Urban Living, Mobility and Health:

THE FUTURE OF OUR CITIES

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The Covid-19 pandemic brought to light social inequalities and exposed frailties in the access to certain fundamental human rights, such as health and mobility. The type of housing, sanitation level, mobility, and urban structures play an essential role in people's individual and collective health.

How can architects and urban planners tackle the global challenges of developing necessary infrastructure and services, especially in more impoverished regions of the world? Which practices can be implemented to improve citizens' lives? How can technology, innovation, and local communities contribute?

To answer these questions, Swissnex hosted an insightful discussion with experts and researchers from EPFL, WHO and USP, sharing knowledge and experiences from Brazil and Switzerland. An online event took place on the 4th of March 2021 and the video is available on Swissnex's website.

This document deepens and widens the reflections with unpublished articles from the guest speakers. We hope you enjoy your reading.

The Swissnex team in Brazil
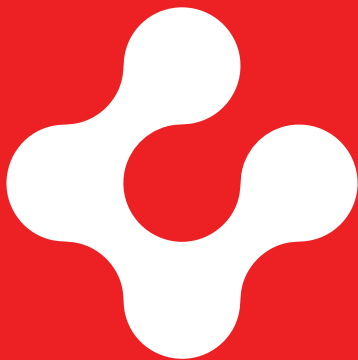
About Swissnex

Swissnex is the Swiss global network connecting the dots in education, research, and innovation. Our mission is to support the outreach and active engagement of our partners in the international exchange of knowledge, ideas and talent. We thereby contribute to strengthen Switzerland's profile as a world-leading innovation hotspot.

We create opportunities for collaboration by providing encounters, furthering conversations, exploring intersections and hosting out-of-the-box events with thought leaders, innovators, researchers and entrepreneurs, offering a global perspective and local expertise.

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Introduction

by Anna Karla Almeida

URBAN ARCHITECT, PHD CANDIDATE AT THE ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL)

How can architects and urban planners meet the global challenges for the development of necessary infrastructure and services, especially in the poorest and most unequal regions of the world? How can technology, innovation resources and local communities themselves contribute? Swissnex Brazil hosted the seminar *Urban life, mobility and health - the future of our cities* to bring these issues to the fore. The discussion raised the way in which the pandemic affects urban habitability, mobility and health, and considered strategies that offer new solutions to the current health emergencies. The unanimity of the speeches presented indicates that health is a result of, and a precondition for living well in cities. It is today's theme to rethink the built environment in face of ecological transition and the profound changes in the way we experience urban space.

The Covid-19 pandemic highlights the need for new biopolitical strategies that can anticipate and mitigate the problems presented by the global emergency. This emergency is understood as the apex of a socio-environmental imbalance that was already underway. From low-income housing to the territorial dimension - old and new ways of thinking about urban space place urban health as a fundamental need in our cities.

In the low-income housing dimension, socioeconomic disparities illustrate the need for construction processes and services that take into account the "informal" dynamics that cause a fragmented urban space. The ongoing pandemic accentuates the social abysses that persist in our societies. Designing in recognition of such socioeconomic inequalities is a constant challenge for architects.

At the territorial scale, we have seen concrete examples of how sustainable urban mobility and health are transformative elements in low-income contexts. The challenge is presented by the inefficiency of public transportation in large cities, which has been accentuated by the pandemic, causing a dilemma between ensuring mass transportation and enforcing social distancing. Bringing quality in urban mobility to the peripheries becomes feasible through tactical urbanism and public policy initiatives and interventions that take a participatory approach to projects and promote sustainable urban mobility.

On a planetary scale, the step-by-step experience of the various tools developed by the WHO targeting urban transformation levels to improve health globally has led to the significant implementation of these tools. The importance of facilitated communication with the community, local professionals and community leaders is key to encouraging the health agenda in communities.

At all project scales, successful public health and mobility policies are those that know how to include truly participatory processes. The challenge of effective communication, awareness raising, and participation is enormous, especially in times of health emergency. Society as we know it is rapidly changing, and flows in cities need to adapt and innovate. Urban planning professionals and health professionals can share expertise in a transdisciplinary approach, which is key to building public policies and collective actions in the search for a better quality of life and mobility in the 21st century.

Urban living: revisiting the question of housing

by Vitor Pessoa Colombo

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The Covid-19 pandemic unfortunately showed something that was already suspected. The socio-spatial fragmentation of the cities, that is the asymmetric development of infrastructure and services between different neighbourhoods of the same city, is reflected in public health, leading to flagrant geographic and social inequities in the burden of the disease.

In order to deal with the complex matter of public health in the cities, it is vital to discuss popular housing. According to UN-Habitat, in 2018 more than 1 billion people lived in precarious settlements ("slums"). These settlements usually have physical characteristics that exacerbate the risk of infectious as well as non-transmissible diseases (Ezeh et al., 2017). Generally, people living in these conditions are especially vulnerable to diseases such as Covid-19, as it is difficult to implement security measures such as social distancing

and hand hygiene due to the high demographic density and lack of access to clean water (Cordburn et al., 2020).

It is important to remember that, especially in countries of the Global South, the access to housing of a significant part the population is only possible through "auto-construction" of houses, often illegally, in the informal sector. In fact, the prices of the formal real estate market are inaccessible for many, including people of the middle class. Furthermore, highly subsidized financing models such as "Minha Casa Minha Vida" are inaccessible to low-income families, and even more so when income is variable.

There is no doubt that, in the last decades, countries such as Brazil have made considerable efforts to scale up housing construction and facilitate access to housing. However, these efforts have not considered in an adequate manner the socioeconomic reality of low-income families. Between 1964 and 1986, 75% of Brazilian housing was estimated to be in the informal sector (UN-Habitat, 2011) even though programmes of the National Housing Bank, one of the largest public initiatives to subsidize housing, were in place. In 2019, even after the programme "Minha Casa Minha Vida" delivered more than 4 million houses, there still were more than 5 million houses in precarious settlements, called "subnormal agglomerations" (IBGE, 2020). These numbers relativize the impact of conventional public programmes that allow access to housing through subsidized financing, despite the large allocated budget. More importantly, these programmes have ignored the dynamics behind the auto-constructions in the informal sector.

One of the factors that make the informal sector so accessible to low-income families is certainly the incremental nature of the construction processes. The auto-construction is made by steps that coincide with the savings capacities of the family, and its spatial configuration is adapted to the needs of its inhabitants. Although the potential of this incremental logic has already been used in social housing projects in the past (Turner, 1972; Aravena, 2010), it is still used in a marginal manner in public policies. They are usually limited to the regularization of pre-existing structures of the informal sector, but do not apply incremental processes in the construction of new housing facilities.

In addition, the supply of housing in the informal sector is made independently from municipal planning and administration, frequently making informal housing precede essential infrastructure and services such as sewage, streets, schools and health centres. This process leads to inadequate habitational units that put their inhabitants at different sanitary risks of infectious diseases linked to the lack of hygiene, and non-transmissible diseases linked to unhealthy lifestyles due to the lack of adequate infrastructure and public spaces. Certainly, one of the factors that foster this spatial expansion model is the price of urban land and real estate speculation – meaning that the only alternative solutions lie at the margins of the existing urban perimeter.

In order to be *de facto* accessible, popular housing programmes have to combine: (i) flexible and potentially divisible projects that meet the financial needs of the inhabitants; (ii) different use modalities such as buying, renting or public concession (in the case of the regularization of informal settlements); (iii) promoting social responsibility in the use of urban land, guaranteed by the public authorities who are ultimately the main land manager through zoning laws and master plans. The third element is essential not only for economic viability (making well-located land available for social housing at accessible prices), but also guarantees a healthy habitat for everyone, regardless of income levels.

Popular housing is not only an urgent matter in social development, but also in terms of public health. In order to end asymmetric urban development processes and their harmful effects on public health, it is necessary to rethink the access to housing programmes. Public policies have to ensure a varied offer of housing, construction processes and modalities of use, to avoid the expulsion of low-income families to areas without essential public services.

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Health and urban living

by Ligia Vizeu Barroso

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The concern with people's health guided urban planning in the 19th century. The development of urban infrastructure, along with the evolution of medicines, vaccines and other technologies, contributed to the longevity of the population. Thus, throughout the 20th century, the health and well-being of the population was displaced from urban planning due to new interests, such as the priority of using individual transport. Cities have become less walkable and green spaces have lost their place to automobiles. Longevity was affected by the high prevalence of chronic diseases, such as cardiovascular, cerebrovascular diseases and cancers, reducing people's quality of life. Health and well-being are defined by multiple and complex causes, among which is the built environment. It is in this dimension that urban planning has the potential to have a direct impact on people's quality of life. Although focused more on sustainability than health, the principles of New Urbanism can positively impact public health by emphasizing connectivity, walkability, greater density, intelligent transport and sustainability. When applied, these principles would lead to greater use of public transport and non-motorized modes of transport, and less use of private cars, making streets safer. The entire environment would induce greater physical activity, less air pollution, fewer traffic accidents and lower cost of urban infrastructure. Promoting walking has known health impacts: in addition to the benefits of physical health such as improving heart health, strengthening the immune system, bones and muscles, and weight loss, it is also important for mental health, as it improves mood and creative thinking, and reduces stress and depression.

In Brazil, there is a triple burden of diseases: infectious diseases, chronic diseases and deaths from violence and accidents. In the country, about 50% of people die before turning 70. Among these, cardiovascular diseases, type-2 diabetes and cancers predominate as causes of death. In São Paulo, the largest city in the country, the scenario is similar.

In São Paulo, we find very different built environments. There is good environmental quality in the area known as the south-western quadrant while in the peripheral areas, where the most economically vulnerable people live, it is not uncommon to experience environmental fragilities such as risks of landslides or floods. In the so-called old centre, there are degraded areas where precarious settlements are found. In general, the

infrastructure of open public spaces and green areas is insufficient for the population of 12 million inhabitants. In most parts of the city, where people from the middle socioeconomic strata live, sidewalks tend to be narrow and urban afforestation is minimal or non-existent. This geographical picture corresponds to the same spatial pattern for the five main causes of death in the city: higher and more significant relative risks in the outer areas of the city's territory and lower than expected relative risks in the south-west quadrant of the privileged population. This inequity in health is the biggest Achilles heel of public health in Brazil because it is explained by the socio-spatial residential segregation and is repeated in all state capitals and large cities in the country.

In an attempt to develop the most peripheral regions and reduce socioeconomic inequality, São Paulo approved its New Master Plan in 2014. The Plan was awarded and has been cited as a reference for other world metropolises. It is in line with the Sustainable Transport Oriented Development model, which encourages compact land use and mixed land use, close to high-capacity transport stations, among other things.

Several initiatives have been implemented, such as the construction of bicycle lanes, and cycle tracks. Others include the closing of major avenues to automobiles on Sundays and holidays to expand the offer of leisure spaces. At the same time, there is still an unresolved agenda for adequate housing and basic sanitation, as in other cities in Latin America.

Precariousness is also heterogeneous. São Paulo has 2,096 precarious settlements classified by City Hall as "favelas", but they are not the same. The precariousness of the territory and the vulnerability of the populations are different, requiring different types of interventions. In addition to environmental sanitation and the quality of housing in some places, recreational areas are lacking in almost all. Interventions for the re-urbanization and re-qualification of these territories have been timely and include housing construction and channelling of streams. There is a large housing deficit, which remains the biggest challenge.

As for mobility, although only one third of the population uses motor vehicles (cars and motorbikes), urban planning has always been oriented towards automobiles. The New Master Plan proposes corrections for this asymmetry. Currently, public transport is crowded and inefficient in the city. Part of the inefficiency is due to the existence of a very strong centrality in terms of commercial, employment and public transport terminals. People need to go to the city centre to move from one area to another. The Plan foresees the transformation to a multi-nucleated city, reducing long trips and generating jobs in the peripheries.

As there are many problems, some solution proposals have gone through local governance initiatives. In other words, it works with the organization of communities based on locally

led and civil society projects that mitigate crisis situations. For example, the ***Pacto das Cidades Justas*** (Fair Cities Pact) involves more than 20 civil society entities in a collaboration between society, private initiative and public authorities to create and implement development projects and urban interventions in vulnerable territories.

Stimulating entrepreneurship in communities has also been seen as a form of economic development by promoting the generation of work, moving the resources of the communities themselves. In Brazil, the 14 million people who live in slums have a consumption potential of 160 billion reais. Thus, local leaders have encouraged the training of the inhabitants of the communities in the use of social media to publicize the offer of products and services. During the COVID-19 pandemic, cooperation between communities through CUFA (***Central Única das Favelas***, http://cufa.org.br/sobre.php) and "***G10 das Favelas***" (Entrepreneurial Social Impact Leaders of Favelas, http://www.g10favelas.org/) was instrumental in reducing the impact on people's health and the local economy. As an ally of vulnerable populations, the Public Health System (SUS), public and free, has been responsible for the treatment of patients and for the Vaccination Programme in Brazil, without which the impact of the pandemic would have been even more devastating.
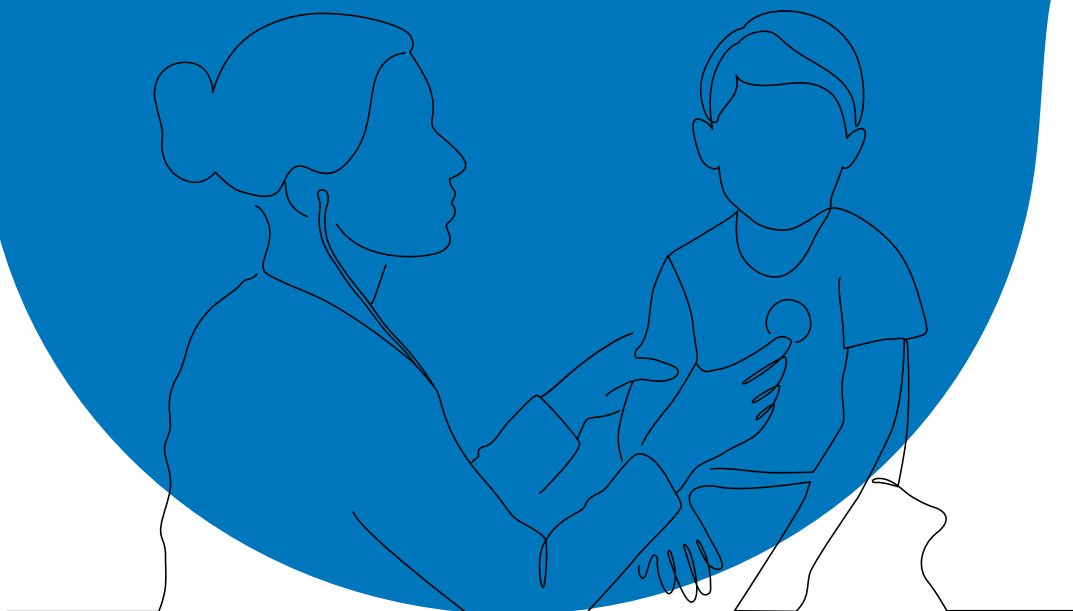
Integrating health in urban and territorial planning

by Thiago Herick de Sa

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The way we plan and build our cities has an impact on our health and quality of life. It affects not only the quality of our urban environments, natural and built, but also the air we breathe, the water we drink, and our access to nutritious foods, education, health facilities and the job market.

Throughout the years we learned invaluable lessons on urban and spatial planning, which is increasingly becoming an interdisciplinary topic. Nowadays, it is common to consider the environment, health and well-being as key factors in urban planning. Integrating health aspects in urban and territorial planning has become an essential aspect in the routine of urban planners, city officials, health professionals and relevant stakeholders for our collective well-being.

At the same time, one of today's challenges is to guarantee that urban and regional leaders have the necessary knowledge and tools to integrate health and well-being in their planning and development processes.

In order to facilitate this integration, the World Health Organization (WHO) and UN-Habitat recently joined forces and published the report "Integrating health in urban and territorial planning: a sourcebook", conceived as a tool to help national governments, local authorities, planning professionals, civil society organizations and

health professionals to improve the planning structures and practices by integrating considerations regarding health at all governance levels and different planning scales, from the house to the neighbourhood and from the city to the metropolis.

A coordinated approach between health and urban planning can affect decisions in areas such as habitations, transport, energy, water and sewage facilities. It is important to note that these sectors are linked, and needed to achieve the Sustainable Development Goals.

It is essential to highlight the fundamental role of public health professionals for good urban and territorial planning, and even more so in the light of the global challenges linked to the Covid-19 pandemic. These professionals have a valuable skillset that, if put in practice, can ensure that urban planning activities are beneficial for people's health and the planet.

We have to act together to ensure the improvement of our urban and territorial improvement, our collective well-being, and our public health, while ensuring that no one is left behind. In the end, if the goal of urban planning is not to ensure a prosperous, healthy and happy present and future, what should it be?

Adapted from: "Integrating health in urban and territorial planning" (disponível em: https://www.who.int/publications/i/item/9789240003170, acesso em 17/05/2021).
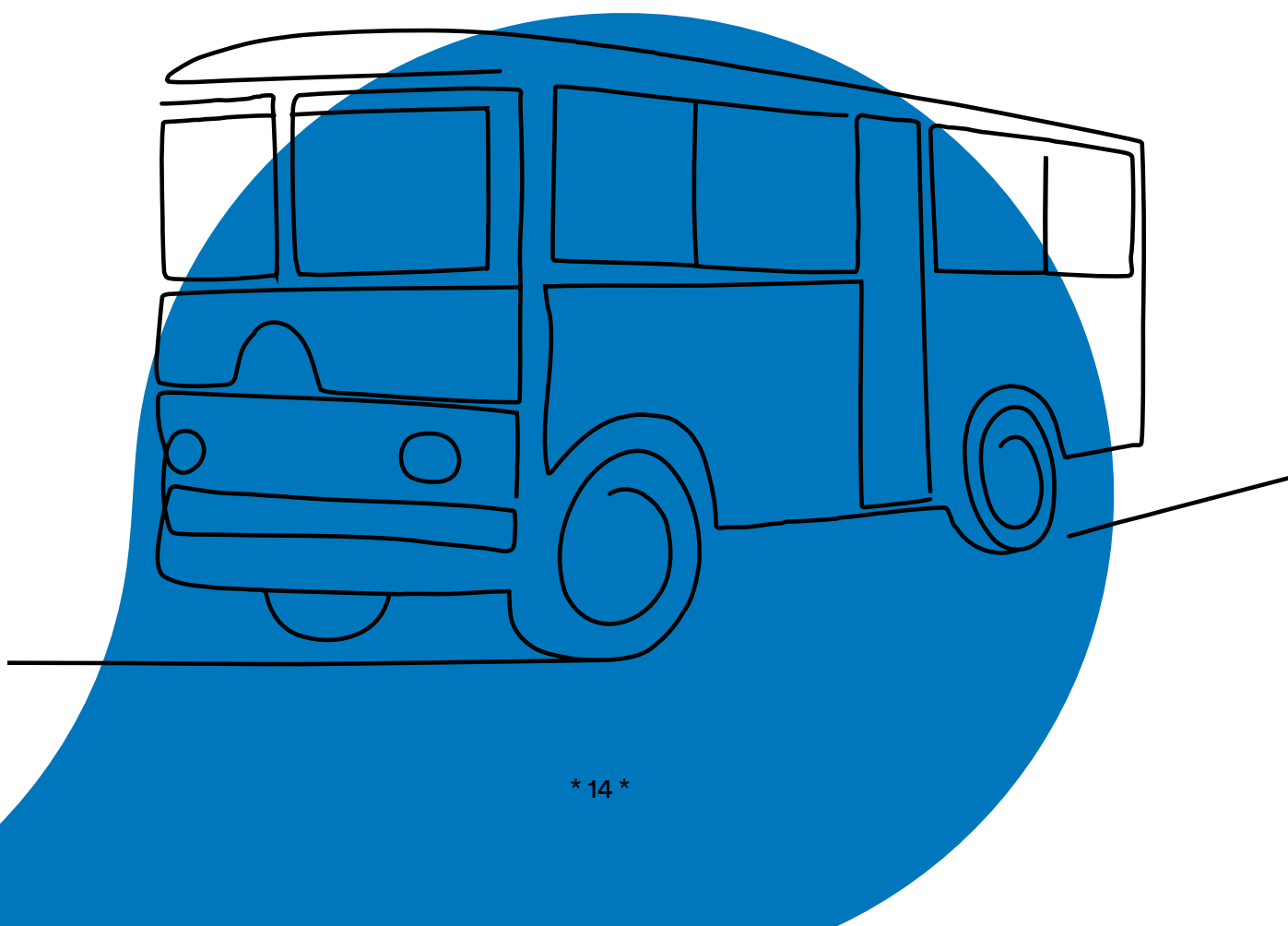
Conclusion

In a future perspective, how will we live together and how will we face the challenges of our urban areas? The question is on a planetary scale and urgent. The discussion presented some of the possible solutions that are being implemented in urban areas and at various scales of design and action.

The pandemic's warning of the worsening of such issues demonstrates that efforts to make cities more inhabitable are essential to improve the quality of life in our urban centres, and to enable everyone to enjoy sustainable development as well.

In this sense, health was shown to be a determining factor for the improvement of the current habitability conditions. Health must be understood as a structuring element for new public policies that favour sustainable urban mobility, architecture allied to participatory processes, and that lead us to think more deeply about the ecological transition we are going through.

About the authors

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Anna Karla Almeida is an urban architect (UEMA - Brazil), and holds a Master's degree in Techniques, Heritage and Industrial Territories by Panthéon-Sorbonne (Paris 1 - France). She is currently conducting a PhD at the École Polytechnique Fédérale de Lausanne (Switzerland) at the Urbanism Laboratory (Lab-U) on living conditions in company towns. In 2020, she was a guest speaker at the seminar Urban Living and Covid-19: Impacts on Architecture and the future of cities, promoted by Swissnex Brazil. She is also a member of the transdisciplinary research group Habitat Research Centre of EPFL. The research centre aims to explore urban phenomena and produce visions, strategies and projects on this crucial topic. In this context, Habitat's main lines of research are urban health, landscape, digitalization and productive habitats.

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Vitor is an architect and is currently conducts a PhD at the École Polytechnique Fédérale de Lausanne (Switzerland) on the influence of urban morphology on diarrhoeal diseases in the context of large African cities marked by socio-spatial segregation. Vitor also works voluntarily with the NGO TETO as technical coordinator

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Ligia is a Geographer, Associate Professor at the Department of Geography at the University of São Paulo. At the Institute of Advanced Studies of the USP she coordinates the study group Urban Space and Health. The group's main objective is to understand how the organization of urban space is associated with sociospatial inequalities in health outcomes. Ligia is also a Visiting Researcher of the Brazilian Israeli Beneficent Society Albert Einstein Hospital. Linked to Einstein's team of Big Data Analytics, she has developed the GeoSES socioeconomic index for health and social studies in Brazil. The index has assisted the understanding of intra-urban differences in infant mortality, mortality from cardiovascular diseases and the spatiotemporal evolution of mortality by COVID-19.

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