A HEALTHY URBAN FUTURE FOR FLANDERS? REDUCING THE GAP IN KNOWLEDGE FOR SPATIAL POLICY AND OUTLINING CONSEQUENCES FOR GOVERNANCE.

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Abstract

In recent years a growing awareness for the impact of the built environment on health and well-being resulted in the emphasis on liveable urban environments as a precondition for spatial development in several Flemish spatial policy documents. However achieving a substantial shift to incorporate public health concerns in spatial policy initiatives or interventions is far from obvious.
The paper raises the need to bridge the gap between the requisite technical expertise concerning environmental nuisance and spatial planning practice for the implementation of these spatial policy goals in Flanders. It discusses the results of recent research that give insights in public health issues from a specific spatial perspective and explores opportunities to achieve healthier environments focusing on air pollution, ambient noise and heat stress which are important environmental nuisances associated with health problems.

The discussion will subsequently lead to implementation issues which are to be tackled in a shifting spatial governance context in Flanders. Ensuring healthy environments will mean dealing with the issue of scale, defining policy goals and co-operation in governance networks. Moreover acting in a setting of neo-liberalism, with a growing focus on private initiative, raises the issue of spatial health equality and risk of gentrification. An advocacy for a general shift to a transdisciplinary and multi-level and multi-actor governance approach for policy making concerning public health is made to provide opportunities for spatial planning, but also addressing specific focal locations will be in order to achieve healthier urban environments in the near future.
The paper aims to contribute to the enhancement of healthy urban environments in Flanders by framing environmental health issues from a spatial perspective and discussing problems and possibilities for implementation of design solutions in a shifting spatial governance context.

Introduction

Our future is urban. At this moment already more than half of the world's population lives in cities, by the end of the century this number will rise to 80% (OECD, 2015). This is both a great opportunity and a great challenge for spatial planning, as policy decisions shaping the urbanisation today will affect the lives of future citizens. Urban areas can be vibrant places, engines of technological innovation, economic growth, artistic creativity and social interaction, but they are also often considered to be unhealthy places to live in, characterised by heavy traffic, pollution, noise, violence and social isolation for elderly people and young families. This article explores the potential of these areas to grow into healthy places, by addressing important health related environmental issues from a spatial planners perspective.

The research focuses on the Flemish region in Belgium, which is already a heavily urbanised region, situated in the centre of Western Europe. In fact according to international standards the entire territory has to be considered as urbanised (OECD, 2011), moreover further demographic growth is expected (Schockaert, 2015). Because of the growing awareness for the impact of the built environment on health and well-being, several Flemish spatial policy documents emphasise the importance of the liveability of urban environments as a precondition for the urbanisation (Flemish Government, 2012, 2014). The most recent drafts of the white paper 'Spatial Policy Plan Flanders' even expresses the ambition to develop healthy urban places as an overall policy goal. (Flemish Government, 2015). However achieving a substantial shift to incorporate public health concerns in spatial policy initiatives or interventions is far from obvious. The paper raises the need to bridge the gap between the requisite technical expertise concerning environmental nuisance and spatial planning practice for the implementation of these spatial policy goals. Furthermore it reflects on the implementation issues which are to be tackled in a shifting spatial governance context.

Health, spatial planning and governance

According to the constitution of the World Health Organisation health can be defined as "*a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief or economic and social condition.*" (World Health Organisation, 1948) The relationship between health and spatial planning used to be obvious. Modern spatial planning even originated by addressing health issues in the emerging industrial cities of the nineteenth century (Verbeeck & Boelens, 2013). However both disciplines lost connection in the course of 20th century (Levy, 2014). Health criteria were successfully incorporated in environmental legislation and policy, mostly emphasising environmental hygiene, sanitation and ensuring levels of nuisance below sectorial thresholds, while the public health discipline made great progress by focusing on aspects of the individual human behaviour. This removed the apparent need for spatial planning to be occupied with health issues (Kruize et al., 2015). However, and to some extent unintentionally, spatial planning practice continues to have an effect on public health by shaping environmental, societal and economic conditions (de Hollander & Staatsen, 2003; Jackson, 2003). Therefore achieving *the highest attainable standard of health* is only attainable by also explicating and incorporating public health concerns in spatial policy initiatives or interventions. This requires an insight in environmental nuisance, associated health impacts and their relationship with the built environment. Today data of nuisance indicators are more and more widely available, but there is a lack in expertise to comprehend, combine, interpret and use the evidence for spatial planning purposes. Therefore public health concerns are often considered very late in the planning process, mainly through assessment by external environmental experts (Vervoort & Verbeek, 2015). This practice can hardly be seen as a substantial shift to incorporating public health concerns in spatial policy. Reducing the gap in requisite knowledge is necessary to address health issues at the very beginning of a planning process thus offering more perspectives for more sustainable and long term solutions for the enhancement of environmental liveability conditions.

Reuniting health and spatial planning also means dealing with different approaches for defining policy goals and assessing effectiveness of measures. The health and nuisance perspective is mostly evidence-based, while in spatial planning policy goals are often not very specific formulated or measurable, achieving them relies above all on the expertise of the spatial planner and assessment is mostly a matter of appreciation (Kruize et al., 2015). Moreover the impact of built environment on health and well-being has not yet been studied extensively, which complicates the assessment of effectiveness.

In recent documents of the Flemish Authorities the concepts of territorial multi-level and multi-actor governance are considered as two of the main challenges for the spatial planning in Flanders (Agency of Internal Affairs, 2011). Multi-level governance can be defined as *“an arrangement for making binding decisions that engages a multiplicity of politically independent but otherwise interdependent actors – private and public – at different levels of territorial aggregation in more-or-less continuous negotiation/deliberation/implementation, and that does not assign exclusive policy competence or assert a stable hierarchy of political authority to any of these levels”* (Güntner, 2011). Over the last decades the formerly very hierarchical top-down Flemish policy structure is shifting to a more horizontal policy network, with a growing importance for policy making at the local level. This shift towards multi-level and multi-actor governance should be conceived of as a gradual incremental development in which institutions still play a defining role in governing, but operate in a governance network along with other public and private actors (Marks & Hooghe, 2003). The Flemish policy level outlines guidelines for spatial planning, is responsible for policy interventions in areas of regional importance and supports the local institutional level achieving policy goals (Vervoort, Hermy, Pennincx, & Pisman, 2014). In fact the lot of planning initiatives and spatial projects in Flanders are carried out at the municipal level. Achieving the policy goal to develop healthy urban places as an overall Flemish policy goal relies therefore on the capacity of the local policy level to address the issue sufficiently within their policy network. There are 308 municipalities in Flanders: larger cities like Antwerp (over 515.000 inhabitants) and Ghent (over 255.000 inhabitants), but mostly smaller towns and cities. The administrative capacity and resources of these municipalities are unevenly distributed (Vervoort & Hermy, 2014). Some municipalities are resorting to intercommunal cooperation structures to deliver specific shared services (Pisman, Vervoort, & Loris, 2013) or outsource spatial planning tasks to a greater or lesser extent. Moreover within the current neoliberal policy setting and in times of budgetary austerity spatial planning also resorts to achieving policy intentions through spatial interventions by private initiative (Sager, 2011).
This results in a complex network of different actors with an institutional and spatial complexity. Hence incorporating health concerns in spatial planning policy does not only have to be addressed transdisciplinary, but it will also require a multi-level and multi-actor governance approach.

Research methodology

The article aims to explore possibilities to reunite health and spatial planning focusing on air pollution, noise and heat stress. According to recent research issued by WHO, air pollution and noise are the first and third largest environmental burdens on health in Europe (Hänninen et al., 2014). In Flanders, they are the two major environmental conditions affecting human health (Flemish Environmental Agency, 2013). In particular in urbanised areas like Flanders also the exposure to extremely hot weather is an emergent urban public health problem due to the increased frequency and intensity of heat waves as a result of climate change (IPCC, 2014). In Europe for example more than 70 000 excess deaths were recorded in the heat wave during the summer of 2003 (Robine et al., 2008). Urbanisation increases the use of materials that retain warmth at night like concrete or asphalt, while the positioning of buildings changes the local air flows diminishing their cooling effect. This results in so called *Urban Heat Islands*, referring to the generally warm urban temperatures compared to those of surrounding, non-urban, areas (Goward, 1981). For air pollution in general, residential exposure to high traffic has been related to asthma (e.g. Morgenstern et al., 2008), deficits in lung development (e.g. Gauderman et al., 2007) and allergy development (e.g. Nordling et al., 2008) in children; and a higher mortality risk (e.g. Finkelstein, Jerrett, & Sears, 2004) and coronary disease (e.g. Hoffman et al., 2007) for the whole population. For traffic-related noise exposure, conclusive associations have been found with sleep disturbance (e.g. Miedema & Vos, 2007), cognitive development of children (e.g. Stansfeld et al., 2005), (slightly) increased risk of hypertension (e.g. Babisch, 2006) and coronary heart disease (e.g. Gan, Davies, Koehoorn, & Brauer, 2012). Extreme high air temperatures are mainly responsible for excess mortality in relation to cardiovascular, cerebrovascular and respiratory causes, particularly among elderly people (Haines, Kovats, Campbell-Lendrum, & Corvalan, 2006; Michelozzi et al., 2009). Increasing temperatures are also associated with increasing levels of ozone and (less conclusive) other air pollutants that exacerbate the above mentioned cardiovascular and respiratory disease (Jacob & Winner, 2009) Addressing these three environmental burdens will be necessary to establish healthy and liveable environments as stated in different policy intentions.

Following research questions are formulated: *How can existing nuisance data be presented in order to establish comprehensible insights for spatial planning practice? To what extent can spatial planning contribute to the reduction of exposure to air pollution, noise and heat stress? What are the consequences for governance?* Recent research commissioned and coordinated by Ruimte Vlaanderen, the department of spatial planning of the Flemish Government, provides a basis to explore these questions (Technum, 2015; Technum & VITO, 2015). Given the objectives, research questions, resources and time the article mostly relies on the findings of these research reports which are based on a wider range of different international sources, data types and independent authors and were reviewed by experts in the fields of health, nuisance and spatial planning. Where possible other relevant reports were consulted to supplement or refine the insights. The consequences of the findings for policy in a shifting governance setting are discussed and outlined for Flanders.

Analysis of environmental noise, air pollution and heat stress

For each environmental burden the consulted research provides a methodology to present nuisance data for spatial planning purposes. Possible indicators were examined and selected, furthermore a comprehensive mapping technique was used to interpret the data in a straightforward though evidence informed way resulting in a set of maps useful for spatial analysis. Giving insights in the nature, level and distribution of the nuisance they provide a basis for spatial policy initiatives or interventions. In parallel, through literature analysis and research by design in case areas, the research reports inventory and evaluate spatial interventions that contribute to enhance environmental conditions.

Three indicators, two mapping techniques

To enable a comprehensible and relevant mapping an indicator for each environmental burden is determined. The indicators are selected based on the associated effect on health, the availability of the data and the local spatial variation. The latter is essential to enable spatial analysis.

Insight in the *Urban Heat Island effect* (UHI) allows spatial analysis of temperature differences in relation to urbanisation. In literature (Goward, 1981) a difference is made between the *Boundary Layer Urban Heat Island (BLUHI),* the temperature rise of the upper atmosphere, the *canopy layer urban heat island (CLUHI)*, referring to the (mostly nocturnal perceived) difference in air temperature at ground level and the *surface urban heat island (SUHI)* indicating the rising temperature of surfaces materials due to direct sunlight. Mainly the latter two affect human health directly. Because of restrictions in terms of time, data availability, research objectives and resources the research (Technum, 2015) could not extensively model both effects for the Flemish territory. Based on the formula for assessing the urban heat island effect conceived by the University of Wageningen (Theeuwes, Steeneveld, Ronda, & Holtslag, 2013) relative values for the UHI-effect were calculated using *'urban density'* and *'percentage of greenery'* as key indicators, using data which can be retrieved at Flemish Agency for Geographical Information. The outcome was then calibrated by matching the results with prior more elaborate mapping efforts of the UHI-effect for the cities of Ghent (Maiheu, Van den Berghe, Boelens, De Ridder, & Lauwaet, 2013) and Antwerp (Lauwaet, Maiheu, Aertsens, & De Ridder, 2013). This results in an indicator for UHI without dimension nor physical significance, representing the spatial distribution of the intensity of the urban heat island, which can easily be mapped for the entire Flemish territory.

For air pollution, the average yearly concentration of NO_2 (2013) is chosen, since it is a good proxy indicator of urban traffic generated pollution including *Elementary Carbon* which is considered to cause the most environmental and public health damage. Moreover it shows more spatial variation than other pollutants (Goodman, Wilkinson, Stafford, & Tonne, 2011) Data on NO_2 for the Flemish territory is issued by ATMOSYS, an Environment Policy and Governance project co-financed by the European Commission, facilitating an air quality modelling system 'RIO-IFDM'. The model combines two data sources: the spatial interpolation of air quality measurements and the calculation of air pollutant concentrations based on meteorological data and the emissions of air pollutants (Lefebvre et al., 2013). The data is available for the entire Flemish region, but since the model does not compute the effects of local obstacles (constructions, trees,…) a certain amount of caution is advised interpreting the data. In particular in narrow inner city streets, with a lot of traffic, where the dispersion of polluted air goes slower, the model will probably underestimate the concentrations.

For environmental noise L_{den} is selected since it is the most used standard harmonised noise indicator for assessing annoyance and sleep disturbance. The indicator represents the average long term sound level over a 24h period, with a penalty of 10 dB added for noise during the night time hours. To comply with the EU Environmental Noise Directive (EU2002/49/EC), the Flemish Government gathers data on L_{den} (2006, updated in 2011) for airports, the main road traffic and railway traffic. For agglomerations with more than 250.000 inhabitants (Antwerp, Bruges, Brussels and Ghent), more detailed data is available, including local traffic and the noise effect of industrial plants.

In order to establish comprehensive presentation of the health related environmental nuisance for spatial planning the indicators NO_2 and L_{den} are transformed into GES-scores, a proven method to aggregate or interpret environmental pollution (Fast, van den Hazel, & van de Weerdt, 2012). The GES or Health Effect Screening (*in Dutch: Gezondheidseffectscreening*) is an instrument which gives insight in the different environmental factors that have on impact on the health of (future) residents. It is based on a dose-response relationship for each environmental factor. The exposure is expressed in a GES-score which gives an idea of the environmental health quality. Scores vary from 0 (very good) to 8 (extremely insufficient). A score of 6 corresponds to the maximum acceptable risk. For air pollution this score corresponds to an annual mean level of exposure to NO_2 of 40 µg/m³ being the threshold value used within the WHO Air Quality Guidelines and EU Air Quality Standards. Assigning a single GES-score for noise is less obvious, because the health implications of exposure to L_{den} differ according to the nature of the noise. Indeed people tend to have a higher level of tolerance for railway related noise than for instance road related noise.

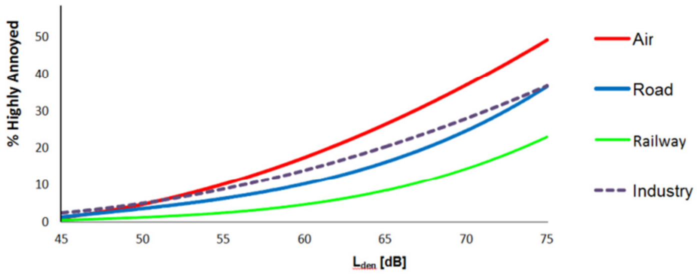

Figure 1: Percentage People being Highly Annoyed when exposed to L_{den} for different kinds of noise (Technum & VITO, 2015)

The research (Technum & VITO, 2015) therefore calculated a cumulated L_{den}, taking these differences into account by transforming the L_{den} exposure of every source into $L_{den,road}$-equivalent exposures and adding them on logarithmically. The resulting indicator is the total exposure L_{den} to noise as if it were all road traffic related. For traffic related noise epidemiologic evidence (Babisch, 2006; van Kempen & Houthuijs, 2008) suggests a maximum health risk threshold of 63 dB which was accordingly linked to GES-score 6.

Annual mean NO_2 µg/m³	GES-score
0,04-3	2
4-19	3
20-24	4
25-29	
30-34	5
35-39	
40-49	6
50-59	7
>= 60	8

$L_{den,road}$ dB(A)	% Highly Annoyed	GES-score
		0
- 43 -	- 0% -	1
- 48 -	- 3% -	2
- 53 -	- 5% -	4
- 58 -	- 9% -	5
- 63 -	- 14% -	6
- 68 -	- 21% -	7
		8

Figure 2: GES-scores for air pollution (left) and noise (right)

Mapping results

The research results in three maps showing the spatial distribution of exposure to heat, air pollution and noise in the Flemish territory.

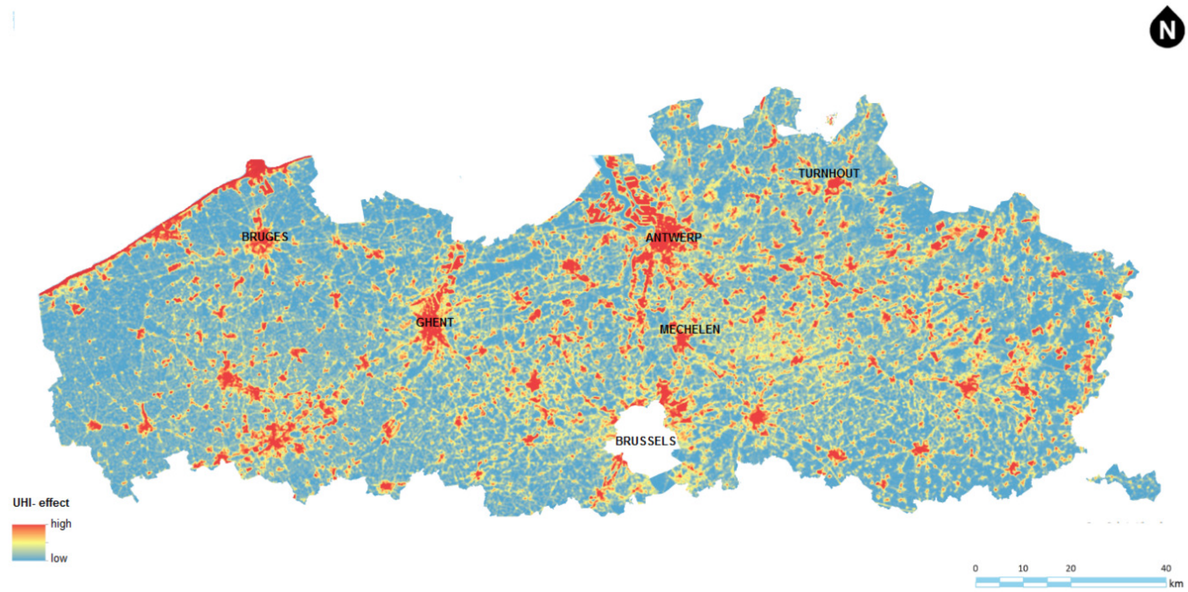

Figure 3: UHI-effect for Flanders. ***Source: Ruimte Vlaanderen, based on Technum (2015).***

The map indicating the urban heat island effect is based on existing and widely available data on land-use characteristics, but does not reflect actual heat related data. Therefore it can only be used to roughly explore the assumable spatial distribution and relative level of heat related hazards at the scale of Flanders, but surely cannot be used for detailed assessment or interpretation at a local scale. They do however strongly indicate that the urban heat island effect is not only to be expected in the main cities like Antwerp or Ghent, but basically the centres of all Flemish cities and villages are likely to be affected. Furthermore based on the mapping assumptions the level of the effect in these centres is similar to the effects in the larger urban areas.
More detailed and elaborate research is necessary to model the spatial distribution of actual temperature differences at a high resolution. Furthermore in order to be able to assess the resulting health impacts, the outcome should be crossed with demographic data to locate vulnerable groups and with spatial data on functions at risk like nursery schools or retirement homes. The afore mentioned maps for Ghent (Maiheu et al., 2013) and Antwerp (Lauwaet et al., 2013) are exemplary.

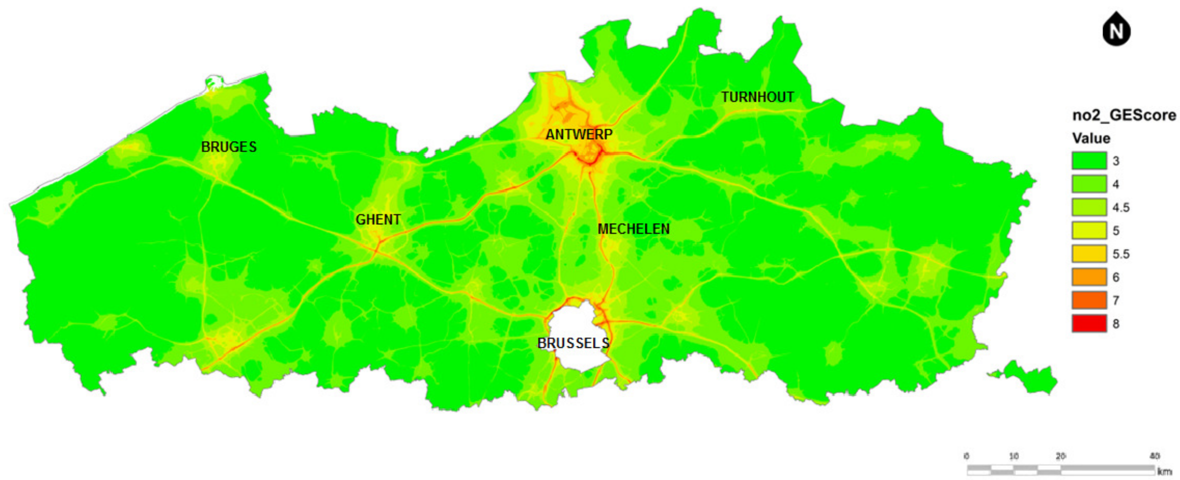

Figure 4: GES-scores for air pollution in Flanders. ***Source: Ruimte Vlaanderen based on Technum & VITO (2015)***

The GES-mapping for air pollution reflects the distribution of the overall health impact in Flanders. As mentioned scores of 6 and higher are considered to represent an unacceptable risk. In our case specially Antwerp, the northern fringe of Brussels and some areas in Ghent emerge, also the main road network stands out. The areas marked in red and orange primarily coincide with the most heavily used highways surrounding Brussels, Antwerp and less distinctly Ghent. Furthermore as expected urbanised areas, cities and villages with a relatively high concentration of traffic are visible, although they score far beneath the threshold. Because of the limitations of the RIO-IDFM model, not taking the effect of local obstacles into account, the results have to be interpreted cautious. A more detailed report for Antwerp (Vranckx & Lefebvre, 2013), using models that also contain local data of the built environment, also reveal several local hotspots in the city centre due to street canyon effects, which are of course not visible on the map for Flanders. The rather positive results for the greater part of Flanders are most likely more nuanced in reality. To assess the impact on the population the data has to be linked to demographic data. For Antwerp, based on the detailed modelling, this resulted in 20% of the city's population living in an area with a score of 6 or higher in 2012 (Vranckx & Lefebvre, 2013). The limitations of the map for Flanders allows only relatively general insights useful to guide further investigation, or general policy choices.

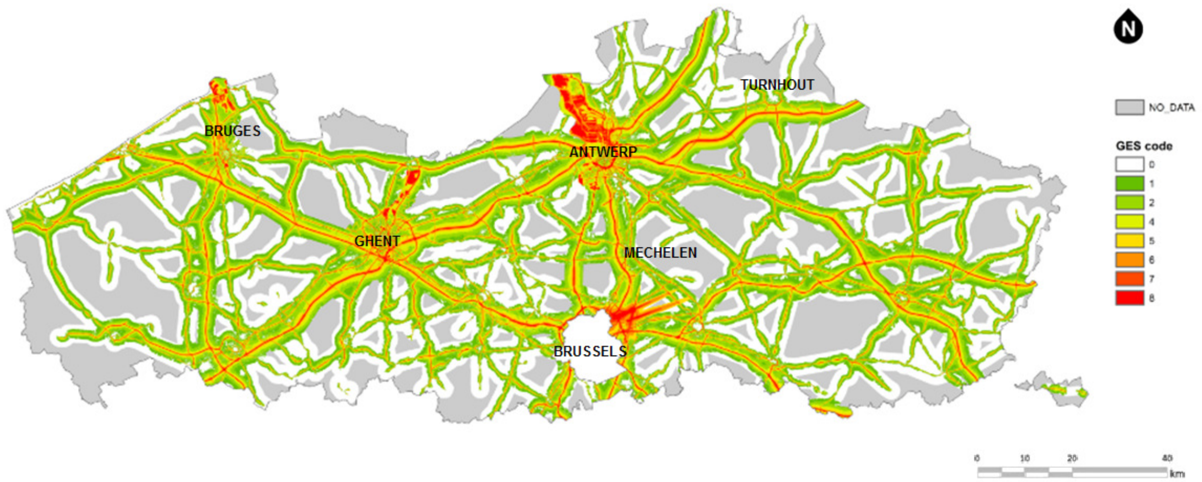

Figure 5: GES-scores for noise in Flanders. ***Source: Ruimte Vlaanderen based on Technum & VITO (2015)***

The GES-map for noise instantly reveals the lack of data coverage. Except for Antwerp, Ghent and Bruges only data for the main airports and the primary road and train network is available. This means for the major part of Flanders the map is certainly not conclusive. Since local data is not included even the city centres of larger cities like Mechelen or more peripheral smaller cities like Turnhout are not mapped. Moreover combined nuisance of the main and local traffic could cause an augmentation in GES score, assumedly the lot of the white areas are in fact affected by noise. Examining the mapping for Antwerp, Ghent and Bruges clearly their industrial harbour areas are noisy areas, furthermore not surprisingly the heavily used local roads stand out. To asses health impacts the map can be crossed with demographic data or spatial data on specific locations, however due to the nature of the underlying data, this assessment is most accurate in the direct surroundings of the mapped sources and in the three large urban areas.

The produced maps reveal the potential to give planners and policymakers a comprehensible view on the public health effects of urban development plans which can contribute to justified and evidence-based policy choices. These kind of maps can for instance be useful on a programmatic level in terms of general assessment for locating or relocating social functions, but it is also helpful as a basis for further clarification and prioritisation of possible local spatial policy measures. However the above discussion clearly indicate the produced maps should be used thoughtfully because of the absence of data or modelling limitations. More research on nuisance data coverage is advisable to increase the evidence base.

Healthy spatial interventions

Reducing the impact of the exposure to heat, air pollution and noise can be addressed from different (policy) angles. Of course taking source related measures should primary be considered. Increasing temperatures are a result of meteorological conditions and surface characteristics in terms of reflection, heat storing capacity and heat dissipation. Although spatial planning can surely contribute to climate change mitigation measures (Wilson & Piper, 2010), this article focuses on spatial adaptation interventions influencing the latter three in order to reduce or prevent local heat hazards. For traffic related nuisance like air pollution and noise establishing low emission zones, innovations in material use of tyres, pavements or train tracks, better insulation of engines and other technical solutions are to be considered, but spatial planning policy has little impact on these matters. However it does play an important role in terms of distributing activities, thus influencing the demand for mobility and the according choice of transportation mode. (Banister, Watson, & Wood, 1997; Stead & Marshall, 2001) In dense urban areas, with a mixture of different social functions, dwellings and jobs at short distances people are more likely to go on foot or bicycle (Boussauw, 2011), furthermore a sufficiently high population increases the profitability for public or shared transportation thereby reducing the intensity of polluting traffic. Therefore, the Flemish spatial policy has worked over the past decades to strengthen urban concentrations (Flemish Government, 2012, 2015; Ministerie van de Vlaamse Gemeenschap, 1997), however since Flanders is characterised by a historical dispersed spatial morphology and a deeply rooted commuting culture only a gradual progress is possible. Therefore also additional spatial planning related measures are in order to enhance urban liveability, which are addressed in this article.

Heat measures

Technum (2015) reviewed and summarised evidence on the features of the built environment that influence the CLUHI and SUHI-effect and could be implemented in spatial planning. Furthermore they tested their findings in a realistic setting through research by design in the southern part of Antwerp. Several features of the built environment influence the urban heat island effect. First of all the height and positioning of buildings is of importance. Narrow streets provide more shade during the day, but tend to cool down very slowly during the night invigorating the CLUHI-effect, while broad streets do the opposite and cool down faster. In terms of heat dissipation the wind flow velocity is important. The built environment features a lot of obstacles that decelerate the air flows reducing the cooling effect. Another important feature is the effect of soil sealing, and more specific the ratio greenery and solid materials. While solid materials like concrete and asphalt reinforce the UHI-effect, green surfaces like parks cool the surface and air through the evapotranspiration of plants and the provision of shade. A general reduction of solid materials in favour of more green is therefore advisable, although the cooling effect of a park has a limited reach of a couple hundreds of meters. Therefore rather than creating a large park, a patchwork of smaller parks is recommended. Also the appearance of water bodies, for instance in a park, diminishes the SUHI-effect through vaporisation. The case study revealed that both incremental improvements in the urban fabric, like creating small parks or altering public space, and larger urban renewal projects are necessary to fully address the issue at a neighbourhood scale.

Air pollution and Noise measures

The measures to reduce air pollution and noise were examined together since both are traffic related.
As explained the GES-maps are incomplete or less useful at a local scale, therefore several typical environments exposed to traffic related nuisance (like a village intersected by a busy road, housing near a highway, suburban housing near a road, the centre of a regional city and housing near industry) where examined through research by design. Doing so the research also provides insights in eligible measures for locations with low evidence provided by the GES-maps. Specifically for air pollution preventing the occurrence of the street canyon effect can help to reduce the local health impact. In this respect the dimensions of the street and buildings are important, but also creating local wind flows supplying fresh air is effective. Even though in general large trees can help reducing the concentration of particle matter by retaining it, in narrow streets they are to be avoided since the foliage can act like a roof, keeping the polluted air at ground level (Buccolieri, Gromke, Di Sabatino, & Ruck, 2009). The research (Technum & VITO, 2015) learned although the way it could be implemented in the various cases differed, the range of actual measures is rather limited. The built environment can influence the transfer of the nuisance, by blocking it out at the source, at the receivers side, or in the distance between them. With regard to the latter; keeping distance from the source is the most effective measure. Doubling the distance (1-2-4-8-16m) results in a likewise reduction of noise levels, for air pollution keeping a distance of 50m will half the exposure (Lefebvre & Vranckx, 2013). Of course in a dense urban fabric keeping a distance is most of the time not possible. Blocking out the nuisance is most effective at the source. Moreover doing so not only the direct adjacent environment will improve, but also the surrounding area will benefit since the transfer of nuisance is avoided. It can be done in many different ways *(figure 6):* trees diminish the air pollution and noise transfer, positioning buildings and providing a silent façade through insulation, creating barriers or screens. When creating a barrier is not possible at the source, it is most effective when

done close to the receiver. Specially for noise creating barriers somewhere in between source and receiver is not very effective.

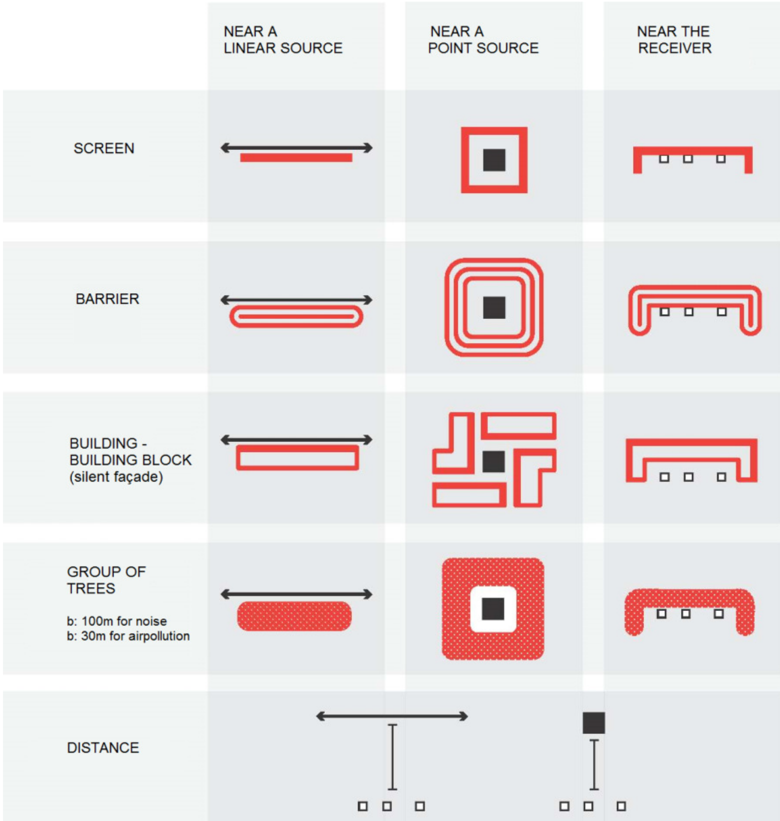

Figure 6: Range of measures for air pollution and noise. S*ource: Technum & VITO (2015)*

Governance for healthy spatial planning in Flanders

Flemish spatial policy considers quality of life and health as preconditions for urbanisation (Flemish Government, 2012, 2014, 2015). Achieving this policy goal means incorporating health insights within spatial planning practice, which can only be reached by a profound understanding of transdisciplinary concerns and their specific approaches to address similar issues. The research (Technum, 2015; Technum & VITO, 2015) shows that to a certain extent the existing evidence on nuisance, and corresponding health related thresholds, can be presented in order to establish comprehensible insights for spatial planning practice. However in Flanders the nuisance data is not as extensive or available in all areas and does not always cover the entire territory. Furthermore in terms of effectiveness of the local measures the findings are rather general. Implementing them will surely improve local environmental health conditions, but little is known on which urban design will lead to the most health benefits (Kruize et al., 2015), and how much this contributes to the overall public health improvement compared to other sectorial measures. This complicates setting clear spatial policy objectives in terms of ambition, expectations and assessment.

When operating in a multi-level governance setting an overall shift throughout the governance network to incorporate public health concerns in spatial policy initiatives or interventions will be in order to achieve healthy urban areas. At short notice the mapping exercise and corresponding proposed measures already provide a better understanding of the potentiality for urban areas to grow into healthy places and allows spatial planners to adopt the basic urban design measures in daily practice or to anticipate health issues in focal locations that have to be investigated more thorough through cooperation with health and nuisance experts. In the longer term, however, more research will be needed to complement the nuisance data in terms of territorial coverage and level of detail at the one hand and to identify the effects of the built environment on public health at the other hand. This evidence can lead to clear policy goals and a methodology to evaluate the effect of specific spatial interventions as a standard part of the spatial planning procedure.

For Flanders this means at short term notice disseminating the evidence in various ways to the relevant actors in the field is crucial for an overall capacity building within the spatial governance network: municipal politicians and officials, spatial planners, architects, students, nuisance experts, health professionals, estate developers and so on. To achieve an overall healthy urban environment in Flanders, the Flemish government will also have to continue to invest in supporting local policy levels, specially smaller municipal authorities with a lower administrative capacity and less resources. Most of the health benefits are situated at a local scale and the measures are most effective when combined. Therefore including noise, air-pollution and heat concerns in local spatial policy and strategies (e.g. incrementally establishing wind corridors or creating a patchwork of parks in a neighbourhood) is needed. This enhanced capacity also enables local authorities to assess the quality of private initiatives and to anticipate spatial health inequalities and overcome possible resulting effects of gentrification.

Furthermore within planning processes of regional importance (e.g. defining crucial areas for urban development) the Spatial Development Department Flanders has to be exemplary, profoundly examine health impacts and assure the implementation of the measures by assisting the different actors (local authorities, private estate developers,…) throughout the realisation process. Also a better transdisciplinary cooperation between Flemish government administrations in the fields of spatial planning, nuisance, health and mobility will enable a more comprehensive environmental health policy. The intention to found an Flemish Environmental Department (Flemish Government, 2014), combining spatial planning and nuisance expertise is an opportunity to contribute to the latter.

In the long run providing an improved basis for evidence based policy is in order. The article points out a large gap between the level of detail and coverage of data for Ghent and Antwerp and the remaining part of Flanders. In the first place supplementing detailed data for towns of regional importance can be considered, but in fact every urban area is in need of more detailed data to be able to take informed decisions concerning assessment of existing health impacts and necessity for spatial measures.

Conclusion

Through mapping environmental noise, air pollution and urban heat and by exploring the range of according spatial measures an effort is made to reduce the gap in knowledge for addressing health issues from a spatial planning perspective. However for Flanders the article also reveals more research is necessary to ensure a better coverage and level of detail of nuisance data, furthermore it points out in general better insights in health benefits of spatial measures are needed for evidence based policy. Moreover it points out that when acting in a multi-level and multi-actor governance setting the dissemination of evidence and the capacity building of all spatial actors is needed to ensure that public health concerns are included profoundly in spatial policy initiatives or interventions.

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