FOODSCAPE

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Executive Summary

The global food supply system refers to a worldwide food network is built on the resourcebased cooperation of many agricultural enterprises and the massive network of the increasing retail industry. Industrialized mechanical farming producing methods, modern food transportation technologies, and Free trade and bilateral agreements are crucial factors shaping the global food supply system we have today. In theory, such an efficient and extensive food network should meet the goal of eliminating hunger and malnutrition worldwide. The industrial food production and supply chains with the market-oriented food policies of WTO have even exacerbated the global food crisis. These also had a significant impact on the construction of cities and villages already.

Food, a necessity for human survival, also gives the big monopoly capitalists a key bargaining chip to join the global negotiation for resource allocation The uneven distribution of possible food-producing

lands lets the countries rich in agricultural resources hold absolute dominance of food governance. **The** market-led supply chain gave birth to a monopoly in the food market, intensified a more uneven distribution of food, and led to violent predatory **behavior.** For example, in Cambodia and Uganda, the government violently expelled most farmers and sold their farmlands to foreign agricultural companies to grow sugar canes. Followed by the profit tendency, they had monocultural lands all over the country and became the core cane sugarproducing areas. From 1990 to 2015, 62.5% of the forest

Cambodia, 2013, Foreign-owned **Farmlands**

40%

in Uganda was cut and burned for more sugar cane plantations.² Monocultural planting not only destroys soil fertility but also caused more severe hunger. The uneven food distribution and the urgent need for food import have made developing countries completely lose their global negotiation advantages on all spheres of trade and economy.



fig.01 Cleared forests in Preah Vihear Province, in northern Cambodia near the border with Loas. The South East Asian country has one of the fastest rates of deforestation in the world; it's estimated that only 3 percent of primary forest remains. Credit: Sean Gallagher



fig.02 Uganda Violent land grabs. Police officials at the eviction Credit: GRAIN

"Control oil and you control nations; control food and you control the people."

Henry Kissinger

U.S. Secretary of State,

The deficiencies gradually revealed in the global food supply chains have pushed people to optimize the local food systems. Due to the high degree of mechanization of agricultural production and the modern logistics system, even the domestic food chain is a very long network. The refined division of manufacturing lines is neglected of supervision. Frequent food safety issues have resulted in people distrusting industrial food and intensely demanding food quality. The industrialized food system is marketled, spatial-separated, and highly rely on brand certification or experts. The scope of food activities is vast, beyond the scale

of the ecological network of production and consumption activities, impacting the ecosystem, affecting the relative relationship between urban and rural areas, and catalyzing the postindustrial agricultural revolution.3

In the 1990s, globalization was the mainstream of agricultural food development, trying to concentrate industry and capital to reorganize global resources. Since 2000, local uniqueness in food systems has occupied the dominant position. The localization of agricultural food, including farmers' markets, urban farms, food safety, foodshed, and trademarks of the origins, **has** become a way for local governments to resist the global agricultural food system. It is about changing the relationship

between the global and local food systems. It also involves more complex issues, such as food quality, food safety, agricultural ecological environment, urban development, and rural renewal.



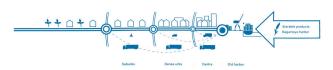


fig.03 Different modes for transporting fresh produce and storable products into the city.

credit: Jerryt Krombeen data source: Johannes Simon Cornelis Wiskerke; Saline Verhoeven (2018). Flourishing Foodscapes: Designing City-region Food Systems. Valiz. p. 128

Taiwan food system is highly dependent on the global trade.

Taiwan, 2018 rate of Food Self-Sufficiency

34.6%

Taiwan is a mountainous island, of which 65% of the total area are mountains and hills. The forest coverage rate is 55.1% will the per capita arable land area is only 0.035 hectares.4 In 2018, rate of food self-sufficiency in Taiwan is only 34.6%. Since attending the WTO in 2001, Taiwan is under the impact of the **global food system.** ⁵ Agricultural imports have increased significantly. The rate of food self-sufficiency has declined. The agricultural trade deficit has shown a noticeable increase, and the number of farmers has shown a decreasing and aging trend.

The impact of the global food system is particularly evident in the rice industry, which has always been self-sufficient in the past. According to WTO commitments, Taiwan must ensure zero tariffs on imported rice

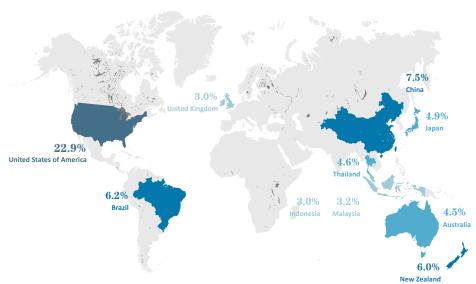


fig.04 Taiwan food import rate Credit: Author Data source: Taiwan Council of Agriculture, Executive Yuan

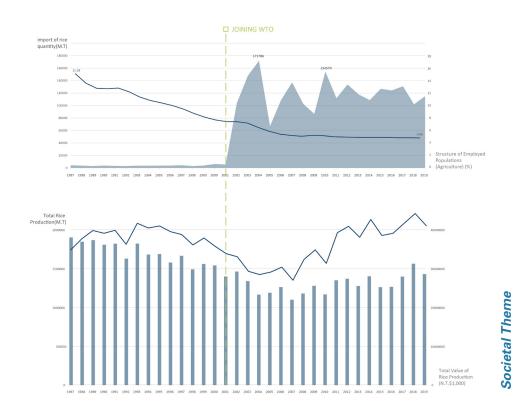


fig.05-06 WTO is hughly impacted on Taiwan rice industry at 2001 Credit: Author Data source: Taiwan council of agriculture, executive yuan

within the 144,700-tons quota, equivalent to more than 10% of total rice consumption, which has severely impacted the grain market. The government immediately issued specific regulations in 2002, stipulating that 65% of the imported rice in the quota should be planned and used by the government, while the remaining 35% for the private. The government also listed the most vulnerable agricultural products in these globalized circumstances and made laws to protect them: when the price of these agricultural products fell to 90% of the production cost, the government must increase the total amount of purchasing. Even if the government introduced corresponding legal policies in the second year of joining WTO, the rice market still declined in local rice prices and decreased total values (see figure 05-06).

Agricultural lands for non-farming abuse broke Taiwan's food system

The production enthusiasm of farmers has also been greatly affected. For example, we could see a decline in the number of agricultural empwloyees while increasing farmland sales. In some areas, approximately 30% of agrarian laborers need to lease cultivated lands, which further reduces their production enthusiasm.

Some may say the reason is the extremely expensive agricultural lands. During 2010-2018, the price of agricultural land in Taiwan increased by 220%. As of 2018, 84.2% of privately-built factories on farmlands in Taiwan did not have a registered license, and the rest only had temporary permits. Industrial use of farmland not only occupies arable resources but also consumes soil fertility. Even if farming is resumed again, food yield and quality will not be as good as before. The market-oriented industrialized food system makes people only pursue economic values but disapproval and distrust the local cultivation.

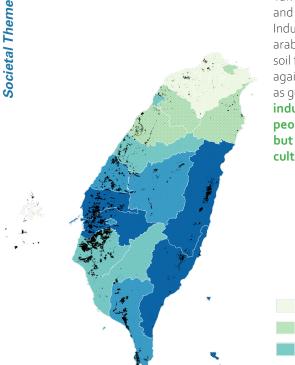
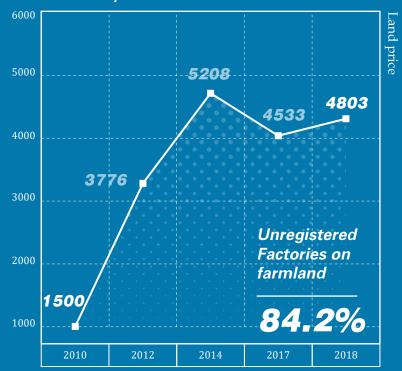


fig.07 Proportion of farmers renting land Credit: Author Data source: Taiwan council of agriculture, executive yuan

Farmland price in Taiwan (10000NT\$/hectare)



Farmland Average price comparison, 2016

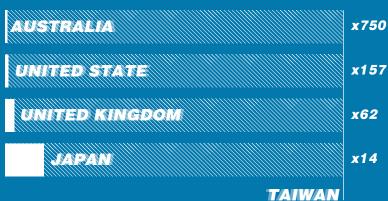


fig.08 Credit: Author Data source: The data of 2010 are disclosed by former staff of Counc of Agriculture, Peng Zuokui, and the data of 2012-2018 are public data from open data resource of Taiwan government.

fig.09 Credit: Author Data source: Apple Daily sorted according to website data.

2018

2017

2016

2014

2013

2012

2011

2009

2008

2006

2005

Wholesale

Brokerage

There has been a growing separation of people from the production of their food since the industrial revolution, when machines began to replace human labor on farms. People moved into cities that grew around the factories and became industrial centers.

The freight logistics

companies have been striving to expand the coverage area to lengthen their food supply chains. As a result, the separation between the city and the countryside has become more prominent. What

kind of systematic model should post-industrialized villages fill this considerable gap has become the primary challenge China is facing. From the perspective of the market share of Taiwan grain merchants (see figure 10), wholesale and retail accounts for the highest proportion of the market share and are keeping increasing. They are two main functions located in the city that is close to consumers' daily lives. However, the food production, storage, and initial manufacture

fig. 10 Market share of registered grain merchants in Taipei

Credit: Author Data source: Taiwan council of agriculture, executive yuan

■ Warehousing ■ Grinding

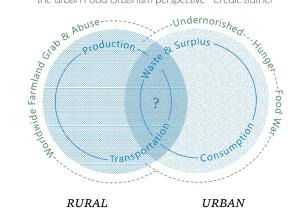
Taipei, 2019, Warehousing on the food market

4.3%



fig. 11 The Shenzhen River separates the high-rises of Shenzhen, China, from farmland in Hong Kong. China has come under criticism for the amount of agricultural land it has paved over in its push for economic development. Credit: Brent Lewin Edit: Author

fig. 12 The current proiblems of urban and rural areas from the urban Food Urbanism perspective Credit: auther



and out of supervision. For example: adding

harmful chemical reagents, forging production dates, repacking expired foods back to the market, fake milk powder, etc. Safety issues at any link of the supply chain will aggravate suspicions about the longdistance and opaque food system and allow illegal traders to exploit loopholes.

processes only occupied a tiny market share and located in the rural area that is separated from the crowds. The market share of grinding and storage is decreasing year by year. Just like the development of urbanization in Taiwan: the urban space is expanding without limits.

The Industrial food system makes people accustomed to the rupture both on time and spatial with the source of food and highly dependent on certifications. The food safety issues arose when the food producing and manufacturing process is entirely out of the scope of people's daily lifies,

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■ Exports & Imports

"Food Urbanism positions food as a primary transforming force capable of organizing the city and enhancing the urban experience."

Food is an essential linkage between cities and the countryside. Without taking it seriously, food will have a negative impact on our society. After studying and analyzing Taiwan food system, I summarized the following existing problems:

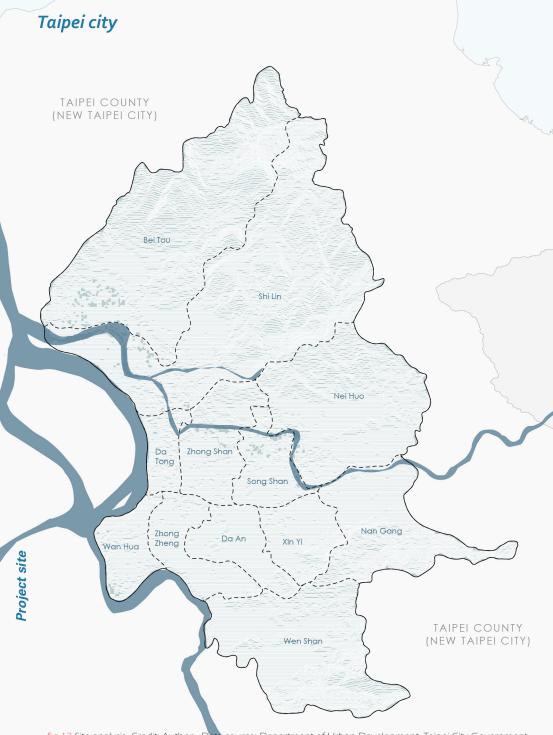
- 1. The urbanization process in Taiwan is in line with the trend of globalization and market-oriented principles. The corresponding food policies have made it difficult for Taiwan to increase its food self-sufficiency rate. From the perspective of an architect, the development of the city is still in unlimited expansion, and the city will gradually invade agricultural land.
- 2. The industrialized food production process reduces people's participation, while the farmers decrease and age. This has led to the hollowing-countryside, making the relationship between the urban and rural even opposite.
- 3. The structure of food-related industries also reflects the severe differentiation between urban and rural areas. In 2019, three-quarters of the food industries were wholesale and retail, concentrated in densely populated cities—the remaining quarter scattered in the producing rural regions. The warehousing function among them is shrinking, which will be a missing part of the local food system.
- 4. The long-chain leads to the lack of adequate whole-process supervision. Therefore, in the past few decades, a great number of food safety problems have emerged in Taiwan, which has eroded the trust of consumers. Because consumers could not see the whole picture of the food system, and impossible to get physical contact in food production.

Consuming behaviors have totally relied on certification, which has led to even less recognition of local food value.

From the lens of food, we will find many potential alternative urban strategies that could be applied. Alternative agro-food networks (AAFNs), short food-supply chains, post-productivist transition, quality-original, and embeddedness are all research directions in the localization of agricultural food.

By thinking like a food urbanist, we found that shrinking the food supply chain can allow people to establish a stronger connection with the food system and optimize the existing structures. Significantly, the space inlaid with alternative food production network links in densely populated cities allows people to interact with them, thereby establishing a relationship of understanding and trust. There is strong evidence that all over Europe new food networks are emerging. Make it integrate into the existing food consumption space of the city and create a more positive eating environment. They represent a turn from the industrial world to the domestic world where food is embedded in face-to-face-interactions, trust, traditions, and each unique places.

I call this urban planning strategy of embedding alternative food networks in the existing food system a foodscape. In my thesis project, I will mainly study how to optimize the existing foodscape in Taiwan, especially Taipei, to have a more positive effect and influence on urban design.



7.1% Farmland 8.49% Moutains 5.08% River 79.23% Urban

LANDUSE

INDUSTRY 18% Manufacture 0.1% Agriculture 81% Service

KEELUNG CITY

As the political and economic center of Taiwan, Taipei is located in the northern part of the island and is the island's secondlargest basin. Among them, 86.33% of the land area is a basin, and the rest are 8.49% mountain area and 5.08% river area. The scope of agricultural land in Taipei only accounts for 7.1% of the total area, and the cultivated land is mainly scattered on the north and south slopes far from the city. The value of agricultural production in Taipei accounts for 0.13% of Taiwan. Taipei relies on the long-distance food supply chain for its limited agricultural lands,

both overseas and local logistics systems that go over the island.

Taipei, Taiwan's oldest city, has been the center since 1709, when reclamation began. In the middle of the 19th century, Menaxia (now Wanhua District) and Twatutia (now Datong District) became important product trade points in the Tamsui River Basin. Affected by the industrial revolution and globalization, Taipei experienced a city expansion and economic overgrowth. Today, Taipei is still the commercial center of Taiwan. In 2017, only 0.1% of the

industrial structure was the agricultural industry, while the service industry sector accounted for 81%. Through the lens of the food system, Taipei is purely a place of food consumption. In the food system, the consumptionrelated industries include wholesale, retail, reprocessing, import and export, etc., as well as the implicit parts of logistics, transportation, storage, redistribution, and quality monitoring. The latter often happens out of reach of the consumer, so it is called the implicit part. storage, and industrial processing are located in rural areas based on proximity principles. Urban space, which is only responsible for consumption, can only obtain food with longdistance logistics and transportation. With the complete separation of food production and consumption, food safety problems are becoming increasingly severe, and relying solely on experts and brand certification can no longer gain people's trust.

Taiwan's food distribution

pattern is a fundamental

between urban and rural areas. Food production,

reason for the polarization

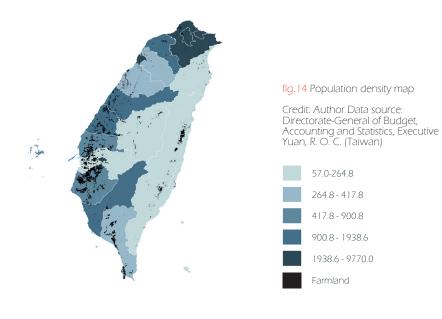
And Taipei is one of the biggest victims who are at the end of the longdistance chain. With 29.9% of Taiwan's total population, Taipei has the highest population density. Accordingly, its wholesale and retail trade accounts for 28% of Taiwan's food wholesale and retail trade. However, there are only 13 food warehousing companies in Taipei, accounting for 1.9% of

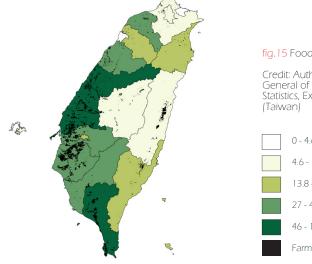
Taiwan's total warehousing industry. The food reserve in downtown Taipei is entirely out of balance with its population, and longdistance logistics limits the timeliness of food transportation. Its stability will have a significant impact on the development of the city. **This severely** unbalanced industrial distribution will only exacerbate Taipei's food problems.

Taipei needs a shorter food chain, a more complete and adequate quality control system, and a more consumerfriendly publicity platform. It turns out that storage space stores grain could provide a platform for citizens (consumers) to understand the food and monitor the complex systems behind it, which is an integral part of optimizing the food system in the post-industrial era.

Granary No. 1, Taipei's first food granary built during the Japanese occupation (1944), was selected as a pilot warehouse for renovation in 2013. Now renamed as No.1 Food

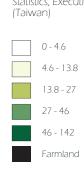
Theater, it brings the city closer to other producing places by showing how different ingredients were made and sharing expertise in nutrition. It allows the public to learn about organic food, local food systems, progressive food concepts, and food quality.







Credit: Author Data source: Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R. O. C.



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Food space in Taipei city

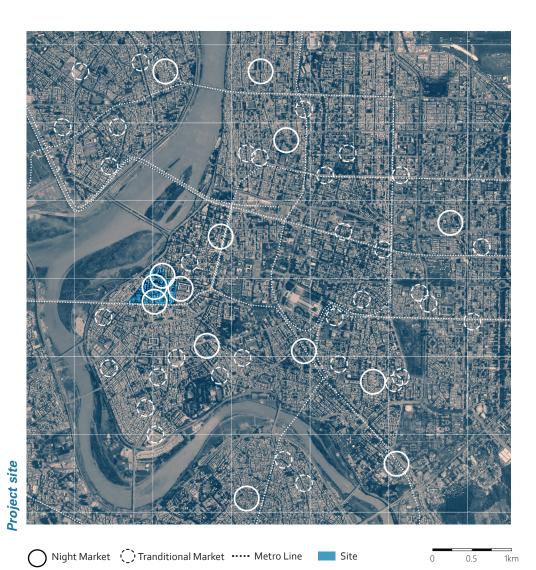


fig. 16 Site analysis Credit: Author

Taipei's existing food space can be roughly divided into Traditional Market, Restaurant, Night Market, and Warehouse. With only 13 warehouses, Taipei is short of food storage spaces.

My proposal focuses on shortening the food chain in Taipei City, especially how the urban space as the primary consumption platform can be more related to the production process.

The urban level mainly discusses the city's food warehouse as the connection point of production and consumption platform, its distribution rule, the optimization of operation models, and establishing relationships with other existing food spaces.

The architectural space level mainly studies the possible spatial prototype of the future urban food warehouse.

Therefore, I choose to locate a site with high density of food spaces and also the earliest trading port in Taipei -- Mongxia (light blue area on the map).



Tranditional Market



Restaurant and Shops



Night Market

fig.17 Taipei food market Credit: Chinanews.com Edit: Author

fig.18 Mengxia photo Credit: Chenhuan Edit: Author

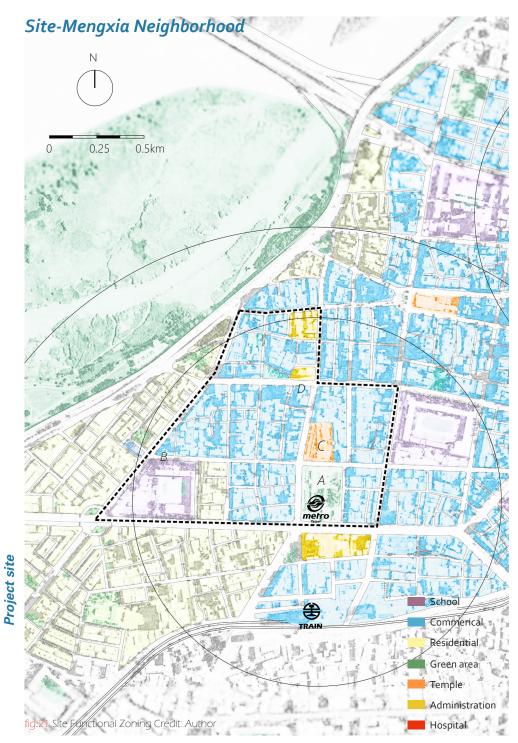
fig.19 Wutong street Credit: Wenzai Edit: Author

fig.20 No.1 food theater Credit: No.1 food theater Edit: Author



Food Granary

Project



District Birdview



fig.22 Mengxia District Credit: Youtube user Edit: Author

fig.23 Lungshan Temple Credit: Travel Taipei Edit: Author

C. Lungshan Temple

B. Mengxia night market





fig.24 Guangzhou street(Day&Night) Credit: Google map user Edit: Author

A. Mengxia Park





Mongxia district is located in the oldest city area of Taipei. There are seven commercial streets (both above and below ground), and the Lungshan Temple is the geographical core.

The project site contains four overground night market streets and one underground commercial street.

fig.25 Mengxia park(Day&Night) Credit: Zhong Hongliang& You Zonghua Edit: Author

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"If you only have 30 minutes to get to know a city, you should visit a food market."

Wenzhe Ke, Mayor of Taipei



fig.26 Taipei Night Market Credit: Caroline Keyzor Edit: Author

fig.27 Night market street section(day&night) Credit: Author

Taiwan's night market culture fully embodies how spontaneous and food-centric informal urban culture has gradually become mainstream. 10 There are three primary distribution laws in the early stage of the night market:11

- 1. Temple centered, people's demand for food and beverages in temple fairs is the main driving force, spread out along the street and gather into the whole area.
- 2. It's easier to work as a street vendors for the rural residences when they collectively relocate their living to new cities.

3. There are schools or the commercial base of the original agricultural product distribution center or business district around.

However, in recent years, food safety problems have occurred frequently in Taiwan. There have been many unqualified quality tests or even consumer poisoning deaths, no matter dairy products, Smeat, seafood, or vegetables and fruits. After so many experiences, people have



fig.28 Taipei Night Market vendors Credit: Caroline Keyzor Edit: Author



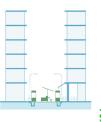
fig.29 Taipei Night Market vendors Credit: Caroline Keyzor Edit: Author

lost their trust in local food. let alone its value. And it all comes down to the fact that the chain of the food system is so long that neither regulators nor consumers can be involved in the whole process, creating a gray space for illegal acts.

Therefore, only by shortening the food system chain so that consumers can easily participate in every stage of the food system can the food industry be more effectively supervised and regulated. The public can regain their confidence in local food.

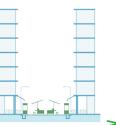








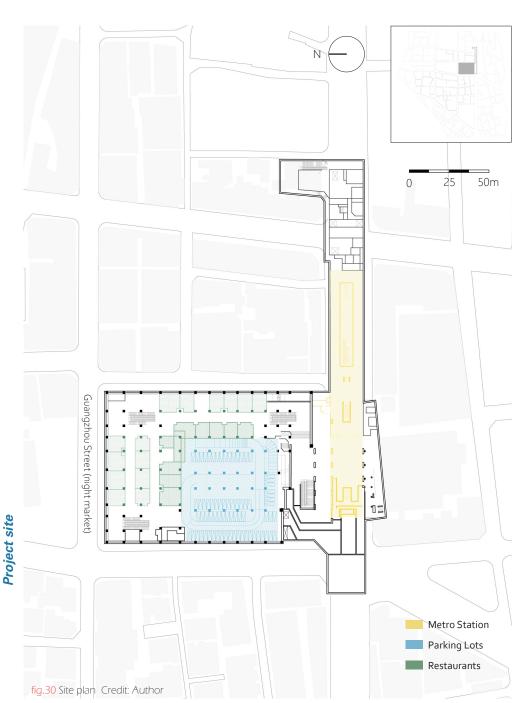






Wuzhou Stree

Site: Mengxia Park and the underground Street

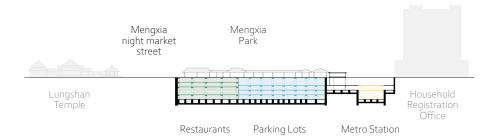




Mengxië Park

Underground Restaurants





Lungshan Temple Underground Street is located underground in Mengxia Park as one of the seven major commercial streets around Longshan Temple. Originally it was planned to relocate the street food vendors in nearby night markets and closed due to low operation. Being abandoned for several years, here become a habitat for homeless people and even form a dark-corner for avoiding public order.

In 2013, Taipei City Councillor Ying Xiaowei pointed out that the underground street even had prostitutes soliciting customers. Until December 2016, the "Mengxia Lungshan Cultural and Creative B2" planned by the Taipei City Cultural Bureau opened. **But it has still been closed on weekdays, now.**

fig.31 Site photo Credit: Zhang Zhesheng fig.32 Site photo Credit: Zhou Dao fig.33 Site section Credit: Author

The project program focuses primarily on shortening the food supply chains by embedding multiple food warehouses in the city and built an adaptive local foodscape network on a neighborhood scale.

A **schematic strategy** will investigate how a scaled-down food system proposal can address a solution to the long-distance and safety problems and enable a responsive, sustainably, and close-to-food urban community. **It includes both the re-imagining of food logistic networks and the combination with the existing food system.** The exploration will be mainly the potential spatial layers of the food system.

Then, I will investigate how to **embed contextual food infrastructures** based on architectural principles. The main spatical implement, a community warehouse, shall be developed as one of the virtual nodes in the food web, providing neighbors with food-related activities facilities. **With the unique food culture in Taiwan, the novel food warehouse offers civics not only food storage but also an experience of street food preparation and food knowledge-sharing platforms to rebuild their trust in the local system.**

Urban scale 1:1000

Neigbourhood food strategicplan

Potential scaled-down food web will be analyzed at a city scale but designed at a neighborhood scale. I will explore an additional logistic network upon the existing one through a wider range of mapping, research, and schematic diagrams. And I will outline the possible spatial sites to embed the new facilities in the neighborhood scale masterplan.

Architectural scale 1:200/1:100

Neigbourhood food spaces

I will explore the functional food spaces such as warehouses, urban kitchens, drinking and eating spaces via models, images and drawings. The integration with the existing informal night market streets will be of vital importance.

Curriculum Vitae

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Education

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08/2020 Job Title: full-time Intern

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