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BOOK OF ABSTRACTS

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Urban street trees (UST) provide multiple ecosystem services (ESs) against multi-scaled problems facing urban areas associated with climate change, pollution, and mental health. Selecting the right UST species providing needed ESs, while matching urban plantation site requirements maximize ESs delivery that improves urban-life quality. Despite political and scientific recognition of the need for urban greening, urban resilience, and climate change fighting, the growth behavior of USTs, ESs prioritization from UST, and community preferences for UST species remain unstudied, particularly in the East-African context. Our meta-analysis of publications from East African countries showed; 55 papers about urban green infrastructure, 44 papers about urban ecosystem services, 35 papers about urban forestry, and, 8 papers about urban trees, and no papers about UST species selection were found, using SCOPUS, WoS, and PubMed databases. In this presentation, we will present an approach for how to identify suitable native tree species that would deliver needed ES for two cities in Ethiopia, Addis Ababa, and Hawassa. Through a multi-stakeholder workshop held in November 2022, prioritization of ES from UST, UST species recommendations, and UST challenges were identified for different Ethiopian cities including Addis Ababa and Hawassa. We also invited senior researchers to suggest suitable native UST via electronic email. The workshop results showed; i) the needed ESs from UST vary between cities, ii) ornamental value, ever-greenness, tree size, and year-round cooling capacity were used as UST selection criteria, iii) existing challenges of UST were identified. To increase our knowledge of the species identified at the workshop and from the senior researchers' recommendations; measuring functional traits (indicating species resistance to environmental stress), then laboratory-based measurement of drought and waterlogging threshold for selected species will be done. Finally, species distribution models for selected species under climate change and test-based measurements will be conducted for the best species only.

Ecosystem Services in the Milan South-Eastern Edges. An Analytical Proposal for Interdisciplinary Research

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Among peri-urban rural systems, human and ecological dynamics are tightly interweaved and need to be coupled when peri-urban land functional rehabilitation is addressed. In the light of such a premise, the here presented study intends to give a contribution on the understanding and accounting of the ecological and cultural functions and services that can be delivered by peri-urban agroecological participative approaches interlinked with agroforestry and landscape features multifunctional management practices. With this aim, landscape ecology and geographical studies are being led among the Milan south-eastern rural edges, in an

area interested by different agroecological projects and multistakeholder strategic visions. On the ecological side, the study was focused on a multi-scale analysis of the structural and functional traits of the landscape mosaic. Patches size, shape, diversity and connectivity indexes have been compared: i. framing the local scale peri-urban landscape system vulnerabilities and resilience traits; ii. featuring the pilot area context by comparing its current state to a project scenario where agroforestry multifunctional landscape features are further implemented, mitigating the landscape texture gaps. Some functional indicators have been mutuated from the landscape bionomics approach. These results have been integrated into a wider trans-disciplinary methodological framework that was set up with the aim of assessing the current and potential capacity of the area of implementing and generating both Ecosystem Services and Cultural Ecosystem Services. Indeed, a specific study is being led on the identification and evaluation of cultural and social spillovers generated within the regenerative agriculture and agroecology projects implemented in the area starting from 2019, through different qualitative research methods such as surveys, semi-structured interviews and community mapping. The evaluations emerged from the study already highlight multi-faceted positive contributions of the practices under study, and represent useful methodological premises for the further integration and implementation of the transdisciplinary assessment methodology, targeted for peri-urban systems peculiarities.

Tomatoes from the Waste-Water Treatment Plant - Scenarios for An Urban, Resource-Saving Agricultural System of the Future

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In times of increasing urbanization, growing sustainability awareness and increasing resource scarcity, feeding the world's growing population faces various challenges. In addition to climate change, the unavailability and limitations of fertilizer inputs are expected to have an impact on current and future agricultural production systems. The potential of resource recovery from wastewater for agricultural production and for linking wastewater systems to food production has not been sufficiently explored so far. Our aim is to investigate this innovative form of food production that can be integrated into urban structures to shorten supply routes and make food security more self-sufficient and sustainable. To this end, we are addressing the question of how agricultural systems can be designed to be climate-sensitive and resource-efficient, and at the same time be efficiently integrated into urban spaces. Together with stakeholders from science and practice, a multi-stage scenario study was conducted in 2021 to identify different influencing factors for future pathways of a resource-saving and urban agricultural system. Scenario stories were then formulated based on three selected key factors for different locations in the Ruhr area in Germany. As a result of the process five scenarios present opportunities and needs for action as well as potential risks and challenges for combining urban agriculture with wastewater treatment plants. The scenarios show