

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

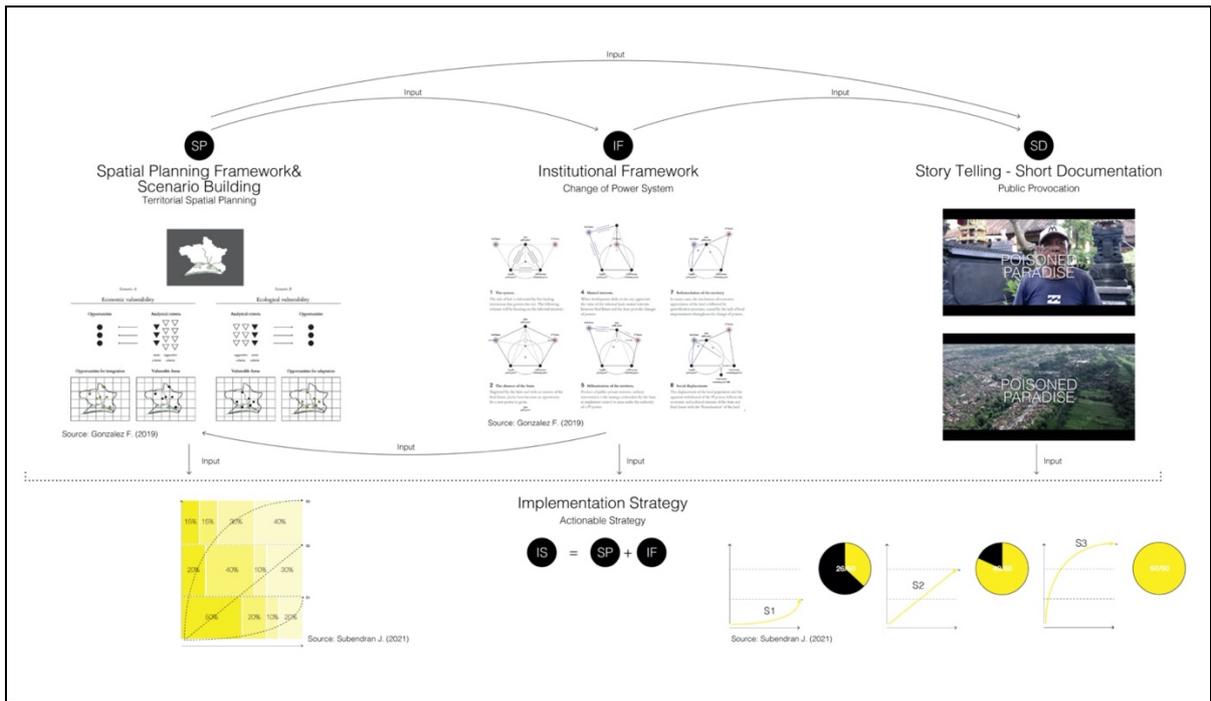
Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

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

Personal information		
Name	Julia Sumarthinningrum Dahlan	
Student number	5219086	
Studio		
Name / Theme	Planning Complex City/ Complex Regions in Transformation	
Main mentor	Roberto Rocco	Spatial Planning and Strategy
Second mentor	Raquel Hädrich Silva	Urban Design
Argumentation of choice of the studio	<p>I am deeply concerned about the spatial injustice that happened in my hometown, Bali, Indonesia. Over the past decade, the island has faced an accumulation of competing spatial claims driven by overtourism and unchecked development. These dynamics have resulted in a range of interconnected challenges, including water shortages, environmental degradation, local displacement, erosion of indigenous cultural practices, and growing distrust in government institutions. Unfortunately, it is the local population that bears the greatest burden from these developments. Recognizing the complexity and multifaceted nature of these issues, I aim to explore this subject further through my thesis project. Addressing these challenges requires a systemic and multi-layered approach that integrates spatial planning and design. As a spatial planner and designer, I intend to place a particular emphasis on institutional frameworks, utilizing design as a tool for achieving more equitable outcomes.</p> <p>Given this context, I see the Planning Complex Cities studio as an ideal setting to refine my understanding and approach. The studio's focus on addressing urban complexity, alongside its emphasis on rethinking the institutional, and integrated strategies, aligns closely with my research interests and aspirations. I believe it will offer the critical tools and methodologies necessary to address my thesis topic, allowing me to contribute meaningfully to the discourse on sustainable and equitable urban development.</p>	

Graduation project	
Title of the graduation project	Stream of Contention: Pathways to Spatial Justice in <i>Subak's</i> Hydrosocial Territories
Goal	
Location:	Bali, Indonesia
The posed problem,	Bali's rapid development, driven predominantly by tourism, has led to rapid acceleration of land conversion, exacerbated water shortages, intensified environmental degradation, deepened social inequalities, and eroded indigenous cultural practices. These challenges result from planning, policies, and governance frameworks allowing spatial injustice to persist, relying heavily on a single tourism industry. This unchecked development threatens Bali's heritage landscape, particularly the <i>Subak</i> Hydrosocial Territories, which embody ecological sustainability, cultural heritage, and community resilience. This situation underscores the need to critically reevaluate spatial planning and governance practices to enable spatial justice.
Research questions and	<p>Main Research Question: How can spatial planning and governance be reconstructed to enable spatial justice in <i>Subak's</i> Hydrosocial Territories?</p> <p>Sub-Research Question:</p> <p>a. Expose (Understanding Dynamics and Challenges)</p> <ol style="list-style-type: none"> 1. How have tourism-driven development generate spatial injustice in <i>Subak's</i> Hydrosocial Territories? 2. What are <i>Subak's</i> indigenous practices recognized in current spatial planning and governance, and how do they showcase capacities for managing resources and fostering spatial justice? <p>b. Propose (Designing Solution)</p> <ol style="list-style-type: none"> 3. What principles of spatial justice can be applied in spatial planning and governance to protect the significance of <i>Subak</i> landscape and its communities? 4. How to integrate <i>Subak's</i> indigenous practice into spatial planning and governance to enable spatial justice?

	<p>c. Politicize (Actionable Strategy)</p> <p>5. What actionable strategies can transform the tourism-driven development model in <i>Subak's</i> Hydrosocial territories through spatial and governance interventions?</p> <p>d. Reflect (Broader Impact)</p> <p>6. What lessons from <i>Subak's</i> Hydrosocial territories can inform broader development in other parts of Indonesia or similar contexts globally?</p>
<p>design assignment in which these result.</p>	<p>The Outcome of my research are divided in three stages based on my sub research question:</p> <ol style="list-style-type: none"> 1. <u>To Expose Outcome</u>: Spatial Injustice Analysis on Distributive, Procedural, and Recognition Justice and Capacities Study To unpack the spatial injustice present within Subak Hydrosocial territories and also to study the the capacities and potential of local communities to foster spatial justice 2. <u>To Propose and Politicize Outcome</u>: Spatial Planning and Governance Framework + Actionable Strategies to Operationalize it To design a spatial planning and governance solution that reflect indigenous practice and prioritize spatial justice principle. The framework will be accompanied by actionable implementation strategies to operationalize these solutions, aiming to reduce the tourism dependency. 3. <u>To Reflect Outcome</u>: Short Documentary on Subak Communities To create a compelling short documentary that reflect the lived experiences of Subak communities. The documentary will serve as a medium to provoke discussion on the dynamics of Subak, the challenges it face, and the valuable lesson these experiences offer for advancing broader spatial justice agenda.



Process

Method description

To thoroughly address the main research question, the framework of my sub-research question draws upon Peter Marcuse's approach to Critical Planning. This approach was chosen because it effectively unravels the complex issues within urban environments, allowing to tackle the root causes of urban inequality rather than merely addressing its symptoms.

RESEARCH QUESTION	SUB RESEARCH QUESTION	METHODOLOGY	LR	MM	IT	SM	PA	TM	DO	SC
How can spatial planning and governance be reconstructed to enable spatial justice in <i>Subak's</i> Hydrosocial Territories?	EXPOSE									
	SQ1 How have tourism-driven development generate spatial injustice in <i>Subak's</i> Hydrosocial Territories? Identifying Spatial Injustice	●	●	●	●	●	●	●	●	●
	SQ2 What are <i>Subak's</i> indigenous practices recognized in current spatial planning and governance, and how do they showcase capacities for managing resources and fostering spatial justice? Identifying Indigenous Practice & Capacities	●	●	●	●	●	●	●	●	●
	PROPOSE									
	SQ3 What principles of spatial justice can be operationalized in spatial planning and governance to protect the significance of <i>Subak</i> landscape and its communities? Contextualize Spatial Justice on Spatial & Institutional Framework	●	●	●	●	●	●	●	●	●
	SQ4 How to integrate <i>Subak's</i> indigenous practice into spatial planning and governance to enable spatial justice? Integrating Indigenous Practice	●	●	●	●	●	●	●	●	●
POLITICIZE										
SQ5 What actionable strategies can transform the tourism-driven development model in <i>Subak's</i> Hydrosocial territories through spatial and governance interventions? Actionable Implementation Strategies	●	●	●	●	●	●	●	●	●	●
REFLECT										
SQ6 What lessons from <i>Subak's</i> Hydrosocial territories can inform broader development in other parts of Indonesia or similar contexts globally? Reflection on Broader Impact	●	●	●	●	●	●	●	●	●	●

LR Literature Review **SM** Stakeholder Mapping
MM Mixed Media Review **PA** Policy Analysis
IT Interview **DO** Documentary Observation
TM Transcalar Mapping **SC** Scenario Construction

This study employs an exploratory research approach that incorporates a diverse range of methods to address each sub-research question effectively. These methods include:

1. Literature Review

The literature review explores academic and policy literature on *Subak*, Bali's development, Hydrosocial Territories, and Spatial Justice. This method establishes the theoretical foundation for the research while identifying gaps in practical and scholarly discussions. The literature review is applied throughout the research process to critically ground findings and proposed solutions within the context of existing theories and practices.

2. Mixed Media Review

This method synthesizes information from various media sources, such as posters, news articles, photographs, documentaries, historical accounts, and seminar recordings, to develop a comprehensive understanding of the topic.

3. Interview

Semi-structured interviews were conducted to gain deeper insights from key actors and stakeholders. These interviews also served to validate assumptions formed during the literature and media reviews. Conducted both before and during fieldwork, this method facilitated closer engagement with stakeholders to better understand their challenges and potential.

4. Transcalar Mapping

This method visualizes spatial changes across *Subak's* Hydrosocial Territories, considering them as an interconnected system. By analyzing changes across multiple scales, it uncovers relationships between different aspects of the system to understand their interdependencies and cascading effects.

5. Stakeholder Mapping

Stakeholder mapping identifies key actors and their roles within Hydrosocial governance. This provides a clear understanding of the current governance landscape, which is essential for designing effective governance solutions.

6. Policy Analysis

Policy analysis reviews and evaluates existing governance frameworks to identify gaps in addressing spatial injustices resulting from tourism-driven development. This method assesses the effectiveness of current policies and informs the development.

7. Scenario Construction

This method involves the development of spatial planning and governance frameworks, followed by the construction of scenarios for their implementation. These scenarios are designed to introduce actionable strategies for addressing spatial injustices under varying conditions, of more just alternatives.

8. Documentary Observation

Photography and video were used as tools to document the challenges and opportunities within *Subak* communities, creating a narrative through documentary filmmaking. This immersive fieldwork approach allowed for a deeper understanding of the lived experiences and cultural nuances of the *Subak* communities.

Literature and general practical references

On Understanding the Dynamics in the Landscape

1. *Subak's* Literature

- Geertz, C., 1980. Organisation of the Balinese Subak, in: Coward, E.W. (ed) Irrigation and Agricultural Development in Asia: perspectives from the social sciences. Cornell University Press, Ithaca, NY. 70-90
- Lansing, J. S. (2006). Perfect Order: Recognizing Complexity in Bali. <https://doi.org/10.5860/choice.44-6393>
- Lorenzen, R. P., & Lorenzen, S. (n.d.). A case study of Balinese irrigation management: Institutional dynamics and challenges.
- Watson J. & Davis W. (2020). Lo-tek: design by radical indigenism. Taschen.

2. On Bali's Development

- Birtles, B. (2024b, September 11). Inside the real estate gold rush carving up Bali. ABC News. <https://www.abc.net.au/news/2024-09-12/inside-the-building-boom-swallowing-bali/104301044>
- Fajar, J. (2024, May 26). Ketika Air Makin Komersil di Bali, Subak Makin Terjebak - Mongabay.co.id. Mongabay.co.id. <https://www.mongabay.co.id/2024/05/26/ketika-air-makin-komersil-di-bali-subak-makin-terjebak/>
- Fajar, J. (2022, December 22). Pemimpin Adat dan Agama Harus Mencari Solusi atas Masalah Lingkungan - Mongabay.co.id. Mongabay.co.id. <https://www.mongabay.co.id/2022/12/22/pemimpin-adat-dan-agama-harus-mencari-solusi-atas-masalah-lingkungan/>
- Lau, Y. (2024, April 29). 'Reached its tipping point': Tourism and sustainability in Bali aren't a great match. Canada's National Observer. <https://www.nationalobserver.com/2024/04/29/news/tipping-point-tourism-sustainability-bali-water-shortages>
- Mendala, E. (2024, July 9). Soal WNA Boleh Miliki Tanah di Indonesia, Bali Tak Bisa Melawan | BALIPOST.com. BALIPOST.com. <https://www.balipost.com/news/2024/07/09/408235/Soal-WNA-Boleh-Miliki-Tanah>
- The impact of overdevelopment in Bali. (n.d.). Official-sb-website. <https://www.sawahbali.org/the-issues>
- Wardana, A. (2019). Contemporary Bali: Contested Space and Governance. Springer.

3. Hydrosocial Territories

- Boelens, R. (1998). Collective management and social construction of peasant irrigation systems: a conceptual introduction. In R. Boelens, & G. Davila (Eds.), Searching for equity: concepts of justice and equity in peasant irrigation (pp. 81-99). Van Gorcum.

- Boelens, R., Hoogesteger, J., Swyngedouw, E., Vos, J., & Wester, P. (2016). Hydrosocial territories: A political ecology perspective. *Water International*, 41(1), 1–14. <https://doi.org/10.1080/02508060.2016.1134898>

On Understanding the Spatial Justice

- Fainstein, S. S. (2009). Spatial Justice and Planning. *Justice Spatiale - Spatial Justice*, 258–272. <https://doi.org/10.1002/9781119084679.ch13>
- Soja, E. W. (2010). The City and Spatial Justice. 1–5. *Justice and spatial injustices*. University Press of Paris Nanterre. <https://doi.org/10.4000/books.pupo.415>

On Critical Planning Approach

- Marcuse, P. (2009). From critical urban theory to the right to the city. *City*, 13(2–3), 185–197. <https://doi.org/10.1080/13604810902982177>

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)?

This graduation thesis project examines the spatial planning and governance frameworks that have perpetuated spatial injustices within Hydrosocial Territories, particularly under the pressures of overdevelopment and overtourism. By focusing on the *Subak* Hydrosocial Territories, it aims to propose alternative planning and governance solutions that enable spatial justice while integrating indigenous practices into planning processes. This approach recognizes the deeply interconnected nature of hydrological systems with political, social, and cultural dynamics, necessitating multilayered and integrative solutions to address these challenges. Therefore, this project is closely aligned with the objectives of the Planning Complex City studio, which highlighting spatial planning and governance as tools to tackle spatial inequalities and promote equitable outcomes.

Beyond its relevance to *Subak*, this thesis contributes to the broader field of Urbanism by demonstrating that urbanism extends beyond city contexts and can address territorial systems shaped by specific themes and functions. A key insight from the Urbanism track is that spatial planning must transcend rigid administrative boundaries and serve as a collaborative tool for integrating diverse objectives and achieving shared goals. Building on this understanding, the project challenges the normative practices of spatial planning in Indonesia by advocating for innovative, context-sensitive approaches that reflect the complexities of territorial systems like *Subak* while promoting long-term social, cultural, and environmental sustainability.

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

On Societal Relevance

One of the key aims of this thesis is to unpack the spatial injustices occurring within Bali's heritage landscape, Subak—a UNESCO-recognized World Heritage site for its manifestation of indigenous knowledge. Despite its environmental and social significance, *Subak's* cultural uniqueness is commodified by both the government and local communities to serve the tourism industry, perpetuating spatial injustices through existing policies, planning, and governance systems. These systems allow inequalities to persist, with the *Subak* communities—farmers and its organizations—bearing the brunt of the consequences. While they play a critical role in preserving and managing the landscape and its traditional practices, they are among the most economically vulnerable, often pressured to sell their land to accommodate tourism demands. Moreover, the quality and quantity of water from the *Subak* irrigation system are gradually declining, further threatening their livelihoods. This research aspires to introduce spatial planning and governance frameworks that enable spatial justice in *Subak's* Hydrosocial Territories, accompanied by actionable strategies to operationalize these frameworks

Bali's current development trajectory, which is heavily dependent on the tourism industry, is increasingly being recognized as unsustainable, with growing discussions around overtourism and overdevelopment. By contributing a spatial planning perspective to these debates, this research not only proposes strategies to protect Bali's heritage landscapes but also includes a short documentary. The documentary serves as a provocative narrative aimed at raising awareness among a broader audience about the challenges facing *Subak* and its communities. By combining actionable strategies and a compelling medium for communication, this research hopes to provoke critical reflection and contribute to ongoing discussions on Bali's unsustainable development.

On Professional Relevance

As I have professional experience as urban designer in Indonesia, I observed that this industry often reinforces the unchecked development, including the unsustainable growth seen in Bali. This research is meant as an effort to challenge the conventional practices of spatial planning in Indonesia, which frequently following the Western approaches without considering the local capacities and conditions which have the long-term social, environmental, and cultural impacts. By critically reflecting on these issues, I aim to break the boundaries of current practices and advocate for a more context-sensitive, spatial just, more integrated planning, and sustainable approach to spatial planning—one that integrates indigenous knowledge systems and prioritizes holistic outcomes for communities and their environments.

On Scientific Relevance

This research challenges the normative approach to spatial planning practice in Indonesia by advocating for territorial planning and see the space as integrated system, moving away from traditional boundary-based planning. Also, my thesis contributes to the broader discourse on spatial justice by addressing real-world issues within the global south context, south-east asia case, focusing on Bali, Indonesia. Through its case study on Bali's *Subak* system, it provides insights into how spatial justice can inform governance reforms aimed at protecting indigenous and local communities amidst competing development pressure for Tourism. The interdisciplinary nature of my research, which integrates urban planning, environmental studies, and cultural anthropology, underscores the importance of incorporating diverse perspectives to tackle complex challenges. By focusing on the *Subak*, it not only enhances academic understanding of indigenous resource management systems but also demonstrates how this system can be preserved and adapted in the face of modern socio-economic and environmental pressures.