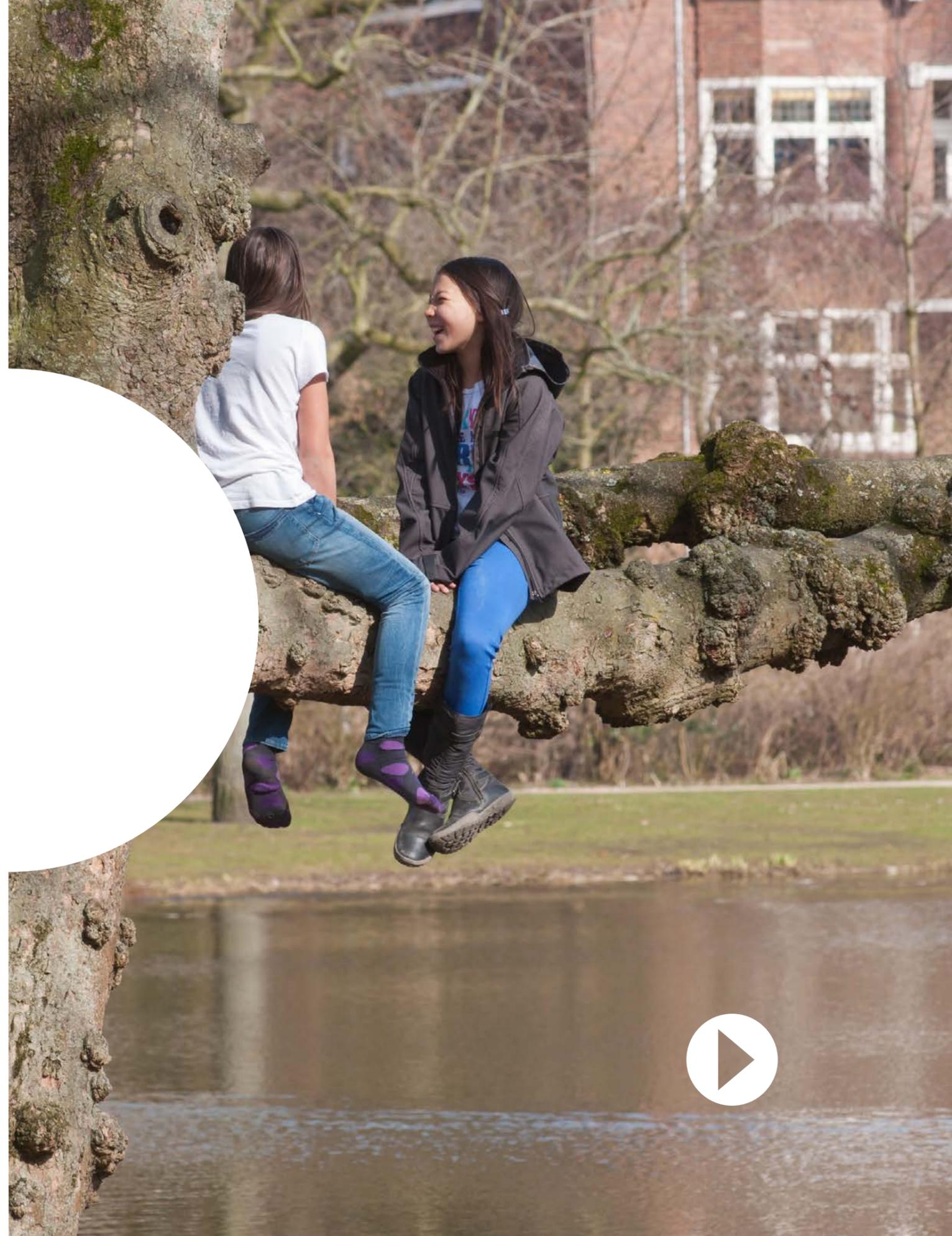


THE HEALTHY CITY

DELIVERING HEALTH THROUGH
ENVIRONMENTAL AND PLANNING
POLICY

APRIL 2018



About the Council for the Environment and Infrastructure

The Council for the Environment and Infrastructure (*Raad voor de leefomgeving en infrastructuur*, Rli) advises the Dutch government and Parliament on strategic issues concerning the sustainable development of the living and working environment. The Council is independent, and offers solicited and unsolicited advice on long-term issues of strategic importance to the Netherlands. Through its integrated approach and strategic advice, the Council strives to provide greater depth and breadth to the political and social debate, and to improve the quality of decision-making processes.

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SUMMARY

One of the stated aims of the Environment and Planning Act is to establish and maintain a healthy built and natural environment. How that goal should take shape in policy remains unclear for many public authorities. In this advisory report, the Council for Environment and Infrastructure (Rli) offers its suggestions. The Council feels that public authorities can achieve more health benefits if they go beyond health *protection* (traditional environmental policy) and strive towards health *promotion*. Health is more than the absence of illness. People's environment should reduce stress, encourage exercise and stimulate social engagement. The Council proposes new options for environmental and planning policy and instruments, research and design, and finance and governance.

Bolstering policy and employing instruments

The Council believes that protecting human health is and will remain an important policy ingredient for a healthy built and natural environment – the Netherlands must, at the very least, comply with the environmental standards in force. Additional health benefits will require efforts to create an environment that enables and encourages healthy behaviour, for example, by offering networks of footpaths, bicycle tracks and greenways

that connect cities to their surroundings. Public authorities can also create attractive public spaces that stimulate social contact. The built and natural environment therefore contributes to our health in the broadest sense of the word: not just physically, but also socially by enabling social engagement and resilience. Cities that focus exclusively on protecting health are missing opportunities.

To enhance health benefits further, the Council recommends that government authorities use the instruments offered by the Environment and Planning Act to their full potential. The Council urges them to look for opportunities for synergy, so that measures and resources deployed to one end will help achieve others. Switching to electric transport modes (e.g. for delivery services and buses) will improve air quality and, in turn, health. In this, public authorities depend on each other's cooperation. For example, it is harder to build homes in cities bisected by motorways or main roads. If the national government opts for compact urban development in its National Environment Strategy (NOVI), the public health interest dictates that this should be accompanied by national policy measures such as investments in noise barriers or tunnels.

Fostering research and design

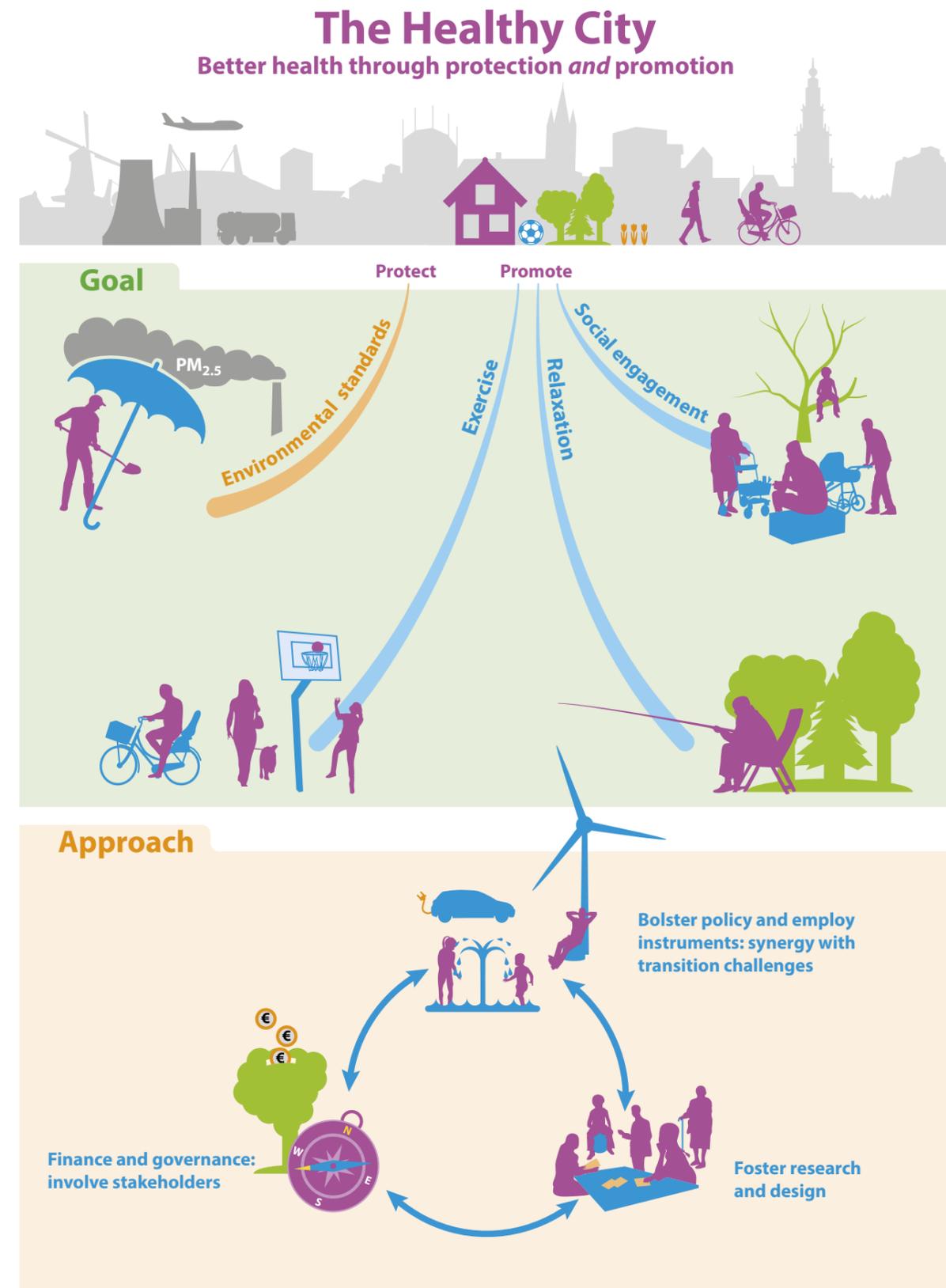
Promoting health through the environment will require a more solid evidence base. The effects of health-promoting measures should be better understood, and the results of local interventions better communicated. The Council recommends developing new tools, such as health maps and environmental health stress tests, to assist in this endeavour. Urban design



workshops can help to bring together parties from diverse backgrounds: not just environmental and health experts, but also residents, politicians and entrepreneurs. Learning each other's language will facilitate concerted efforts towards creative solutions for improving health.

Strengthening the financial base and improving governance

A healthy environment requires a more solid financial base. When making investments in the physical environment, consideration should be given not only to health risks, but especially to the health benefits. The 2018 evaluation of the Housing Act should consider whether or not housing associations should be allowed to invest more towards a healthy environment, liveability and public property. To overcome the split-incentive issue, municipalities, healthcare providers and the national government could create local prevention coalitions for the promotion of a healthy environment. In addition, public authorities should work more in interdisciplinary teams to bring together the often separate worlds of environment and healthcare and take a more holistic approach to fostering a healthy environment.



PART 1 | ADVICE

1 The city as a healthy environment

1.1 A healthy environment in the Environment and Planning Act

One of the stated goals of the Environment and Planning Act (adopted in 2016 and expected to take effect in 2021) is to attain and maintain a healthy built and natural environment. Public authorities will therefore need to explain what 'health' means in their environmental and planning policies. This is proving easier said than done. How can this concept be operationalised? How will its inclusion in the Act affect the balancing of interests in policymaking? What opportunities does environmental policy hold for improving health?

In this advisory report, the Council presents some suggestions. First, it presents an alternative to relying exclusively on environmental standards to achieve health benefits. Although the traditional environmental protection route can still produce results, the Council feels that more is possible if environmental and planning policy is employed not just to *protect*, but also to *promote* health by creating an environment that reduces stress, encourages exercise and creates opportunities for social engagement.

Second, this advisory report offers guidance for decision-making when drawing up plans and strategies.¹ What role should a healthy environment

¹ Various guides have been developed for sustainable urban development, such as the Handreiking Duurzame Ruimtelijke Ontwikkeling [Guidance on Sustainable Spatial Development] and various publications by the Platform Duurzame Gebiedsontwikkeling (DGO) [Foundation for Sustainable Area Development].

play in this? According to the Environment and Planning Act, the task is to balance the interests of a healthy, clean and safe environment on the one hand against societal objectives on the other. A healthy environment is not necessarily the sole, overriding concern of environmental and planning policy. The final decision will depend on the local setting and the urgency of the various challenges at hand. The Council feels that there are good prospects for synergy so that measures and resources deployed to one end will contribute to other aims. Policy decisions on major developments in the physical environment, such as climate change adaptation, the energy transition, sustainable transport and sustainable urban development, can all be leveraged to improve human health (and vice versa).

Achieving a healthy environment is vital. It is for good reason that planning practitioners have embraced this goal as one of the seven most unavoidable challenges for 2040 (Manifest 2040, 2015). Cities can set themselves apart in their pursuit of health: a healthy environment is an obvious competitive advantage. Moreover, placing the emphasis on health benefits can mitigate the stigma of constraints imposed by environmental regulations.

1.2 Request for advice

This advisory report seeks to answer the following question:

How can environmental and planning policies for urban areas be designed to achieve health benefits? What should the national government and subnational authorities do to enable this?

Different routes can be taken towards better health. This advisory report concentrates solely on environmental and planning policy; it does not go into the many other ways to improve health, such as reforming the healthcare system or social and economic policy. In addition, this advisory report focuses on the city. Urban areas are faced with complex and often interrelated challenges, which demand integrated solutions if they are to become healthy environments. The same of course applies to rural areas, but the challenges are quite different (e.g. preventing transmission of diseases from animals to humans). Consequently, this advisory report focuses exclusively on the built environment.



2 Health and the built environment: the basics

The Council advocates taking a holistic approach based on the following four principles:

The environment is vital to human health

Besides lifestyle, genes or wealth, the physical environment has been proven to be one of the primary factors affecting human health. Clean air, and the presence of footpaths and green spaces all make neighbourhoods healthier places. The relative importance of environmental factors is difficult to pin down, although research has shown that, after smoking, an unhealthy environment is the most determinative factor for avoidable illness in the Netherlands (RIVM, 2014). This figure was calculated using only factors such as air and noise pollution: if urban planning and design elements were to be included as well, an even greater effect could be expected. The Council believes this justifies its focus on the impact of the environment on health.

Health is more than the absence of illness

In this advisory report the Council takes a broad view of health that goes beyond physical health to include mental and social wellbeing and people's ability to control their lives and develop social resilience. A narrow definition of health (the absence of illness) ignores the fact that those with chronic illnesses or disorders often feel perfectly healthy and fully participate in society. The Council is aware that this choice for a broad definition may make the concept more difficult to articulate in environmental and planning policy, but also notes that this approach is

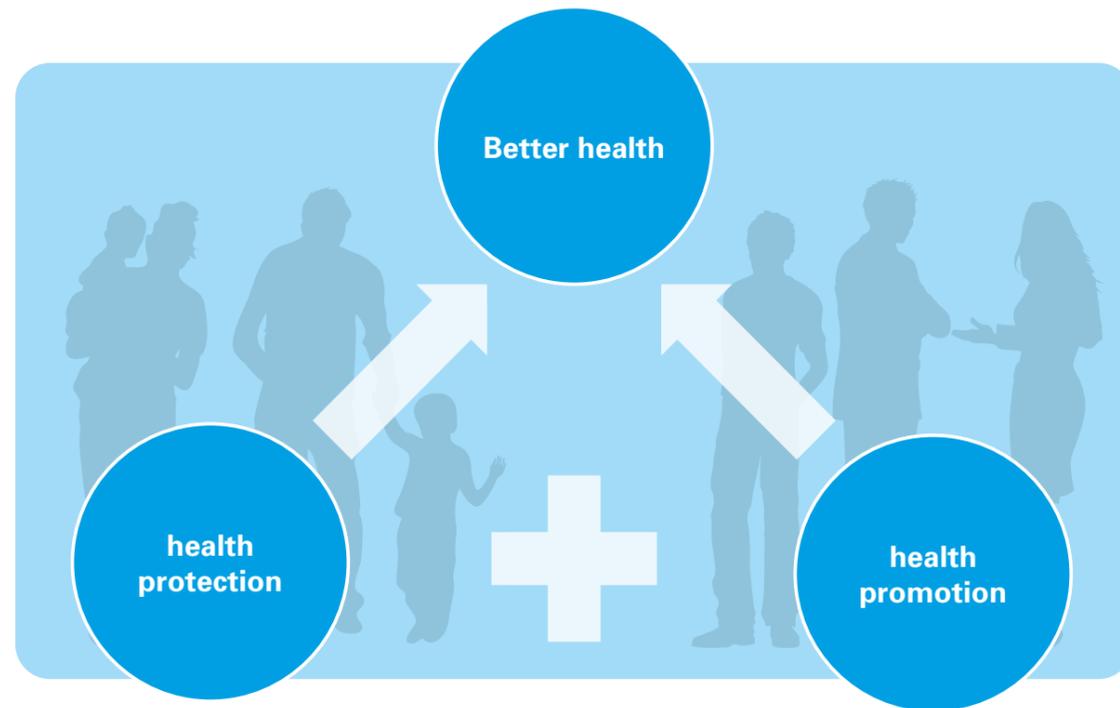
consistent with national and international insights on health. This broader definition also allows more opportunities for improving health than just preventing illness.

Better health = protecting + promoting health

A healthy environment enables health in a general sense. For a long time, environmental policy concentrated on health protection: reducing damage to human health, usually by means of environmental standards. This advisory report argues that the scope should be widened to include health promotion: creating environments that stimulate healthy lifestyles. This will be explained in more detail in Recommendations 1 and 2. The sum total of health *protection* and *promotion* is better health. This standpoint echoes previous calls by organisations such as PBL Netherlands Environmental Assessment Agency (PBL, 2016), the Health Council of the Netherlands and the German Advisory Council on Global Change (WBGU, 2016) as well as the opinions of health and environment professionals.



Figure 1: Better health = health protection + health promotion



A healthy indoor environment: achieving better health inside buildings

'The environment' is not just outdoors, but inside as well. Even though people spend about 85% of their time indoors (Gezondheidsraad, 2013), this fact is often overlooked in the public debate on the built environment. A healthy indoor environment includes things like good air quality and temperature and humidity control. Further improvements are still possible in this regard. Nevertheless, the Council feels that, here too, the scope should be extended to promoting health. Much can be done when constructing and renovating buildings, such as applying the principles of 'exercise logic' (e.g. the strategic placement of stairs and elevators,

see BETA office, 2016) and the WELL Building Standard (International WELL Building Institute, 2014). Public authorities should set an example by including health promotion in public procurement conditions for the construction or renovation of buildings such as schools (see Box 1). It is important to take the indoor environment into account when insulating homes, a matter identified in the government's coalition agreement as a first step towards greening the existing housing stock (Tweede Kamer, 2017a). Opportunities to achieve health benefits should be seized, while avoiding the danger of insulation making the indoor environment less healthy (see also RIVM, 2017). Recommendation 4 will treat this in more detail.

Box 1: Venlo Municipal Council Office

The Municipality of Venlo office building was built and furnished according to cradle-to-cradle principles. It contributes to the health of its staff and visitors through, for example, the use of healthy materials and natural lighting. Outside, the building contributes to the health of the surroundings by means of a living green wall (of vegetation), which acts as an air filter (Gemeente Venlo, 2017).



3 Recommendations: ten options for health benefits

The Council advises approaching the issue of environment and health along the principles outlined above. To this end, the Council presents ten recommendations grouped into three clusters: 1) environmental and planning policy and instruments, 2) research and design and 3) finance and governance. Table 1 summarises these recommendations and to whom they are addressed. The recommendations are treated in more detail below.

3.1 Recommendations to strengthen environmental policy and the use of instruments

Recommendation 1: Keep working on protection: comply with current environmental standards as a bare minimum. Prepare for tighter standards in the future. If the local situation calls for it, use the option introduced in the Environment and Planning Act and its associated orders in council to set stricter local environmental standards.

The protection aspect of environmental policy remains vital for a healthy environment. The bare minimum, the Council feels, is to meet the environmental standards currently in force, something that is not always achieved (Tweede Kamer, 2017b). Moreover, health can suffer even when environmental standards like air and noise pollution are met.²

² Even though the Netherlands generally complies with the standards, a 'safe' level of exposure is still much lower (Gezondheidsraad, 2016). For example, air pollution still causes considerable damage to health in the Netherlands even though EU standards are generally met (PBL, 2016; Gezondheidsraad, 2018).

Partly for this reason, the Health Council of the Netherlands advises tightening environmental standards to the levels recommended by health professionals (Gezondheidsraad, 2016, 2018, see also Box 2). The Council recognises that while it is important to examine whether standards need tightening, it also feels that the levels recommended by health professionals should not automatically be universally applied. National norms should only be tightened after a consideration of many factors, such as physical viability, costs and benefits, health effects and technical feasibility.³ The outcome of this assessment may vary from one environmental factor to another, so that a tighter national standard might meet the levels recommended by health professionals in some cases, but not in others.

³ The Health Council of the Netherlands also acknowledges the importance of weighing up different factors, but only after the values recommended by health professionals have been adopted nationally (Gezondheidsraad, 2016, 2018).



Table 1: Summary of recommendations in The Healthy City

	Recommendations	National government	Municipality
Environmental and planning	Keep working on protection. The national government should prepare for tighter standards in the future. Municipalities should use the option introduced in the Environment and Planning Act to set stricter local environmental standards if local circumstances call for this.	x	x
	Focus more on promoting health in environmental and planning policy and look further than environmental measures to achieve this.	x	x
	Seek, from a health perspective, synergies with major transition challenges such as sustainable urban development, mobility, climate change adaptation and the energy transition.	x	x
	Include ambitions for a healthy built environment in environment strategies and use the instruments in the Environment and Planning Act to realise them.	x	x
	Prioritise the promotion of healthy environments in neighbourhoods with a 'health deficit'.		x
Research and design	Develop tools and use research by design.	x	x
	Make health-promoting interventions in the physical environment more evidence-based and invest in mutual learning through multiyear pilots and research programmes.	x	x
Finance and governance	Consider health benefits, not just health risks, when making investment decisions on the built environment. Involve stakeholders in outcomes and follow-up activities.	x	x
	Remove obstacles to parties that want to invest in a healthy environment.	x	
	Overcome government fragmentation in the area of health and the environment and work in interdisciplinary teams.	x	x



It is safe to expect that environmental standards will be tightened in the future. Discoveries continue to be made about harmful environmental factors, such as ultrafine particles. Public opinion also seems to be shifting: there is growing public support for meeting environmental standards, as illustrated by the lawsuit against the Dutch state regarding air pollution. Some municipalities are already trying to comply with WHO norms, which go beyond EU standards. In January 2018, the Health Council of the Netherlands issued a report on air quality that called for standards even tougher than the WHO norms. In view of this trend, the Council feels that the national government should prepare for tighter standards in the near future. One way would be to consider the challenges posed by a scenario where WHO air quality norms are adopted.

The Council feels that, if local circumstances dictate, tougher local standards could be imposed, again, after due consideration of all relevant factors. The Environment and Planning Act and its associated orders in council introduce options for setting local environmental norms that go beyond national standards. This can be helpful when urgent local environmental problems are affecting a large population. Recommendation 4 will discuss how potential drawbacks of stricter environmental standards (e.g. creating development lockdowns) can be prevented.

Box 2: Legal environmental standards and guidelines recommended by health experts

Environmental quality guidelines recommended by health professionals (Dutch: gezondheidkundige advieswaarden) are exposure levels where no harmful health effects can be expected (Gezondheidsraad, 2016). These are set with a single goal in mind: human health. Environmental standards in Dutch law are different. They are adopted after considering multiple factors such as economic aspects, technical feasibility and health impacts. The environmental standards set by law in the Netherlands are therefore not identical to those levels recommended by health professionals. Damage to health can still occur under the legal standards.

Recommendation 2: Focus more on promoting health in environmental and planning policy and look further than environmental measures to achieve this.

The promotion of health in the broad sense of the word should be elaborated further in environmental and planning policy in order to bring the quality of the environment up to a level that enables and encourages healthy choices. At least three major routes are available: exercise, relaxation and social engagement. Translated into urban design, this means providing infrastructure that stimulates exercise (non-motorised transport, sports and games), public space that facilitates relaxation and social contact (squares, neighbourhood configuration, but also greenways to the



countryside) and a built environment that enables healthy behaviour. This is summarised in Table 2. Various domestic and international examples show how this can be done.

The Council feels that a multi-level approach is unavoidable for promoting health through environmental and planning policy that spans from the micro level (e.g. a healthy school environment) to the neighbourhood and citywide level. Different challenges manifest themselves at different levels and require different solutions. Which environmental intervention is ultimately chosen strongly depends on the local setting and the needs of residents and other users.

A health-conscious urban environment enables and facilitates healthy choices. Without behavioural change, interventions in the physical environment do not automatically produce health benefits – ‘you can lead a horse to water, but you can’t make it drink’. Simply constructing bicycle paths does not mean more cycling, for example. It is therefore essential to apply knowledge about human behaviour when designing interventions in the built environment (Rli, 2014).

Table 2: Promoting health through environmental factors

Infrastructure	Non-motorised transport infrastructure: promoting exercise by building networks of footpaths, bicycle routes, parks and ‘green ribbons’, bicycle storage facilities, etc.
Public space	Exercise, relaxation and social contact by providing attractive and diverse places. Green spaces in, around and at an acceptable distance from the city. Public gathering spaces, a wide range of amenities, variation between built and non-built space, restful places (quiet) and water features, greenways to and from green spaces outside the city.
Buildings and their environs	Not just protecting, but also promoting health in buildings and their environs. Examples include directing movement through buildings, alternating between busy and tranquil spaces and providing surrounding green space to help improve health.



Recommendation 3: Seek, from a health perspective, synergies with major transition challenges such as sustainable urban development, mobility, climate change adaptation and the energy transition.

It is imperative that major transition challenges for the physical environment are rethought from a health point of view. Decisions taken with respect to these challenges can have far-reaching implications for health. There are threats, but also opportunities, especially for urban development and densification, sustainable transport, climate change adaptation and the energy transition (see also Rli, 2016). The Council recommends looking for synergies between challenges. How can health benefits be gained through environmental policy and how can better health contribute towards the transitions in the physical environment? Decisions on these transitions can affect health and vice versa.

The sustainable urban development challenge concerns where homes should be built to meet future demand: mainly brownfield or also greenfield development? Many municipalities are seriously considering densification (see also Vereniging Deltametropool, 2017). Attractive public space designed with health in mind can help residents make healthy choices. Cities bisected by main roads have fewer options due to the environmental constraints on housing development near these roads. This is where the challenge of sustainable urban development meets that of infrastructure and health. The national government needs to be aware of this interdependence: if it opts for development within existing urban areas in its upcoming National Environment Strategy (NOVI), this will have

ramifications for the development of infrastructure in and around cities. For example, it may require investments in noise reduction, lower speed limits, diverting routes for hazardous materials or tunnels. The Council's call to rethink the transition challenges from a health point of view is also important for gaining public support: if no regard is given to a healthy environment, support for new development in existing urban areas is likely to evaporate quickly.

The mobility transition is about the shift towards sustainable mobility, such as public transport, walking, cycling and more sustainable car use. It will involve some threats to health, but also opportunities. Choices made at the national level can impact those at a regional or local level. If the national government raises the speed limit on national motorways, for example, this will affect the environment around these motorways. Even if the air quality remains within the legal limits, it will still be worsened by the higher speed limit. Electric vehicles (delivery vans, buses and private cars), on the other hand, present an opportunity to improve air quality and, in turn, generate health benefits.

A third example is the challenge of *climate change adaptation*. This also has various links to health. Green urban spaces capture excess rainfall, while also contributing to human health by reducing the urban heat island effect and encouraging exercise and social contact (Gezondheidsraad, 2017; Ministerie van Infrastructuur en Milieu [I&M], 2016).



The fourth and final example is the *energy transition*. According to the government coalition agreement, this includes greening the housing stock, with insulation as a first step (Tweede Kamer, 2017a). However, insulation can have both beneficial and detrimental effects on the indoor environment, and therefore on health. On the one hand, it leads to more stable temperatures, but on the other hand, it may lead to higher humidity (in case of insufficient ventilation) and risks of contagion (insufficient filtering of harmful organisms). Current ventilation norms for insulated homes offer no guarantee of healthy air quality if the behaviour of residents is not taken into account: after all, they are the ones who will have to ventilate their homes and install proper filters. The Council recommends paying specific attention to health effects when dealing with government real estate and schools and when negotiating with housing associations about improving the energy efficiency of the housing stock. Disconnecting homes from the natural gas network, part of the decarbonisation challenge in the energy transition, also has linkages to health: less fossil fuel burning in homes can contribute to a healthy indoor environment.

Recommendation 4: Include ambitions for a healthy built environment in environment strategies and use the instruments in the Environment and Planning Act to realise them.

The procedure of drawing up environment strategies can be used to arrive at shared and widely accepted ambitions for a healthy living and working environment. The procedure for preparing strategies should include a broad-based participatory process with parties such as businesses, housing

associations, property developers, insurance companies, grassroots organisations and of course individuals (see also Inspiratiegids Participatie, Ministerie van I&M, 2017a; www.platformdgo.nl). The many grassroots initiatives in the area of health and environmental quality testify to the engagement of people; their know-how can be put to better use.

The Environment and Planning Act says little about the content of the environment strategy. The Council feels that public authorities should be explicit about the necessity and/or desirability of setting high ambitions for a healthy environment. Without extra efforts to improve health, the regulations and standards included in the Environment and Planning Act and the application of environmental principles can only guarantee minimum levels of health protection. Of course, the decisions made by authorities will depend on the severity of the problems in their jurisdiction.

If municipalities, provinces or the national government wish to set higher goals for a healthier environment, they can make different types of arrangements for attaining these goals in their environment strategies. Options include clearly defining the concepts 'health' and 'healthy environment' in the strategy, seizing opportunities created by synergy with other activities, working across scales and mapping areas with a health deficit and drawing up action plans. A target group approach is also possible, such as providing healthy environments for those with certain disabilities (e.g. blindness, Alzheimer's) or the safe and healthy design of school grounds.



The Council believes that the National Environment Strategy (NOVI) currently being drawn up should set specific goals for a healthy environment. The inception report rightly listed ‘health and safety in the built and natural environment’ as one of its eleven environmental challenges (Ministerie van I&M, 2017b). Consideration could be given to setting up urban living labs in areas facing major health challenges and where a national interest is at stake. If the national government shows real ambition on environmental health, this can motivate subnational authorities to follow suit.

The Council recommends that public authorities make use of the other instruments in the Environment and Planning Act and associated orders in council to achieve the ambitions set out in environment strategies. These include physical environment plans, implementation programmes, environmental permits, soliciting advice from the community health service (GGD) under provisions of the Public Health Act (Wet publieke gezondheid) and formulating bespoke or supplementary environmental standards.

Apply municipal programmes selectively to avoid ‘development lockdowns’

The ‘local environmental standards’ instrument provides subnational authorities with a means to pursue their ambitions for a healthy environment. However, tougher local environmental standards can detrimentally affect urban development in the short term. Tighter standards only come into effect once planning permission is requested and affect parties that want to ‘do something’ in a particular area, such as build a school, home or business. The new standards may block such

initiatives and effectively create a ‘development lockdown’ in the area. The programmatic approach in the Environment and Planning Act can offer a way out of this dilemma. Years of experience have been gained with the National Cooperative Air Quality Programme (NSL). The Environment and Planning Act translates this approach into a generic instrument available to all levels of government (Tweede Kamer, 2014), enabling them to comply with (existing or stricter) environmental standards while still permitting new developments in a particular area. Environmentally damaging projects or activities are offset by measures to improve environmental quality so that the required or desired levels are still reached. This can be an attractive instrument, especially for those areas where new developments are envisioned, but which also have an urgent need to improve environmental quality. Depending on their ambitions, authorities can opt for a local environmental standard equal to or stricter than the national standard.

Recommendation 5: Prioritise the promotion of healthy environments in neighbourhoods with a ‘health deficit’.

Investments in the built environment to improve health should be targeted to those areas where substantial health benefits can be attained, namely, those with a ‘health deficit’. In the Netherlands, large gaps exist in life expectancy or healthy remaining years (i.e. according to the narrow definition of health) between neighbourhoods. The chances of growing old in good health are much lower in some areas than in others. By far the most important explanation of health differences between neighbourhoods is the spatial distribution of people: the poor often have little alternative



but to live in cheap social housing in neighbourhoods that are unpopular for physical, environmental and social reasons (PBL, 2016, p. 25). Neighbourhoods are, in other words, 'not the causes, but primarily the manifestation of disadvantage' (Hamers, 2016, p. 69).

It is not easy to reduce health disparities between neighbourhoods. Not all of these differences can be solved with investments in the physical environment anyway; they also demand socioeconomic policy. Nevertheless, residents can still benefit from health-promoting measures in the built environment. For example, easily accessible pavements (enhancing walkability) make it easier to go outside and interact with others. The local setting and needs of residents should be the starting point, something that was put into practice by the project *Kijk! Een gezonde wijk* (Look! A healthy neighbourhood) in Amsterdam's Sloterveer neighbourhood (Den Broeder, 2017). In this project, residents used an app to score their neighbourhood in terms of health, highlighting the good and bad places and features, which produced an overview of their priorities. In this case, friendliness and good contact between neighbours were considered just as important for health as green spaces or sports facilities (Hogeschool van Amsterdam, 2016).

3.2 Recommendations for knowledge creation and research by design

Recommendation 6: Develop tools and use research by design.

Develop tools to visualise the health situation in a systematic way

New tools are needed to support municipal policy on environmental health that can visualise current health levels, carry out stress tests or generate a health map. Standardisation of data and categories is essential for comparing outcomes and benchmarking. For instance, what data should be included on a city's health map and what should be included in the legend? The legend created in the design studios carried out in preparation of this advisory report includes human health scores, environmental risks (e.g. air pollution), healthcare and sports facilities and green spaces (e.g. parks). Other data are also conceivable.

Regardless of the form the tools ultimately take, the underlying objective is always the same. They must show the current health situation in the city at a glance and allow for comparisons within and between cities. Disappointing scores on the benchmark, stress test or map can spark debates in the local media, stimulate individuals and businesses to become more involved and increase the efforts made by public authorities. To encourage this, the Council suggests that the national government initiate a few pilot projects. One example would be to create a health map for a number of cities. Another would be to develop an environmental health stress test, analogous to the climate change stress test, which could depict vulnerable areas in various scenarios. It would be helpful if all existing



health data were accessible from a single location. A suitable place for a 'health data portal' would be within the digital system supporting the Environment and Planning Act.⁴

Use research by design techniques

The Council advises using urban design workshops to help translate health ambitions into interventions in the physical environment. These workshops serve multiple ends: they provide settings to draw up health-improving interventions while also providing settings where parties from different disciplinary backgrounds, such as health and the environment, learn to speak each other's language. The Council has already practised using this method: it set up workshops led by urban design agencies in which local authority planners and urban designers, health professionals and knowledge managers worked together on ways to develop healthy cities. In the process, the participants encountered some new challenges. For example, health professionals work primarily with hard quantitative data while urban designers work with more visual material (see also RIVM, 2015). How can an urban designer translate healthcare data into spatial imagery? Other parties can also be invited to attend the workshops, such as property developers, residents, social workers and politicians. This may ultimately produce attractive images of the city that can inspire the participants to step up their efforts to create a healthy built environment.

⁴ Information portals supply data that can be used for spatial planning processes.

Recommendation 7: Make health-promoting interventions in the physical environment more evidence-based and invest in mutual learning through multiyear pilot projects and research programmes.

Invest in creating knowledge about promoting health in the built environment

Seizing opportunities to achieve health benefits through environmental and planning policy depends on having a well-organised body of knowledge, particularly information about how environmental factors can promote health in the broadest sense (i.e. social wellbeing and control over one's life, in addition to physical health). After all, a large and longstanding body of knowledge already exists about harmful environmental factors. The acquisition of knowledge should be much more systematic by performing baseline measurements before conducting experiments and then taking follow-up measurements, and by studying cost-effectiveness and the influence of local factors. Multiyear programmes are needed to study the long-term effects of interventions. Furthermore, one must remain vigilant about new health risks that can emerge from environmental trends, such as climate change.

Invest in mutual learning through multiyear pilot projects and research programmes

Sharing knowledge is a precondition for disseminating and applying best practices, a practice also known as upscaling. It is therefore important that cities share their experiences about promoting a healthy environment – not just within or between public authorities, but also with businesses and civil



society. This is already happening in an ad hoc manner. During the various meetings and discussions held in the preparation of this advisory report, a frequent comment was that ‘it seems like everybody is busy reinventing the wheel’. Building on the PBL’s evaluation of the Dutch city deals (Hamers et al., 2017a, 2017b), the Council feels that the national government could be more proactive in bringing together the best practices of the pilot projects to stimulate mutual learning and knowledge-sharing. Various pilot projects should be continued, such as those carried out under the Urban Agenda (city deals) and Smart and Healthy City (living labs, pilot cities) programmes. In so doing, attention should be paid to the systematic sharing of lessons within a larger network. In addition, this should be accompanied by a multiyear research programme that systematically monitors the effects of interventions in the built environment as well as the intervention mechanisms. Finally, the right conditions need to be created (e.g. with respect to resources, participants and process architecture) to allow the results of pilot projects to be taken up into regular policy upon completion.

3.3 Recommendations on strengthening the financial base and improving governance for a healthy environment

Recommendation 8: Consider health benefits, not just health risks, when making decisions about investments on the built environment. Involve stakeholders in outcomes and follow-up activities.

Investments in the built environment should not only take the costs of poor health into account, but also the benefits of good health. This will make it easier to make a case for investing in environmental quality. Cost-benefit analyses should therefore incorporate health benefits more often than they do now, for example, by making these explicit and assigning a monetary value to the effects of environmental interventions on health (PBL, 2012). One example is the report *Bruto Utrechts Fietsproduct* (Decisio, 2017a), which examined the various benefits of increased cycling, including health. Another example is the WHO’s Health Economic Assessment Tool (HEAT), which ascribes economic values to the impacts of walking and cycling on health (WHO, 2017). A report published in 2017 lists the valuations assigned to cycling in various cost-benefit analyses, including one on health impacts (Decisio, 2017b).

It is vital to involve stakeholders in the outcomes and follow-up activities of health impact studies. Parties such as residents, businesses, grassroots initiatives and civil society organisations all have an interest in, or experience the effects of, a healthy built environment. Understanding the



benefits a healthy environment brings will enhance support for ‘healthy alternatives’ and provide an incentive to co-invest.

Recommendation 9: Remove obstacles to parties that want to invest in a healthy environment.

Not only public authorities, but also businesses, property developers, pension funds, housing associations and insurance companies should be allowed to invest in health-promoting interventions in the built environment. Anyone wishing to participate in this manner should be able to do so. As we shall see, legal requirements or split incentives can act as barriers. The Council feels that the national government has a responsibility to remove these obstacles. This is evident in the following two examples.

The first case regards the legal framework governing housing associations. The 2015 Housing Act grants housing associations little room to invest in neighbourhood liveability or property such as community or youth centres. From an environmental health perspective, this is a step backwards. Public facilities perform important functions as meeting places, which is conducive to health. This point should be explored further in the evaluation of the Housing Act in 2018, and the national government should ensure it is included in the research remit.

The second case concerns the split-incentive problem. This refers to a situation in which an investment’s benefits are not enjoyed by the investor (usually the municipality in this case), but by a third party (usually an

insurance company, due to lower healthcare costs). This undermines the willingness to invest, and makes it harder to get improvement plans off the ground. Although it is legally possible for insurance companies to co-invest in the physical environment, they are – with some exceptions – hesitant to do so. Much depends on the discretionary behaviour of insurance companies, and whether they feel this gives them an opportunity to establish a distinctive profile in health prevention. The national government should stimulate insurance companies to invest in a healthier environment, by for example, creating ‘prevention coalitions’ (e.g. for areas with a health deficit) similar to those being set up at the local level for at-risk groups (Tweede Kamer, 2016). These coalitions would be between a municipality and one or more insurance companies, with co-funding from the national government.

Recommendation 10: Overcome government fragmentation in the area of health and the environment and work in interdisciplinary teams.

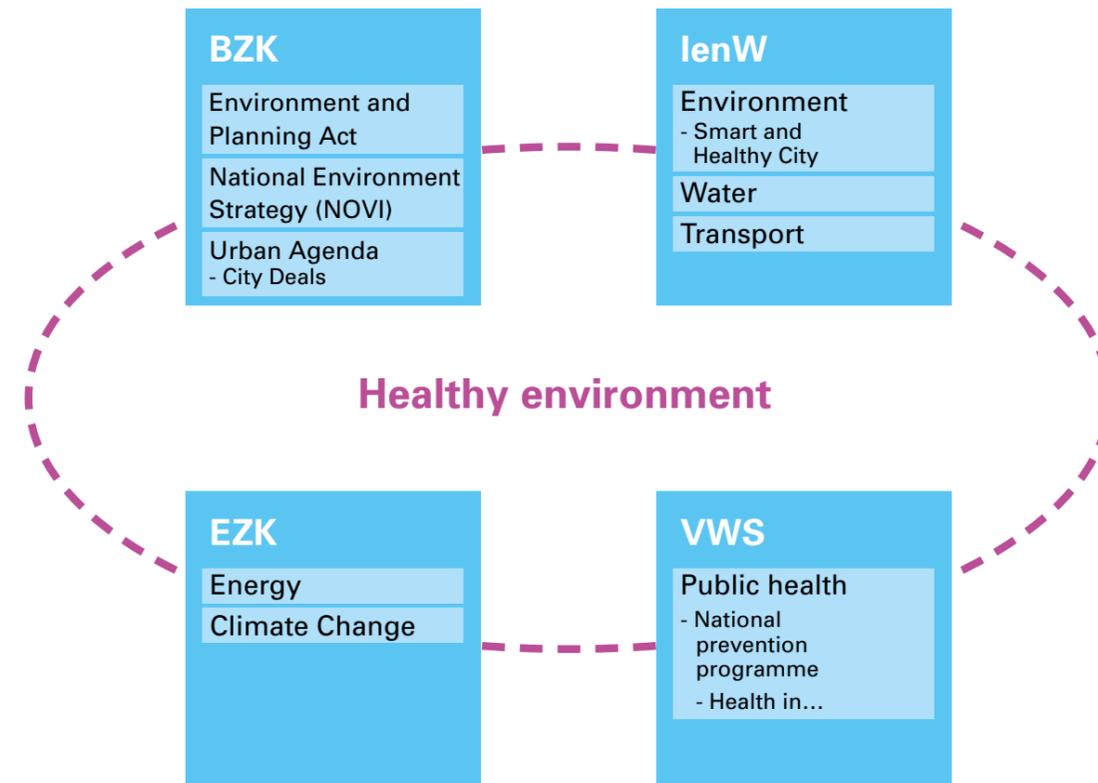
If public authorities wish to include health in their environmental and planning policies, they will need to overcome the fragmentation and silo-thinking of government bureaucracy. This currently poses many problems for officials in their day-to-day routines. Within the national government, responsibility for environment and health is spread across many government departments: Interior and Kingdom Relations (BZK), Infrastructure and Water Management (I&W), Health, Welfare and Sport (VWS) and Economic Affairs and Climate Policy (EZK). Fragmentation is also endemic within provincial and municipal authorities (e.g. across



departments such as urban development, mobility, health, nature, employment, etc.). This has created perennial discussions about powers and responsibilities between and within tiers of government (i.e. who should deal with this?). Worse, there is often no common language. Finally, since environmental health is usually a secondary responsibility, there is a risk of it falling by the wayside when more urgent matters arise. In order to prevent this from happening, the Council argues for organisational reform: officials should work together more in interdisciplinary teams (e.g. with staff from public health, spatial planning and sports). This will help officials to learn each other's language and way of thinking.

A holistic perspective is also necessary among politicians, both between and within tiers of government, and public authorities depend on each other's cooperation for this. There are many interactions between the social and physical health domains (e.g. issues like health disparities, obesity, ageing, cycling, water, energy and the design of the built and natural environment). In its ambition to become a 'healthy city', the municipality of Utrecht now only adopts policies once the executive councillors for urban development and health have both given their approval. The Council urges all government authorities to follow Utrecht's example.

Figure 2: Fragmentation of environmental health policy across ministries



REFERENCES

- BETA office (2016). *Beweeglogica in gebouwen*. Amsterdam: BETA office for architecture and the city.
- Broeder, J. M. den (2017). *Citizen Science for Health in All Policies: Engaging communities in knowledge development*. Amsterdam: Vrije Universiteit.
- Decisio (2017a). *Bruto Utrechts Fietsproduct: Wat levert een toename van fietsgebruik de stad op?* Amsterdam.
- Decisio (2017b). *Waarderingskengetallen MKBA Fiets: state-of-the-art*. Den Haag: Ministerie van Infrastructuur en Waterstaat.
- Gemeente Venlo (2017). *Stadskantoor Venlo: meer dan alleen duurzaam*. Geraadpleegd op 12 oktober 2017 via <http://stadskantoorvenlo.nl/>
- Gezondheidsraad (2013). *Een gezond binnenmilieu in de toekomst*. Den Haag.
- Gezondheidsraad (2016). *Meewegen van gezondheid in omgevingsbeleid: evenwichtig en rechtvaardig omgaan met risico's en kansen*. Den Haag.
- Gezondheidsraad (2017). *Gezond groen in en om de stad*. Den Haag.
- Gezondheidsraad (2018). *Gezondheidswinst door schonere lucht*. Den Haag.
- Hamers, D. (2016). *De innovatieve stad: hoe steden met slagkracht, maatwerk en leervermogen kunnen bijdragen aan economische, groene en sociale innovaties*. Achtergrondstudie. Den Haag: PBL.
- Hamers, D., Dignum, M. & Evers, D. (2017a). *Evaluatie City Deals*. Den Haag: PBL.
- Hamers, D., Dignum, M. & Evers, D. (2017b). *Evaluatie City Deals – vervolg*. Den Haag: PBL.
- Hogeschool van Amsterdam (2016). *Kijk! Een gezonde wijk*. Geraadpleegd op 12 oktober 2017 via <http://www.hva.nl/urban-management/gedeelde-content/projecten/projecten-algemeen/kijk-een-gezonde-wijk.html>

- International WELL Building Institute (2014). *The WELL Building Standard*. Geraadpleegd op 21 november 2017 via <https://www.wellcertified.com/en/explore-standard>
- Jaar van de Ruimte (2015). *Manifest2040: wij maken Nederland samen*. Den Haag.
- Ministerie van Infrastructuur en Milieu (2016). *Nationale klimaatadaptatiestrategie 2016 (NAS): aanpassen met ambitie*. Den Haag.
- Ministerie van Infrastructuur en Milieu (2017a). *Aan de slag met de Omgevingswet: inspiratiegids participatie Omgevingswet*. Geraadpleegd op 24 juli 2017 via <https://aandeslagmetdeomgevingswet.nl/aandeslag/thema/participatie/inspiratiegids/>
- Ministerie van Infrastructuur en Milieu (2017b). *De opgaven voor de Nationale Omgevingsvisie: startnota*. Den Haag.
- Omgevingswet (2016). Wet van 23 maart 2016, houdende regels over het beschermen en benutten van de fysieke leefomgeving (Omgevingswet). *Staatsblad*, 2016 (156). Geraadpleegd via <https://zoek.officielebekendmakingen.nl/stb-2016-156.html>
- Planbureau voor de Leefomgeving (2012). *Gezondheid in maatschappelijke kosten-batenanalyses van omgevingsbeleid*. Den Haag.
- Planbureau voor de Leefomgeving (2016). *Balans van de Leefomgeving 2016: richting geven, ruimte maken*. Den Haag.
- Raad voor de leefomgeving en infrastructuur (2014). *Doen en laten: effectiever milieubeleid door mensenkennis*. Den Haag.
- Raad voor de leefomgeving en infrastructuur (2016). *Opgaven voor duurzame ontwikkeling: hoofdlijnen uit vier jaar advisering door de Raad voor de leefomgeving en infrastructuur*. Den Haag.
- Rijksinstituut voor Volksgezondheid en Milieu (2014). VTV 2014: *Volksgezondheid Toekomst Verkenning. Deelrapporten: determinanten*. Geraadpleegd op 13 oktober 2017 via http://eengezondereNederland.nl/Een_gezonder_Nederland
- Rijksinstituut voor Volksgezondheid en Milieu (2015). *Ruimte en gezondheid: een vanzelfsprekende combinatie?* Bilthoven.
- Rijksinstituut voor Volksgezondheid en Milieu (2017). *Themaverkenning Bredere determinanten van gezondheid. Volksgezondheid Toekomst Verkenning 2018*. Bilthoven.
- Tweede Kamer (2014). *Memorie van Toelichting: regels over het beschermen en benutten van de fysieke leefomgeving (Omgevingswet)*. Vergaderjaar 2013-2014, 33 962, nr. 3.
- Tweede Kamer (2016). *Preventief gezondheidsbeleid, brief van de minister en staatssecretaris van volksgezondheid, welzijn en sport aan de voorzitter van de Tweede Kamer, 25 maart 2016*. Vergaderjaar 2015-2016, 32 793, nr. 213.
- Tweede Kamer (2017a). *Vertrouwen in de toekomst. Regeerakkoord 2017 – 2021 VVD, CDA, D66 en ChristenUnie*. Vergaderjaar 2017-2018, Bijlage bij Kamerstuk 34 700, nr. 34.
- Tweede Kamer (2017b). *Monitoringsrapportage NSL 2017, brief van de staatssecretaris van Infrastructuur en Waterstaat aan de voorzitter van de Tweede Kamer*. Vergaderjaar 2017-2018, 30 175, nr. J.



Vereniging Deltametropool (2017). *Verstedelijkingsopgave van Nederland. In opdracht van IPO, G4 en G32*. Geraadpleegd op 12 oktober 2017, via https://www.dropbox.com/s/mwmc9rw5m6r4u9p/20170901_VERSTEDELIJKINGSOPGAVE_VAN_NEDERLAND_IPO_G4_G32_WEB.pdf?dl=0

Wet publieke gezondheid (2008). Geraadpleegd op 24 oktober 2017 via <http://wetten.overheid.nl/BWBR0024705/2016-08-01>

WBGU (2016). *Humanity on the move: unlocking the transformative power of cities. Summary*. Berlin: German Advisory Council on Global Change WBGU.

World Health Organization (2017). *Health economic assessment tool (HEAT) for walking and for cycling: Methods and user guide on physical activity, air pollution, injuries and carbon impact assessments*. Geraadpleegd op 14 december 2017, via <http://www.euro.who.int/en/health-topics/environment-and-health/Transport-and-health/activities/guidance-and-tools/health-economic-assessment-tool-heat-for-cycling-and-walking>



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[only available in Dutch].

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