

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Dorien Tulp
Student number	4361679

Studio		
Name / Theme	Urban Ecology and Ecocities Design Lab	
Main mentor	Frits van Loon	Landscape Architecture
Second mentor	Arie Romein	Spatial Planning & Strategy
Argumentation of choice of the studio	<p>During my graduation I wanted to focus on transforming cities into holistic urban landscapes. The Urban Ecology and Ecocities Design Lab focuses on the transformation and design of urbanised areas towards a sustainable future by focusing on ecological sustainability and allows for a wide interpretation of this topic. This allowed me to develop my personal fascination for the connection amongst people and their environment and the possibilities for creating holistic urban landscapes that are based on a full ecosystem that includes humans.</p>	

Graduation project	
Title of the graduation project	The application of agroecology and urban food production through community activities towards the improvement of ecological and social structures
Goal	
Location:	Lombardijen, Rotterdam
The posed problem,	The population of the city of Rotterdam is estimated to grow almost 15% between 2018 and 2035 (CBS, 2019), while at the same time having to deal with the effects of climate change. The city will experience a rise in temperature, draught and extreme weather conditions that can lead to floods (Gemeente Rotterdam, 2019). Furthermore the National Monitor of Sustainable Municipalities 2018 (Nationale Monitor Duurzame Gemeenten 2018) denotes the city to be on the bottom in the ranking based on ecology and social and economic participation (2018). To tackle these

	<p>issues, the municipality of Rotterdam has produced a vision for the public space for 2019 to 2029 called "A healthy and green Rotterdam for everyone", in which they set the aim to focus on making the city more green, sustainable, inclusive and with a focus on slow traffic (2019). The UNHABITAT World Cities Report of 2020 shows that these socio-economic and environmental problems are visible in cities all over the world.</p> <p>I believe that opportunities for social integration, healthy living and environmental betterment in urban locations can be found in the application of Agroecology, which seeks ecological and social improvements through fair food production (FAO, 2018), and in the potential of community led initiatives. The ten elements of Agroecology, among others synergies, resilience, co-creation and a circular and solidarity economy, can contribute towards a sustainable urban Doughnut Economy. The Doughnut Economy, invented by Kate Raworth, makes a combination of the planetary boundaries framework (Steffen et al., 2015) and the twelve Sustainable Development Goals set by the United Nations in 2015, to create a model to find a balance between means of the planet and the needs of the people (2017).</p> <p>There is need for a dependable knowledge source about Urban Agroecology that highlights the different possibilities for development and a practical guide for fulfilling community initiatives potential for contributing towards the improvement of urban climate, social structures and healthy living.</p>
<p>research questions and</p>	<p>Therefore the research question that will be answered through the project is: How can the application of agroecology and urban food production through community activities be used to improve ecological and social structures within the urban sphere of Rotterdam?</p> <p>Sub questions are formulated on the basis of three themes, the organisational structures that make the agroecological initiatives possible, the (public) spaces that are available and the agroecological applications that can be used for environmental improvement.</p> <p>Organisational: (1) What types of organisational structures are applicable for maximising the success of initiatives working</p>

	<p>towards social and ecological improvements through urban agroecology and how can they be set up? (2) Who are the stakeholders that can be involved in the project and what are their characteristics and needs?</p> <p>Spatial: (3) What types of (public) spaces and spatial structures can be involved? (4) What features can be used to access the quality of the current and potential future (public) spaces?</p> <p>Agroecological: (5) What design tools/applications of urban agroecology can be formulated? (6) What synergies can be manifested by the integration of agroecology in the improvement of the urban climate?</p>
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<p>design assignment in which these result.</p>	<p>The design assignments that follow from these questions are focused on creating a practical guide with tools for the application by community initiatives, while also serving as an inspiration point for possible interventions and attitudes towards the urban environment.</p> <ul style="list-style-type: none"> - A toolkit for the application of urban agriculture with a focus on tackling environmental and social issues - An organisational structure that serves as a guide for community initiatives. - A portable exhibition focused on informing and activating public space users and governing bodies.
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Process

Method description

The research is focused upon the role of the community and the role of the individual within a larger urban eco-system, therefore, working from small-scale interventions will serve the basis for re-applicable tools and larger conceptual strategies. The research will be structured around the case-study of Lombardijen, a neighbourhood in the south of Rotterdam. The neighbourhood has large communal green spaces, a large variety of housing and space typologies, and has a less-fortunate community, making it an interesting site for analysis and the development of a wide variety of applications.

The project will be completed with the publication of a portable exhibition that focuses on transferring practical information and tools that can help inhabitants to take steps to improve their social, spatial, and natural surroundings. Furthermore the aim is to help government support inhabitants in these steps and provide a guide that can inspire to take action. Therefore one of the steps that needs to be taken during the project is to make the information accessible for a variety of people. To kick-start the exchange of knowledge, one of the elements of agroecology, literature studies will be done to create a base level of understanding of connected concepts, this base level of understanding will be extended by the use of practical examples from existing projects and will support the practical tools that

form the approach for community initiatives' engagement in tackling social, spatial, and environmental challenges.

For the research into the different organisational structures there will be a literature study and a case-study of existing organisations and initiatives. The focus will lay on community participation in food production and environmental improvement strategies to get a full overview of possible structures and lessons that can be learned from existing projects. Furthermore there will be a stakeholder analysis through the inventory of the different involved actors, and a questionnaire to access their wishes for future development. The possible agroecological applications will be researched through a literature study about the concept, a case-study on related projects, and research through design. The interventions will be searched within a variety of scales and time-spans with a focus on maintenance, good public space and the maximisation of synergies. The categories within the different interventions are based on the involvement levels of the users of the spaces and the difficulty in completing possible interventions. The current framework is formed around quick-wins (planned and executed within one month), slow victories (planned and executed within one year), and long battles (planned and executed over a longer period) and scales ranging from streetscape to neighbourhood to district.

Literature and general practical preference

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Altieri, M. A., & Nicholls, C. I. (2018). Urban Agroecology: designing biodiverse, productive and resilient city farms. *Agro Sur*, 46(2), 49–60. <https://doi.org/10.4206/agrosur.2018.v46n2-07>

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Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. London: Random House Business Books.

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., Vries, W. de, Wit, C. A. de, Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Rayers, B., & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223). <https://doi.org/10.1126/science.1259855>

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Research

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Gemeente Rotterdam. (2011). Vasthouden van regenwater in de openbare ruimte van Rotterdam: een verkenning naar praktische maatregelen op straatniveau. https://www.publicspaceinfo.nl/media/uploads/files/ROTTERDAM_2011_0004.pdf

Gemeente Rotterdam. (2012). Food & the City: stimuleren van stadslandbouw in en om Rotterdam. https://www.publicspaceinfo.nl/media/uploads/files/ROTTERDAM_2012_0005.pdf

Kleinhans, R.J., Doff, W., Romein, A., & van Ham, M. (2015). *Project Kennisontwikkeling Experiment Bewonersbedrijven: Eindrapportage*. TU-Delft, faculteit bouwkunde.

Lammerts, R., & Wentink, M. (2003). De sociale kwaliteit van Lombardijen. Utrecht: Verwey-Jonker Instituut.

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Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The graduation studio Urban Ecology and Ecocities has a focus on improving the quality of life and environmental performance through the lens of urban ecology, within this studio the project will use agroecology and the production of food as a tool for the improvement of the quality of life and the environmental status of cities. By designing possible applications in public space interventions that are developed through the interaction with its current and future users, its site and the ecosystem services.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

As previously discussed in the problem statement, the current urban landscape is dealing with a lot of problems on a socio-economic and environmental level. At the same time the cities keep growing, there is need for new ways to transform cities into sustainable urban systems. The project therefore focusses on creating tools for inhabitants of cities to take action in their public space to combat these issues and create a healthier living environment, there are many initiatives already started up but there is a need for a guide that makes scientific information, professional structure and social studies applicable in these endeavours.