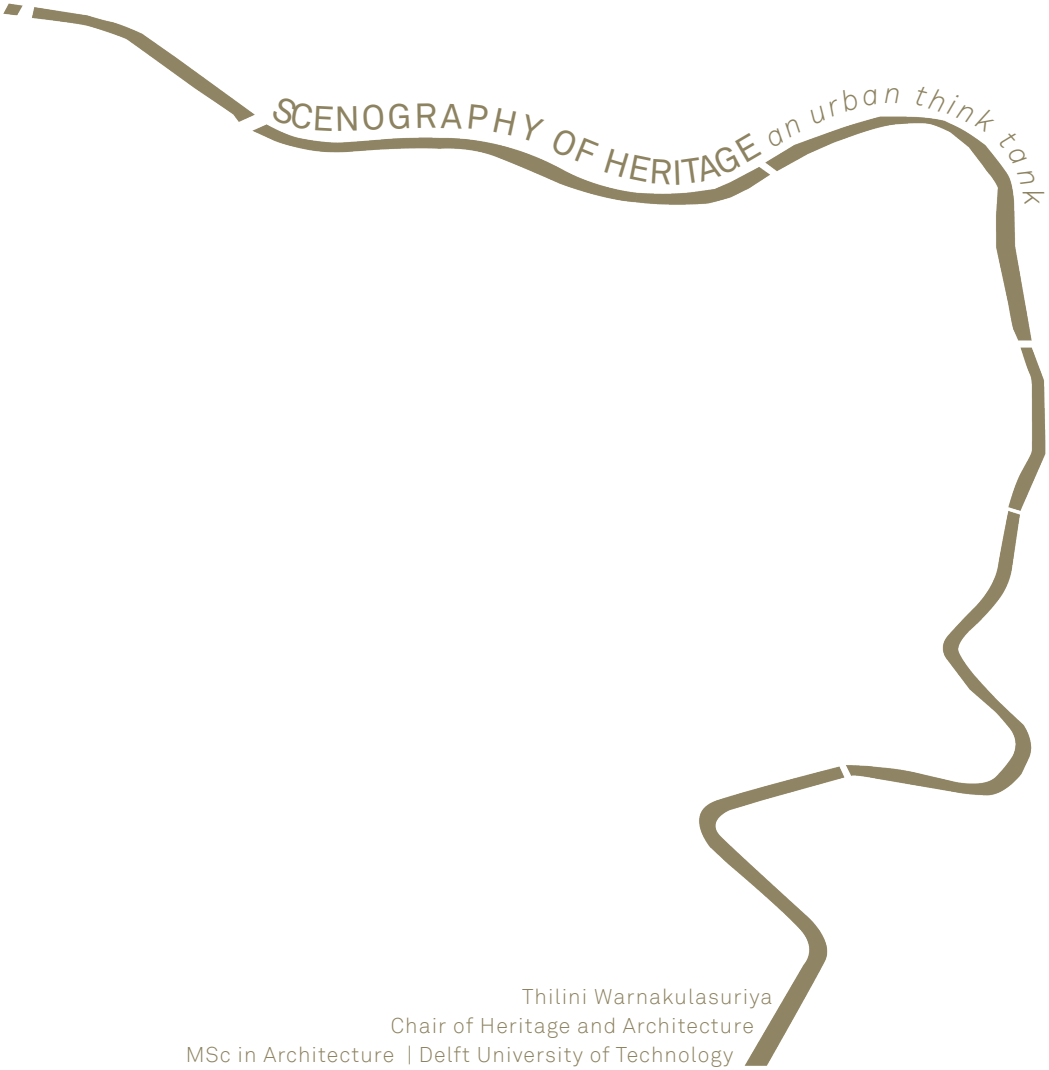

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MSc in Architecture | Delft University of Technology

With special thanks to,

ir. Lidy Meijers
ir. Paddy Tomesen
ir. Nicholas Clarke
ir. Mo Smits
ir. Frits Van Loon

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External Collaborators:

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Water as Leverage
Semarang Municipality
BPKLL
TUDelft University Fund

CONTENT

I do not know much about gods; but I think that the river
Is a strong brown god—sullen, untamed and intractable,
Patient to some degree, at first recognised as a frontier;
Useful, untrustworthy, as a conveyor of commerce;
Then only a problem confronting the builder of bridges.
The problem once solved, the brown god is almost forgotten
By the dwellers in cities—ever, however, implacable.
Keeping his seasons and rages, destroyer, reminder
Of what men choose to forget. Unhonoured, unpropitiated
By worshippers of the machine, but waiting, watching and waiting.
His rhythm was present in the nursery bedroom,
In the rank ailanthus of the April dooryard,
In the smell of grapes on the autumn table,
And the evening circle in the winter gaslight.

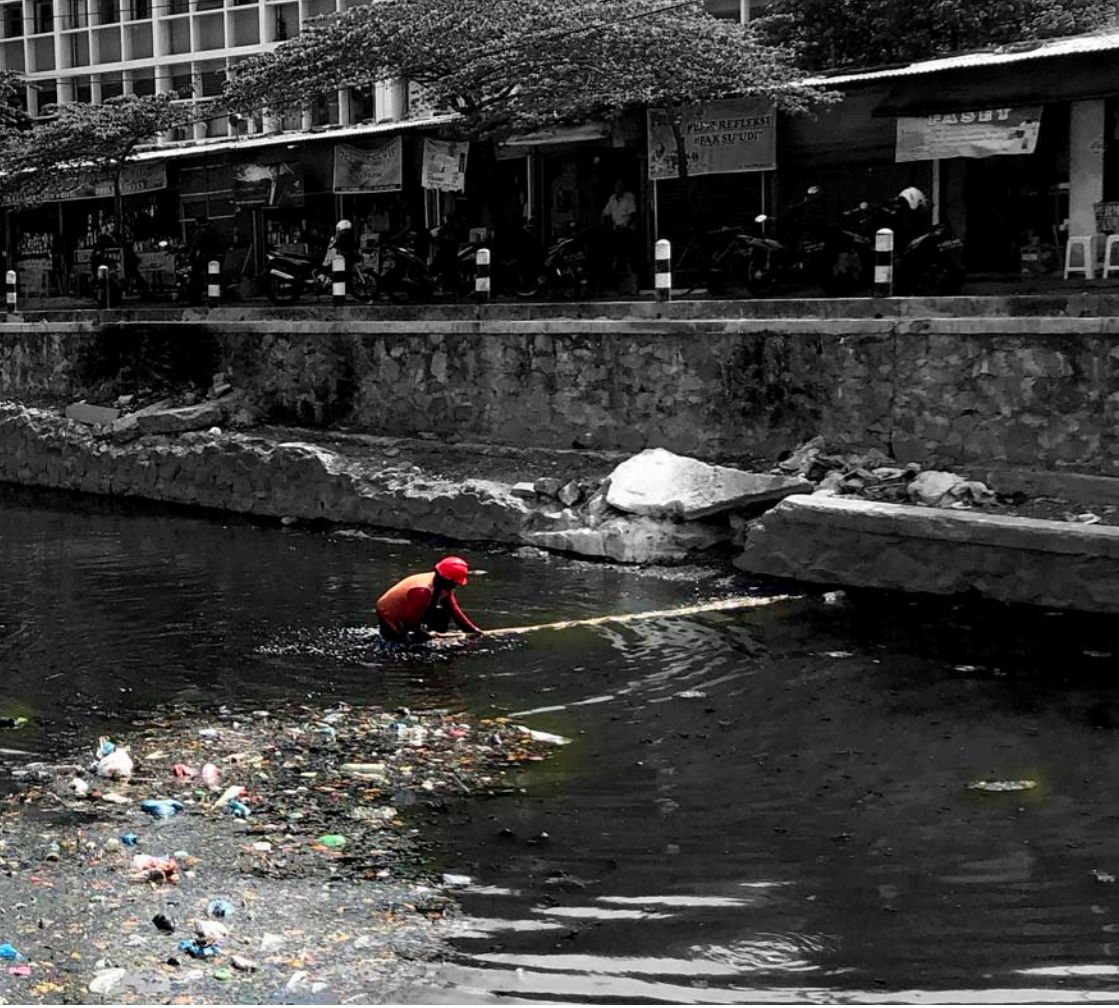
- T.S. Eliot
from Four Quartets: The Dry Salvages

A SHIFT IN PERSPECTIVE

Semarang's charm lies in the diversity of its urban fabric. Although segregated, clearly seen through its built heritage, the 'what-could-be' charming qualities end where the smell of Kali Semarang begins. Walking through each of its quarters, one thing remains a constant - the waste that floats on the once prominent Kali Semarang.

Kali Semarang's past is tied to the long colonial history of Indonesia - a history shared with the Netherlands. Its significance lies in Semarang's trade history where the river network played a prominent role. As a main artery of commerce, the Kali Semarang was vital to the development of Semarang and its inner cities - namely, Kota Lama, Pecinan and Melayu (Dutch, Chinese and Arab quarters, respectively).

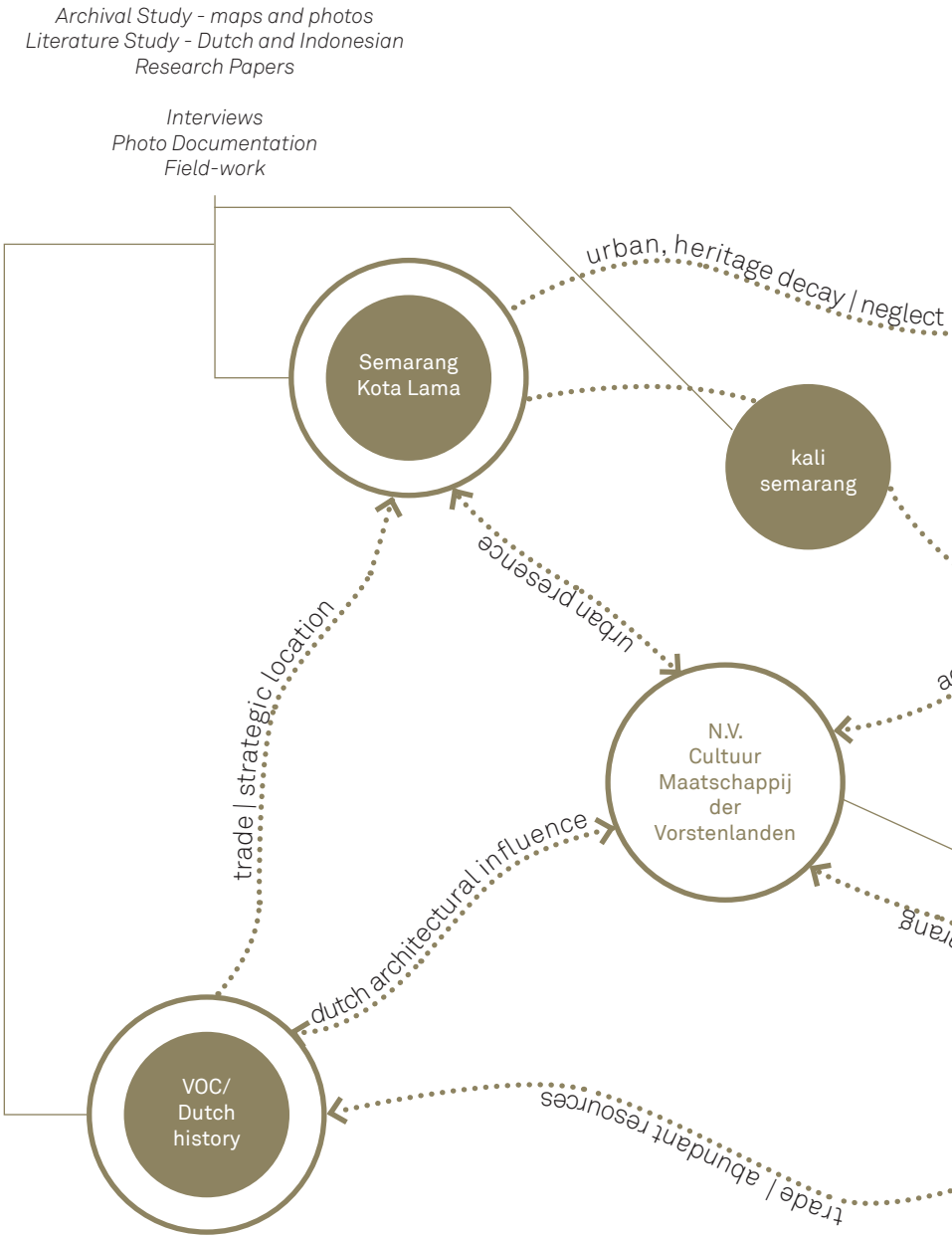
With time, post independence, the role of Kali Semarang shifted. The constant threat of flooding (coastal and rainwater) and decreasing water flow, among others,



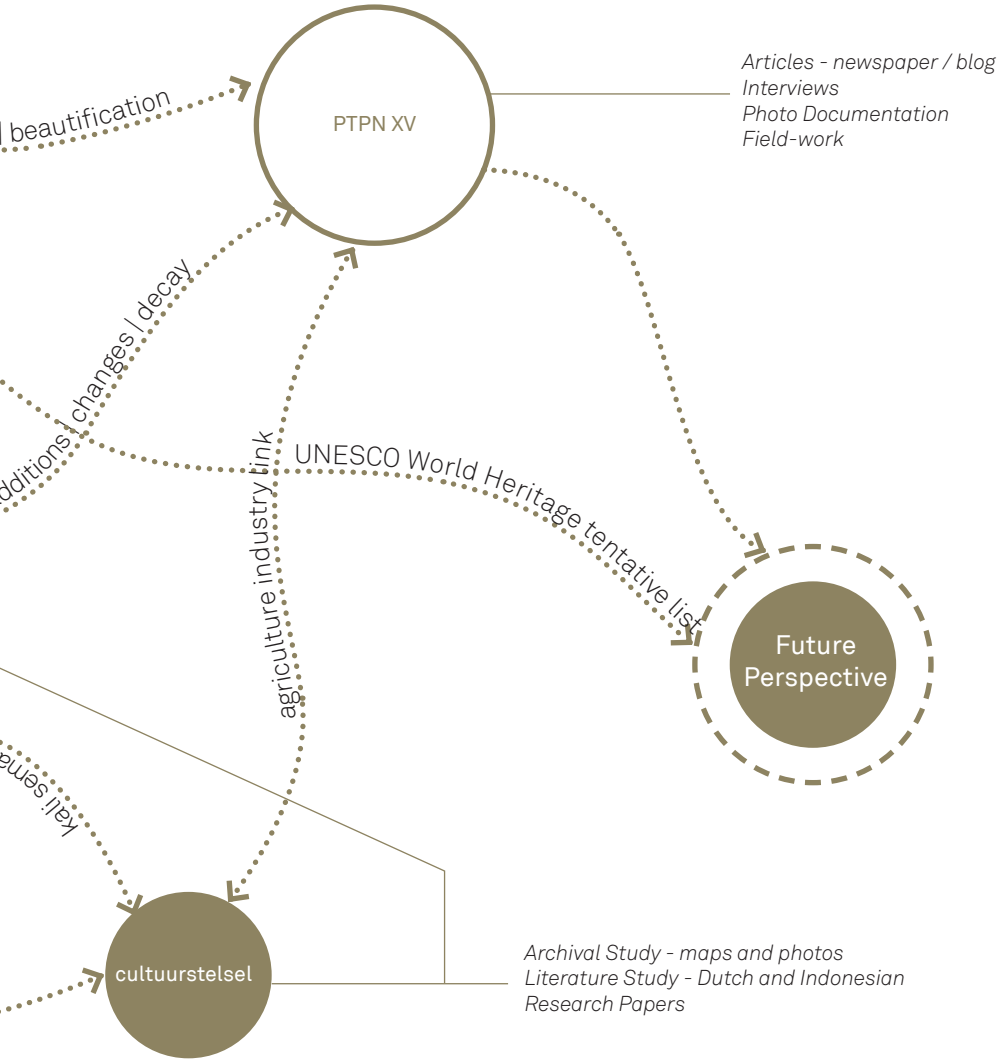
the Kali Semarang eventually became an open sewage line for the community. Perhaps the significance of the river was mostly equated with boats and trade, leading the community to believe that Kali Semarang was only a source for trade and transportation; leading to its demise.

Aside from a polluted and unhygienic river, the city faces a multitude of issues - heritage and urban decay, land subsidence, lack of accessibility to clean water, poor waste/water management, lack of education, poverty and a general lack of awareness. Not only confined to the built environment, there are a number of social issues that are prevalent in the city. How can we even begin to address these ecological and built environmental concerns in a city where social issues also need to be addressed?

A shift in perspective, both from the community and external stakeholders, is required to catalyze the changes that need to take place for the city to survive. Bridging this gap between community and local, national and the global require interventions across multiple domains. Awareness, both socially and environmentally is key!


Archival Study - maps and photos
Literature Study - Dutch and Indonesian
Research Papers
Interviews
Photo Documentation
Field-work
urban, heritage decay / neglect
Semarang
Kota Lama
kali
semarang
urban presence
trade / strategic location
N.V.
Cultuur
Maatschappij
der
Vorstenlanden
dutch architectural influence
VOC/
Dutch
history
trade / abundant resources

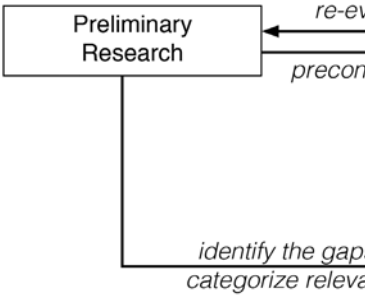
METHODOLOGY *a non-linear process*



“

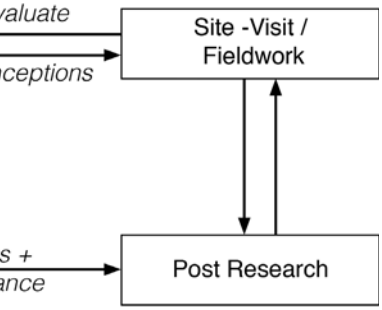
The architectural discipline is a complex combination of a multitude of professions, perspectives, cultures, environments, socio-political-economic issues and so on. Having a thorough understanding of each of these domains, in its given context, is vital to start a project – be it urban, landscape, architectural or social. But each of these different domains like culture and politics require different research methodologies to aid the design practice.

With the above in mind, my research process involved three main components in different time frames – pre-site visit research, on-site/ fieldwork research and post-site visit research (Fig 1). Through the preconceptions I had formed from the preliminary research that was conducted (to understand the context of Indonesia and Semarang), my research question centered on the cultural response to heritage and the role of heritage in the smart city movement that the



NOTE:

Extract from the reflection paper on non-linear methodology.



government was planning to implement. However, arriving in Semarang for a three week long fieldwork, my preconceptions were contested, resulting in my research question becoming more specific to an identified problem – the lack of accessibility to water and poor waste management centering on the neglected river (Kali Semarang) in the proposed sites (Kota Lama, Pecinan and Melayu). This meant a re-evaluation of the research that was done prior to the site-visit, categorizing the relevance of the research, and conducting further research during and after the site visit that was more specific to the updated research question. This echoes the Heritage and Architecture chair's approach to architectural design - a combination of cultural values, technology and design that are in constant motion. It highlights that the process for heritage architects is non-linear, and the 'creative curve' shifts due the large time frame required for research when it comes to re-designing a building.

”

Indonesian Archipelago of 17,503 islands

Island of Java where

Semarang is located

Semarang

A BRIEF HISTORY

Semarang has been formed since the 6th century. It was initially a part of Mataram Kuno Kingdom in an archipelago coastal area called Bergota, which acted as a port. Due to continuous sedimentation that is still occurring until now, the area formed into land.

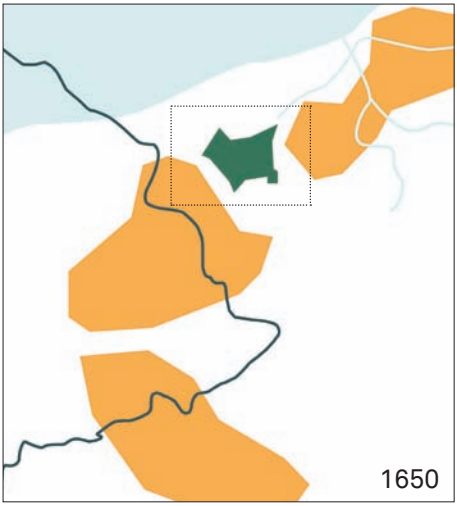
In the 15th century, Chinese traders were first to come and lived in the hilly part of Semarang, while the Dutch (VOC) came in the early 16th century. A series of events that happened since this period to the independence-day has been triggered by ethnic diversity and segregation that highly influenced the urban morphology of Semarang. In 1547, Semarang started to consist of several groups of people, which include indigenous Javanese, Chinese, and Dutch.

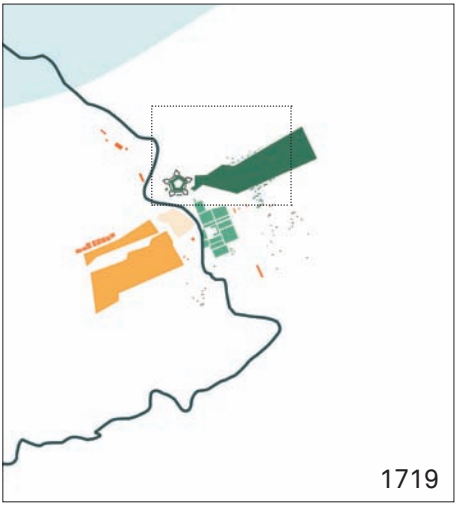
In 1678, Mataram Kingdom gave Semarang to VOC as a reward for their assistance in defeating another Indonesian Kingdom, Trunojoyo. Kota Lama Semarang acted as the VOC center of administration, which led to the emergence of Dutch and European style buildings. VOC's intention was to trade because Semarang is closely positioned to the hinterland that produces spices. These spices were then sold to Western Europe. This contributes to the establishment of Semarang's

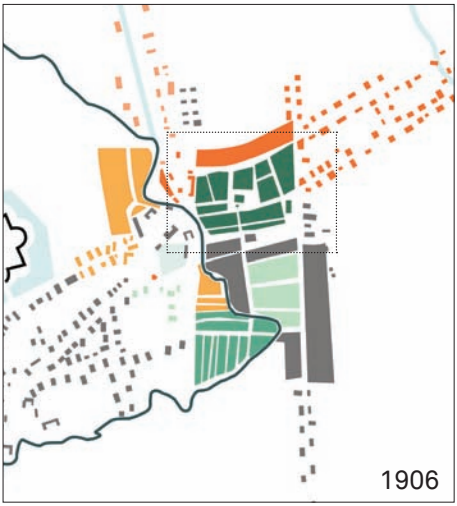
SOURCE: Leiden University Library - Digital Collections (1915-1925)

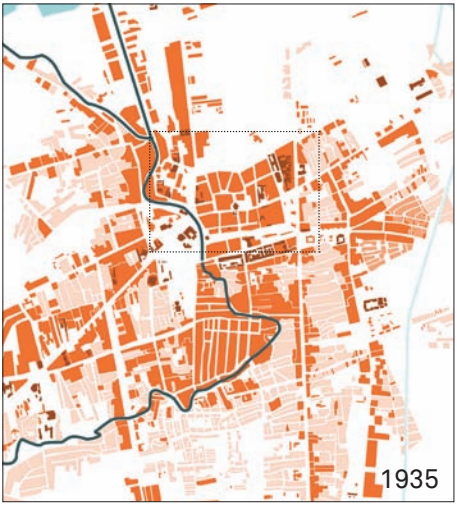
role as a trade and port city.

During the initial stage of Semarang urban growth, the city was configured around Kali Semarang and along the east to west road, which both also acted as the main transportation routes. In 1695, The Vijfhoek fort was built as surveillance area because Kota Lama started to act as the military center. When VOC fully owned Semarang in 1705, various rebellions occurred. In 1731, the Chinese helped Sultan Surakarta to fight VOC. Consequently, VOC moved the Chinese settlements to the now Pecinan area for full-surveillance on the Chinese activities. Meanwhile, the Dutch settlements grew on the east side of the Vijfhoek fort. This area is now referred to as the embryo of Kota Lama Semarang. Apart from the Dutch turf, this area also holds the Javanese, Melayu, and Chinese settlements that grew along the Kali Semarang's estuary and were segregated based on ethnicity.





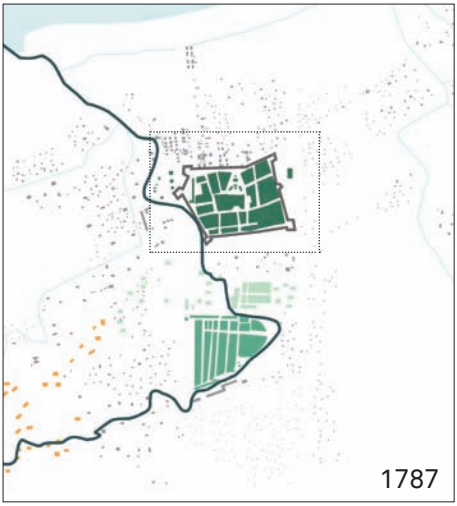


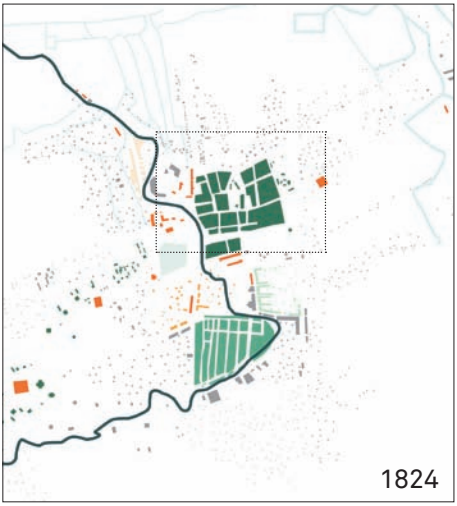


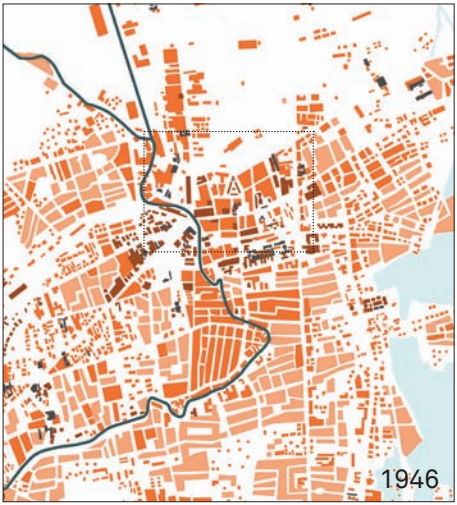
Dutch Area
Chinese Area
Javanese Area
Muslim Area
Melayu Area
Demolished Buildings
Important Buildings
Planned Buildings
Organic Kampung
Unidentified

SOURCES:

Redrawn (Ananta Vania Iswardhani) from archival maps from the Leiden University Library, digital collection.







The arrival of the VOC and eventual take over by the Dutch state resulted in over 300 years of colonization in Indonesia. Additionally the arrival of Chinese traders in 15th Century, followed by Arab traders contributed to the rich diversity of Indonesia we see today.

The urban growth of Semarang was initially configured around Kali Semarang and the East-West road around 1719, and then continued to expand outwards where social segregation played a large part in the configuration of the city. In 1935, Karsten was in charge as the advisor of Semarang city planning. He divided the zone based on the economic classes rather than the ethnic group. However, the three ethnic groups were also divided into three economic classes. As a result the concept of zoning division only changed land use and spatial function, but still held the segregation.

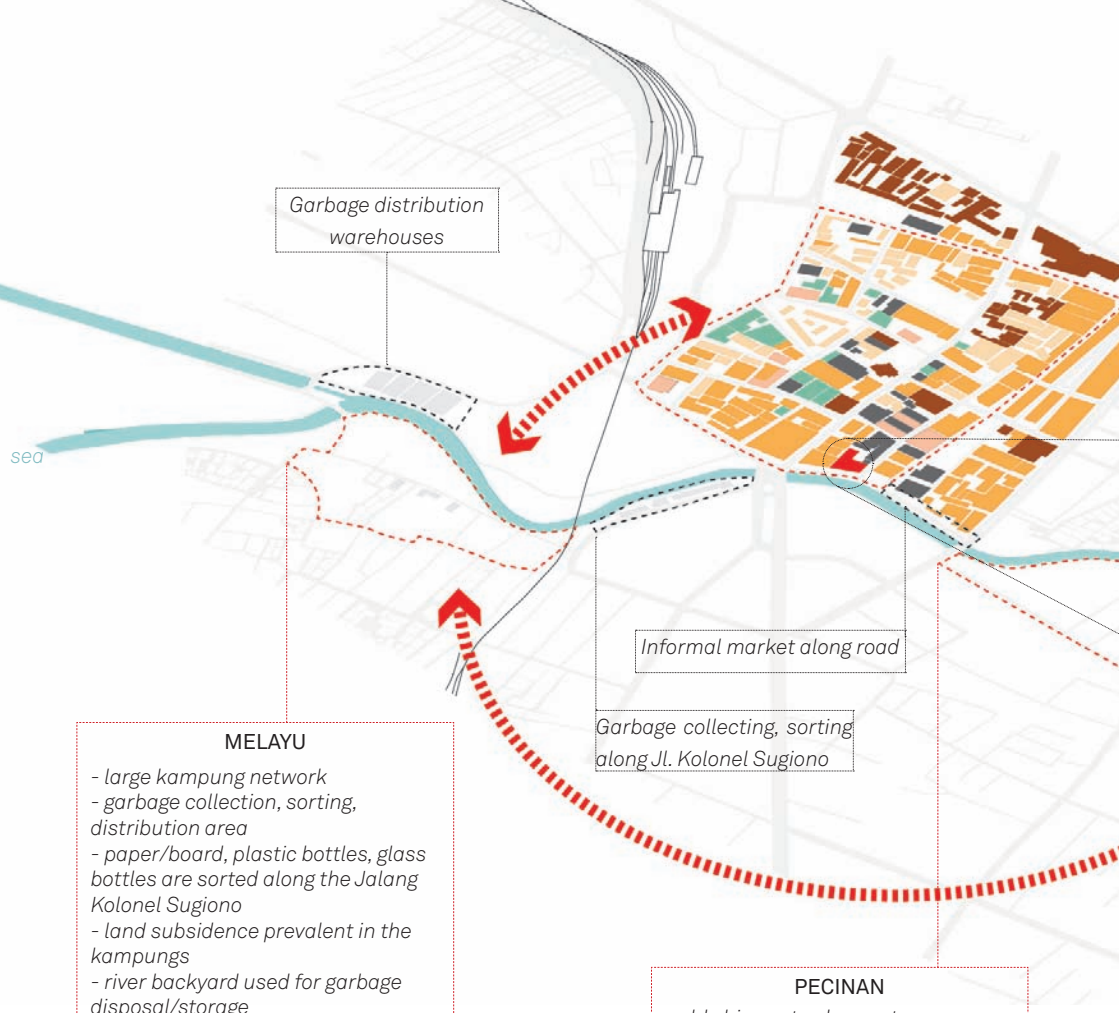
With the declaration of independence, the urban population grew exponentially. Urban infrastructure thrived and Dutch buildings were nationalized between 1950 and 1960 in Semarang, while the rest went to individuals and private institutions.

SOURCE: Drone photo by Maheswara Rakha Darmindra and Widasari Yunida

KOTA LAMA, SEMARANG TODAY

Kota Lama currently has many abandoned buildings that are continuously in decay. This is an issue that needs to be addressed, specially in the ambition for Kota Lama to become a UNESCO World Heritage Site (currently on the tentative list). Result of this is that these buildings became a purely touristic fabric for instagram and social media - however this also is a positive catalyst for the government to make changes to address the issues that it face in various domains.

As it is, the city stands, neglected and dilapidated and think layer of fresh paint that provides and illusion of 'care'. As many of communities in and around the area struggle with their daily lives, issues that need immediate attention such as accessibility to water, waste management, and a river that acts more as a sewage line; continue to be neglected.



MELAYU

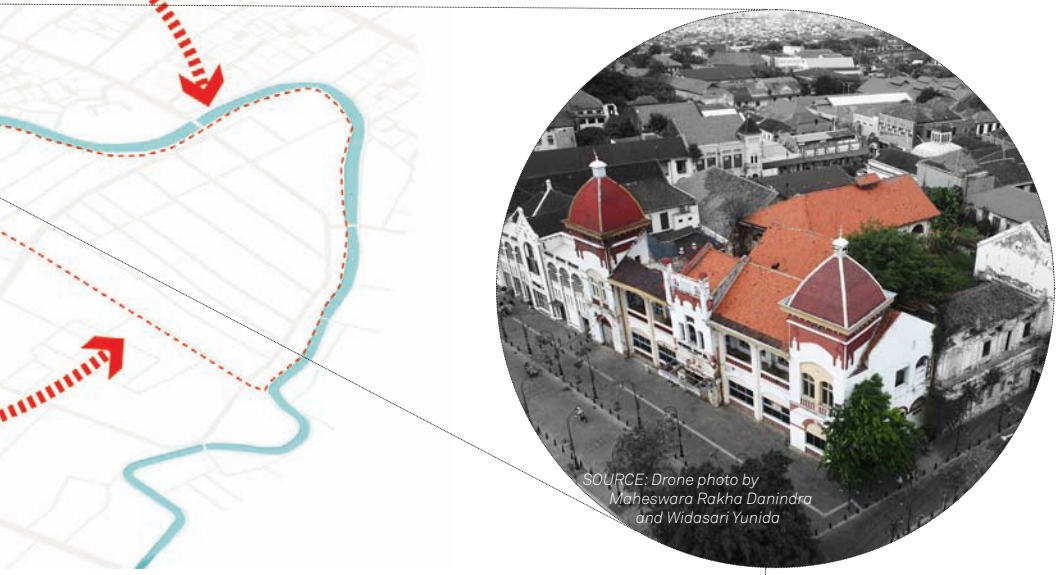
- large kampung network
- garbage collection, sorting, distribution area
- paper/board, plastic bottles, glass bottles are sorted along the Jalang Kolonel Sugiono
- land subsidence prevalent in the kampungs
- river backyard used for garbage disposal/storage
- abandoned buildings used to dumb garbage bags

PECINAN

- old chinese trade quarter
- currently typical chinese shophouses are mainly used for commerce on the ground floor while the upper floor remains unoccupied (previously used for living)
- market area, night food market continues to be popular and thriving
- close knit community of traders and residents: strong generational link
- abandoned heritage used for storage, or remains empty

KOTA LAMA

- on the tentative list for the UNESCO World Heritage site
- visible heritage decay contributing to a 'instagram' city
-large number of abandoned heritage buildings
- centralized water and drainage network in place
- tourism oriented
- has become a 'beautification' project for tourism leaving community disconnected



SOURCE: Drone photo by Maheswara Rakha Danindra and Widasari Yunida

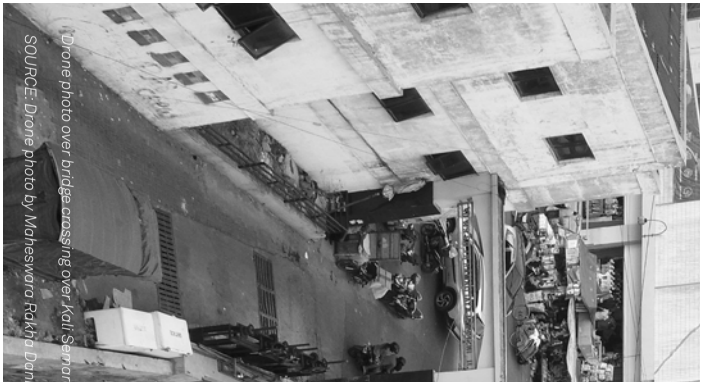
kali semarang

PTPN XV

What was once a prominent landmark in the city, the PTPN XV (formerly known as the N.V Cultuur Maatschappij der Vorstenlanden) building now remains neglected, and in decay with its roof in shambles and its once strategic and prestigious image lost through the course of time. Facing the Kali Semarang, it stands, forgotten, both its existence and cultural significance as a former cultuurstelsel building.

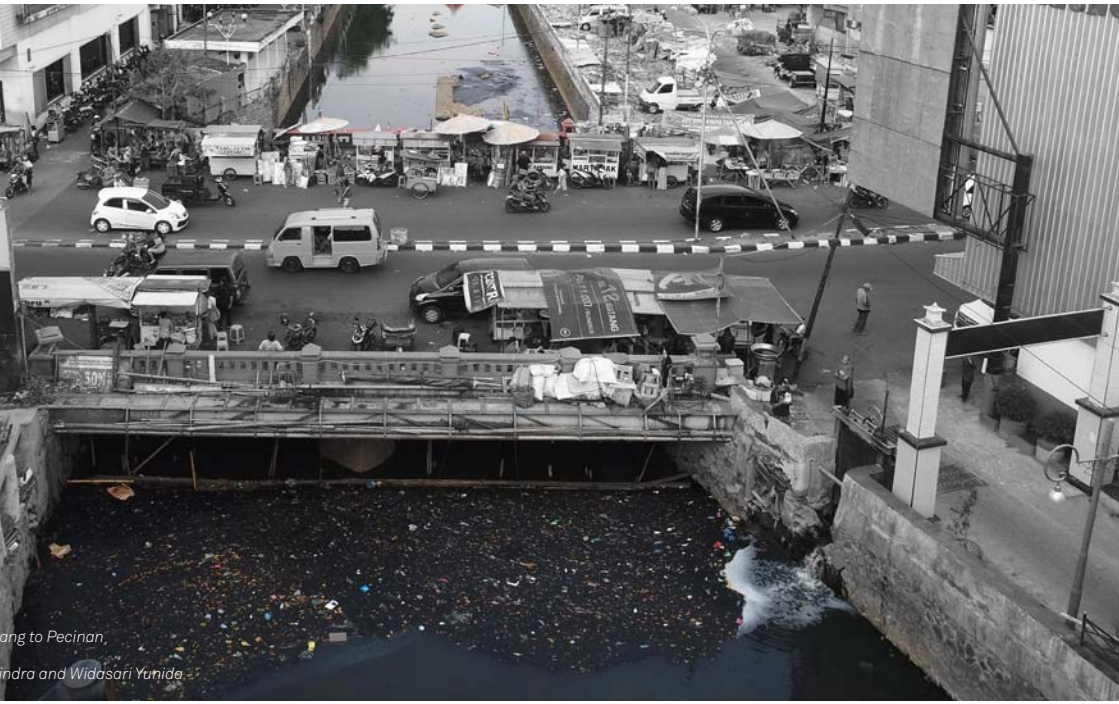
What becomes of these abandoned heritage? A mere tourist attraction?

- *River*
- *Residential*
- *Road*
- *Public*
- *Site*
- *Industrial*
- *Commercial*
- *Vacant*



Drone photo over bridge crossing over Kali Sarror

SOURCE: Drone photo by Maheswara Rakha Dan



ang to Pecinan,

ndra and Widasari Yunida

Kali Semarang has become an artery for sewage; its significance lost throughout time.

Riverbank overlooking the Mosque in Kampung M

SOURCE: Author, 2019

Melayu, Semarang

The river bank paved over, covered in trash - a dump site for the kampungs.

Lady filling water from a PDAM well in Melayu.

SOURCE: Author, 2019.

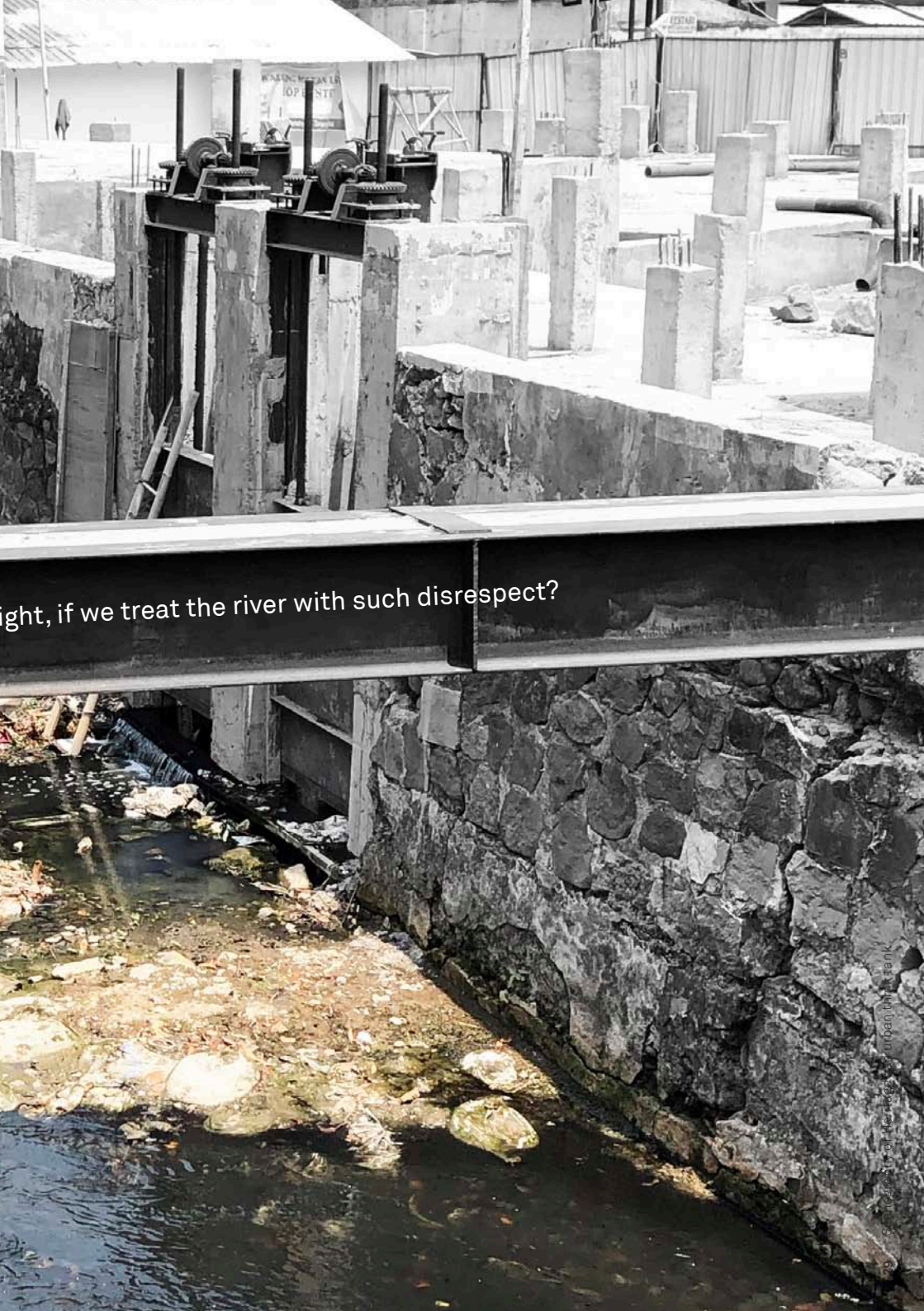
Water truck distribution to shop near Melaya

SOURCE: Author, 2019

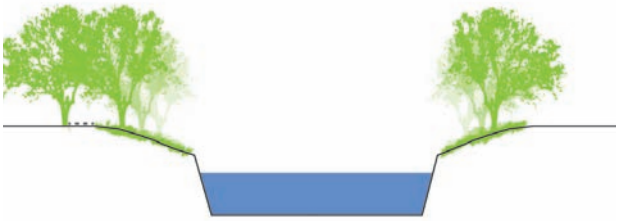
Access to clean drinking water scarce, either sold by individuals or distributed to shops by water trucks,

Waste collecting near the sluice near Meidyu-Keto Lome

SOURCE: Author, 2019


ight, if we treat the river with such disrespect?

SOURCE: Leiden University Library - Digital Collections (1915-1925)



KOTA LAMA 1900s

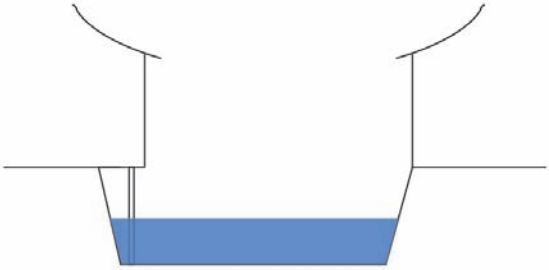
The river bank was soft with lush greenscape and trees on the river front. River transportation added to the 'romance' of this port city.

SOURCE: Ananta Vania Iswardhani (2019)

KOTA LAMA 2019

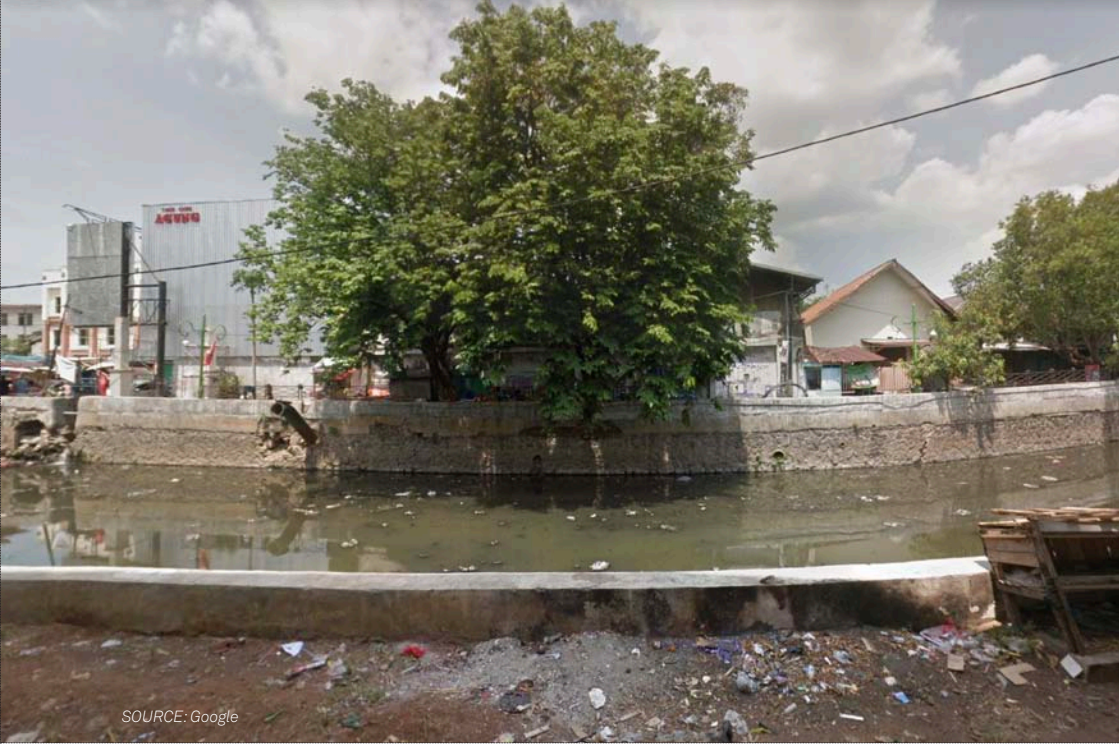
The river bank is paved with building debris and waste along the river front. The river edge hardened, adding to the dilapidated feel of the city, the romance lost where the river has become a sewage line.

SOURCE: Leiden University Library - Digital Collections (1915-1925)

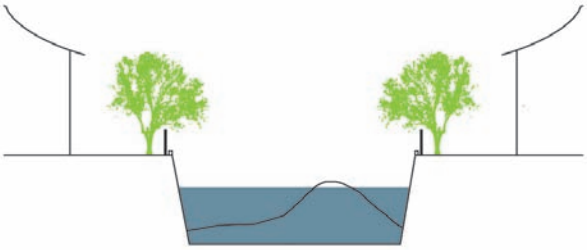


PECINAN 1900s

Shophouses built against the river edge, much like those in Suzhou China.



SOURCE: Google



PECINAN 2019

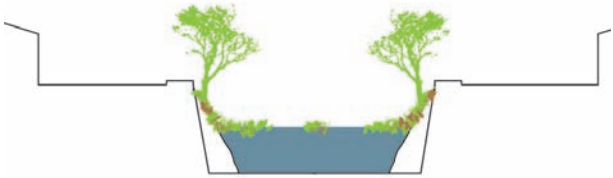
The river bank is paved and the river made narrower for streets across the shophouses. Sedimentation from upstream and waste collected; a distinct odor prevailing throughout.

SOURCE: Leiden University Library - Digital Collections (1915-1925)

MELAYU 1900s

Riverbank open with soft greenscape along the river front.

SOURCE: Author (2019)



MELAYU 2019

The river bank is paved with sediment and green on river edge. The usual stench of the Kali Semarang not as evident in this area due to the green on the river.

Distributed through pipes

WEST

KOTA LAMA

KALI GARANG

pipes

PECINAN

Kampung wells - water lady

Distributed by water trucks to local business that sell water in buckets/bottles

MELAYU

SOURCES:

PDAM interview conducted by Luuk Hofhuis, Prinka Anandawardhani and Widasari Yunida of the Shared Heritage Lab in 2019 in Semarang.

water distributed are not drinkable!!!!

KAMPUNGS/BUSSINESSES

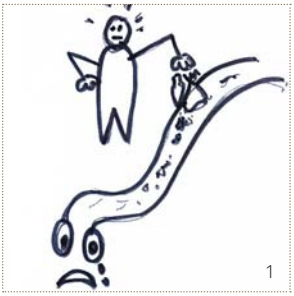
Collected by an appointed person in the Kampung

Bio and human waste flows into the Kali Semarang - river backyard in key areas also used as dump sites for solid waste

Sorting points located along Jl. Kolonel Sugiono - public can sort and/or bring solid waste (paper, cardboard, plastic and glass bottles, cans) to earn money

Sorted recyle materials transported from warehouses to Kudus, the rest to Jatibarang Waste dump.

KUDUS (CITY)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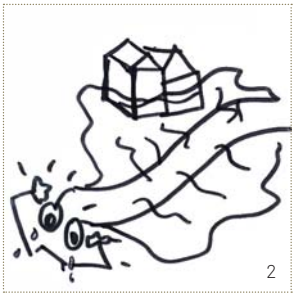
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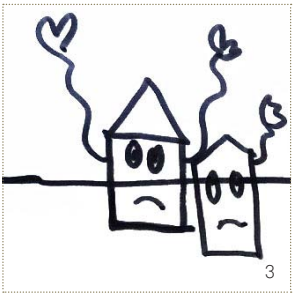
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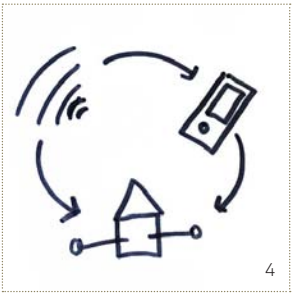
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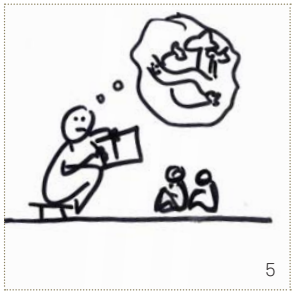
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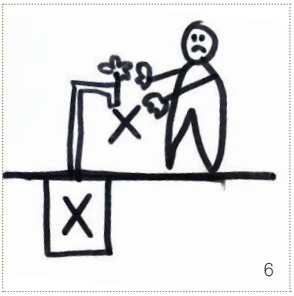
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CATALYZING CHANGE *identifying and observing*

1: Lack of positive relationship with the river and therefore water.

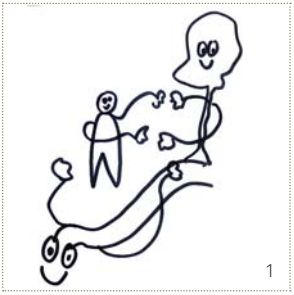
2: High risk of flooding

3: High risk of land subsidence

4: Technology implementation challenges and poor water/waste management

5: Lack of awareness and education combined with lack of management plans

6: Lack of accessibility to water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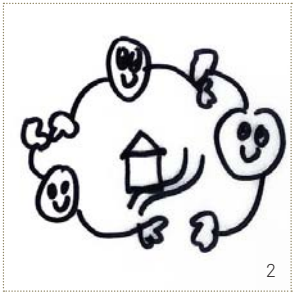
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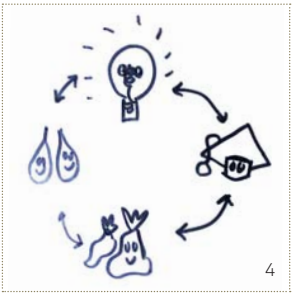
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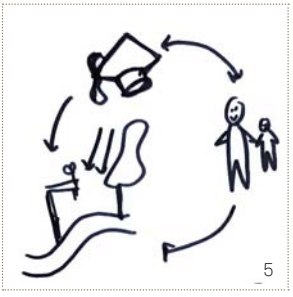
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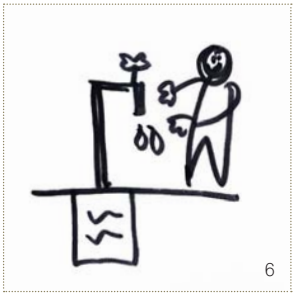
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CATALYZING CHANGE *confronting*

1: Re-establishing a relationship with the environment

2: Facilitating community engagement through urban injections

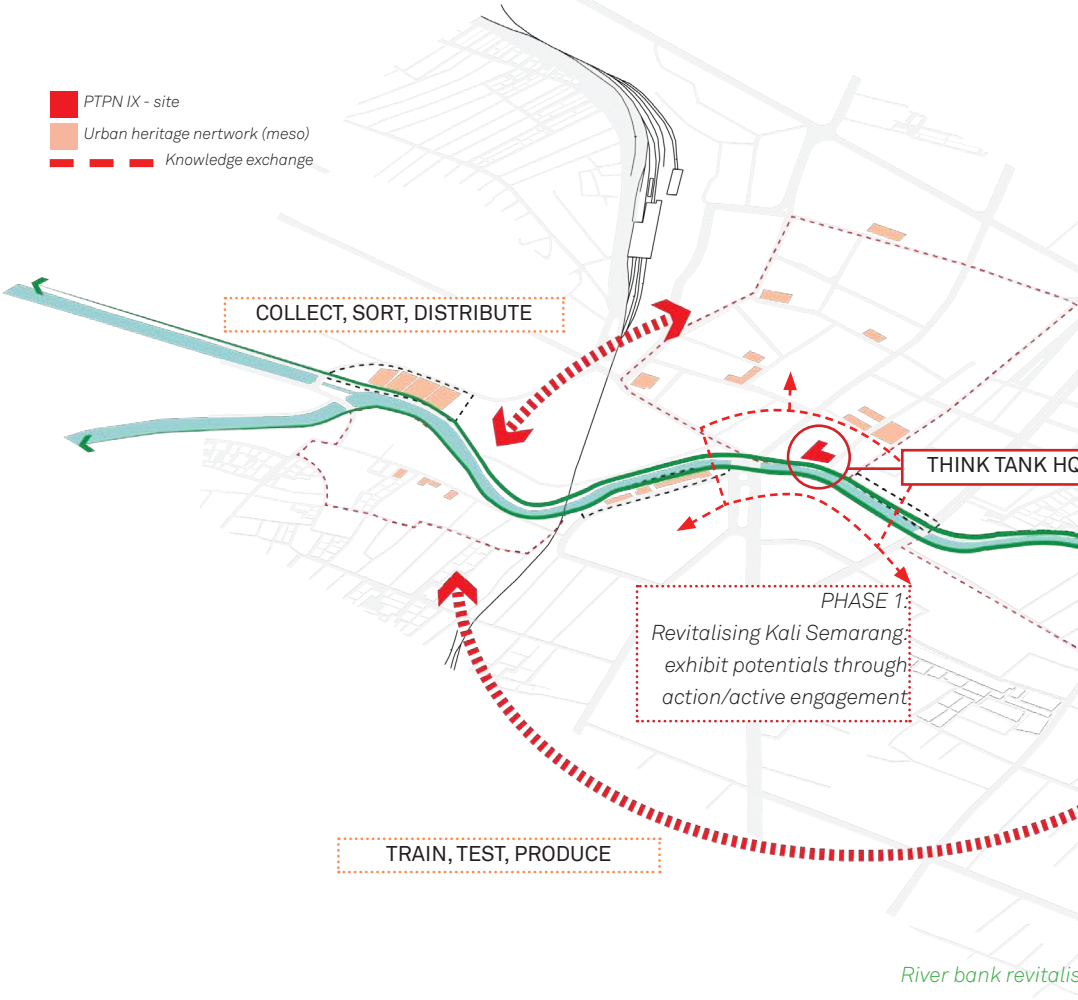
3: Cleaning Kali Semarang

4: Re-linking the cycles of knowledge, waste and water and understanding the potentials and facilitating water/waste management

5: Educating and creating awareness to the roles of water

6: Improving accessibility to clean water

How can we re-establish the lost relationship with the river and what can be done to address accessibility to water?



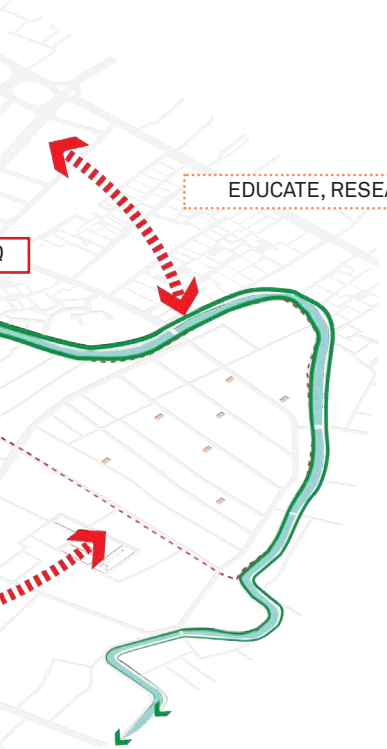
AN URBAN NETWROK OF INTERVENTIONS

A series of interventions that work scenographically in the hopes of catalyzing change from the grassroot level up to a global level.

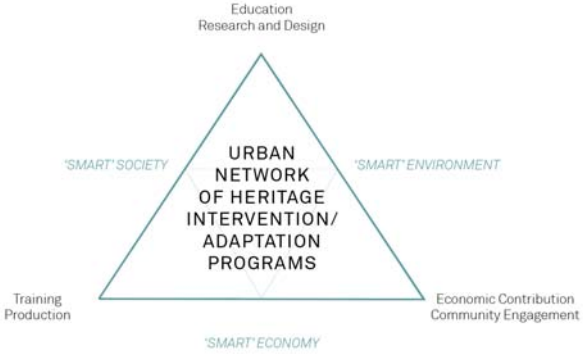
Addressing the lack of accessibility to clean water and poor waste management begins with creating awareness and re-establishing a lost appreciation for the river. Centering Kali Semarang as a source of education, and a point for establishing a new network of interventions, the project aims to engage the community across several scales -

the urban
the abandoned heritage
the object.

Re-establishing a relationship with water in the community begins with cleaning Kali Semarang and revitalizing the river bank - by nudging the community to appreciate the water. Centering Semarang as a global think tank for water and waste management, the project aims to educate, train and monitor issues related to water and waste. Through linking the areas of Kota



sation - the base for urban injections

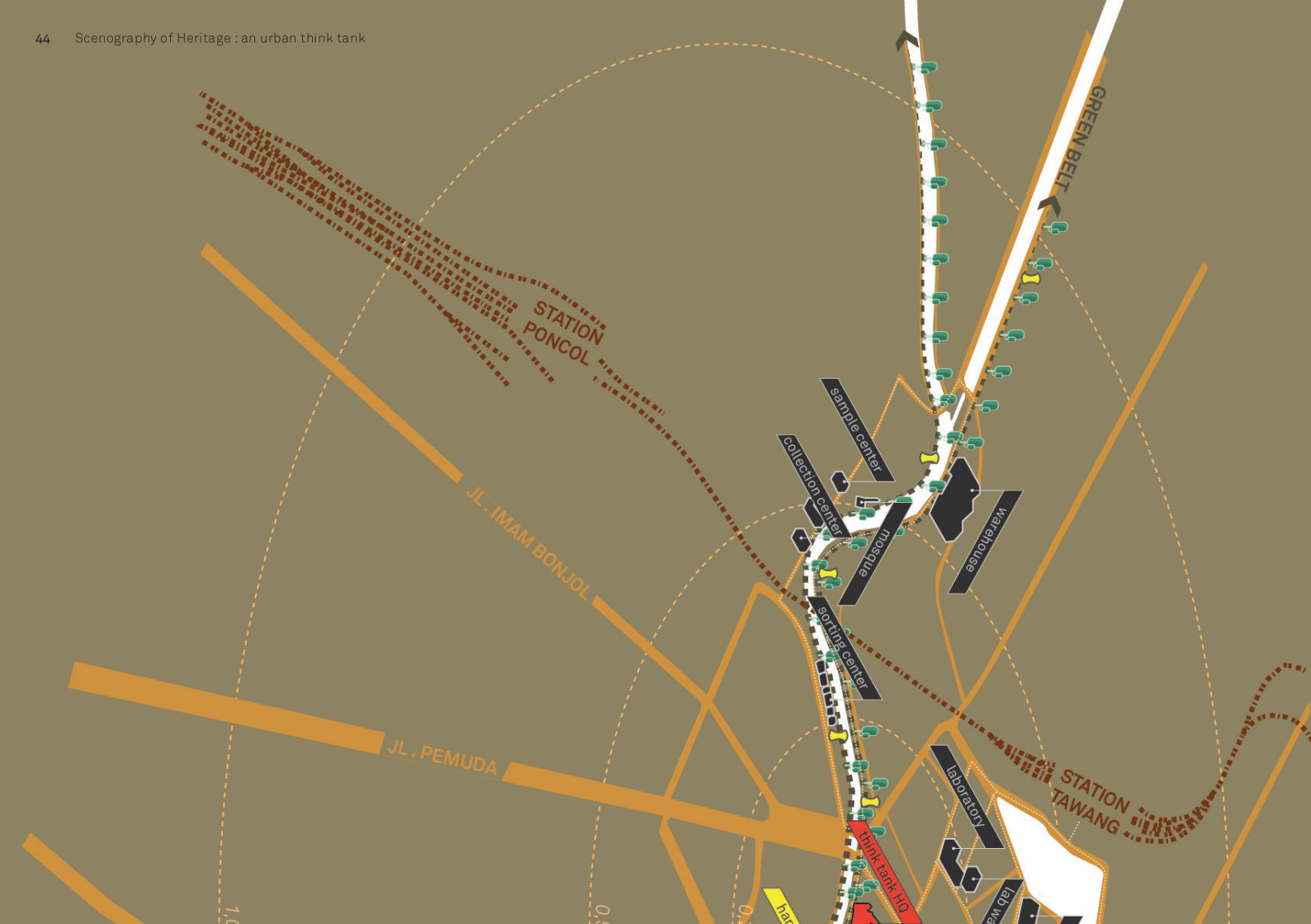


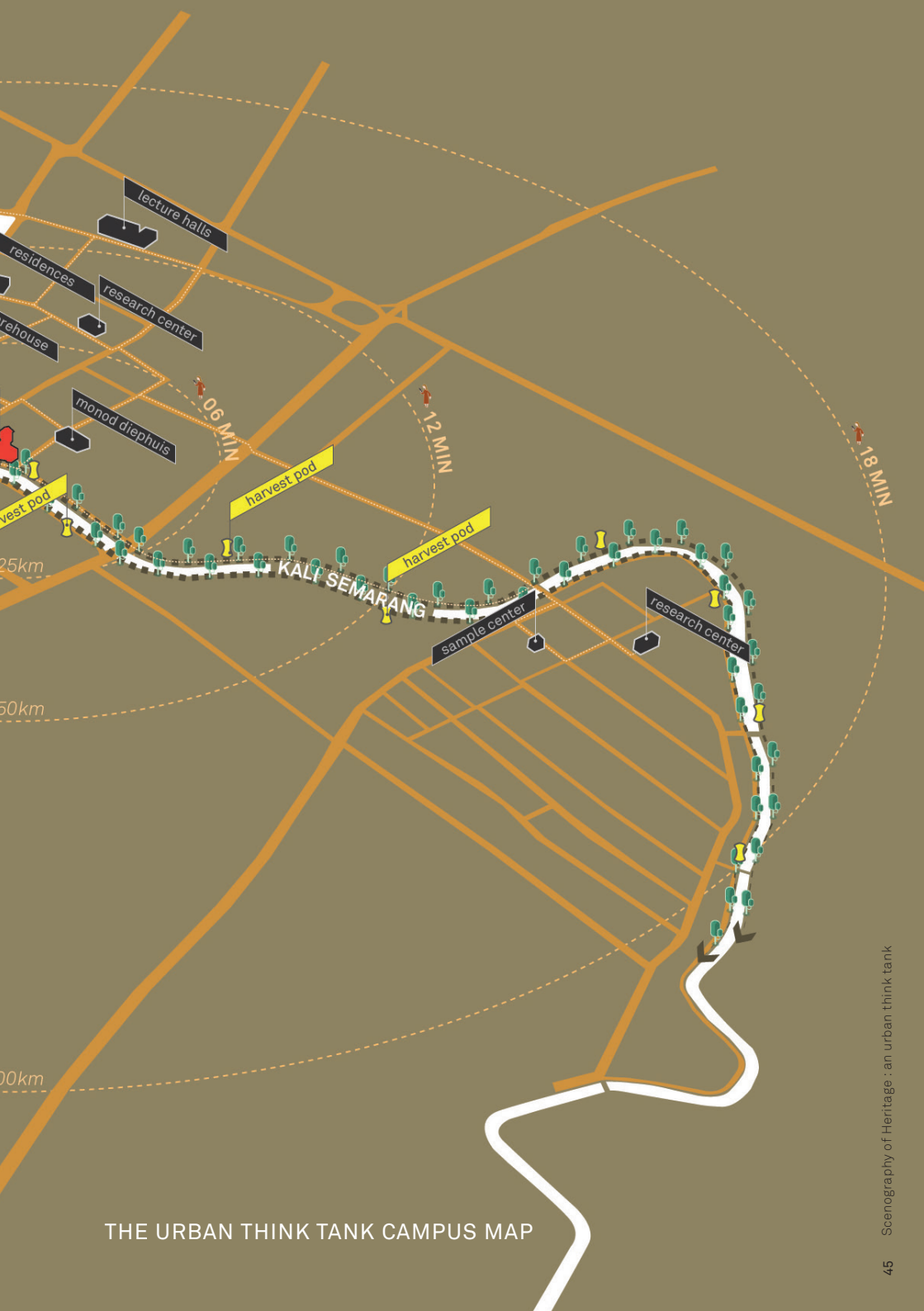
Lama, Pecinan and Melayu as a starting point urbanistically, the proposal aims to bridge the segregation gap present due to years of colonization.

Each phase of the project aims to bring Semarang close to three of the Smart City movement pillars that the government has proposed for a 'Smart Semarang'; smart environment, smart society and smart economy.

Realizing that any change require efforts from the community as well as government authorities, the project hopes to span across the different scales by bridging the gap through requiring contribution from both the community and the authorities. Existing roles of those involved in the water and waste network (service sector - formal and informal) in the city will be updated - thus keeping the economic loops in tact.

The goal of this project is to create awareness through a 'show and tell' process - if the community can see the potentials of Kali Semarang and its river bank, perhaps they will be more careful of treating it as a sewage line. By providing economic incentives and opportunities for change, the city may recover from years of neglect.

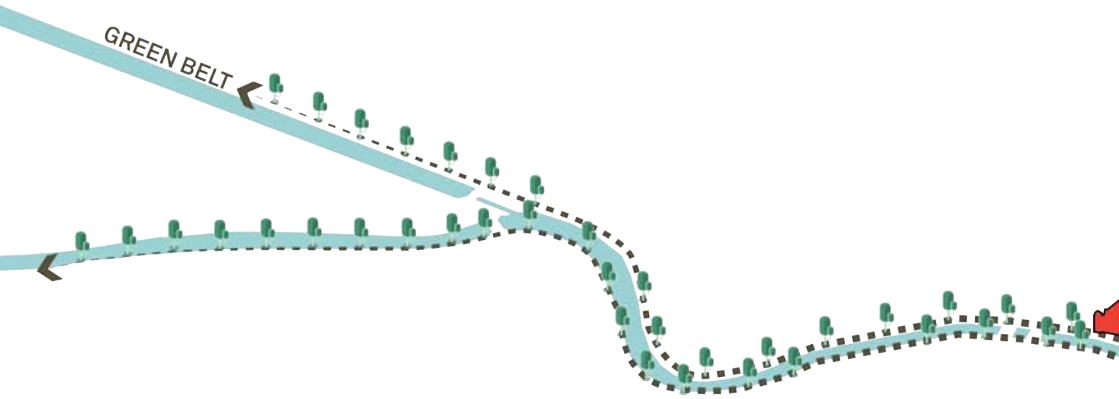

GREEN BELT
STATION PONCOL
JL. IMAM BONJOL
JL. PEMUDA
STATION TAWANG
sample center
collection center
mosque
warehouse
sorting center
laboratory
think tank HQ



THE URBAN THINK TANK CAMPUS MAP

THE URBAN

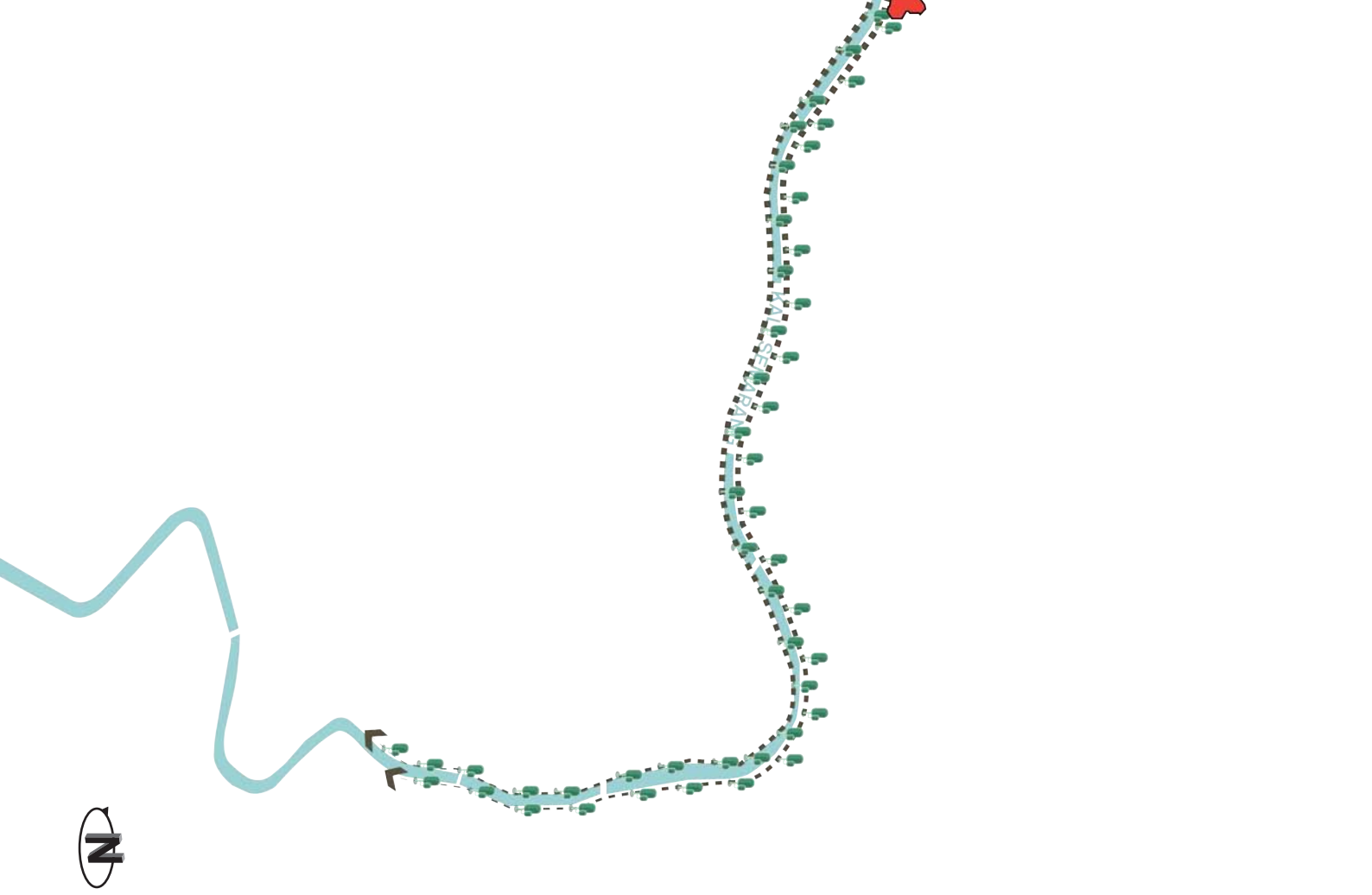
change through inclusivity



The Urban intervention begins with revitalizing the river bank with the introduction of a greenbelt along Kali Semarang in the hopes that it will catalyze change and attitudes towards the river and its current treatment as sewage channel. The aim is to bring the communities closer and having a positive relationship with the river and therefore water.

Key aspects:

- Provide infrastructure for waste management.
- Provide areas for local engagement (starting with taking care of nature, through urban farming, green buffers etc).
- Provide infrastructure for social engagement and give back the responsibility of care to the community (let the community be a part of the larger network).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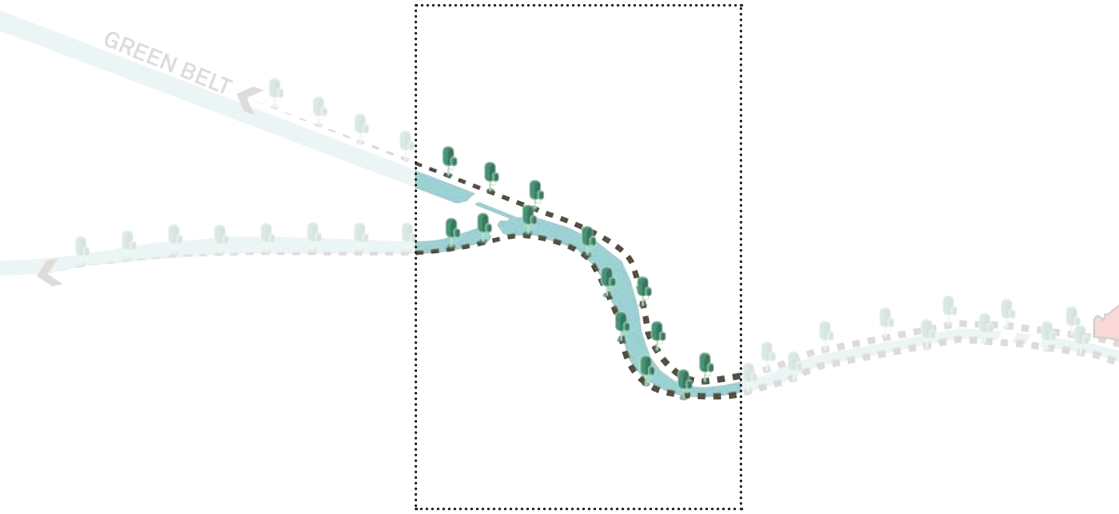
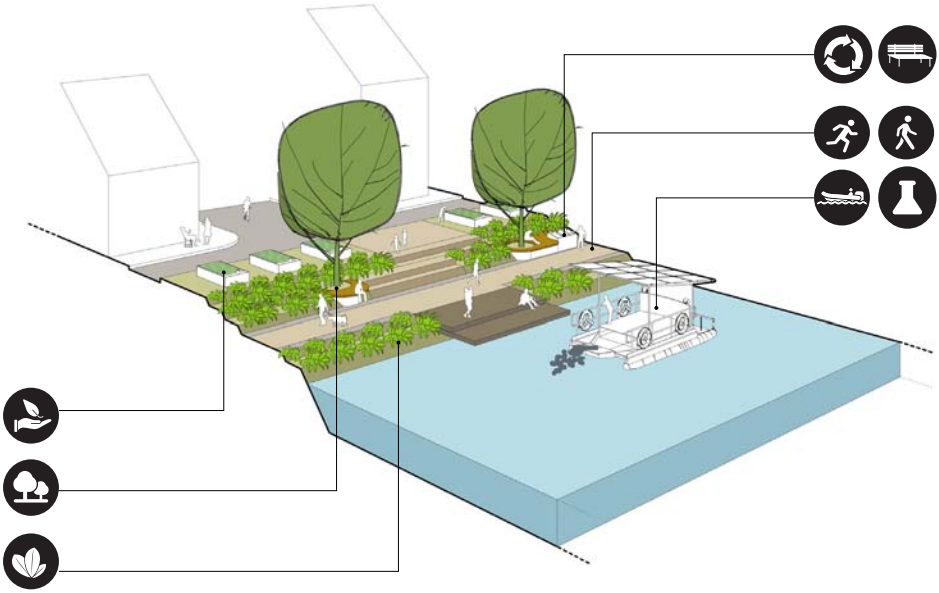


MELAYU *river as a backyard*

Melayu is currently treated as grounds for trash, forgotten and neglected. There is large potential as this area has a number of large open spaces that can be utilized for developing natural landscapes.

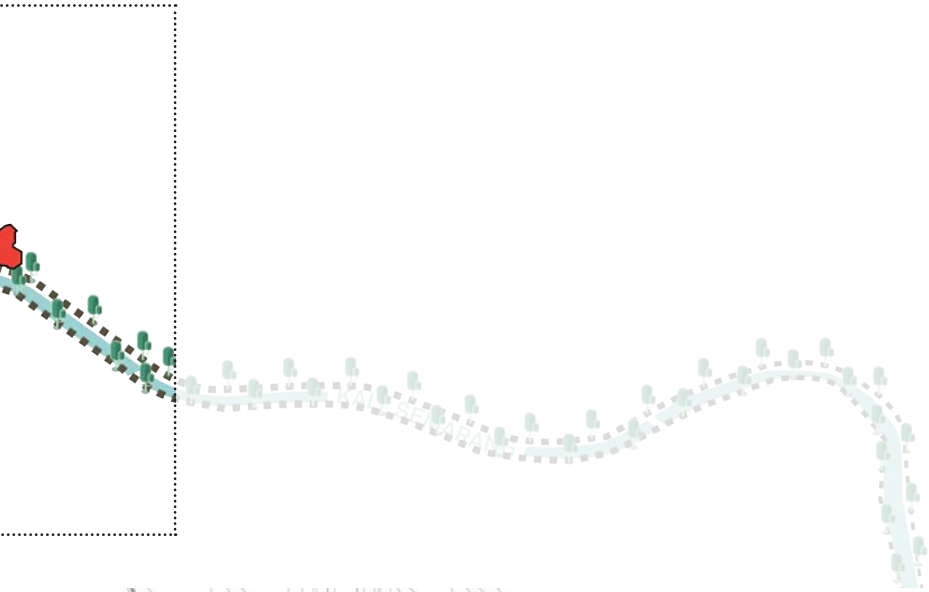
This proposal envisions the transformation of existing open spaces and key removal of sunken, unusable buildings and reusing the materials to create a backyard or the surrounding kampungs and communities. By creating areas for gardening, urban farming, boardwalks and piers with river cleaning boats that families can use as a leisure activity and in turn clean the river - facilitating community engagement and empowering the local community to take care of their own environment, forming their own identity through nature and yet connected through the river.

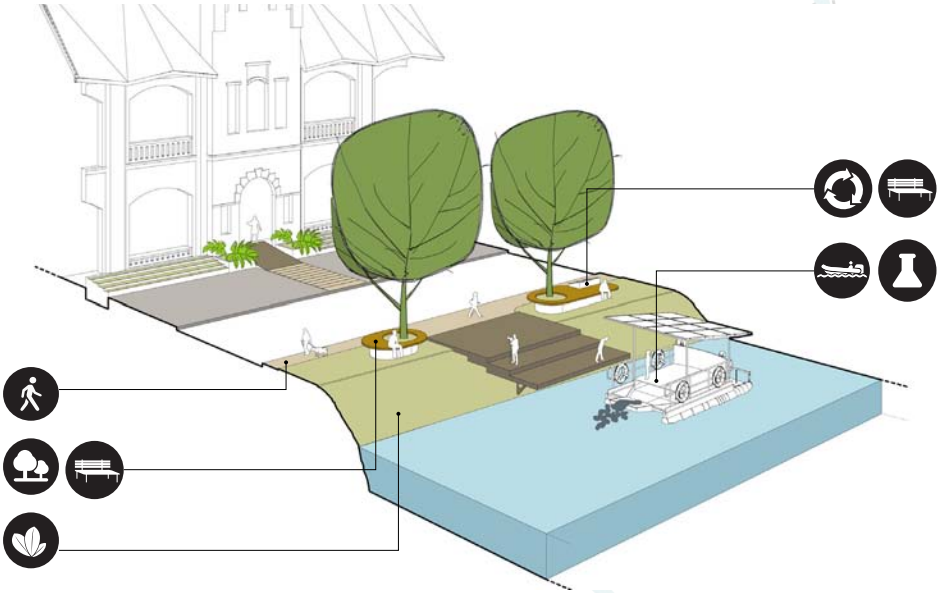


PROPOSED

KOTA LAMA *river as an education park*

Currently heavily paved over with no room for ground infiltration or pleasant pedestrian experience, the project proposed transforming the riverbank with soft green park, connected to the HQ building that would regularly conduct public workshops and information booths about water and waste management - how the community could contribute to bettering the environment. Deigned with a pier for water cleaning boats that can be hired by the public as a leisure activity while learning about the river cleaning and the role of Kali Semarang. Park benches are fitted with waste pods that are separated into collection bio and non-bio related waste connected to the waste collection points in Melayu as a part of the larger network.





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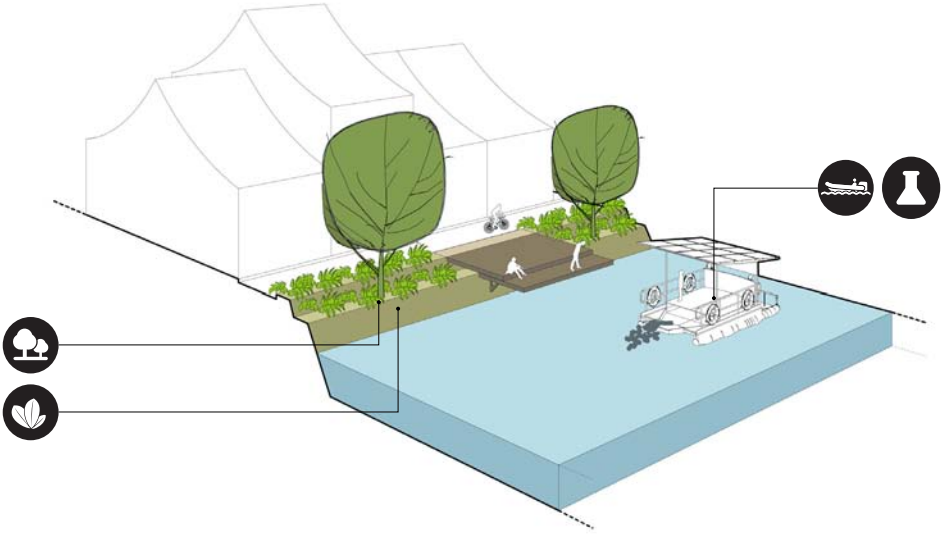

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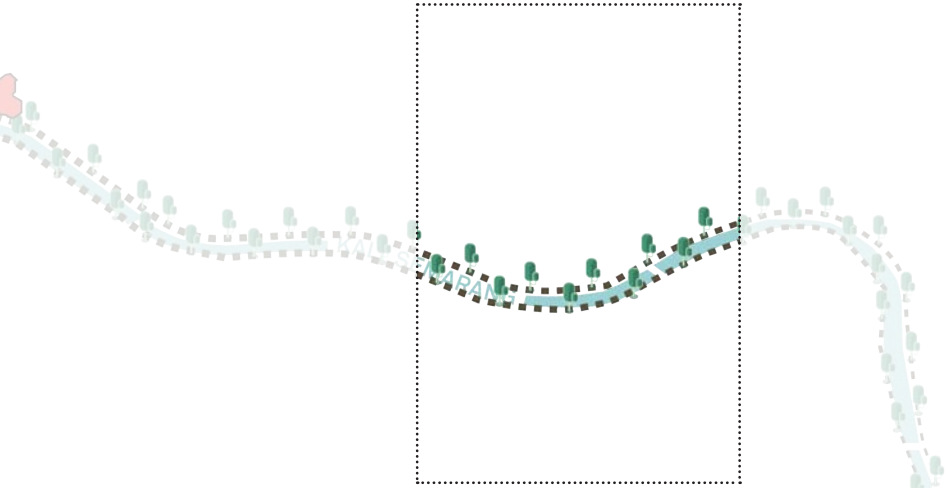
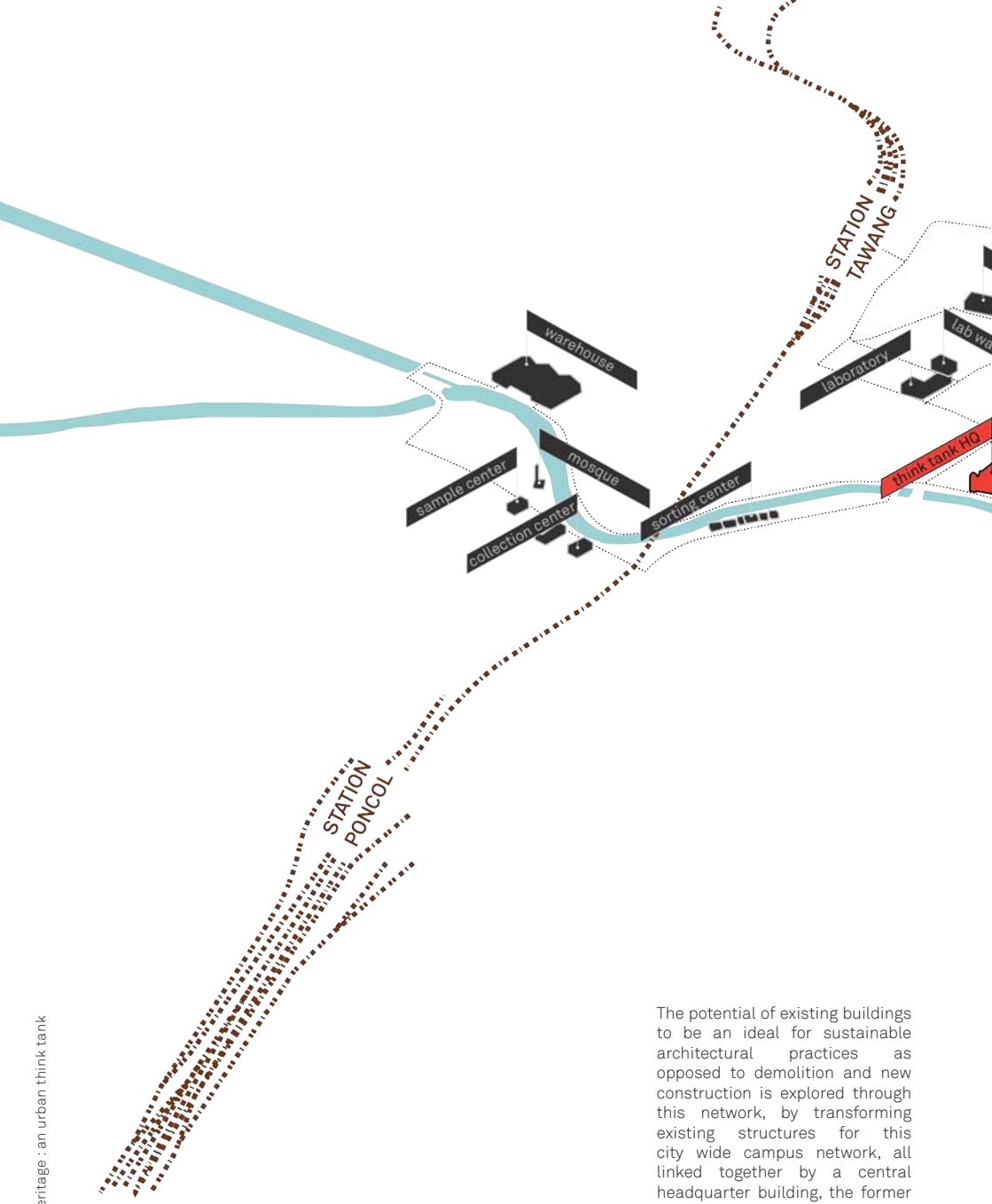


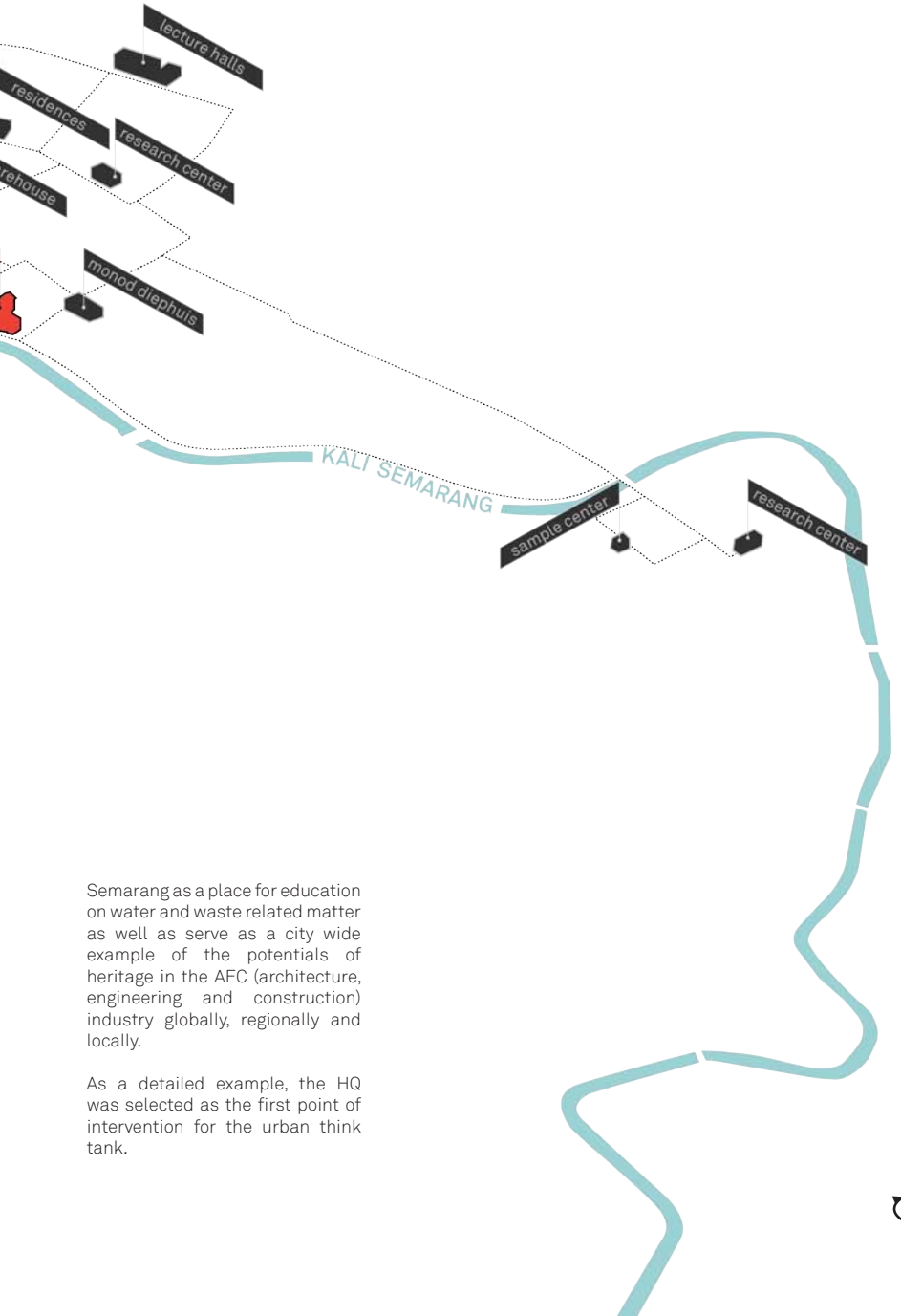
PECINAN *river as buffer*

The area of Pecinan is densely populated, with narrow alleys that form an intricate and complex network around what is left of the Chinese quarter. First phase of the green belt along this area envisions the conception of a green buffer to provide breathing spaces and fresh air to these densely populated areas. Subsequent phases would see this buffer expanding into the built space by utilizing abandoned heritage within this area and reviving the old courtyard typology of typical Chinese dwellings and creating pockets of green spaces within. The pier remains a constant along the green belt, and especially in this area to serve as a reminder of the prominence that Kali Semarang once had as a main trade transportation route.

THE ABANDONED HERITAGE



The potential of existing buildings to be an ideal for sustainable architectural practices as opposed to demolition and new construction is explored through this network, by transforming existing structures for this city wide campus network, all linked together by a central headquarter building, the former NV. Cultuur Maatschappij der Vorstenlanden building. Based on the network, the project envisions to transform each abandoned heritage (in phases) to assist the larger ambition of establishing



Semarang as a place for education on water and waste related matter as well as serve as a city wide example of the potentials of heritage in the AEC (architecture, engineering and construction) industry globally, regionally and locally.

As a detailed example, the HQ was selected as the first point of intervention for the urban think tank.

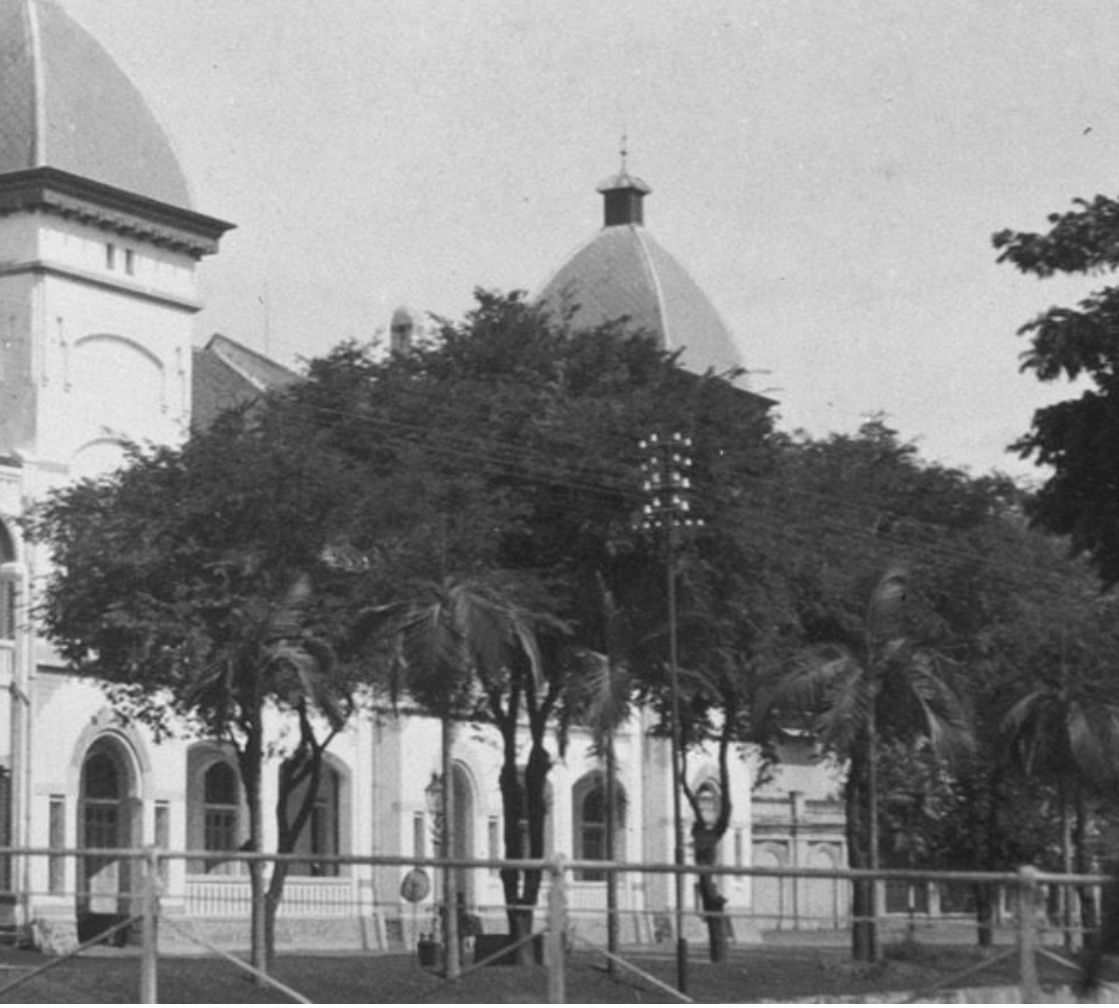
SOURCE: Leiden University Library - Digital Collections (1915 - 1925)

THINK TANK HQ *former NV C*

Architect: C.H Lugten

Year Completed: 1912

N.V Cultuur Maatschappij der Vorstenlanden building is a part of Kota Lama Semarang, a historical area that was occupied and formed by the Dutch prior the Indonesia's independence in 1945. It is situated to the east of Kali Semarang, on Jl. Mpu Tantular No. 5, Kelurahan Bandarharjo, Semarang Utara, Semarang, Indonesia. It was used and built in 1912 by the owner, N.V. Cultuur Maatsch-



ultuur Maatschappij der Vorstenlanden building

appij der Vorstenlanden, a trading company in crops and agriculture based in Amsterdam, which controlled 13 sugar mill factories, 2 sugar canes plantations, 1 tobbaco plantation, and 1 tea plantation. As the name "der Vorstenlanden" suggests, the company handled the exchange of agricultural assets of four self-governing states in Java that used to operate under the Kingdom of the Netherlands, which are Surakarta, Mangkunegaran, Yogyakarta, and Pakualaman.

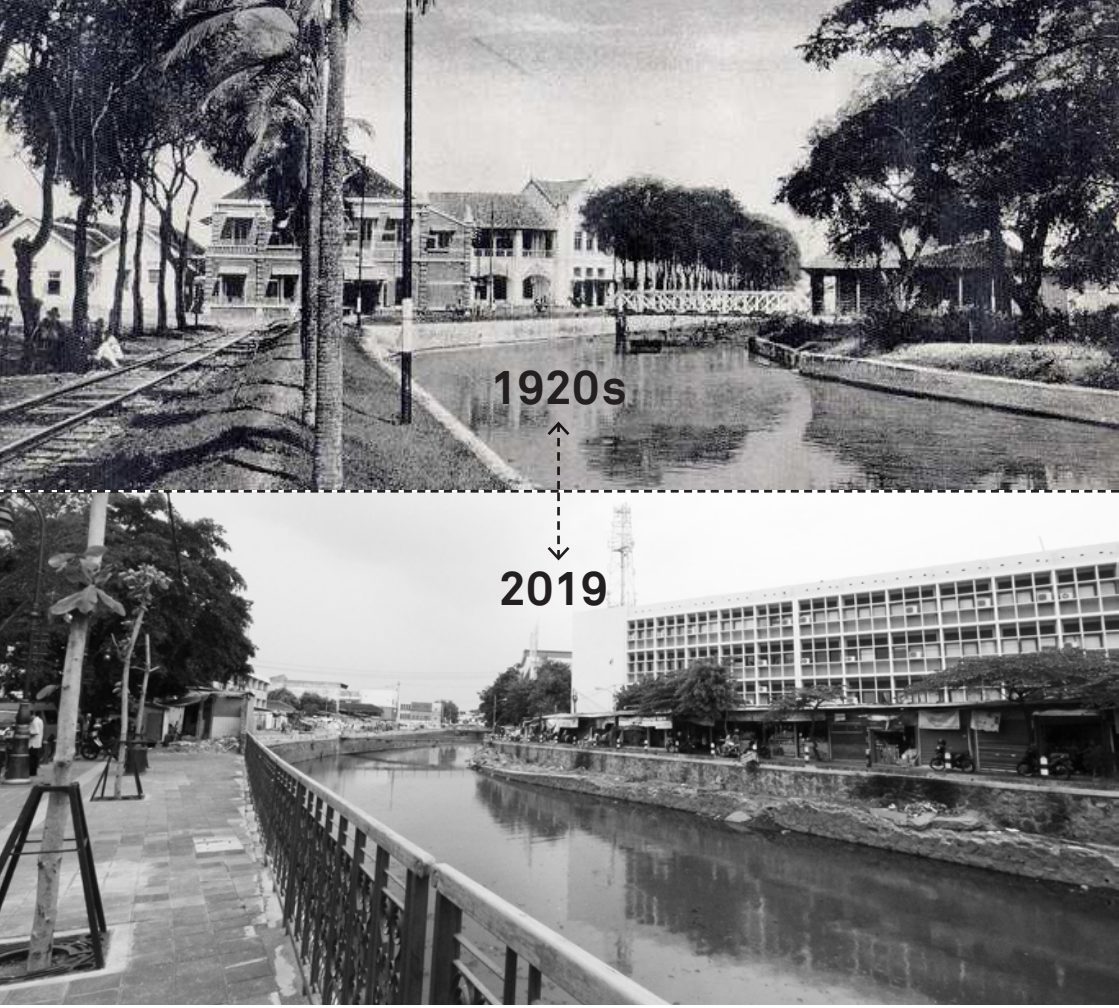
Due to the agricultural crisis in 1884, Nederlandse Handel Maatschappij, a trading office of the culturstelsel during the period of 1830 - 1870 had to bail and finally owned Dorrepaalsche Bank that financed 45% of the sugar production in Java from bankruptcy. Dorrepaalsche Bank was later turned into N.V Cultuur Maatschappij der Vorstenlanden that took over the trading during the liberal politic system and koeli ordinantie period while NHM was turned into a bank. Cultuurstelsel is a cultivation system that labour-forced Indonesians to produce specific plants for the Dutch state.

CH Lugten practiced as an architect and contractor in Bandung, Indonesia from 1914 to 1915 and has built in Semarang, Surabaya, and Jakarta. Reflecting on his history, he was specialized in residential projects, one was related to residential for sugar trading office in Amsterdam.

Drone photo over the PTPN XV building in 2019.

SOURCE: Drone photo by Maheswara Rakha Dan

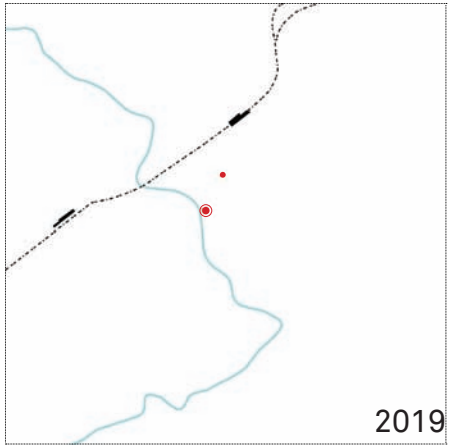
The current state of the former NV Cultuur Maatschappij der Vorstenlanden building in Semarang, taken in November 2019.



SOURCES:

Image: Leiden University Library Digital Collection

Maps: Leiden University Library Digital Collection



URBAN PROMINENCE *a strategic location*

Historically located along the railway line, in close proximity to Station Tawang.

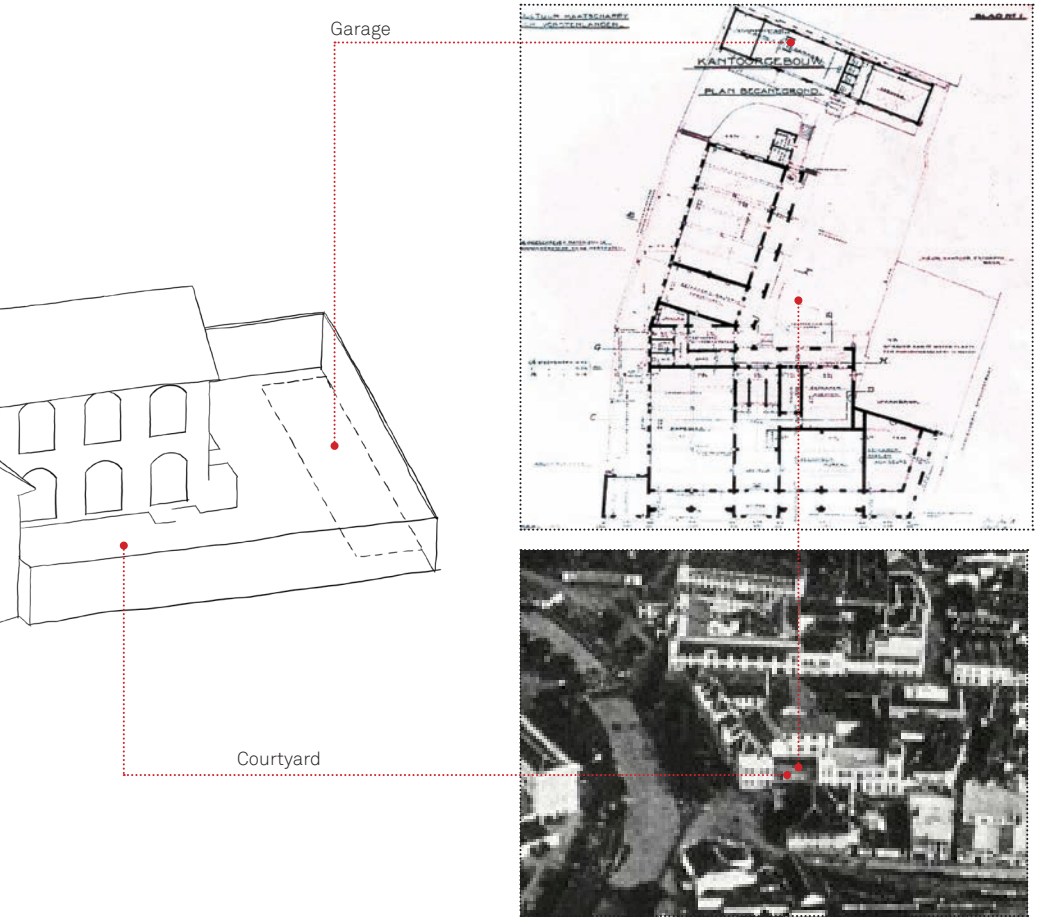
Situated along the Kali Semarang, with direct views of boats coming.

The building was located on a prime corner, reinforcing its landmark prominence along multiple transportation routes and acting as a beacon along the river front.

SOURCES:

Images: Leiden University Library Digital Collection

Plan Drawing: Received from PTPN archives

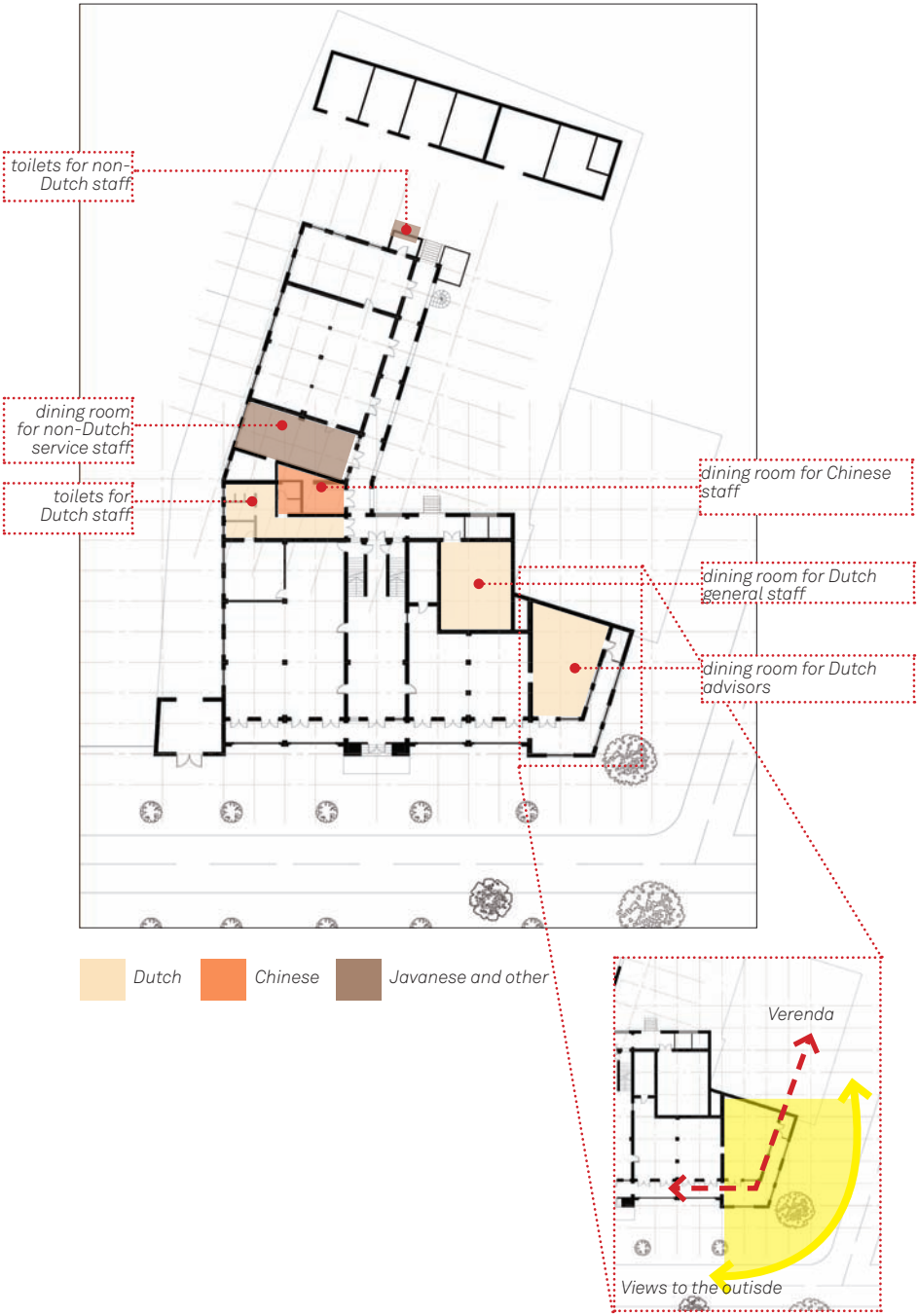


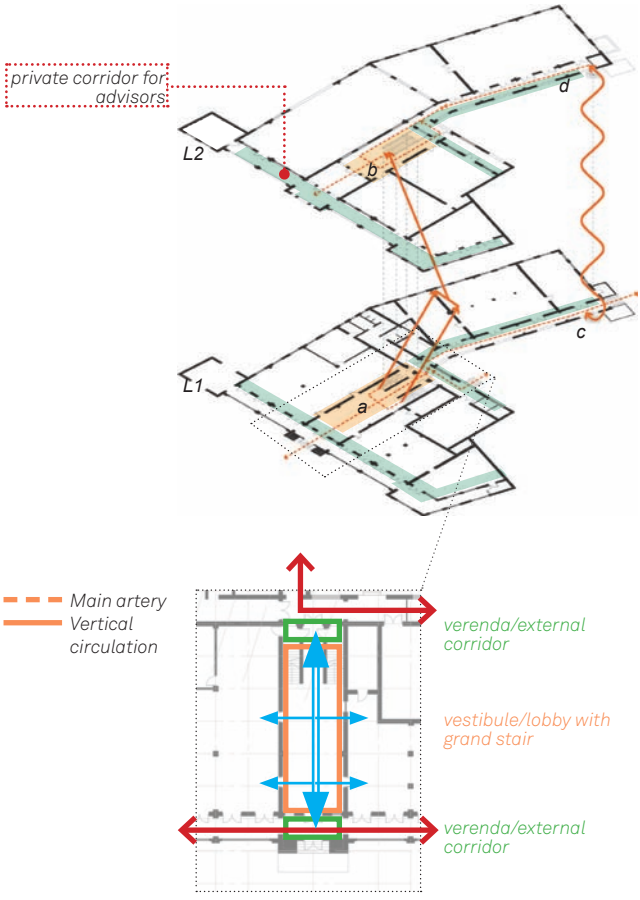
BUILDING PRESENCE *urban status and open space*

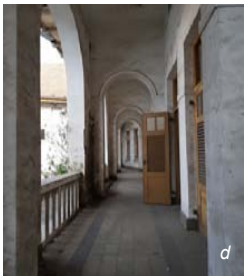
Front façade faces the river front where there are direct views to the railway running parallel to the green river bank. The two towers provide a strong urban status on the river front.

Arched openings along a semi-interior corridor/veranda with traditional sun screens - 'spirit of place'.

Presence of a garage and courtyard adds to the uniqueness of this building as this is not seen elsewhere in Kota Lama.


toilets for non-Dutch staff
dining room for non-Dutch service staff
toilets for Dutch staff
dining room for Chinese staff
dining room for Dutch general staff
dining room for Dutch advisors
Dutch
Chinese
Javanese and other
Verenda
Views to the outisde





SEGREGATION AND SPACE *a history of exploitation and limitations*

Dining rooms and toilets separated by race and hierarchy of staff.

The dining rooms and toilets for non-Dutch staff at the back end of the building facing the inner courtyard.

Dining room for the Dutch advisors were at a strategic corner;
- views to the Kali Semarang where trade ships
would come in
- for natural ventilation and status

A grand stairway invites the user into the building where the prominence of the main vertical circulation is established through this stairway that is at the heart of the building. An external spiral staircase provides secondary vertical access from the inner courtyard - presumably for the use of the service staff in 1912.

LAYERS OF TIME *from cultuurstelsel to now*

PTPN IX building is a part of Kota Lama Semarang, a historical area that was occupied and formed by the Dutch prior the Indonesia's independence in 1945.

After Indonesia announced its independence, Indonesia government nationalized most of buildings and companies in Kota Lama Semarang that were owned by the Dutch state. N.V. Cultuur Maatschappij der Vorstenlanden turned into PT. Perkebunan Nusantara XV or PTPN XV in the 1950s. PTPN is a state-owned enterprise that operates independently. It currently manages 14 companies in agriculture, one of which was PTPN XV that managed the company's main commodities, namely rubber, sugar, drops, tea and coffee. PTPN XV controlled 15 units of plantations, 8 sugar mills, 1 unit of agro tourism and 1 unit of production and marketing of downstream products.

In 1974, PTPN XV did a refurbishment for the building that mainly affected the interior of the two towers, where the toilets were

SOURCES:

Images: Leiden University Library Digital Collection

Note: For detailed analysis, please refer to the research booklet.

N.V. Maatschappij der Voorstenlanden was built 1912

Refurbishment and adaptation by PTPN 1974

Aluminum windows were added by PTPN 2000s

South tower fell down 2010

Tower, roof and façade renovation by Government 2012

Left roof fell down 2017

added. Wall partitions were added to suit the functional needs of PTPN. Wooden plates on the ceiling were also added to accommodate artificial lighting inside the building. Meanwhile, there was no major change on the exterior of the building.

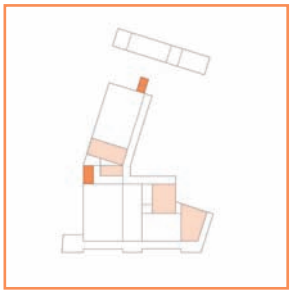
In 1996, PTPN XV and PTPN XVI were merged into PTPN IX, which forced the office operational activities to move to Solo, Central Java. Even though the building in Semarang is still currently owned by PTPN IX, the last time PTPN IX building was being used was in 1997. In the 2000s, the facade and walls were renovated, in which PTPN IX added aluminum frames and glasses to the main facade. It is assumed that these changes were attempts for security to prevent squatters from coming in. Later on in 2010, the roof and south tower fell down.

Although the building has been vacant, in 2012, the government rebuilt the tower and the roof as well as renovated the front facade of PTPN IX building as a part of the government plan to improve and beautify the Kota Lama area. However, the new tower appears to have different dimensions in comparison of the original tower and the roof fell down once again in 2017.

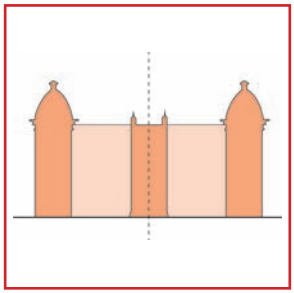
Despite the fact that the building remains officially vacant since 1997, the north tower is currently illegally being used as warung (food stall) every morning by the locals.

NOTE:

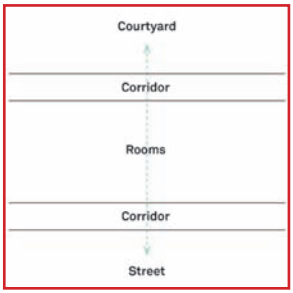
For a detailed analysis, please refer to the research booklet.



HISTORICAL VALUE



PRESTIGE + RELATIVE ART VALUE



SPIRIT OF PLACE - RELATIVE ART VALUE

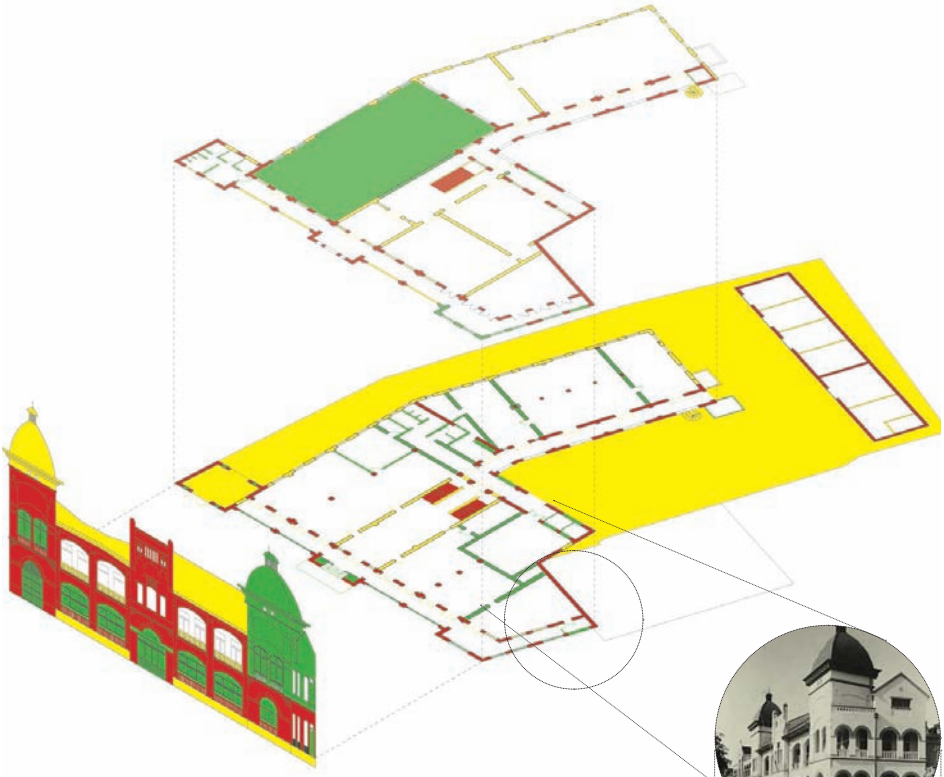
PRESTIGE + RELATIVE ART VALUE

USE VALUE - RELATIVE ART VALUE

CULTURAL VALUES *an overview*

Identifying relevant values that are based on the history of the city and the building, and categorizing them according the significance of the values.

The significance of the cultuurstelsel and the social segregation that is evident in the building were important factors in determining what values are more valuable than others and why they are so. Dilemmas arose as result of the sensitive history and relevance which are also highlighted in the matrix.



Original design

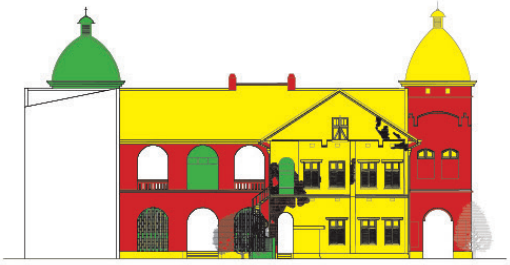
Changes made

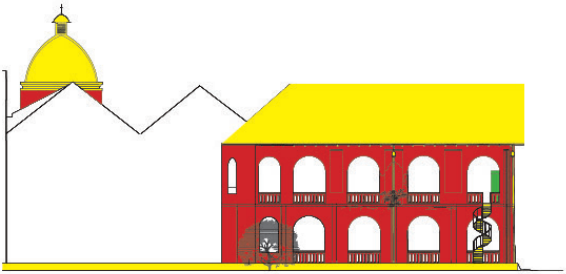
MAPPING VALUES *to keep or not to keep?*

Obligations - those that should be preserved or restored based on a high value that can be given.

Opportunities - those that can be redeveloped or maintained through additions, interventions or adaptations. These are areas assessed with medium to low value.

Dilemmas - areas that should be interfered with. These are either areas where the original design was changed or tampered with throughout the course of time or areas with potential for maximum interventions/adaptation/change.





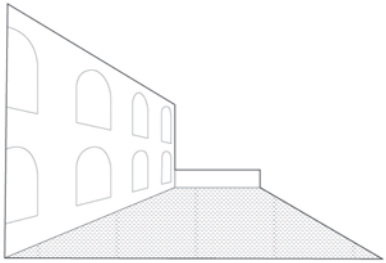
Preserve /Restore (obligations)

Redevelop /Maintain (Opportunities)

Interfere (Dilemma)

Restore

Preserve | Repair

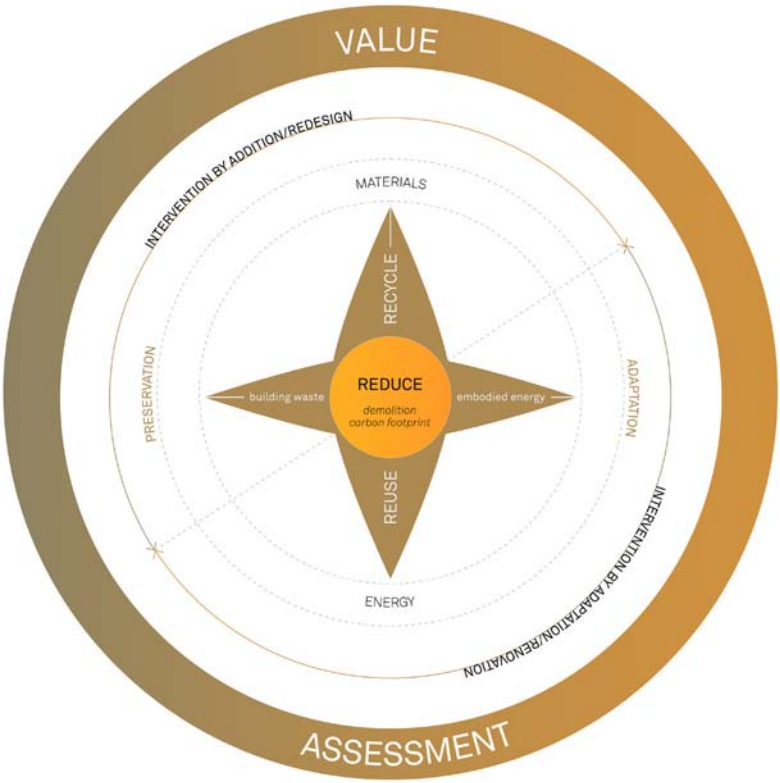


Adapt | Transform | Renew

TRANSLATING *values*

Based on the cultural value assessment and its conclusions, combined with personal sustainability goals resulted in a decision to;
- restore the front facing facade by removing additions that were not part of the original design and re-opening the cuts that were built over,
-preserve the essence and spirit of place of the building that are highlighted by arched corridors,
-adapt the in between by improving the performance of the building, transforming the courtyard and the roof that was constantly falling apart by redesigning and contributing to the layers of time present in the building,

and generally renewing the overall architecture including the former garage.



BALANCING *sustainability goals*

The transformation of heritage is strongly tied to its ability to be a highly sustainable approach to architecture as opposed to new construction. This diagram only a starting concept that requires constant updating and finessing as circular design is non-linear and the concept of reduce, reuse and recycle is complex.

The general idea stems from a personal question, 'why demolish when its there?'. By favoring adaptation and preservation, we can reduce building waste and improve performance of buildings, where addition is required, recycling and reusing the demolished materials would provide a more sustainable approach. This also gives the opportunity to be creative and promote intuitive and innovative ideas to be highlighted and change the current trajectory of the AEC industry to a more sustainable practice.

Balancing these goals with the cultural value assessment is a constant challenge.

“

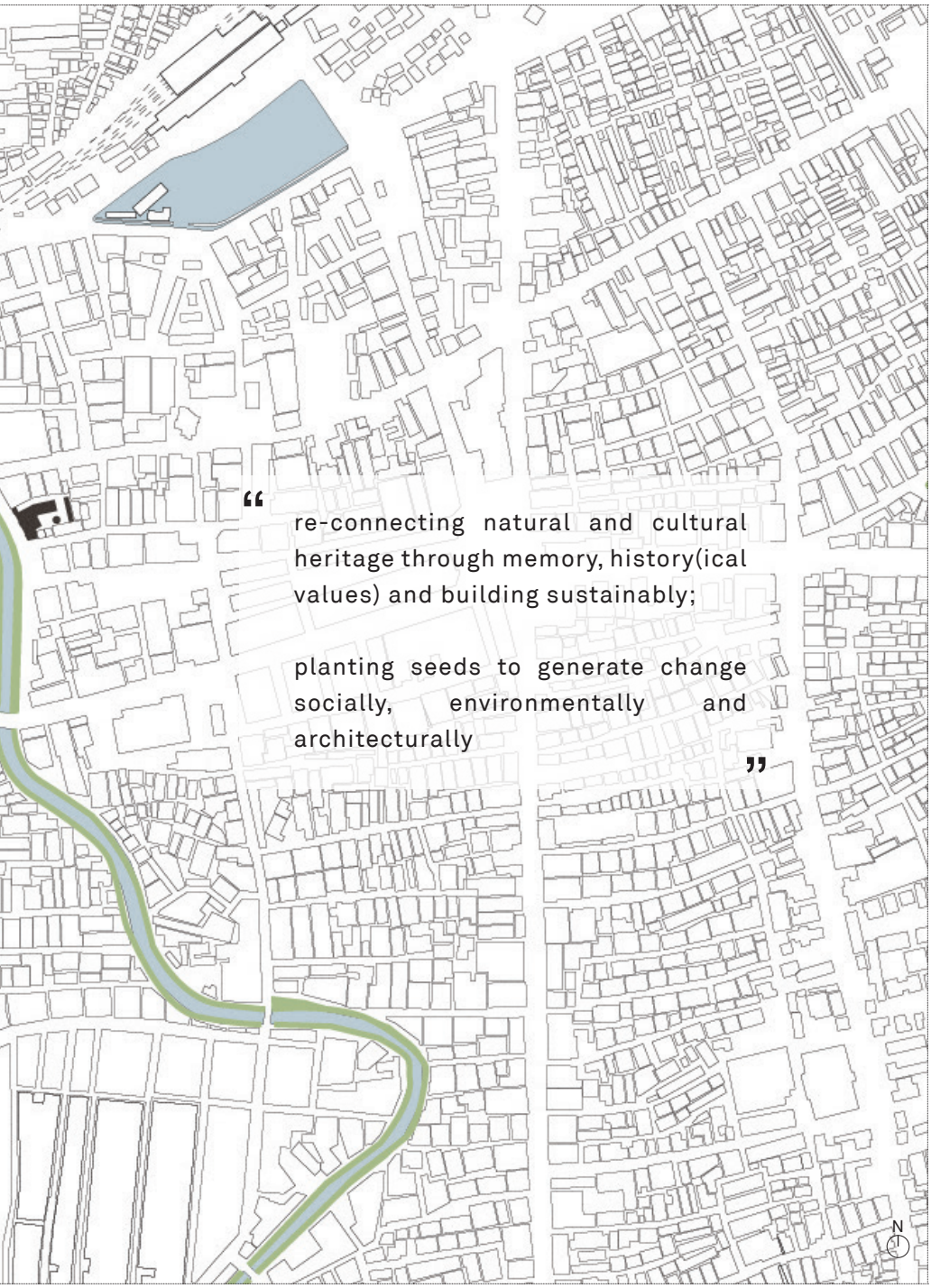
The cultural significance of PTPN XV, formerly known as the NV Cultuurmaatschappij Der Vorstenlanden, may be oblivious to the those unaware of its history and its part played in the cultuurstelsel period but certainly not unimportant. From a sustainable point of view, why demolish when it can be used? Is it necessary or not? How do I find a balance between a global need (reducing emissions) and a local one - which meant that to improve the performance of the building (investing in a delayed

NOTE:

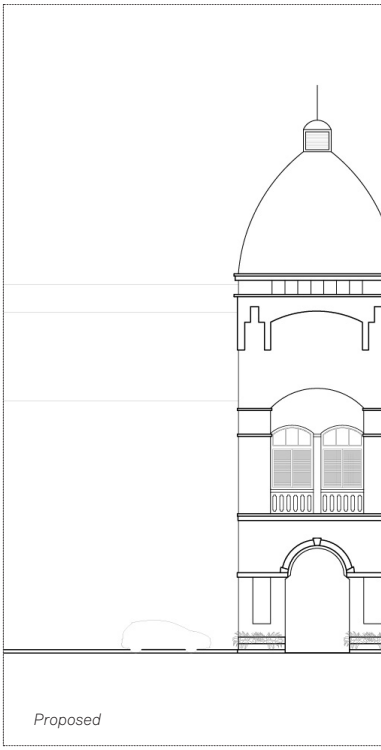
Extract from the reflection paper on balancing sustainability goals and heritage values.

positive outcome), calculated destruction, reconstruction and new construction (with the use of value assessment) was required. Setting a framework for sustainability goals became a design principle. Through this, a connection between the past, and what is relevant in the present and required in future, socially and environmentally could be made; framed within the context of Semarang. This is what I aspire to achieve with my project, within the given scope and timeline.

”

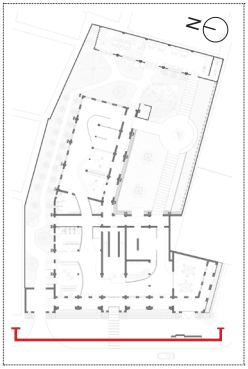

“
re-connecting natural and cultural heritage through memory, history(ical values) and building sustainably;
planting seeds to generate change socially, environmentally and architecturally
”
N

SOURCE: Leiden University Library - Digital Collections (1915-1925)



Proposed

SOURCE: Ananta Vania Iswardhani (2019)



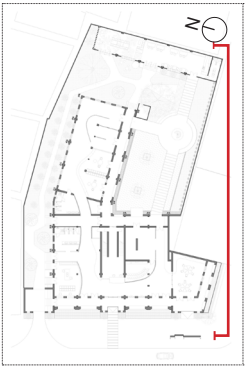
RESTORING *the existing and adding a shell*

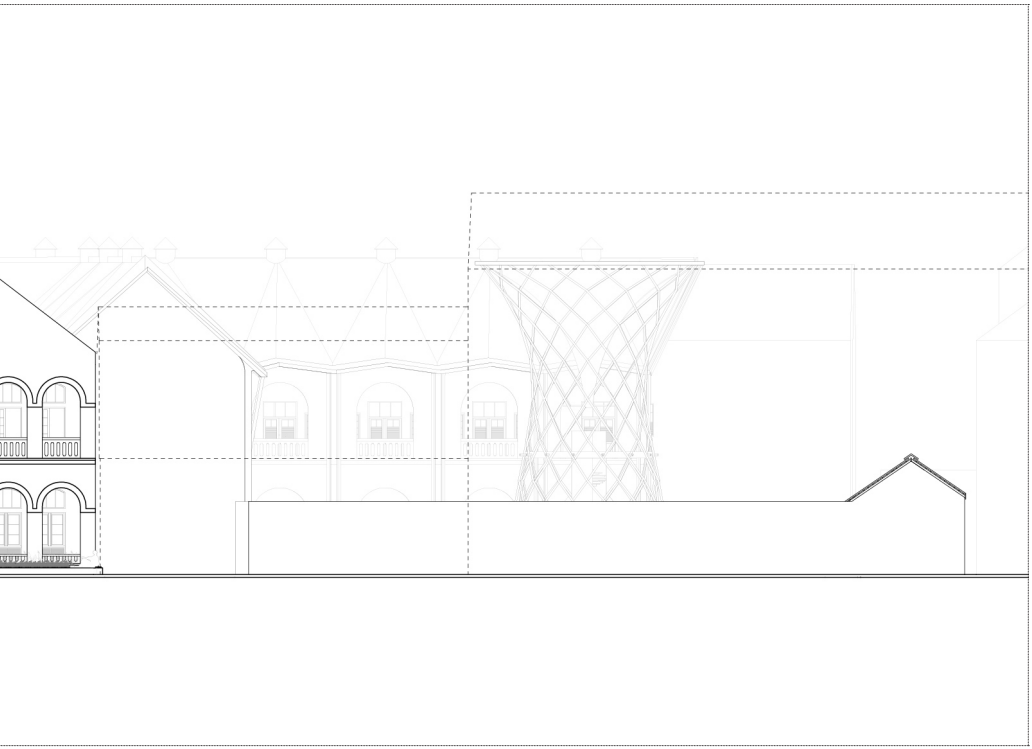
Realizing that restoring the front facade is a challenging process with limited resources (original drawings, correct dimensions etc), the intention was to bring back the aesthetic and the essence of the original intention for the facade based on photos and drawings that were found. Where the roof was deemed as a dilemma and an opportunity in the cultural value assessment, a decision was made to combine the new addition and develop the roof elevation in this facade in a way that it did not interfere with the original outlook of the building. The folds were made subtle enough to not take the eye away from the overall facade outlook. The proportions of the overhang was kept as close to the original intention as possible.

SOURCE: Leiden University Library - Digital Collections (1915-1925)

Proposed

SOURCE: Ananta Vania Iswarahani (2019)

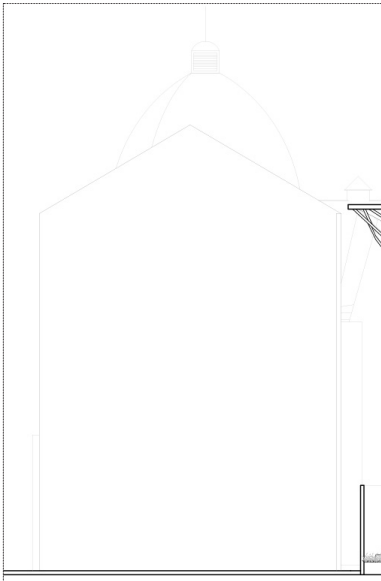




RENEWING *the already adapted*

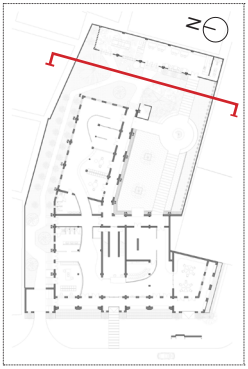
The South tower that fell down in 2010 was rebuilt not according to the original proportions and elevation. This posed a dilemma where it was in conflict with the aesthetic authenticity of the original construction. Based on the sustainability goals set up, a decision was made to renew this facade and leave the errors in construction and rebuild as the effect of time; a layer of history.

SOURCE: PTPN XV survey document in 2016 by Nirmana Konsultanteknik



Proposed

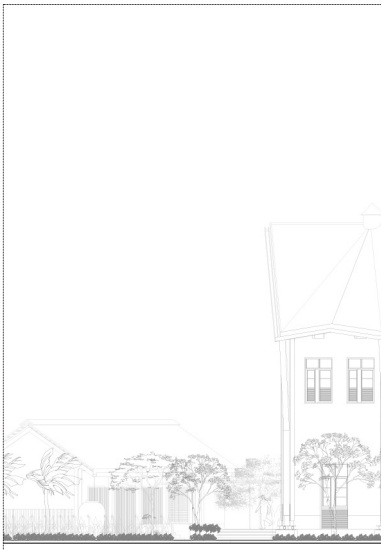
SOURCE: Ananta Vania Iswardhani (2019)



RENEWING/ADAPT + ADDING *new to the old*

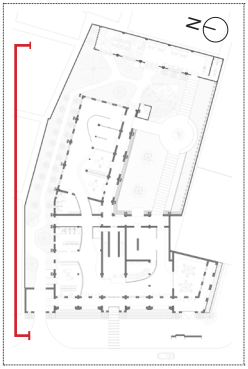
Deemed of low value in the assessment, the facade was renewed and adapted (in keeping with the sustainability goals) to improve ventilation into the building and bring in more light. The addition of the new pavilion provides a contrast of the old Dutch Indische architecture and the contemporary adaptation of local traditional (Indonesian) bamboo architecture.

SOURCE: Sketch of elevation by Ananta Vania Iswardhani (2019)



Proposed

SOURCE: Ananta Vania Iswardhani (2019)

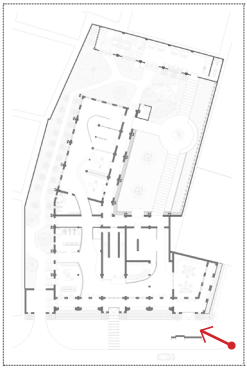


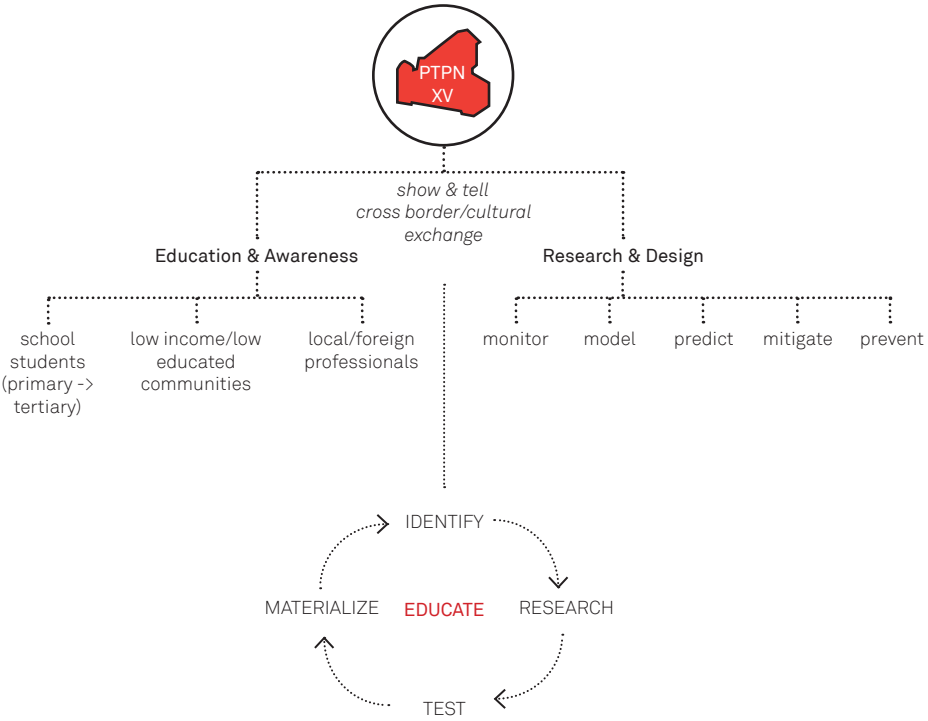
REBUILDING + REDEVELOPING *the fallen*

Deemed of low value and in the worst state relative to the rest of the building, the choice was made to rebuild and repair the facade, while adapting the openings. The rhythm of the original facade was retained. The two blocks were unified by the new roof.

The current state of the former NV Cultuur Maatschappij der Vorstenlanden building in Semarang, cold, neglected and dilapidated from the urban to the monument.

The HQ stands majestically in the now revitalized urbanscape.





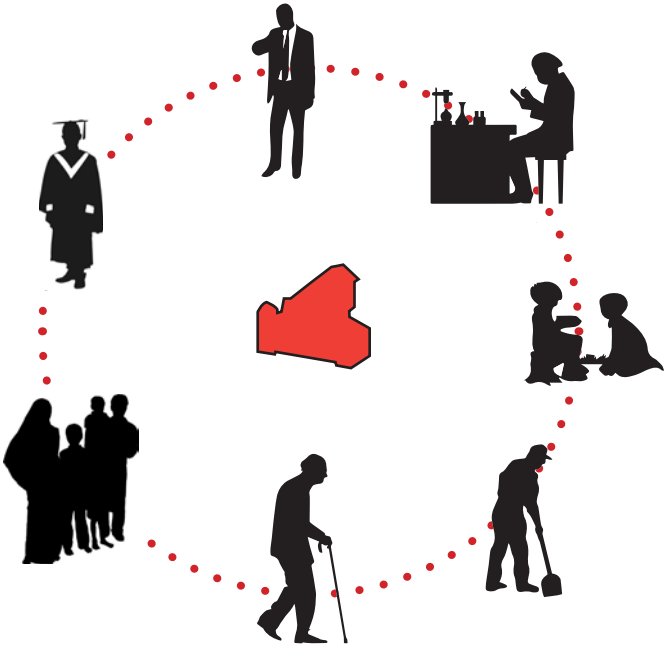
THINK TANK HQ *exploratory education and research c*

The PTPN XV building is envisioned as the think tank headquarters, the base and point of contact for the larger network.

The HQ in its first phase, focuses on engaging the local communities through exhibits and community outreach programs designed to educate and create awareness to water and waste related matters.

On a community level, research begins by engaging the communities and kampungs to bring in water samples (from the river/ water pipes etc) to be tested, categorized and build a database. The locals are able to understand their water quality and their environment better and enroll in the programs to find solutions and think together to come up with better management plans.

Additionally the HQ aims to provide education and collaborative programs for students, professionals, external collaborators to come to not only educate but also research and design programs, solutions



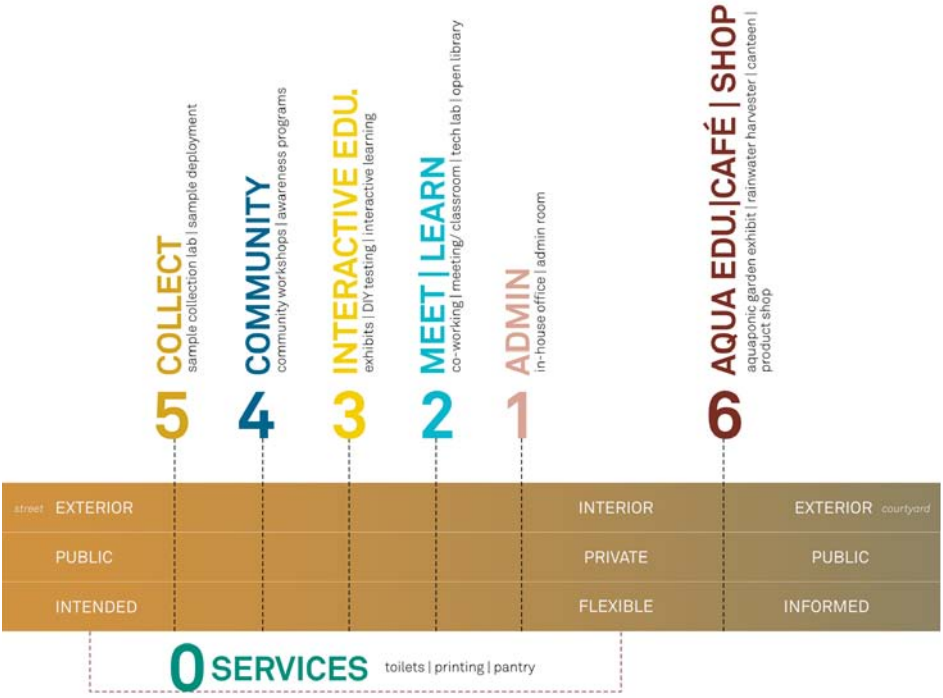
Bringing professionals, authorities, students and communities together in one place to create awareness, educate and learn from each other - linking cycles of knowledge, management, economics.

Joint participation.

enter for water and waste management

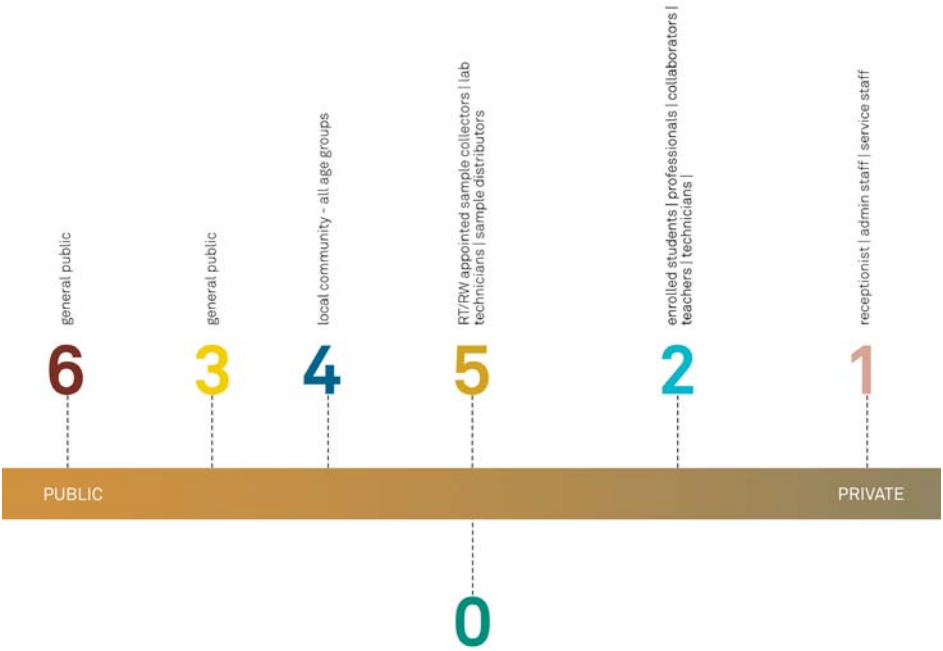
etc to improve water and waste management. The first begins with smaller classrooms, co-working spaces, library, labs etc to begin the process prior to expanding into the rest of the city.

The intention is to provide a space to explore, educate and create awareness and bring the communities and authorities to appreciate water and work together to find solutions.



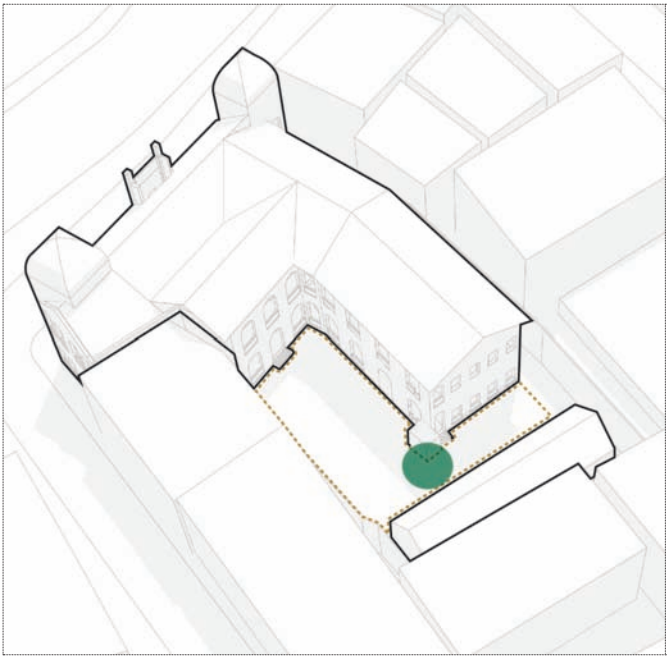
PROGRAM *gradient of interactions*

The overall program is thematically arranged on gradient of movement, from exterior to interior to exterior, from public to private to public, from intended spaces to flexible to more informed spaces.

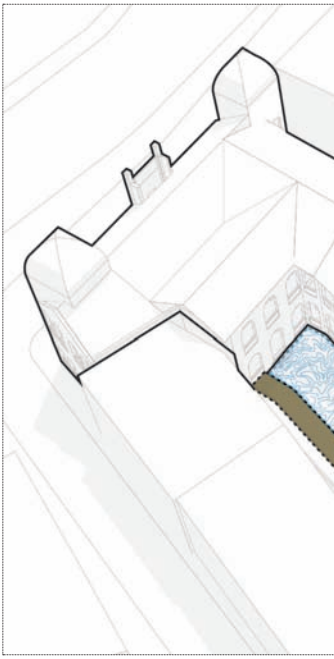


PROGRAM *actors*

The themes differ in the actors and their interactions within the space. For example, the theme of 'collect' refers to collection of samples that are situated closer to the street where appointed individuals from kampungs, lab techs, deliveries are more accessible while the theme of 'interactive edu' moved fluidly from spaces closer to the exterior to more internal spaces that are open to the general public.



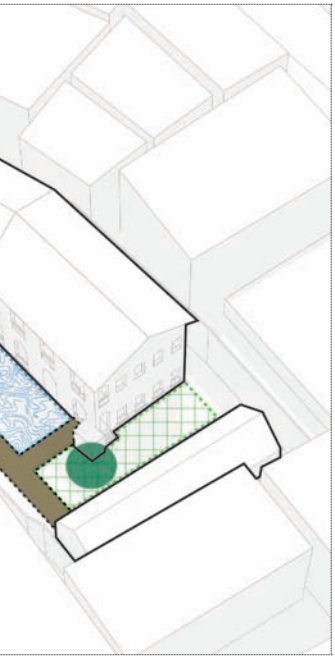
Seeing a courtyard as tabula rasa,



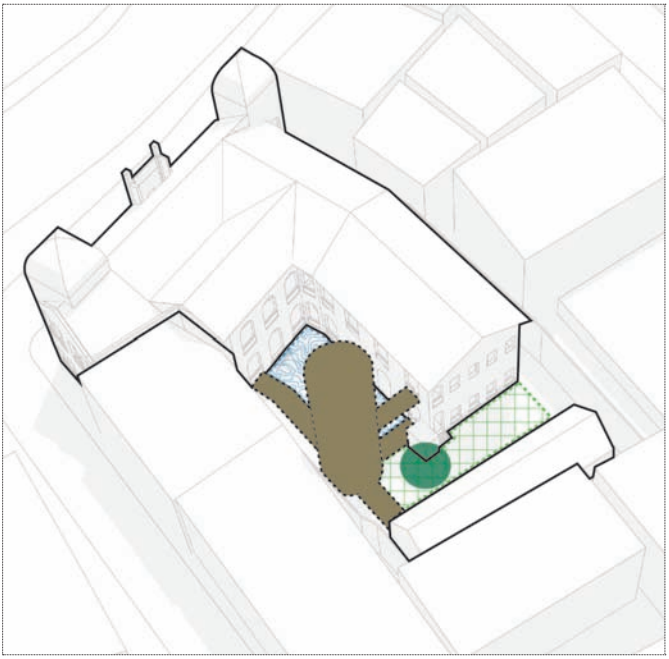
composed to a

COMPOSING *a pond, a garden and a pavilion*

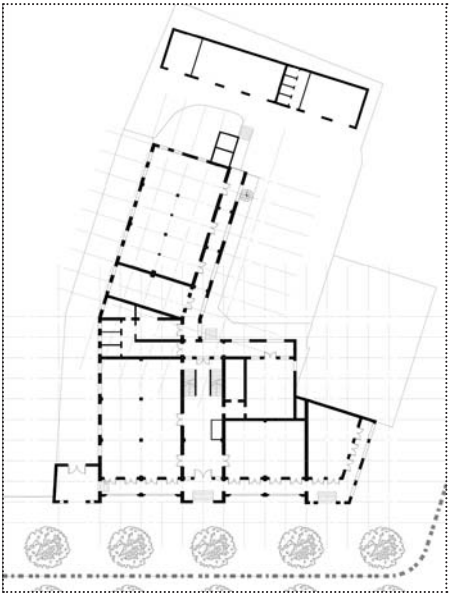
Seeing the courtyard as a tabula rasa composed to a pond (to form a positive relationship with an open body of water), a garden to provide space for contemplation with nature (and expanding the green belt into the urban spaces) and a new pavilion to highlight the potentials of existing local materials, craftsmanship, plastic waste and showcasing rain as a source for water for all to be aware of.



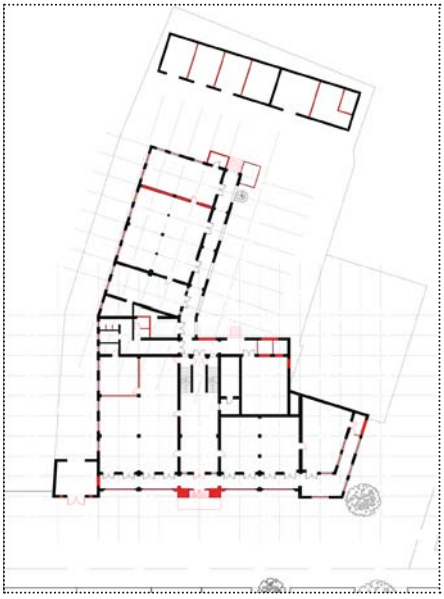
pond, a garden,



and a pavilion for all to feel.



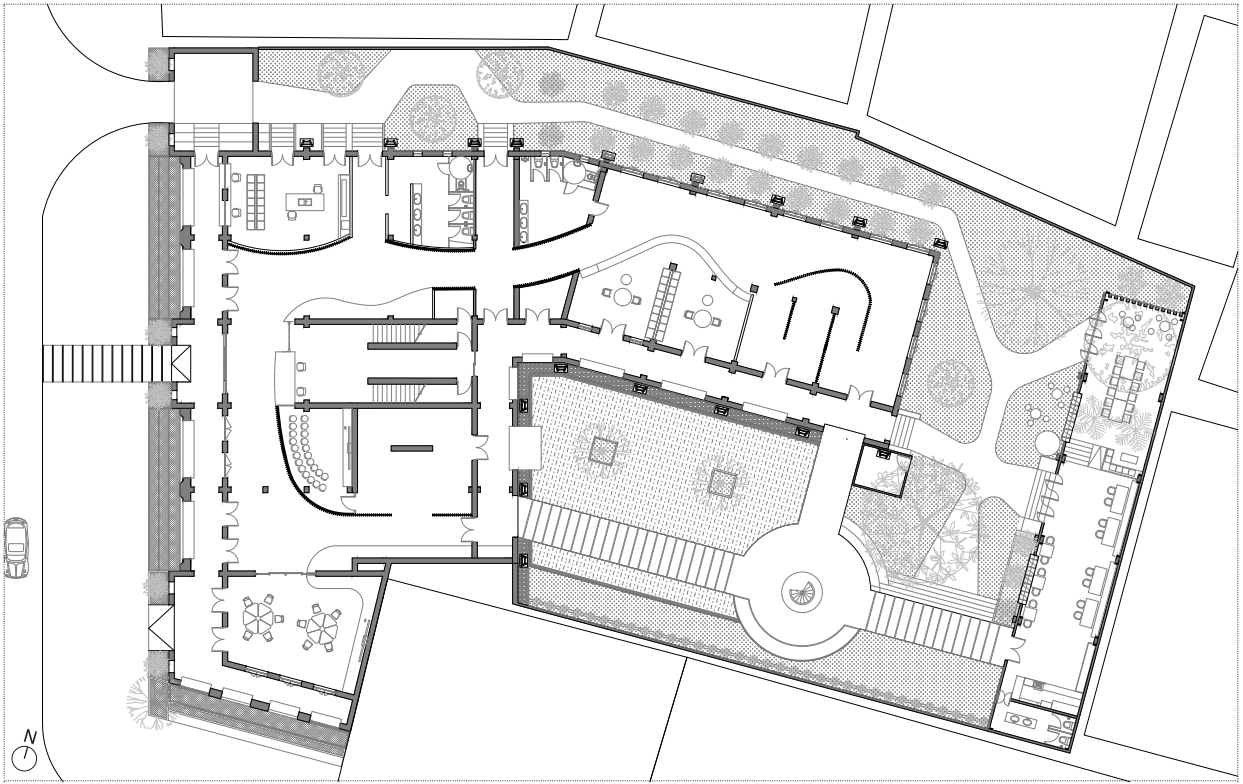
1912



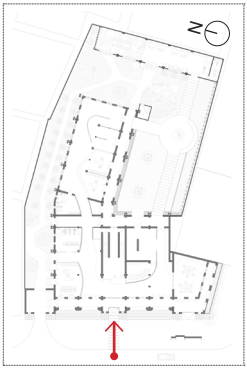
2000s

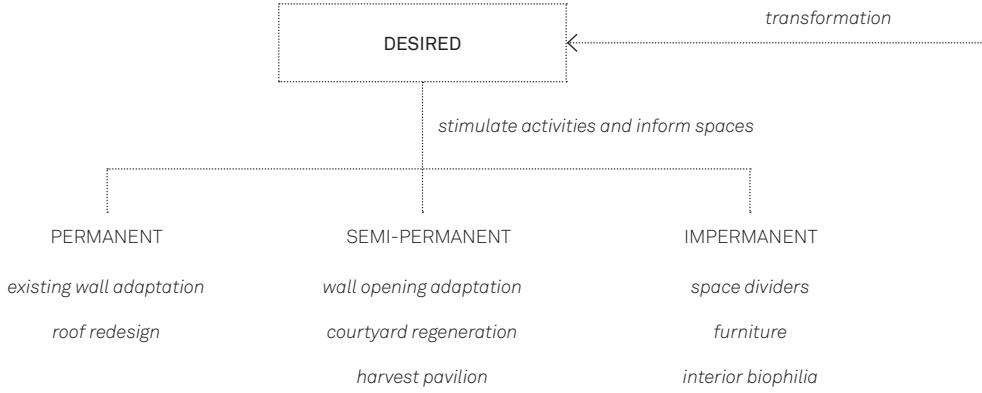
UNCHAINED

Freeing the building from the limitations and segregations imposed as a result of colonization - open to all.


proposed
N

Re-storing the lost façade; inviting and advocating for change.





MATRIX *of interventions*

The interventions are based on the notion of 'desired' design and 'required' heritage development. The desired ranges from
permanent interventions such as the addition of a new roof and incisions made to the interior walls;
to semi-permanent interventions such as the addition of the pavilion, courtyard transformations and openings on the wall;
to impermanent additions like flexible space dividers, furniture and biophilia.

The required ranges from
repairs to neglected, dilapidated walls and floors;
to re-use of demolished materials and fallen down window/door materials lying around;
to rebuilding the fallen down walls and roof;
to adaptation of the doors/ windows, roof and ceiling to suit the current requirements proposed by the new use and environment.

innovation

REQUIRED

heritage repair and adaptation

REPAIR

walls

flooring

RE-USE

demolished material

door/window material

REBUILD

walls

roof

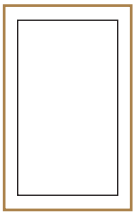
ADAPT

roof

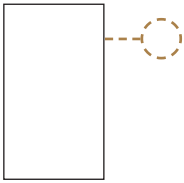
ceiling

doors/windows

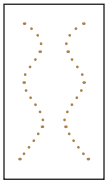
HIERARCHY *of interventions*



shelter

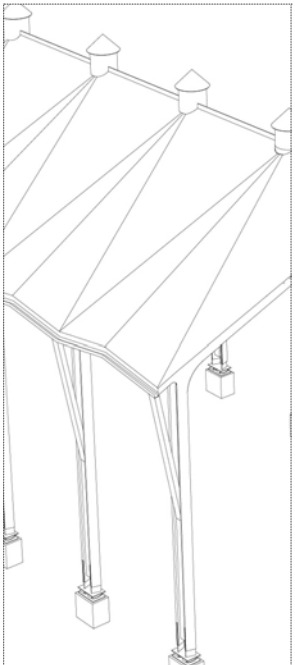


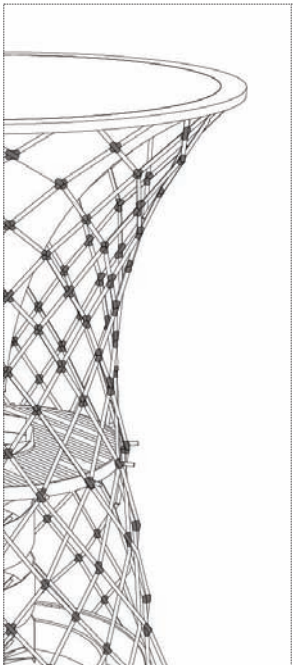
express

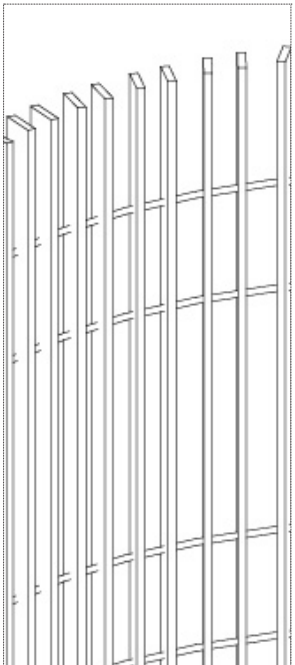


define

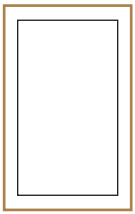
As the temporality of the intended increases, the materiality and the physicality of the intervention changes.



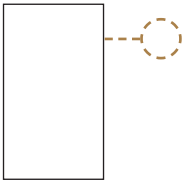




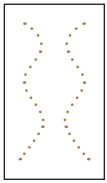
of materiality



shelter



express

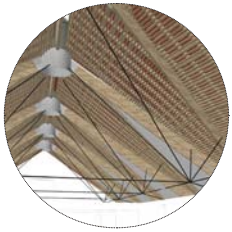


define

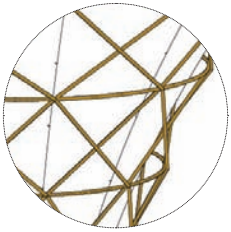
The 'traditional' nature of the materials used changes from history to now, to future prospects; and how it's used.

The traditional use of timber and steel in the existing building;

The social misconceptions of the use of bamboo and up-cycing of plastic waste is confronted;



is made relevant through the use of glue laminated timber and steel, used in a contemporary and innovative manner.



their potentials highlighted; elevating the materials socially , architecturally and appreciating local craftsmen and their collaboration with technology.

The impermanence of space is complimented with the use of reclaimed wood, highlighting the idea of re-use.

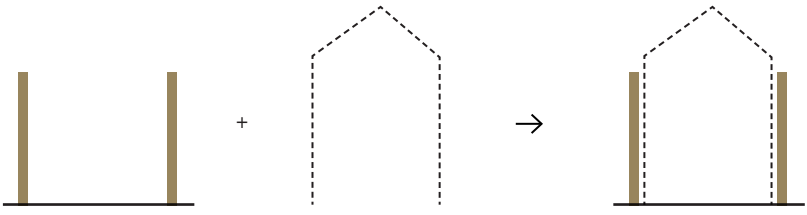
IMAGE: Drone photo by Maheswara Raksha Dannu

dra and Widasari Yunida

The roof that continuously falls down needs to be rethought, redesigned and rebuilt in a manner that becomes a permanent addition and a reflection of the current and future potentials.

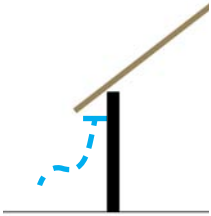
existing *new roof* *shelter*

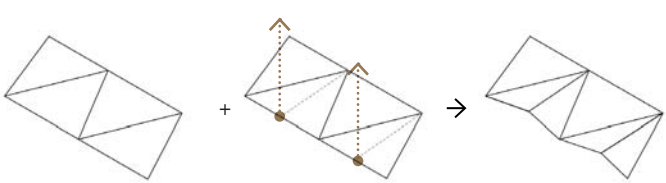
MAIN BUILDING

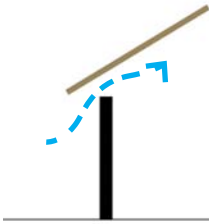


existing *new roof* *shelter*

GARAGE



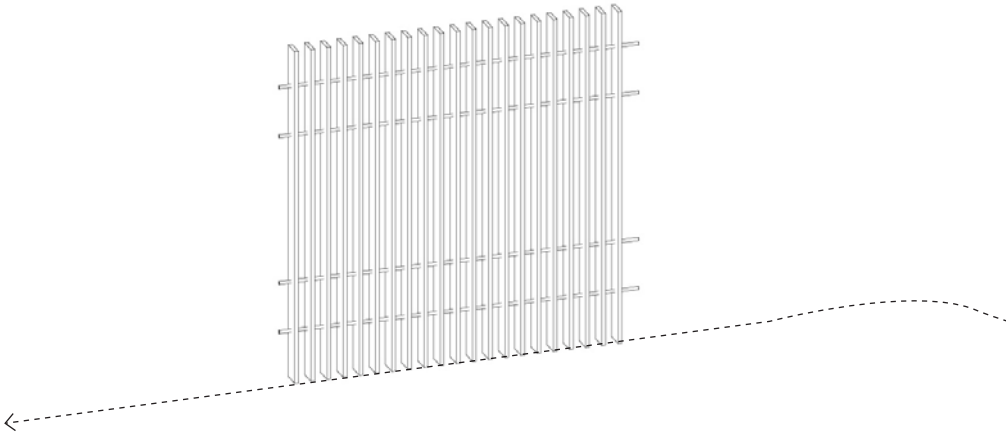




COMPOSING *the roof*

The current state of the roof and its history suggests that the existing design is not suitable for the massing, nor does it help in providing a comfortable and pleasant environment. The proposed roof creates a new typology, utilizing the folds in the roof like an accordion to unify the massing, and provide room for the building to breathe. The new structure is built as an outer cover without being in direct contact with the existing structure so as not to damage the built heritage in the main building. However in the garage, the structure is internal in reflection of the nature of a garage; a place for parking cars etc. This highlights the uniqueness of the existing remaining structure and leaving it in a semi-'ruin' state.

FLUIDITY *of forming interior spaces*

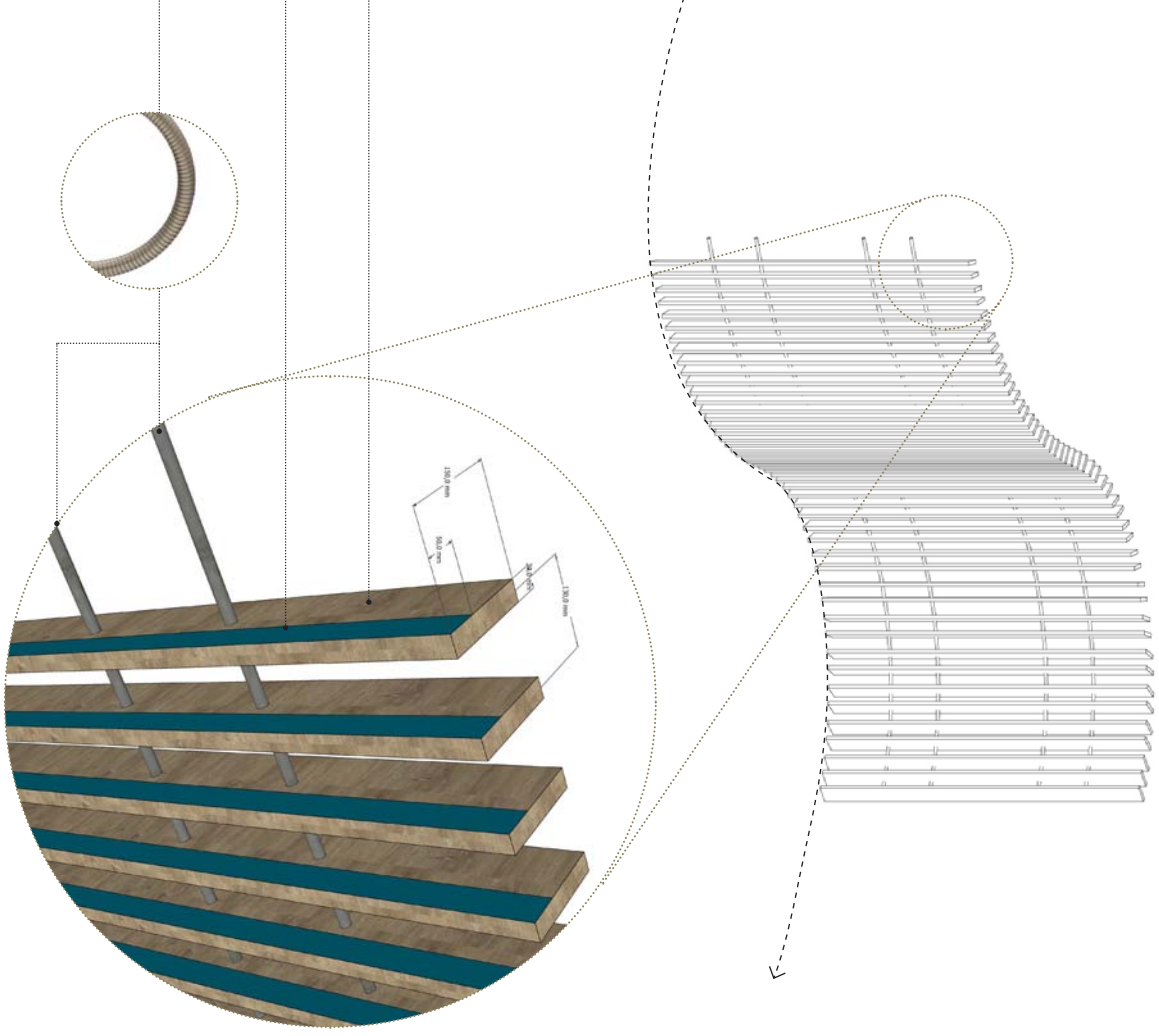


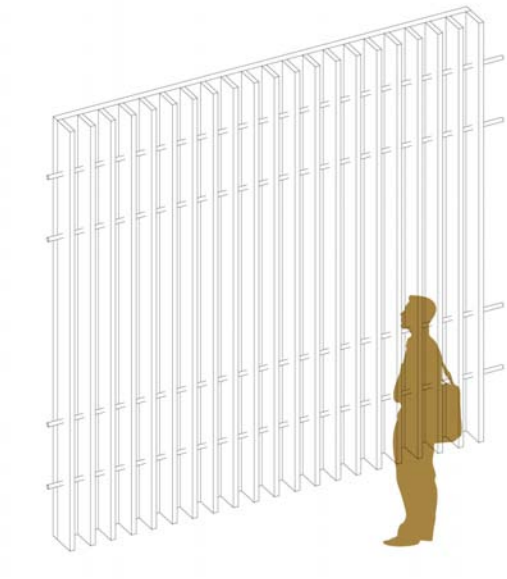
reclaimed wood - processed

paint

malleable metal rods

The impermanence of the use of buildings and spaces are brought to light by temporary space dividing structure, that allow the users to inform their own spaces as required, which was not a possibility historically in this building. Built using reclaimed wood (from the ruins of the existing building and other), these divider can be demounted and used in the park area as well for exhibitions etc; expanding the relationship between the abandoned heritage and the urban.

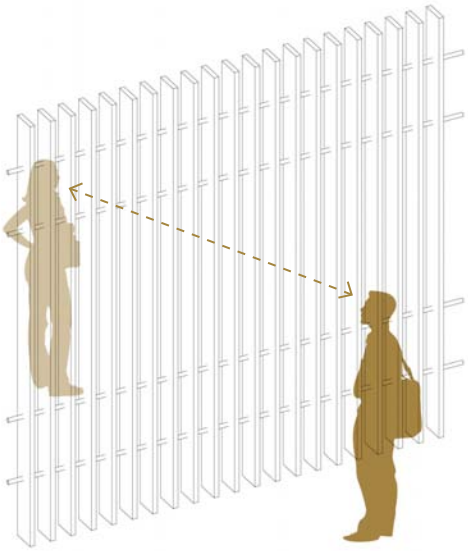




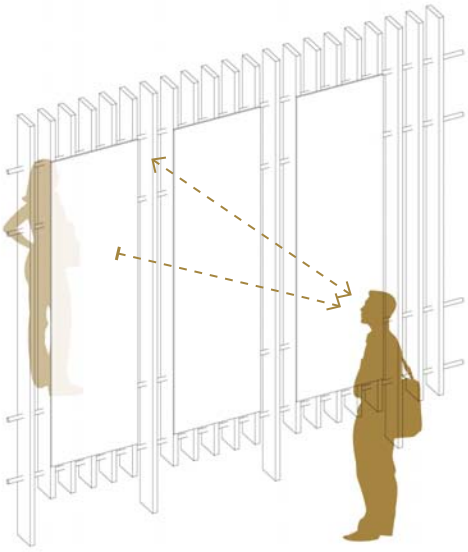
private

FLUIDITY *in privacy*

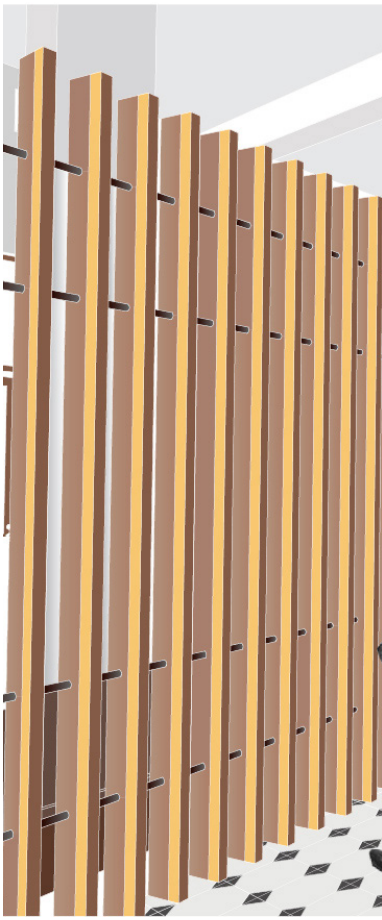
The changing needs and thus the privacy of the spaces are controlled through additions to the malleable structure with varying degrees.



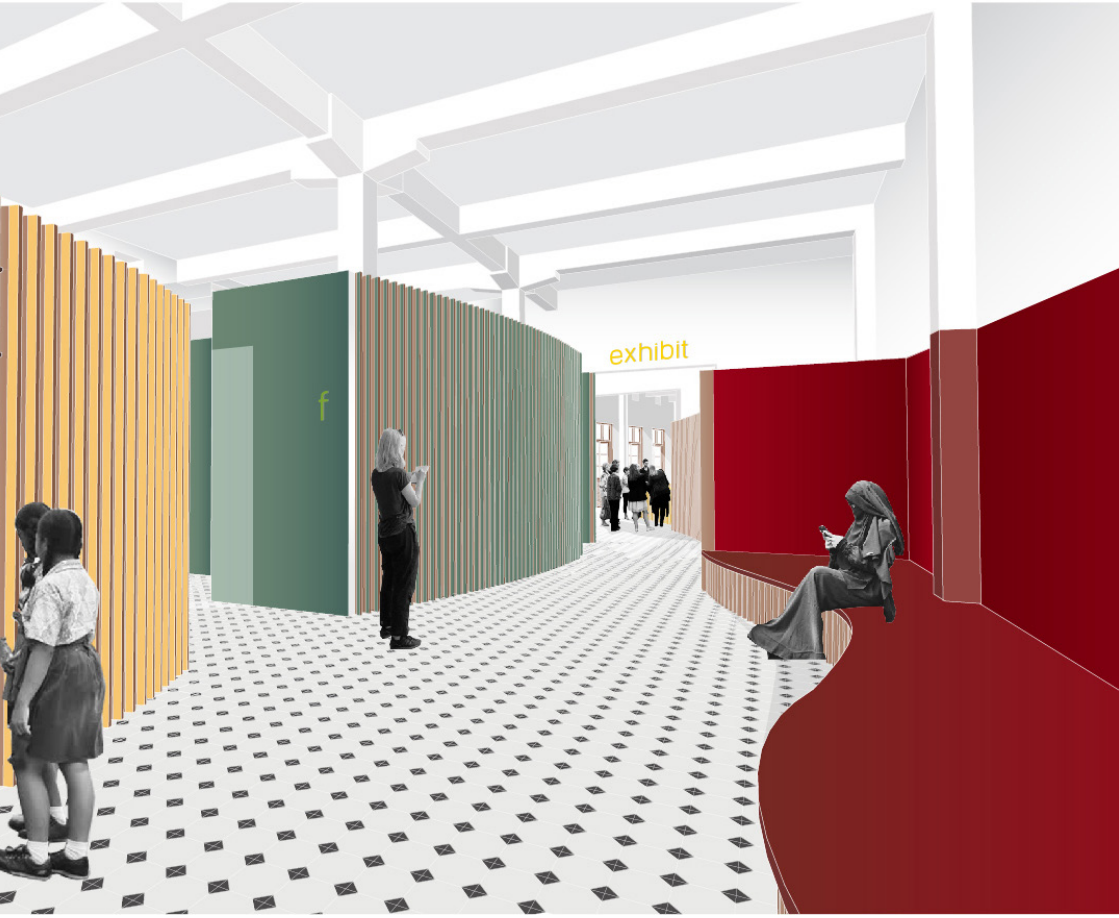
semi-private



open exhibit



A room; blocked out and disconnected.



A space connected; roam freely and fluidly.

5 COLLECT
sample collection lab | sample deployment

4 COMMUNITY
community workshops | awareness programs

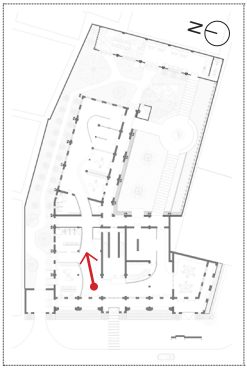
3 INTERACTIVE EDU.
exhibits | DIY testing | interactive learning

2 MEET | LEARN
co-working | meeting/ classroom | tech lab | open library

1 ADMIN
in-house office | admin room

0 SERVICES toilets | printing | pantry

6 AQUA EDU.|CAFÉ | SHOP
aquaponic garden exhibit | rainwater harvester | canteen | product shop



PTPN additions to NV

demolish
rebuild
adapt
add

Existing

Proposed

LEVEL 01 *program distribution*

01 Main entrance
02 Becak parking/ side entrance
03 Sample collection area
04 Sample test/distribute lab
05 Public seating
06 WC (f)
07 Store rooms
08 WC (m)
09 DIY water testing exhibit
10 DIY water filtration exhibit
11 River water exhibit
12 Existing well + pumps
13 Semi-outdoor seating (cafe´)
14 Cafe´ and shop
15 Aquaponics
16 Rain water harvest exhibit
17 Staff room entrance
18 Waste management exhibit
19 Media/film exhibit
20 Community workshop/ awareness program room (third party rental)


13
12
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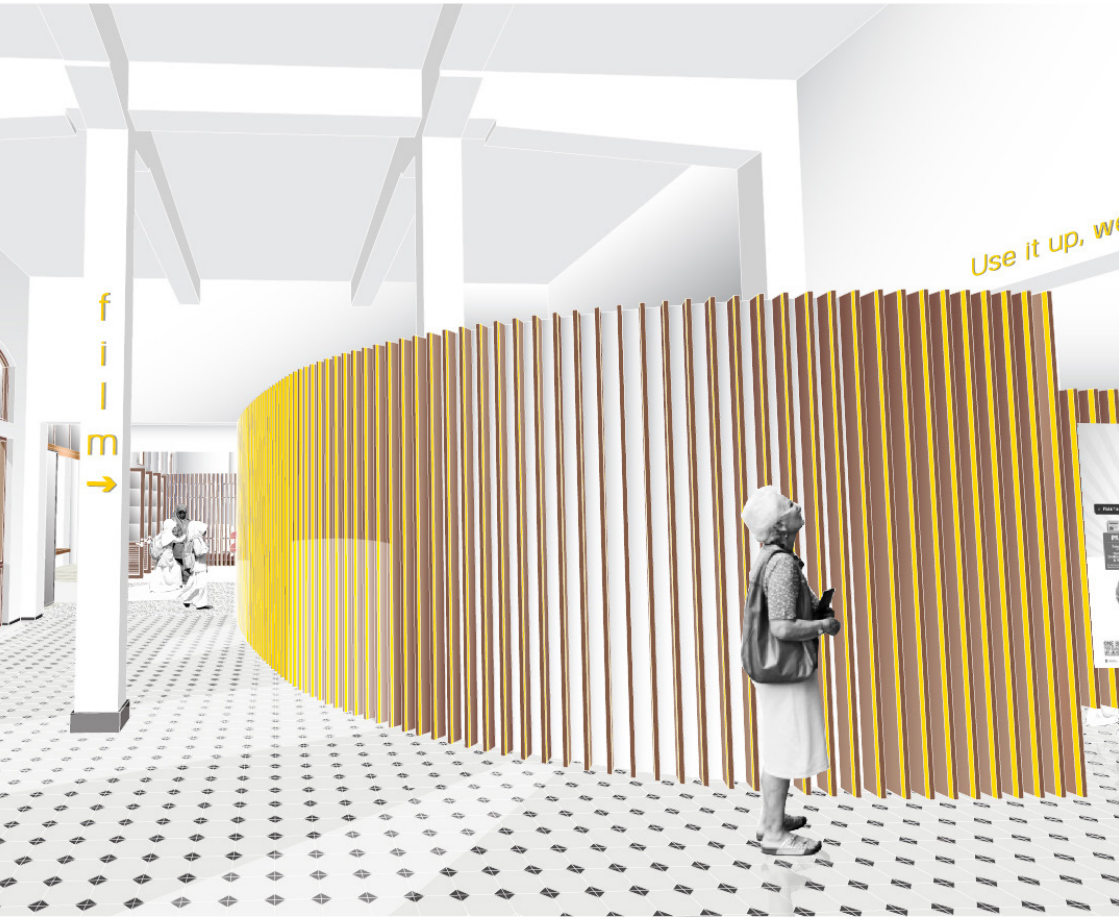
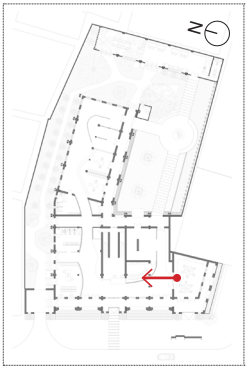
N

Isolated and disconnected; inclusivity abandoned.

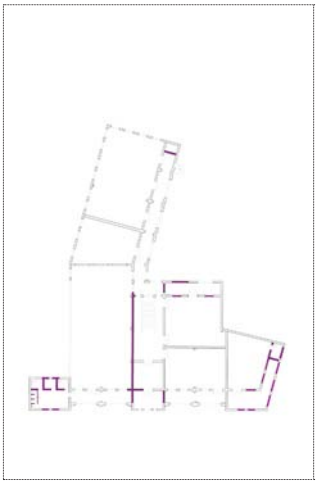


Connected and open; welcoming interactions.



PTPN additions to NV

demolish
rebuild
adapt
add

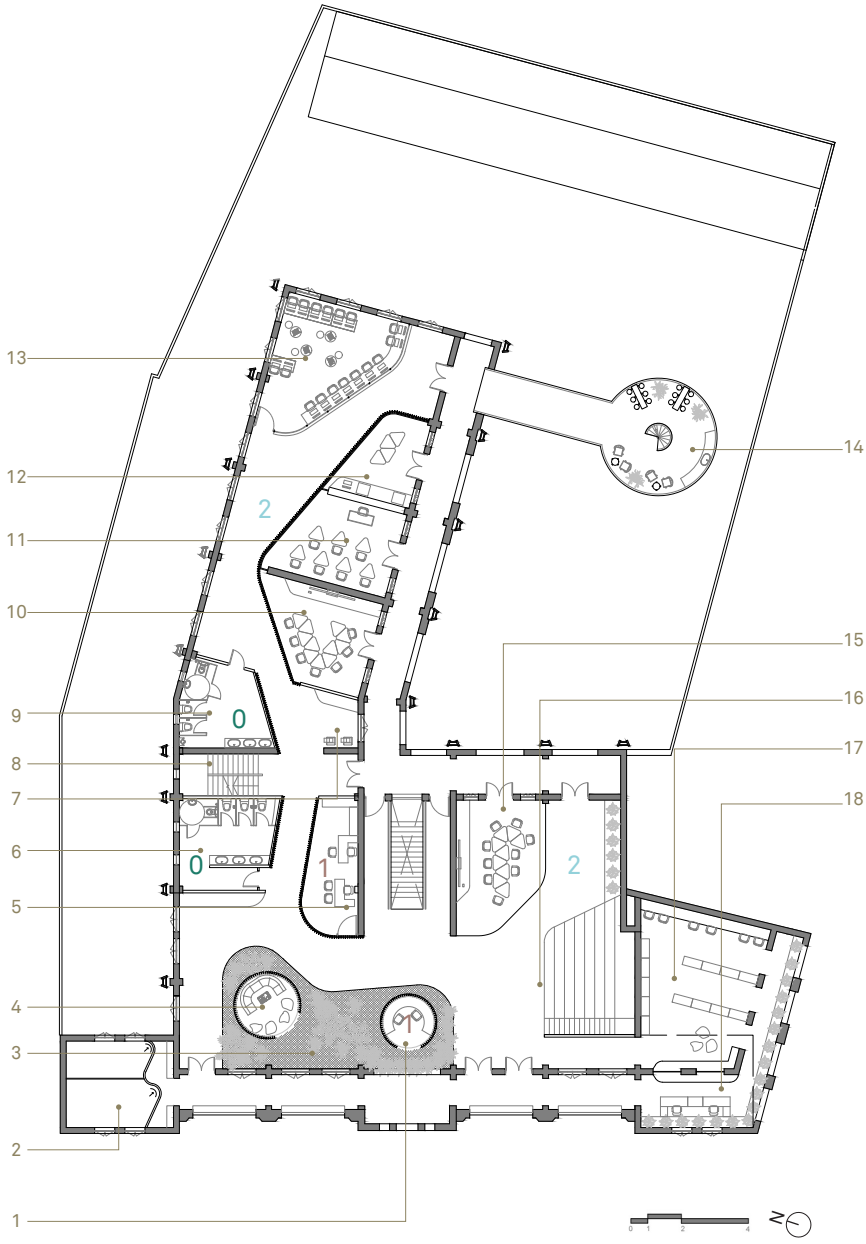


Existing

Proposed

LEVEL 02 *program distribution*

01 Reception/info desk
02 Prayer rooms with ablution
03 Indoor garden
04 Lounge pod
05 Administration room
06 WC (f)
07 Printing/mini pantry
08 Stairs to co-work mezz
09 WC (m)
10 Meeting/conference room
11 Classroom
12 Fabrication lab
13 IT room
14 Staff/open rest room
15 Open 'flexi' meeting room
16 Event space/ auditorium
17 Open library
18 Library admin/info space


13
12
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14
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16
17
18
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1
2
2
1
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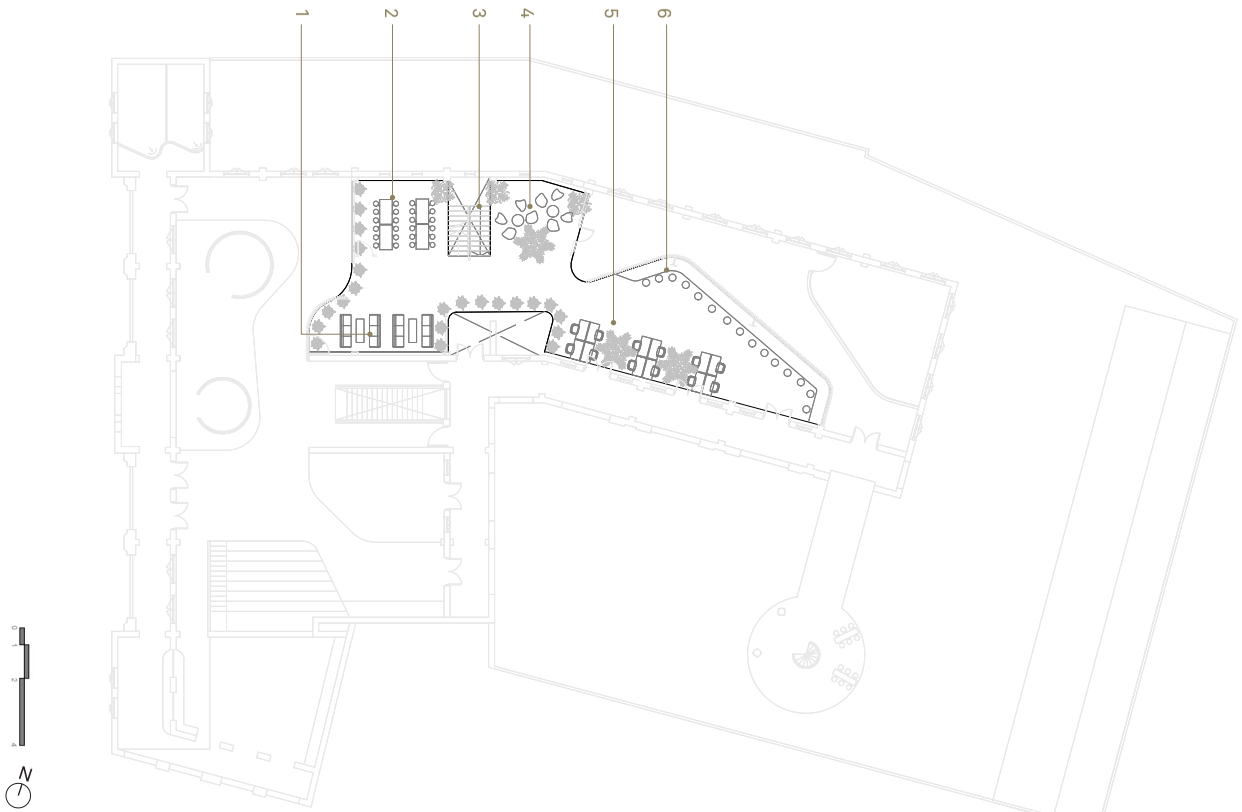
LEVEL 02 'MEZZ' *program distribution*

01 Lounge study
02 Co-work tables
03 Stairs to L2
04 Bean-bag garden
05 Study tables
06 Open 'work bar'


1
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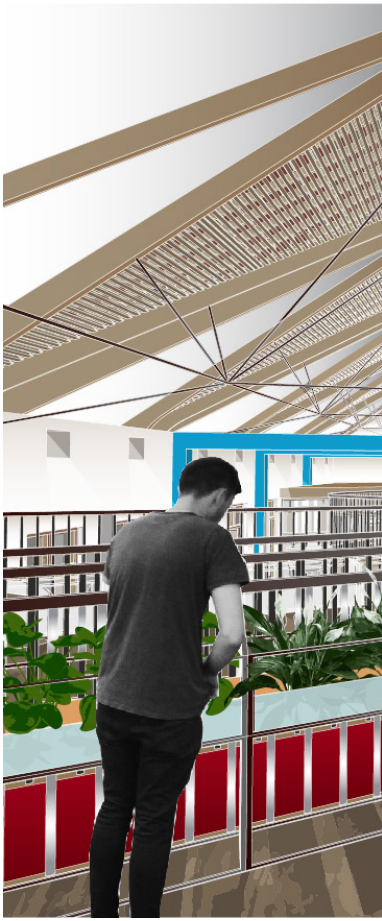
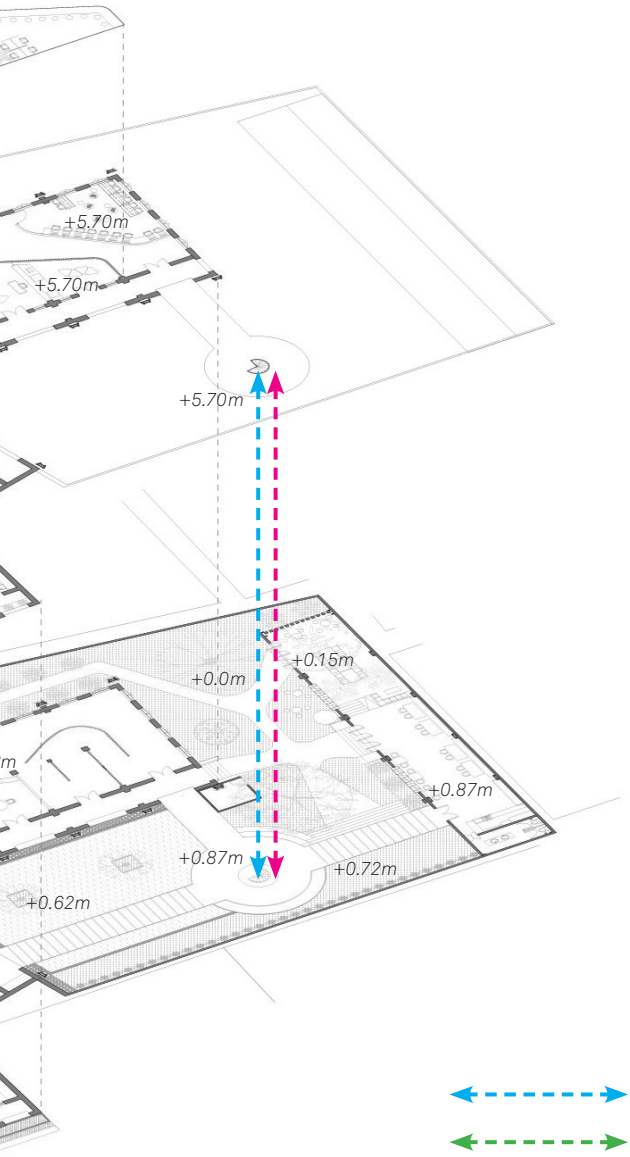


Closed-off and static; a room of containment.

Dynamic and inviting; a space for collaboration.


L2 +8.55m
L2 +5.55m
L1 +0.72m
+0.72
+0.0m
+0.87m
+0.87m
+0.15m
+0.0m (assumption)
N



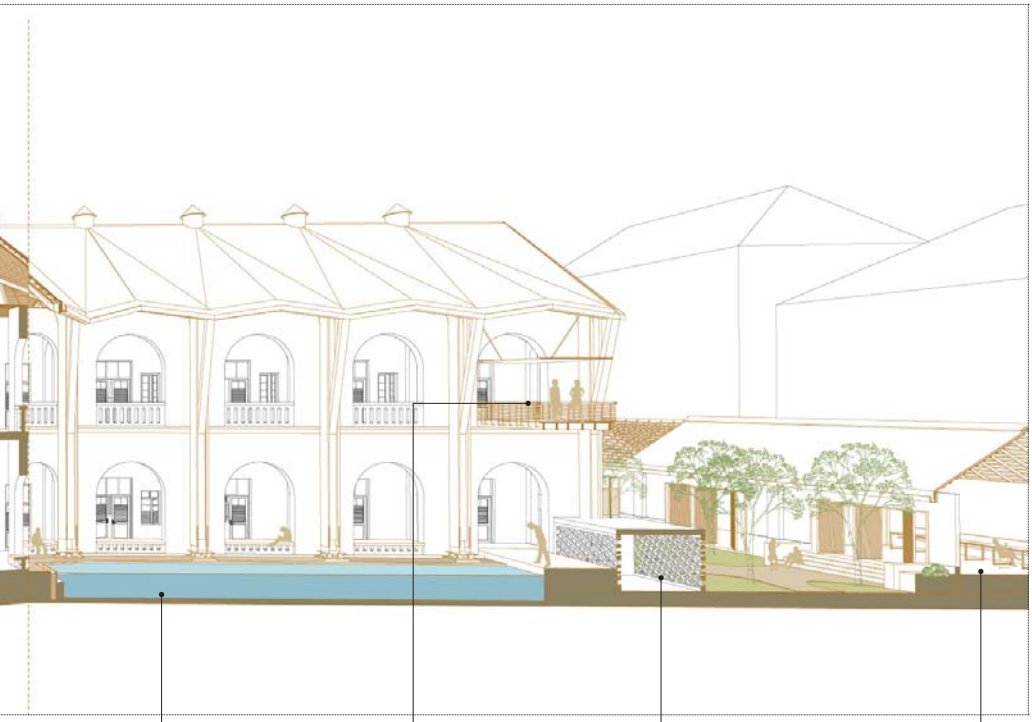
private entry - off peak

private entry - peak/off peak

general entry - peak

general entry - peak/off peak


reception/info
permeable ceiling



koi pond (aquaponics)

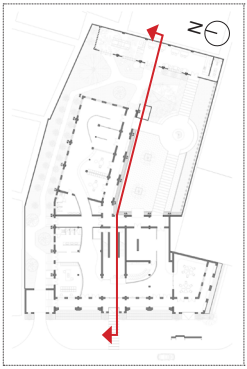
bridge to pavilion

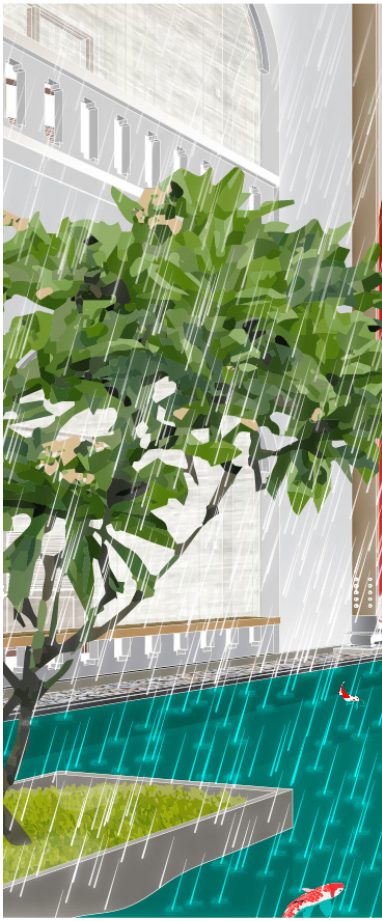
existing well/water pipes/water meter

garden cafe/shop

CONTINUITY *from river to pond*

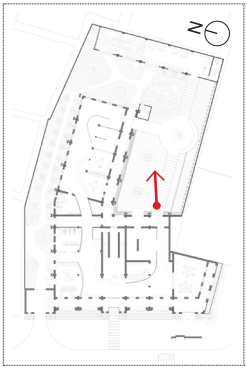
From Kali Semarang to the pond, the intension was to create a link from the urban to the abandoned heritage, bringing the locals closer to water and providing an example for an alternate scene.

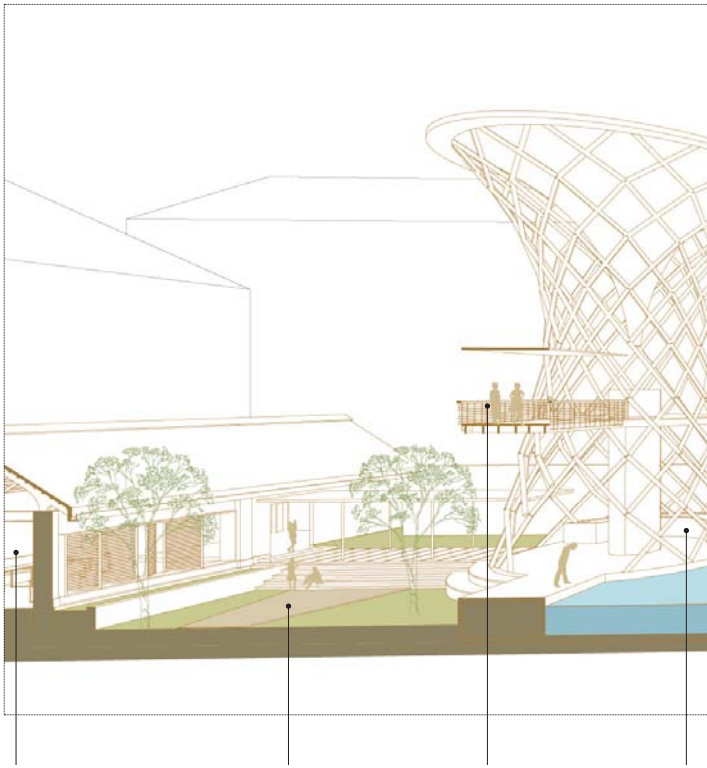




Empty and neglected; robbed of its potential;

to forming connections and establishing relationship;, old to new, 'the urban' to 'the abandoned heritage'.





CONTINUITY *layers of time*

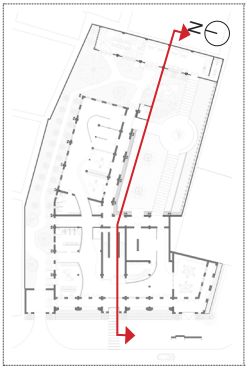
Preserving the layers of time and adding new time-line to the existing as a continuation. The preservation of the garage remains (that are repaired) refers to a time when only the Dutch officials came by cars/carriages, a sign of their status and now stripped of its exclusive nature and made into a public space connected to the rest of the plot.

er
nibit

koi pond
(aquaponics)

bridge over pond

reception/info desk

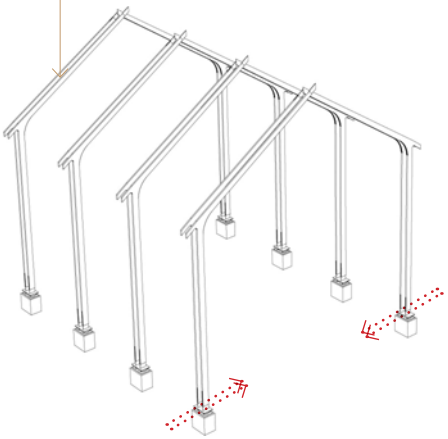


"What counts in life is not the mere fact that we have lived. It is what difference we have made to the lives of others that will determine the significance of the life we lead"

-Nelson Mandela
nelsonmandelafoundation.org

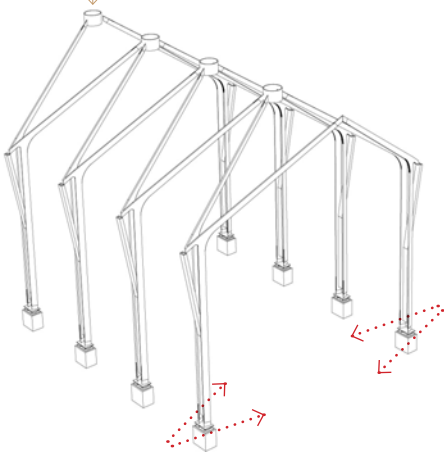
THE ROOF *buildup*

kemper wood glulam

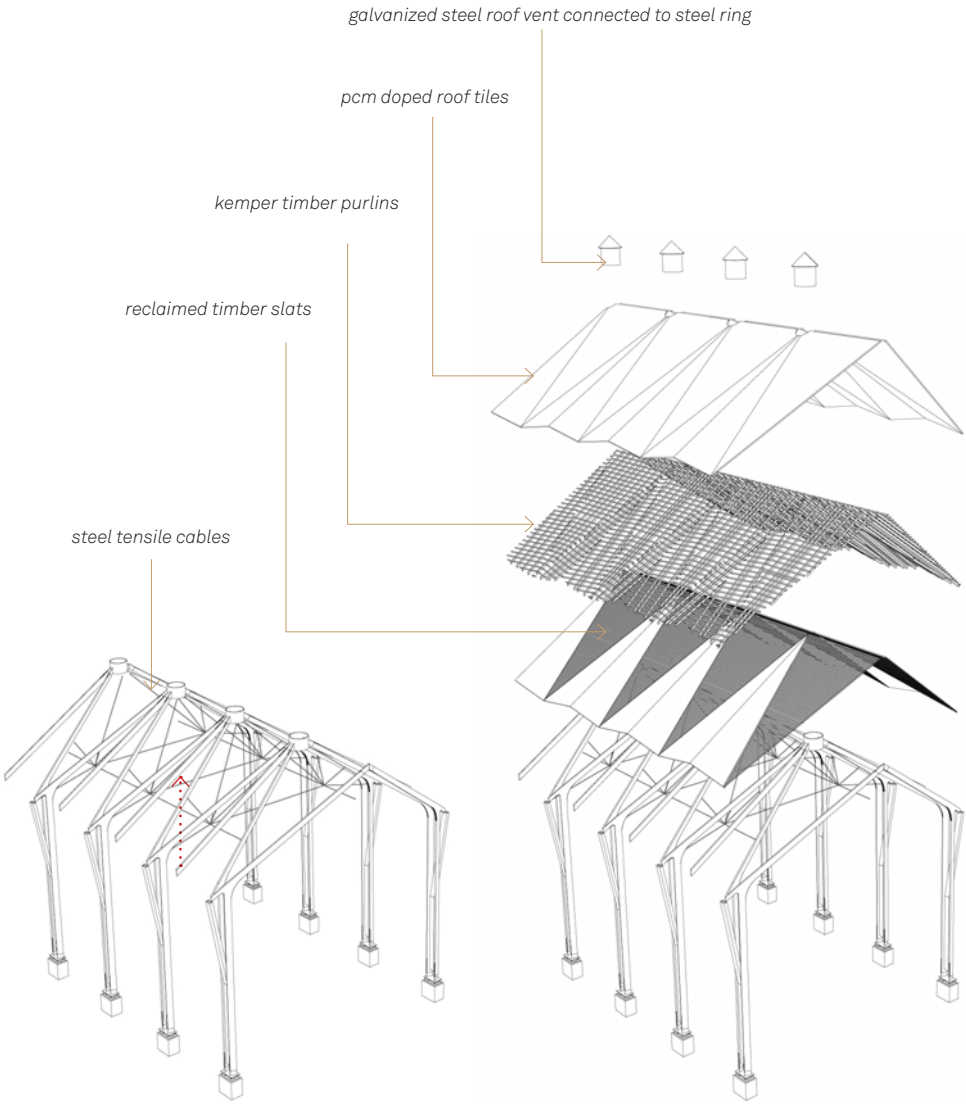


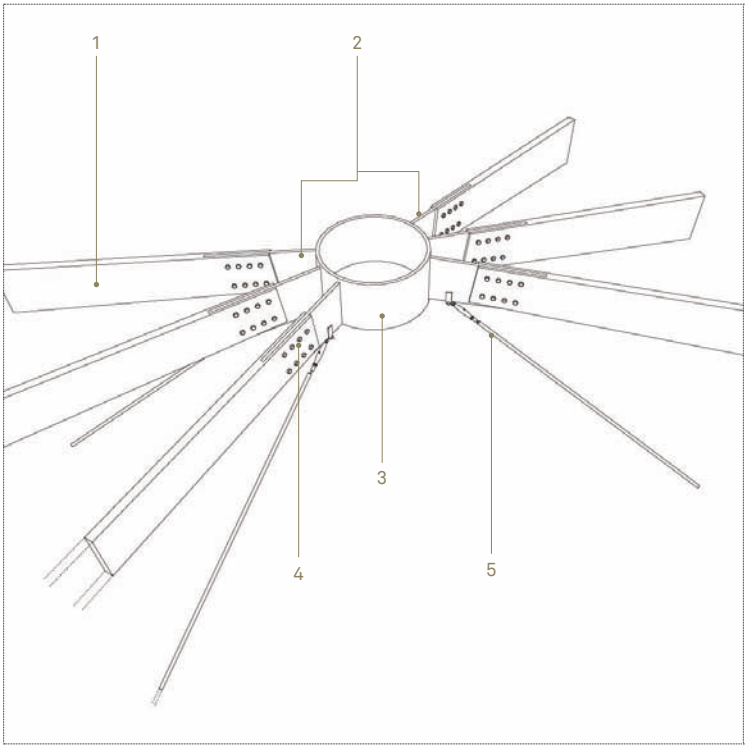
base shell

galvanized steel ring



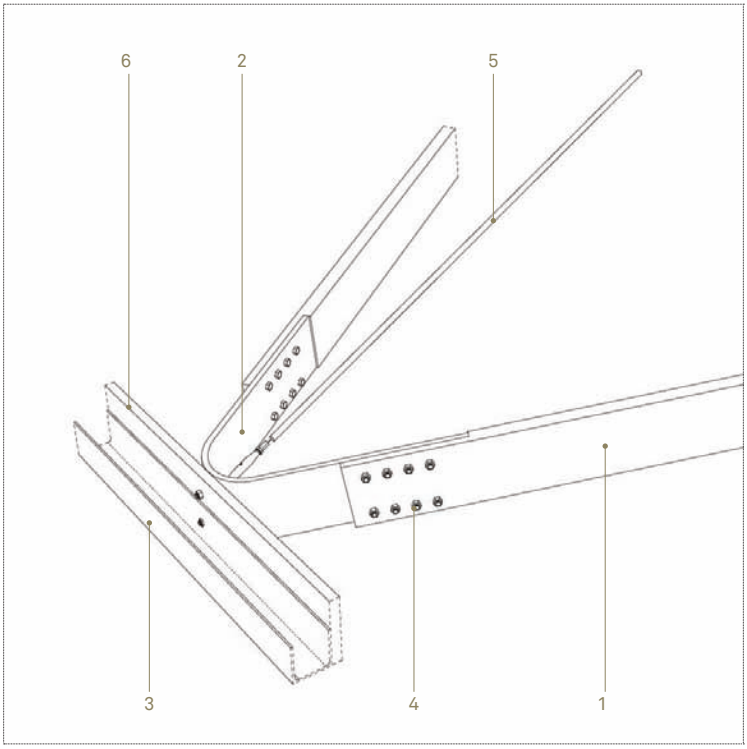
triangulate


galvanized steel roof vent connected to steel ring
pcm doped roof tiles
kemper timber purlins
reclaimed timber slats
steel tensile cables
lift
integrate



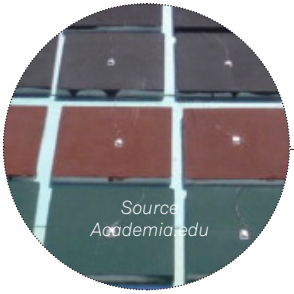
A RING *roof top*

01 Locally sourced (treated) kemper wood glulam
02 Galvanized steel plate connected to -
03 Galvanized steel ring
04 Steel nuts/bolts
05 Galvanized steel tension cable



A FOLDED *roof edge*

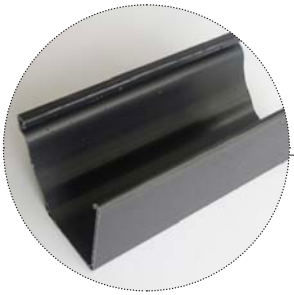
01 Locally sourced (treated) kemper wood glulam
02 Galvanized steel member
03 PVC custom gutter
04 Steel nuts/bolts
05 Galvanized steel tension cable
06 Treated kemper wood edge beam



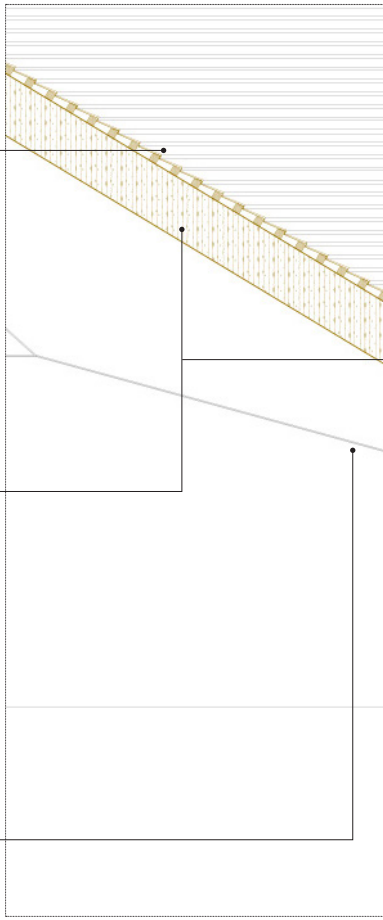
PCM doped roof tiles (red)

Locally sourced kemper wood glulam

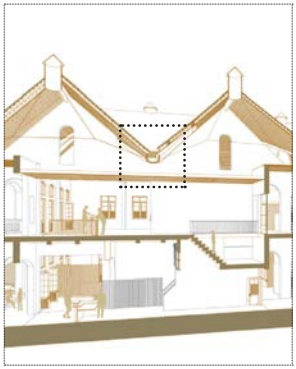
Galvanized steel tension cables



PVC custom gutter connected on glulam



INTEGRATION *1:50*



Ensuring the seamlessness of the continuity of the roofs, a curved glulam member connects to the roof edges, with a PVC gutter forming a barrier for water and guiding the water for collection outside.

The PCM doped roof tiles allow temperature regulation on the interior.

The galvanized steel cables provide additions support while providing a more open, column free space.

Galvanized steel round roof vent (Venturi vent)

Galvanized steel ring

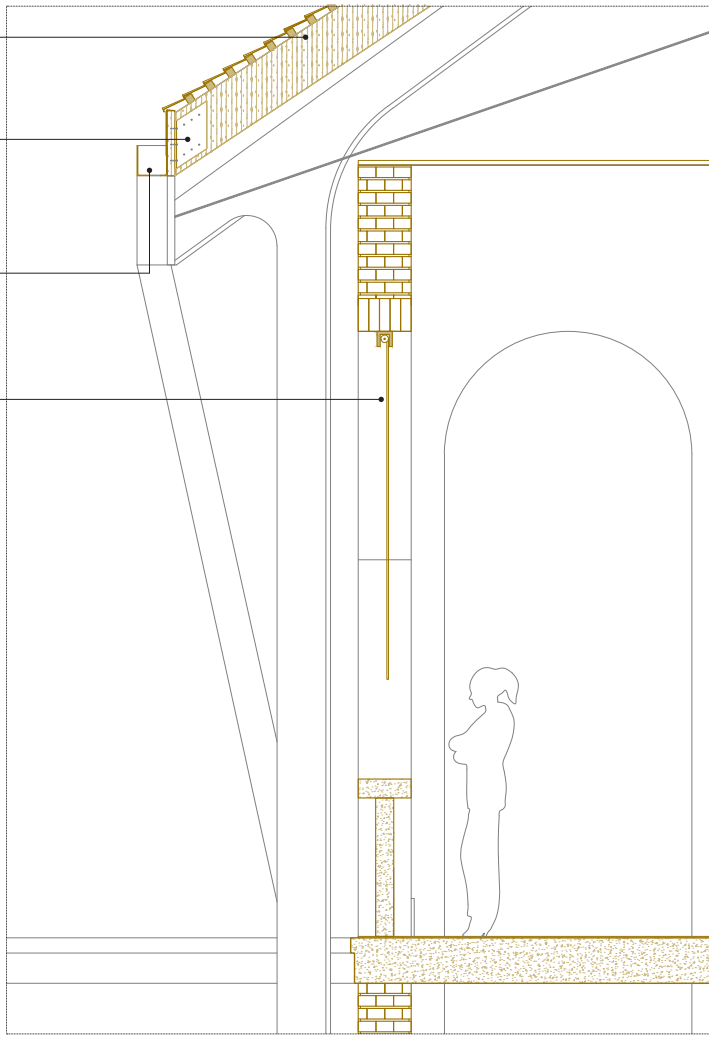
PCM doped roof tiles - red

Locally sourced Kemper wood glulam

Galvanized steel connection

PVC custom gutter

Woven rattan screen - white

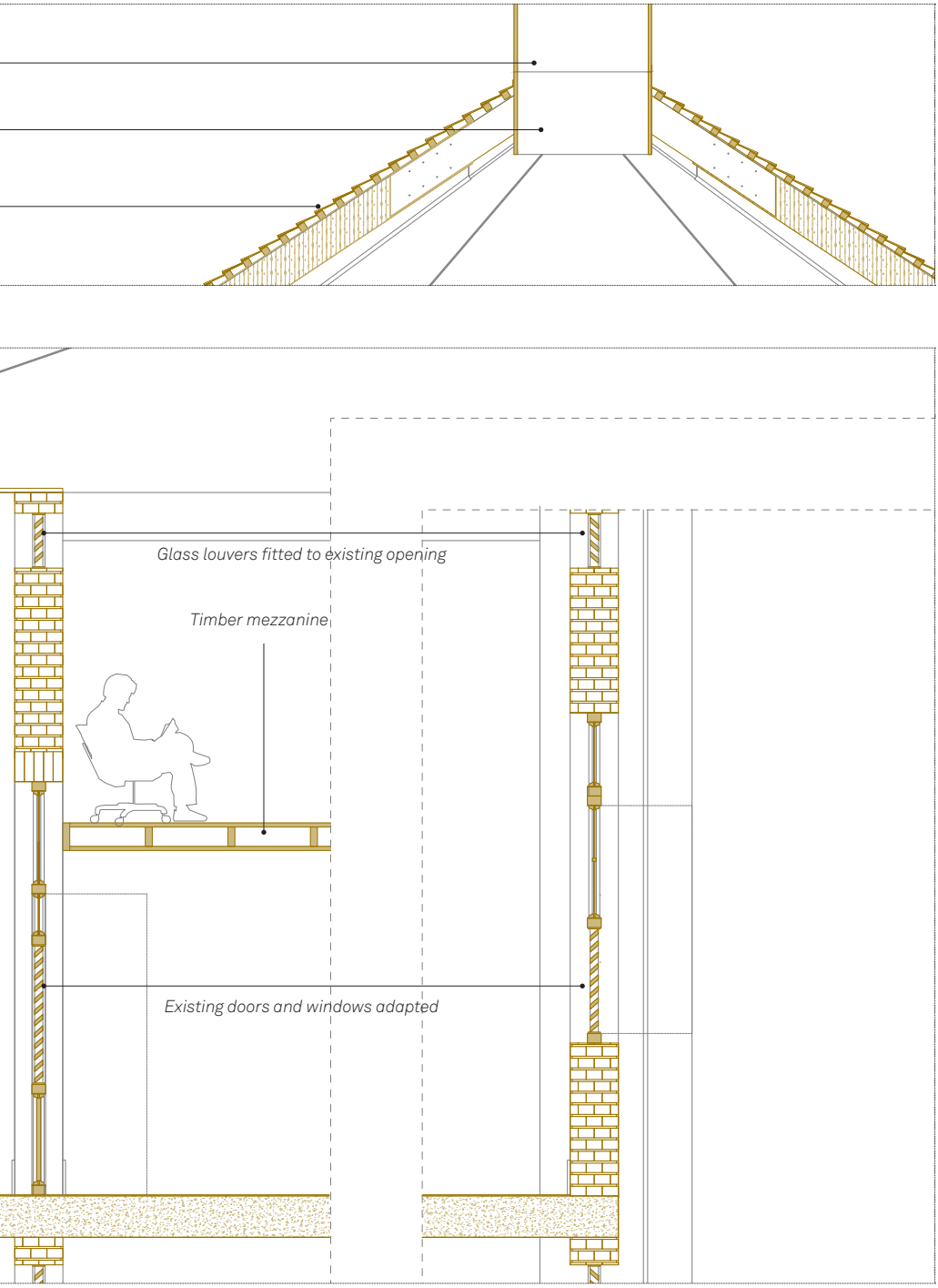


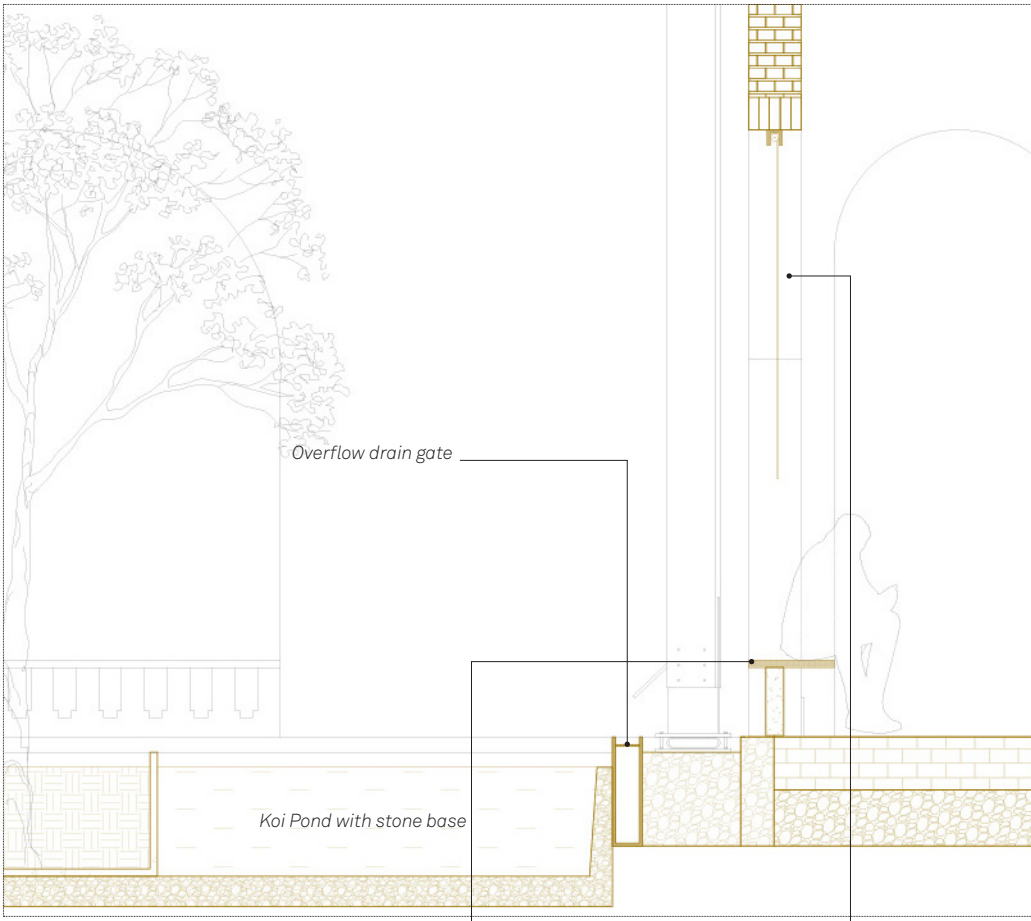
INTEGRATION *1:50*

The roof structure designed as a separate entity that does not touch the existing building.

The existing doors and windows are redeveloped to provide better control and assist natural ventilation even when they are closed by incorporating the louvers.

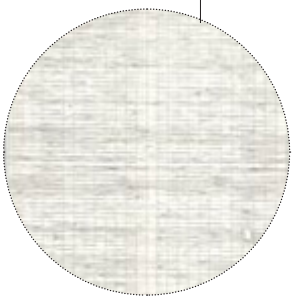
Taking advantage of the roof heights, the mezzanine is developed with its structure corresponding to the columns below.

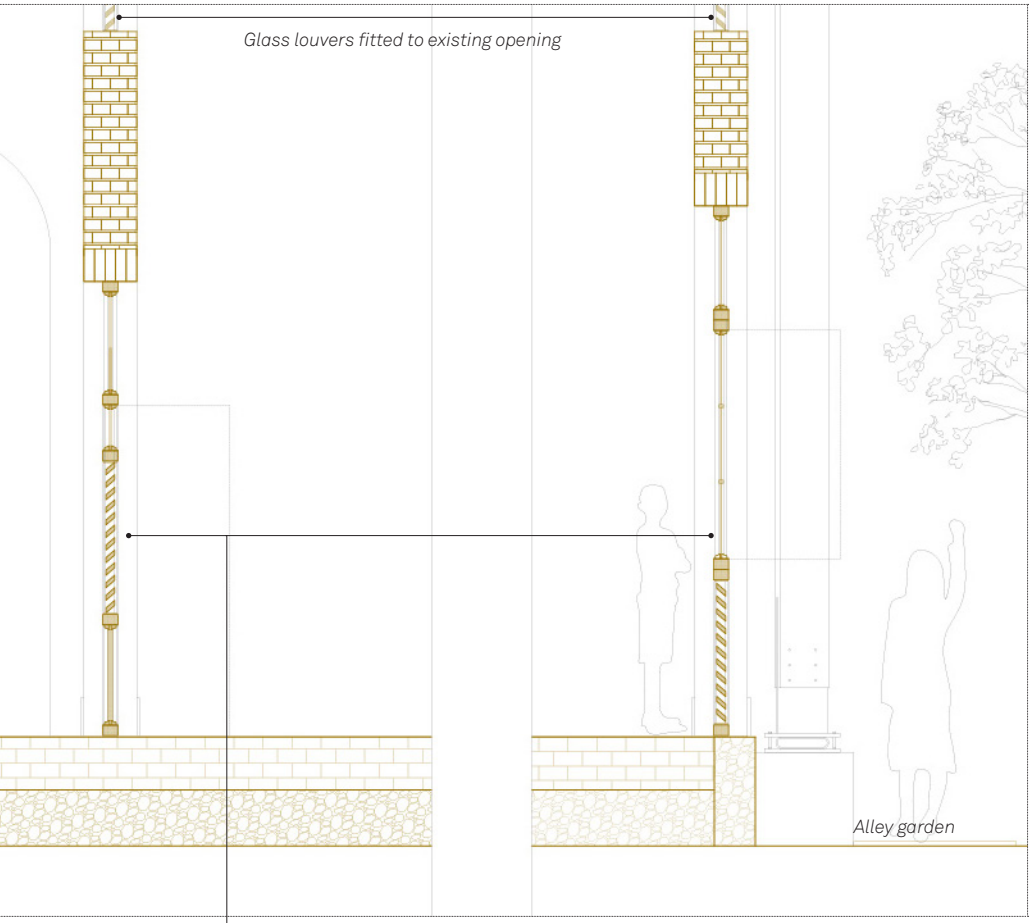

Glass louvers fitted to existing opening
Timber mezzanine
Existing doors and windows adapted



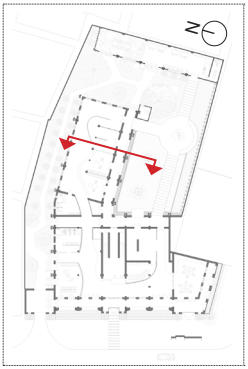
Timber bench seat fixed on adapted existing concrete rainling

Woven rattan screen - white





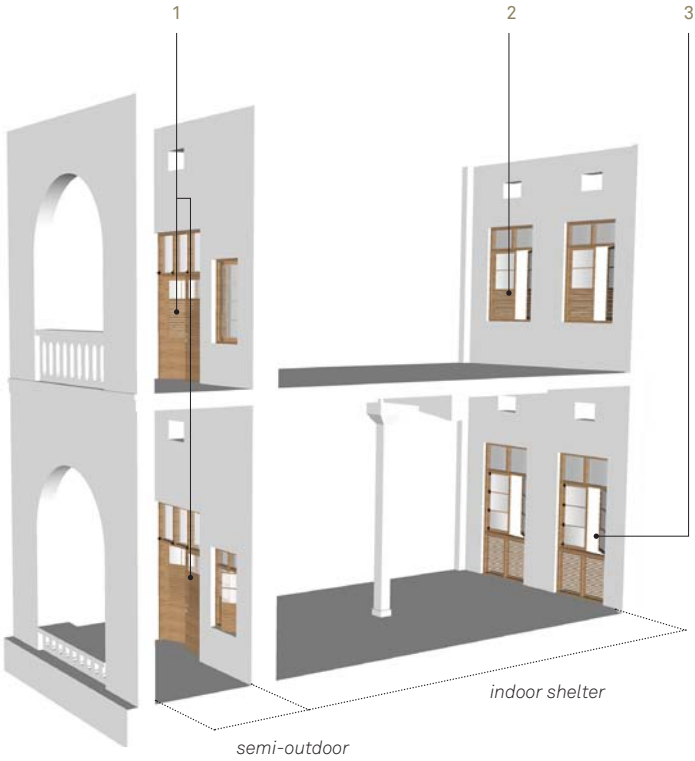
INTEGRATION *1:50*



The alley garden and pond are designed to optimize cooling and assist in natural cross ventilation into the building.

The exiting concrete railings are adapted with timber bench seats to provide seating spaces along the corridor.

The overflow drain gate and pebble buffer provide a barrier between the existing structure and the pond.



REUSE + ADAPT

Existing window frames to be adapted to allow more light in and facilitate ventilation even when they are closed during extreme weather conditions.

The existing double window is de-constructed, adapted and rebuilt to include the glazing and louvers as one system that offer better control of light and air.

1

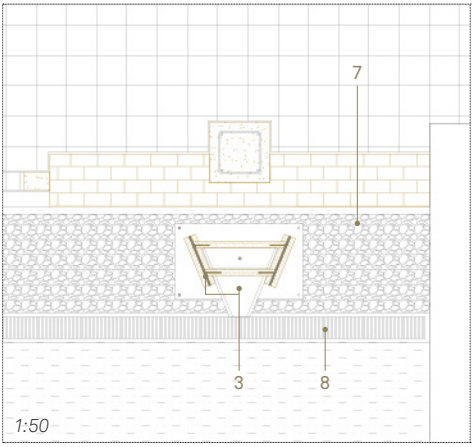
Existing doors **preserved**
- expose wood, weather coated

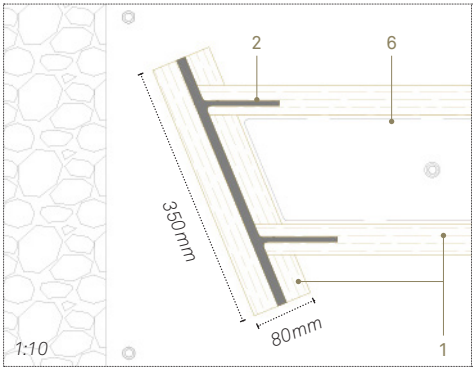
2

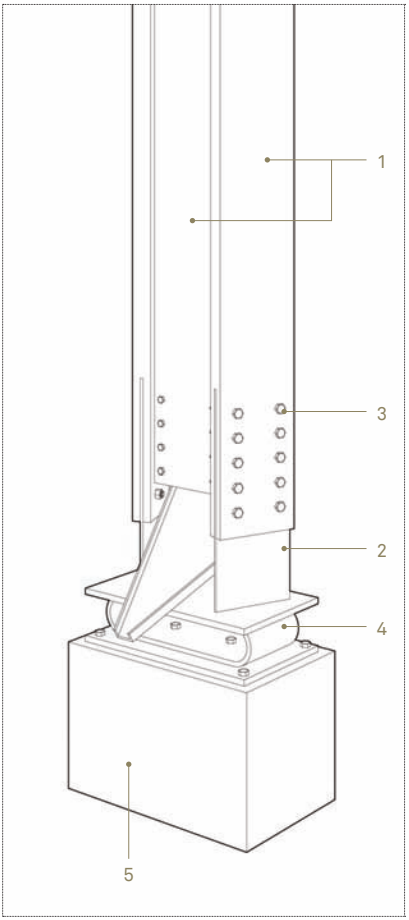
Existing windows **adapted**
- expose wood, weather coated
- add more glazing and combine the louvers

3

Existing windows **adapted**
- expose wood, weather coated
- add more glazing and move the louvers





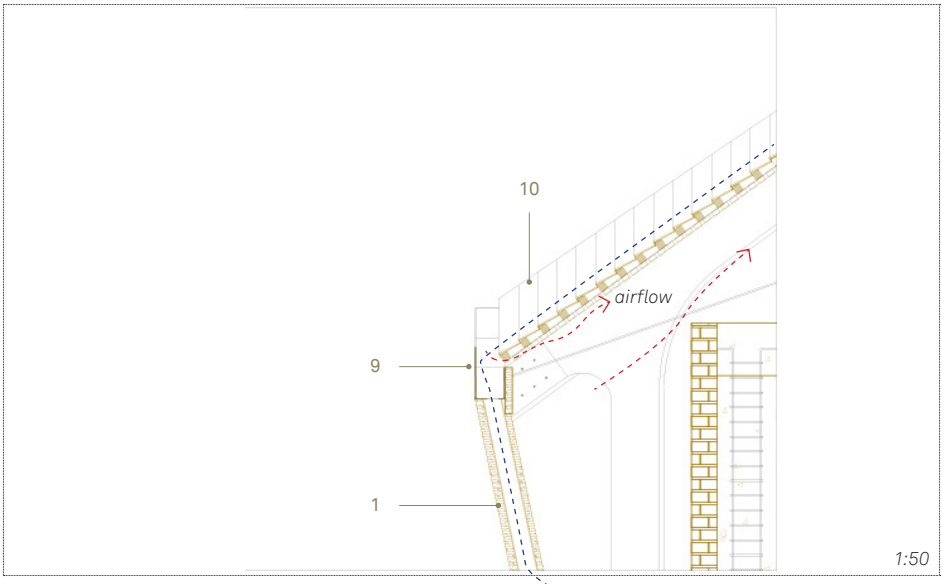


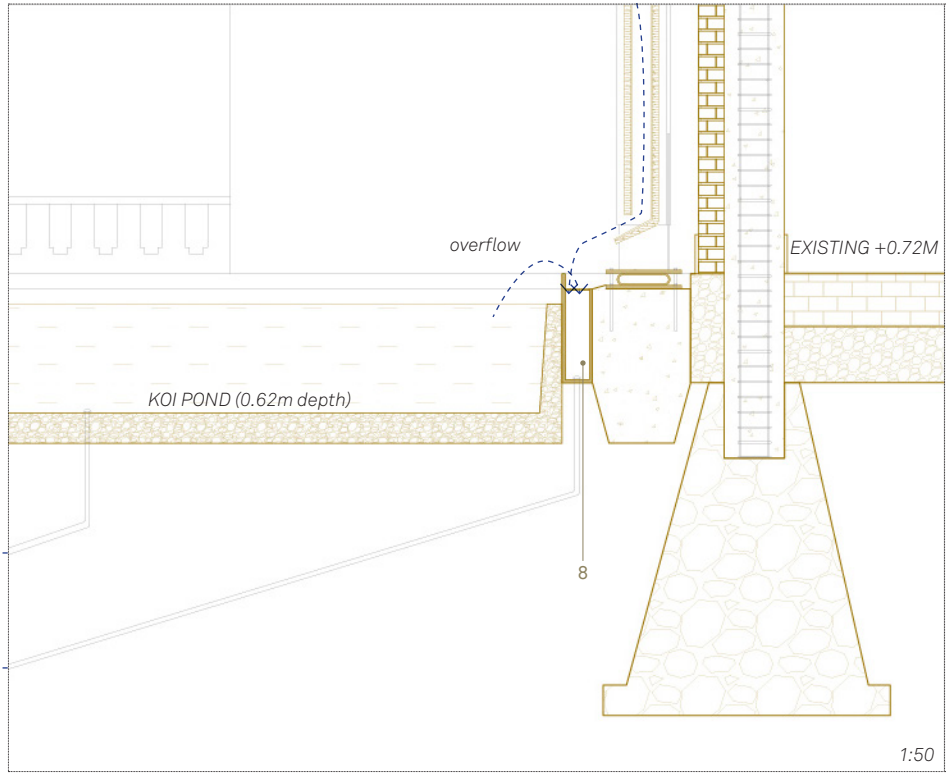
COMBINING *structure with flow*

01 Locally sourced (treated) kemper wood glulam column | 80 x 350mm
02 Galvanized steel plate connected to base plate
03 Steel nuts/bolts
04 Galvanized steel pre-compressed band (resist quake loads / expand in case of land subsidence)
05 Concrete base
06 PVC down pipe
07 Pebble buffer (+0.60m)
08 Overflow drain gate
09 PVC gutter
10 PCM doped roof tiles

to aquaponics system <

to storage tank <


10
airflow
9
1
1:50

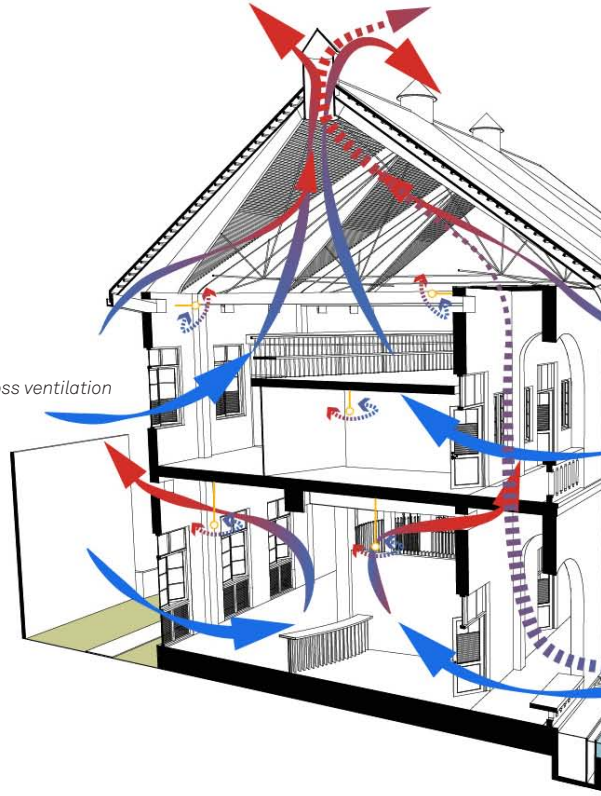

overflow
EXISTING +0.72M
KOI POND (0.62m depth)
8
1:50

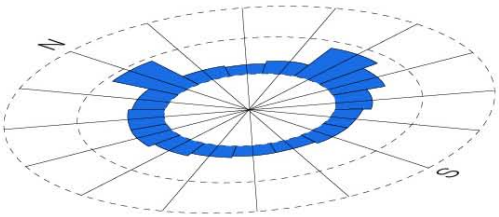
From closed to open,
engaging, inviting, connecting
generations across borders.

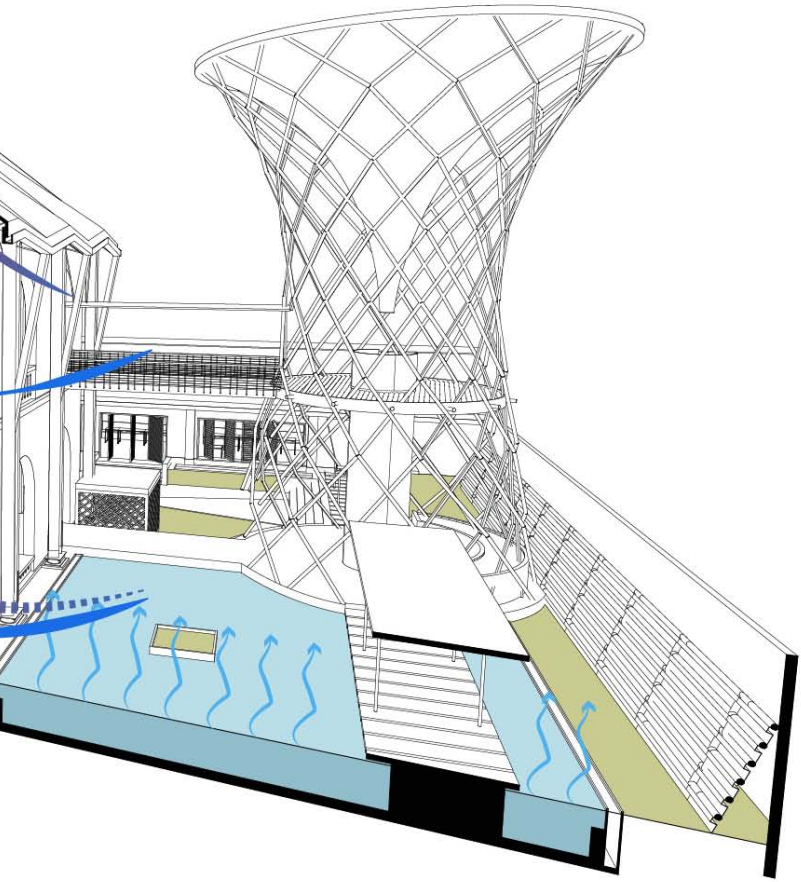
THERMAL COMFORT *facilitating natural ventilation*

Roof vent system

Passive ventilation /cross ventilation





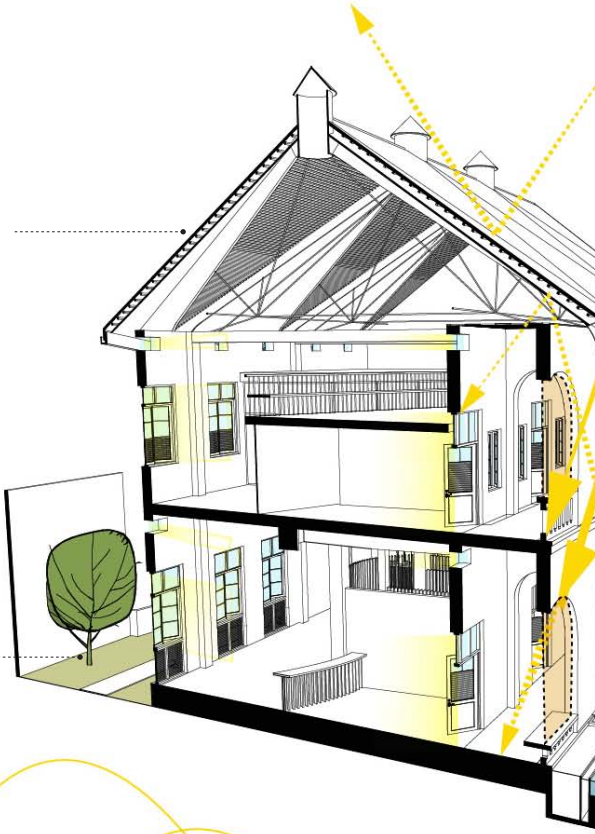


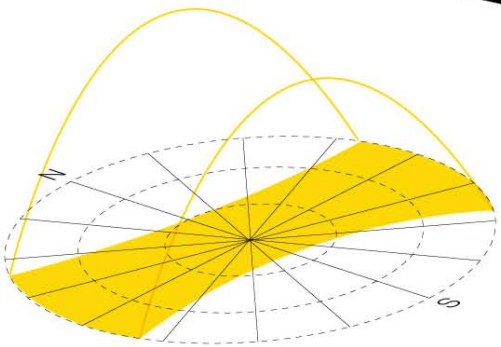
Evaporative cooling from water body

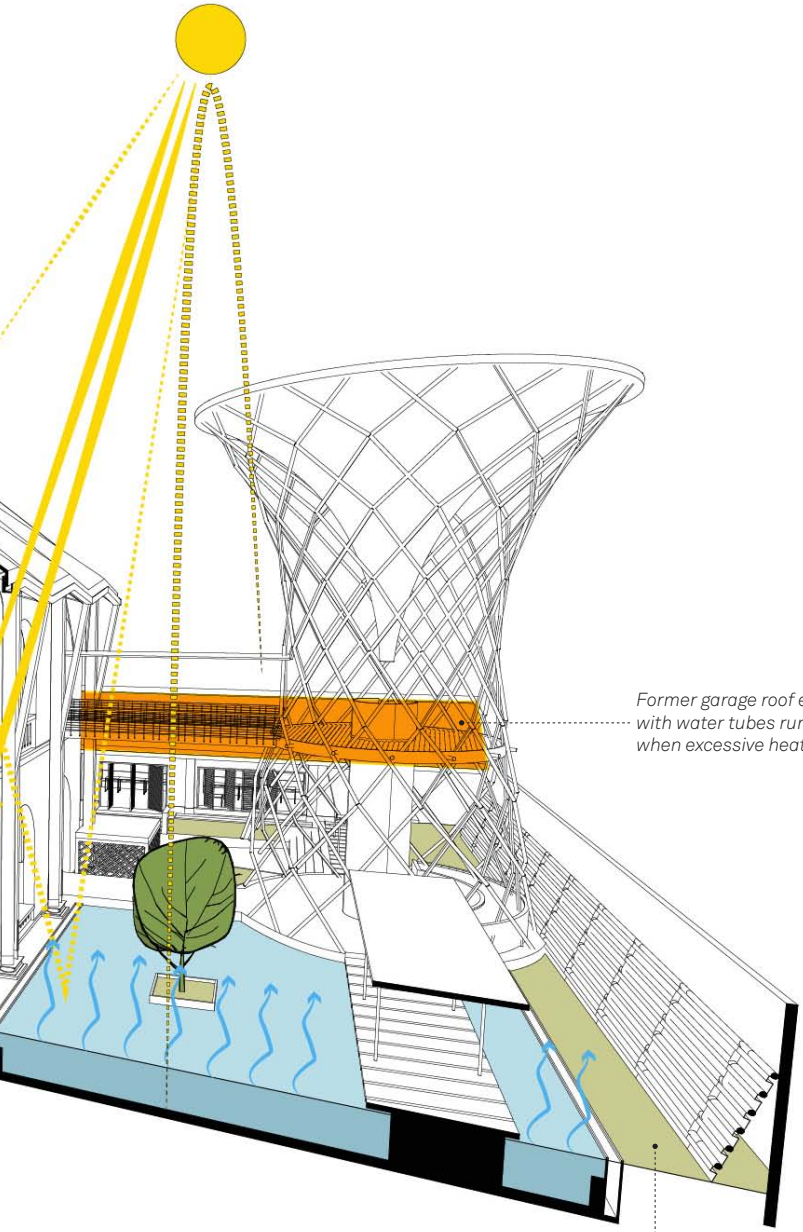
THERMAL COMFORT *providing shade and indirect light*

PCM doped roof tiles for facilitating heat exchange.

Colonnade of trees to provide shade.



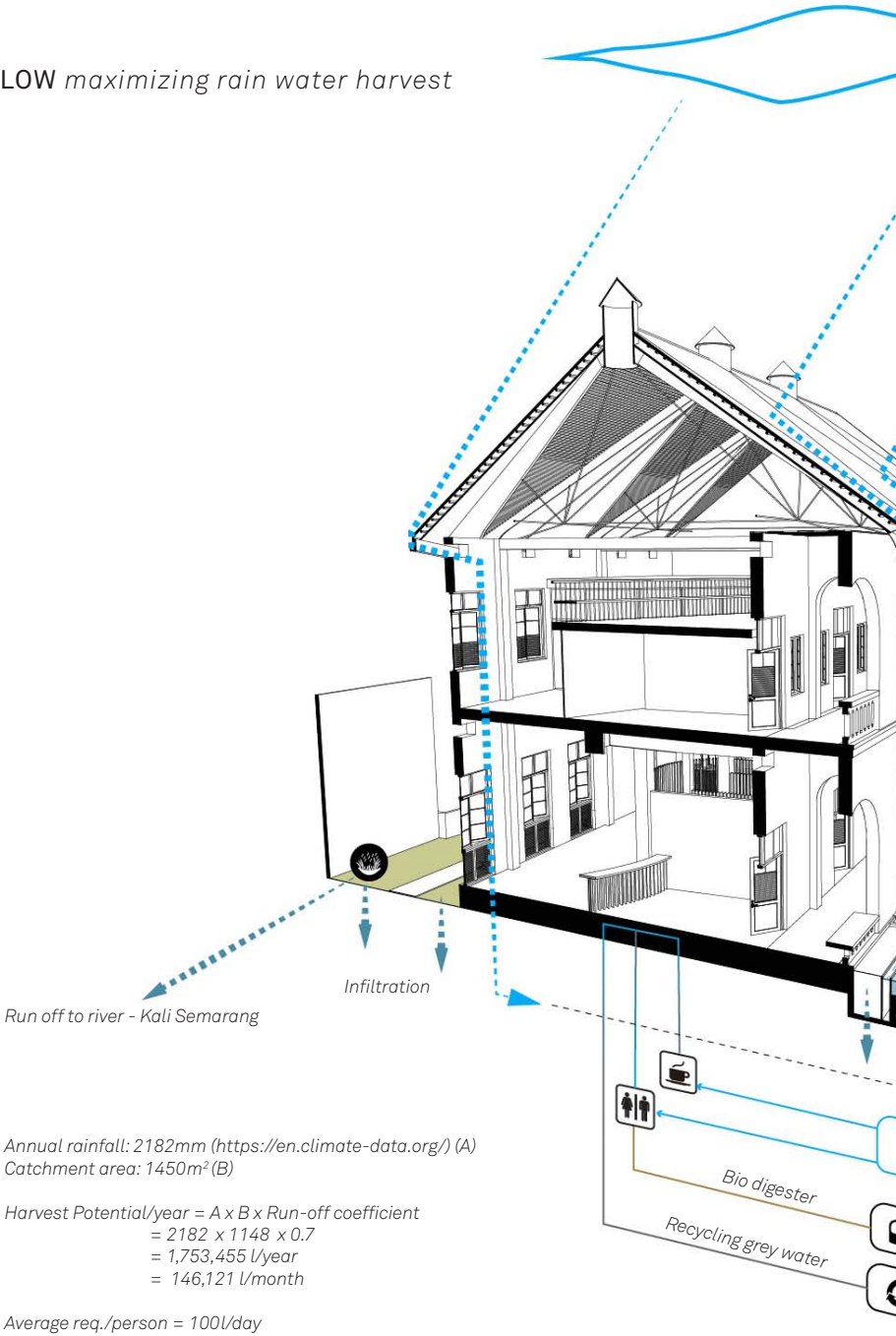




Former garage roof equipped with solar panels with water tubes running underneath to cool when excessive heating occurs.

Green ground to absorb heat.

WATER FLOW *maximizing rain water harvest*

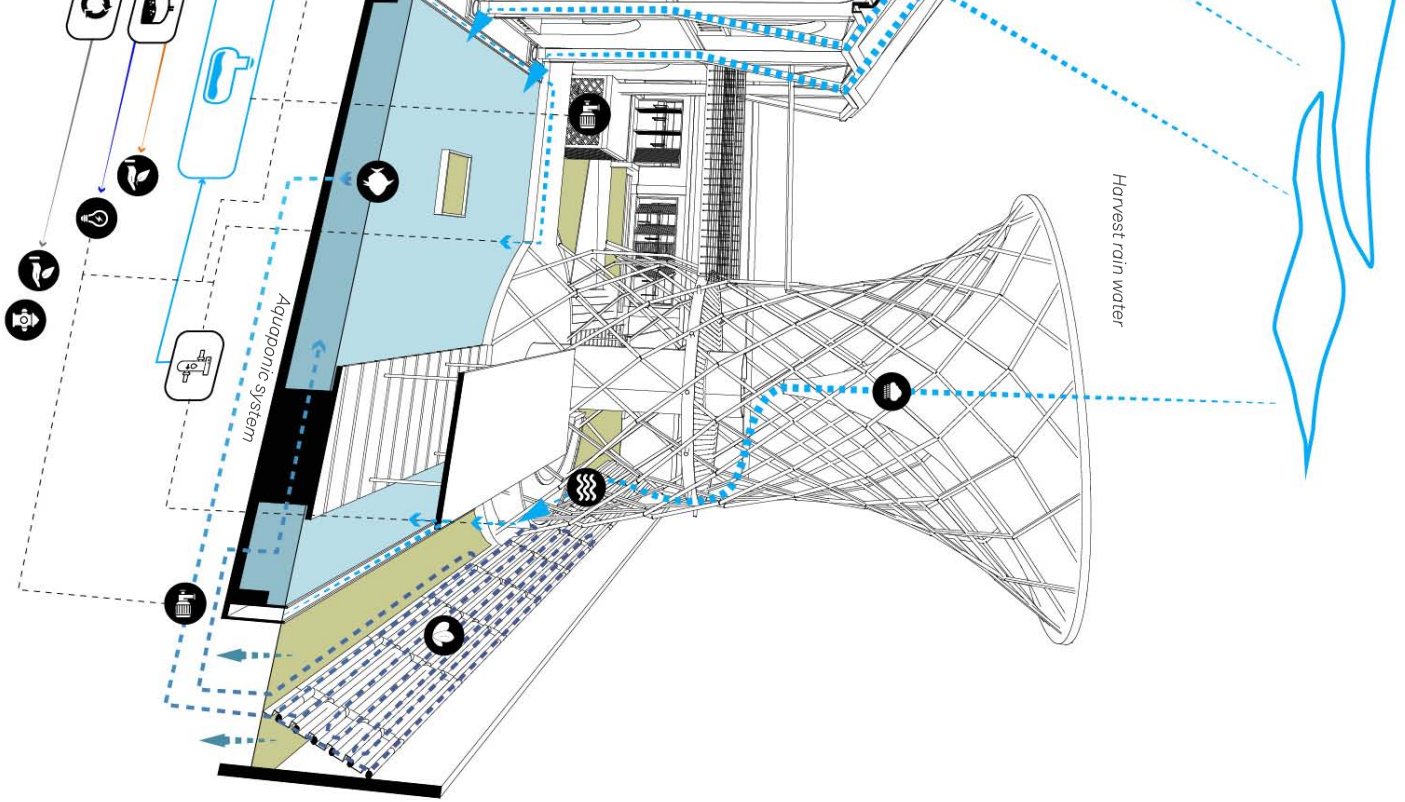


Annual rainfall: 2182mm (https://en.climate-data.org/) (A)
Catchment area: 1450m² (B)

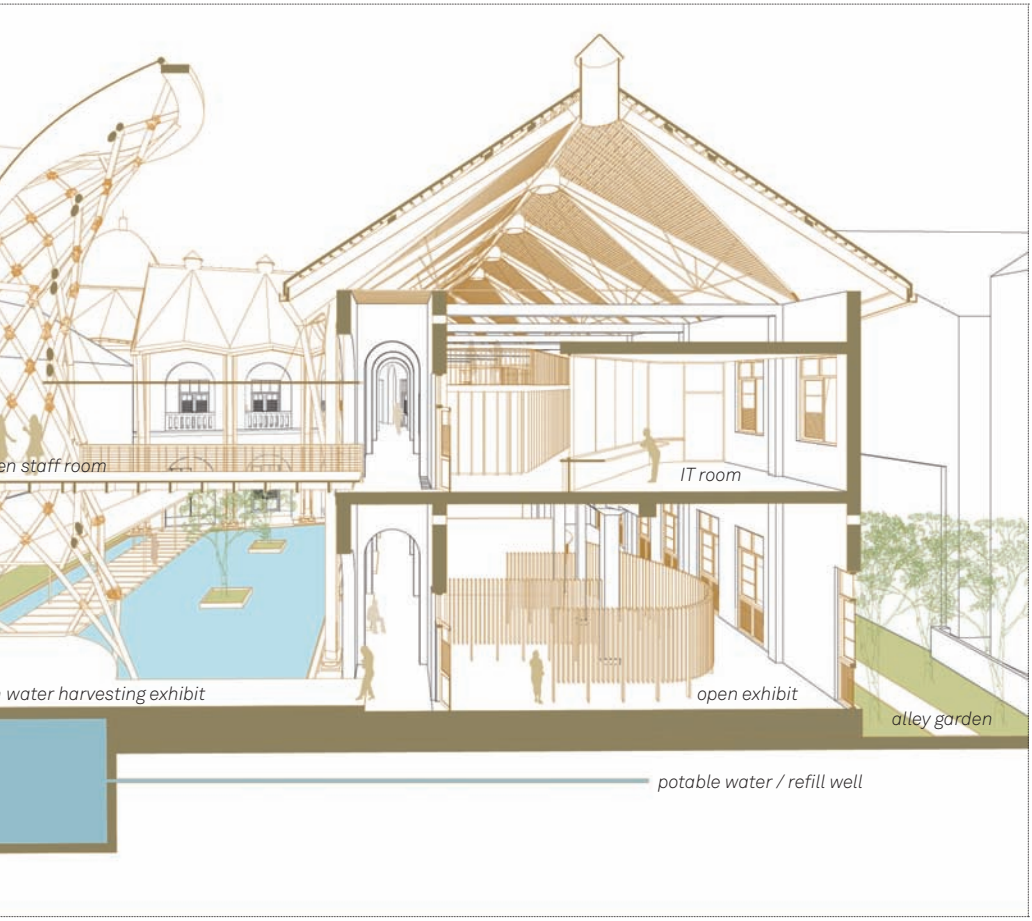
Harvest Potential/year = A x B x Run-off coefficient
= 2182 x 1148 x 0.7
= 1,753,455 l/year
= 146,121 l/month

Average req./person = 100l/day

Proposed underground tank = 200,000 l

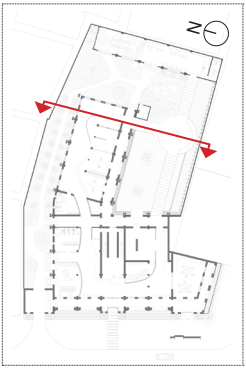

Aquaponic System
Harvest rain water


rain catching funnel
bamboo pavilion
existing spiral staircase renewed, adapted and rebuilt to provide access to the pavilion, merging the old and the new
ope
rain

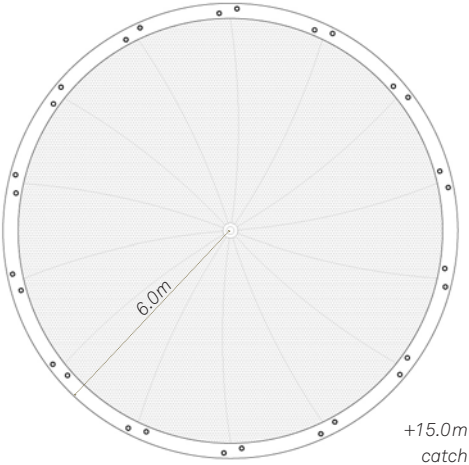


CONTINUITY *from existing to pavilion*

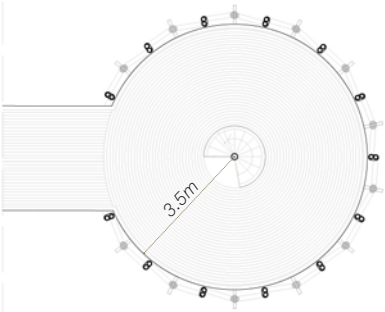
The new pavilion serves as a showcase for the locals to see the potentials of harvesting rain water while establishing a link the existing building; a habitable space for the staff and point of contact for the public as well as a pavilion for education.



01 Rattan fiber
02 100mm diameter structural bamboo
03 80mm diameter structural bamboo beam
04 Timber plug
05 50 x 400 mm reclaimed timber glulam
06 60mm diameter bamboo flooring
07 Glulam timber ring connect framework to funnel with weatherproof curtains attached
08 3D printed funnel made from waste plastic
09 Flexible water pipe
10 First collection tank
11 Existing metal spiral staircase, adapted with new railing structure and rebuilt



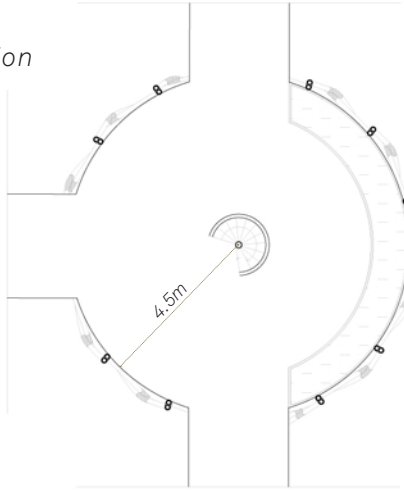
+15.0m
catch



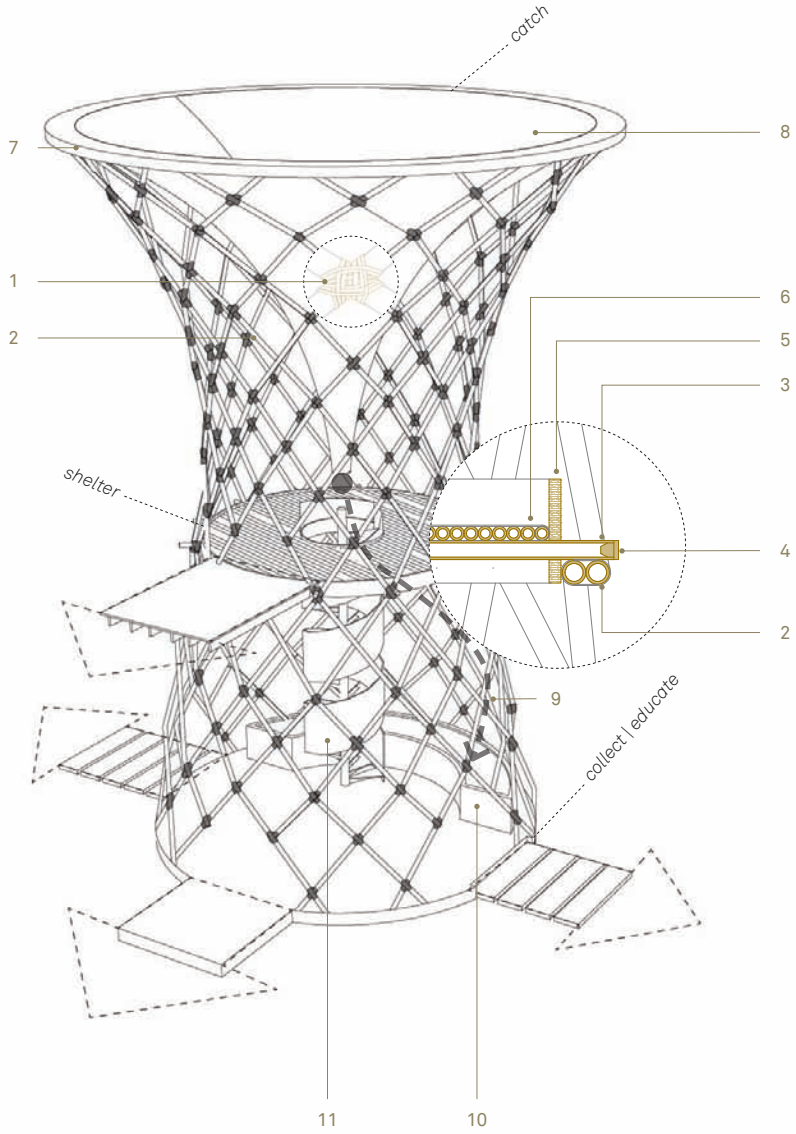
+5.7m
shelter

HARVESTING RAIN *a bamboo pavilion*

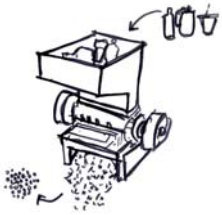
The bamboo pavilion aims to exhibit the potentials of harvesting rain as an alternate to extracting ground water for use. Additionally it aims to highlight the use of bamboo as a viable construction material and elevation the current negative social constructs in this context. The use of plastic waste to 3D print the funnel showcases the potential of up-cycling plastic waste into functional pieces thus creating a platform for local craftsman/woman to engage with the latest trends and cutting-edge technology in AEC industry.



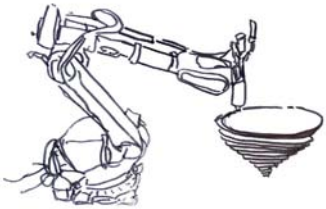
+ 0.87m
collect
educate


catch
7
8
1
6
2
5
3
shelter
4
2
9
collect | educate
11
10

highlighting local crafts(wo)manship and materials



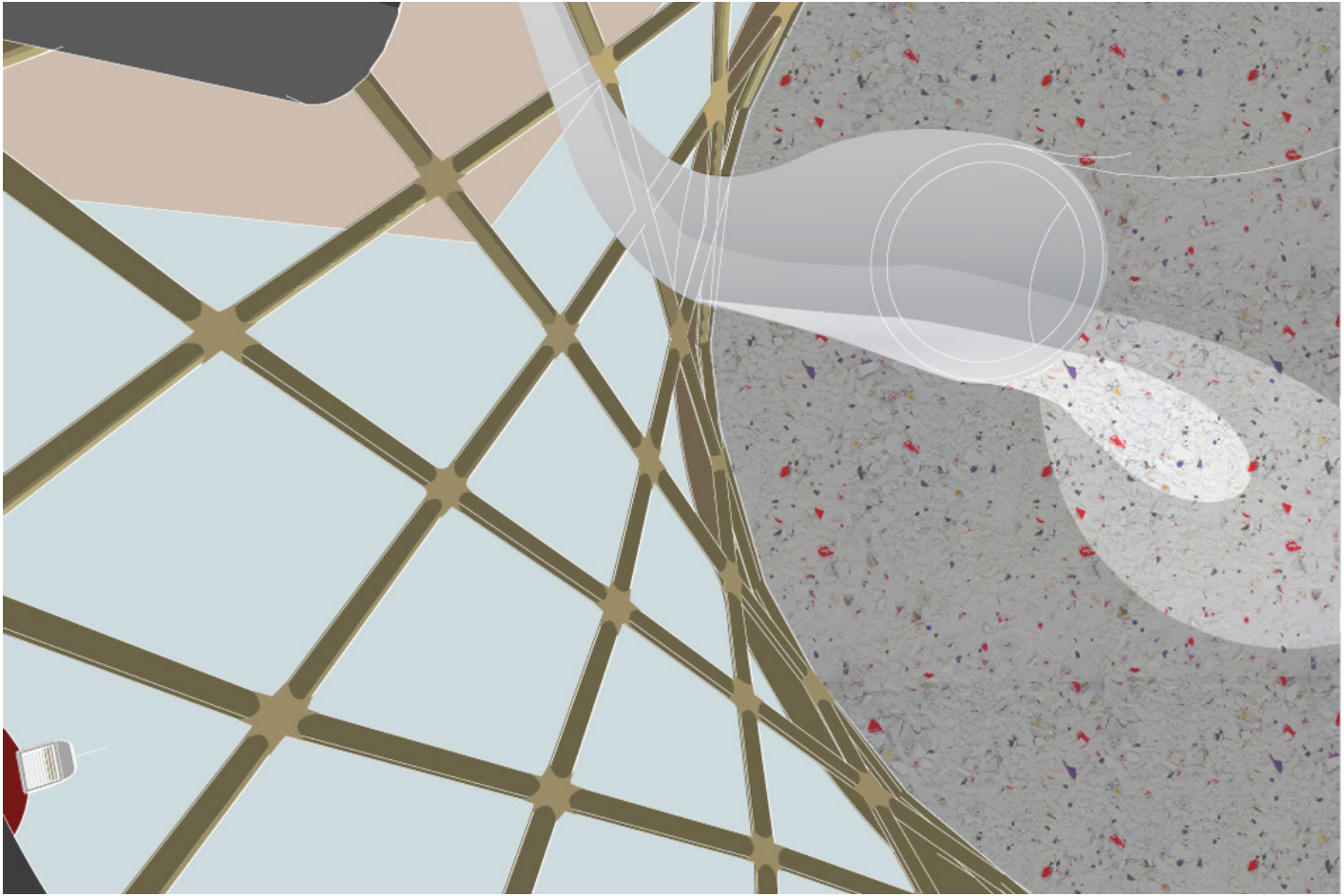
turning plastic waste into building material



combining technology with building waste materials

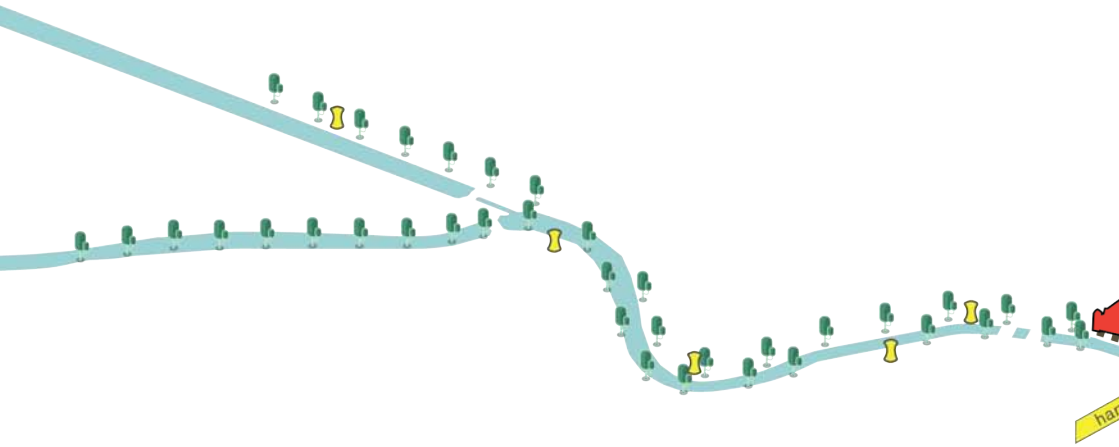
COMMUNITY EMPOWERMENT *exhibiting potentials*

The pavilion is constructed by employing the local communities and crafts(wo)men and in collaboration with professionals. Providing them the tools and concepts to elevate and existing building culture while learning of new ways to manage waste and water. An all round exhibition of potentials and catalyzing change.



THE OBJECT

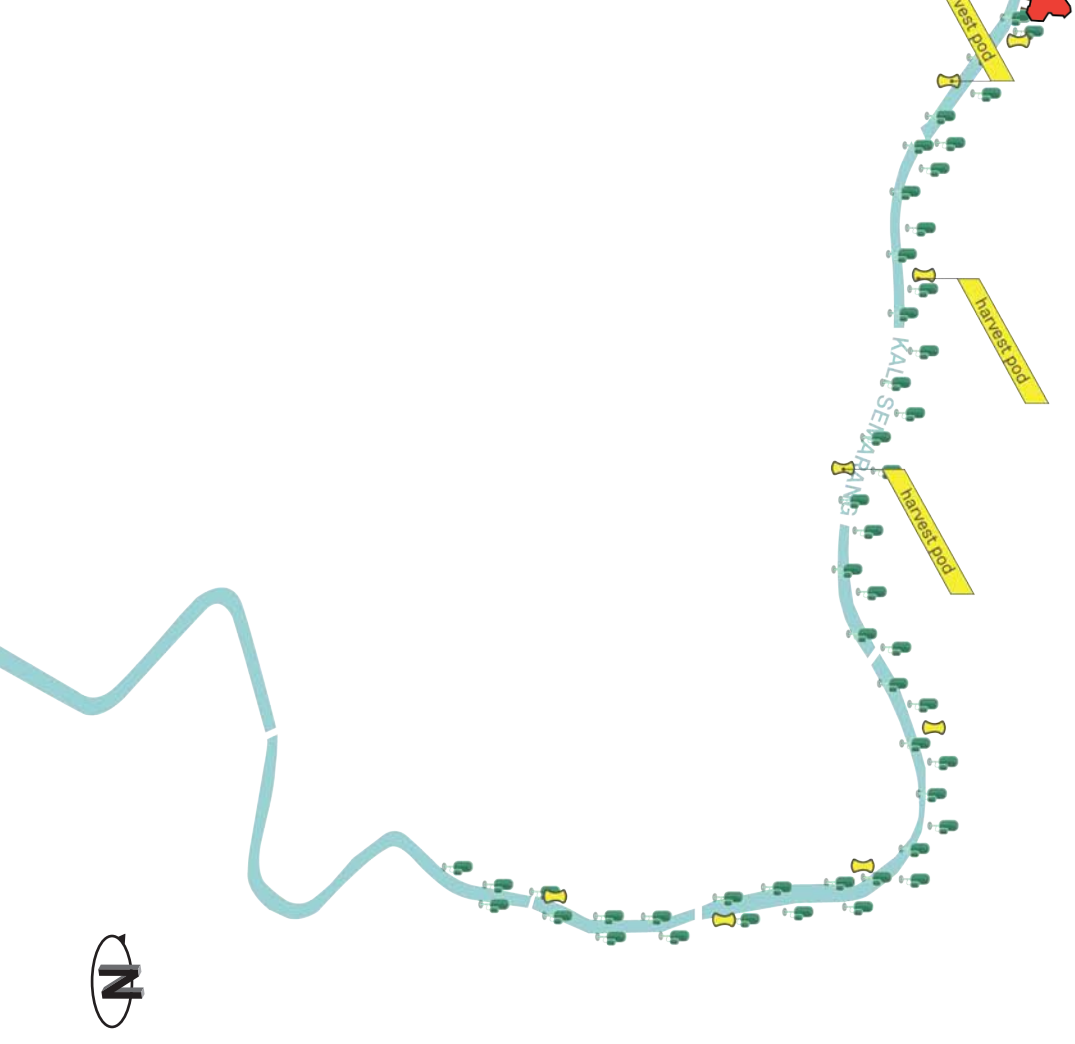
providing access to clean water



A series of water harvesting objects placed along the green belt in its first phase, and expand into the local kampung clusters to provide better access to clean water. The objects were inspired by Arturo Vittori's Warka Tower.

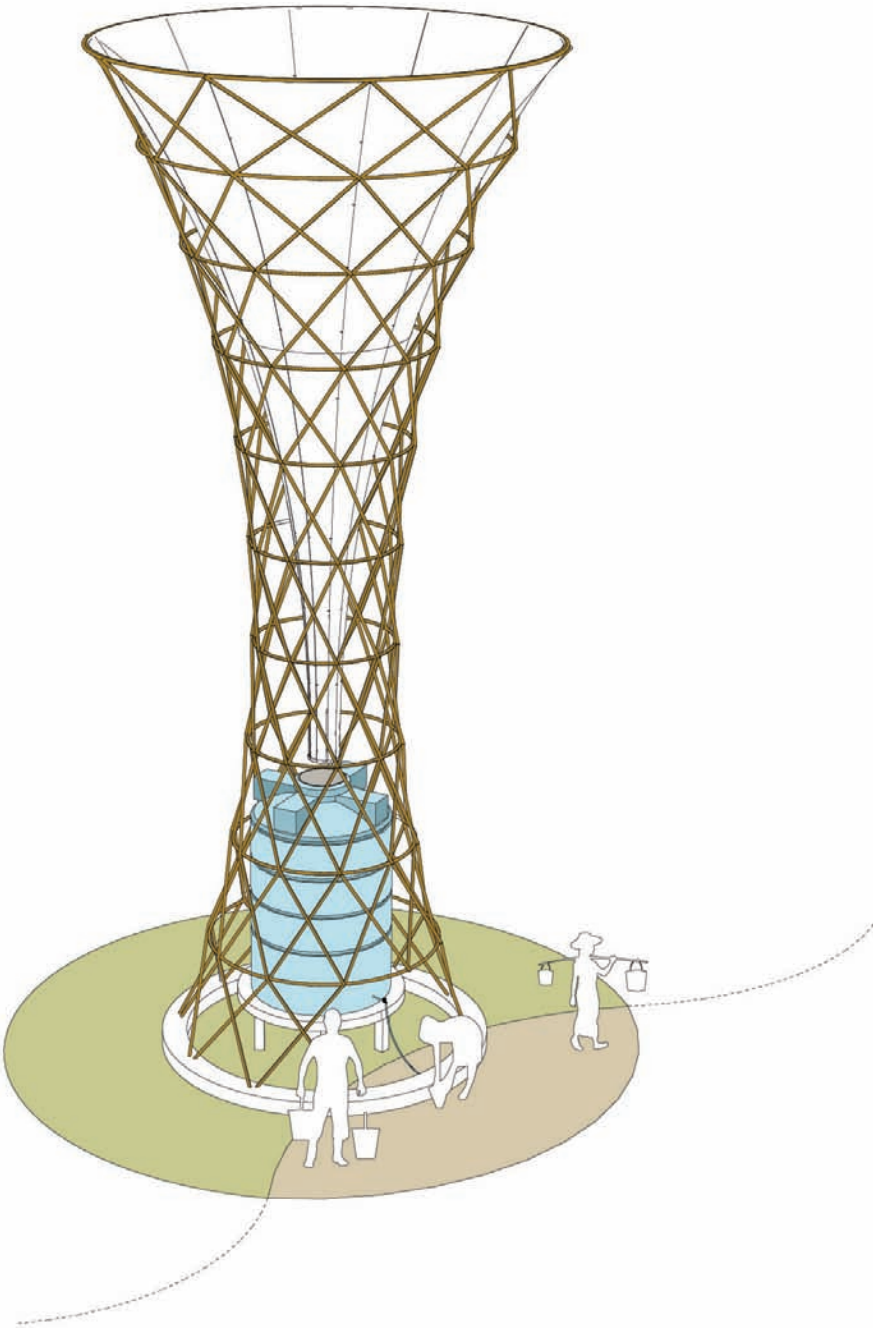
The objects are constructed using local bamboo knowledge and waste material, easily self-built by communities. They also serve as a public space, a point of interaction and collaboration. The easy construction and demount-ability ensures flexibility.

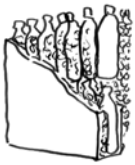

Inspired by
Arturo Vittori's Warka Tower


harvest pod
harvest pod
harvest pod
KALI SEWAD CANAL
N

GIVING BACK *harvesting rain and atmospheric water*

The objects serve as a means to provide accessibility to clean water for communities that have to rely on ground water extraction, PDAM unclean wells or buying water bottles. Many of these communities are in poverty and cannot afford the 'luxury' that water has become. By providing public access to clean water, the objects aim to empower them and inspire them to transform their kampungs to become self sustaining and sustainable.





bottle wall foundation - mortar, plastic bottles filled with waste, chicken wire

PET bottle wire/ strip made from using a plastic bottle wire cutter

weaving bottle wire/strips for inner lining of the funnel

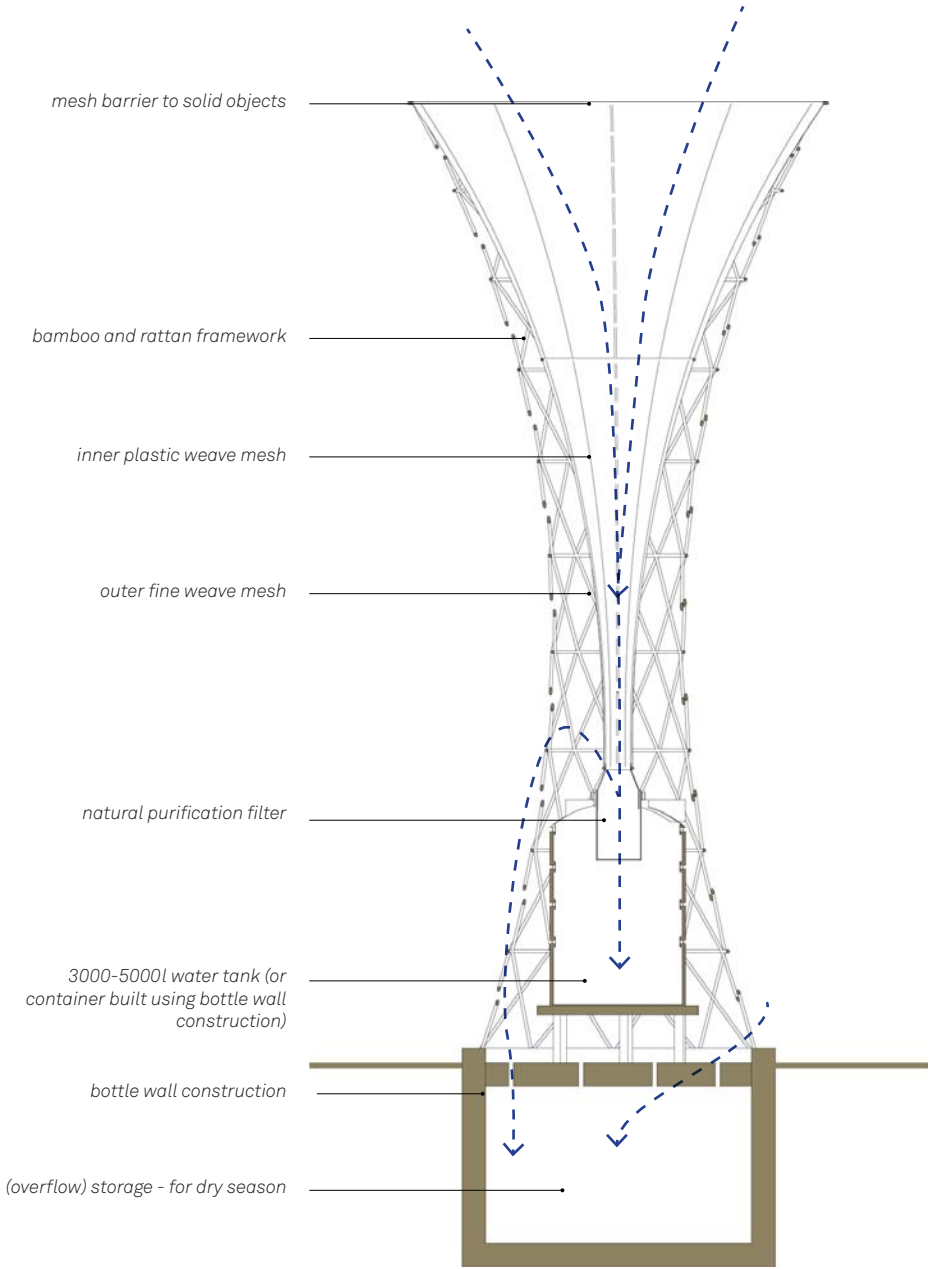
weaving throw-away fish nets (bandarharjo) for outer lining

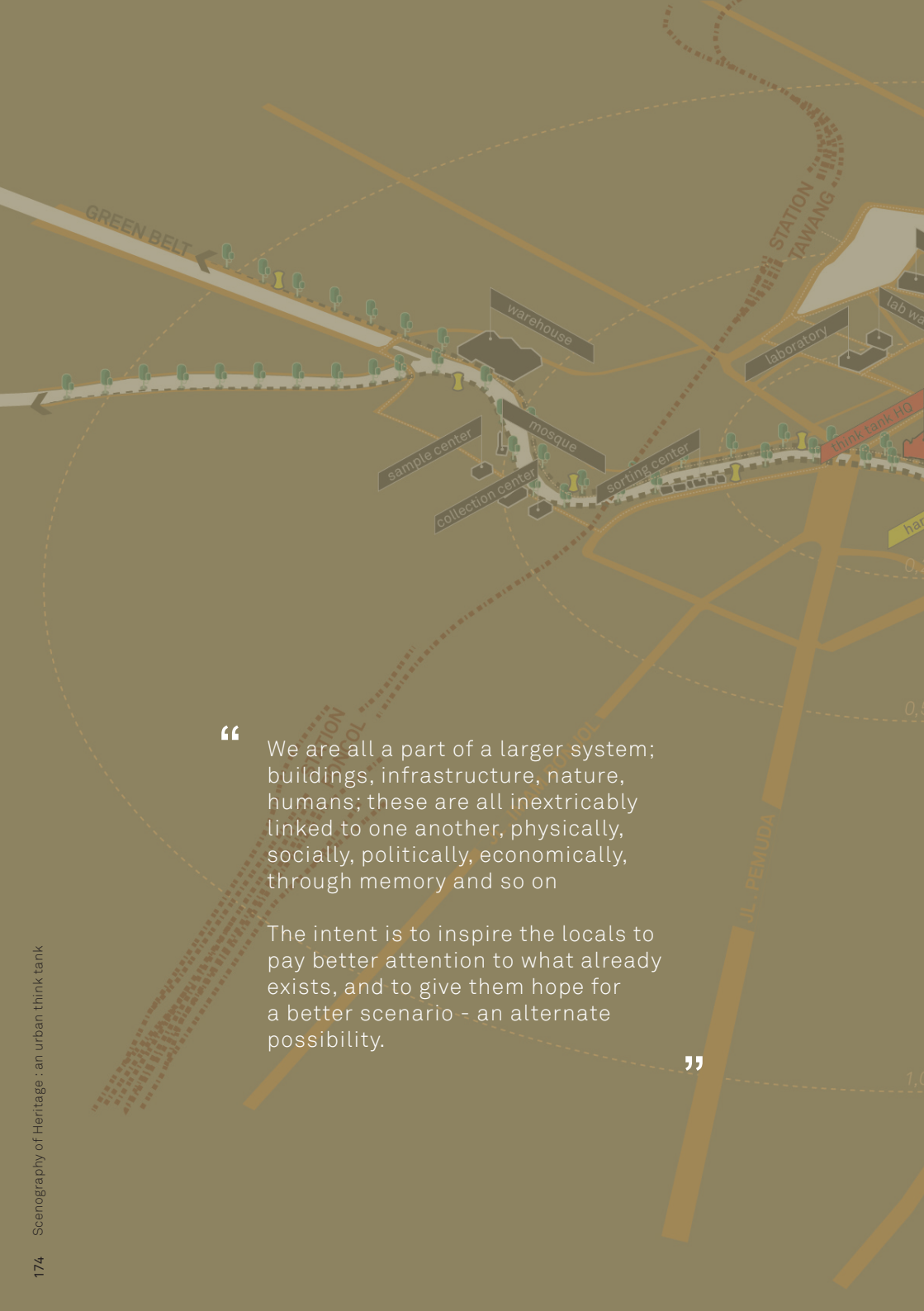
using local bamboo and rattan for the framework

COMMUNITY ENGAGEMENT *and low tech construction*

Kampung communities are able to come together, following the principle of 'gotong royong' to build these objects, along the urban and within their own kampungs.

The use of plastic bottles and throwaway fish nets from Bandaharjo fishing communities provides easy access to materials for construction and use their knowledge of weaving and bamboo construction to change their circumstances of poor access to water due to lack of infrastructure.


mesh barrier to solid objects
bamboo and rattan framework
inner plastic weave mesh
outer fine weave mesh
natural purification filter
3000-5000l water tank (or container built using bottle wall construction)
bottle wall construction
(overflow) storage - for dry season



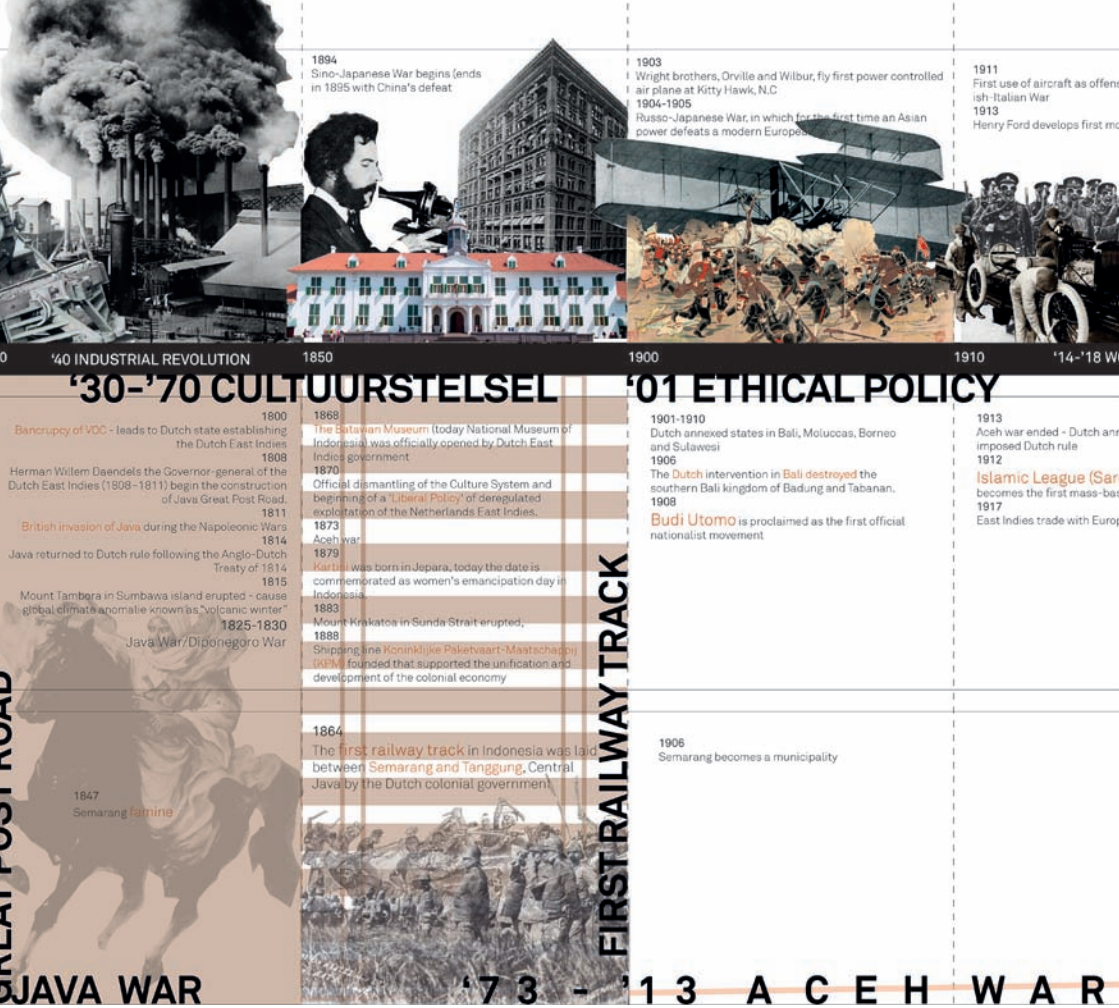
“We are all a part of a larger system; buildings, infrastructure, nature, humans; these are all inextricably linked to one another, physically, socially, politically, economically, through memory and so on

The intent is to inspire the locals to pay better attention to what already exists, and to give them hope for a better scenario - an alternate possibility.”


KALI SEMARANG
harvest pod
harvest pod
harvest pod
sample center
research center
research center
residences
residences
lecture halls
06 MIN
12 MIN
18 MIN

A Reflection

pre-thesis completion thoughts



INTRODUCTION

NOTE:

Image above (realised during the preliminary research phase, pre site visit) depicts a historical timeline of Indonesia and Semarang along with a reference to (selective)major global events. This was a part of the first start to our research conducted with the interdisciplinary group of the Shared Heritage Lab of Semarang to shed light on the 'cause and effect' of what has become of Semarang today.

The studio of the 'Shared Heritage Lab of Semarang' (SHL), deals with positioning heritage and architecture in a global context due to the shared history between Netherlands and Indonesia. Dutch colonization that lasted over 300 years deeply impacted not only the politics and socioeconomics of Indonesia, but also the built environment. Traces of the social segregation that resulted are still perceived in Semarang. However, there are urgent environmental (both built and ecological) issues that need to be addressed – land subsidence, flooding (coastal and rainwater), urban and heritage decay, lack of accessibility to water and, poor water and waste management.

The current condition of Semarang is rooted in its complicated and rather 'disturbing' history. It's neglect and current trajectory has much to do with politics and socio-economics of within Indonesia just as much with

the rest of the world. Skewed priorities led by globalization, consumerism and capitalist agendas have led to neglect in not only the urban fabric but also the well-being of its communities (in my opinion). This combined with the environmental and ecological calamities make Semarang a beautiful 'dystopian' city where layers and layers of issues and concerns are buried deep within a 'fresh' coat of paint - tentative world heritage site.

So, how does one, an aspiring architect, even begin to understand these layers, their causes and effects? How can one hope to make even the slightest change to tip the balance in a positive direction? Why?

A series of questions in a variety of domains, not limited to the tangible but also the intangible led the evolution of this graduation project; with more questions, dilemmas, hesitations, and revelations arising towards the 'completion'; reflection continues.

RESEARCH AND DESIGN: A NON LINEAR PROCESS

The architectural discipline is a complex combination of a multitude of professions, perspectives, cultures, environments, socio-political-economic issues and so on. Having a thorough understanding of each of these domains, in its given context, is vital to start a project – be it urban, landscape, architectural or social. But each of these different domains like culture and politics require different research methodologies to aid the design practice.

With the above in mind, my research process involved three main components in different time frames – pre-site visit research, on-site/ fieldwork research and post-site visit research (Fig 1). Through the preconceptions I formed from the preliminary research that was conducted (to understand the context of Indonesia and Semarang), my research question centered on the cultural response to heritage and the role of heritage in the smart city movement that the government was planning to implement. However, arriving in Semarang for a three week long fieldwork, my preconceptions were contested, resulting in my research question becoming more specific to an observed problem – the lack of accessibility to water and poor waste management centering on the neglected river (Kali Semarang) in the proposed sites (Kota Lama, Pecinan and Melayu). This meant a re-evaluation of the research that was done prior to the site-visit, categorizing the relevance of the research, and conducting further research during and after the site visit that was more specific to the updated research question. This echoes the Heritage and Architecture chair's approach to architectural design - being a combination of cultural values, technology and design that are in constant motion. It highlights that the process for heritage architects is non-linear, and the 'creative curve' shifts due the large time frame required for research when it comes to re-designing a building[1].

In the practice of heritage and architecture, assessing the values of the context and heritage in question (value matrix) is vital for the future of the design project. These values are analysed over

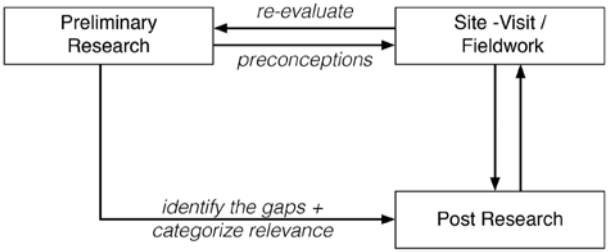


Fig 1: A non-linear process

SOURCES:

1 Marieke de Kuipers and Wessel de Jonge, Designing from Heritage: Strategies for Conservation and Conversion. Delft, (Netherlands: TU Delft, 2017) 27
2 Linda N Groat and David Wang, Architectural Research Methods (John Wiley & Sons, Inc, 2013) 176.
3 ICOMOS 2018
4 Herbert Simon and Abraham Moles as mentioned in Nova's book, and Zana O'Leary as put forward by Lucas Ray in his book, contribute to the abstractions of design research where the people and their own personal beliefs, history and fears were implicit. Nicholas Nova, Beyond Design and Ethnography: How Designers Practice Ethnographic Research. (France. ffSHS Publishingff, 2014, 978-8-89-075944-4. ffhalshs-01514264f) 16

multiple scales, ranging from urban, architectural, interior, social, economic, political, historical, aesthetic, spirit of place etc over a time period from historical to present day. Objectivity in assessing and approaching the matrix, was somewhat futile, even with all the research conducted. One main question that arose was whose lens am I looking at this through? Is it my own, the local community or one of the various stakeholders or is it history? Or was it combination of many? And if it is a combination then whose voice takes the majority? Does intuition play a role? The cultural turn, which rejected the possibility of totalised and single histories, recognizes that history can be narrated from multiple points of view[2]. If so, then which historical accounts are relevant here?

Navigating through this required assistance and discussion with not just myself but many others (key actors being the tutors and students of the SHL group as this was done post site visit). This was vital to make decisions on which values matter over others, realizing that there is no pure right or wrong but strong arguments to validate, or not. Contextualizing Kali Semarang's vitality to the present day community aided in organizing my findings to assist the creative process. Framing this in the larger research question and project proposal, I had to evaluate what my main focus was and the role that heritage played in this. This was a constant struggle in my mind due to the fact that there were too many issues that needed to be dealt with that were not just architectural and entirely relevant to the chair of Heritage and Architecture. Do I then use the existing decaying built heritage as a tool to approach the issue of poor accessibility to water (which was crucial for the wellbeing of the communities around Kali Semarang), where water is also a heritage at risk[3]?

My main conclusion from the field research conducted was that there was a general lack of awareness among the community when it came to water, a lack of appreciation and understanding of the prominence of Kali Semarang (from an ecological point of view where most of the locals saw it as a historical commercial backbone of Semarang) and non-tourism related approaches to built heritage from a non-capitalist point of view. Fast money was favored over slow-money in this case.

What resulted due to this 'mind maze', is a project that was part of larger story/ambition. A series of interventions that work scenographically in the hopes of catalyzing change from the grassroots level up to a global level, with the focus of showcasing a basic human right - water. It is a project that aims to engage the community across several scales - the urban (macro), the abandoned heritage (meso) and the object (micro).

Design has always been a compilation of abstract theories, systems and personal beliefs as seen from the works of Le Corbusier leading to those of Zaha Hadid. The user has never truly been in the spotlight of research and design in architecture (although the likes of Moholy-Nagy would contest this!). The theories offered by Simon and O'Leary (among many others) perceive design through the amalgamation of negotiations, dynamics, systems[4] etc. abstracting the key stakeholder a project is designed for – the user, and in my case, the community of Semarang. The design process for me became a 'tug-of-thoughts', shifting from the aspects of community to my own ambitions and aspirations for architecture. I find myself constantly trying to sort through these thoughts as the design progresses. What results is a consequence of selecting which takes precedence over others, redirecting it through the lens of the research questions.

SOURCES:

Left: Lady that sells unclean water from a PDAM well.
Middle: Kali Semarang ridden with waste; cleaned by people.
Right: A kampung in Bandarharjo; living with waste.

5 Nicholas Nova, Beyond Design and Ethnography: How Designers Practice Ethnographic Research. (France. ffSHS Publishingff, 2014, 978-8-89-075944-4. ffhalshs-01514264f) 29

CONCEPTION AND EVOLUTION

As Nova puts it, "'people', 'human', 'user' or 'consumer' are not equal and interpret differently the various conceptions of what matters in the design process. While the first two are vague enough to be respectful of an individual's complexity, 'consumer' and 'users' refer to a more passive character. As claimed by one of the designers we interviewed for this book, 'user isn't the right word, there's always a protagonist, a human'"[5]. Why is the protagonist important? Although the aim of the project was to find ways (through 'sustainable' architectural interventions) to alleviate an identified problem, the idea of the protagonist within the problem itself was something I continued to get lost in throughout the design process.

Once the framework for the each of the scales I wished to work on was conceived, intuition took over through the design process. Argumentation for choices made tended to be

innate, considering research as well as the ambitions. These ambitions, coupled with an interest in using waste materials, or water as a base began to limit the possibilities of the intervention in the chosen architectural intervention site - the PTPN XV building. The observations of the the areas of Kota Lama, Pecinan and Melayu were that the majority of the locals in this immediate areas were in poverty, or living in poor conditions. There is a large issue of waste management, both bio and non-bio and the water quality is incredibly poor. An intervention needed to be accessible and above all, hopeful and a be a catalyst in making change, both in the community's perception and awareness as well as those of the authorities. At times this became a limitation. As the project evolves, it continues to be one as I struggle to grasp the vastness of the impact of each design decision I make, that is across tangible and non-tangible domains. Does the intended program guide the re-design of the building? Or the overall design question?

I needed to give myself rules to guide my design principles. Sustainability and the impermanence of the intended program was key. Positioning my approach to both heritage and sustainability on a global scale and a local one (in the chair of Heritage and Architecture) became more and more relevant.

POSITIONING AND RELEVANCE

The cultural significance of PTPN XV, formerly known as the NV Cultuurmaatschappij Der Vorstenlanden, may be oblivious to the those unaware of its history and its part played in the cultuurstelsel period but certainly not unimportant. From a sustainable point of view, why demolish when it can be used? Is it necessary or not? How do I find a balance between a global need (reducing emissions) and a local one - which meant that to improve the performance of the building (investing in a delayed positive outcome), calculated destruction, reconstruction and new construction (with the use of value assessment) was required. Setting a framework for sustainability goals became a design principle (Fig 2). Through this, a connection between the past, and what is relevant in the present and required in future, socially and environmentally could be made; framed within the context of Semarang. This is what I aspire to achieve with my project, within the given scope and timeline.

The design itself requires the knowledge of locals to construct the bamboo water harvesting objects along the river, as well as the larger semi-permanent, habitable tower set within the chosen site itself. It aims to be a showcase for the locals about the potentials of local building culture, as well as the potential of plastic waste to be a building material - in this case, the water harvesting funnel, select furniture, newly constructed floors, water storage tanks and waste collection pods. Linking the different networks of water, waste and architecture to the socio-economic frame could result in a shift in perspective. Awareness begins with observation and what better way to tell this story than

> “Buildings and construction together account for 36% of global final energy use and 39% of energy-related carbon dioxide (CO2) emissions when upstream power generation is included. Progress towards sustainable buildings and construction is advancing, but improvements are still not keeping up with a growing buildings sector and rising demand for energy services. The energy intensity per square meter (m2) of the global buildings sector needs to improve on average by 30% by 2030 (compared to 2015) to be on track to meet global climate ambitions set forth in the Paris Agreement.”
>
> – Global Status report, 2017 by International Energy Agency

SOURCES:

6 The importance of relating the position to the conversations and experiences that helped in producing it in asking why architects design the way they do as Landau notes - just as why the community treats the river as they do in the context of Semarang.
Royston Landau, “Notes on the Concept of an Architectural Position.” (AA Files, no. 1 (1981): 111-14. www.jstor.org/stable/29543310)

Top: Reciprocal bamboo tower at the green school in Bali, Indonesia.
https://www.adventureviv.com/bamboo-u-bali-week-1/

Fig 2: By favoring preservation (reducing demolition) we can reduce the building waste. By recycling and reusing building waste materials, we can reduce the energy consumption. By adapting or redesigning, we can increase the performance of the building to reduce energy consumption in the long term - a delayed positive outcome. The diagram, however, fails to show the complexity of the situation , for example, recycling some materials take more energy, or where to strike a balance to reduce the total carbon footprint. This is something that would take continued effort to improve.

through the built environment?

The use of glulam wood for the structure of the new roof, stems from an idea of combining traditional preference for building materials in Indonesia, with new technology. The ability for glulam to be constructed using reclaimed wood makes it an incredibly desirable material for construction, specially in Indonesia. The raw material having a place in the natural ecological cycle, makes it a strong contender for construction.

As the design progresses, choices need to be made in terms of materiality - why, where and how? This is something I will continue to explore towards the 'completion' of the graduation project.

The intent is to inspire the locals to pay better attention to what already exists, and to give them hope for a better scenario - an alternate possibility.

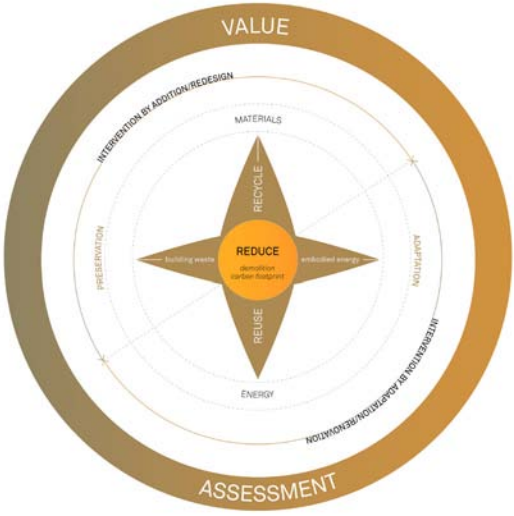
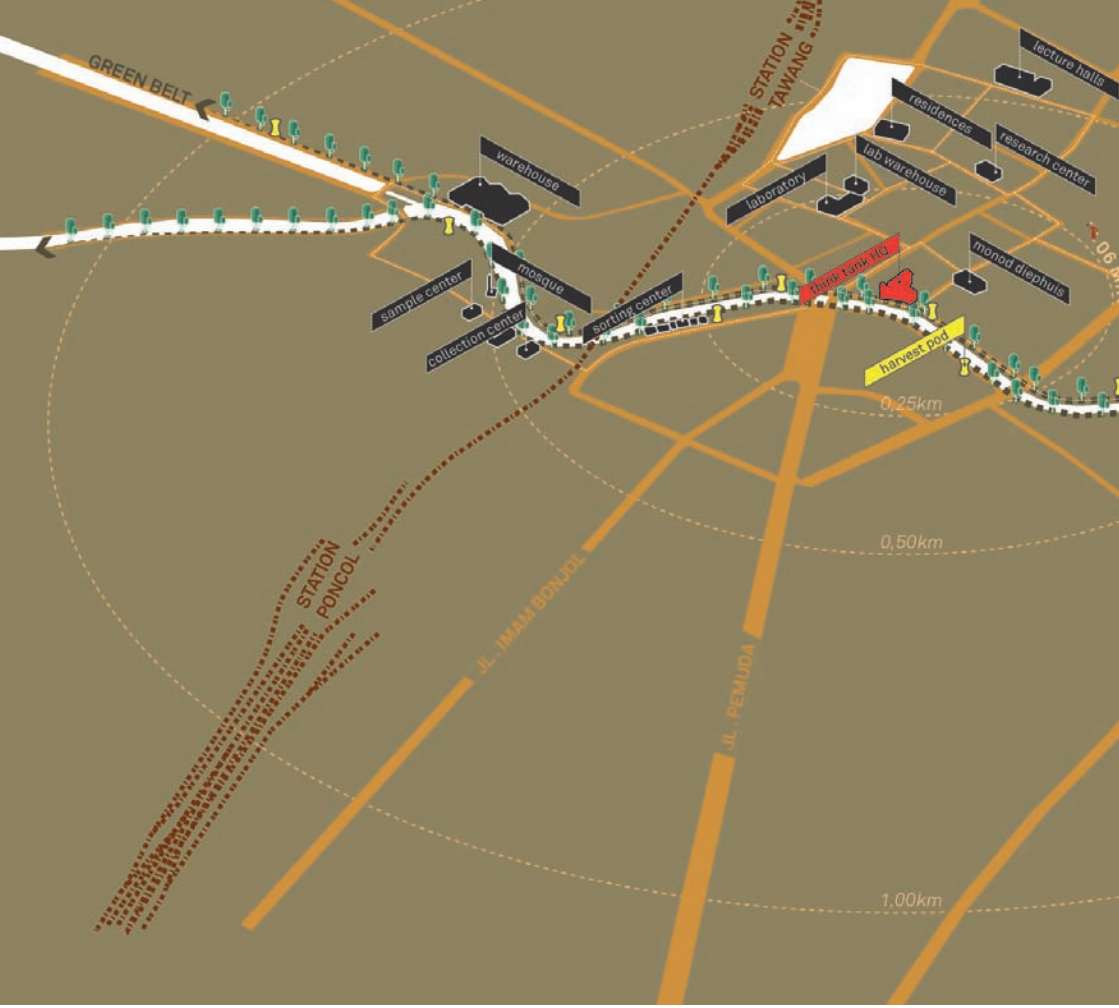


Fig 2: Personal sustainability goals



NOTE:

The premise of the graduation project lies in understanding where it stands in the larger network, both physically (as shown in one phase of the network in the image above) and socially. The network itself will continue to evolve and change throughout time, the changing needs and architecture should reflect the impermanence of that, as well as the permanence of constants that remain.

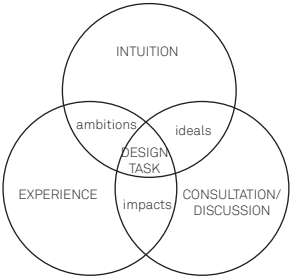
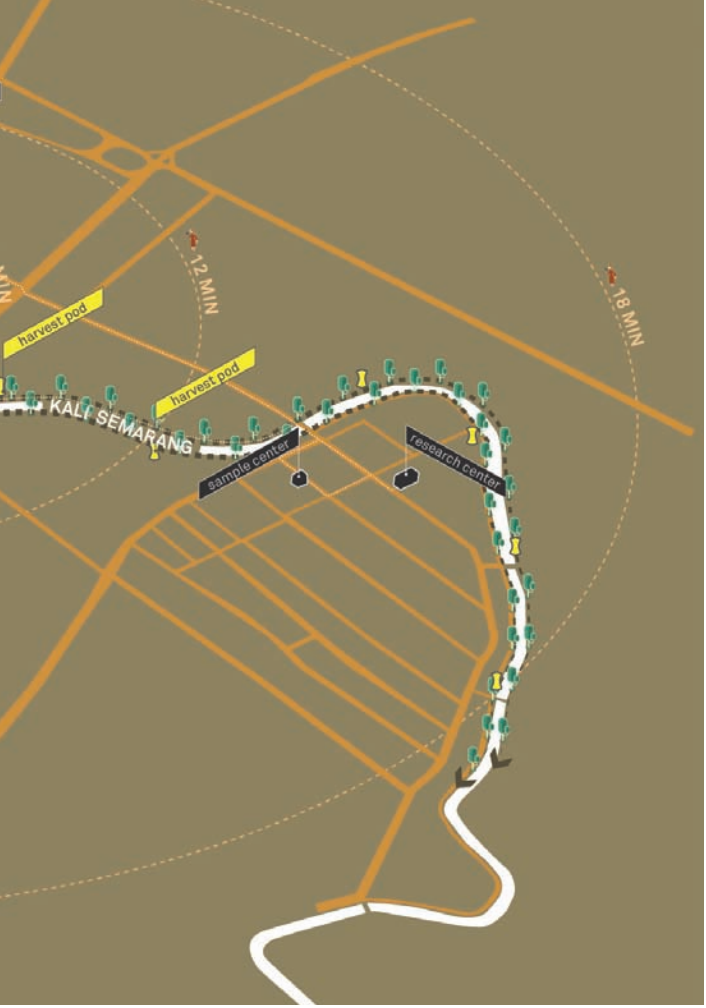


Fig 3: Personal approach

REFLECTION: TO BE CO

Throughout the progress of the project, there was no one clear path or a linear vision. Research and design were not independent of each other. They were both intertwined throughout the entire process. I believe that this is true for the profession globally as well. We are constantly in motion with new technology, changing needs and environments but there is always nostalgia, a desire to step back to simpler times. Through the process of research and innovation,



NTINUED...

stepping back to the past to form a new future, it becomes increasingly important to understand that no approach to a situation is one dimensional. Realizing that we are all a part of a larger system, is true of the built environment as well. Buildings, infrastructure, nature, humans; these are all inextricably linked to one another, physically, socially, politically, economically, through memory and so on. So each design decision made has impacts on various scales and domains. Striking a balance between these various complex layers, both tangibly and intangibly comes with practice (and experience) and most importantly with continued reflection and ambition to strive for the best 'scene'. This will continue beyond the limits of the graduation project, throughout my professional career together with personal growth.

What I tried to achieve with my graduation project is a reflection of all these thoughts, revelations and aspirations condensed into one single moment of a much larger time-frame, in the hopes that this hypothetical project could shed some light on contributing to society, the environment and adding another (future) layer to built heritage without entirely losing the essence of its existence.

At present, there is a significant gap between the professional architectural industry and architectural education. This was evident in my approach to this graduation project - as a relatively green industry professional approaching an academic project, there were significant differences in the way design was approached (based on the previous academic design projects that were done, compared to professional projects). However, I also realized this was a chance to be as idealistic as possible as academia provides limitless possibilities to be creative and innovative through the lens of one's own personal beliefs. How rare is this when we go into the world to 'practice' architecture?! The approach was a combination of intuition and limited experience in the field coupled with academia and idealistic ambitions for an alternate reality (Fig 3). Moving back on to the professional field, I should hope that this idealism and sensibility will remain at the back of mind as I approach design tasks, in coordinating with clients and making them see an alternate reality; one that is environmentally and socially responsible.

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“ POWER TO THE PEOPLE,

SOURCE: Troppen Museum digital collection

CHAINED

From colonised, segregated and exploited communities- excluded and closed doors ...

The effects of c rooted in society re racism and oppression acros taken its toll, with place over the wo the #blacklivesmo this illustration w In solidarity with amongst all comm I give my support, this image and th as I graduate whi world is on fire.

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SOURCE: Artist unknown, taken from @yazidlebeau instagram

UNITED

To embracing diversity and inclusivity - open doors.

STICK IT TO THE MAN. ”

– Captain Fantastic

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