organizations and businesses on board with policy and decision making, and cooperating with these parties, calls for a new approach to the environment. To ensure effective Healthy Urbanization it is necessary to approach society at an early stage, seeking (new) forms of cooperation, and both recognizing and facilitating social initiatives.

The use of social media can be helpful in facilitating this process, but conventional gatherings also continue to play their part. Obvious partners in this process are the local authorities, who are well placed to keep their finger on the pulse at the regional, area and street levels. A good example of such gatherings are the so-called 'Almere round tables'— regular meetings held at Almere in the province of Flevoland. Almere places a great deal of importance on the residents' participation in the further development of the city and in maintaining an excellent living environment. Such meetings are therefore invaluable in helping to provide early indications of where social improvements are needed.

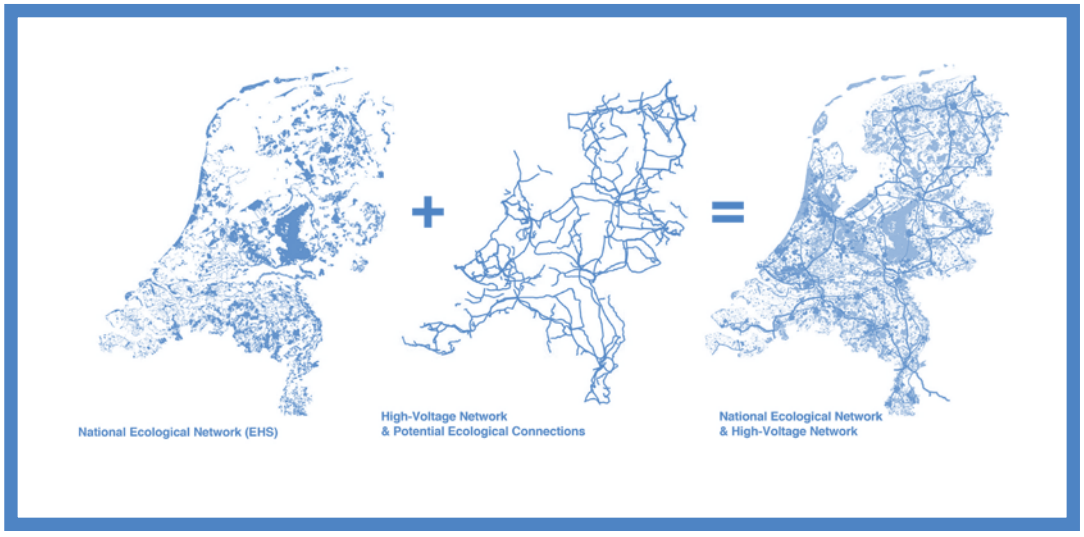
In the suburb of Woensel in Eindhoven, the residents selected their own welfare officer by taking part in the tender selection process; this also involved market consultation and compilation of a list of specific requirements. This process has had extremely positive results, both in terms of content, being that the residents were able to make their choice based on the candidates' actual skills, and also in terms of responsibility — whilst the citizens feel as though they now have 'ownership' and know what they need, it follows that they also have to be responsible for their choice.

(How)

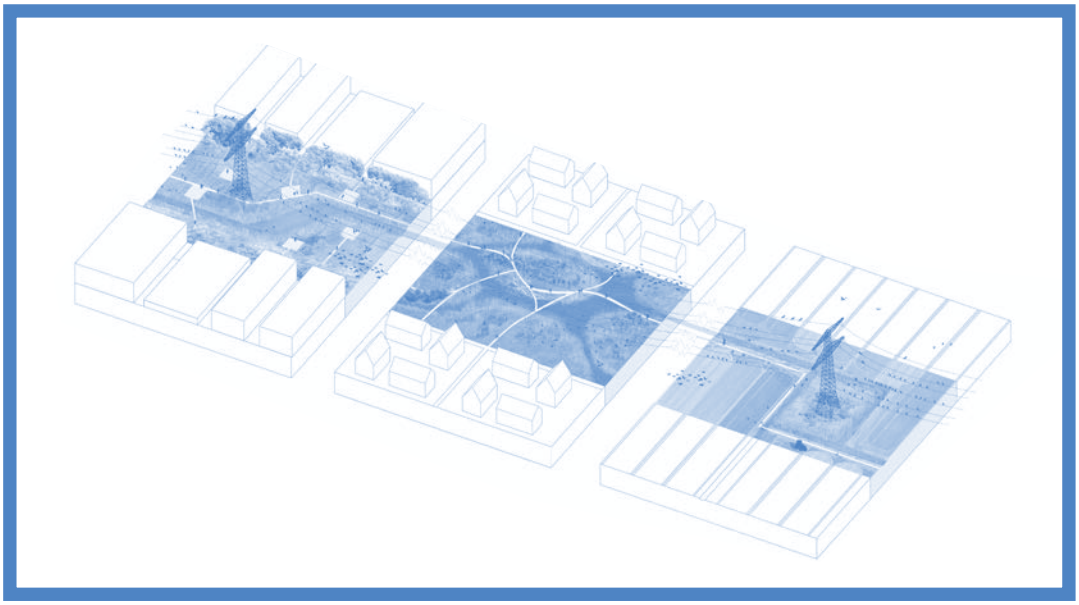


Overview of the key stakeholders involved in bringing EEN to life.

Ecological Energy Network (EEN)
The first prize in the Green Architecture Competition, organized by the Netherlands Architecture Institute (NAi) and the Ministry of Economic Affairs, Agriculture and Innovation (ELenI), was awarded to FABRIC, LOLA and Studio 1:1 for their EEN concept. The aim of the Ecological Energy Network is to strengthen biodiversity in the urban and surrounding areas by combining the high-voltage electricity network with a network of green space for nature and leisure. The project would be realized through a joint collaboration between TenneT and the two Dutch ministries, ELenI and IenM.



The National Ecologic Network (EHS) and the high-voltage electricity network come together to form the Ecological Energy Network (EEN).



Artist's impression of the possible content of part of the EEN; a business park, residential area and agricultural land.

Sources: Dinner debate / Healthy City survey / IenM Experts / Breakfast session 1 / Breakfast session 2 / Infrastructure and Environment consultation / Working trip to Almere / Working trip to Eindhoven / Workshops

(How)

Alliances

By working in professional alliances with citizens, the business community, social organizations and other authorities, with each party accepting their own responsibilities, IenM can reach better solutions more quickly, without losing sight of the social issues over the longer term.

Forming alliances is not a means by which to bypass the various interests of other participants. On the contrary, alliances are platforms where parties can come together to discuss their different requirements, and where they can investigate, initiate and execute projects and programmes to achieve responsible solutions.

Although a wide range of cooperative associations (e.g. Green Deals) already exist, it is likely to prove most beneficial where they focus on large-scale projects in the fields of mobility and spatial planning or vacant office premises and cultural heritage.

IenM can create policies and regulation to stimulate and facilitate innovation, and to encourage industry and society to investigate the potential for new developments in conventional planning fields such as health care, mobility and energy provision. For example, the research programme 'Partners for Healthy Cities', based in Rotterdam, has shown that absence due to illness can be reduced by working with health insurance companies when developing the spatial organization of the city.

Public and private parties working together on construction projects (known as Private Participation in Infrastructure, or PPI) can bring together a valuable collection of knowledge and skills, experience and expertise, and resources and opportunities. Umbrella meetings can be set up with large companies and non-governmental organizations (NGOs) to discuss the quality and efficiency of health-care provision at the local level in the city. Investigations into potential solutions for spatial challenges have been carried out by many different alliances, one example being the jointly designed Ecological Energy Network (EEN) concept which aims to transform the area directly beneath the high-voltage electricity network into green space for nature and leisure (see example).

The increasing focus on Corporate Social Responsibility (CSR) has driven businesses to become more and more concerned about the environment in which they operate and the (spatial) impacts of their business operations. Involving the business community would be possible, for example by asking questions about the relationship between, employees, their mobility and their housing preferences. The government itself can shape this process through the careful choice of locations for its own offices.

(How)

Exhibition at the 5th IABR: 'Making City', held at the Netherlands Architecture Institute, Rotterdam. Photo: Ossip van Duivenbode

Sources: Healthy City survey / George Brugmans, Director, IABR / IenM Experts / Infrastructure and Environment consultation / Working trip to Almere / Working trip to Eindhoven / Workshops

The 5th Rotterdam International Architecture Biennial (Internationale Architectuur Biënnale Rotterdam, IABR): Making City

It is the cities which must find the solutions to the great challenges of the 21st century. No cities, no future. The city is our future, but only if it is better managed, developed and planned than it is at present. For this reason, the 5th IABR: Making City appealed to all interested parties—managers, policy makers, politicians, market parties, developers and citizens—to collate examples to illustrate alternative ways of creating cities; cities which are built on strong alliances, with a strong urban agenda and which put design first.

(How)

Learning Through Practice

IenM aims to be an adaptive organization for which debate and reflection on its challenges, processes and role are a standard part of its operations. The use of public debate for sharing challenges, new projects and programmes, and for reflecting on its own role in discussions with national and international experts and stakeholders — a real test of IenM's integrity — ensures a spirit of openness towards renewal and innovation in society.

A recent example is the cooperation between IenM and Internationale Architectuur Biënnale Rotterdam (IABR). IenM supplied a co-curator for the 5th IABR and presented seven national projects (via the IenM workshop, Making Projects) to illustrate the design and development focus of the IABR. In doing so, IenM placed itself and its projects under an (inter)national spotlight that focuses on innovation in the development of the city. Not only did IenM test its own role in these special projects with respect to the interaction between alliances, design and good governance, it also allowed seven national projects to undergo a process of additional research-based design, debate and reflection, before their final presentation at the IABR. Cooperation with the IABR now forms a vast policy area, in the context of the Action Agenda for Architecture and Spatial Design (Actie Agenda Architectuur en Ruimtelijk Ontwerp, AAARO)—a work programme that aims to ensure that architecture and spatial planning make an effective contribution to spatial and cultural development.

Healthy Urbanization For All

The city is for everyone

Cities are everywhere. For the first time in history, more people worldwide live in cities than elsewhere. On television, on the Internet, in newspapers, magazines and in books one sees visions, opinions and arguments in favour of the city. These opinions are not held exclusively by specialists or experts. Everybody has a view on the city, often a general view, and in some cases very specifically. The city is for everyone. The abundance of publications about the city in recent times indicates that the debate has largely been given over to sociologists, economists, experts in new media, writers, television-producers and so on. Everybody is being invited to comment on the more liveable city of tomorrow. There are even league tables which indicate the most liveable, greenest, smartest, happiest, most sustainable and healthiest cities in the world. When we make comparisons on the basis of the most important criteria in the leading city indexes, it can be seen that 'making' cities is about far more than arrangement, sightlines or the morphology of buildings and open space. This realization has been confirmed by economic studies into the relationship between, for example, investments by foreign business and the assessment of the investment climate in question. Furthermore, everybody can 'make' the city; this is no longer the preserve of institutional parties, and hasn't been for a long time. In other words, the new urban development agenda is broader and more complex than ever. Conventional urban design has been expanded by new parties, coalitions and processes which call for a more robust spatial organization of our daily lives. The question is, what does this organization look like?

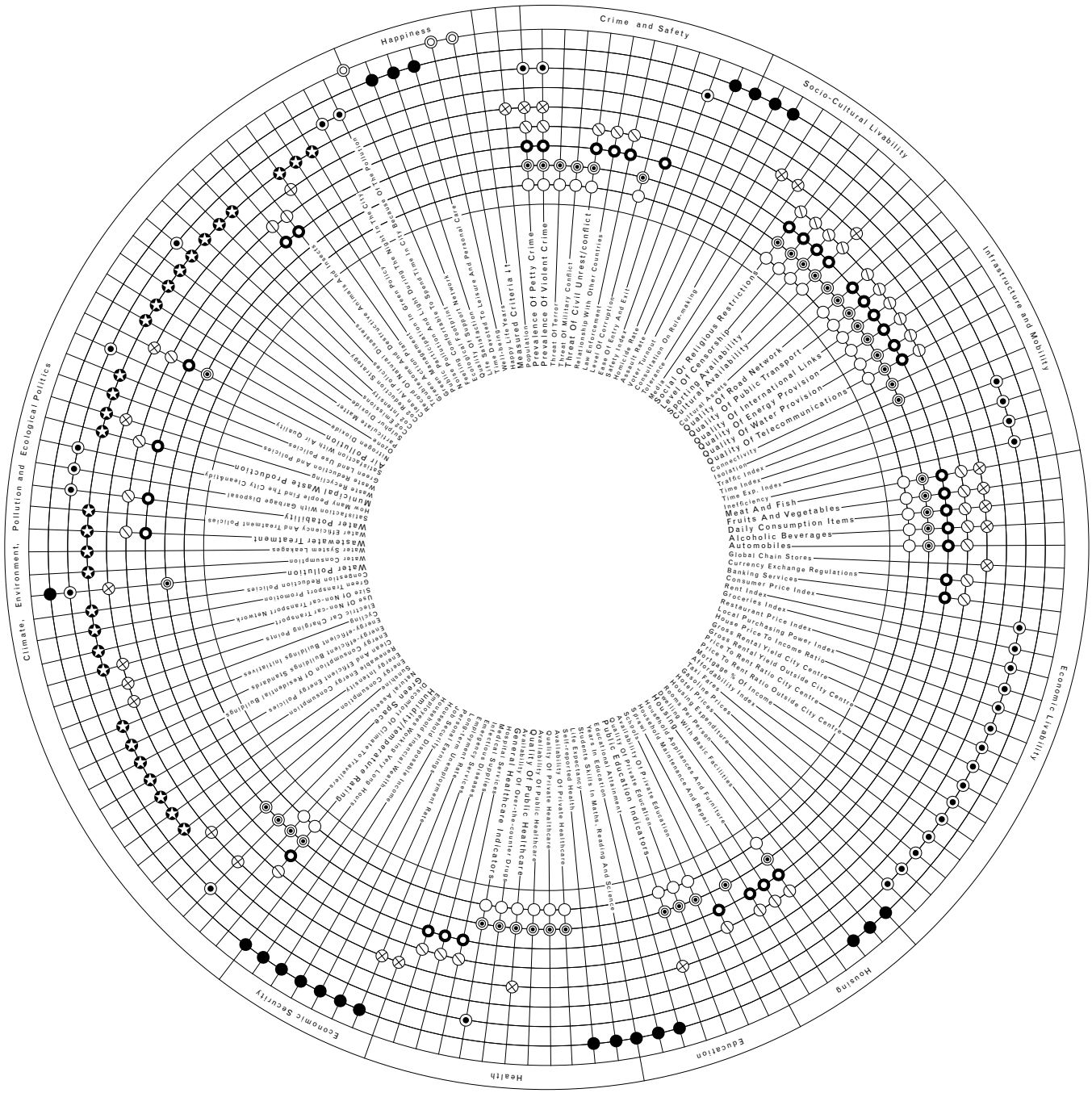
But what is the city of today? Where is it that we live? Today's city can most accurately be described as a collection of urban landscapes. The city and the surrounding areas merge into each other, like a network of different types of cities. This complex mixture of urban areas, people, ecology, economies and cultures forms the basis of our society. Healthy urbanization therefore has both a tangible and an intangible dimension.

There is a need to investigate both dimensions thoroughly, and to develop them carefully. It is predicted that, by 2030, 5 billion people will live in cities. Cities will then be responsible for 80% of harmful emissions of greenhouse gases and 60% of global gross domestic product. This demonstrates that ecology and the economy go hand in hand; but it also means that we will need another way of creating cities. It is clear that if we continue to urbanize in the same way as we have over the past century, the pressure on the agricultural land and vital green spaces required to provide drinking water and sanitary facilities for waste water will increase at an alarming rate, to say nothing of the declining availability of fossil fuels and the increase in emissions of greenhouse gases. Unless we can work on new forms of urbanization, not only will life in the city be placed under considerable pressure, but so will life in the surrounding regions. The answer is a form of urbanization which no longer regards sustainability as a challenge or a limitation, but as an opportunity to reach meaningful solutions.

From city to urbanization

If we look back at the transformation of the buildings and the development work undertaken in the city over the past century in The Netherlands, some interesting observations can be made. We begin with the urban planning of South Amsterdam by Berlage, and see that his development approach was, above all, an attempt to strike a balance between the past and new objectives which were to present the city as a work of art. The Western garden cities, as part of the General Expansion Plan of Cornelius Van Eesteren, were not a logical next step. Van Eesteren's city is based on ratio, follows its own patterns and even relied on new 'scientific' assumptions of demographic development, population composition and consequential future requirements. The white laboratory coat in which Van Eesteren was always depicted confirms his commitment to a more scientific approach. Although Van Eesteren's city was devised well before the Second World War, it did not become reality until the post-war reconstruction period. After Berlage and Van Eesteren came the 1970s and 1980s, which responded to the socialization of the city with an 'anti-city' movement which saw the city more as village, or a collection of communities, intimate, transparent and local.

The next substantial development was the 'VINEX city' (Vierde Nota Ruimtelijke Ordening Extra, which translates as 'Fourth Memorandum Spatial Planning Extra'). The aim of this city was to coordinate and align all expansions of Dutch cities into one enormous national operation. In retrospect, VINEX was the high point of top-down planning. The expansions were planned by governments, built by developers and paid for by banks, while the planners tried to hold all of the different parties together. Development companies were set up, in which both governments and private parties were stakeholders, creating a demand for 'urbanists for hire'.



This diagram compares the criteria of various leading city indexes. The overlay indicates a number of broad aspects which are important for the general quality of life in today's cities.

The most recent stage in the approach to addressing urban issues can be seen in the early 21st century, and are couched in terms such as 'commission-formulating urbanism, 'adaptive urbanization' and 'moderating urbanism'. Although the multitude of terms may suggest that there is not yet a transparent approach, it is clear that the days of 'blueprint planning' are over. The urbanization of today is more like a quest for more adaptive planning, which fits better with the dynamics of today's city. In other words, the approach to developing the city has changed throughout history, such that the focus has shifted from the city as an object to urbanization as a process.

In the context of the classical approach to urbanization and spatial planning, i.e. where the nature of the space is predetermined and designed accordingly with little or no flexibility in the process, these changes in the approach to urbanization may be considered surprising. For example, if everybody is invited to have a say, or to make some form of contribution to urbanization which is then put into practice, the conventional forms of management and planning would become meaningless. Some might even consider that any success achieved through such an approach to urbanization is little more than a consequence of pure chance; after all, the professional approach to spatial disciplines was for a long time focused on developing fixed solutions applicable to specific sectors—a kind of 'Cobbler, stick to thy last' approach where broader or alternative approaches would not be considered appropriate. But this approach is undergoing a sea change; a more open and holistic approach to urbanization is enabling professionals to apply new and promising perspectives to their work, leading to greater flexibility and the development of more adaptive solutions. Such an approach does not wait until the finite answer has been given to the question, 'how can we urbanize in a healthier way' before assembling a plan and rolling out the solution; instead, this approach starts with the simultaneous collection of a wide range of partial answers, followed by developing visions and testing ideas in practice.

The Ministry of Infrastructure and the Environment has taken the interesting and thought-provoking decision to designate 'Healthy Urbanization' as one of its binding themes. Through comprehensive studies and data analysis, IenM aims to determine the DNA of a healthy city in order to promote the most effective approaches to ensuring healthy urbanization. The wealth of relevant information that has already been made available as a result of citizens' panels, working trips, expert meetings and workshops is staggering. The central question now is how to best utilize this material to create genuinely new development perspectives.

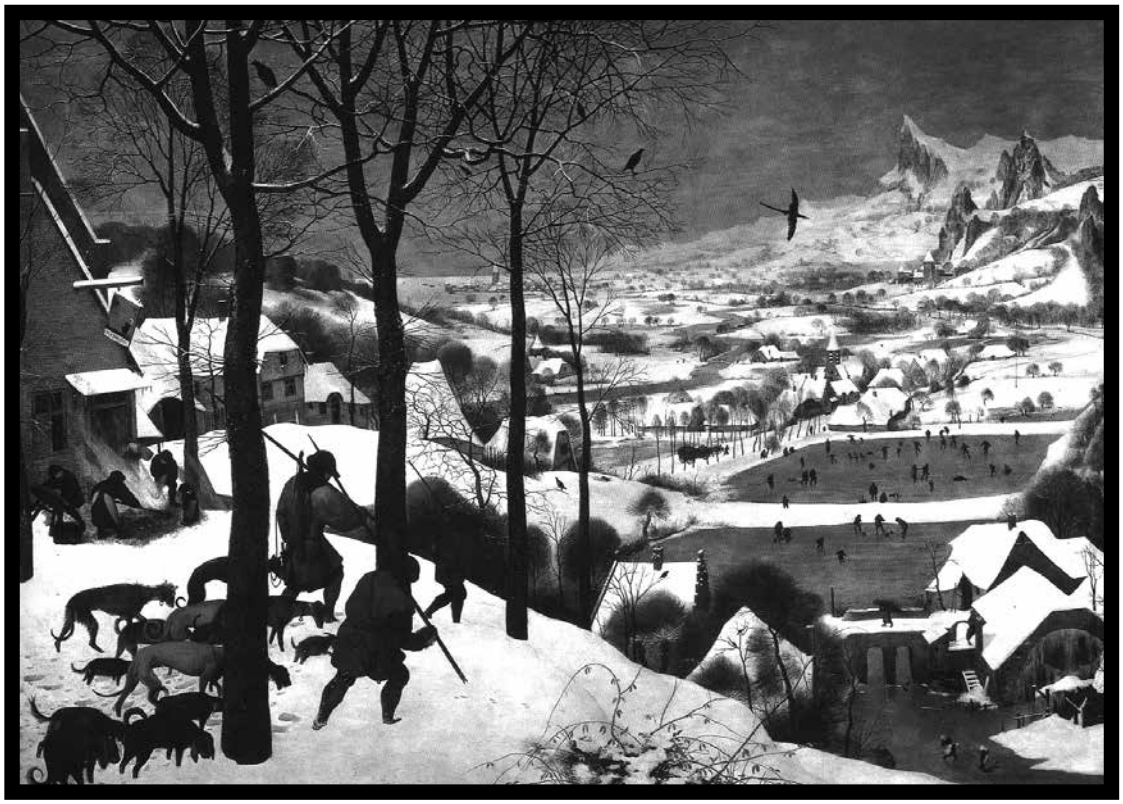
How can we develop Healthy Urbanization?

One question that is often asked is, 'What are the implications of the digital city in the future?' Digital media are constantly changing the way we use the city. New ways of working have brought about a revolution within office buildings, writing a new chapter in the transformation of the workplace. The traditional office 'room' has been replaced by open-plan working environments, creating space for more flexible workplaces. Increasing numbers of self-employed business people are looking for flexible office space close to their homes, or close to their clients. Mobile technology feeds into these developments, providing the facility to send and receive increasingly large amounts of digital data, turning the concept of distance on its head. Even when travelling, digital tour guides can serve as our 'personal travel assistant' to help us find the best hotels, restaurants and other places in cities we have never been to. Digital maps are constantly at hand on smartphones, free Wi-Fi is available almost everywhere, and social media enables us to share the best places to have fun in the city.

Increasingly advanced social media can also serve less trivial purposes, for example by providing real-time updates on international affairs of particular interest, such as the Arab Spring, or Barack Obama's first election victory. It can be used to mobilize crowds, overthrow regimes and lead to election victories. Participation in the use of social media is effectively a means of consulting the masses. But a coordinated crowd is not only able to exercise power, it can also maximize its own intelligence. For example, during his talk on 'the wisdom of the crowds' given at TED2012 (the Technology, Entertainment and Design forum), Lior Zoref brought a live ox weighing 813 kg onto the stage. The audience were asked to guess its weight. The average figure generated by this crowd was within 1.5 kg of the correct answer. Unbelievable perhaps, but when we all work together, we are in a really strong position to make an accurate estimate of what is known.

But how can we make use of the 'wisdom of the crowds' to address urban challenges, such as buildings standing empty, contraction, mobility, the need for sustainable food and energy production, and new business models for the city? How can we develop processes which put people in a position to take ownership of their own living environment? This question presupposes a whole new kind of knowledge. A current example is the Urban EcoMap, an initiative by Cisco which enables individual citizens to use the Internet to make informed decisions about energy use in their daily lives; the aim is to generate awareness that should eventually lead to a reduction in the emissions of greenhouse gases. Cisco is also developing other activities to enable citizens to make actual contributions to reducing greenhouse gas emissions in their city. Central to these concepts is the requirement for a change in behaviour, and the need for people to become more aware of the consequences of their actions.

The creation of easily accessible digital maps can help to improve efficiency and the quality of life in the living environment; the availability of such practical knowledge can deliver real improvements



Probably the first depiction of curling. 'The Hunters in the Snow', 1565, by Pieter Bruegel the Elder.

in our cities, and represents a genuine, direct implementation of healthy urbanization. But while the availability of information can deliver fast and reliable data about the here and now, there remains the question of whether it can lead to genuine innovation. It has been said that, 'if they'd listened to the market research, the iPhone would never have been invented'. What this means is that the wisdom of the crowd is not necessarily the best thing to solve every issue, if the answer lies in the future.

Anticipate and pre-facilitate?

Innovation begins with insight. We first have to answer the question of how the rapidly accelerating process of urbanization can be influenced to ensure that it does not ultimately become a process that unconsciously swallows up everything in its path. One answer is to search for new ways of harnessing the wisdom of the crowds. As stated previously, IenM has already begun to collect a wealth of factual and relevant information to help determine the optimum approach to healthy urbanization. So the next question is, how can this information be used to move the process forward? One answer is to learn from new insights into how the development processes can be used to generate new solutions.

Spatial development, in terms of urbanization, planning and architecture, has been a centuries-long and largely stable process. The traditional approach has, to some degree, been based on the 'waterfall model', i.e. the feasibility of the project is tested first, followed by the analysis, design, implementation, testing and maintenance phases. A characteristic of this approach is that the result of each phase stands alone and has little significance until the end of the process. It is also a time-consuming approach in which the chronological order of the phases may be hard to adjust. It is therefore a somewhat static, inflexible way of working which is not well suited to providing appropriate answers to the current issues, especially as these are becoming increasingly complex.

An alternative approach to the design and planning process has its roots in the approach to software engineering. This involves an agile and lean approach, where all phases of the process can take place simultaneously. Work is carried out by a large team, with each individual working on smaller parts of the overall project and each constantly delivering separate end products. The advantage of this way of working is not just the extreme flexibility of the process itself, but also that it frequently raises considerations that may never have been thought of at the outset. This process also enables the client

to become involved as a part of the project team. When working this way, it is also not uncommon to discover that a problem encountered part of the way through the design process has already been resolved in one of the partial solutions.

This tactical approach to the design process provides results relatively quickly, while at the same time combining input from questions raised throughout the process. It delivers more usable solutions in less time, not only in the area of software development but, for example, also in the car manufacturing industry. Perhaps, therefore, it may not be such an unusual idea to consider a similar approach to planning for healthy urbanization. The discovery of potential new solutions could arise from collecting the wisdom of the crowds, and by carrying out smaller, partial design projects that can be turned around relatively quickly. Each individual part of the project has the potential to lead to a usable solution, even though that may not yet be the final solution. However, tests can determine whether a partial solution will be sufficient; the result can be compared and combined with others in order to determine the optimum solution.

Once a solution has been determined, the next question is how the government will be able to play its role as a facilitator, for example whether alliances should be considered. This is also the stage when consideration should be given to any initiatives proposed by members of society. The use of design-based research can also contribute in this process by helping to identify key factors that will help to bring parties closer together—such is the synthesising power of the design. The determination of binding themes based on an analysis of bottom-up requirements and top-down agendas, and the realization of the emerging projects and solutions, remain unquestionably a role for the government.

A metaphor which reflects the role of government in this process comes from the world of sport—the game of 'curling', to be precise. Unlike many sports, it is not just the game which is important in curling, but also the conditioning of the playing field (the ice) which is crucial for success. The teams work throughout the entire game by manipulating the ice, using brooms, to influence the playing conditions and, ultimately, the result of the game. The aim is for each team to slide each of its eight stones towards a target—called the 'house'—so that each stone comes to rest as close to the 'house' as possible. Although a player sets the direction of the 'throw' when releasing the stone, the outcome of each 'throw', and therefore the result of the game, depends largely on how effectively the ice in front of the stone has been worked by the sweepers. By manipulating the ice in front of the stone as it travels towards its target, the players aim to create the perfect conditions for a particular line of approach, though it depends on many factors as to whether this approach can actually be achieved. In addition, the players can have a direct impact on the final positions of other stones, either by knocking them out of scoring position or by guarding their own stones by surrounding them with others. Curling therefore illustrates a process by which the result is achieved, not just by checking things after the fact, but also by anticipating and pre-facilitating.

This presents an opportunity, or rather a task, for the government to aim for Healthy Urbanization by means of a combined strategy, and to play a strategic role in helping to shape the overall process. An effective government will be able to anticipate, by using 'crowd-sourcing' and design techniques, and pre-facilitate, by creating the conditions for alliances and initiatives. The positioning, empowerment and use of people, and the fine-tuning of a living environment on the basis of economic, sociocultural or ecological perspectives, creates robust values for Healthy Urbanization. The city does not need to be reinvented, it is there for everyone; the task is to direct existing initiatives and developments more intelligently and to make better use of them.

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In total, around 1000 people provided input to this research project into Healthy Urbanization. As well as colleagues and experts from IenM and other authorities, social organizations and businesses were consulted and hundreds of citizens surveyed.