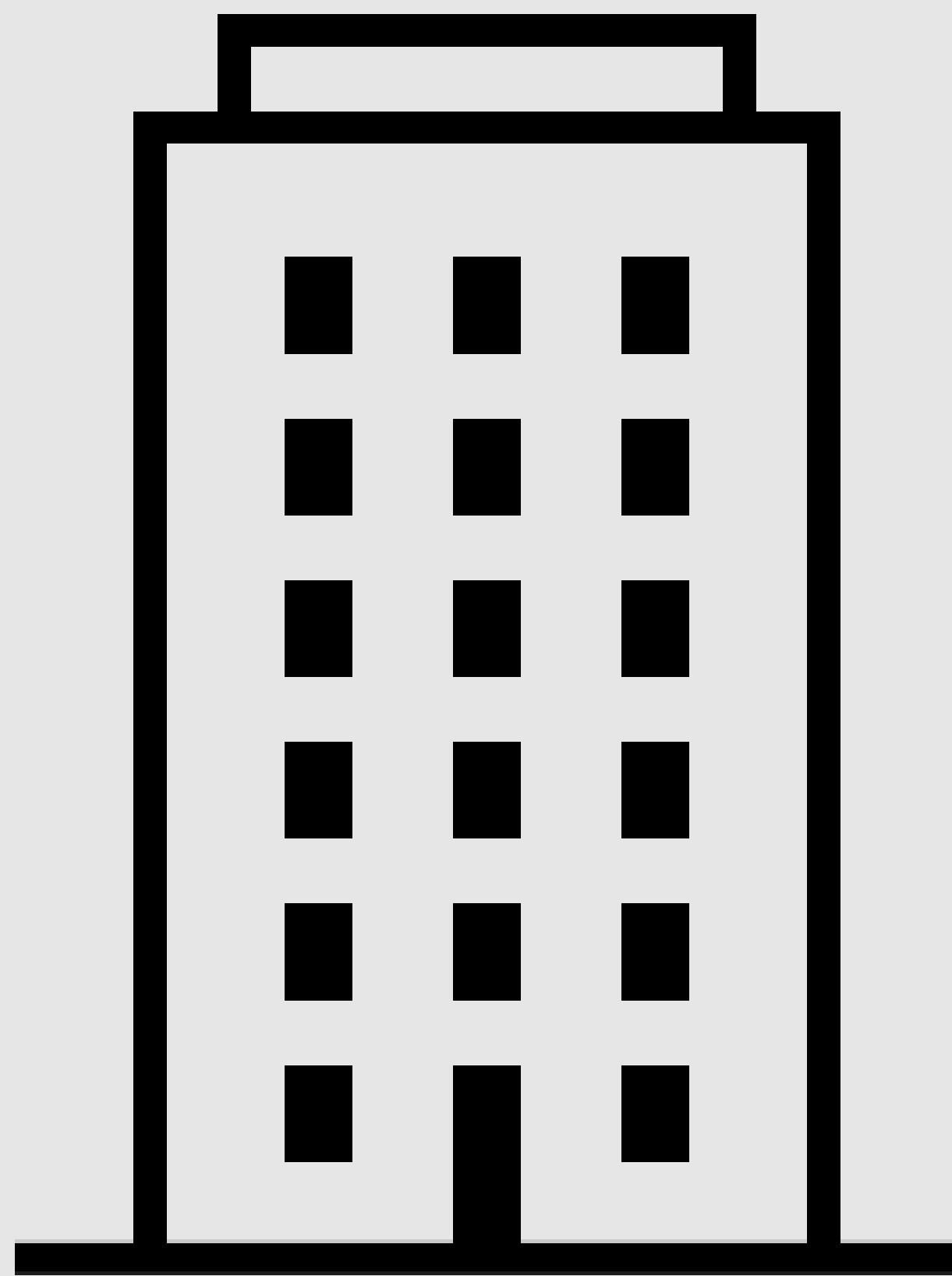




## Problems



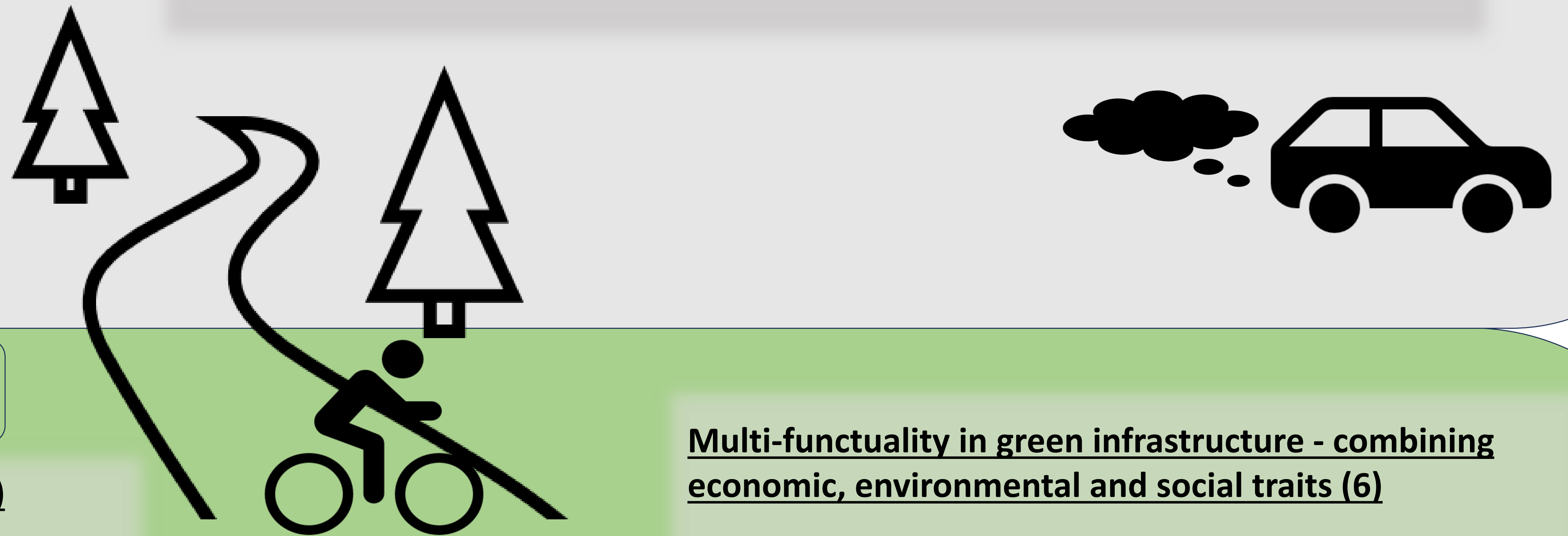
More than 2/3 of the World population in 2050 will live in Cities and the average age is rising in industry countries. Problems will be significant health issues for all people (1,2).

Buildings: Sun rays will be reflected by glass fronts and heat up the space between them -> the rising temperature has serious impacts on human health (1,2)

Energy: Grey Cities require almost 80% of the national energy budget (cooling units, air conditioning (2,3))

Air pollution: Grey Cities produce 80% of carbon dioxide emissions (3)

Landscape degradation: floor sealing, reducing plant cover and water seepage (4)



## Solutions

### Architecture and Ecosystem services (5)

Streets with alley: cooling down outdoor, natural sun protection, while increasing air quality (2)

Algae: Growing in basins nurtured by surface runoff, used as alternative fuel (5)



### Multi-functuality in green infrastructure - combining economic, environmental and social traits (6)

Parks: work place, regeneration zone, activity centre, meeting place for all ages

Bicycle-only-roads: Empowering sustainable transport for everyday life



### Human well-being through green presence (1,6)

Evolution: shaped to feel energetic and pleasant in a green surrounding, with positive effects on health

Noise-cancelling: Plant layers on walls and streets buffering sound and decreasing its intensity (4)

### Biodiversity profits and so does humanity (7)

Vegetation: species richness increases by size, this leads to a higher diversity in animal species by offering food, reproduction and safe places

Accumulation: when ecologically connected, small patches becoming more ecological useful

## Summary

Besides all positive effects of solutions and further possibilities regarding green city planning, construction and living. Green cities neither stop climate change nor working fundamentally against it, but they help their citizens to cope with its increasing fatalities in the future. A well-working city climate supports the people working in it, while their innovations leading us into a clima-neutral time ahead.

## Sources:

- 1 Vardoulakis S and Kinney P (2019): *Grand Challenges in Sustainable Cities and Health*. Front. Sustain. Cities 1:7
- 2 Jay et al. (2021): *Reducing the health effects of hot weather and heat extremes: from personal cooling strategies to green cities*. HEAT AND HEALTH. VOLUME 398, ISSUE 10301, P709-724
- 3 Burdett, Richard & Sudjic, Deyan. (2010). *The endless city: the Urban Age project by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society*.
- 4 Kahn, M. E. (2007). *Green cities: urban growth and the environment*. Rowman & Littlefield
- 5 Chew et al. (2021): *Algae utilization and its role in the development of green cities*. Chemosphere, Volume 268, 2021
- 6 Artmann, M., Olaf B and Karsten G (2017): *Using the Concepts of Green Infrastructure and Ecosystem Services to Specify Leitbilder for Compact and Green Cities—The Example of the Landscape Plan of Dresden (Germany)*. Sustainability 9, no. 2: 198.
- 6 Grinde, B. and Grete P.(2009): *Biophilia: Does Visual Contact with Nature Impact on Health and Well-Being?* International Journal of Environmental Research and Public Health 6, no. 9: 2332-2343
- 7 Vega K., Küffer C.(2021): *Promoting wildflower biodiversity in dense and green cities: The important role of small vegetation patches*. Urban Forestry & Urban Greening, Volume 62, 2021

