

# Recovering Public Space in Jakarta - A Landscape Architectural Approach

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## ABSTRACT

As a profession which centres on the outdoor environment and its inter-relationships between people, the city and ecological processes, how does a landscape architectural perspective differ from the way urban designers and architects operate within a hyper-urban context such as Jakarta? This paper examines how landscape architects identify urban issues in rapidly growing Asian cities, discover opportunities through design interventions, and advance proposed interventions into sustainable strategies for the betterment of their residents. The argument is based on the outcomes of a Master’s level landscape architectural design studio offered by National University of Singapore. The primary study site for investigation is Kampung Kedaung Kali Angke in West Jakarta. The site is occupied by dense single-story housing blocks comprised of a mixture of formal and informal settlements, industrial warehouses and several gated communities, as well as undeveloped open fields. In addition to the site visit, informal interviews were conducted in order to clarify community-level spatial organization and its usage, challenges that residents face toward sustainable living. To obtain a better contextual understanding, students were tasked to also investigate the surrounding neighbourhoods, as well as city-wide geographical analysis to better understand the complex dynamics of the Jakarta as a whole. By referring to the students’ vantage points in their site analysis, concept development, and design narratives, the paper analyses the uniqueness on how landscape architects view the fabric of the city in a manner which differs from our neighbouring disciplines. This is demonstrated through the hypothetical recovery of multi-functional public spaces from otherwise uninitiated and underutilised locations hidden from plain sight and engrained within the cities tightly woven fabric.

**Keywords:** *Landscape Architecture, Jakarta, Public Space, Design Process, Multiplicity, Kampung*

## 1. INTRODUCTION

The profession of landscape architecture is to some merely the design of recreational parks and gardens. However, we posit that the profession has much more to offer than merely aesthetic outdoor pleasures and can play an active part in city planning and urban redevelopment. In this paper we explore the wide gamut of possible proposals which might be implemented in the capital city of Jakarta, Indonesia. Proposals which revolve around water management, solid waste reduction, flood control, social equality and more. We do this through a landscape architecture design studio in which students were given the freedom to decide for themselves how to potentially improve the city through the lens of a landscape architect.

### 1.1. Jakarta

An additional 2.5 billion people—resulting in a total of 68 percent of the world’s population—is projected to reside in urban areas by 2050 with a glaring majority of this increase concentrated in Asia and Africa [1].

This unprecedented human migration coincides with an ever increasing amount of built-up land resulting in dramatic consequences to environmental factors such as climate, pollution, water quality and the availability, arable land all of which affect the livelihoods of people in the region [2]. Much of this growth occurs in the “mega-delta cities” which have historically congregated resources and economic activities but also places the inhabitants at risk to environmental hazards [3].

One such city is the current capital of Indonesia, Jakarta, with a population of 9 million in an area of 660km<sup>2</sup>. Unfortunately the concurrent anthropogenic factors such as build-up of garbage in the 13 rivers which bisect the city [4] and the rapid subsidence due to groundwater extraction [5] have been attributed to the ever increasing seasonal floods in the city along with a multitude of other water related environmental issues [6].

While the rapid urbanization in Jakarta might appear bleak at first glance, and is often faulted for environmental degradation and increasing natural disasters, the

concentration of people, resources and economic activity can also provide for a possibility to reimagine mitigation strategies that might steer the city towards sustainability [7]. Previous scholars sought to demonstrate that a change in paradigm—such as that of river rehabilitation is possible—providing future scenarios that balance concerns over flooding, water quality, and ecology, with the realities of a rapidly growing megacity like Jakarta [8].

In addition, based on the green plan map in the Jakarta Spatial Plan 2030, Jakarta requires an additional 4,040.13ha (40.4km<sup>2</sup>) of green space in order to meet this 2030 target [9]. We posit that these spaces should be well designed for in order to not only provide recreational spaces for the inhabitants of Jakarta but also to enable such spaces to perform a multitude of ecological, social and even economic goals. The proposals in this paper provide some examples of how this might be achieved through a landscape architecture approach.

### 1.2 Objectives

Based on this underlying desire to increase green spaces within Jakarta at the planning level, the studio’s starting point is thus exploring a landscape architectural approach to meeting this potential development by going beyond just aesthetic and recreational green spaces.

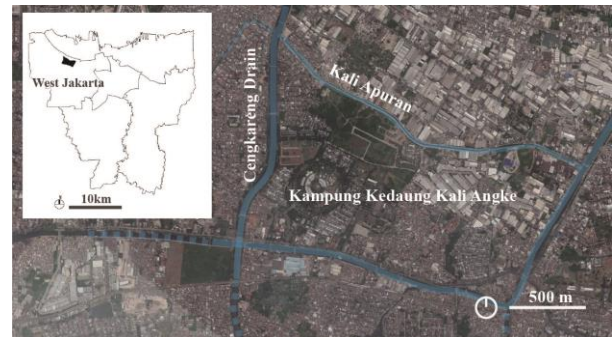
The paper is meant to shed light on the roles landscape architects can play to straddle across multiple scales and disciplines, and to provide a wide gamut of possible opportunities of developing multifunctional spaces that help tackle social, environmental and other anthropogenic challenges in Asian Mega Cities such as Jakarta. Beyond just the designing of nature parks, we demonstrate—through the student’s works—how landscape architecture has the potential to alter the lives of city dwellers by providing not only activated public space but also intertwining this with the potential social and economic benefits of such spaces.

At the larger scale, we looked to accomplish urban ecological objectives of water management by re-envisioning the plan to green Jakarta’s waterways or innovating means of solid waste management and reduction through the creation of multifunctional landscapes. As a caveat, being student projects, the proposals presented in the paper are meant to be taken as a starting point of the conversation, not as a final realised output. We no doubt understand that the students are far from fully understanding the reality of challenges when dealing with the complexity of such a city, especially so from an external point of view. Regardless, their untainted minds might be

just what Jakarta needs to reinvent itself to meet its 2030 greening goals.

## 2. SITE

The primary landing site will be a community within Kampung Kedaung Kali Angke in West Jakarta, located along the riverside of Kali Apuran, and close to Cengkareng Drain (Figure 1). Dense single-story housing blocks are surrounded by industrial area and several gated communities, as well as undeveloped open fields (presumably owned by private developers). Due to the river expansion program back in 2014, several houses were evicted, creating new composition of spaces along the river—linear inspection road with spontaneous communal activities, faced by 2 separated neighbouring communities.



**Figure 1-** The site was located in West Jakarta, an area surrounded by 4 waterways (Google Earth)

The landing site serves as a snapshot for the studio to understand Jakarta’s community-level spatial organization, complexity of social structures, and challenges that a typical community faces toward sustainable living. Simultaneously, students are to investigate surrounding neighbourhood for contextual understanding, as well as to conduct city-scale analysis for identifying how our landing site interrelates with the dynamics of the Jakarta City as a whole (see 3.2).

## 3. METHODOLOGY

### 3.1 Landscape Architectural Studio - Adaptive Jakarta

The work presented was generated from a landscape architectural design studio titled “Adaptive Jakarta” conducted between January and April 2020 through the National University of Singapore’s (NUS) Department of Architecture’s Master of Landscape Architecture Programme.

Adaptive in our case refers to not only the informal and complex interactions that happen within Jakarta but also our understanding of how the city and its inhabitants are constantly evolving to survive and thrive in this metropolis. It also hints to the students to ditch their preconceived notions of what landscape architecture entails and to embrace the endless possibilities when adapted to the megacity context.

Unfortunately, a designer seldom (if ever) belongs to the place in which he or she is asked to operate in, as is the case of our design studio. To this end Girot outlined four sequential trace concepts (landing, grounding, finding and founding) which serve as a theoretical methodology in which to extract as much potential from the site in question and to ensure that proposed designs are of real significance [10]. The studio was thus split into phases according to this outline.

#### Background Research & Site Visit Phase (2 weeks)

1. To step outside their comfort zone into the complexities of metropolitan Jakarta to experience the ground conditions for themselves (*landing*)

#### Research Phase (4 weeks)

2. Carefully unfold the intricate characteristics of the site through detailed analysis and experiential explorations (*grounding*)

#### Design Development Phase (8 weeks)

3. Discover the potential areas in which landscape architecture can be leveraged on to alleviate the ills of the city (*finding*)
4. Propose ways to restructure elements of the city into a series of resilient outcomes in the form of bespoke spatial and social frameworks (*founding*)

### 3.2 Scales

Throughout the studio, from background research to the site visit and finally to the design development phase, students were asked to span their attention across 3 different scales roughly scoped as per below:

1. City scale—infrastructural network (e.g. water, transport), land-use, urban density, history, demography etc.
2. Neighbourhood scale—digital mapping and measuring, typological studies, etc.
3. Kampung scale—interview surveys, detail observations on materials and site furnishing, sectional studies etc.

This deliberate challenge was meant to ensure that the students were able to take into consideration more than what is immediately in front of their eyes during the site visit as

well as to enable them to propose design interventions at any of the 3 scales.

### 3.3 Site Visit

The site visit was conducted on the first week of February 2020 in conjunction with faculty and students from the University of Indonesia (UI) Department of Architecture and at the invitation of Architecture Sans Frontières (ASF), who opened the doors to the community leaders (Figure 2). This was further supported by the Rujak Center for Urban Studies which provided valuable insights and data to our students as well.

Using Kampung Kedaung Kali Angke as the landing site, NUS students along with their UI counterparts were assigned into three different scales of enquiry based on 3.2. The site visit was meant for students to obtain first-hand experience of the site, neighbourhood and city (landing) along with all its problems (Figure 3) and to begin the data collection process through mapping, interviews, photography and videography.



**Figure 2** - Mr. Brahmastyo Puji from ASF introducing the students to the community leaders of the Kampung



**Figure 3** - Students were greeted with the aftermath of the January 2020 floods [11] which made it apparent to them the environmental hazards faced by the residents

Students presented their initial findings at the end of the week and subsequently returned to NUS to further their research (grounding).

### 3.4 Open-Ended Focus

The MLA programme is no stranger to Jakarta having visited it through a similar design studio lens in previous years [12]. In contrast to these previous studios however—which were solely focused on the pressing and ever present issue of flooding in Jakarta in one particular settlement—the facilitators of this studio decided to allow the students free reign to uncover their own area of focus (finding). This purposeful open-endedness in both the focus as well as the scale was meant to drive the students towards producing as wide a variety of potential angles in which landscape architecture can contribute to urban renewal. Based on this framework, the 19 students developed their design proposals which leverage off landscape architectural principles to potentially better the study site and beyond (founding). Some of the results are discussed in the following section.

## 4. RESULTS

Upon reviewing the student’s spatial interventions, their work was then categorized into 5 distinct approaches: retrofitting, adding, creating, integrating and problem-solving. Although, the studio is a problem-based exercise, we placed emphasis on their approaches, for the sake of highlighting how landscape architects uniquely identify issues in a complex urban setting, and recover public spaces as a means to overcome the challenges.

### 4.1 Retrofitting;

In densely populated Kampung, it is obvious to notice the lack of public spaces, parks or gardens for communal recreation. Instead, the mechanism of how local residents and children adapt to such a situation attracted student’s attention. For example, the duplicity of streets; not only for vehicular traffic, but also as a ground for social events such as a wedding ceremony or on a more daily basis a place for cooking and eating, have brought new perspectives of what public spaces mean for residents in the kampung. Do such spaces need to be clearly defined by the government? Can spatial characteristics change over time and be altered based on particular transient needs to encompass multiple usages?

A retrofitting approach was derived from such a standpoint. Student’s spatial interventions started from discovering small unused spaces within the neighbourhood; including half-a-lane of non-busy road, rooftops, undeveloped plots, and odd-shaped remnant spots (Figure 4). Structural objects, new materials, and

pocket greenery were the main “kit-of-parts” approach that were developed by students, with flexibility in mind, so that any intervention can be systematically customized to any type of site. These “kits” differed from student to student, depending on the issues and values to be added. For instance, water sensitive urban design elements, including swales and raingardens, took precedent for students focusing on increasing the permeability of the site, whereas design elements oriented to enhance natural surveillance was the case for those interested in alleviating crime (Figure 5).

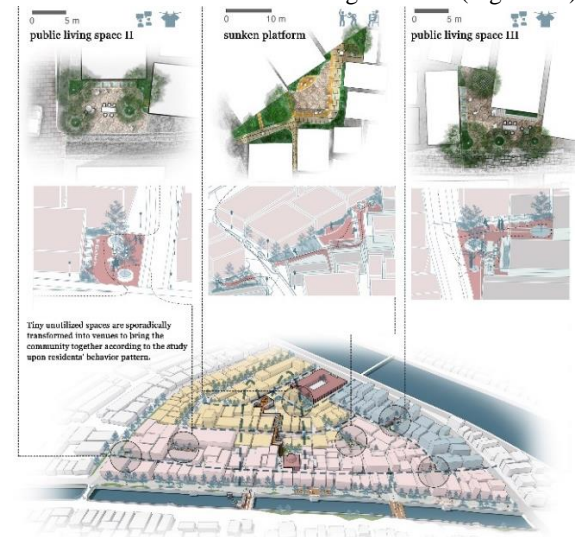


Figure 4- Injecting multifunctional spaces into the fabric of the kampung (Shao Zhongran)

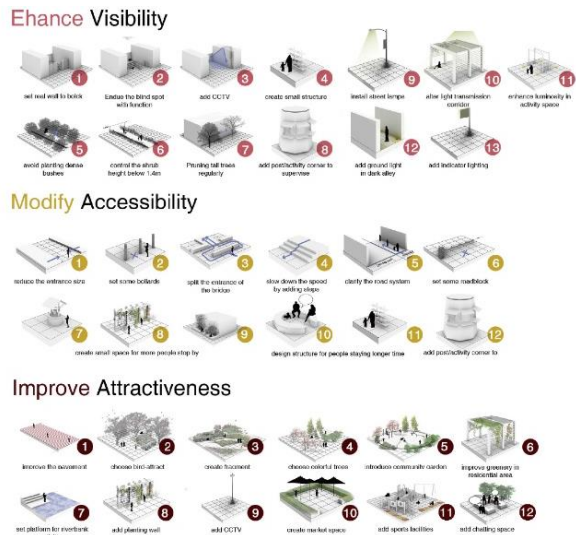


Figure 5 - A typical "kit-of-parts" approach, in this case in an attempt to alleviate crime. (Zhong Yixin)

All in all, effective insertion of small design elements was targeted to create collective impact within or beyond

Kampung by activating potential interactions between both the formal and informal residents and as a consequence, heightening community cohesion. Proposed schemes were convincing enough, as students were careful not to judge or criticize the current way of utilizing public spaces, but to further enhance the prevailing culture of temporal and multi-functional usage.

#### 4.2 Adding

The flooding event that struck Jakarta in early January 2020 (just prior to our site visit) happened to be a wakeup call for students to expect uneasy ‘landing’ experience of the city. By witnessing the aftermath of an overloading of the city’s flood mitigation measures as well as issues with waste management and traffic congestion, it was natural for students to explore solutions to tackle city-wide infrastructural issues as well. Students took an approach to couple infrastructural functions within public parks (including both existing and future proposed ones), for the sake of alleviating social and environmental risks, especially prioritizing these at vulnerable neighbourhoods.

Based around the idea of adapting to the inevitable flood waters (or in the student’s words, to “live with water”), one interesting proposal was to incorporate flooding evacuation scheme with the parks situated at non-flood prone areas—identified by past records and topographical analysis. In contrast, parks located at low-lands were actively designed to collect, store and infiltrate excessive runoff generated from the surrounding catchment (Figure 6).



**Figure 6** - Intertwined within the newly created parks were designed evacuation and absorption points based on topographical analysis (Xiao Xinyan)

Another proposal explored adding secondary wastewater treatment wetlands within the park, for biological uptake of nutrients and organic matters (Figure 7). Hydraulic calculations were made to support both the sizing of the wetland treatment area of this particular park as well as to up-scale this possibility into the greater Jakarta context. In theory, it was estimated that such wastewater treatment

wetland-parks in Jakarta can significantly supplement both current and future wastewater treatment facilities.



**Figure 7** - Diagram of circular water flow between neighbourhoods and public park (top). Visualization of terraced wetland system in the park for water cleansing purpose (Lyu Jiawei)

The above ideas clearly leverage on the strength of landscape architects in creating multi-functional spaces. In addition, they showcased a decentralized approach in dealing with urban issues by incorporating the expanse of the landscapes in between in order to achieve a particular goal yet not omitting the link to people’s experience and behaviour. This fusion of natural and community-based approaches in mitigating environmental and social risks has the potential to bring added resilience to the city’s infrastructural system, especially in the face of intensified climate change.

#### 4.3 Creating

Previous two approaches investigated existing land-use pattern and conditions for spatial enhancement, but “creating” took an entirely different approach. It is rather a vigorous issue-driven directive, whereby the design spaces were newly invented as a consequence of addressing urban flooding issue. Therefore, this group’s projects have bold steps and reconfigured a large linear stretch along the waterway.

One example examined and compared the current waterway width, to what is proposed by the government in 2030 plan

[13]. Instead of monotonously expanding the width for about 18m in order to enhance the carrying capacity of the channel, the student counter-proposed a landscape-centric proposal (Figure 8) that reimagined the water's edge to be a dynamic interplay of water, greenery and human activities. The design entailed details on soil-bioengineering techniques, measurements on earth works (the balance of cut-and-fill), as well as hydraulic calculation to justify and reinforce the argument for significant project scale.



**Figure 8** - Three sectional profiles on current (top), 2030 plan by Jakarta government (middle), and landscape-centric proposal (bottom) (Wang Haobo)

Another project argued a nature-based plugged-in solution along the channel for sedimentation trapping that connotes as a detention basin for stormwater management as well as for recreational park. This proposal included a diversion of waterflow into adjacent land, creating a meandering flow path to control sediment deposit points (Figure 9).



**Figure 9** - A proposal designed to mimic a natural river system and leverage off its ability to deposit sedimentation (Fang Zihan)

In a similar vein, other students reimagined how the narrow and otherwise untapped potential of the Kali Apuran drain can be developed into one which leverages off the existing

greening masterplan but injects a landscape architectural agenda of ecology and connectivity (Figure 10).



**Figure 10** - An idyllic reimagining of the Kali Apuran drain, here serving as recreational space and a connector across the two sides of the river (Cheng Jing)

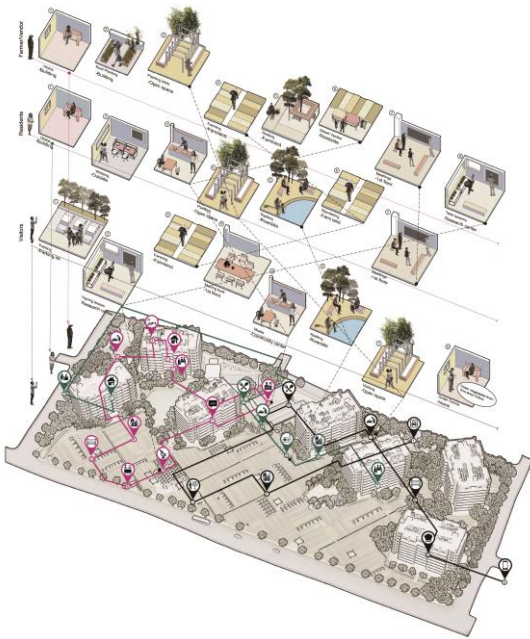
These aspirational yet ambitious proposals brought about an interesting argument to challenge the traditional boundaries of a landscape architects scope of work. On one hand, they opened-up new possibilities and potentials of having diverse sectional profiles along the waterways, which may not be envisioned by engineers alone. On the other hand, it questions the role of landscape architects in relation to civil engineers, architects and urban planners, and reaffirms the importance of tackling urban issues as a collaborative team.

#### 4.4 Integrating

Despite the relatively short stay in Jakarta, some students challenged themselves to tackle the topic of socio-cultural conflicts in the city. Interview surveys and site visits to other Kampung unveiled to them that the drivers of Jakarta's rapid development and community's will are seldom aligned with each other. The students' endeavour started from a criticism on the lack of community-centric planning in the current development practices and sought to integrate the two. One example was on the sensitive topic of eviction [14]. The community was facing the possibility of giving up spaces along Kali Apuran drain due to waterway and road expansion projects, in addition to 2014 program.

The question raised here was, in what ways will there be a win-win solution for both the government and the community? How can spatial expression become a means to negotiate the conflicts among various stakeholders? The outcome of the student's proposal was in the form of counter-masterplan through an integrated approach of infrastructural, architectural and outdoor activity design. The design understood the need to densify settlements through high-rise residential buildings but carefully maintained accessible public open-spaces for residents to

interact on a daily basis (Figure 11). For this purpose, productive landscapes (agricultural plots and activities) served as a catalyst for social and economic benefits.



**Figure 11** - Diagram showing various outdoor activities in the new high-rise resettlement area (Zhang Bingqian)

In another scheme, the historical footprint of productive landscapes served as the basis of a reinvented masterplan integrating residential, recreational and flood mitigation strategies into a single expansive site (Figure 12).

However, the difficulty of these two approaches is to overcome the geo-political matters, such as land ownership, the opinions of various stakeholders and their incentives, as well as clearly understanding what community members themselves need. An ideal situation for bringing forward the design would have been to receive periodical feedbacks from community members or local architects who are deeply involved in the negotiation process.



**Figure 12** - Based on historical satellite data, the student referenced the footprint of the old agricultural plots but reimagined their new multifunctional purposes (Tanaka Mamiko)

#### 4.5 Problem-solving

There were cases that students dealt with specific landfill site inside Kampung Kedaung Kali Angke; a 0.5ha open field where occasional dumping takes place from the surrounding Kampung and, apparently further beyond (Figure 13). Although all student projects are issue-based proposals, unlike the previous approaches, the driver of design intervention of this category in particular, was a reaction to immediate problem in front of their eyes. In this case the site boundary and target issue were the most clearly defined—how to rehabilitate the landfill site?



**Figure 13** - Next to the Kampung was a known waste landfill, the issue of solid waste management became the centre of attention for some students

After uncovering the cause and reasoning of such “garbage-scapes”, the students came up with differing ideas individually to tackle the same problem of solid waste management while ensuring that their sustainable proposals have the possibility of being replicated for other landfill sites throughout the city as well. For these students, since the problem at hand was clear at the earliest stage, the students were able to smoothly transition from research into design rather seamlessly.

The first such proposal was tackled by applying strategic phasing concept, in order to curate the rehabilitation process in an organized sequence. A layering strategy was effectively deployed to clarify the priorities and hierarchies in the course of unfolding the complex cause of landfill sites (Figure 14). Additionally, innovative technologies, educational programs, and ecological restoration measures blended harmoniously within each step, which reminds the extensiveness, both in terms of breadth and depth, of design elements that landscape architects need to take into account. Another student took a rather different approach, utilising a compaction machine to essentially convert solid waste into a “waste bale” from which to build upon (Figure 15). Rather poetically, the issue of solid waste which is one of the reasons for the floods, could be the solution to the floods by creating man-made topography from waste.



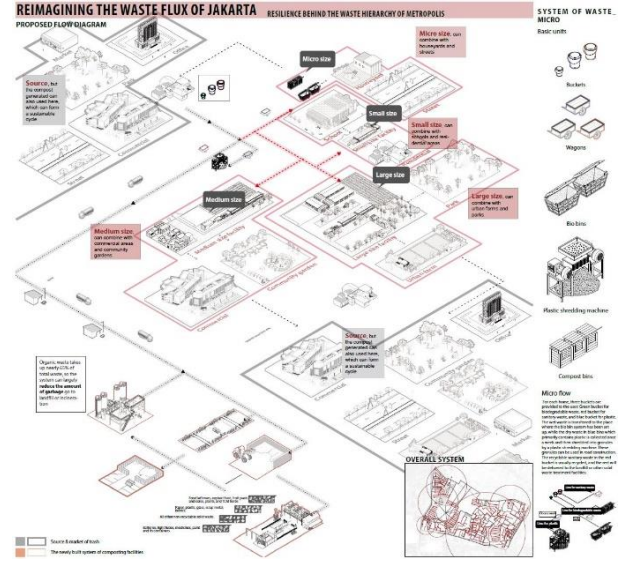
**Figure 14** – A 20-year long phasing plan for the design layers introduced to rehabilitate the landfill site (Zhang Bingyi)



**Figure 15** - Rather than trying to burn or otherwise remove the waste, the student here saw an opportunity to utilise waste as a building material (Chin Carissa)

Other proposals similarly saw potential in waste, specifically organic waste which could be composted. Her proposal started by understanding the current anthropogenic waste flows and to inject a separate stream which utilised industrial level composting to convert organic waste which would otherwise have ended up in the landfills, to useable compost (Figure 16).

Once again, despite the ever-present issue of flooding, the open-ended focus of the studio allowed students to explore their own individual interests and brought multi-faceted design approaches which challenge the perceived limited scope of work of the landscape architect.



**Figure 16** An entire new composting industry was injected into the existing waste disposal flow with the goal of reducing the total volume of solid waste by composting organic waste (Zhou Zuyuan)

## 5. DISCUSSION

By analysing and classifying student’s design outcomes, a few underlying principles were identified which demonstrate profession’s unique approach in tackling with city-wide urban issues.

### 5.1 Landscape Scale and Time

One of the most distinct features of landscape studio outcome was the variety in scales. Proposals classified under “retrofitting” comprised of small interventions no larger than a few square meters along with furniture design and sheltered spaces. Careful selection of materials, colours and buildability were the emphasis for curating the residents’ usability of such spaces. On the other end of the spectrum, there were projects reimagining a 40Ha waterfront enhancement to improve the city’s stormwater management capacity, represented in “creating”. Even at this larger scale, students understood that their broad-stroke infrastructural decisions would still need to be jointly interplayed with the experience and performance of the landscape at the human scale.

Diverse illustration of “time” was another unique feature in the outcomes from the studio (Figure 17). Especially, projects classified under “problem-solving” have proposed mid to long term landscape phasing plans over 20 to 30 years, ensuring operational continuity and a landscape vision that evolves over time. Although, illustrated in a prescriptive manner, phasing plans serve rather as a



guideline to continually improve the quality of the designed space through a palimpsest of layers that eventually form the future landscape (Figure 18). The differences in time frame required for each layer (e.g. time for soil restoration, speed of tree growth) brings complexity to the project but is necessary to truly weave it into a story of rehabilitation.



**Figure 17** - Unlike architecture, landscapes evolve over time. Here farmland slowly evolves into a wetland treatment system through harmonising periodic intervention and aligning with natural processes (Zhou Xianfeng)

5-10 YEARS				10-20 YEARS			
<b>INTERIM</b> Kampung Landfill: <b>TRANSFORM TO ECO-LANDFILL</b> Greenland Landfill: <b>CLOSED</b> Put the garbage on the west side of Kampung landfill, and gradually recovering it. Improve the green land landfill vegetation system, reduce the use of Kampung landfill. Use the relatively complete green land landfill soil to recover the Kampung landfill soil restoration.		<b>FINAL</b> Kampung Landfill: <b>TRANSFORM TO ECO-LANDFILL</b> Greenland Landfill: <b>CLOSED</b> The landfill thoroughly into urban green space available to the public - a eco-park.		<b>Garbage classification</b> Refuse waste management system continue to be used (including recyclable and non-degradable waste can still be disposed of in an eco-friendly healthy zone in north Jakarta which will be built in 2021).		<b>Vegetation recovery</b> Establishment of natural vegetation system of canopy and shrubs (focus on canopy and shrubs).	
<b>Water system recovery</b> Liner and treatment and drainage water treatment.	<b>Soil recovery</b> 1-2 years after project completion, soil planting project and method.	<b>Water system recovery</b> Drainage naturalization.	<b>Soil recovery</b> Use the composting product to increase the quality of soil, build plant self from being empty.	<b>Water system recovery</b> Drainage naturalization.	<b>Soil recovery</b> Use the composting product to increase the quality of soil, build plant self from being empty.	<b>Vegetation recovery</b> Establishment of natural vegetation system of canopy and shrubs (focus on canopy and shrubs). Introduce native species into the site.	<b>Vegetation recovery</b> Establishment of natural vegetation system of canopy and shrubs (focus on canopy and shrubs). Introduce native species into the site.

**Figure 18** - A landscape project should be designed to evolve overtime, more so for projects dealing with rehabilitation of sites (Zhang Bingyi)

Similarly, designs revolving around inter-changeable places based on temporal usage also highlighted the aspect of “time” (Figure 19), demonstrated in “retrofitting” and “adding”. Recovering public spaces can take the form of temporality and multi-functionality, and landscape architects are able to strategically program the activities for the users, depending on what time of the day, as well as its frequency; once in a month, or even once in 10 years.



**Figure 19** - Movable furniture design which can alter an open-space to fulfil a particular use (Zhang Yifei)

### 5.2 City-wide Adaptability

Most of the proposals attempted to reflect the theme of studio of “city-wide adaptability”, so that design strategies are not only meant to heal the immediate issues of the site, but also have the possibility of being applied across other parts of the city suffering from similar issues. This perspective was extremely important for the landscape studio pedagogy to encourage students to speculate the potential city-scale impact of their design approaches using their design proposals as a prototype.

There were distinctive ways of addressing this requirement based on each approach. “Retrofitting” proposed a set of customizable “kit-of-parts” which can be deployed to other areas in Jakarta in a different setting but requiring the same intended effect. A catalogue with numerous small design ideas were meant to be resized, reshaped, and placed to suit any urban environment to create a collective impact to the lives of city dwellers (Figure 20).

“Adding” relied on mathematical calculation to describe its potential and impact when it were to be successfully scaled-up to a city scale (Figure 21). Statistical evidence of the current situation and predicted future scenarios (e.g. population increase and landuse changes) were carefully considered to reinforce the argument of city-wide application. “Creating” adopted a “prototypical model” approach to showcase their design intervention at a certain focal site, to visualize the potentials and spatial compositions with the idea that this is seen as a flagship scheme that demonstrates the possibility of it being duplicated to other sites (Figure 22).

ELEMENT	XS	S	M	L	XL
PAVILIONS					<b>BUILT UP COMBINATIONS (XS,S,M,L)</b>
PLANTERS					
BOARDWALK					
FLOATING DECKS					
MOVABLE PLANTERS FURNITURE					
TERRACED SWALES					<b>BUILT UP COMBINATIONS</b>

**Figure 20** - A structural "kit-of-parts" on rethinking how the river wall could be retrofitted to perform more than flood mitigation function (Dhuri Ruiee)

“Integrating” took an emphasis on socio-economic aspects (represented in life-style design intertwined with productive landscapes), which suggest the potential to be embedded in any person’s life throughout the city, in any types of form (Figure 23).

Lastly, “problem-solving” began by analysing the typology of city-wide landfill sites, which was a step to clarify the similarities and differences of sites with common issue (Figure 24). The process brings more believable argument on identifying other implementable sites in the city.

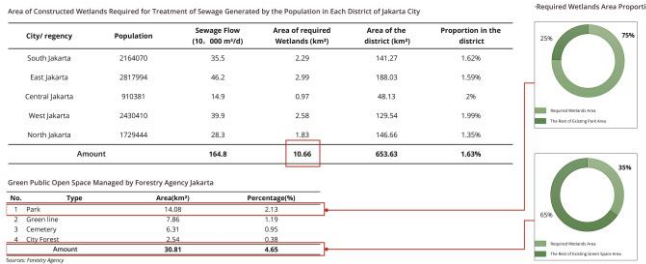


Figure 21 - Calculations on the size of waste water treatment wetlands at the city scale were calculated as a means of demonstrating the projects potential of up-scaling (Lyu Jiawei)

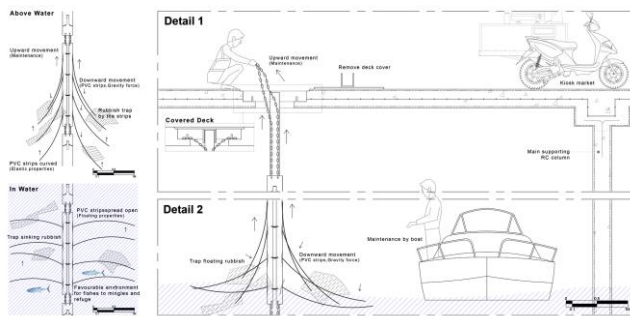


Figure 22 - A hypothetical sieving device that could be deployed in all 13 rivers in Jakarta to trap and eventually remove garbage in the river (Lim Wenfa)



Figure 23 - Productive landscapes designed to be owned and managed by the resettled residents serve as a socio-economic way of integrating them back into their new homes (Zhang Bingqian)

Through their design proposals, the students demonstrate that landscape architects have the strength to operate at

completely different scales but yet still be able to address city-wide issues through the potential upscaling of ideas.

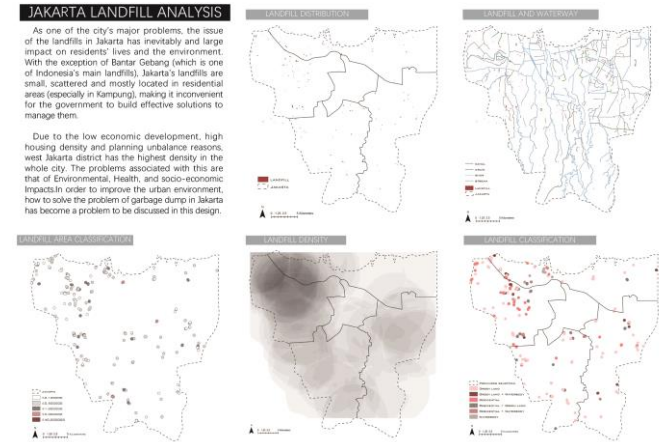


Figure 24 - A classification of the identified landfill sites across Jakarta in order to better project their design proposals to the city scale (Zhang Bingyi)

### 5.3 Relevancy to the Context

However, considering the complexity of the realities on the ground in cities like Jakarta—such as land ownership, socio-cultural diversity, agendas of different stakeholders, pressing environmental and public health considerations, just to name a few—it is naive to anticipate that any one design strategy (if any) can solve the issues in the Kampung in question, let alone the entire city. It is one of the key takeaways from the studio and a self-reminder to understand the limits of a cookie-cutter approach and the fact that landscape architects alone cannot resolve the issues plaguing our ailing cities.

Yet, with regards to answering our hypothesis in the objective section 1.2, aforementioned variety in approaches, scales and adaptive solutions from our studio outcomes have brought informative insights on ways which landscape architects can potentially play their role in advancing city’s environment. In fact, all projects shared a common process of articulating a set of site constraints, applying landscape lens in informing spatial designs, in order to convert challenges into opportunities. A landscape narrative was, therefore, the guiding method that glued all projects together as a product of landscape design studio and reaffirmed our belief on the potential of landscape architects to extend beyond aesthetic greening projects.

In the dialogue of landscape architect’s role in the urban realm, Waldheim describes our strength in capturing the “temporal mutability and horizontal extensiveness of contemporary city and its urban culture” [15]. In the face of high urban pressure and shortage on social infrastructures,

for a city like Jakarta, it is natural to question—is public space provision the top priority for the city to deal with now? The action of “recovering public spaces”, therefore, required the process of holistically understanding the key-drivers of urban transformation, and positioning it together with the city-wide momentum. Thus, the focus on urban flood mitigation, solid waste management, and community eviction for example, served as good entry points for a topic that encompasses much broader and pressing issue.

One student from the “*problem-solving*” approach started her argument saying, “the existing main landfill site for the entire Jakarta City will reach at its full capacity in 2021.” This statement brings a valid question on how shall we overcome this issue? And what new approaches can be explored from landscape architectural point of view?

This was the prime reason why the Adaptive Jakarta studio, also placed a significant emphasis on context-sensitive design exploration procedure. And as a response, students were challenged to analyse the site context extensively and critically at the beginning (*landing*), so that design outcomes, in the end (*founding*), can be rationalized and blended-well with the surrounding urban fabric physically and socially. Rather than exploring ideas from scratch, limitations and opportunities found onsite—through both macro-micro surveys and observation—inevitably became the inspiration of the students’ design language. In other words, students who successfully addressed the context’s strengths and weaknesses in their designs had much compelling proposals at the end of the day. The opposite was true for students who failed to anchor themselves to the ground.

## **6. CONCLUSION: LIMITATIONS AND PROSPECTS**

A 4 months-long focus on Jakarta and its pressing urban issues was, for us, an endeavour to uncover a landscape architect’s unique standpoint and approaches improving the city’s environment. The varying approaches and outcomes have clarified our unique abilities:

1. To propose design strategies that are site specific, but with a close relationship to its broader context—crossing scales,
2. To project short- and long-term future scenarios, and design spaces with the consideration on processes and priorities—crossing time,
3. To diagnose, interpret, and digest complex issues across spatial, socio-cultural, technical and environmental perspectives—crossing disciplines.

In addition, a profession which encompasses such extensive scopes, will inevitably be required to hold a role and capability of bridging across sectors (government officials, private developers, local planners, and community members). This is typically done through open communication and negotiation in order to validate the proposals. Before closing the studio, there were a few remaining questions to be answered; how do we properly know whether our proposals are contextually valid?, what are the criteria for “successful proposals” from a local community’s point of a view?

One of the limitations on the studio exercises, therefore, was a lack of sharing ideas, listening feedbacks from local stakeholders, to avoid having gaps between student’s ideas and local people’s desire. The process of exchanging knowledges in community meetings, for example, might have offered opportunities for students to be self-critical on the approaches that they take, and be self-reflective on the design strategies that they adopt. At the same time, student’s fresh foreign perspectives could have brought community members as well as local students to think outside of box. This limitation weighed heavily on our shoulders due to not only language barriers but also the physical distance between Singapore and Jakarta which was further exasperated under traveling restrictions and a scrambling of all parties to adjust to the disruptions and threats caused by the COVID-19 pandemic. Despite the tremendous challenges arising from the pandemic there are still several key lessons for future studios carried out in a similar context. The absence of immediate and face to face feedback with peers and neighbouring disciplines—typically obtained through pin-ups, group discussions and guest critiques—due to social distancing measures, placed a major challenge on how to avoid student’s siloed-thinking. Especially, peers are regarded as valuable resources and collaboration with other class members is essential to the success of studio experiences [16]. Towards the end of the semester, instead of video conferencing to students individually, the facilitators requested for other students to be present at their peers’ video conference sessions. However, perhaps there could have been more pro-active measures taken by facilitators to create a sense of working as a team, to increase opportunities for mutual-learning and motivating.

Moving forward and in anticipation that the pandemic no longer looms, we feel that an actual joint studio would be much more beneficial in which students from both countries work together towards a common design solution. What we have learnt from remote teaching during the pandemic is that we have found tools and methods to facilitate in cross border teaching and collaborations. Video conferencing like Zoom and Microsoft Teams, whiteboard collaboration platforms like Miro, video and screen recording websites

like Loom have suddenly been deployed as tools to be used in the digital classroom.

Still, there are other positive takeaways perhaps the most evident was outcome of the purposeful open-ended format of the studio which was one of the enabling factors that allowed students to create their own design narratives based on their point of interest. Compared to specifying the focus on a certain topic; urban floods, for instance, this approach has well-demonstrated the versatile characteristics of our field, in terms of scale, approach and design outcomes and further enforced our hypothesis.

In conclusion, it is our opinion that organizing a series of studio projects in Jakarta, or elsewhere with similar urban context in the coming years in a similar open-ended fashion, can contribute to the deepening of the knowledge-base and an expanding of the potential scope of our profession. All this in the hope that our graduates will be prepared to play a pivotal role in creating multi-functional and culturally sensitive public spaces for enhancing city's liveability. What is required is a more robust manner of translating and aligning these ideas with local stakeholders and students to ensure that the knowledge generated is not lost when the studio comes to its anticipated end while the lives of those on the ground still carry with the same issues as at the start of the studio.

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