Living and Sustainability: An Environmental Critique of Design and Building Practices, Locally and Globally

1. Paper / Proposal Title:

Sustainable Architecture? How multi-cultural and interdisciplinary groups of master students achieve sustainable architecture in Shanghai

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Written paper

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5. Abstract (300 words):

Initiatives to build inclusive, healthy, functional and sustainable cities are often encompassed under concepts such as ‘smart city’, ‘sustainable urban development’, ‘experimental city’ or ‘eco-cities’. These terms usually refer to different visions, discourses and planning strategies that aim to achieve sustainable cities. Since sustainability addresses complex anthropogenic challenges by using approaches that are problem-driven and solution-oriented, solutions must often be negotiated on behalf of a multitude of interests and concerns. How does such negotiation happen in an interdisciplinary and multi-cultural environment, and what does the negotiation process mean for the sustainable solutions that are attempted agreed on and achieved? One avenue to see how sustainability is negotiated across disciplines and cultural background is to study the experiences made in an interdisciplinary and multi-cultural

summer school on “Sustainable Energy in Cities” held in Shanghai in July 2016. The summer school included 35 master’s students from ten different countries with mechanical and civil engineering, social science, industrial ecology, renewable energy and architectural disciplinary backgrounds. The students were divided into four groups with mixed disciplinary and cultural backgrounds, and with an equal gender distribution. Combining this heterogeneous set up with an experimental teaching method of ‘Experts in Teamwork’, all groups dealt with the same task: designing a research facility for a small group of researchers based on pristine wetland islands in Pudong, Shanghai. We study how the four groups argued that their design was sustainable by describing the processes in which the groups weighted categories such as the localization, visibility and impact, and technological choices, and what types of visualizations they came up with. By relating these processes to an already existing ‘smart-city’ sustainability discourse within city planning, the paper shows how the different design choices aimed to achieve different types of sustainability.

6. Author(s) Biography (200 words each):

Marius Korsnes is a post-doctoral researcher at the Department for Interdisciplinary Studies of Culture at the Norwegian University of Science and Technology (NTNU). He received his B.A in International Relations and M.Phil in Culture, Environment and Sustainability at the University of Oslo, Norway. His research is connected to the Research Centre on Zero Emission Buildings (ZEB) and the Centre for Sustainable Energy Studies (CenSES), and focuses on energy use in low energy buildings, comparing energy use and household practices in urban dwellings of China and Norway. Korsnes wrote his PhD within the field of Science, Technology and Society (STS) and studied China’s wind energy development. His PhD thesis is entitled ‘Chinese Renewable Struggles. Innovation, the Arts of the State and Offshore Wind Technology’. Korsnes has stayed in total nearly two years in China as part of his research.

Wang Yu earned his master of architecture in 2007 at Xi'an University of Architecture and Technology (XAUAT), China. During his study he participated in several research projects, which are related to heritage conservation. After his graduation he became a conservationist. In the meantime he was the teacher at XAUAT for teaching housing area planning and design. From 2009-2015 he went to Norway for his PhD study. During his study he published seven papers and he participated in several academic activities as well as teaching. After being titled doctor, he is working on some research projects which are linked with China e.g. NTNU-SJTU summer school on sustainable energy in cities.

Gabriele Lobaccaro is an architectural engineer working on urban planning strategies, energy building and architectural design decisions support using dynamic simulation tools and conducting environmental climate analyses. He graduated in 2008 in MSc Building Engineering and Architecture at Politecnico di Milano, Italy. He has a PhD in

Building Engineering developed partly in Politecnico di Milano and partly in Sydney, Australia, at UNSW University of New South Wales on a topic of «Solar Potential and microscale climate interactions in urban areas». Since 2013 he is a Postdoctoral Research Fellow at NTNU and member of research group NTNU Smart Cities.

Amin Moazami is a PhD Candidate at the Department of Civil and Transport Engineering, Norwegian University of Science and Technology (NTNU). He received his International Master of Science in Architectural Engineering at the Politecnico di Milano, Italy. His PhD research is focussing on energy retrofits for current and future climate scenarios.

Salvatore Carlucci is professor at the Department of Civil and Transport Engineering of the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. He received M.Sc. and Ph.D. degrees with honors from the Technical University of Milan, Italy, in 2005 and 2012 respectively. Carlucci is the responsible of a course on Building Performance Simulation. His research focuses on indoor environmental quality (thermal, visual and acoustic comfort, and indoor air quality), sustainable and low-energy buildings, and building performance simulation and optimization. He has contributed in several projects funded by the European Union belonging to the Seventh framework programme and the Horizon 2020 programme, and approved by the International Energy Agency (IEA). Carlucci has published more than 20 scientific papers and contributed to four books dealing with building performance simulation, building physics, thermal and visual comfort, mathematical optimization, zero-energy buildings and energy efficiency in buildings