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	Henry Leonard Endemann
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Studio		
Name / Theme	Planning Complex Cities / Chinese Cities	
Main mentor	Dr. Lei Qu	Spatial Planning & Strategy - expertise on regional planning and design, new planning models, and socio-spatial transformations in Chinese villages
Second mentor	Dipl.- Ing. Alexander Wandl, M.Sc.	Environmental Modelling - expertise on geospatial analysis, peri-urban areas, and design based on ecological qualities
Argumentation of choice of the studio	The graduation studio Planning Complex Cities seems like the most logical choice, because it combines profound theoretical and practical knowledge on global urbanization, metropolitan regions, and Chinese cities. Observations on socio-spatial disparities, which are the studio's chosen entry point, seems reasonable in order to narrow down the selection of theories and the analytical focus points without losing awareness for the essential challenges. The influence of globalization on cities and regions – which is the starting point for my observations of the conditions in the Jing-Jin-Ji megaregion - is one of the core interests of the research group. Megaregions can be described as an upscaled version of metropolitan regions, which is the main focus of the chair of Spatial Planning & Strategy, not only in the Planning Complex Cities studio. Eventually, the expertise on Chinese cities can support me in what will probably become one of the most crucial points of my research: familiarizing myself with a new, widely unknown context.	

Graduation project	
Title of the graduation project	A Compact Desakota? – Integration of peri-urban areas in the Jing-Jin-Ji Megaregion (China)

Goal	
Location:	Beijing, Tianjin, Hebei Province (China)
The posed problem	The formation of megaregions originates from the benefits of economic clustering (Brenner & Schmid, 2015; Florida, Gulden, & Mellander, 2008; Friedmann, 2005; Meijers, Hoogerbrugge, & Cardoso, 2018). Economic concentrations are connected by high-frequency and high-speed transport networks, which *bypass* areas of the region that are less densely populated or with lower economic performance (Graham, 2002). Fast rail networks criss-cross the region, but only stop at the most important centers, following their purpose of creating "seamless connections" (Graham, 2002, p.8). Furthermore, "nonessential" (Compilation and Translation Bureau, Central Committee of the Communist Party of China, 2016, p.107) and "non-capital functions" (Cartier, 2015, p.197) are being outsourced from the metropolitan centers towards peri-urban areas, occasionally even creating new centers with national relevance from scratch (as seen recently in the announcement of plans for the Xiong'an New Area (Wong, 2019)). This further increases both spatial fragmentation and the need for regional infrastructure networks. One of the results of these opposing dynamics is a structure of spaces which are "semi-industrialized, semi-agricultural" (Bolchover, Lange, & Lin, 2013, p.133). Terry McGee (2017) coined the term *"Desakota"* in the 1990s in order to describe this Asian form of peri-urbanity. On the one hand, it can be described as a "mixture of rural and urban activities" (p.20), but on the other hand this diffuse, conflictual landscape seems to be much more than just a combination of these two prototypes (Wandl et al., 2014). In this thesis, peri-urban (or peri-urbanity) will be used to describe spaces with the above mentioned characteristics, and *Desakota* (from Indonesian "Village-City") will be used to describe peri-urban spaces in an East-Asian or Chinese context. The fragmented condition of the *Desakota* is entrenched by current practices of spatial planning in China. A shift from master planning to strategic planning gave way for more flexible and dynamic urban development (Li, 2014). The new plans that are being worked out by municipalities and provinces support a polycentric spatial logic of centers which are connected by corridors. This model, which aims to promote polycentric development, seems to ignore in between spaces, and does not address the complexity of city-regional systems (Li, 2014; Tang & Kunzmann, 2008). The dispersed nature of peri-urban spaces also seems to make it hard to include them into conventional planning frameworks. What was once called the *hinterland* lost its original function: villages which used to be surrounded by collectively owned agricultural land are now surrounded by highways, residential highrises, and large-scale manufacturing industries. The Desakota is neither a productive rural provider of ecological and agricultural functions, nor a well-integrated part of the economic network of the megaregion. The province of Hebei is China's biggest producer of steel, which results in massive emissions from steel and iron industries and related coal burning (Cartier, 2015, p.188 f.). While authorities declared to fight the hazardous air pollution related to this (Stanway, 2018), the outsourcing of heavy industries from cities only seems to shift the locations of the problem. Particularly since 1978 – the beginning of the Reform and Opening-Up period - the emergence of peri-urban areas has been significantly caused by the dispersed transformation from rural into urban land for high-rise residential areas and industrial zones. For municipalities, this is a profitable move, since it allows them to transform collectively owned farmland into land that they can lease to developers (Friedmann, 2005; Miller, 2012). This rezoning happens in rather opportunistic ways, hardly considering the relation to existing urban areas. Eating up farmland in this dispersed [almost random] way threatens the existing agricultural structures in two ways: firstly, the villagers who owned the farmland and worked on it, are losing their source of income. Secondly, the loss of

	farmland is problematic for the already very limited capability of China to feed its population through its own food production ("feeding one fifth of world's population with less than 10 percent of world arable land" (Food and Agriculture Organization of the United Nations, 2019)). The extreme emissions from industries, the loss of economic perspective for villagers, and the diffuse, fragmented, and conflictual spaces in the Jing-Jin-Ji Desakota lead to a general decrease of the quality of life in these areas. These consequences can mostly be summarized as forms of decaying environmental and social sustainability, significantly caused by the metropolitan strive for economic prosperity. **Problem statement** Regional networking of economic centers creates peri-urban areas that are bypassed physically, and ignored in strategic planning. They seem to be harmed by the negative externalities of metropolization without benefiting from the economic opportunities of the megaregion. Consequentially, environmental and social structures are in decay, leaving people without perspective in highly polluted and fragmented urban landscapes.
Research questions	**Main Research Question** How can the spatio-economic specificities of peri-urban areas form the foundation for their integrated and compact development in order to enhance the quality of life in the *Desakota* by creating new socio-economic perspectives, counteracting fragmentation, and decreasing air pollution in the Jing-Jin-Ji megaregion? **Sub Research Questions** 1. Defining former and current roles of peri-urban areas - What are the driving forces for the emergence of the Desakota? - What are the functional and socio-spatial interrelations between the Desakota and the major metropolitan centers of the Jing-Jin-Ji megaregion? 2. Proposing new roles for peri-urban areas - How can the dispersed and fragmented reality of the Desakota inform a new definition of compactness and a selective form of functional integration? - How can integrated and compact peri-urban spaces support the restructuring of production patterns in the region according to the designated goals of cutting emissions in the province of Hebei? - How can integrated and compact peri-urban spaces give new perspectives to villagers through enhancing local economic opportunities, and counteract the decay of the quality of live in villages and increase social sustainability?
Design assignment in which these result.	The aim of this thesis is to seek new "roles" for the Desakota and its relation to the Jing-Jin-Ji megaregion in order to sustainably (re-)integrate these areas into their metropolitan context. To define these new roles, it is essential to understand what the role of the hinterland of Chinese cities used to be, and what the current role of peri-urban spaces in the context of megaregions is. Based on the specificities of the Desakota, an integrative and proactive planning framework should be the medium to communicate desirable transformations and their implementation. The essential foundation for its content should be the

	aspiration for redefined principles of urbanism. Conventional paradigms have to be adjusted to the new scales and challenges posed by the formation of megaregions. In this study, especially the paradigm of the Compact City and the principle of urban/ regional integration will be investigated in terms of their capability of supporting sustainability in a mega-regional context.

Process

Method description

The process is initiated through an in-depth analysis of the Jing-Jin-Ji megaregion, and its contextualization within China's (historical) development. This allows a first problematization of current processes in the megaregion in relation to the Desakota. The analysis consists of:

1. Mapping: analysis and assessment of the distribution of infrastructures across the region; definition and location of spatial characteristics of peri-urban areas in the region (based on the method developed by Wandl et al. (2014) for "Territories-in-Between").
2. Reading/ Writing: review of literature and policies that delineate a legal framework for land-use transformations and creation of a historical narrative that summarizes important shifts in the history of China, especially since the foundation of the Peoples' Republic of China in 1949.

The outcome of this first phase is the "Desakota S.W.O.T", which summarizes the findings of the analysis and makes statements on the strengths, weaknesses, opportunities, and threats for the transformation of the Desakota in Jing-Jin-Ji. The S.W.O.T also informs the development of a preliminary vision.

In order to move from this rather conventional and quantitative way of defining an analytical basis towards concrete proposals for the transformation of the Desakota in Jing-Jin-Ji, the second phase starts with an experimental sequence of projections, which should lead to spatial visualizations of possible (speculative, extreme) futures of the Desakota. This will mainly be achieved through:

1. European Planning Icons as examples and inspirations for the development of visions and transformations. As an entry point to the projection of regional ecological spaces, three iconic European green plans are taken: The Green Heart of the Randstad, the London Green Belt, and the German Emscher Park. The applicability of their principles and spatialities in the context of Jing-Jin-Ji will be tested. The choice of European examples only is based on the personal and academic background of the author.
2. "What if…?" questions, which open up the possibility to develop scenarios that are not necessarily bound to desired or expected changes, but rather to possible outcomes of changes that are slightly more extreme. The "answers" to the questions should be spatial visualizations of slightly exaggerated futures, which might not make them very realistic, but might underline specific problems.
3. Maximization method, which offers a way of balancing different requirements by estimating the spatial requirements of individual systems. The method consists of four main steps: inventorization, maximization, optimization, and integration. Especially the second step is interesting for this thesis. Based on important systems and layers that have been identified, the idea is to find principles that support the optimization of one indicator of compactness and/ or integration.

The next step is to overhaul and align the possibilities, limitations, and desired outcomes that have been defined until here. This process will be carried out during the scheduled three weeks of fieldwork, which will mainly include:

1. Interviews: validation of the framework of policies and regional/ local conditions in order to clarify the viability of desired transformations. The main interviewees should be academics in Beijing who are experts on Chinese regional development and policy-making.
2. Observations: exploration and documentation of certain areas in the region in order to define existing and missing spatial qualities, and broaden the horizon for what these spaces could become.

Subsequently, possible and desired outcomes inform a series of test designs, which are supposed to provide prototypical and realistic proposals for transformations on small scales. The intended outcome of the second phase is called "Desakota Strategies", a series of multi-scalar strategies that propose regional structures based on local transformations. This phase also offers an opportunity to further develop the vision.

The two phases and the related steps described here build the basis for a Planning Framework, which presents dynamic guidelines, principles, and policies for a sustainable megaregion with a well-integrated Desakota, fine-tuned through reflections on Compactness and Integration.

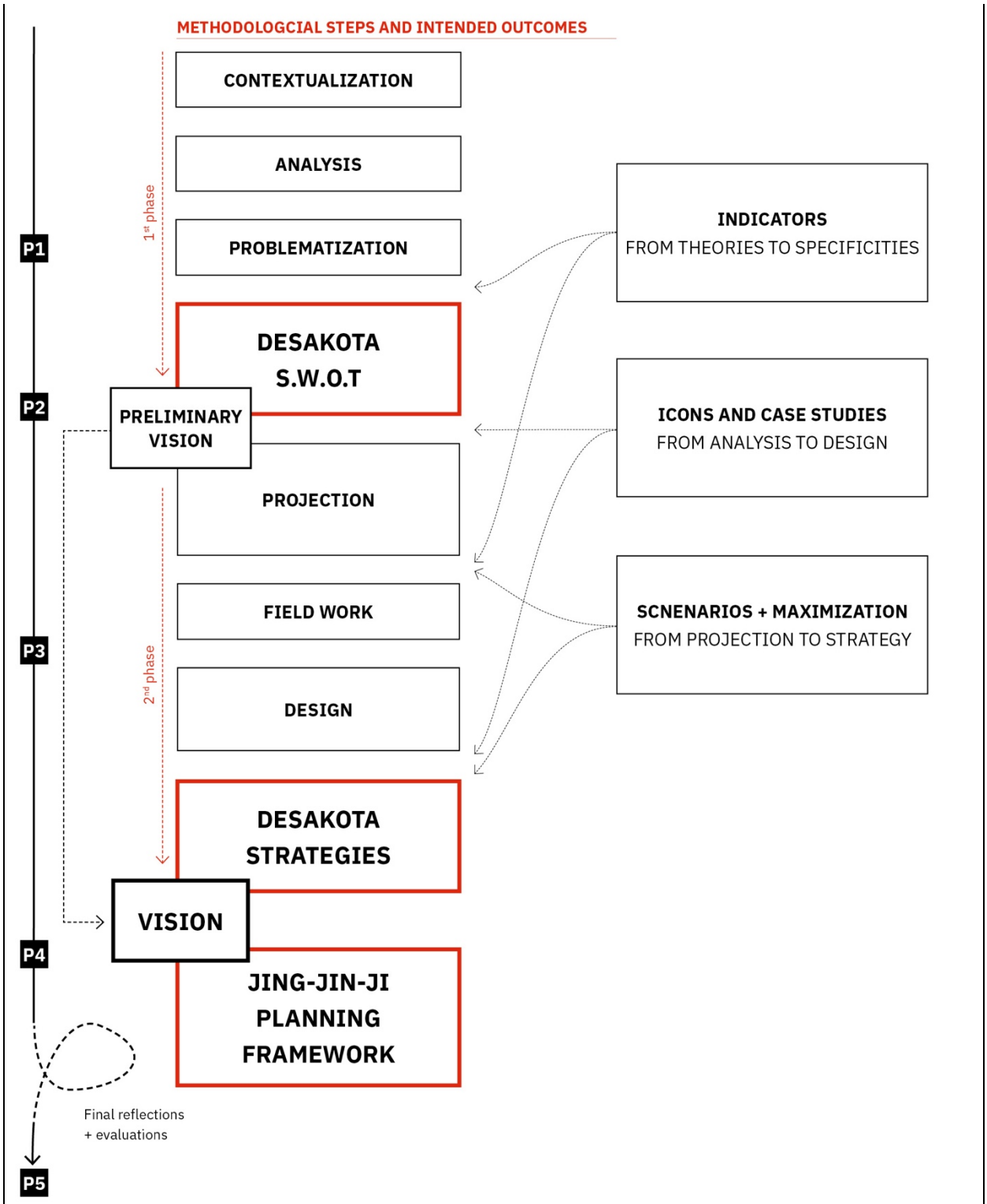

Fig.1 The methodological process, including a possible timeline based on the five presentation moments; source: author.

Literature and general practical preference

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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 main agenda that my thesis, the graduation studio Planning Complex Cities, the master track Urbanism, and the Faculty of Architecture and the Built Environment of the TU Delft have in common is the aspiration to make contributions to more sustainable environments through a combination of research and design and through questioning conventional principles of the profession(s). Furthermore, related students and professionals share the goal to create globally applicable and comparable research.

The department of Urbanism positions itself at the intersection of different core themes of the faculty. The combination of urban design, landscape architecture, and spatial planning builds up on crucial factors for sustainable development. As those cities and regions are growing all over the world, the discipline has to adapt to these changing conditions. The graduation studio Planning Complex Cities focuses on processes of metropolization and mega-metropolization, which are a decisive part of contemporary urban growth.

One of the key phenomena that my thesis deals with is the formation of megaregions. Megaregions mark a new scale of urbanization, and are therefore highly relevant for the processes mentioned above. The thesis might also give answers to the question how megaregions change the profession of urbanists, architects, and designers. Another key characteristic of megaregions is their importance in a global network of economic nodes. This relates to my thesis' claim to contribute to globally comparable research. This claim is shared by students and staff of the department of Urbanism and the Faculty, not only through the ethnic diversity of people, but also through the intention to explore unknown contexts, and make use of the diverse geographical and cultural expertise present at this university.

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

Since the 1950s, a large number of conceptualizations of peri-urbanity appeared all over the world (Wandl, Nadin, Zonneveld, & Rooij, 2014, p.53): (amongst others) the German *Zwischenstadt*, the Dutch *Tussenland*, the Italian *Città diffusa*, the North American *Suburban Sprawl*, and of course the Indonesian *Desakota.* They all try to conceptualize the notion of in between spaces, and often try to emphasize the importance of understanding those spaces as more than just "a gradient of urban to rural or vice versa" (Wandl et al., 2014, p.52). Still, there hardly seem to be any hints at how peri-urban areas could be transformed in order to improve their social, environmental, or economic performance. Terry McGee (2017) promotes "the creation of sustainable [...] systems that emphasize local production and consumption" (p.25) for the Chinese Desakota, which offers a vague direction for development goals. Still, **in addition to a conceptualization, a *problematization* of peri-**

urbanity seems to be desirable (not in the sense of how to *prevent* its creation, but rather how to *improve* its existence). Furthermore, a comparison of global forms of peri-urban spaces can help to re-position the Desakota and find new ways of transforming it.

The societal relevance of "filling that gap" lies in improvements for urban-rural relations both in terms of social inclusivity and environmental sustainability. Brenner and Schmid (2015) describe how a "restructuring and repositioning of traditional 'hinterlands'" (p.152) is taking place. As the hinterland is radically transformed, becoming much more than the producer of a surplus for the flourishing city, the functional potential of these spaces needs to be reconsidered. They should contribute to the prosperity of the region, and still be liveable spaces for its inhabitants. Peri-urban areas are a decisive element for sustainable regional development.

Focusing on peri-urban spaces can reveal inequalities and disparities that are everyday realities for a large - and increasing - number of people. It is not necessarily the poorest or most vulnerable parts of the society, but simply a group that seems to be underrepresented in current (planning) discourses. The social and functional improvement of those areas should aim at improving the quality of life for its old and new inhabitants. Furthermore, the improvement of the relation between dense urban centers and peri-urban areas can contribute to a more inclusive and collective society.