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paradise
found: from
mining to
gardening

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Dear honorable guests of this important conference, thank you so much for inviting me. I am delighted to be here today. And I would like to show you some of what we are doing in Germany as architects and urban planners.

Has it not always been the dream of humankind to be one with nature? On closer inspection, the interpretation of the creation story is that the beauty of the earth should not be exploited. It is our mandate to take care of the world, to protect it, to cultivate it, and to preserve it. Like a good shepherd, humankind should be responsible for the creation, the fertilization, and the care of the earth, not the subjection of nature. As Pope Francis has said, the climate is a common good for everyone. It belongs to all and is meant for all. On a global level, the complex climate system is linked to many of the essential conditions for human life.

However, we have been aware of the inconvenient truth for a long time. Since *Limits to Growth*, we know that our view of the landscape as pure capital, whose resources can be freely exploited, has reached its limit and threatens our very existence on earth.

Emissions from the construction sector are projected at 38 percent, but in truth, some emissions from transport also fall in this category. This brings us to 40 percent projected emissions for the segment built environment (UNEP 2020). It is not right. Yet this is how we build. I have listened to the impressive knowledge and experience in this room, yet we still haven't succeeded in implementing the drastic changes the planet needs. How can we change? We only have 16 years to go on the way we currently do. Time is pressing and we have to create new systems. We have to put a new lens on all this. Traditional methods of mastering nature are behind us; we should reconsider the primacy of technical solutions.

We described all our efforts in yesterday's and today's presentation. And now what can we do? Perhaps a holistic approach is better. A holistic approach through landscape. Friedrich Franz von Anhalt-Dessau recommended looking at the world as a garden. In a garden, you see the environment, you see the trees and the plants, they are

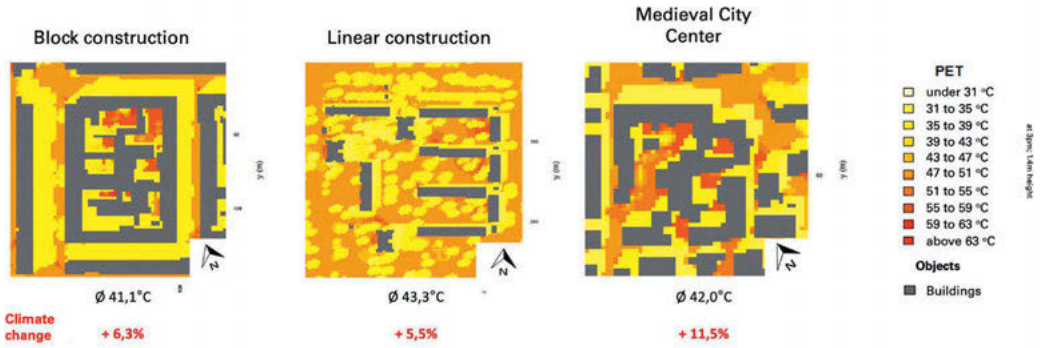


Fig. 14.1 Thermal load on a hot day, Munich grid simulation

beautiful and they smell good. They evoke joy every day and you will take care of it. You take care of it as a routine. You will not destroy it.

As architects, interior architects, landscape architects, and urban planners, we are partly responsible for the global problems, but also part of the solution. We can change the world when we prioritize the environmental challenges: the burning tundras, the floods. Take any industrial area near Munich: no green roofs, and no facade greening. But we could easily do it, right? Plus, we could use solar panels. Also, we increasingly live in individualized property, but we should be thriving in the commons. We need to change our buildings and we need to change the way we live.

In every planning assignment, we need to look at what we are planning and where we are planning it. In my opinion, the best thing is to have a deep understanding of the climate of the planning site as a specific area or neighborhood. For example, when you look at the climate of Munich, you can see heating effects of different urban patterns. With the effects of climate change, we know that block patterns will raise city temperatures by 6 percent. Linear city patterns will raise city temperatures by 5 percent, and medieval city forms will raise city temperatures by 11 percent. However, if we create green infrastructures with trees, we can lower city temperatures by 13 percent. Green roofs lower urban temperatures by 5 percent, and green facades by 10 percent (Centre for Urban Ecology and Climate Adaptation 2020, 40).

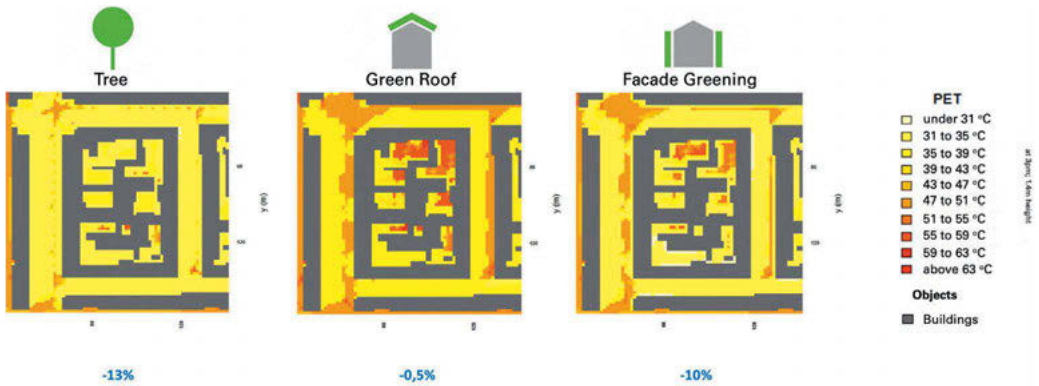


Fig. 14.2 Effect of green infrastructure, Munich grid simulation

Perhaps gardening the city is indeed a better way for building. The idea is not new. We do not have to build everything new; we can use the things we already have. I call this golden energy instead of gray energy. We have to build in a value-preserving way, with wood, combined with concrete. And open spaces are the key, the basis for all planning intentions. How can we get there? How many open spaces do we have in a city? How can we help people to stay in a city center, to have a good life in the city? We have all these green spaces in the city. Our office was invited for studies for Munich and Regensburg, and after we talked to the municipality, our suggestion for well-balanced green city spaces was: four square meters per person at a distance of 250 meters or a five-minute walking distance to six square meters per person at a distance of 500 meters or a 10-minute walking distance.

Usually, you have grids all over the city. In this grid from Munich (see Figures 14.1 and 14.2), you can see the cooling that will help us to make the city livable, with a healthy environment and high quality of life. Figures 14.1 and 14.2 are a re-creation of what cooling means: with evaporation and transpiration from trees, cooling improves. In the future, a strong city will be one that preserves water and uses it for everything.

The natural resources and the landscape must be the basis of all spatial planning and our design. The postulated *Bauwende*, with all its dependencies and effects, takes place in urban and rural spaces. Therefore, the cooperation between architecture, urban planning,

landscape planning, engineering sciences, and agricultural planning must be repositioned and implemented in a transdisciplinary manner. For this purpose, the institutional and technical fragmentation of the disciplines must be overcome, a transdisciplinary culture must be developed, and urban, mobility, and landscape planning must be consistently integrated.

A roof is approximately a fifth of a facade. We should urgently build roofs in better ways. Also, the facades can be one of the best things for biodiversity in cities. It is less expensive. The operation cost of a green facade is €1,300 a year, and the operation cost for a normal facade is €16,525 a year. [Elspeth MacRae] spoke about urban farming. It is one of the most important things we have to do. Let me turn to wetlands. Energy or food production goes hand in hand with the use of the country. Wetlands must stay wet. Currently, these areas continuously leak about 1.9 gigatons of CO₂ per year from the cultivation of corn or other agricultural production (Umweltbundesamt 2022). This is too dangerous for us. We know that the wetlands can absorb 700 tons of carbon per hectare per year. That is six times more than in forests (LUBW, n.d.). What can we do, and how can we do it?

If we state that species extinction, CO₂ emissions, water pollution, water shortage, and soil erosion are originally caused by the material cycle between city and country, and agricultural production has a significant impact on the earth's resources, it becomes clear that the agricultural production must also take place in the city, in the immediate vicinity of consumers.

Only if we manage to face the fundamental questions with a holistic approach in spatial planning can we approach the planning goal of preserving the world for all species. That means we have to define goals, develop plans, and get people excited about them. It is up to us to redefine and implement a future-proof, resilient development for cities and countryside.

Let me come to an end by telling you what I think we should do. These are the legal building regulations the city of Munich has intro-

duced: ... If you want to get permission to build, you have to have a green design at the planning stage. You have to design the pathways and driveways. You have to implement green roofs. Without a green roof, you cannot get a building permit. Without the combination of greening and photovoltaics, you will not get permission. If you do not have a green facade, you will not get permission. Also, for an underground garage, you have to do new things. Also for parking areas and for rainwater management. We should come together and say, we know everything, we know how we can deal with it. Let us make them law. I have been in my profession for 35 years and I was always fighting for such things to have regulations.

Finally, we have to talk about sustainability and put ecology first. If you do not put ecology first, this planet will not be fit for us to live on. The planet will survive without us. Since we are in the Vatican, I also have a suggestion that for every Catholic in the world, Pope Francis and [Cardinal Turkson] plant one tree in the next two years.

Thank you very much.

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