

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	Jing Tian	
Student number	6018289	

Studio		
Name / Theme	Planning Complex Cities	
Main mentor	Ana Petrović	Urban Studies
Second mentor	Diwen Tan	Spatial Planning & Strategy
Argumentation of choice of the studio	<p>My research topic focuses on balancing economic, social, and environmental aspects in karst tourism. I apply the PCC (Planning Complex Cities) studio because it offers a multidisciplinary platform to deeply explore and address complex social and environmental issues.</p> <p>Research Topics within the PCC Studio Framework: My research within the PCC studio will focus on two key areas: stakeholder engagement and institutional adaptation in karst tourism, and the integration of environmental protection with economic development in karst tourism planning. The first area aims to investigate how different stakeholders, including government, local communities, businesses, and environmental organizations, can collaborate to achieve sustainable tourism development. The interdisciplinary approach of the PCC studio will provide valuable insights into how policy and planning can adapt to local institutional contexts to ensure balanced development. The second area explores strategies to harmonize economic growth with environmental sustainability in fragile karst landscapes. The PCC studio's focus on complex urban challenges aligns with my interest in understanding spatial planning's role in mitigating tourism's environmental impacts while fostering local economic opportunities.</p> <p>Reasons for Applying to PCC Studio:The PCC studio allows me to explore how institutional changes can create more sustainable and equitable urban environments. I am very interested in understanding the connection between spatial planning and policy. The PCC studio brings</p>	

	together ideas from various fields such as design, planning, political science, and geography. This broad perspective will help me better understand and solve complex issues in urban planning.
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Graduation project	
Title of the graduation project	<p>‘HARMONY IN THE KARST’</p> <p>How to balance tourism development with environmental and socio-cultural sustainability in Puzhehei karst area.</p>
Goal	
Location:	Puzhehei, Yunnan, China
The posed problem,	<p>As a typical karst landscape area, Puzhehei has recently attracted large numbers of tourists due to its unique natural scenery and rich ethnic cultural heritage. However, the rapid development of the tourism industry has brought challenges of overtourism. The current development model focuses too much on economic growth, neglecting the carrying capacity of the natural ecosystem and the protection of cultural heritage. This has resulted in environmental degradation, cultural homogenization, and marginalization of local communities.</p> <p>Moreover, the ecological system and cultural heritage in Puzhehei are highly vulnerable, particularly in the context of climate change, which exacerbates the pressure on these resources. Therefore, the motivation of this research is to explore how planning interventions can balance tourism development, ecological protection, and Social-cultural preservation, particularly through adaptive planning to enhance the climate resilience and protection of cultural heritage in the region.</p>
research questions and	<p>Main Research Question:</p> <p>How can sustainable tourism be developed in karst landscape areas to mitigate the ecological and socio-cultural impacts of overtourism?</p> <p>Sub-question 1: Ecological Consequences and Mitigation Focuses on understanding and mitigating the direct ecological consequences of overtourism in the karst landscape.</p> <p>1.1 Identification of Ecological Impacts: What specific ecological damages has overtourism caused in Puzhehei’s karst ecosystem, including impacts on water resources, soil erosion, vegetation health, and biodiversity loss?</p> <p>1.2 Assessment and Monitoring Techniques: What practical methods (e.g., ecological monitoring, remote</p>

	<p>sensing, environmental impact assessments) are most effective for identifying and quantifying these ecological impacts?</p> <p>1.3 Mitigation Strategies: What are the key environmental management approaches (e.g., ecological buffer zones, tourist flow control, waste management) that could directly reduce or prevent the continuation of these impacts?</p> <p>Sub-question 2: Carrying Capacity Assessment and Management</p> <p>Aims to define and manage the limitations of the karst landscape's ecological carrying capacity to guide sustainable tourism practices.</p> <p>2.1 Definition of Ecological Carrying Capacity: What is the ecological carrying capacity of Puzhehei's karst landscape, and how can it be measured and analyzed using visitor data and ecological metrics to ensure sustainable tourist flow?</p> <p>2.2 Integration into Tourism Planning: How can findings from carrying capacity assessments be seamlessly integrated into planning and management processes to guide responsible tourism development?</p> <p>2.3 Dynamic Capacity Management: What adaptive measures (e.g., seasonal visitor caps, real-time monitoring) can be used to adjust tourism volume, ensuring that tourist numbers align with the ecological resilience of Puzhehei's landscape?</p> <p>Sub-question 3: Cultural Impact and Preservation</p> <p>Focusing on the impact of overtourism on the culture of ethnic minorities in Puzhehei and cultural preservation measures.</p> <p>3.1 Impact on Cultural Heritage and Community Lifestyle: How does overtourism affect the traditional culture and lifestyle of ethnic minorities in Puzhehei?</p> <p>3.2 Role of Cultural Ecosystem Services: How do Cultural Ecosystem Services (CES) support tourism development, and in what ways can they enhance cultural heritage protection?</p> <p>3.3 Cultural Safeguarding Measures: What measures are necessary to prevent tourism development from undermining the cultural identity of local communities?</p> <p>Sub-question 4: Community Involvement and Collaborative Governance</p>
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	<p>Focusing on the role of community participation and collaborative governance models in managing overtourism.</p> <p>4.1 Promoting Community Participation: What strategies can effectively encourage community involvement in tourism, ensuring that local communities gain economic and social benefits?</p> <p>4.2 Structuring Collaborative Governance: How can collaborative governance models be designed to include local governments, businesses, communities, and tourists in managing overtourism?</p> <p>4.3 Facilitating Stakeholder Cooperation: What mechanisms can promote stakeholder cooperation to balance ecological protection, cultural preservation, and economic development in tourism areas?</p>
design assignment in which these result.	<p>Firstly, by examining the historical development of karst tourism destinations, I aim to analyze how these areas have evolved from underdeveloped regions to popular tourist destinations. This includes exploring the socio-economic and spatial transformations that have taken place, and how policies have influenced these changes. Through case studies, I will identify patterns and lessons that can inform future planning strategies to balance tourism with environmental and cultural preservation.</p> <p>Secondly, spatial analysis will be conducted to evaluate the current challenges faced by karst tourism sites. The theoretical framework will define the concepts of sustainable tourism within the context of karst tourism, providing insights into potential development pathways that align with ecological and social goals.</p> <p>Lastly, a socio-economic analysis of a representative karst tourism site will be carried out to propose a comprehensive vision for its future development. This vision will include both design strategies at the local scale and planning recommendations at the regional scale.</p> <p>Design: The design proposal will address the unique environmental and cultural characteristics of the site, proposing sustainable tourism infrastructure and strategies to preserve local heritage.</p> <p>Planning: The strategic plan will encompass spatial and social aspects, such as enhancing connectivity between tourism hotspots and surrounding communities, and fostering economic opportunities that benefit local residents. The goal is to create an inclusive and resilient</p>

	tourism model that integrates environmental sustainability with economic viability.
Process	
Method description	
<p>Literature Review: This section explores key theoretical perspectives including the philosophical insights on harmony between humans and nature, the ecological functions of karst landscapes and their role in sustainable tourism, the evolution of eco-tourism practices, and the concept of ecological carrying capacity in relation to sustainable development.</p>	
<p>Historical Analysis: Cognitive map analysis is employed to investigate historical perceptions and the spatial evolution of tourism activities in Puzhehei, providing insights into past development patterns and their influence on the present landscape.</p>	
<p>Global Comparative Case Study: A comparative analysis of global karst tourism destinations such as Slovenia’s Postojna Cave, Croatia’s Plitvice Lakes, and Vietnam’s Ha Long Bay will be conducted to identify both unique and common challenges faced by Puzhehei within a global context.</p>	
<p>Multi-Scalar Mapping: Geographic Information Systems (GIS) will be utilized to analyze Puzhehei’s ecosystem, cultural heritage distribution, and tourist flows. This analysis aims to assess tourism pressures and carrying capacities across different areas, informing future planning strategies.</p>	
<p>Fieldwork: Field studies in Puzhehei, Yunnan, will provide empirical data for the research. This will include site observations to document village conditions, infrastructure, and tourist routines and patterns. The fieldwork will also involve assessing seasonal variations in tourist influx, evaluating their impact on local resources, and identifying potential intervention points.</p>	
<p>Interviews and Participatory Observation: Semi-structured interviews with local communities, tourism enterprises, government officials, and tourists, combined with participatory observation, will be conducted to understand stakeholder interactions, conflicts, and opportunities for collaborative governance.</p>	
<p>Mock Roundtable Discussion: A simulated discussion among different stakeholders will be held to explore negotiation processes and collaborative strategies for sustainable tourism planning.</p>	
<p>Stakeholder Analysis: Stakeholder workshops will be organized to address tourism development challenges. Decision-making models will be used to facilitate collaborative governance by aligning stakeholder demands and responsibilities.</p>	

Literature and general practical references

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Gould, R. K., Bremer, L. L., Pascua, P. A., & Meza-Prado, K. (2020). Frontiers in cultural ecosystem services: Toward greater equity and justice in ecosystem services research and practice. *BioScience*, 70(12), 1093-1107.

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Antić, A., Marković, S. B., Marković, R. S., Cai, B., Nešić, D., Tomić, N., ... & Hao, Q. (2022). Towards sustainable karst-based geotourism of the mount Kalafat in southeastern Serbia. *Geoheritage*, 14(1), 16.

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bin Yusoh, M. P., Mapjabil, J., Hanafi, N., & bin Muhammed Idris, M. A. (2021). Tourism carrying capacity and Social Carrying capacity: A literature review. In *SHS Web of Conferences* (Vol. 124, p. 02004). EDP Sciences.

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 topic of my graduation project reflects the core responsibility of urban planning within my master track, which is to collaborate with diverse stakeholders involved in the development of karst tourism areas. Throughout my study, I have identified conflicts and sought to mediate among stakeholders to achieve a balance for future transformations. The PCC studio provides a platform that integrates spatial planning and governance schemes, emphasizing the need for institutional support in evaluating urban design proposals. Urban planning as a discipline encompasses multiple layers, including landscape and built environment considerations, making my research approach a holistic socio-economic and spatial analysis to propose sustainable tourism strategies.

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

Karst tourism destinations face significant challenges in balancing economic growth with environmental and social sustainability. Existing research on tourism in such landscapes primarily focuses on ecological and economic aspects, with limited attention to spatial planning and governance. My study aims to bridge this gap by integrating social and spatial analyses to explore alternative planning strategies. Karst landscapes are culturally significant and often inhabited by vulnerable communities, requiring thoughtful integration of local values into tourism development strategies.

The commodification of natural heritage and the influx of tourism-related development often lead to environmental degradation and socio-economic displacement. My research aims to propose an inclusive development framework that preserves the unique environmental and cultural characteristics of karst areas while promoting sustainable economic opportunities. This approach can serve as a valuable reference for policymakers and planners in addressing similar challenges in other environmentally sensitive regions.