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Graduation Plan

MSc 3 Shared Heritage Lab - Semarang

Chair of Heritage and Architecture
Master of Science, Architecture, Urbanism and Building Sciences
Delft University of Technology

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Personal Information

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Studio

Name/Theme Heritage and Architecture
Shared Heritage Lab - Semarang, Indonesia

Main Mentor	ir. Lidy Meijers	Main Mentor, Mentor of Architectural Design
Second Mentor	ir. Nicholas Clarke	Mentor of Cultural Value
	ir. Paddy Tomesen	Mentor of Building Technology

Argumentation of Choice of the Studio

The decision to study architecture in the Netherlands stems from my desire to seek various views in order to make changes through architecture in my home country, Indonesia. As a developing country, Indonesia has been exposed to extensive social and economic problems. The archipelago character of Indonesia also makes it vulnerable to environmental and climate change-related issues. At the same time, Indonesia is very rich with tradition that is formed by its indigenous customs and foreign influences.

Following on this phenomenon, it is urgent for aspiring architects to take a position that considers these issues for positive long-term impacts. The relevance of architectural practice, demolitions, and new constructions in the future is questioned. I am intrigued by heritage & architecture studio's mindset that works on existing fabrics and reflects on the past, culture, tradition, present, and future projections. This approach could lead to interventions that carefully contemplate the existing and hidden potentials and values as well as the consequences.

Furthermore, Shared Heritage Lab Semarang embraces a multi-disciplinary strategy that allows me to focus on certain issues, but also provides me with in-depth understandings of multiple fields through exchanges with experts and students from different practices. As one of the big colonial cities in Indonesia, the case study Semarang shows the complexity of historical layers and cultural richness as well as social, economic, and environmental conditions in Indonesia, which will be highly beneficial for me in the future.

Graduation Project

Project Title **Cultivating Heritage:**
A Co-Operative Urban Permaculture in Kota Lama Semarang

Graduation Project

Goal

Location

PTPN IX Building - Semarang, Indonesia
Jl. Mpu Tantular No. 5, Kelurahan Bandarharjo, Semarang Utara

Other Sites for Schematic Urban Intervention:
PTPN IX Immediate Surroundings, PTPN IX Storage, DMZ Parking Lot, Ex-Hotel Jansen Lot

The Posed Problem

The Trade Area with Agriculture Involvement
As a coastal and strategic area, Semarang became one of the main trade cities in Indonesia during the colonialization period, especially in agriculture. It is located in the center of Java island. Consequently, Semarang has been exposed to comers, urban transformations, and multiple cultures, which are apparent in the present architecture and urban context. For instance, the remaining trading culture and practices, the disappearing agricultural land and continuous constructions, the diverse colonial buildings along the main river *Kali Semarang*, the station that was built for Asia's second railway line, and the spatially segregated area of the city, such as area with Dutch (*Kota Lama*), Chinese (*Pecinan*), Arabs (*Kauman*), as well as Malay (*Melayu*) influences.

Kota Lama's Decayed Heritage and Traces of Inequality of the Past
Kota Lama that holds significant Dutch-Indonesian shared heritage built has lost its centrality since the 1930s. It is currently being decayed and functionally separated from other precincts in Semarang historical area. It once stood as an exclusive, forted, and ruling precinct. In the present day, most of the buildings are treated as photo backgrounds by visitors and are not incorporated into the activities in the urban fabrics. PTPN IX building, or the former N.V Cultuur Maatschappij der Vorstenlanden building is a prime example of a shared heritage built that embodies colonial and inequality history of the past. Its prominence is shown by its form and strategic location along *Kali Semarang* river. This decaying building was used as an office of a trading company in crops and agriculture based in Amsterdam. The building practiced under the liberal politic system that absorbs the *cultuurstelsel* principle, which is a cultivation system that forced labour the Indonesians during the colonialization era. These raise questions towards the position of Semarang shared heritage in the future.

Vulnerable Community and its Socio-Economic Practices and Traditions
At the same time, Semarang currently stands as a dense metropolitan city with 48.4% of people living in urban area. The fast constructions of grey infrastructure and commercial buildings result in the shortage of public and green spaces. On top of that, there are unplanned settlements (*kampung kota*) that have grown organically in-between the aforementioned historical precincts, resulting in a highly dense environment[1]. Many of the residents in these kampung kota are in poverty and in lack of education. Accordingly, many of them are remained unemployed or employed in informal sectors[2], in which the majority of the practices involve food and agriculture with trading character. The economic and educational obstacles that the communities are facing obstruct themselves from self-sufficiency, let alone from participating in the environmental or heritage development. However, the positive traditions such as *gotong royong* (working together) are still embedded in their daily socio-economic activities and physical settings which would play important roles in the adaptive re-use of a shared heritage built.

Environmental Consequences
The local community's practices in agriculture inevitably have consequences on the natural environment. For instance, the transportation for distribution that causes air pollution, high footprints and constructions, as well as lack of absorption area. The import process, packaging, as well as irresponsible food and waste distributions in Semarang that result in polluted water and *Kali Semarang* river as well as unhealthy food quality. These effects contribute to Semarang's major problems, such as flooding and land subsidence. The urgency to develop a comprehensive architecture and urban strategy for the future of Semarang, especially Semarang historical area, has become evident due to these manifold issues within the city. Moreover, the government is currently conducting various fast-paced infrastructure developments, especially to beautify heritage built and to tackle flooding because of its presence in the tentative list of UNESCO's world heritage nomination.

[1] Slums occupied 415.83 ha surface of Semarang area. Water as Leverage. Cascading Semarang Steps to Inclusive Growth: Second Phase Report, 2019.

[2] 71.55% of Semarang population is in productive age and 25.34% of Semarang population is unemployed or informally employed. Water as Leverage. Cascading Semarang Steps to Inclusive Growth: Second Phase Report, 2019.

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Graduation Project

Goal

Research Questions

How can shared heritage architecture that embodies a conflictual past be appropriated as a part of local community's practices in Kota Lama Semarang?

How can shared heritage be used as a tool to improve the agricultural trading practices and its relation to the natural environment?

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Graduation Project

Goal

Design Assignment in which these Result.

In the graduation studio, the project reflects on the trading character of the historical area and its impact on the built environment. PTPN IX building is chosen as the primary site test because of its strong prominence, its strategic location to *Kali Semarang* river and other precincts, as well as its relation to agriculture and history of inequality. Interventions on this distinct site would hopefully lead to a wide impact, not just to Kota Lama and the historical area in particular.

Adaptive Re-Use of a Heritage Built
Program Considerations
The program firstly considers the urgency of socio-economic empowerment of local communities because of its significant influences on numerous other problems in Semarang. The notions of organic production and environmental-friendly agriculture product and waste distributions are introduced. It is a reflection of the past and present which potentially has essential positive implications in the future. Control of production and purchase would also economically benefit the communities.

Architecture Considerations: Spatializing Culture and Urban Permaculture
Reflecting on the shared heritage and its role in the future, the design questions the balance between heritage, local community's practices, and urban agriculture. The assessment of the building's architecture, technology, and cultural values would be considered along with the urban agriculture program as well as the spatial culture of the local community's socio-economic practices in kampung kota of Semarang historical area. The spatializing culture notion plays a significant role in the research and design process of this project because local communities would act as the main actors in the building. Spatial culture is the reciprocal relationships between activities and physical settings along with the embedded traditions. The intention is to find suitable adaptation of a heritage built that incorporates and improves its future user's ways of doing, thus lead to the sustainability of the building. The role of the building as a public plinth would also be explored to open up the previously enclosed building. Another challenge is to find a position of the building's history of inequality, which would affect the transformations of configuration and physical elements of the building. The memories of the past and the current local culture would be explored. The design assignment also incorporates urban agriculture notion in a dense area, in which spatial arrangement, innovation of enclosing elements, building technology, and connection to water, air, and light would be investigated.

Urban Intervention
The urban scheme emphasizes on integrating precincts into a symbiotic co-operative network without diminishing the tangible and intangible strengths of each precinct. It is a system that adopts and improves the "*koperasi*" system, which is a traditional non-government economic organization in Indonesia with kinship and shared benefit principles in order to reach self-sufficiency. The urban interventions focus on Kota Lama area with the purpose of reviving Kota Lama, empowering local communities, and improving natural environment. The challenge is to assess the potential connection of Kota Lama to other precincts, such as Pasar Johar (Market) and Pecinan Market, the possibilities of the connection of these precincts to existing infrastructure, such as main road and railways, to re-establish relationship with natural environment, such as Kali Semarang river and green spaces, as well as the needs of social spaces in this dense area. Due to its location, typology, and potentials, PTPN IX storage building, DMZ parking lot, Ex-Hotel Jansen lot, and PTPN IX Building's immediate surroundings are chosen as schematic urban intervention sites to support the proposal of PTPN IX building.

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Process

Method Description

The project is divided into two phases, which are the research phase and the research by design phase. In this project, both phases balance the heritage-based methods with socio-spatial practices investigation in order to contextualize the site within its future users and purposes.

Research Phase
The aim of this phase is to obtain understandings of the past and present state, characters, and transformations of the architecture and urban context of Semarang historical area concerning the socio-economic practices, especially in agriculture.

Historical, Contextual Analysis, Timeline Overview
By investigating drawings, maps, lectures, photographs, and literature throughout centuries, the research not only aims to be informed about the physical aspect of the city and the relationship between precincts, but also the tradition, the history of inequality during colonialization, as well as the evolution of socio-economic activities in relation to the built environment.

Present Spatial Culture and In-Depth Understandings of the Urban Scheme
The ethnographic method is done through the place-centered behavior setting observation. During the site visit, the people's everyday practices on food and agriculture in the surroundings of Kota Lama area are mapped. The intention is to grasp the reciprocal relationship between standing pattern of behavior (repeated activities) and circumjacent milieu (specific spatial arrangements) in a specific - time period. Meanwhile, the culture and tradition would be revealed through the relationship patterns, the unique occurrences, and interviews with community, experts, and government, as well as historical-contextual findings. The research informs the project about the trading scheme of Semarang historical area all the way through the ways of doing of the people in relation to the built environment, which would inform the future perspectives of the area specifically to the needs of the communities. The main theoretical references are Roger Barker, Setha Low, and Joyce Marcella Laurens. Moreover, literature and precedent study of urban agriculture typology and requirements for production, distribution, and waste researches are done to be incorporated into the future program of the building. During this research, innovations that consider space and technological limitations would be investigated to suit the Semarang needs.

Heritage-Based Research
The research is based on Designing From Heritage book by Marieke Kuipers and Wessel de Jonge. The purpose of the method is to observe and analyse the chosen building and context with conservation and cultural awareness. The method is done through architecture, building technology, and cultural valuation assessments. The prime observation includes analysing drawings, literature, maps, photographs, archives, measurements, case studies, and documentaries. This process informs an in-depth understanding of the past and present state of the chosen site. Subsequently, the prime observations are interpreted into form cultural value statements through cultural value matrix, which leads to a transformation framework of future interventions. These steps also consider the level of implications of the interventions.

Research by Design Phase
This phase explores possible architectural adaptations and urban interventions based on the works done in research phase. Precedent studies of transformation projects, urban agriculture, as well as Indonesian vernacular architecture are also essential to inform the future intervention in regards to tropical context, tradition, as well as cultural and practical consequences.

Graduation Project

Literature and General Practical Preference

Books
Altman, I. "The Environment and Social Behaviour." England: The MIT Press, 1975.
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Ashihara, Yoshinobu. "Exterior Design in Architecture". New York: Van Nostrand Reinhold Company, 1981.
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Gehl, Jan. "Life Between Buildings: Using Public Space." New York: Van Nostrand Reinhold Company, 1999.
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Kuipers, Marieke, W. de Jonge. "Designing from Heritage: Strategies for Conservation and Conversation." Delft: TU Delft, 2017
Laurens, Joyce Marcella. "Arsitektur dan Perilaku Manusia." Jakarta: Grasindo, 2004.
Lucas, Ray. "Research Methods in Architecture." London: Laurence King Publishing, 2016.
Meurs, Paul. Heritage-Based Design. 01 edition. TU Delft, 2015.
Rapoport, A. "Human Aspects of Urban Form." Pergamon Press, 1977.
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Wijanarka. "Semarang Tempo Dulu: Teori Desain Kawasan Bersejarah." Yogyakarta: Ombak, 2007.
Zahnd, Markus. "Model Baru Perancangan Kota yang Kontekstual: Kajian tentang Kawasan Tradisional di Kota Semarang dan Yogyakarta". Jakarta: Kanisius, 2008.

Journals
Corten, Jean-Paul, Peter van Dun. "A Tale of Three Cultures: Semarang Inner City Development", October 2006.
Program Penataan & Pelestarian Kota Pusaka Semarang. "Menjaga Muara Peradaban Dunia.", 2014.
Purwanto, L.M.F. "Kota Kolonial Lama Semarang." Universitas Katolik Soegiyapranata, 2005.
Rahmi, A., Roychansyah. "Tipologi Arsitektur Fasar Bangunan Kantor Kolonial di Kawasan Kota Lama Semarang." Prosiding Temu Ilmiah IPLBI, 2017.
Roosmalen, Pauline K. M. van. "Designing Colonial Cities: The Making of Modern Town Planning in the Dutch Indies and Indonesia 1905-1950." Accessed September 2019.
Setioko, Bambang. "The Methamorphosis of a Coastal City: Case Study Semarang Metropolitan)." DIKTI, 2009.
Water as Leverage. "Cascading Semarang Steps to Inclusive Growth: Second Phase Report.", 2019.

Lecture and Presentation
Ariawan, Yuliansyah. "Community Based Tourism." Monodhuis, Semarang, October 2019.
Corten, Jean-Paul. "Heritage as an Asset for Sustainable Development." Monodhuis, Semarang, October 2019.
Dipowijoyo, Hasti H. "Capacity Building Programs in Cultural Heritage." Indonesia Embassy, October 2019.
Nugroho, Satrio. "Past, Present, and Future of Kota Lama Semarang." Monodhuis, Semarang, October 2019.
Winarto, Agus. "What Owner Says about Heritage." Monodhuis, Semarang, October 2019.
Roosmalen, Pauline K. M. van. "Semarang Upwards and Onwards". TU Delft, October 2019.

Relevant Interviews
Danang Triratmoko,Jakarta-based architect specialized in conservation about heritage architecture practice in Indonesia. Jakarta, August 2019.
Dicky, PTPN employee about the building and history. Semarang, November 2019.
Kriswandono and Ari Nugroho, heritage preservation consultants (BPCB) about heritage architecture practice in Indonesia. Semarang, October 2019.
Local communities practicing in food and agriculture around Semarang Historical Area during the Behavior Mapping Process.
Local communities practicing in waste sorting and distribution around Semarang Historical Area during the Behavior Mapping Process.
Satrio Nugroho, about Kota Lama Semarang development plan and BPK2L.
Mr. and Mrs. Sugeng, local community who practice agriculture. Semarang, November 2019.
Suhono, local chief of Kampung Aquaponik. Semarang, November 2019.
Yuliansyah Ariawan, about Kota Lama Semarang and Local Community.

Exhibition
Dossier Indie. Wereldmuseum Rotterdam, 2019.
Segar Bugar: Kisah Konservasi. Museum Bank Indonesia, Jakarta. 2019.

Precedents
Rumah Atsiri Indonesia, transformation project of edu-recreational facility of essential oil agriculture by Tim Tiga Arsitek. Indonesia, 2019.
Rooftop Green House, transformation project of brick-office by Kuehn Malvezzi. Oberhausen, Germany, 2019.
Mbaru Niang vernacular Architecture, Wae Rebo, Indonesia.
Ratenggaro vernacular architecture. Sumba, Indonesia.
Rumah Panjang vernacular architecture. Kalimantan, Indonesia.

Reflection

Heritage and Community's Practices

The future of heritage built has always been an ever-lasting debate with several perspectives on whether to preserve, restore, or demolish. Even though it is slowly shifting, I have seen it in my own country where adaptation of an architectural heritage is seen as vandalism to a monumental object. However, in the 21st century, climate-change has become the prime and urgent issue striking our planet. Demolition or new construction within architecture practice seems to get less relevant to our built environment. Heritage and architecture studio offers opportunities that embrace things that we already have and how to make it relevant for a sustainable future. Other than that, heritage contains history and values that could be preserved and pass on to the next generations.

On the other hand, the heritage-based approach implementation is difficult, subjective, and often not prioritized particularly in a developing country, in which manifold problems lie and the people are still struggling to survive. This case shows the importance of emphasizing the collaborative culture in the future. Shared Heritage Lab practices the multi-disciplinary approach by involving students and experts from different fields. Moreover, this project imposes fascinations in the local community's spatial practices and cultures, in which the use of heritage must benefit and start from its own community. The notion of spatializing culture is explored to define the roles of heritage in accommodating ways of doing of the community. Thus, heritage would act more than just a monumental entity, but could provide inclusion and act as a living, working, and leisure quarter. The past and present traditions and cultures could be incorporated without overshadowing the values of the existing fabrics and the memories of the past for the interests of the future. This project specifically acts as a learning and administration center that accommodates social, economics, and leisure and has major roles within the proposed socio-economic network. The intention is to create a wide impact to the city by driving the community to experience heritage in their daily lives as oppose to admire it only as a monumental object as well as by empowering the community and raising their awareness towards the environment.

Architecture and Agriculture

Agriculture has always been an important part of Indonesia's development as the country stands as one of the rich countries in terms of agricultural assets. Agriculture is also a huge part of Indonesian history as it is the prime reason for the colonialization in the past. Looking at the global context, food and agriculture have influenced the way architecture and the city is shaped. For instance, the way a certain group of people consumes and prepare food shows the culture of that country, the distribution forms the urban fabrics of the city, and the type of food shows the climate and condition of the context. Apart from urban morphology, the idea of urban agriculture could have positive impacts on economic growth, climate control, and more importantly on raising awareness towards consumption and waste. Reflecting on these significances, agriculture needs to be reconnected to the city and the daily lives of the people in order to shape a healthier environment for the future.

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Time Planning

Week 1.1 – Introduction
Introduction to the Shared Heritage Lab studio, the city of Semarang, and water challenges in this multi-cultural city.

Week 1.2 to 1.7 – Group: Evolutionary Map and Individual: Fascination Research
- Collaborative historical and contextual study of Semarang within the multi-disciplinary studio. Semarang is assessed from the global scale to the corridors of the city through archival, photographs, literature, maps, drawings, lecture, and documentaries investigations.
- I focused on the socio-economic aspect of the urban morphology. Other students explored on political, biodiversity, water network, urban morphology, transportation network are questioned during this period.
- Personal fascinations are explored and developed.
- Site visit preparations.
- Going to public lectures.
- Contacting experts in Indonesia.
- Pre-P1 presentation.

Week 1.9 to 2.1 – Field Trip, Site Visit
- Field trip to Semarang.
- Investigate the city.
- Sharpen individual fascinations.
- Spatial culture research, behaviour settings mappings, interviews experts, government, and local communities, archival search.
- Finding a site for intervention.
- Collective workshop with TU Delft and ITB students.
- Individual P1 presentation.

Week 2.2 to 2.6 – Research, Programme, Urban Scheme, Concept Design
- Architecture, building technology, and cultural value assessments.
- Making plans, elevations, and sections.
- PTPN IX building in-depth investigations through literature, drawings, photographs, and interview evaluations.
- Kota lama in-depth analysis.
- Personal fascinations in-depth analysis: trading history and practices, socio-economic practices and traditions, urban agriculture.
- Formulation of research and design questions.
- Research methods paper.
- Making P1 report book.
- Precedent research.
- Combining building analysis and value assessment with community's practices and urban agriculture.
- Urban scheme and urban interventions scenario.
- Concept design sketch and interventions.

Christmas Break: P1 report submission.

Week 2.7 – P2 Preparation
- Graduation plan submission.
- Finalising transformation framework and concept design sketch.

Week 2.8 – P2
- P2 presentation and evaluation.

Week 2.9 to 2.10 Pre-Eliminary Design
- Strengthen design theme.
- 3-dimensional drawings.
- Alterations based on feedback during P2, further research may be needed.
- Start to draw project in more detail: plans, sections, elevations, 3-dimensional drawings.
- 3D models.
- Continue architectural design research with climatic, urban agriculture, and material considerations.

Spring Break

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Time Planning

Week 3.1 to 3.3 Developed Design
- Exploration program and spatial arrangements, as well as key features on the plans, sections, elevations, and 3-dimensional models.
- Building technology tutorial on the project with structural and climate considerations.
- Further research on design theme, detailing, and architectural design.
- Façade, structural, climatic, water and utilization systems exploration.
- Large – small scale development.
- Sketch of urban interventions.

Week 3.4 to 3.10 Developed Design
- Continue developing design in all scale, immediate surroundings, building, human scale, detail, and urban intervention.
- Finalisation of the spatial arrangement and main intervention, along with its structural and climatic proposal.
- P3 Presentation, demonstrating clear story line from research to design.

Week 4.1 to 4.4 – Detailed Design
- Evaluating P3 feedback.
- Detailed design.
- 3-D, plans, section and elevations in more details.
- BT design fragment.
- Detailed structural, façade, and climatic design.

Week 4.5 to 4.6 – Detailed Design
- Finalization of design.
- All scale of the project is developed in detail.
- Developed drawings that could convey the storyline.
- P4 presentation.

Weel 4.7 to 4.9 – Detailed Design
- Finalisation of changes.
- Finalisation of drawings and physical models.

Week 4.10 to 4.11
- P5 presentation, graduation.

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