

Research Portfolio

# URBAN FOODSCAPES

*Intersecting Flows*



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## Research Essay

# URBAN FOODSCAPES: *Intersecting flows*

keywords:

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## Introduction

Food has always been one of humanity's main agendas and a basis for development of human settlements. Growing food dictated the yearly rhythm of life and its consumption was a backbone of daily activities and for some it still is today. Although markets, restaurants, kitchens, shops and waste dumps have always constituted a backdrop to urban life. (Steel, 2018), the question of how the food gets to our plates seems to be overlooked. Within the field of urban studies, the city's relationship with its hinterland, the non-city landscapes have been neglected, but in a contemporary condition of global urbanisation it becomes essential and must be reconceptualized (Brenner, Katsikis, 2020).

Our future will most likely be **urban** and may be prone to climate disruptions, therefore looking for alternative ways of shortening food supply chains and searching for circular food production technologies and sites to feed the growing population of cities seems essential.

**Foodscape** term implies the reading of its territory as a permanent hybridised entity - an assemblage of urban regions and its vast extensions in which the main delineator and the binding principle is its connection to the food supply chain (Angelil, M., Klingmann A., 1999). The term spans over all food supply chain phases and scapes connected to them.

Foodscape is a product of **intersecting flows** of diverse metabolic material and immaterial inputs such as food, water, energy, material, labour and outputs as waste, carbon and pollution, seen as a global hinterland that outgrows the outdated city versus hinterland dichotomy (Brenner, Katsikis, 2020).

**Urban metabolism** as an interconnected space of metabolic flows is presented by Matthew Gandy in "Rethinking urban metabolism: Water, space and the modern city". Although Gandy uses water as a lens to see complex metabolic relations and its relationship with the human body and technology I see a lot of analogies to the flow of food within the city and its both social and bio-physical consequences. Food as being essential in maintaining metabolism of the human body and the **social production of space** thus influencing both private and public

realm (Gandy, 2004). Similarly to water, as one of the basic human needs, foodscapes imply a series of connections between the visible and invisible dimensions of the city, but also serve as a delineator of social power causing either urban cohesion or disruption (Gandy, 2004).

Foodscape operates as a **broadened territory**, thickened with economic and political forces, environmental data, mobility systems and social influences, which all have its spatial consequences. Its definition is a manifestation of such extended meaning of the physical site. It operates in the networked territory, which is a product of multiple intersecting networks of natural and man-made ecologies. Each node within the foodscape is a hub within a larger network of intersecting flows, with sources distant from the site itself. The node reflects a certain duality of being both a product of deterritorialization (Sheppard, 2013) and hyperlocal conditions that are created by a unique intersection of physical and non-physical flows creating an urban metabolic ecosystem. **Epigenetic territory** of foodscape, in which data and information, as dynamic urban forces, are continuously scripting its performance could be the answer to improve the current food supply network (Sheppard, 2013).

## **Relevance**

Since foodscape is **multi-scalar**, the scope of its spatial consequences ranges from urban design, architecture and interior design, to even product design. It influences every aspect of human life and can be materialised in the form of land use zones, urban patterns, architectural layout and design of various food-related home appliances and utensils. The issue is both global and local, public and private. Similarly, within cities productive landscape strategies have a potential to be implemented on different scales - from individual gardens, to large industrial urban vertical farms - being able to transform unused spaces into productive areas. Especially in the digital age, when current technological advancements like vertical farming, drone transportation and utilisation of data may yet unlock new spaces for farming, proving once again that they can change the urban environment completely.

Foodscape being at the intersection of diverse material and immaterial flows **spans across multitude of disciplines** and involves various actors, therefore the broad reading of its complex territory implies that optimizations and improvements within foodscape will have an impact on many actors and networks. Due to its cross-disciplinarity, food production has potential to be supported with complementary functions to create complex programmatic hybrids - such as education or manufacturing - in order to assist in closing production cycles and material loops. For instance food waste could be utilised as an energy source, but also contribute to the emergence of new craft based on naturally processed bio-materials.

The research on foodscapes will hopefully contribute to the **current initiatives** - like London's Food Strategy, Edible London, Capital Growth - undertaken by communities, charities and local authorities in order to combat food poverty, strengthen community bonds through food sharing

and enhance the quality of public space. Because in a world that is going digital, food may be one of the last truly physical things connecting us to space, time, nature and each other.

### ***Problem statement***

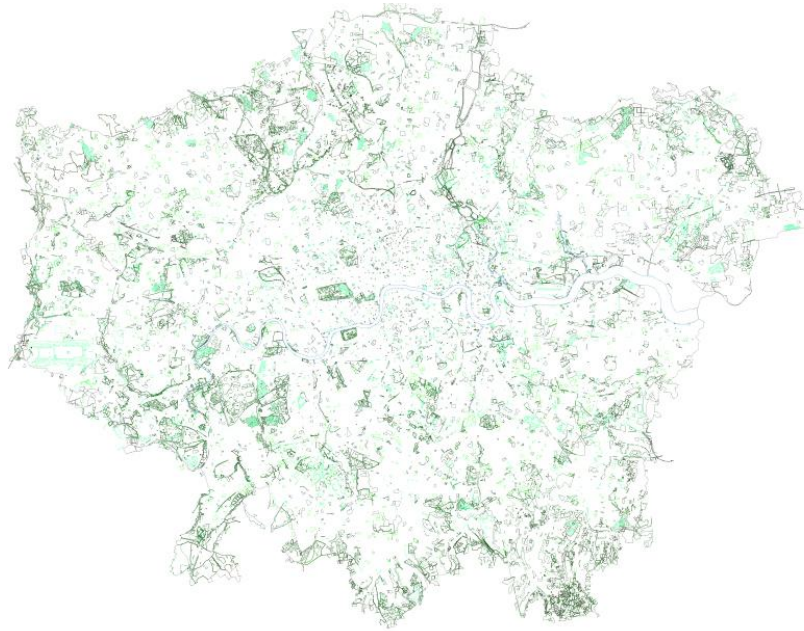
Throughout history **technological advancements** gave opportunities for new types of infrastructure unlocking new territories for food production and changing the relationship between the city and its hinterland. Productive landscapes, once integrated into the daily lives of the majority of the population, were pushed far from the urban realm and became economically marginal. Nowadays those **hinterlands grew to unprecedented scales** becoming a part of the global food supply chain. Some hinterlands are not even tied to any metropolis - they just support other hinterland areas. Most of them form “**mechanised assemblages of human and non-human infrastructure oriented solely towards profit**” (Brenner, Katsikis, 2020). For instance the global hinterland of modern London equals the size of all the productive farmland in the UK, having a combined area more than a hundred times larger than the city itself (Steel, 2018).

As hinterland productive landscapes became more specialised, industrially intensive and having **long logistic linkages, results in the deprivation of the local territories** (Brenner, Katsikis, 2020). Agriculture being on the intersection of many metabolic flows, can be tied to exploitation and destruction in other fields, which has planetary consequences. For instance, it is responsible for the **decline of global biodiversity** by 50%, large-scale environmental **pollution** due to the use of agrochemicals, major greenhouse gas emissions from production and transportation of produce. What is more, agro-industries are also **responsible for 70% of global freshwater consumption** (Steel, 2018).

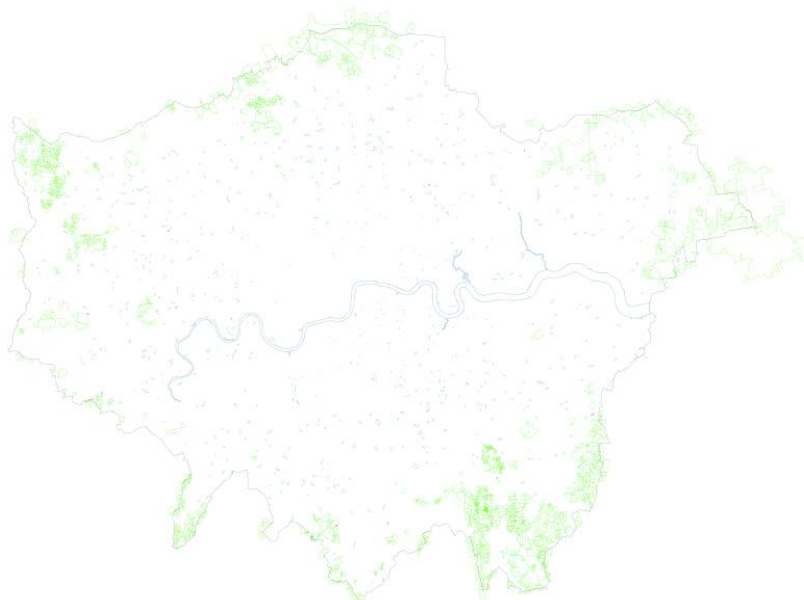
It seems that, similarly to water management (Gandy, 2004), food production became a **technological issue** that is a part of the “**hidden city**” network. This push back of ‘undesirable’ productive landscapes resulted in their absence in the urban tissue of cities. As GIS data shows, cities like London are considered green, but a large majority of that green is purely visual (il.01). In the capitalocene era of packaged, processed food, instant delivery and large-scale supermarkets, the **relationship between humans and their food sources** in cities seems to be lost. Food has lost its value as a source of life not only for capitalist corporations but also for many urban dwellers. This issue may be linked to large amounts of food waste coming both from London’s households, restaurants, factories, that is still not utilised properly by municipal authorities (London Food Strategy, 2019).

Global hinterlands made the food production sector reliant on **too many economic factors** and logistic supply chains, which are prone to **disruptions**. Supply shortages are expected, as recent events such as Brexit and global Covid-19 pandemic have proven. As the London Food Strategy from 2019 shows, one of our most essential and valuable resources such as food is wasted tremendously. In the face of **climate change**, the issue of food resiliency and sustainable food production seems to be more important than ever. However, as the past has proven, the issue

cannot be solved by technology alone. It is essential to involve people in the process - to change their habits, teach them how to value food and contribute to the food production network. Food, once again, needs to become a **socio-technical issue**.



**VISUAL GREEN**  
PARKS, BUSHES, GARDENS



**PRODUCTIVE GREEN**  
FARMS, URBAN FARMS, ALLOTMENT GARDENS

*il. 01 Comparison between visual and productive green in London*

## **1. Industrial food supply chain**

### *Pre-industrial synergy model*

The **pre-industrial food supply model** was based on spatial proximity and various programmatic synergies. Since the resources were scarce, the material cycles of humans, animals and food production were integrated - by animals feeding off the products non-edible for humans - such as leftovers and grass - and humans feeding off animals and utilising every remaining part of them - bones for soup, leather for clothing and manure for fertilising the fields. On a larger scale also the city and its rural hinterland existed in a symbiosis - with various businesses located on the way of animals entering the city. The urban tissue of the pre-industrial city may seem chaotic but it was in fact based on an organically created **functional diagram**, as the model of Heinrich von Thunen shows, of how the city fed itself - with markets in its heart and resource zones on the outskirts - such as market gardens using animal manure from the city, firewood forests and farm belt. The pre-industrial city was very much limited by the scale of its hinterland and proximity to resources to create **program and material synergies**. The food trade was transparent and animals and organic produce were visible in the urban tissue, making British citizens aware of where their food came from and at what cost.

The appearance of the **rail infrastructure** was the first step towards the gradual dissociation of urban dwellers from their food sources. By unlocking new territories for food production the path was made for the economy to go global on a never before seen scale - with the rise of commercial enterprises importing goods from America to London. New infrastructure gave the speed to the transformation of cities and growing consumerism tendencies- with geography not being relevant anymore, hinterlands were expanding. In consequence food was produced in larger quantities and was mainly imported - cities got suburbs that merged into large conurbations, which needed to be fed. With more people coming to cities, rural communities began to disintegrate and the **food became industrialised**.

### *Technological advancements and agriculture*

This notion can be clearly visible within the meat production industry, like Smithfield Market, to which cheap, imported grain that could be fed to animals instead of humans, greatly contributed. Slaughterhouses became meatpacking districts that resemble whole cities. The need for maximum efficiency and making profit within the industrial production line led to abuse of animals and overproduction. In consequence **food has become a technological product**. Although technological advancements have always contributed to the transformation of agriculture it was the fact that the motivation was oriented towards profit - the economy of scale aiding cheap food. Also the excessive use of **chemical fertilisers** had large environmental

consequences - although profitable at first, the solution was short sighted. In a long run led to losses due to the soil destruction and plants getting more resilient, therefore more fertilisers were needed, again contributing to overproduction of the product that serviced agriculture. Nowadays food can be so processed that it stops being natural.

The paradox of the contemporary food supply system is that the **food is modified** not to be better for humans as a source of nourishment, but to **cater the needs of the current agri-business**. It is farmed for money, and modified to sustain transportation hardships, longer storage times and to look better for the customers to buy - less bruised, shiny (usually waxed) and in the aesthetically pleasing shape - without any cosmetic imperfections. Also keeping it in a chilled chain leads to more specified transportation requirements and leads to losses when it is broken. We created complex linkages that cater corporations and money.

Paradoxically the globalisation of the food supply system led to its **centralisation, concentration, monopolisation and stiff co-dependencies**. Nowadays 30 companies handle 30 percent of all global trade in food. The food system belongs to large-scale global corporations, that are able to achieve vertical integration through optimised logistics, controlling production from gene editing to supermarket shelf.

Moreover, products are designed to be delivered **just in time**, usually from overseas, which means that there are no reserves in case of a chain disruption. The efficiency and integration of our food supply system made it much less resilient in the face of a disturbance like a fuel strike, harbour breakage or a political conflict.

This economy of scale led to the food being cheap in the developed world and especially in cities, but it has much larger consequences elsewhere in the world - like a butterfly effect. In the name of efficiency we are reducing the variety of foods we produce. Food needs to be average in taste - cheap and predictable to be able to be sold in various places around the world. Optimisation led to the **loss of genetic variety** of fresh produce worldwide - for instance all commercial bananas are of one variety and out of 2 300 indigenous local British apple species, which are in the National Fruit Collection in Broadgate, Kent, only two - Cox and Bramley, are available in supermarkets (Steel, 2009). In case of the disease of one strain global production of this one variety falls and pandemic can wipe the whole global supply - as the past banana fungus pandemic shows.

### *Environmental consequences - wasting resources*

Our food comes with tremendous environmental costs. UK's NGO agency WRAP estimates that food production and consumption is responsible for 30 percent of global carbon emissions and contributes to 60% to 80% of global **biodiversity loss**. The "rural hinterlands of modernity" creates an assemblage of machinery rather than a rural natural landscape. Especially meat



production contributes greatly to climate change due to the large production of methane and forest clearances for new pastures. The issue is especially dangerous with the increasing wealth of society in developing countries, because the increase in meat consumption in countries like China, that were predominantly vegetarian, can be felt globally.

Another issue related to wasting resources by industrial farming is **energy**, that still mainly comes from **fossil fuels** - from running machinery, producing fertilisers, pesticides, transport, processing and preservation - for every calorie of food the current agri-business produces, it is burning approximately 10 in the form of fossil fuels. What is more, the agriculture sector is responsible for 70% of global **freshwater consumption**, which reaches 95% in the developing world. What is more, 8 out of 10 top countries that UK sources its fruit and vegetables from are drought-prone countries. The cost of "virtual water" is usually hidden by companies.

### *Food waste*

The consequence of overproduction, society's consumerism tendencies and chasing the cosmetic qualities, besides the resources needed to produce food, the food itself is wasted on every stage of the production. According to the Food and Agriculture Organisation (FAO) of the United Nations, approximately 1.3 billion tonnes of **food is wasted** globally each year, which equals a whopping **one third of all food produced for human consumption**. In the UK around 6.6 million tonnes of food is wasted each year, of which three quarters is still good for consumption. Every wasted kilogram of food comes at the cost of other material and immaterial resources - such as time, labour and land that could be utilised for better causes.

### *Land*

Nowadays we live predominantly **urban lifestyles**. 80% of Brits live in cities, seeing countryside on the tv or going to the city farm once or twice in school. London seems to prioritise leisure over food production, which GIS data shows. The city is filled with urban greenery, but it is purely visual. The land dedicated to urban agriculture is of marginal importance (il.02). To make things worse the consequences of our food choices are being ignored by politics and society constantly - we suspect, but those are out of sight out of mind. But it is clear that cities still dwell on land, however with their global hinterland they outgrew their own farm belts. Cities already consume 75% of the world's food and energy resources.



## **2. Social creation of space within the food supply chain**

### **Social implications of industrialization**

**Food** has an unprecedented power as a **social binder** of cities. It accompanies us everyday, whatever we do. It strengthens bonds between individuals - encourages contact during business lunches, breakfast with family and community cooking. The act of eating is much more than sustaining our bodies. We are what we eat - both quality and enjoyment are important. Food is also a culture carrier thanks to local spices, tastes - it is **ethnic minorities** who still cultivate their culture and also buy local, authentic food in a street market. Food grounds us in space and time. However due to the industrialisation of the food supply system and **no visibility in the public space**, the **connection between humans and their food sources seems to be lost**.

Urban sprawl and centralisation of the food supply system made food distribution in cities more difficult than when the **food distribution network** was of finer grain. According to the London Development Agency in 13 wards of London's inner boroughs **food deserts** can be spotted, especially in boroughs such as Tower Hamlets, where over half of children live below poverty line (Steel, 2009). In the past, with local grocery shops, marketplaces and wholesale trade as support, food could reach every area of the city. Although nowadays fresh food wholesale constitutes 20% of sales, it caters the needs of the public service sector such as schools, hospitals, catering industry, and does not create significant public space, since all but two wholesale markets moved to the outskirts of London. The remaining food supply needs of the city are satisfied by supermarket trade - staggering 70% of all grocery trade is in the hands of only **four main British supermarket chains** - Tesco, Sainsbury's, Asda, and Morrisons (Bedford M., 2022).

It is mostly when people shop in those **supermarkets**, they become aware of how the industrial supply chain directly impacts their lives. The global food supply chain is transferred down to the individual scale each single day, however it is far from a human scale and lacks social quality. They are impersonal filling stations matching the individual and alienated rather than collective lifestyles - designed to service the flow of life rather than being a destination. After all supermarkets were created in America to minimise the lost profit the shopkeepers "wasted" on socialising with clients (Steel, 2009). Which people did gladly - they were willing to pay less and resign from the social interactions. The fact that there were discounts for buying in bulk resulted in the need to use cars - a very much individual means of transportation - making the social alienation within the food trade even greater. Supermarkets moved to suburbs resulting in a shopping mall expansion in Britain on a massive scale - draining commercial life of 80s and 90s out of cities, imitating high-streets that they helped destroy. What is even more bizarre, when small retailers were losing their businesses in the inner city, a niche was created - which was then filled by the same corporations that owned supermarkets - in 1998 Tesco started opening "Metro stores", a corporate replica of a former local grocery shop. It achieved true dominance

over high streets when it started buying out and converting other smaller chains and local shops (Steel, 2009). Nowadays, after taking over each city aspect, supermarket chains in Britain act as developers. In the name of urban regeneration, whole city districts are proposed to be built around the malls - such as the one of the most controversial ones in Tolworth, south-west London, which was supposed to create a “sustainable” community with buildings equipped with solar panels, rainwater recycling and other environmentally friendly solutions around a Tesco superstore. After years of large opposition from nearby residents, the project was stopped, but in hindsight the pattern of food trade monopoly and social destruction such corporations create seems to be evident. The endgame may be even the **death of the public space**. One can say that the control of food gives control over space and people. Superstores pretend to be public spaces, but they are security-sensitive public property that does not accommodate otherness. Those are generic **non-places**, as defined by Marc Auge, which stand in opposition to **anthropological places**, such as traditional local shops on high streets, that are embedded in history, carry memories and bring associations (Steel, 2009).

## Between public, collective and private

### *High-streets and markets*

**High streets** are shared spaces - in use and ownership - that form a working urban public realm. Traditional city centre has a mixed use grain, supports individual businesses and trades. That **diversity of spaces and functions**, animated in **different times of a day**, brings the “social buzz” to the city. Multifunctionality and diversity of functions is key. The myriad of personal exchanges that used to take place everyday would create a sense of local identity, communal ownership that encouraged people to take care of the street and by extension their neighbours (Jacobs J.,1960). Food, like no other medium, gives space richness that activates all senses - smell, sound, taste, touch - that constitute the memorable, **collective experience** within the public space. While shopping for food on a highstreet or the market, people used to socialise, exchange gossip, and spend their time on leisure. The city needs voids for the **urban life to spill out into** and such voids are produced by leftover or multifunctional spaces.

**Markets** are one of the remnants of the ancient urban life and most vibrant places created by food. It resembles Athenian **agora** - a place of exchange, where the politics, cultural activities and food were intertwined. Old markets were true heterotopias that were able to accommodate otherness - one time the countryside was coming to town, another it was a theatre, and once in a while a place for an official public ceremony. Especially in London a sort of **market culture** can be spotted. There is a large variety of food markets, ranging from temporary - lunch, street markets that are put up every day, through retail markets like Borough Market to wholesale ones like Covent Garden Market. Although one can criticise that places like **Borough Market** these days serve an ‘entertainment’ function and are frequented mostly by middle class ‘foodies’ who can afford overpriced produce, the life they bring to the urban fabric is very real. It is there that

people eat together, buy groceries and cooking utensils, chat with favourite farmers and also have a possibility to attend cooking classes in the school on its premises. The offer is very diverse, which makes Borough Market a true urban condenser. The space is flexible, so it functions as a wholesale market during the night and a retail and street food market by day. The diversity is created by habit. Although within the market area the functions are mainly food related, the location is accompanied by the busy high street that is filled with craft products and other shops.

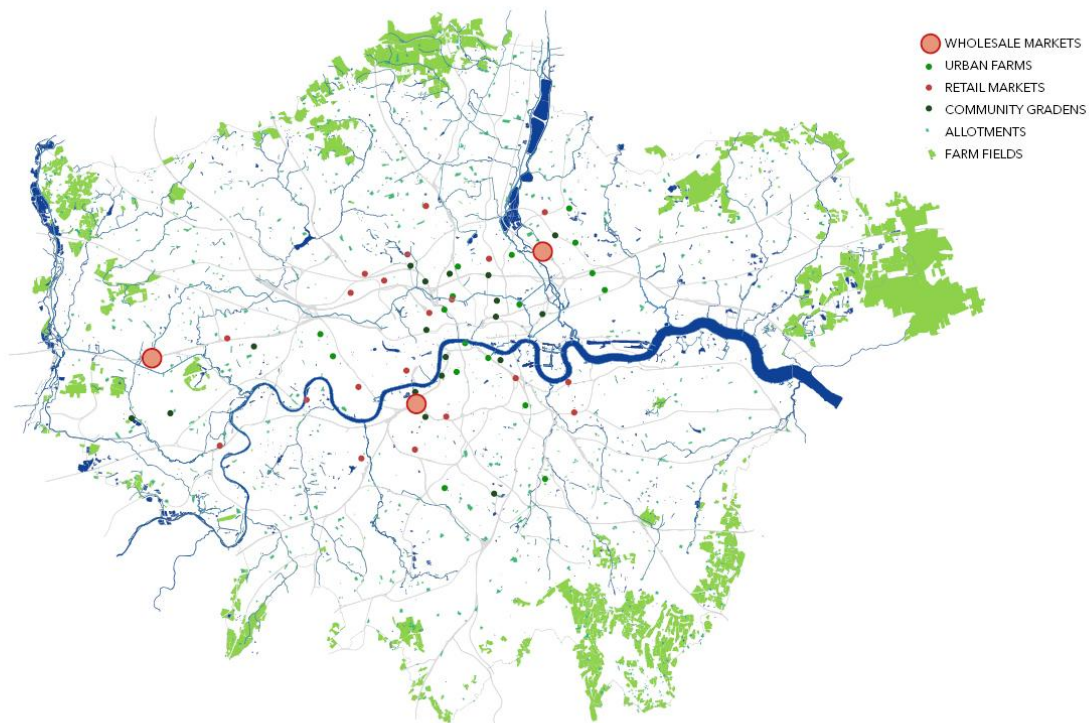
### *Allotments, Community Gardens, City Farms*

In contrast to markets and high streets as busy and hectic places of food exchange, **community gardens, city farms and allotment gardens** are more collective and private places of **cultivation**. Here mostly different kinds of exchanges take place, more interpersonal and intimate - exchange of skills strengthening community bonds. They have more **experiential** and **educational** character and have a long term positive impact on the development of urban farming and quality of life. They serve as a 'third place' for people to self-actualize and are important in terms of grounding people in their communities and individuals that share their interest. Unlike industrial food production farms, they are not directed towards efficiency and profit. What is more, such urban organic farming is also contributing greatly to the biodiversity in cities.

**City farms** are the most publicly accessible urban farming spaces, a remnant of the rural past. It is the place where urban dwellers can have a first contact with the countryside. Places like Hackney City Farm are true social condensers hosting multitude of programs within its walls - gardening, restaurant, animal care, psychologist and even architecture office. They collaborate with other city farms, schools, companies and craftsmen to organise various hands-on workshops, festivals and volunteering activities. Hackney City farm also creates a network with food banks in the area and works as a food distribution centre reaching those in need. City farms don't produce much vegetables for consumption, but the educational role they play in the city is vital. In London it is common for them to create clusters with **Community Gardens**, like the ones in Vauxhall, that are oriented towards long-term cultivation. Social bonds are created by having common responsibilities tending to the garden, cooking together and sharing food and skills with other community members. Deeper interpersonal relationships are formed. Those places teach people patience, the value of labour and the respect to the land that feeds us. **Allotment gardens** on the other hand are the most individual of all and serve as a therapeutic place for escape from the hectic city life. The demand for the allotment garden is huge and supply is shortening - there are approximately 10 000 people on a waiting list, according to the Report London's disappearing allotments. What is interesting is that the social benefits are not restricted to those working the plots - the sites are acting as a hub for much wider networks. Croydon Allotment Society estimates that around one third of its members do not own a plot, but still use the sites as **community centre, supplier of plants** and a source of

**gardening knowledge.** The civic movements to save such spaces are strong ones, communities and associations fight for the right to farm their own land, that shows how important those spaces are.

**Urban food production spaces** play a vital role in familiarising people with food production, creating good habits, encouraging them to eat healthy, and care for the environment and their community. Customer values, habits and choices are at the core of repairing the current industrial food production system. It is with people that the change needs to start, since the mass individual customer choices are the only way to influence profit-driven global corporations. Unfortunately nowadays our choice is still influenced by cost and cosmetic perfection. Very few of us think where the food comes from and what true cost it carries. However the social movement has already stated, the bottom up initiatives like Edible London and Capital Growth are making the change through knowledge, integration, and closing loops by providing missing links between sectors. They try to help those in need, rebuild communities, spread knowledge and reduce food waste by sharing food and cultivating urban land together.



*il. 02 Growing urban sites and exchange nodes in London*



### **CITY FARM**

Hackney City Farm



### **COMMUNITY GARDEN**

Vauxhall Community Garden



### **ALLOTMENT**

Vauxhall Allotments



### **VERTICAL MASS PRODUCTION**

Growing Underground



### **VERTICAL ON DEMAND**

Sprigs Farm



### **VERTICAL MODULAR**

Cradle-to-Plate



### **STREET MARKET**

Leatherlane Market



### **RETAIL MARKET**

Borough Market



### **WHOLESALE MARKET**

Spitalfields Market

### **3. Integrating social and technological ecology**

#### *Decentralisation - Localisation*

As presented in the previous chapters, the need to feed growing cities has resulted in the industrialization of the food supply chain, which has disastrous environmental, spatial and social consequences on a global scale. The **lack of seeing the food industry holistically**, as a network of interrelated material and immaterial flows has led to illusory efficiency of its separate components (isolated entities), which in fact produce substantial amounts of waste on every stage of the food supply chain and in all of its aspects - labour, time, resources and land. In order to avoid ecological catastrophe we need to change the system.

Current food supply chain is reliant on too many factors and produces entangled, long logistical chains with hinterlands servicing other hinterlands. Such a tree-like, centralised network is prone to disruptions, especially in a face of expected environmental disasters due to impending climate change. As it is estimated that the vast majority of the world's population will be living in cities, in order to achieve resilience and reduce dependency on global systems, contemporary cities will have to engage in food production at increasingly localised levels within their existing urban tissue (Jenkins A., et al., 2015). By creating a **decentralised system** and locating food production sites within the urban context, the supply chains will be shortened and food miles reduced. In order to provide uninterrupted supply which prevents the creation of food deserts and penetrates the urban tissue, a lattice-like diagram of suppliers of various scales needs to be created.

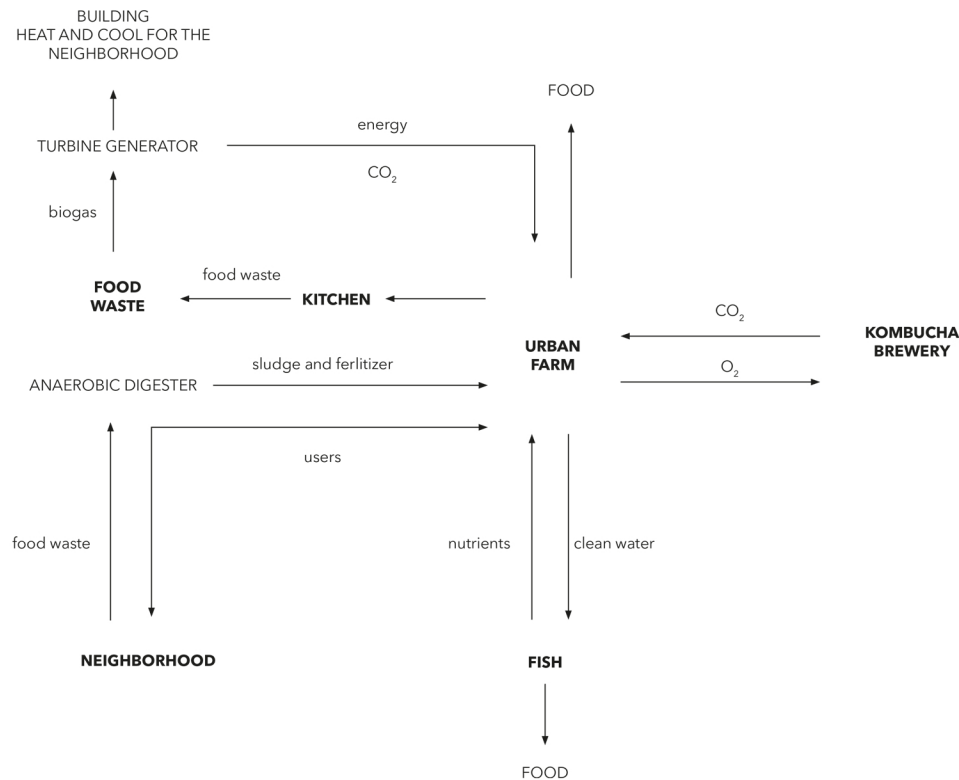
#### *Urban synergies - Metabolism - Efficiency*

Contrary to the current perception of the food supply chain as isolated entities of different disciplines, treating the food production sector as a **metabolic ecosystem of intersecting flows** enables creating synergies and profiting from proximities of complementary functions, which is especially beneficial in a dense urban context where the land and resources are scarce. Such an approach leads to establishment of a network of cycles and enables closing current food related loops. Similarly to how such cycles are arranged in nature - every waste is utilised further as a resource. Water, material and energy cycle needs to be closed, but it could be achieved in different scales - urban, architectural or detail scale.

In urban conditions especially programs could create a synergy. Urban farms in particular can benefit from the proximity of other urban functions and programs. However those synergies need to be introduced gradually since the technology to achieve them fully may not yet be developed - for instance urban farming is more energy consuming than traditional one, but it



could benefit from being placed in close proximity to the source of carbon dioxide and can give back excess heat to heat up neighborhood homes. Therefore combining housing or office programs with urban food factories could benefit both. The efficiency in fact is in the synergy.



*il. 04 Example of urban synergy*

## **Conclusion**

Industrialization of the food supply system and our customer habits led to problems on a global scale that are continuing to grow exponentially. In order to avoid environmental catastrophe a drastic change is needed. However the problems we are facing touch many disciplines and crossover various fields of study. As the past taught us, those problems cannot be solved by technology and rigid efficiency alone. Humans are in the centre of the solution. These are problems of governance, policy and social resilience, therefore integrating technological and social aspects is crucial (Henriquez E., van Timmeren A. 2020).

New technologies in food production, mass customization and utilisation of data give new opportunities for food production. The food can be custom-made in facilities of different scales, therefore contributing to diversification of food varieties and sources making food production more resilient. New technologies like vertical farming opened new territories for farming in cities, however it is up to if this technology will be utilised to the enhancement of the urban



environment or its destruction. Vertical farming saves water and land, but is still energy consuming, so we need to look for urban synergies in cities to balance that.

Current agri-business practices and the lack of food embedded into culture leads to destructive customer choices. The chase after the cosmetic perfection of food, fast food, processed foods, ready meals, shopping in the supermarket - they all support the current industrial food supply chain led by global corporations. People don't even realise the true cost of their choices - environmental destruction, air pollution, water scarcity, biodiversity loss, not to mention the tremendous waste of other material and immaterial resources that comes with it. The lack of respect for food leads to large amounts of food household waste that is produced every year and could be distributed to those in need. The change starts with a single choice of the customer, therefore creating awareness through education and transparency is crucial in order to improve the system. Customers should transform into prosumers, however not necessarily producing food - those could be prosumers in terms of food waste, water and other resources that are in tune with food production.

Since food in different forms - farming, cooking, eating - acts as a social binder of cities, urban renewal through food seems to be the solution that has many benefits. Food needs to become once more a public rather than private issue of health and wellbeing embedded in our daily life. Only then can we make our bodies, cities and our environment healthier.

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## P4 Reflection Report

### URBAN FOODSCAPES: *Intersecting flows*

*mentors: Roberto Cavallo, Freek Speksnijder, Alper Semih Alkan*

Urban foodscapes project addresses issues concerning the **food supply chain in cities**. It aims to combat problems created by current agri-business practice such as long, complex logistical chains, food miles, carbon emissions, wasted water, energy, labour, food waste and land scarcity. Foodscape being both a global and local issue lies on the intersection of multiple material and immaterial flows, therefore problems the food system creates are so complex that they cannot be solved by one discipline alone. The research that I carried out is trying to detect the most pressing problems concerning the food supply chain and attempts to find ways to improve the system by integrating social and technological aspects to close food-related material and immaterial loops and looking into urban synergies to limit the waste of resources and create new social opportunities that will constitute a **framework for the future projects of this kind**.

*Graduation studio, master track*

**London** being a '**Heterogenous City**' reflects the current condition of the built environment of most large contemporary cities, therefore is one of the best places to study such relations in order to propose a model solution that to some extent could be implemented in similar locations. The Foodscape issue is a multi-scalar one which crosses over many disciplines, therefore is compatible with the main objective of the graduation studio prepared by the Architectural Design Crossovers Chair. London, being a 'Heterogenous City', reflects the current condition of the built environment of most large contemporary cities. Proposed project lays on the intersection of material and immaterial flows, which places it within a larger social, environmental and cultural context.

*Research, methodology and design*

Throughout the research and design phase I have been focusing on the question of *how can foodscapes be integrated into London's urban fabric to reduce unused spaces, improve material and immaterial flows, enhance social connections and strengthen food resilience of boroughs?*

The **research** that I carried out has provided a **theoretical, conceptual and analytical framework** for urban and architectural intervention. Dealing with food production in cities required a holistic

approach and analysis of the problem from technical, social, political, economical, ecological perspectives and in global, **urban and architectural scales**. The **initial literature research** helped me familiarise with the complexity and scale of the issue, with diverse actors involved in food production and merging the theory of urban metabolism with my design approach. Historical research enabled me to see the relation between new technological advancements and the gradual industrialization and dehumanisation of the food supply system due to the human obsession with efficiency and earning the highest profit. Conducted **historical research** enabled me to see patterns of how new technological advancements such as new types of machinery, production line, fertilisers and other food processing **technologies** led to exhaustion of resources, weakening of the social bonds, dissociation between humans and their food sources and environmental destruction when the goal was to maximise profit and market forces were in control. Although at first I was focused more on technology, throughout my research I realised that questions about **ethics**, purpose, philosophy, ecology, sustainability and societal benefit should stand at the core of every action. As Cedric Price once said *"Technology is the answer, but what was the question?"*. Technology is humanity's greatest ally, but it needs to be used with caution and in order to do that disciplines cannot be viewed as separate entities, but rather as a complex ecosystem of interrelated flows. One of my important **research tools**, which informed my design, was the **site visit** to London. I interviewed people who were working and visiting various city farms, community gardens, allotments, marketplaces and vertical farms. By doing this I got hands-on information on how those places function, who are the main actors involved in them and how they could be improved - spatial and programwise, which led to defining the program of my project. I analysed and documented functions, programs and layouts of crucial spaces in Borough Market, Camden Market, Hackney City Farm and others. It is during the visit that I got to experience the partial foodscape of London. I used maps, atlases and diagrams to visualise the information I found, which worked quite well to simplify complex issues. During the design phase I conducted several **case studies** of projects with food production programs, especially vertical farms like Sprigs Farm, Agrotopia by Van Bergen Kolpa and Pasona Urban Farm in Tokyo that were helpful with finding proper architectural and technological solutions. Finally, a **research essay** helped me put vast research into a consistent narrative and realised what are the most important aspects I need to address in my design. Although, initially my plan for research was quite extensive, overall the **methods I used did work**, but I had to **channel my focus** into areas like production and consumption and utilisation of food. Based on research and personal experiences I devised urban strategy and architectural response that acts as a **proof of concept**.

Throughout my research I have discovered that the scope of spatial implications of foodscape range from urban design, through architecture and interior design, to even product design. It influences every aspect of human life and can be materialised in the form of land use zones, urban patterns, architectural layout and design of various food-related home appliances and utensils. The issue is both global and local, public and private. Similarly, within cities productive landscape strategies have a potential to be implemented on different scales - from individual gardens, to large industrial urban vertical farms - being able to transform unused spaces into

productive areas. How to produce, process and consume food in cities is also related to building technology issues – such as ventilation, water management and energy harvesting. One of the focus points of my project is also on natural building materials from a technological and aesthetical perspective. What is more, sustainability and circularity on technological, architectural, urban and social levels play a major role in my design.

### *Urban strategy - Food hubs*

Industrialization of the food supply chain led to its centralisation, monopolisation and stiff co-dependencies making it prone to disruptions, which due to climate change and recent political turmoils can be expected in the near future. In order to make the food system more resilient, cities, as the main consumer of resources, would need to engage in food production at the localised levels. For my urban strategy I propose a more decentralised network with a lattice-like structure which takes into consideration producers of various scales that contribute to the food network. In order to avoid a purely utopian vision, the strategy proposes an evolution and gradual transformation of the current food supply chain instead of radically revolutionising one. In a heterogeneous condition of contemporary London a flexible solution is needed that adjusts to different site conditions. I propose a dispersed system of growing sites and exchange nodes that utilises both leftover spaces and new construction that sets an example for the future developments. The facilities would vary in size depending on best conditions - for instance larger food growing factories and agri-parks could be located on the outskirts of the city, whereas busy food hubs oriented towards spreading awareness and education would be placed in a dense urban condition. Each of the urban food hubs would have different functions and forms depending on site conditions and community needs, however the food on various stages would be the common denominator. As the research suggests, creating more awareness about the current food supply practices and its environmental consequences is vital to improve the system, which is why the social component is so important. Only individual customer preferences in large quantities have the power to overcome the monopoly of large food corporations and contribute to the healthier and more ethical practices to improve the health of human bodies, neighbourhoods, cities and the planet. With time and proper encouragement the transformation from consumers to prosumers may take place. Current customer choices are dictated by the cost, lack of awareness and skill to deal with food - that being both farming and cooking their own meals, therefore spreading awareness by exposing people in the urban environment to food production and preparation is crucial, especially in the early stage of the implementation of the strategy. That is why the educational and experiential component will be devising my architectural response.

### *Site conditions - Program*

The choice of the Fleet Street Hill site in Shoreditch has been decided by several factors. Firstly it is located in a dense urban environment with access to many restaurants in the area that can benefit from the new food production facility, therefore shortening the food supply chain and reducing food miles. By being in the proximity to the busy high street and residential neighbourhoods the flow of visitors with different needs of engagement is ensured. The area is already oriented towards farming - with Spitalfields City Farm being on the other side of the railway and temporary Nomadic Allotments being already on the site. The area is a heavily underused urban leftover created after the new overground connection of the tube has been built and Old Shoreditch Station closed. It is a problematic land that lies in between two railway tracks, which makes it difficult for hosting residential functions. Food production can fill this gap. Now neglected, it has a great potential of becoming an urban farming railway complex that could spark the change and serve as a precedent to other infrastructural leftovers in London and beyond. This leftover is a perfect example of urban void that needs to be framed and directed towards being a productive ground - both in terms of food but also social creation of space. The longitudinal site condition enables the gradient and plethora of public, collective and private functions. Also building upon the historical tissue creates a certain time continuation and grounds the building in the very site specific context. Similarly to food production - the project is both a product of the globalised building industry with typical solutions and hyperlocal site conditions, building materials and intersections. Within the site I propose different thematic sections - like marketplace, restaurants, community kitchen, food waste facility, workshops, anaerobic digester that produces energy, farming schools that work together creating an urban synergy, a metabolic ecosystem with complementary functions.

### *Architecture - Building Technology*

The main program of the building is a combination between a **food factory, farming school, research facility and a community centre** - with a plethora of **public, collective and private functions**. The project in its entity is meant to showcase both traditional urban farming and indoor, more technologically advanced vertical one and it is meant to be a formal and informal educational facility. Similarly to Greek **agora**, the food hub has also has an ambition to serve as a forum for the discussion about food resilience, climate change, sustainability, health, nutrition and food sciences. The project utilises **circular solutions** when it comes to water, energy and food waste cycle, which were a part of the previous **research**. The water-saving indoor farming program is divided into climate zones that are placed in various places around the building to ensure the best conditions for certain crops, vegetables, microgreens and fungi and to **optimise the energy usage**.

To ensure flexibility, adaptability and changeability, a **modular** construction system has been chosen - for the main structure, external and internal partitions. The main feature of the building

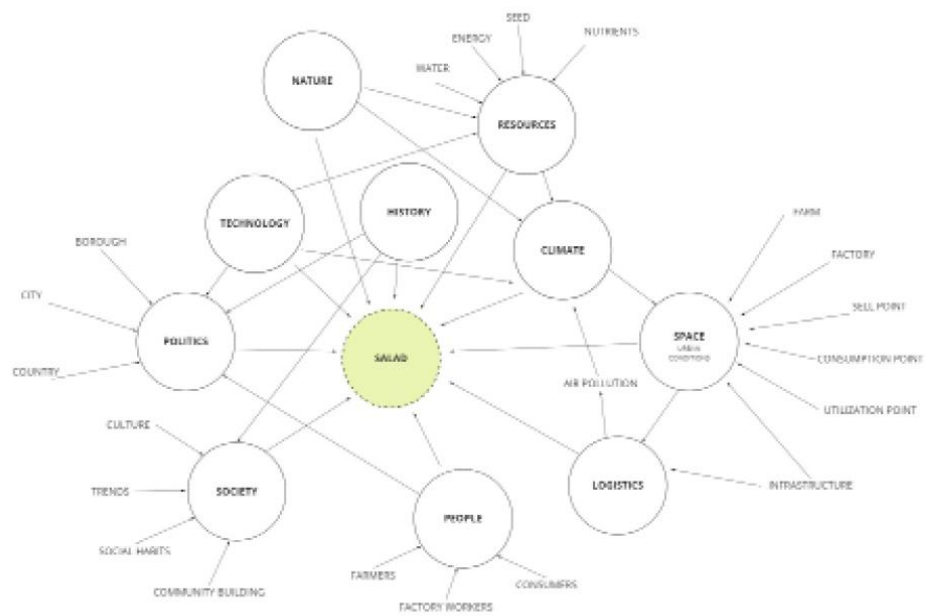
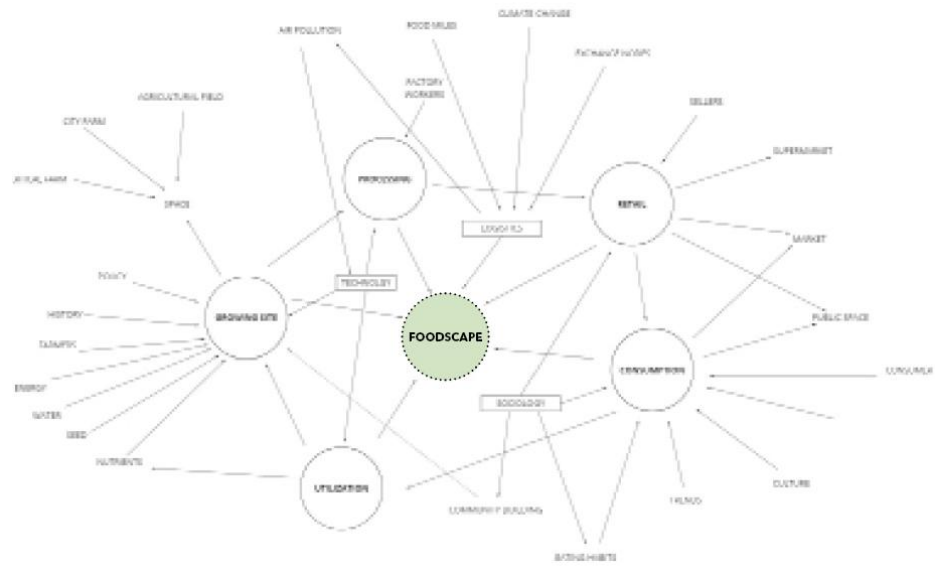


is a robust farming solar roof, which is also equipped with modular sections to ensure flexibility for research and community purposes. I chose to work with organic **materials** like timber, mycelium, and other biobased materials most of them made out of agricultural and food waste. I believe that such materials contribute to a better climate inside the building. Those materials also have specific aesthetic qualities and are haptic and textural to create **biophilic** interiors.

#### *Final part of graduation studio*

In the last month of the graduation year I intend to focus on building technology and optimising architectural details - working with biobased materials and detailed climate requirements - oriented solutions to adapt to different kinds of growing conditions and diverse social programs. I will continue developing diverse spaces of food-related experience both within new and old parts of my building in hopes to enhance programmatic synergies. I intend to strengthen the relation between research and project by producing diagrams that explain in depth my design intentions.

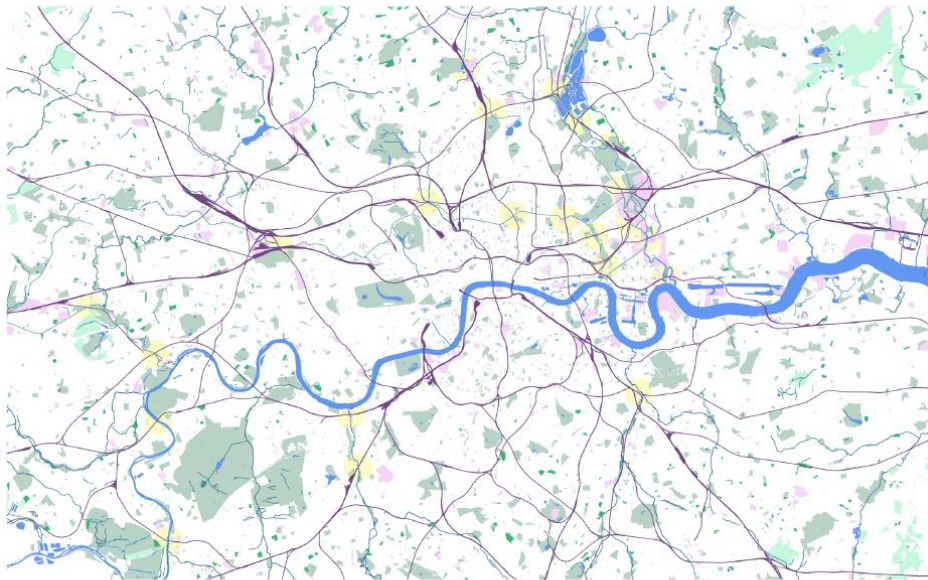
## Annex 01. Simplified diagrams of foodscape territory



## Annex 02. Intersecting flows



RAILWAYS + GREEN SPACES + WATER + BROWNFIELDS



## Annex 03. Growing sites catalogue

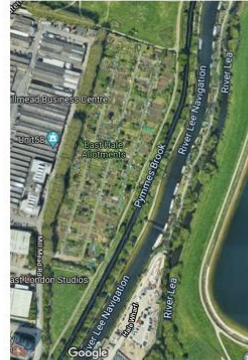
### GROWING SITES CURRENT STATE



**GREEN BELT  
FIELDS**



**CITY FARMS**



**ALLOTMENT GARDENS**

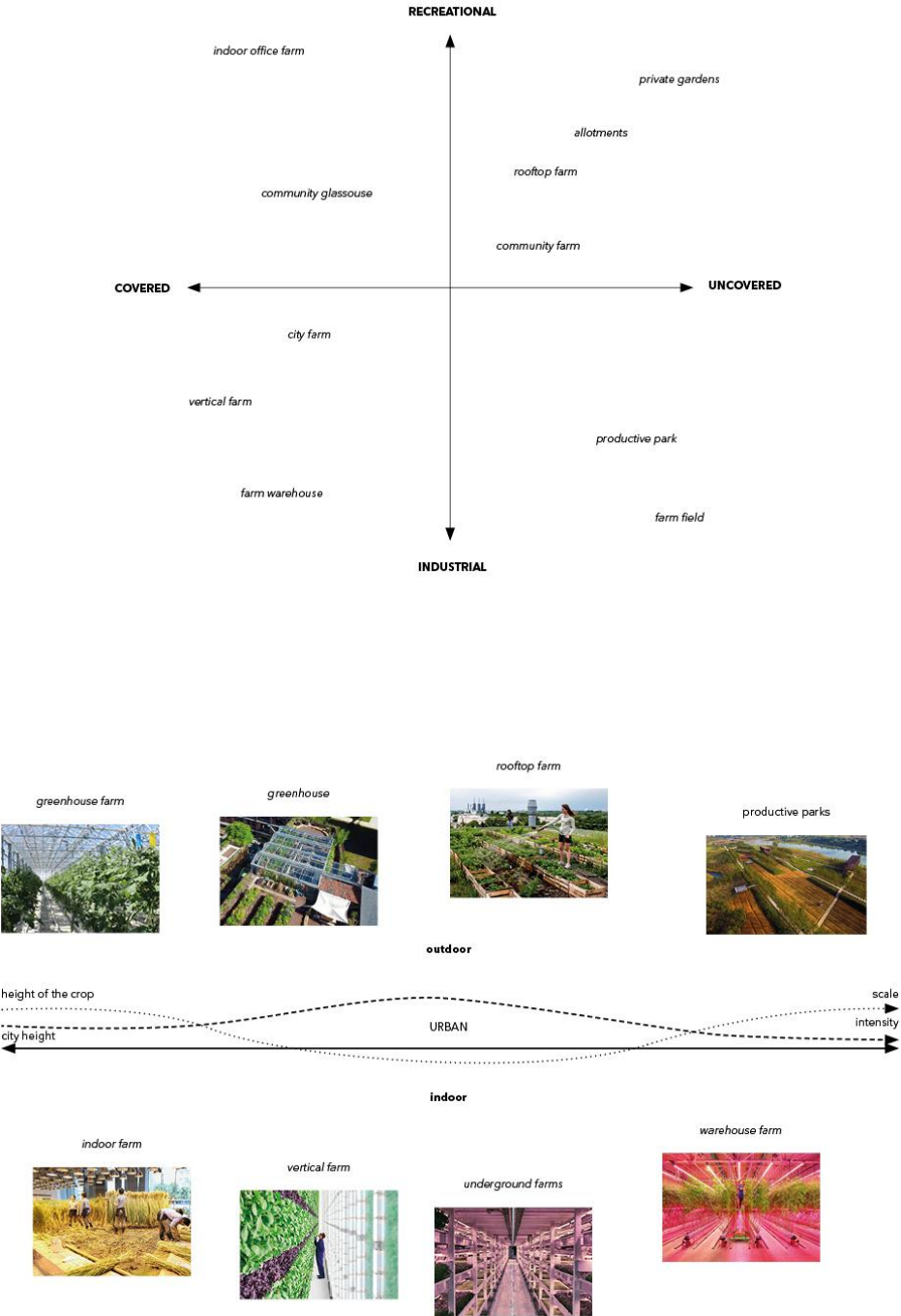


**VERTICAL FARMS**

### URBAN FARMS IN LONDON CATALOGUE

<p><b>Foodcube Urban Farm</b></p> <p>shed</p> <p>urban block context</p> <p>vegetables</p> <p>aroush</p>	<p><b>Vauxhall City Farm</b></p> <p>peri-educational complex</p> <p>next to the park</p> <p>next to the church</p> <p>vegetables</p> <p>aroush</p>	<p><b>Growing underground</b></p> <p>underground</p> <p>shopping street</p> <p>vegetables</p> <p>aroush</p>	<p><b>Aptofields City Farm</b></p> <p>shed</p> <p>next to the park and open field</p> <p>vegetables</p> <p>aroush</p> <p>grass area</p>	<p><b>Doughton Farm</b></p> <p>shed complex</p> <p>next to park</p> <p>next to the city</p> <p>vegetables</p> <p>aroush</p>	<p><b>Horizon Cible Insects Urban Farm</b></p> <p>shed</p> <p>incubator area</p> <p>aroush</p>
<p><b>Harlequin Town City Farm</b></p> <p>shed / farm complex</p> <p>next to town hall</p> <p>vegetables</p> <p>aroush</p> <p>farm shop</p>	<p><b>Queen Farm Waterloo</b></p> <p>shed</p> <p>next to town hall</p> <p>park and open fields</p> <p>vegetables</p> <p>aroush</p>	<p><b>Vertical Farming</b></p> <p>former residential building</p> <p>next to town hall</p> <p>vegetables</p>	<p><b>Wigmore City Farm</b></p> <p>shed complex</p> <p>next to park</p> <p>next to open fields</p> <p>vegetables</p> <p>aroush</p> <p>allotment fields</p> <p>public centre</p>	<p><b>Community Beekeeping</b></p> <p>on the roof</p> <p>incubator area</p> <p>shed</p>	<p><b>Sustainable Growers</b></p> <p>under train tracks</p> <p>next to the park</p> <p>next to town hall</p> <p>vegetables</p> <p>aroush</p> <p>distribution unit?</p>

Annex 04. Growing sites classification



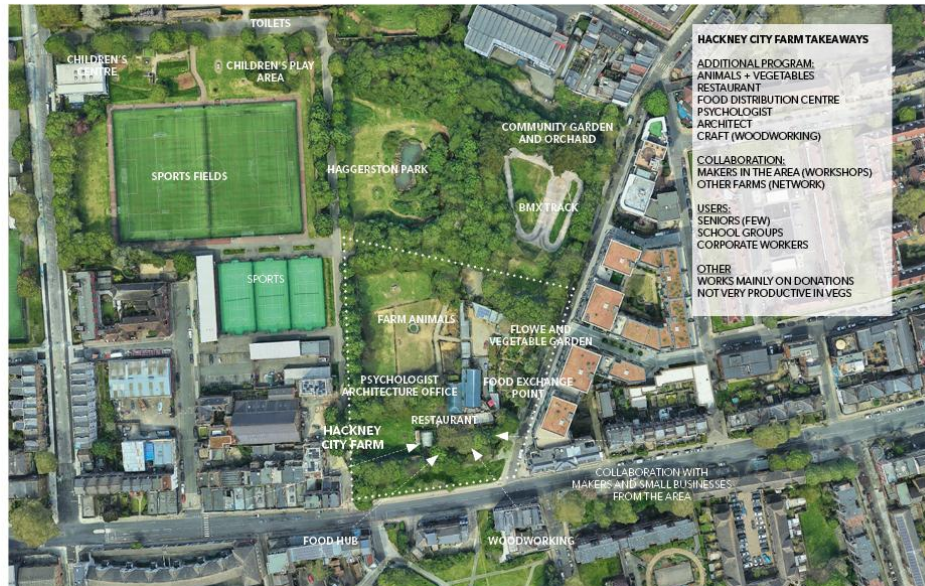


## Annex 05. Borough Market analysis





## Annex 06. Hackney City Farm analysis





*Annex 07. Vauxhall City farm, Community gardens and allotments*



*Annex 08. Vertical farms in London - Growing underground and Sprigs farm*



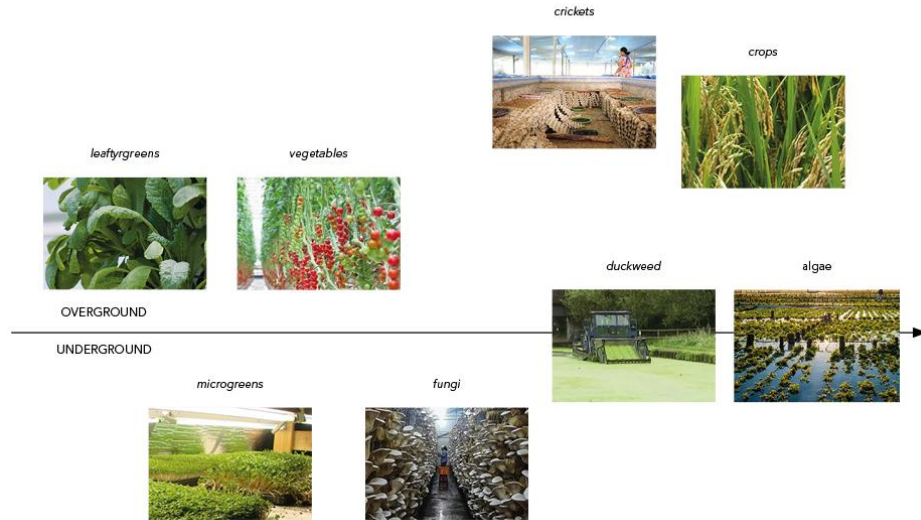
CASE STUDY  
**GROWING UNDERGROUND**



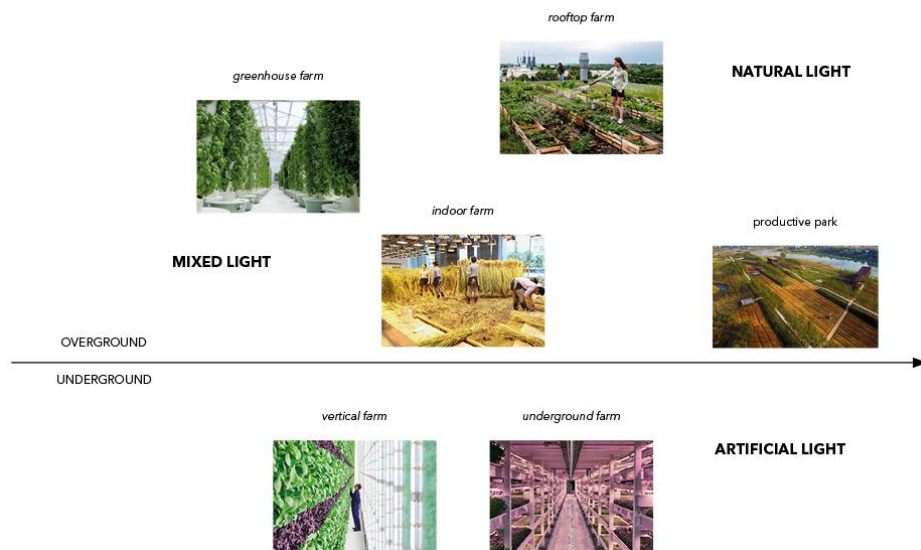
CASE STUDY  
**SPRIGS FARM**

## Annex 08. Growing conditions - vertical farms

### DIVERSITY OF PRODUCE TYPES GROWING - FOOD PRODUCTION



### DIVERSITY OF FARMING TYPES GROWING - FOOD PRODUCTION





*greenhouse farm*



*strings*



*stacked*



*mill*



*wall*



*column*



*shelves*



*pool*



*polder*



*pockets*



*bag*



*tile*



*box*

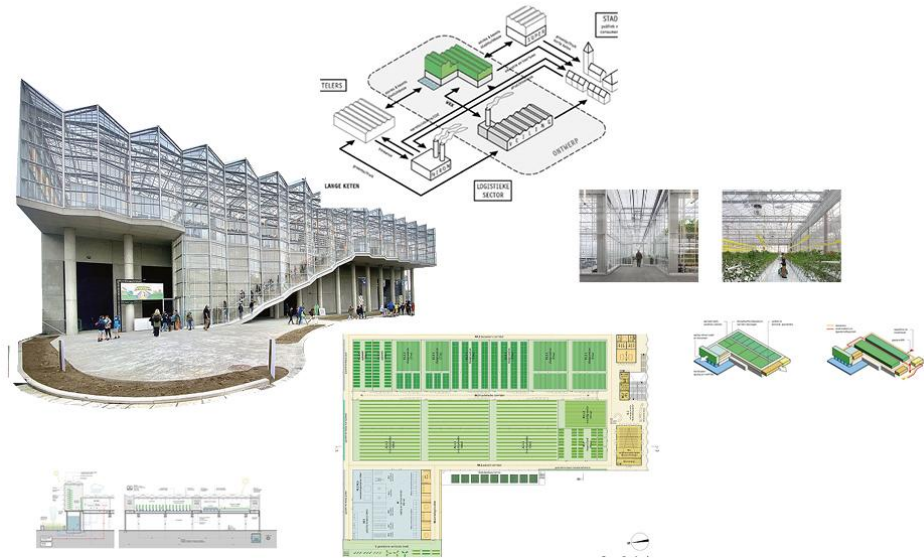


VERTICAL

MIX

HORIZONTAL

## Annex 09. Main case studies

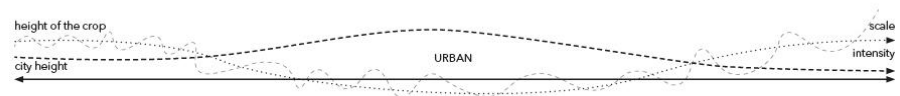
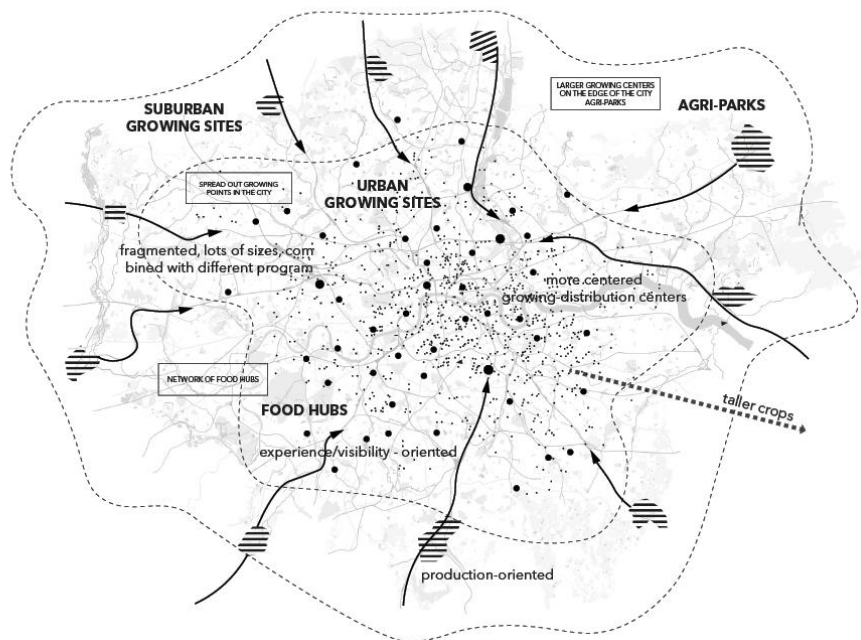


VAN BERGEN KOLPA  
AGROTOPIA

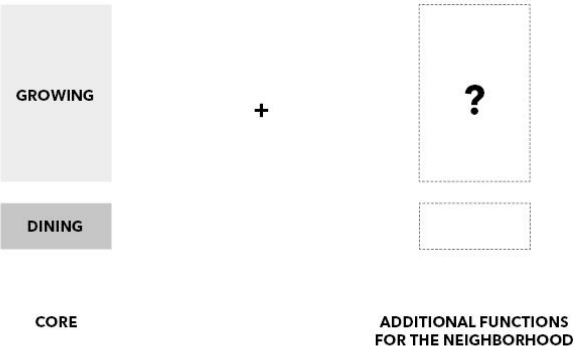


KONO DESIGNS  
PASONA URBAN FARM

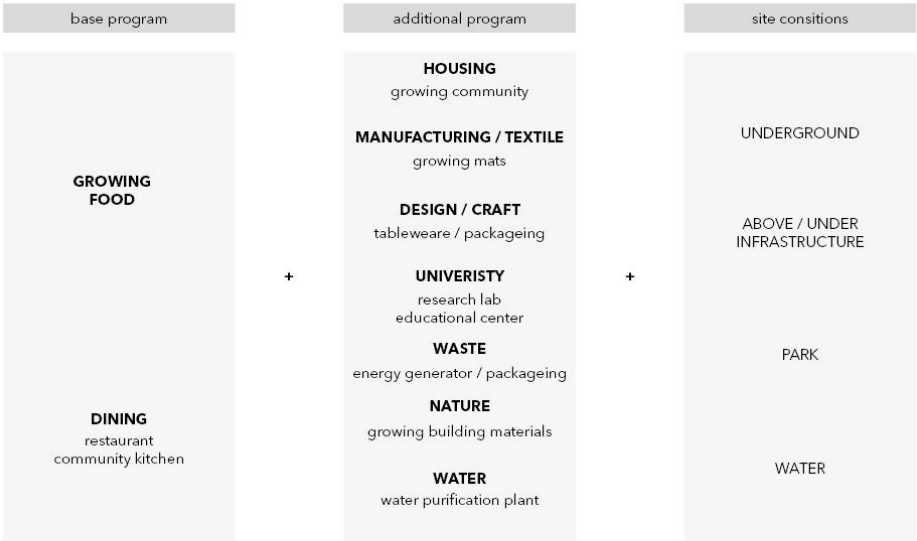
## Annex 10. Urban strategy



Annex 11. Food hub



INTERSECTIONS  
ADDITIONAL FUNCTIONS / CLOSING LOOPS





Annex 12. Functions within food supply chain

