Sustainable Transformation of University Campuses. LivingLab RWTH Aachen University

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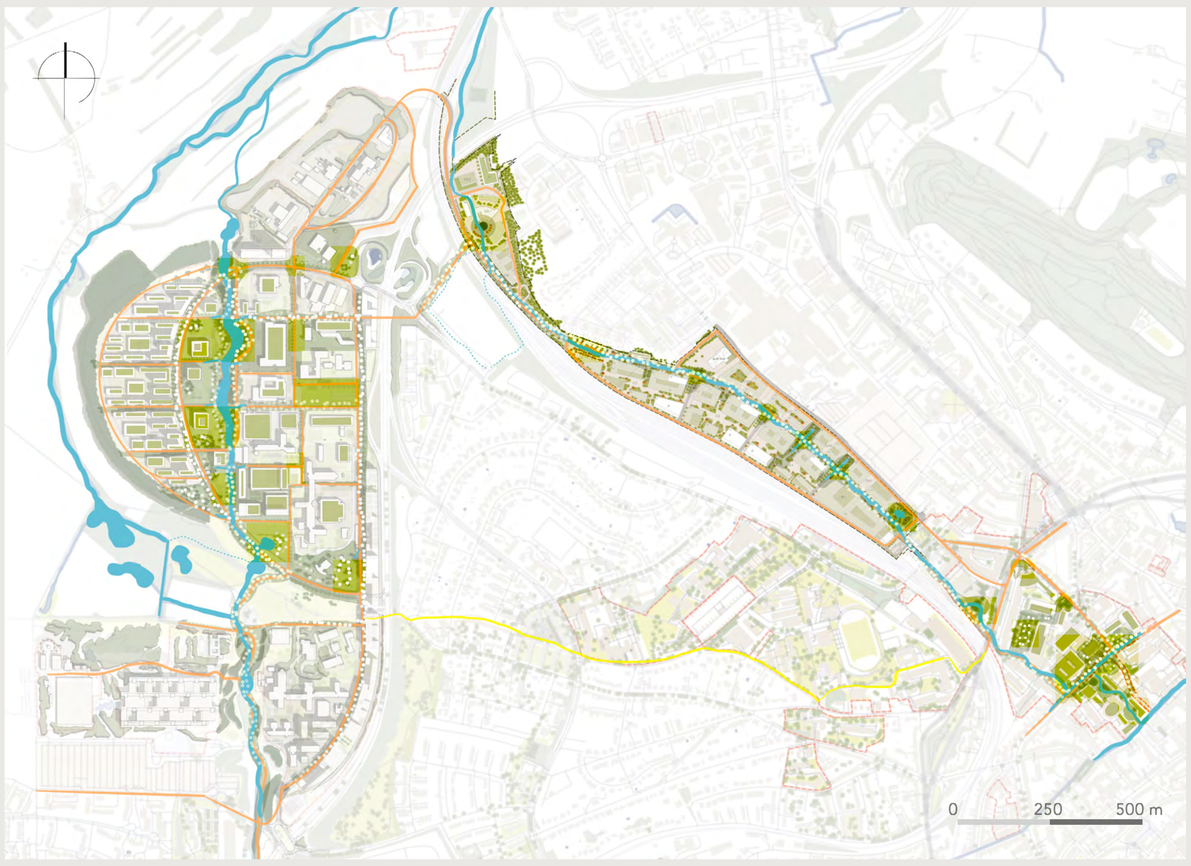
In the sustainability debate, university campuses take a crucial role with their physical settings, resources, and action-taking communities. Fostering environmental sustainability on campuses can provide physical settings combating climate change, drawing a mini-pilot city for future urban initiatives, as well as enhancing the use of campus spaces as communication platforms with comfortable outdoor use for its communities. This article studies how campus areas tackle climate change from environmental sustainability with physical settings supporting sustainability dialogues among campus societies. It investigates campus spaces through climate comfort and quality in use by the assessment of several physical elements and their reflections on inhabitants in the scales of the city, campus and its particular spaces in use. The research reviews RWTH Aachen University, Germany and the outcomes highlighted the campus requires multiple scales of initiatives and time planning for green campus adaptation. The concept of LivingLab visions realization of the co-creation and real-life experimentation for sustainable campus transformation of RWTH Aachen in prescoler approach, from city Aachen to university public spaces. Living Lab Strategies are inspired by Nature-based solutions (NBS) and explained under NBS Families, -Solutions and -Details in a toolkit. The toolkit of NBS-Applications also highlights the transition of multi-scalar and multidisciplinary approaches. The research presents spatial applications with the case study RWTH Aachen in different scales of campus initiatives and concludes with recommendations on the short, mid and long-term sustainable transformation goals. Through the research and design project, the aim is to encourage the university campuses in the sustainable transformation of climate change combat.



Vision. Figure 1.1. XL-L Scale. Master Plan / City Aachen and RWTH Campus

Background. Figure 2.1. XL-L Scale. 2040+ Premiumwege, Vision of Aachen Municipality

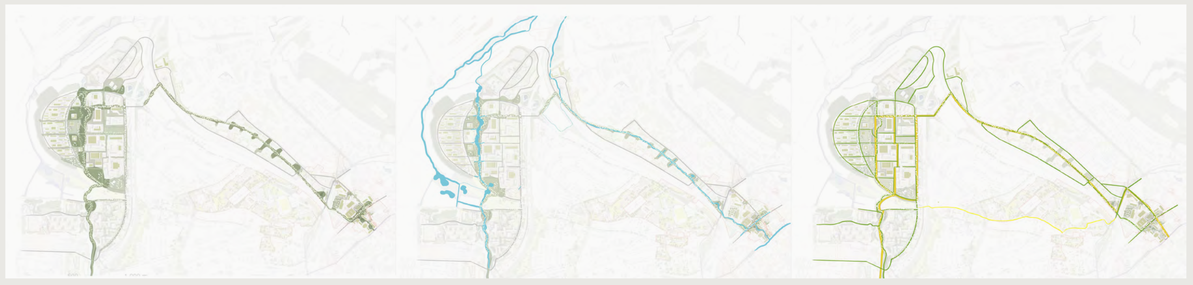


Figure 1.2. XL-L Scale. Green-Blue-Permeable Surfaces / City Aachen and RWTH Campus

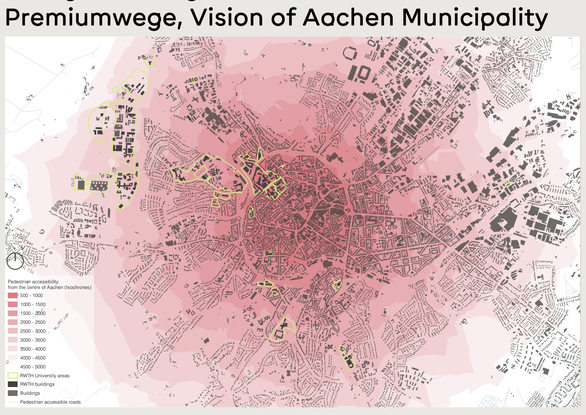


Figure 2.2. XL-L Scale. Pedestrian Accessibility / City Aachen

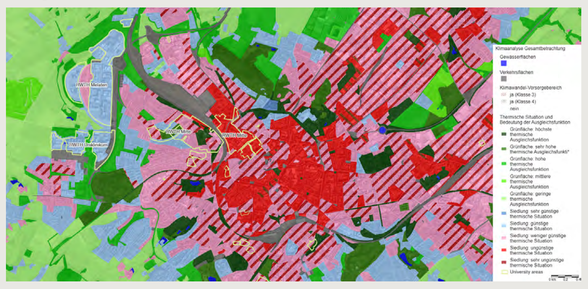
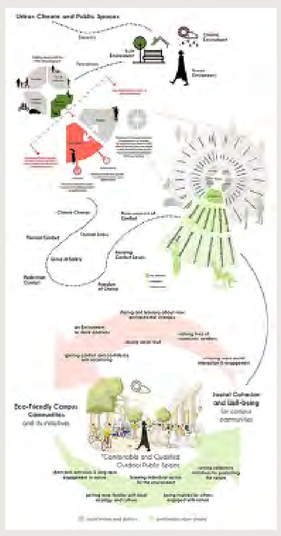


Figure 2.3. XL-L Scale . LANUV 2021 Climate Analysis / City Aachen

Analysis highlights the strong connection of urban-nature and climate comfort in different scale of city Aachen and RWTH Campus.



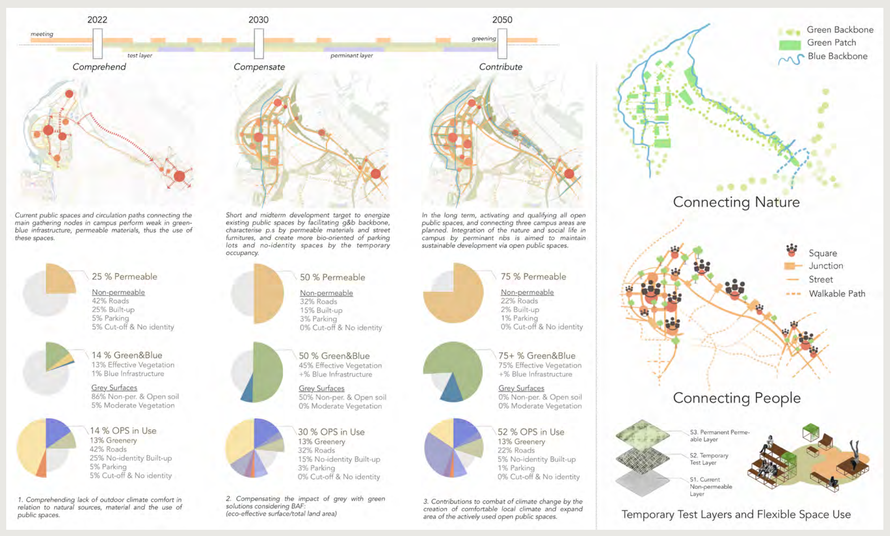


Figure 3.Goals short,mid and longterm planning. Figure 4. Goals through public space

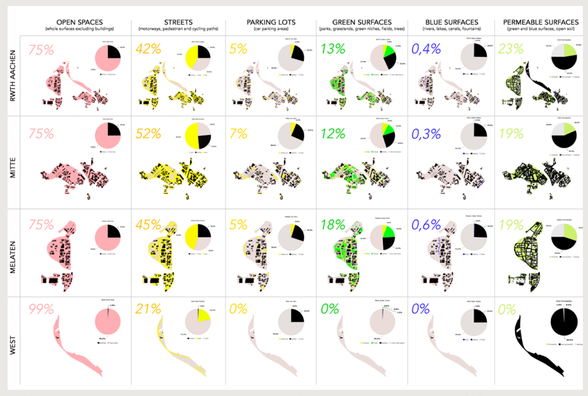


Figure 2.4. M Scale. Surface Permeability /Camous Mitte, Melaten and West

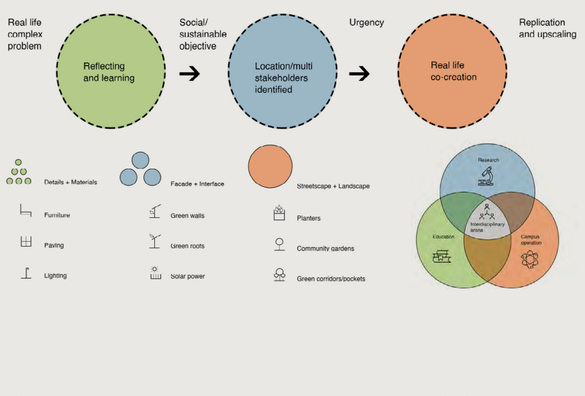


Figure 2.6. XL to XS Scale. Concept Living Lab and NBS Applications in University Campusses

Figure 1.4. M-S-XS Scale. NBS Applications / RWTH Campus Mitte and Talbot Parking Lot

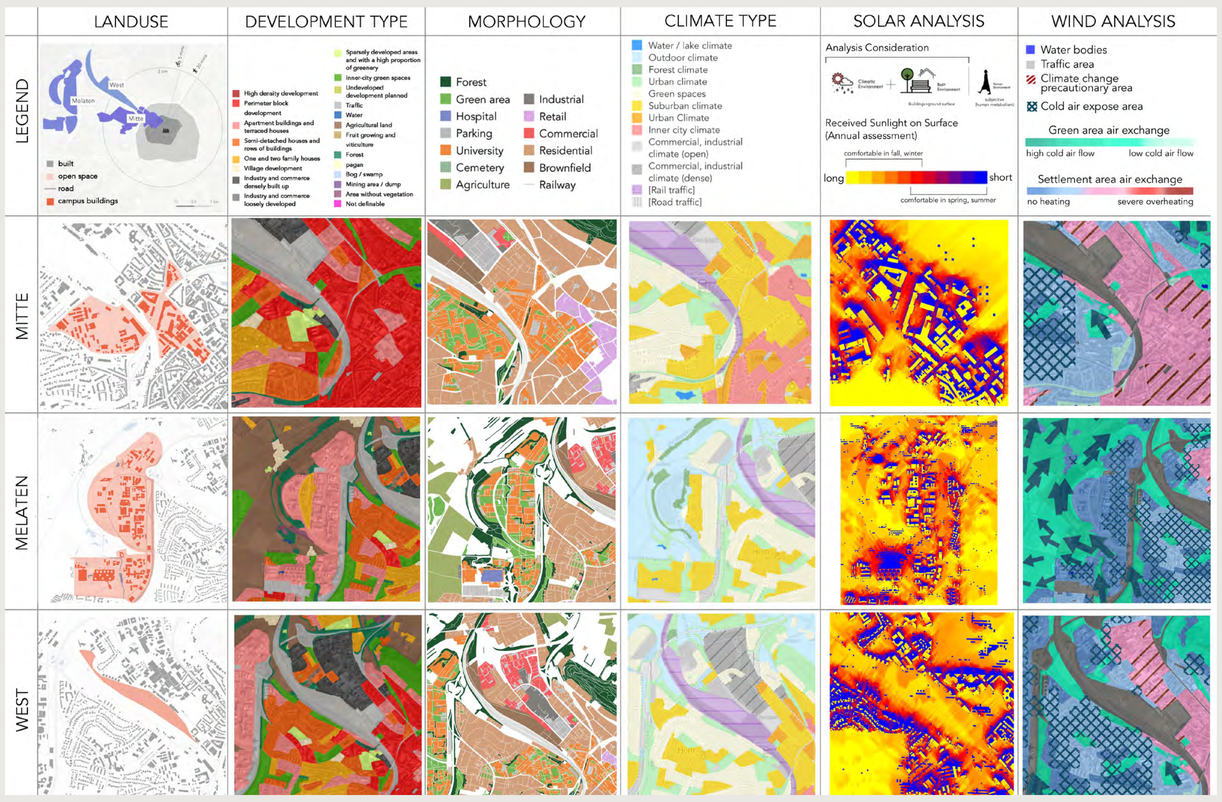


Figure 2.5. M Scale. Climate type, Weather, Morphology and Landuse Analysis / Campus Mitte, Melaten and West.

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