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# Engineering



# Views & Comments How to Avoid and Mitigate Stress in Megacities

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### 1. Scenarios for 2050

Speculative scenarios in Germany assume a shrinking population and, based on global shortages in raw materials, food, energy, and water, provide challenging indicators of a future in which a new super-infrastructure links large cities, and people have settled along these supply lines for energy, trade, and traffic. There are no more cars in these scenarios, but only autonomous transport capsules. People have abandoned their dwellings in infrastructurally impoverished areas such as the countryside. Cities are very densely populated because people can only afford the high energy costs by living in densely populated quarters. The war for talents—including foreign talents—continues among cities. The neighborhood becomes very important.

Another scenario, on a more global scale, assumes that living and working quarters in the cities of the future will be more tightly networked than today, and that village elements will co-exist with entrepreneurial activities. Urban lifestyles will become more diverse, the proportion of families will decrease, and the numbers of singles and several-generation communities will increase.

All scenarios foresee problems related to population growth, tight finances, a high demand for land, ever-increasing traffic, more and more environmental problems, and social problems among the various stakeholders in the population.

### 2. Modern problems

Many of today's solutions carry an inherent core of problems. For example, we build cities for the car, and we build very large housing settlements without adequate or organic infrastructure. We build areas such as industrial parks from a completely economic point of view. Social-media interactions and new smart technologies increase our interactions with so-called friends, but simultaneously decrease real interactions within the neighborhood [1]. Space becomes more and more precious, and there is little space left for spontaneous communal interaction.

## 3. Workplaces and dwellings come closer again

Globalization and the corresponding increase in services and

technical improvements will bring about new forms of work; these, in turn, will demand new soft skills, such as flexibility, teamwork, and communication capabilities. These changes will extend to workplaces: Traditional industrial workplaces will lose their importance, and creative, innovative small companies will establish themselves in the middle of living quarters. Even small production companies will return to the cities, their transition enabled by greener and less noisy work processes.

Shared transport will become more prevalent. Infrastructure for shared transport will have to be built, as well as hubs for changing urban transport modes; these changes will lead to more shared space.

The new digital forms of interaction will lead to a new dialogue regarding the populace, economy, administration, and town development; eventually, citizens will have a much bigger say in decision-making. A stronger voice for citizens will help to bridge the existing fundamental differences between public good, individual population groups, and investors. This factor will be particularly important in the face of large housing investments by very large companies. These large companies will drive the advance of smart home technologies in the living quarters of big cities.

#### 4. Evolution has not prepared us for the city

Generally, life in megacities is thought to be stress-inducing and hectic. City life puts new financial demands on its inhabitants, starting with transport, energy, and food costs. New job types are emerging, many of which seem more qualified, but which create their own expectations of a "good" city life. However, the full transition can only happen as incomes truly rise and the city's commercial offering becomes more accessible to more and more people.

#### 5. City life causes illness

Social stress and the cohabitation of many people, combined with noise and light pollution, lead to illnesses [2]. Urban dwellers in high-density areas seem to suffer from psychological illnesses, and—according to the findings of my colleague, Robin Dunbar, at Oxford University—the risks of depression and schizo-

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phrenia are much higher in high-density areas than in rural areas.

Social pressure, combined with isolation and poverty, seems to change the brain structures that deal with reactions to stress. Andreas Meyer-Lindenberg, a psychiatrist in the German town of Mannheim, found an increase of 40% in depression among urban dwellers, and an increase of 20% in anxiety attacks [3]. People born in cities have 2–3 times the risk of contracting schizophrenia, compared with those born in rural areas.

In view of the important psychological changes and alterations in the brain that are brought about by urban living, a new discipline has been established: neuro-urbanism.

Psychologists all advise the creation of more village-type structures in cities, to counteract these harmful trends. It is common knowledge that high-rise buildings, despite their population density, can be very lonely structures. Dunbar et al. [4] estimate that, even with today's social media, our brains cannot manage to forge close relationships with more than 150 people.

#### 6. The potential in high-density living for uncivility

"Uncivility" refers to disorder, manifested by antisocial behaviors, threatening encounters, drunks, and reckless drivers, as well as refuse, demolished bicycles, graffiti, and a feeling of insecurity. An example often cited in literature is the city quarter of Pruitt-Igoe in St. Louis, Missouri, USA. A very large housing project was pulled down after only 20 years because it had been taken over by gangs and vandals. It was planned to be completely functional, robust, and hygienic. However, the city planners and architects had not allowed for social contact, and it was thus impossible for the inhabitants to contact and support each other.

#### 7. Lessons learned for making cities more livable

The urban gardening movement may reclaim some of the unused spaces in cities. Authorities should see urban gardening as an opportunity to let creativity and innovation reign among city inhabitants, and as an opportunity to enrich neighborliness and make living together easier.

In order to create a livable city, or a livable housing area, we need to create environments that suggest activities and bring people together. Boredom and a lack of human contact can lead to depression in older people, and to drug abuse in younger people. A social mix helps and creates engagement in communal activities.

Not everything in a city has to be prescribed; on the contrary, people need spaces that they can use in their own way. Sometimes paradoxical actions increase participation and the takingon of responsibility, as in the case of the cities in the Netherlands that abolished traffic signs and yet decreased accidents by doing so.

Finally, green nature helps to reduce stress and increase wellbeing. Fascinating environments, plants and animals in the city, mountains, rivulets, ponds, or even a beach in the city are ideal for offsetting urban stress.

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