

A NEXT STEP FOR SUSTAINABLE URBAN DESIGN IN THE NETHERLANDS¹

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Thinking about and practising sustainable urban design should take a step further: from sustainable urban design to sustainable spatial development. An attractive approach towards planning and urban design aims to improve spatial systems effectively within their spatial and societal context. This paper explains this next step using observations of society, literature and lessons learnt from four case studies², as well as mainstream development processes in the Netherlands. Although the case study projects are sometimes more than 10 years old and are situated in a specific Dutch societal and spatial context, they provide interesting, even up to date, insights for the planning of sustainable and durable cities. First we look at why a renewed approach to sustainable urban design is both necessary and rewarding. We then turn to this renewed approach and how to put it into practice. Possibilities for the design of sustainable and durable cities are illustrated by the descriptions of the cases in this paper.

INTRODUCTION

- > Support for sustainable urban development has become more widespread in recent years and topics like liveability and clean energy attract considerable attention. The Dutch government has set ambitious climate goals, local authorities are working on sustainable neighbourhoods and interest groups are fighting for cleaner air. The importance of social vitality in cities has been overtaken by the 'priority neighbourhoods' policy. The wish for a more robust Netherlands is embodied in a plan for the Randstad for 2040 (*Structuurvisie Randstad 2040*) and a 'second Delta Plan' for climate-proof water management.
- > Despite this momentum, the results in the field of sustainable urban planning and design

¹ This shortened essay is part of the publication: Meijer, M. & Dubbeling, M. (eds.), 2010, *Sustainable Urban Design – The Next Step*. Distributor Blauwdruk Wageningen ISBN 978-90-75271-33-1

² *Ibidem*. A publication of the BNSP|NVTL working group on Sustainable Urban Development (*BNSP|NVTL werkgroep Duurzame Stedelijke Ontwikkeling*). The working group consists of urban designers, urban planners and landscape architects from the Netherlands.

have been disappointing. Concrete efforts still have few effects, although urban planning and design are fields where much progress can be made. Expertise and technologies are available, but they are put to little use. A more appealing approach to sustainable urban design and putting it into practice is necessary. The goal is to make sustainable urban design so appealing and infectious that it will become the mainstream development in planning. Such a step will deliver benefits for 'People, Planet and Prosperity'³.

A few good examples of sustainable urban design can be found in the Netherlands but very few new outstanding projects have been completed in the last decade. Sustainable urban design is not yet standard practice. In Dutch planning, sustainability often amounts to no more than adding some technical environmental measures or energy savings to buildings. However, Dutch urban planning and design, landscape architecture and regional planning could make a much bigger contribution.

OPPORTUNITIES FOR SUSTAINABLE URBAN DESIGN

The attention given to climate change and the emergence of new concepts like 'CO₂ neutrality' mark a change in attitudes to sustainability: 'have to' is giving way to 'want to'. Regulations focus too much on standard setting and too little on goal getting, however the market is picking up the value added of sustainability in development projects. Society is changing. The awareness that things must change has grown since Bill Clinton, Al Gore and the Intergovernmental Panel on Climate Change put climate change in the limelight⁴. During each season we can see the consequences of extreme weather on the news. The threat of climate change is making people more aware of their own role, which is rapidly pushing up demand for alternatives. What is new is that recently sustainability has not only been presented as a necessity, but as something positive, desirable and capable of cost cutting.

³ Coined by John Elkington, discussed in his book *Cannibals With Forks* (1988). At the 2002 World Summit on Sustainable Development in Johannesburg the 'P' for Profit was changed into *Prosperity* to bring social benefits into the equation alongside economic benefits. Sustainable development is also known as Corporate Social Responsibility (CSR). Sustainable enterprise was developed mainly by large industrial companies, driven by growing pressure from stakeholders such as NGOs to report on their contribution to People, Planet and Prosperity. More and more companies are now publishing annual sustainability reports.

- > This positive approach has also included low-income neighbourhoods and 'rough' areas in the Netherlands, as policy makers have chosen to build on their strengths. In other areas, too, politicians seem to be thinking more about sustainability. Sea level rise has a global cause, and action is taken now, but mainly at national and regional scale. The solution to the climate problem lies in taking action across all scales: from the UN level and Europe down to local authorities, civil society organisations and citizens. Everyone will have to play his/her part in the transition to clean and sustainable energy generation and energy saving.
- > The legislative bodies could think more about sustainable urban design. Topics like water and ecology are already covered by laws and procedures, as they have to be considered in planning new developments. It would be good if sustainable urban design had a permanent position in planning legislation and procedures. It is worth noting that setting targets at the beginning of a development process provides better results than setting standards later on. Current regulations are far too rigid to be able to respond to the dynamic of spatial development, while new technologies and building forms tend to fall foul of the Building Decree, delaying the progress of sustainable projects which, in turn, have a reputation of being difficult. Reviewing and monitoring targets, in which government authorities create the right conditions for sustainable area development, leaves more room to realise sustainable solutions rather than continually setting new standards while keeping the old ones.
- > Market players are also showing more interest in sustainability. They are mostly interested in energy savings in individual buildings, thus considerable environmental gains can still be made at the scale of urban planning. The search for greater benefits for People, Planet and Prosperity is definitely underway. Sustainability is 'in' and money can be made from it – and may be seen to be made. Sustainable urban design is increasingly seen as an opportunity and an added value, an extra

layer of development. This positive attitude breeds commitment. There is a real desire for sustainable development to succeed, not because it must, but because it can and is economically prudent, and because we really want it to. There seems to be enough support for driving sustainability 'from an undercurrent to a groundswell for development', in urban and regional planning too.

The upsurge of concepts like 'CO₂ neutral', 'climate proof' and 'cradle to cradle' are further evidence of the current support for sustainability in the Netherlands. Government authorities and multinationals are picking up all these concepts. Almere and Venlo municipal councils, for example, have made the 'cradle to cradle' philosophy one of the principles underlying their spatial development policies. But these types of concepts have to be translated into concrete objectives and spatial designs, which is often a laborious process. Skilled designers have a part to play.

HIGHLIGHTING THE AIM

Putting into practice sustainability is a variable activity. At this point in time the focus is on the pursuit of efficient measures, such as interventions causing less waste or consuming less energy. Gradually this approach will however have to make way to the pursuit of effectiveness: achieving a truly sustainable final result, without any obstructions on the way. It is not a matter of focusing on the emission of less CO₂ emission, but on the development of an energy-neutral city. This can only be achieved in an integrated manner.

Sustainability revolves around realism, principles and values. They aim at a fair distribution of prosperity and an appropriate role of man within the cycles of the earth. In striving for more sustainability, we have often taken advantage of people's guilty conscience about pollution and squandering resources. Still, neither guilt nor austere living hold much appeal for the masses today and lead even to disinterest. In spite of this, the value of sustainability is widely endorsed⁶, as people are becoming aware that it may also

⁴ Bill Clinton launched the Clinton Global Initiative, Al Gore made the film *An Inconvenient Truth*, and the Intergovernmental Panel on Climate Change (IPCC) issued its fourth report: *Climate Change 2007*. Gore and the IPCC shared the 2007 Nobel Peace Prize.

⁵ Disinvolvement leads to all sorts of excuses: 'I myself can't do a thing about it' or 'If I don't consume it, someone else will'. In acting as a consumer, a citizen's behaviour is usually determined by the contents of his wallet.

⁶ This mostly occurs indirectly through the membership of nature conservation or ecological societies, and sometimes directly through petitions. *Natuurmonumenten* (Society for Preservation of Nature Monuments in the Netherlands) and the WWF both have around a million members and the citizens initiative's petition against the bioindustry was backed by a 100.000 signatures in the Netherlands.

⁷ By reducing energy use, the cost of living goes down considerably. Also as regards their company processes, firms avail themselves of 'climate neutral' as a unique selling point, either for tapping a niche market or in order to give an interpretation to Corporate Social Responsibility (CSR).

⁸ Braungart and McDonough (2002) work with the terms 'eco-efficient' and 'eco-effective'. Architect Walter R. Stahel introduced this way of thinking in Europe with his idea for a circular economy in 1982 (see: www.product-life.org/en/cradle-to-cradle). The efficiency-based prevalent Trias Energetica consists of three steps: 1. Reduce the demand for energy (good insulation and air-tight building, recycling of heat). 2. Use sustainable sources of energy (geothermal heat, solar energy, wind). 3. Use finite sources of energy efficiently (high yield). Effectiveness means that one arranges one's energy management in such a way (by sustainable sources and saving) that on balance there is energy left over. Here, it is also a question of getting water and air cleaner, and not as such of polluting it less.

cut costs or make money⁷. This awareness is still growing, based on proof from successful projects. It is the key of integrating sustainability in the mainstream of planning and design and the starting point of discovering the joy of the public at large to develop something 'good'. This new fundamental attitude clears the way for a novel approach to sustainable urban development, as a feasible and highly remunerative undertaking.

- > True benefits as regards people, planet and prosperity come within reach when efforts shift from efficiency to effectiveness⁸. Making a house save more energy is an efficient measure, but a low-energy home still goes on using electricity and gas and is thus contributing to the climate problem. A district which produces renewable energy itself is an effective development, because no fossil fuels are needed and there are no polluting emissions.
- > There exist examples of effective solutions in urban development. Certain regenerated urban districts produce food and energy locally, they are life-cycle-proof and purify water and air. Such an approach includes for instance the use of durable raw materials and the stimulation of clean transport systems. These are effective solutions for the present food and energy shortages and improve the quality of life and health generally. By connecting certain economic activities to each other or with other functions, it is possible to make use of residual flows of waste. It is a question of closing cycles, managing chains more effectively – both on site and in relation to the environment. Together these measures lead to a liveable, durable energy neutral city.
- > An integrated approach is required to connect energy and climate problems at the large scale at which they occur. Urban development professionals are able to conceive connections between various levels and scales, as well as between various stages of spatial development. Only by making the right assessments at the outset of the development process can designers muster the brainpower and creativity in a focused way. This will enable them to find sophisticated solutions

for the design of area developments which are 'future-proof', environmentally sustainable, as well as beautiful, and are therefore satisfying social requirements.

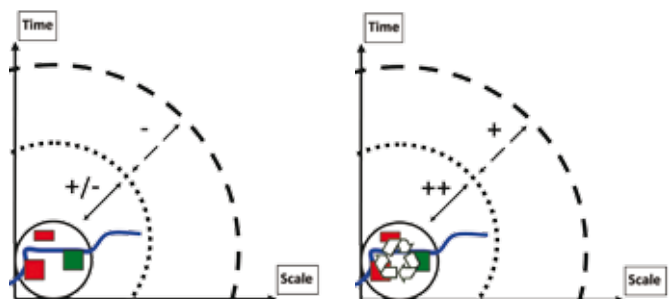
THE NEXT STEP: SUSTAINABLE SPATIAL DEVELOPMENT

Effective sustainable urban development implies a 'sustainable spatial development', i.e. an integrated approach directed towards a continuous effective improvement of the space around us. Spatial systems together with their social and spatial contexts play a leading role in sustainable development as they constitute the conditions of carrying out sustainable projects which benefit the overall environment above their cost. This implies a change of urban development tasks.

Is it necessary to conceive urban development at a larger scale and in a broader perspective, and how would this relate to 'spatial systems'? Any kind of land use takes place within either one or several spatial systems, whether man-made or otherwise. The relation between a town and its surrounding villages, river basins, as well as cities are ecosystems in themselves. Spatial layouts created by man and their uses determine whether spatial systems are future-proof and the quality of their ecology. An appropriate layout may influence the use of the everyday environment and thus its social and ecological quality. Spatial arrangements should improve local systems and quality of life – now and in the future (Fig. 1 and 2).

The size of a layout is irrelevant as it always forms part of more extensive connections. Physical and social relations are components of different spatial systems which often transcend the city. For example, a substantial change of the housing stock within a municipality has also consequences for the housing market in the surrounding boroughs. The rise of integrated area development projects demonstrates that starting from the complexity of spatial systems has become a common practice. As cities are gradually merging with the countryside, the management of the recreational functions of

1 & 2. Sustainable urban design (1) is mainly directed at the project area (inner circle). The effects of a development are, over time, probably not too positive for the region or the world (outer circle). However, when a development process is started which improves spatial systems effectively, the regional and global effects would be positive. A surplus of sustainable energy for instance would sustain the region and have a positive effect on the climate problem.



the hinterland has become an urban task as well. More recently, local and regional assignments of energy production and climate adaptation have become part of this process. Spatial systems have become the basis of solving the friction between various spatial claims, such as water retention, traffic flows, quality of life, recreation, rural development and restructuring.

- > A new design question is which systems have a relation with the site and how is the site able to contribute to the improvement of these systems? This implies that spatial development is a continuous process not confined to separate projects, with the premise that every intervention must add value to the overall spatial systems. City and countryside are not static, they are developing constantly. Directing this development requires a 'vision of the future' about who we want to be as a community, a city or a village and about what steps we might take to further this vision? At present, the climate proof city is a very appropriate vision for the near future.
- > Does a continuous process of improving spatial systems mean a complete reversal of urban development? In the past, development went ahead without questioning the purpose of large-scale extension areas, building on green fields, owning a car in the city, or large-scale high rise house construction. Yet new starting points have emerged, such as the preservation and transformation of inner cities, the development of high-quality public transport and the use of depressions in the landscape for water retention and special residential areas. The complex connection between users, areas and chains has become part of mainstream urban development, influenced by the 'layer approach', the 'two-network strategy' and the 'ecopolis strategy'.

'IMPROVING SPATIAL SYSTEMS EFFECTIVELY'

- > Sustainable spatial development starts out by making a deliberate choice about how a site should develop. This includes a vision across the boundaries of the planning area with a view to

improving the spatial systems effectively. Seen in this way, a development within a city is only sustainable if it contributes to social, physical and economic systems in the city and thereby to the improvement of the quality of life.

An example for an efficient intervention could be a 'sustainable' office complex outside the city that does not have a good public-transport connection. The office can be CO₂-neutral and less of a burden to the site's eco- and water systems, yet it does not contribute anything towards the improvement of the existing city. In fact the office causes an increase in car use and harms the environment. It is likely that the 'city system' would improve if such offices were to be developed in relation to homes, shops, facilities and public transport. This would contribute to the support of these facilities and of public transport in the city, and thus to the city's liveliness and liveability. It would stimulate cycling and walking, which are healthy activities. Moreover, it would save the green region outside the city where city-dwellers tend to undertake recreational activities. In approaching the city as integrated ecological systems greenery on roofs and façades, in streets, parks and squares can improve the ecological quality of the city as a healthy environment for it's inhabitants. Greenery improves the visual quality of the city and its air quality while reducing urban heat. It also contributes to better water retention. Saving energy and energy generation within the city, brings the vision of healthy energy-neutral city closer.

On a smaller scale, this type of intervention has been realised in several neighbourhoods. On the 'GWL-terrein' (Fig. 3 and 4) it has become clear that the mixing of functions, water retention, urban agriculture and careful living habits can most certainly create highly successful living conditions. The realisation of 'Lanxmeer' (Fig. 5 and 6) within a protected water-infiltration area shows that a residential area does not need to interfere with the water system, but can even have a positive effect upon it. Although such a neighbourhood



3&4. The GWL-site in Amsterdam. A 100 dwellings per hectare mixed use and car-free area. Urban agriculture, historical buildings, water retention and green roofs are found here

photo: Rob Rhemrev



5&6. Lanxmeer in Culemborg. Among many other sustainable aspects, solar energy, water retention and helophyte filters are used here.

⁹ These and other critical remarks and considerations can be found in: *De Nederlandse ruimtelijke ordening gewikt en gewogen – Afscheidsrede door prof. dr. Barrie Needham* ('The pros and cons of Dutch spatial planning - Valedictory speech of Prof. dr. Barrie Needham'), 2007, Radboud University, Nijmegen.

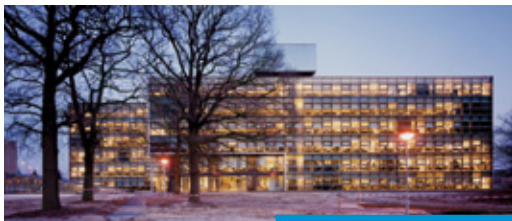
only covers a tiny surface area within a whole water system, this is an effective development direction.'

- > There is a great need for these kinds of effective, sustainable projects. The projects given as examples got off the ground due to the great personal commitment of the citizens. After many years they are still well positioned within the rent and sale market. Sustainable residential or work areas like the 'High Tech Campus Eindhoven' (Fig. 7 and 8), 'Lanxmeer' and 'GWL-terrein' prove that user satisfaction is high and that an extensive general public is interested in them. This in turn arouses the interest of the authorities and the market.
- > A city is never finished, but moves along with society. A city has to be at the service of its users, and its environment must provide for both young and old, rich and poor with a surroundings of adequate living and working areas. Flexible, life-cycle-proof housing for instance helps make a city resistant to senescence and demographic decline. The improvement of spatial systems can also be used for the transformation of rough areas. Sustainable urban development can contribute towards the improvement of such areas, but if the problems of certain underprivileged groups within the population are predominant then sustainable physical measures do not suffice. With social displacement there is the risk of transporting the problem to other districts, thus making the approach ineffective. Alongside of boosting the social and economic structure, one must also improve social cohesion and security in such districts.
- > The design of public space and its careful management may contribute a great deal to this. For example a good arrangement and structure of a city can provide orientation and connections, for instance to green areas. The layout of roads and parks creates room for people to do sports, games, sit around, barbecue together and meet one another. People feel safe and respected, and take care of their surroundings as these are designed at 'the measure of man'. District caretakers and district coaches can call people to account for undesirable

behaviour and try to involve them in specific community projects, while good management keeps public spaces clean.

FROM THEORY TO PRACTICE OF 'SUSTAINABLE SPATIAL DEVELOPMENT'

The transition from 'sustainable urban design' to 'sustainable spatial development' can be traced in the described projects. The common thread running through these examples is the support provided by inspired and enthusiastic professionals and citizens. In addition to enthusiasm and professional skills political choices are also needed with the intention to make sustainable spatial development take root in spatial planning processes in the Netherlands. An increasing focus must be placed on the long term in spatial developments in the Netherlands with the goal to improve spatial systems effectively. The development of places must contribute spatial systems of energy production, socio-economic achievements, traffic management, etc. These are not all essentially spatial systems, but in the end they determine factors like liveability and the emission of CO₂. As long as developments are still dominated by the drive for efficiency, flexibility in spatial design will remain very important as it allows for modifications to be made at any time. Inspiring and courageous pioneers bring pressure to bear during the planning process to make sure that a sustainable approach to development is attempted or adhered to. They include not only ordinary citizens or managers but also planning professionals who have a critical, but positive attitude, to their projects. Different players have different opportunities to influence the transition to sustainable spatial development and can all be successful in their own role or projects. Any professional contribution to a government commission includes the responsibility of asking the client critical questions such as: *'Think for just a moment, if you and your successors continue in this way... Green Heart of the Netherlands will be completely built-up within X number of years. Is that what you want?'*⁹. An urban planner can introduce



7&8. The High Tech Campus in Eindhoven situated on a former Philips laboratory site. Special attention is directed at landscaping, water retention and ecology. Urban furniture is combined with 'data pits'. Mixed use facilities are located in a central building

source:
Juurlink and Geluk

attractive plans and examples to demonstrate all the options that are available for sustainable spatial developments. The professional can also offer a fresh view of financial models and regulations in spatial planning.

- > The conventional division of development costs between the end user, the authorities, the developer and the investor often limits sustainable developments to those which can be recouped within a commercially interesting period of time. Each party points the finger at the other when questions are asked about the lack of success of sustainable development. This is often called the circle of blame. Although changes in this field are still slow, good examples are increasing. There is a trend to grant land intended for housing on long leases, which brings a regular income to be used to maintain the vitality of the neighbourhood. The 'Oosterdok Island' (Fig. 9 and 10) in Amsterdam is such a successful project. The investors, developers and residents are the joint owners of the energy system so that the supply of heat, cooling and maintenance is guaranteed for a long time and all those involved can profit from the returns or from a low energy price. Moreover, the CO₂ emission reduction of this system is about 64%.
- > Sustainable spatial development presupposes that long-term aspects are taken into consideration. Designers can play a key role by creating and visualising attractive solutions. Planners can guide this part of the planning process. Politicians are asked to opt for a longer planning horizon – not just thinking about the next four years but taking a longer term view.
- > The professionals who seek sustainability ask for clear political choices for sustainable projects and commissions. This can transform the planning and design tradition of the Netherlands into the world leader it once was. The professionals who make and guide spatial plans must try to cooperate with other disciplines. Designers and planners can point out the non-sustainable consequences of short-term policies, and preferably suggest more promising design alternatives. Eventually no one

will be able to claim that they are not aware of the importance of sustainability. Educational institutes can contribute by attracting young, inspired and involved people who know how to pass on their skills to guide complex spatial development processes.

A sustainable planning process includes scope for both bottom-up and top-down developments to take place at the same time, while always considering the social component. One way is to show that a new housing development or redevelopment will not only benefit the current residents but also the neighbouring areas and future generations. It is possible to reach a broad group of interested people by creating space for them through private building plots within a well-organised spatial structure. Allowing residents and companies to interpret these spatial structures ensures a more dynamic process with greater diversity and complexity than that expected from an urban planning or landscape plan, as eco-neighbourhoods like the GWL-terrein and Lanxmeer demonstrate.

Finally it is the task of the professionals to learn from developments and share this experience to make the best use of the flexibility which is incorporated in sustainable spatial developments. By bringing this experience to the attention of those in the political and executive domain, professionals can play a positive part in embedding sustainable spatial development in legal statutes and regulations.

MAKING THE RESULTS VISIBLE

Before sustainable spatial development can find general acceptance, its ethical, aesthetic, ecological and economic effects, and benefits for the environment must become measurable and visible. If the benefits for people, planet and prosperity can be quantified, initiators can be convinced to take a wider view of returns than the commonly accepted purely financial one.

The described projects show how spatial systems can be effectively improved. They illustrate the



9&10. Oosterdoks eiland in Amsterdam. Fig. 9 is a visualisation. Located next to the central station and the city centre, the plan combines many functions. Fig. 10 shows the public library (left) which makes use of the shared energy system and uses photo voltaic cells on its roof and in its glazed façade

source:
(9) CIID / (10) MAB

financial results as well as the benefits to society. Parties who act more from social or public motivations – like inspired citizens, housing corporations and the municipal development agency – are involved in the projects, as well as parties whose approach is inspired by a more strongly commercial logic, such as investors and developers. It is self-evident that the risks involved and the land development of this kind of project differ greatly from the common housing developments in the Netherlands. Yet the fact that these projects have been implemented proves that they were not only interesting from a social and public angle but also from a commercial one. The refurbishment of existing urban areas has also resulted in the improvement of spatial systems such as the landscape, the water and the urban area. The result was a qualitatively high-grade, robust and future-proof space or landscape framework within a larger spatial and social context. This has an influence on property values, on the health of people living or working there and on the cost of energy and water treatment. For instance, very few houses on the 'GWL-terrein' have been put on the market since the termination of the anti-speculation clause despite the high rise in house prices. Residents even move within the neighbourhood itself because the estate fulfils their ongoing housing requirements.

- > The savings on management and maintenance are also considerable. 'Lanxmeer' is managed in common ownership. The residents organise their own management and feel responsible for, and are involved in, their own housing environment. Municipal managers no longer need to come to the neighbourhood. The green, park-like character makes the 'High Tech Campus' a pleasant working environment and the interchange between the businesses there stimulates business results. Sustainable spatial development can contribute to the development of a new sustainable economic dynamism. Sustainable spatial development will be more widely accepted if clients can be convinced that profit can be made from the results of what is still is seen as an uncertain process.

CONCLUSION

This next step or new approach may give the needed focus to the complex planning processes of sustainable spatial developments and the design of Low Carbon Cities in the Netherlands. It's about a smart combination of durable and flexible urban planning and design which uses natural resources and social capital in a responsible way. The right choices are made in the right phase, the right scale and the right order to make sure that spatial systems are effectively improved within their spatial and societal context. A flexible design, leaves future adjustments possible and will guarantee durability in this age of rapidly changing design tasks and technical possibilities. Communication and harmonisation with neighbouring interest groups and future (commercial) owners and users ensure a proper, energy efficient use of the new or redeveloped environments. When striving for added value in every plan phase more and more opportunities arise for people, planet and prosperity. It's our view that every urban or spatial development should focus on these aspects. Striving for low or even zero carbon developments is necessary but always only one among other important goals. If an urban development isn't used for instance, it is a waste of the efforts put in to it, a waste of the energy used while constructing and a waste of building materials. The examples show how the city can be made more attractive and vivid when spatial systems are improved effectively. The reduction of CO₂ emissions from the cities systems or even neighbourhoods that produce energy will bring the vision of a liveable, healthy, climate proof and energy neutral city closer.

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