

# Reflection Paper

Architectural Engineering

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Reflection

AR3A010 – Graduation Studio  
Architectural Engineering

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## Summary of Research

### *Thematic research*

In recent decades the tourism industry has undergone significant economic growth, leading to the concentration of tourist flows to specific areas, causing crowding and problems with carrying capacity. Tourism is increasingly contributing to local and seasonal pressures on water supply systems, placing an additional burden on local water reserves, especially in areas already sensitive to water scarcity such as (semi-)arid and remote regions like islands. Numerous Thai islands, reliant on tourism as their main industry, encounter challenges associated with water scarcity. The problem arises during a period of low rainfall coinciding with the peak tourist season and is worsened by improper wastewater management because the islands' local water treatment plant lacks the capacity to handle the generated wastewater volume. Consequently, untreated wastewater is discharged into the sea, contributing to the pollution of both the seawater and the groundwater. The thematic research aims to develop a strategy for enhancing and promoting sustainability in existing water systems on Thai islands, with a focus on Koh Samui. The outcomes at different scales will inform the design, emphasizing water as a central and unifying element.

### *Architectural research*

This research project focuses on the design of a community center on Koh Samui, Thailand, an island facing significant challenges such as overtourism and water scarcity. The current construction practices on the island predominantly rely on imported building materials, with little emphasis on renovation and sustainable development. The primary objective of this project is to utilize locally sourced materials as much as possible, thereby giving back a part of the island to the local community that has been overshadowed by the influx of tourists. The project comprises three distinct plots:

- Renovation Plot: This area includes the flexible community center, which is designed to serve the local residents primarily. However, tourists are integrated at specific times, promoting interaction and mutual understanding between visitors and locals. The center hosts various activities that change throughout the year, adapting to the seasonal fluctuations in tourism and the wet and dry seasons.
- Water Scarcity Knowledge Center: This plot is dedicated to educating visitors and locals about the island's critical water issues. Through innovative architectural design, the center provides a recreational yet informative experience, raising awareness and encouraging sustainable water practices.
- Vegetable Garden Plot: Supporting the community center's cooking classes and other educational activities, this plot is designed as a vegetable garden. It serves as a practical resource for the community, fostering sustainable agriculture practices and providing fresh produce for various programs conducted in the community center.

Overall, the project seeks to foster a deeper connection between the local environment and its inhabitants while promoting sustainable practices and awareness of local issues among both residents and visitors.

## Reflection

*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 project on Koh Samui addresses critical issues such as water scarcity, overtourism, local building materials, and sustainability, which are deeply interconnected with the broader field of architecture and align closely with the objectives of the Master Program in Architecture. The project highlights the role of architecture in tackling environmental challenges by incorporating water-saving technologies, sustainable water management systems, and educational spaces to raise awareness about water conservation. It addresses overtourism by designing a community center that balances the needs of locals and tourists, promoting mutual understanding and reducing resource strain. The project's emphasis on seasonal flexibility demonstrates how architectural design can adapt to fluctuating demands and maintain sustainability year-round. By prioritizing locally sourced materials, the project supports sustainable building practices, reduces environmental impact, and integrates culturally and environmentally with its context, enhancing the community's sense of place. Additionally, it creates educational and recreational spaces that promote sustainability and environmental stewardship. The project's interdisciplinary nature, combining environmental science, social dynamics, and sustainable practices, reflects the integrative approach of the Master Program in Architecture, emphasizing comprehensive and innovative architectural education.

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

The graduation project aims to create a balanced and sustainable coexistence between local communities and tourists, addressing overtourism to foster a harmonious environment that benefits both groups. It focuses on mitigating the ecological impacts of excessive tourist activities and preserving natural environments. The project's social relevance lies in reducing social tensions, fostering community empowerment, and promoting sustainable tourism practices. Professionally, it serves as a model for innovative design solutions that balance environmental, social, and economic factors. Scientifically, it contributes to the understanding of sustainable water management and environmental preservation in tourism contexts and encourages research into local building materials and sustainable construction techniques. By prioritizing locally sourced materials, the project reduces environmental impacts, supports the local economy, and enhances cultural integration. Overall, it holds significant societal value by addressing water scarcity and promoting sustainable tourism, potentially serving as an inspiring model for other architects.

*How do you assess the value of your way of working (your approach, your used methods, used methodology)?*

I assess the value of my way of working, including my approach, methods, and methodology, based on its effectiveness in addressing complex architectural challenges and producing innovative and sustainable design solutions. For the thematic research, I chose to devise a general strategy for the entire island to solve the water scarcity issue. In doing so, I examined various scales, from island-wide to village and individual unit levels. This approach provided me with a comprehensive understanding of the issues affecting the entire island, albeit in a rather general sense. In hindsight, I may have preferred to focus more on the individual unit level to gain deeper insights into solutions that could be directly applied to my design. Nevertheless, I found it intriguing to learn more about the water system of islands. This understanding will assist me in refining my approach and applying my methods more effectively in future projects.

*How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?*

The project aims to address issues like water scarcity and overtourism on Koh Samui, offering insights into sustainable design practices and fostering a more harmonious environment for locals and tourists. Its scope encompasses architectural design, environmental considerations, community engagement, and cultural integration. Ethical considerations ensure that the project respects the rights of local communities and minimizes environmental impact. Overall, the project seeks to contribute positively to academic discourse while benefiting the community it serves.

*How do you assess the value of the transferability of your project results?*

I assess the value of the transferability of my project results by considering their applicability beyond the specific context of Koh Samui. This involves evaluating how effectively the design solutions, methodologies, and insights generated from my project can be adapted and implemented in similar settings facing similar challenges. Factors such as scalability, cultural relevance, and environmental considerations play a significant role in determining the transferability of the project results. Additionally, assessing feedback from stakeholders and experts in related fields can provide valuable insights into the potential transferability of the project results. Ultimately, the goal could be to create design solutions that not only address local challenges but also offer valuable lessons and inspiration for addressing similar issues in other communities worldwide.