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Sheltering 10 billion people in a warming and resource-scarce world: challenges and opportunities

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Stellingen

Behorende bij het proefschrift

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1. Globally building sand use is likely to increase substantially in the coming decades without intervention, and dynamic stock models are a useful tool for estimating its evolution and reduction potential under future scenarios (This thesis, Chapter 2).
2. Demand-side strategies can markedly reduce carbon emissions of hard-to-decarbonize building materials, but these strategies may not be enough on their own if we are to meet ambitious emissions reduction targets (This thesis, Chapter 3).
3. Energy efficiency in buildings has significantly improved globally, and there remains a large potential for further progress, especially in non-residential buildings and lower-income regions (This thesis, Chapter 4).
4. More buildings and materials are likely to be at risk of flooding events with climate and land-use changes, and climate mitigation and flood protection are critical to reducing losses (This thesis, Chapter 5).
5. The world is changing, and so must we. Ensuring a safe operating space for humanity demands that we meet our basic needs for water, food, and shelter with greater efficiency and wisdom (Rockström et al., 2009; O'Neill et al., 2018).
6. Energy is the heartbeat of our civilization and the linchpin of the climate challenge solution (Smil, 2017; Lee & Birol, 2020). Renewable energy powers a brighter future.
7. Demand-side solutions - living, eating, and traveling more efficiently - could both largely mitigate climate change and increase human well-being (Creutzig et al., 2021). Sometimes less truly is more – while humans default to adding things to solve a problem (Adams et al., 2021).
8. The global climate crisis may be the defining moral issue of the 21st century (Levy & Jonathan, 2015). While the poor and younger generations are those who may suffer the most, wealthy people are both the cause and the solution to climate change (Chancel, 2022; Thiery et al., 2021). Shelter is a good example: while 1 billion slum dwellers are extremely climate vulnerable, the wealthy are those who have ever-expanding big homes (with high emissions), which at the same time represent major future emission reduction potentials (e.g., through limiting the growth of home sizes) (This thesis, Chapter 3).
9. Today's actions shape tomorrow's world. At the heart of our efforts is the achievement of development that meets the needs of the present without compromising the ability of future generations to meet their own (United Nations, 1987).
10. As it goes with the Rule of Threes, humans can survive three weeks without food, three days without water, three hours without shelter in harsh weather conditions, and three minutes without breathable air. This back-to-basics mentality may be the key for humans to survive the Anthropocene.
11. Life is short. Just think big, laugh big, and love big.

Xiaoyang Zhong

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