THE FUTURE OF URBAN FARMING

Creating Value To Our Food System



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The Hong Kong Polytechnic University MDes in Design Strategies

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Abstract



Abstract

Globalization has brought a tremendous change to our food system. Urbanization affects consumers' diet and lifestyle. They often take processed food, resulting in diet-related diseases. While technology contributes to product standardization and genetic improvement, leading to an anomalous high yield and dominance of corporate food outlets. At the same time, intensive use of farmland and excessive implication of chemicals from industrial farming and green revolution have induced an irreversible impact to the environment. Embracing the transformation economy where people are more conscious on the wellbeing of society and environment, there is a need to create sociological and ecological value to our food system.

The slow food culture arising from Europe holds an opposite view from the fast food habit invading from globalization. Its notion on 'eat less eat better' encourages people to consume good, clean and fair food. Its vision of eco-gastronomy aligns with the sustainable development goals and is worth to integrate in future planning.

With a proven value to the environment, society and economy from literatures, urban farming is seen as a feasible solution to the crisis of food security and green growth. The lack of agricultural experts and talents, social cohesion and interrelationship of people and nature in current system should be improved. In the future, urban farming will create values to the ecosystem and society, promoting responsible consumption and framing out the blueprint of a sustainable city.

Keywords:

Urban farming, Slow food, Expert pool, Social cohesion, Social innovation, Interrelationship of people and nature, Responsible consumption, Sustainable city

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Last but not least, to my friends from MDes, in Hong Kong and in the world, thank you for all the support and patience for my craziness, liveliness and perfectionism in my life. I look forward to our next gathering in the sea, on the mountain or at a corner in the world.

This capstone represents my reverence to my grandfather. I hope this study can motivate the readers to rethink their relationship with food, reconnect themselves to the environment and reassess their role in the green growth.



Preface



Preface

The overturning of the global food supply during coronavirus due to national lockdown and export ban has made us aware on the gape of our food system. Urban farm becomes an instant choice of food supply. Does it really a long-term solution for local food supply?

Inherited by my grandfather, who is a typical farmer growing vegetables to earn a living, I have a sensitive sensation on food and a great interest in urban gardening. Three months ago, I took over my family farm and planned to transform it into an urban farm. It is a fusion farm naming Crazy Auntie Republic. The openland farm is filled with a mix of classic and modern elements. Inspired by the MDes study, I would like to extend its value beyond growing crops for food.

With the foregoing, this capstone aims to examine the future of urban farming and its value to our food system. The result can provide insights to the development of urban farm in Hong Kong and the growth direction of Crazy Auntie Republic.





Green In The Urban

1.1 The Paradigm Shift In Agriculture

1.1.1 Agricultural Development in the Changing Economy



Timeline Of Agricultural Development

Figure 1. Timeline of Agricultural Development (Own Visualization, 2020)

Figure 1 has summarized the agricultural development in the changing economy. The classical paradigm of agriculture is known as subsistence or peasant farming (Cretzberg, 2013). Farmers applied traditional farming practices which were labour and knowledge intensive to grow crops to 'feed their family' (Cretzberg, 2013). They usually transferred their knowledge of soil, landscape, natural interactions between flora and fauna, value of biodiversity and food preservation to the next generation. This period is classified as Agriculture 1.0.

The industrial revolution since the 18th century has nourished the growth of agriculture. The creation of stem from the first industrial revolution empowered mechanical production, standardizing product quality and enhancing productivity. The invention of electricity from the second industrial revolution in the 19th century promoted the practice of mass production, offering lower price products to the public by economic of scales. This had boosted the industrial economy where people focused on modernizing their life and industry valued on commodities (Liu, 2020a; Ouden, 2012). The industrial economy had turned subsistence farming into industrial farming, reaching the Agriculture 2.0. In order to 'feed

the world' (Cretzberg, 2013), large scale of farming was introduced to maintain high yield and productivity. The setup cost could be expensive where not every household farmer could afford.

In the third industrial revolution in the 20th century, the development of computing technology simulated automated production which provided a variety of options and customized service to cater the need of experimentation in the experience economy. With the power of intelligence in the fourth industrial revolution, people can now incorporate Internet of Things (IoT), cloud technology and big data to unleash their creativity to transform innovative ideas into practical solutions. They collaborate with others to exchange knowledge and skills for a greater result (Liu, 2020a; Ouden, 2012). The advanced technology has brought to the third stage of agriculture - digital agriculture or precision farming (Ajena, 2019). Farmers in the Agriculture 3.0 incorporate scientific knowledge and technological device to modernize and make agriculture 'climatesmart' (Ajena, 2019). For example, they apply new sensor and positioning technologies to monitor the production and collect a mass amount of data to facilitate decision-making on farms. The use of high-tech elements has optimized agricultural production process, yet may induce a higher cost for consumer to enjoy the luxury of organic experience.



Own Visualization, 2020

1.1.2 Agriculture 4.0 in the Embracing Transformation Economy



Figure 2. Mission in Agriculture 4.0 (Own Visualization)

The launch of precision farming aims to achieve sustainable development goals. The practice delivers economic value to the user and community (Liu, 2020b; Ouden, 2012). However, the market-orientated technologies have a lack of consideration in several sectors which creates criticism on its sustainability to our food system. First, precision farming does not consider the ecosystem as a whole. Its focus on optimizing the use of fertilizer and pesticides to satisfy the market demand (Ajena, 2019) is disturbing the balance of agroecosystem, and hence the biodiversity. As Boulding proposed in his Spaceship Earth theory (Evans, 2020), maintaining the existing resources is superior than maximizing production and consumption. The current solution does not plan with an eco-mindset (Gutierrez, 2020a) and is not ecologically sustainable in the long run. Besides, precision farming creates economic burden to the farmers (Ajena, 2019). The 'smart' system consists of a range of high-tech machinery to create controllable environment to resist climate change. The lump sum of setup and maintenance cost requires a huge capital which may become debts for farmers. Also, the ordinary farmers may not acquire the skills to analyze and utilize the data collected during the process, implying that they need to hire technician to work for their farm, or otherwise they need to leave the industry though they are the real growing experts in the agricultural industry. Furthermore, precision farming is not socially friendly (Ajena, 2019). It adopts the innovation from technology provider who invents the artificial setting where the technique may be patented and incurred another cost of usage charge. There is a lack of knowledge transfer during the process and an interaction between people and the natural environment.

Embracing the transforming economy, digitalization is inextricable to the global agricultural trend. To respond to the urge of ecological concern and to narrow the gap of prevision practice and sustainable farming, the Agriculture 4.0 shall equip with knowledge transfer and interaction, cost control and eco-mindset as shown in figure 2 to advance the value of farming into sociological and ecological levels (Liu, 2020b; Ouden, 2012) in our future food system – the Agriculture 4.0.

1.2 Green City Movement

1.2.1 The Green City Notion

The proposition of Green City Movement is to create a sustainable city by reducing waste, enhancing recycling, lowering emission, expanding open space and encouraging development of sustainable local business (Green City Times, 2020). A green city adopts strategy and policy to reduce carbon footprint and advance the ability to recover after disasters whilst to support economic growth and advance quality of life (Planning Department, 2016). Energy conservation, green building and infrastructure and sustainable public transport are some classic hallmarks of a green city (Green City Times, 2020).



Figure 3. Major Themes in Green City (Own Visualization, 2020)

Figure 3 has displayed the five major themes in a green city – wellbeing, climate, economy, biodiversity and social cohesion (Greencities, 2018). Trees and plants can provide a cooling effect to ease the temperature brought by heat wave. Parks and gardens filled with a variety of species can increase biodiversity, creating linkage in the ecosystems and a liveable city where people exercise and interact. Besides, green design on the infrastructure such as energy and water saving can deliver economic gain to the property owner. Green decorations create a harmonious environment to the public, which can strengthen the neighbourhood relationship, boost up productivity and contribute to a holistic wellbeing of the citizen.

1.2.2 Fostering Green Growth in the City

Current green initiative focuses on mitigating the effects of climate change on the environment. To address the interrelationship among people, environment and nature, green city projects shall manage all the three pillars of sustainable development, which include economic, social and environmental sustainability (The World Bank, 2012).



Figure 4. Vision of Green Economy (Own Visualization, 2020)

Green economyraised in the Rio+20 conference in 2012 takes consideration in all environmental, economic and social benefits. It advocates clean production and waste management to reduce environmental risks and ecological scarcities, and social inclusive to promote human well-being and social equity (Bockel et al., 2011; Loiseau et al., 2016). It adopts advanced theories of industrial ecology and circular economy to path for a sustainable future and to address financial and climate change crisis (UNEP, 2011). The concept of green economy as summarized in figure 4 is valuable to in the future planning of green city.

1.3 Green Revolution

1.3.1 Impact of Green Revolution

Initiated in 1960s, green revolution is the third agricultural revolution in the history (Gutierrez, 2020a). It aimed to employ technology to increase production to cope with food-population balance, especially in the developing world (Khush, 2001). It introduced advanced fertilizers and pesticides to provide extra nutrients and fight against pests and disease. It also promoted high yielding variety crops bred specifically to respond to fertilizers for a greater yield, and multiple cropping practice to fully utilized the field throughout the year.

The green revolution approach has made a tremendous impact to our food system. In one hand, it has delivered an impressive yield from the existing farmlands. This can meet the vigorous demand of the expanding urban population without a large scale of land conversion for agricultural cultivation (Pingali, 2012). On the other hand, the intensive use of advanced technology makes us suffering from a severe pay-off on the socio-economic conditions and environmental sustainability (Khush, 2001). Ecologically, the extensive use of advanced chemicals and the growing of high yielding variety crops have led to soil degradation, heavy irrigation, excessive use of chemicals, creation of pesticide-resistant pests and limited species of outputs (Briney, 2020; Sebby, 2010). The vicious cycle has brought an overwhelming pollution and a diminishing biodiversity to our ecosystem. At the same time, the specification on the high yielding variety crops has created economic pressure to farmers. They are loaded with the increasing energy expenditure and the expensive seeds and fertilizer. Within a limited species of outputs, producers can only compete on the price. Family farmers are hard to compete with the big corporation to survive in the game with an insufficient government subsidy. More importantly, the substantial use of technology has made the yield inaccessible to the impoverished group, which has spoiled the original goal of the revolution - to combat hunger and poverty. With an inadequate support from the government, technology is often bypassed the poor (Pingali, 2012). A short of infrastructure, governmental corruption and national insecurity often become barriers to introduce technology into the countries to launch the programme (Briney, 2020).

1.3.2 Insights from Green Revolution

Food insecurity remains the top of food crisis (FSIN, 2020). The effort of genetic improvement from green revolution cannot make the world to escape from malnutrition and hunger.

In the developing areas, food is not enough to feed the locals. The green revolution model has promoted a monoculture where crops are grown from a chemical intensive agriculture (Shiva, 2020). Farmers have to sell most or even all crops to pay the high-cost chemicals, and the crops from monoculture are nutritionally impoverished. More importantly, the economic and political system, especially in the developing countries, is robbing people's right to food (Shiva, 2020). Food is used as a weapon in trade and becomes a commodity in the fight. The political disturbance has resulted in an uneven distribution of resources and food around the world.

While in the developed side, food waste is commonly found, with a staggering figure of 1.3 billion tonnes of global food waste every year. (FAO, 2013). Tonnes of ugly, wonky and imperfect food are screened out throughout the supply chain. Those with blemishes or bruising are abandoned in the market, while cooks may not be well trained to fully utilized every parts of ingredients into their menu. The appearance of food becomes a subconscious judgement under a beauty obsessed atmosphere (Knott, 2020). In addition, obesity and other diet-related diseases are intervening citizen's healthiness in the developed countries. Overproduction in agriculture, additional ingredient for market value and marketing of food have highly influenced dietary intake of the public in the last decades (Chopra et al., 2002).

Technology is definitely beneficial to the labour intensive work of farming. However, the current system lacks a mutual balance on the pillars of economic, social and environmental sustainability. The engineered and patented seeds have manifested food totalitarianism in green revolution. Technology, specifically biotechnology, has invaded into our food system and imposed dramatic change to our living. As Shiva raised, 'They want to patent life, and life is not an invention' (Specter, 2014). It is time to review the current practice and design a new approach for our food system.



Specter, 2014

They want to patent life, and life is not an invention ??

by Vandana Shiva



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People's Relationship With Food

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2.1 Effects Of Globalization



Figure 5. Change in Food System (Kennedy, 2004)

With a barrier reduction on cross-border movement, globalization has increased the flow of commodities, technology, information and modes of distribution, and the migration of people and labour (Kennedy, 2004). This has induced a gigantic change to our food system as illustrated in figure 5.

From the consumer's perspective, urbanization is the primary cause driving to dietary and lifestyle change (Kennedy, 2004). With a higher living cost in the urban area, many family members have to join the workforce to increase household income. Convenience food and processed food become the great cooking partners in the busy lifestyle. A prolonged intake of fat, sugars and sweeteners converts into a disease burden. Besides, the power of marketing has influenced the attitude on food selection and preparation. Brand food, fancy setting and stylish icon usually come before nutritional value, safety and tradition of the food itself. Consequently, food becomes a commodity in the everyday life, missing an experience of taste.

Looking into the supplier side, technology is a prime factor of the food supply change. Technology has accelerated industrialization which pushes agriculture process into different mechanisms (Kennedy, 2004). Profit prevails over culture and quantity becomes momentous (Waters et al., 2013). Growing on high yield products, standardizing production and distribution and selling at large food outlets become the convention of supply chain. It also stimulates the time-space compression, which allows food to circulate at a much faster speed over a longer distance (Pietrykowski, 2004). At the same time, technology promotes genetic improvement for a higher yield and a year-round availability. This eliminates the seasonal production and disconnects consumers from the local conditions of agricultural production (Pietrykowski, 2004). The increase in physical and social distance between the producer and consumer has threatened the cultural links between consumers and their food (Pietrykowski, 2004). As a result, food becomes a commercial product, losing its original pleasure and conviviality.

2.2 Slow Food Movement

2.2.1 Slow Food Development

Traced back to 1986, a group of Italians had raised their unanimous concern for the swift decay of traditional food culture. A protest led by Petrini fight against global standardization of food was initiated when the first McDonald's was opened in Rome. They advocated for life and attitude that is opposite to the 'fast life' unknowingly fostered from industrialization, dedicating to recover the precious element of compassion, beauty, community, and sensuality of food system (Waters, 2020).

In 1996, the first Salone del Gusto (Convention of Taste) was held in Turin, Italy to promote artisanal sustainable food and its small-scale producers. Later on, the festival was extended into cheese and fish in Bra and Genoa, Italy respectively. In 2000, the Slow Food profile was expanded to the USA. Since then, Slow Food has rapidly grown from a small gastronomic association, encouraging a full experience of life by slowing down, into a widespread campaign for sustainable food around the globe. Nowadays, the slow food community has been enlarged into different local sections to raise the awareness of biodiversity and eco-gastronomic concern, promote local food culture and advance the inimitable pleasure of life. (Waters, 2020)

2.2.2 Slow Food Philosophy

As Petrini claimed, "we need to be eating better-quality food, but less of it" (Hesser, 2003). The Slow Food Movement espouses the universal right to eat good, clean and fair food, which defends for good food of high quality and delicacy, with a natural and environmentally conscious, and under a fair treatment for both the producers and consumers (Waters, 2020). It emphasizes the natural and intrinsic relationship between producers and consumers (Waters, 2020), represents a more satisfying way of eating (Harkness, 2018) and a way of life (Pollan, 2003). It requires consumer to responsibly engage with food in terms of an involvement of sensation, culture and relation (Sassatelli & Davolio, 2010). There are three initiatives of slow food:



Harkness, 2018

Education of Taste

Sensory primacy is the core value of slow food. Taste education provides audience a foundation on gastronomy. Through experiencing taste, individual can manifest social and culture traits in their habits, norms and ritual (Pietrykowski, 2004). Repeating tasting experience, frequenting food producers and understanding the agriculture and ecology can advance the percipiency on determining food quality and conduce People's appreciation on food (Pietrykowski, 2004; Sassatelli & Davolio, 2010).

Pleasure and conviviality

Slow food advocates a gastronomic pleasure with a notion of 'eat less, eat better', and highlights the connection of the refinement of taste to local tradition and regional environment. The eco-gastronomy practice promotes aesthetic pleasure and conviviality through deployment of cultural capital (Sassatelli & Davolio, 2010) and its transformation into social capital (Pietrykowski, 2004). If people can take time to cook healthy meal and slow down to truly enjoy eating individually, or socially with the community, they can develop a more deliberate and mindful life (Harkness, 2018).

Ark of Taste

Slow food aims to champion the varietals of food to save them from extinction (Pietrykowski, 2004; Waters, 2020). It collaborates with food producers to promote their produce to persuade consumers to value higher food quality and put an end to the demagogy of low priced and standardized products. It also encourages people to eat fresh and local to provide fair chance to flourish regional production and growth (Harkness, 2018; Sassatelli & Davolio, 2010).

WE NEED TO BE EATING BETTER-QUALITY FOOD, BUT LESS OF IT. by Carlo Petrini

2.3 Future Of Slow Food

2.3.1 Debates on the Movement

With an increasing power of globalization and the tune of modern living, fast food is dominant in the urban eating habit (Peter et al., 2003). People in the urban area have mostly joined the workforce and reserved less time for meal preparation. Fast food becomes a convenience option for them to settle their meal under the fast peace of living and working life. Moreover, globalization has accelerated the growth of national and global agricultural and industrial corporations (Peter et al., 2003). With a widespread of network and a variety of choices, large corporate food and retail chains provide a handy option to consumers. The position of fast food has become irresistible in our daily life. Holding an opposite view of fast food, slow food is challenged by criticisms outlined in figure 6 form the public. Some may judge that slow food confronts to the tune of modern living and is impossible to reverse the prevailing eating habits and customs (Harkness, 2018; Peter et al., 2003). Others may question on the power of slow food to challenge the globalization dynamics and the rooted value of fast food induced from advertising (Peter et al., 2003).



Figure 6. Challenge of Slow Food (Own Visualization, 2020)

In light of the invasiveness of 'fast food' culture to our food system, slow food encourages people to slow down and review their food consumption and its impact to the ecology and the society. Instead of replacing or working against fast food, it insists on the integration of localism and universalism (Sassatelli & Davolio, 2010). The practice embraces the capitalist economy to pursue an alternative vision of pleasure and satisfaction – to build a new relationship with food and to reinstate the prosperous of local community with a rich and distinctive content (Sassatelli & Davolio, 2010).

2.3.2 Moving Forward

To address the uncertainty on food system and the stressing concern on environment, the vision of slow food has been shifted from classical gastronomy to eco-gastronomy. Eco-gastronomy advocates eco-sustainable act to advance the pleasantness and ethical quality (Sassatelli & Davolio, 2010). It protects culture and environment beyond the food, focusing on biodiversity, sustainable agriculture and responsible consumption (Sassatelli & Davolio, 2010). If food is produced sustainably, distributed fairly and consumed responsibly, the food system can feed more people without further destroying our ecology and ease the tension of famine, malnutrition and diet-related disease (Sassatelli & Davolio, 2010).

In light of the emerging trend of eco-gastronomy, changing public perceptions on food consumption becomes the developmental direction on slow food (Knott, 2020). Consumer has an enormous power to modify market demand and improve fairness along the supply chain (Sassatelli & Davolio, 2010). To develop the change ability, taste education is critical to promote the slow food culture to the next generation (Waters, 2020). It helps consumers to build up cognitive knowledge from taste, pleasure and conviviality to environmental protection and diversity. With these foundation, consumers can treasure more on their cultural traditions, health, community, food safety and food security (Waters, 2020). As a result, slow food can build a new people's relationship with food with an innate connection to the environment (Waters, 2020).



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Current Approach In Urban Farming

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3.1 Agrarian Urbanism



Holmes, 2020

Urban agriculture, or urban farming, utilizes local human and material resources to produce, process and distribute food to consumers within the city (Specht et al., 2014). Not only producing food to the city dweller, urban farming also brings new vitality to the community (Dimitri et al., 2016).

Urban farming offers fresh, healthy and affordable food to the city. In the past, it was usually found in developing countries to cope with limited food access. Nowadays, it is common around the globe to ease the tension of food security. Beyond the mechanics of food production, researches evaluate the environmental, social and economic value of urban farming. By greening the city with plants and trees, urban farming can improve the state climate (Specht et al., 2014), reduce energy footprint (Lopez et al., 2019) and encourage productive use of urban waste (Lopez et
al., 2019; Specht et al., 2014). From the social aspect, it can promote food security, expand dietary diversity, enhance recreation and social reform and stimulate social innovation (Dimitri et al., 2016; Holmes, 2020; Specht et al., 2014; Zezza & Tasciotti, 2010) From the economic perspective, it can create job opportunities with a mutual nature which also promotes gender and social equity to the public (Dimitri et al., 2016). With an influential role in generating environmental, social and economic capital, urban farming is considered as an emerging trend to create a sustainable city.

3.2 Global Review



3.2.1 Social Reform in Detroit, United States

Davison, 2018

Urban farming in Detroit is all about community. With a scarcity of fresh food retail in Detroit, people were unaware on the nutrition intake and hence resulting in premature illness and diet-related diseases. In view of the food crisis in Detroit, the community utilized open lands to grow fresh and nutritional produce to the public, transforming the notorious, unsafe and underinvested streets into a welcoming and resilient city. It also gathered the neighbours to operate small farming and created a beautiful farmway. In additional, it set up a non-profit organization, which provides incubation, hand-on education, workshop, technical assistance and access to industry experts, to help small farmers and food entrepreneurs to start a healthy food business. It also established a business cooperative which consisted of around 70 farmers to grow and sell together. The small businesses not only generated a huge overall revenue but also a number of employment opportunities to the community. (Davison, 2018)



Davison, 2018

Considering the significance of dining in increasing healthy food access, Detroit had included dining in their urban farming project. It conducted farm tour and farm-to-fork meal to introduce consumers where and how their food comes from and hence to change their relationship with food. It also turned an abandon building into a community kitchen, allowing people to buy and sell fresh food and share their pleasures during dining.

Urban farming in Detroit has expanded opportunities for everyone to participant and strengthened the social fabric of community to grow and reform. The model offers an aesthetic pleasure to the city with a deployment of cultural capital which transforms into social capital. The power of social inclusive enhances human wellbeing and social equity. This is a distinguishing case of urban farming which manifests social and economic value from the literatures.

3.2.2 Innovative Dairy Farm in Rotterdam, Netherland

Urban farming has stimulated social innovation to strive for a change to create a better world. When you are struggling on the scarcity of land for farming, the floating dairy farm in Rotterdam, Netherland has illustrated a model of landless farming as a solution. Consulted agricultural experts from a local university, the farm is designed with an expanded space for cows. It consumes energy from the nature, such as adopting solar panels and windmills to generate solar and wind energy, and using water in the river as a cooling agent. It also demonstrates a circular design system which collects biowaste from the city, processes the manure into fertilizer and gives back to the city. (Oshea, 2019)

The innovative design has surprised the world. The farm owners admit that advice from professionals is a gift to start. But the typical guideline and conventional wisdom have made the process challenging. Without any subsidies, a viable business proposal is crucial for social entrepreneurship.

The floating model is an exceptional example of social innovation. It visualizes the Boulding concept of utilizing existing resources and manifests the interrelationship between people and nature. It inspires the world to rethink the possibility of urban farming.



Oshea, 2019

3.3 Case Study On Urban Farms In Hong Kong

3.3.1 Methodology

This study explored three urban farms in Hong Kong to gain a better understanding on local operation. As indicated in figure 7, the case study is carried out to examine resources allocation and challenge suppressed in this region. The farms were selected based on their operation model and mission. A semi-structured interview was conducted with the cofounder of Common Farms via Zoom and the urban farmer of GPCA Farm in person. A review on the available video interview was suggested by the founder of Wildroots Organic. The data is presented in the coming sections followed by a learning summary.

Case Study Objective



Figure 7. Case Study Objective (Own Visualization, 2020)



Jessica Fong

Co-Founder & General Manager, Common Farms

IT IS A BLIND CANVAS

3.3.2 Common Farms

Jessica Fong, co-founder and General Manager of Common Farms, entered urban farming industry after her sourcing trip in Italy. When she was working in the food service business, she noticed that the import price of fresh produce was very costly and fluctuated. In order to offer a better cost control, she started to look into production field. It was not easy to start without a solid agriculture background. 'Hong Kong does not have the agricultural environment for new joiners to look for resources. There is no infrastructure, no community, not much government support and no education and experts in this area.' Jessica stated. She finally established Common Farms in 2017 with her partner aiming to revitalize local food industry in Hong Kong by offering high quality specialty produce such as microgreens, herbs and edible flowers to consumers and restaurants (Common Farms, 2020).

Common Farms is an indoor farm in an industrial building in Aberdeen. The farm adopts Z-Farming approach, which refers to all types of farming in and on the urban buildings including those non-use farmland or open space (Dimitri et al., 2016; Lopez et al., 2019), to produce fresh produce in a control environment. It utilizes techniques of aquaponics, LED lightings and vertical farming. Technology is helpful in planning, calculation, distribution and repetitive process in Common Farms. Understanding its potential consequence, the farm does not employ genetically modified technology in their cropping. 'Technology can help us controlling the evinronment. If you put too much control on it, there is a level of resistance as well.' Jessica claimed. She tries to maintain a balance on the role of technology and human work by analysizing the cost effectiveness between technological improvement and potential consequences.

Running an urban farm in Hong Kong is challenging. Hong Kong is a blind canvas with an inadequacy in basic agricultural setting, community and government support and experts in the field. Farm operators need to bear the set-up cost, maintenance cost and land cost. Very often farms operate individually and sometimes may even survive in a competition mode. The lack of public interest in urban farming, especially the young generation who carries an innovative mindset and a high adaptation in technology, makes its development even harder in Hong Kong.



Image provided by Jessica Fong



Chris Li

Urban Organic Farmer, Green Peng Chau Association

3.3.3 Green Peng Chau Association Farm

Chris Li is a local resident at Peng Chau. He worked as an urban farmer at Green Peng Chau Association (GPCA), which is a non-profit organization founded to promote the nature and Peng Chau. The GPCA farm is a community garden growing fresh produce to members of the association. It executes organic farming approach to minimize environmental impact from farming. It adopts a regenerative system from Oiwa Peng Chau Women Centre to process local waste into natural fertilizer and apply back to the farm. At the same time, it utilizes technology to collect soil data for analysis to advance the production. 'Traditional farmers always plant by estimation. They do not know the outcome until the yield is there. But with technology, we can simulate the outcome and find a desirable solution to improve our farming.' Chris said. Technology is also beneficial to labour intensive work to increase operation efficiency.

Chris believes that urban farming can manifest food sustainability that industrial agriculture undermines. Industrial agriculture focuses on food production and satisfy the physiological needs, while urban farming delivers a higher level of values, which offers jobs to the society and builds connection within the community, delivering economic stability and social belonging. More importantly, urban farming demonstrates the complicated process of food production, teaching the public, especially the new generation, to appreciate food more. This can motivate them to reduce food waste during food preparation and consumption.

Though having a great passion on farm, Chris still feels stressful on its development. The farming income is not generous enough to support the living standard or even the materialistic life, resulting in manpower shortage to participant in the physically challenged work in Hong Kong. The simple diet at the farm may not be attractive comparing to the wide variety of food choices in the Food Paradise. For those who goes for simple diet, the relative high price of organic products may not be as competitive as the low-priced products from the industrial agriculture.

GPCA Farm Practice



Figure 8. GPCA Farm Practice (Own Visualization, 2020)

"PLEASE SUPPORT THE LOCAL **UBRAN FARM**"

By Chris Li



Fai Hui

Founder, Wildroots Organic

It is crucial to understand WHEN TO GROW AND WHAT TO GROW. ??

3.3.4 Wildroots Organic

In view of the global challenge of climate change, food security from China goods in terms of smuggled and poisonous vegetables, and the nutrition run off of the imported food, Fai Hui, founder of Wildroots Organic, relinquished his profession and started urban farming. He obtained a horticulture qualification and gained solid experience in a Taiwan farm. Before the launch of Wildroots Organic, Fai also learnt from local farmers on the interaction with environment in Hong Kong. 'It is crucial to understand when to grow and what to grow. A right timing is critical in organic farming.' (Kingyu, 2017a, 1:18)

Wildroots Organic aims to connect people with nature by creating unique experience to organic farming (Wildroots Organic, 2020). The farm adopts an organic approach where no synthetic fertilizers are consumed to keep the soil healthy. Without the pest control capability, Fai needs to be aware of the climate and weather. Apart from growing a wide variety of crops to prevent the spread of pest infestation, he also needs to set up infrastructure to adapt weather change. Making seedlings and baby plants for next round of planting are some regular planning in an organic farm.

On top of managing the organic farm, Wildroots Organic also offers workshop and setup service to rooftop farms. Fai stressed (Kingyu, 2017b, 2:12), 'Farming is the best way to build the sense of community. It involves knowledge exchange, mutual learning and regular challenge by the environment'. By teaching the next generation on the way to grow vegetables, Fai aims to change their attitude and practice and encourage them to appreciate more on food.

Bank of America Tower



Image provided by Fai Hui

The Hong Kong Polytechnic University



Image provided by Fai Hui

3.4 Learning And Future Trend

The case study has revealed some shortcomings of urban farming in Hong Kong. To advance urban farming into an artistic work in agriculture, we have to consider the four elements outlined in figure 9.



Figure 9. Elements for Future Urban Farming (Own Visualization, 2020)

Competency is momentous to start. Modern agriculture is a knowledgebased industry requiring lots of knowledge and skills in agroecology, biotechnology, horticulture, and etc. The agricultural background in Western supports a large expert pool to the food and social entrepreneurs. The shortfall in Hong Kong indicates a defect as well as a need to invest in the agricultural education.

Collectivism is an essential seasoning. It is a decisive culture to open discussion, facilitate collaboration and form community in the society. The success of urban farming in Detroit is all about community. Its farming mechanism invites everyone in the city to participant to make a change in food system (Dimitri et al., 2016). People work together towards the same goal to grow, to sell and to promote. The bottom-up approach initiates a social change on food consumption in the society. (Dimitri et al., 2016). On the contrary, the operation in Hong Kong is quite individual. Producers work on their own to attain different goals. The

cohesion is too weak to make a notable change to the massive damage in the environment and society. Without a community, resources cannot be pooled together, where producers in Hong Kong is hard to build up connections to seek for collaboration or knowledge exchange opportunity.

Social innovation comes next. Reviewing the case of floating dairy farm in Rotterdam, it illustrates a disruptive innovation which redefines the concept of farming. To create a disruptive change for a better future, it is essential to think beyond the conventional wisdom. An innovative and social-minded proposal can fight for a positive environmental, social and economic return. In Hong Kong, social entrepreneurs tend to employ technology to enhance operation efficiency. Apart from production and operation, there are some surrounding issues that hinder urban farming development. Looking for a way to tackle these issues may be a path to a remarkable change.

Dining experience presents a pathway to healthy food access. As indicated in the case of Detroit, restaurant facilitates the buy-and-sell of fresh food by delivering delicious dish. A farm-to-fork experience can narrow the gap between producers and consumers in the supply chain. These can provide a pleasurable experience to consumers and stimulate them to rethink their relationship with food. In Hong Kong, restaurants are mostly operated in a profit-based model. The impact of modern and fancy lifestyle motivates the selling of delectable food, luscious wine, glamorous view and stylish decoration. Some restaurants may select locally grown vegetables in their menu, but rare will highlight the connection between people and food nor the implicit food value. The absent of culture and nature relation in the food business in Hong Kong makes dining far away from responsible consumption.



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Transformation Of Urban Farming In Hong Kong

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4.1 Crisis On Local Food System

With no doubt, Hong Kong is struggling with the scarcity of land in urban planning. With an insufficient local production, Hong Kong has a high dependence on import food, especially those from China. With a shorter travel distance and lower labour cost, China food can be sold at a cheaper price to the general public. Yet, the hidden scene of cheaper price may indicate an unethical pay, a chemical-rich production and even a poisonous produce. The food safety in China is still questionable. The uneven land distribution is unavoidable and obviously agricultural use will not be a priority on the future agenda. Food safety remains a crack on our food system.

At the same time, there is a go green culture in the city and people become active in exercising and healthy eating. The trend has flourished the establishment of fitness clubs, healthy businesses and organic products. Some entrepreneurs even engage in urban farming to unlock the food supply chain in Hong Kong. Yet, the green city development is still at a standstill due to a lack of education system, community, supportive culture and connection with nature.

With the potential to generate environmental, social and economic capital, urban farming is seen a possible solution to heal the wound of our food system and facilitate the sustainable development.

4.2 Startegic Design Models

4.2.1 Circular Economy

According to the idea of resource scarcity from Spaceship Earth theory and the recycling loop concept from circular economy theory (Evans, 2020), circular economy is a regenerative system to extract the maximum utility and value of resource input with minimum waste, emission and energy leakage by slowing, closing, and narrowing material and energy loops (Geissdoerfer et al. 2017; Zink & Geyer, 2017). The system is designed to extend the product lifestyle (slow), to recycle resources to create a circular flow of energy (close) and to consume fewer resources for the same outcome (narrow), aiming for waste prevention, local job creation, efficiency enhancement and dematerialization of economies (Geissdoerfer et al. 2017). It manages the circular flow of materials to increase utilization phrases, lower toxicity of flows in human linear system and avoid resources leakage from the system, which in turn minimize resources consumption and preserve the scarce resources in our planet (Geissdoerfer et al., 2018; Loiseau et al. 2016; Zink & Geyer, 2017).

CIRCULAR ECONOMY IS A **REGENERATIVE SYSTEM**

In order to prevent pollution rather than treat pollution with end-of-pipe techniques, circular economy often co-exists with clean production and waste hierarchy, which helps to improve resource efficiency, reduce raw materials consumption and close the loops of material flow approach (Loiseau et al. 2016). Designers shall consider the way to generate a cleaner production and reduce waste production during the planning stage, and reuse, recycle and repair materials throughout the process. Materials may be recovered and converted into other products before being disposed by up-cycling and down-cycling to slow down the loop. (Loiseau et al. 2016)

At the same time, the interrelation and interdependence of humanity, nature and technology stated in the Hanover Principles (Evans, 2020) is unneglectable. Green revolution has revealed the massive damage technology has brought to our ecology. Whereas urban farm operators Jessica and Chris illustrate the benefit of technology in enhancing the efficiency. In regards to the inexorable march of technology, a balance

between humanity, nature and technology is decisive to maintain the wellbeing of the whole system.

Combining the foregoing theories, a new circular economy model presented in figure 10 is created.



Figure 10. Circular Metabolism with visual reference form Stahel (2016)

4.2.2 Eco-gastronomy

Eco-gastronomy combines the environmental concern with pleasure of preparation and consumption of food (Sassatelli & Davolio, 2010). It extends the interest beyond food and emphasizes ethical act to the whole food system (Sassatelli & Davolio, 2010; Waters et al., 2013).

As shown in figure 11, the future of eco-gastronomy lashes with egoism and connects people with culture and nature. It advocates responsible consumption by broadening sensation and connection. It promotes community development for knowledge exchange to generate new identities, new progress and sustainable innovation and manifests the local specialty of traditional culture. The incorporation of traditional knowledge into holistic network of knowledge brings about culture change. Moreover, it reinforces the foundation value of gastronomy – humanity, to redefine the meaning of trade (Waters et al., 2013). The profit-leading distribution system does not respect the dignity of producers (farmers) and co-producers (consumers). By defining an economic value to human effort and belief, the fairness of food system can be improved (Waters et al., 2013). Having an increasing interest in linking lifestyle into the green growth agenda with a need to incorporate technological and cultural factors by innovations (Bina, 2013), eco-gastronomy is indispensable in creating social values to the food system via urban farming development.

EGOISM AND ECOISM



Figure 11. Egoism and Ecoism (Own Visualization, 2020)

4.2.3 Sharing Economy

As shown in figure 12, sharing economy facilitates exchange on capital assets, such as money, property and cars, through different interaction modalities (P2P, B2C, B2B) that broadly enable collaborative consumption (Gutierrez, 2020b; Selloni, 2017). The approach of collaborative consumption enables access over ownership by sharing, swapping, trading or renting products and services through redistribution market, collaborative lifestyle and product service system. This can increase utilization phrases of products and reduce consumption of the scare resources. This approach has reinvented what people consume and how they consume. The collaborative concept also stimulates the development of distributed networks of connected individuals and communities. This can facilitate ideas generation and social innovation. The practice has transformed the way we produce, consume, finance and learn. (Selloni, 2017)

The sharing economy model boots a collective utilization instead of individual ownership of goods (Geissdoerfer et al. 2017). The notion of exchange, redistribution and social reciprocity promotes active citizenship, social innovation, new forms of welfare (Selloni, 2017). The way of addressing environmental concern and global recession contributes to a sustainable way of living.

Sharing Economy Practice



Figure 12. Sharing Economy Practice (Own Visualization, 2020)

4.3 Future Of Urban Farming

4.3.1 The Future Scene

The future of urban farming in Hong Kong is not about opening up the land for farming and developing a Detroit 2.0. It is related to the strengthening of soft elements in food system in four sectors, including education, community, food relationship and social innovation. It serves as an agent to evolve a change ability in the society.

Education

There is a thirst of professionals, farmers, food and beverage designers and technicians for the urban farming industry. A structuralized education system will be launched to nurture talents to meet the demand in transformation economy. The system is supported by two main streams of professional and vocational training.



Mossholder, 2019

In the professional stream, agriculture and food related courses will be added into university curriculum. The launch of the first degree programme in Bioresource and Agricultural Science by Hong Kong Baptist University in 2019 (HKBU, 2018) shall capture the academic attention in the investment of agricultural education. Related programmes will also be established in the future to cater the needs in the society. Courses such as agroecology, horticulture, eco-design and food management will also be spread over different degrees like Science, Engineering and Architecture to broaden students' vision and interest to join the urban farming industry.

In the vocational stream, taste education in terms of eco-gastronomy is delivered covering food preparation, food appreciation and waste management. Trainings are governed by a gastronomic license system to standardize qualification assessment where overseas recognition like WSET, City & Guilds Barista and Le Cordon Bleu can be converted into local gastronomic qualification. This can assure the standard of good and clean production especially in the consumption aspect.

On top of the ordinary training, public education on responsible consumption will also be launched. Apart from the 'Waste No Food' scheme to reduce food waste (Planning Department, 2016), it is also important to change the public perception on good, clean and fair food and promote local food culture. Regular farmers' market, local food festival and slow food restaurant spots are some examples of public education scheme.

Education can build a frame of quality control along the supply chain to enhance resource efficiency and maintain a good, clean and fair production. More people are entering the field and the expert pool will be enlarged, catalyzing the formation of a community.

Community

A community will be created in form of an association. The association promotes not only the locally fresh produce, but also a good, clean and fair food with ethical concern on the environment, society and economy.

The association facilitates community interaction and a change of lifestyle in the society. It promotes collectivism to create supportive culture for the industry and expand the opportunity for people to join urban farming. It is empowered by a collaborative model to attract people



Casap, 2016

from different sectors, such as ecology, gastronomy, food business and etc., to join and form a wealthy pool with resources, knowledge and talents. Social inclusive accelerates the spread of eco-culture, inducing a lifestyle change in the society.

Moreover, the association serves as a knowledge and exchange hub to facilitate urban farming development in Hong Kong. It connects closely with government, universities, food and beverage unions and other professional bodies to centralize resources and information with updates on global agricultural trend, access to experts and support in farm and food business. Regular meetings are held for producers and representatives to exchange knowledge and experience, and to plan for a developmental direction as a whole. The cohesion of professional bodies empowers the community to adopt a bottom-up approach to negotiate for governmental support in terms of funding, policy, urban planning and education, and attract private investment.

Food Relationship

People's relationship with food is ruined by the globalization dynamics unknowingly invaded into the everyday life. The loss of natural connection and cultural identity has taken away the precious food value. Urban farming will serve as an agent to repair the cracks in our relationship with food.



Busing, 2018

Urban farming development can stimulate the planning of local tourism. That is, urban farm will become one of the significant section in local tourism project. Farm tour and farm experience are some classic examples of a leisure teaching to the public, especially the next generation, to explore the world of agriculture. Through the visit to local farm, they are connected with the nature and farmers to understand more about food production, cultural history and neighbourhood story, implicitly influencing their attitude on the way of living and green growth and motivating them to pursue a slow food culture and healthy lifestyle. Weekend farmers' market is another signature reference of local tourism. Farmer's market is commonly found in the travel guidebook around the world. It is a popular spot for tourists to explore local food culture. A regular weekend market not only can let farmers, especially those in small scale, to sell their crops and ugly but fresh produce to the public, but also the general public to buy organic crops in a lower price, promoting social equity on food access in the society. Consumers can also develop a closer relationship with producers to suppress the food safety crisis.

Urban farming will also unlash the slow food culture to create a new dining experience. The farm-to-fork dining offers a fresh and low carbon meal to consumers. They are served with delicate and appetizing dish made by fresh ingredient. Through the farm-to-fork experience, they can have a deeper understanding on food production, an advanced knowledge on food pairing, and a stronger sensation to determine food quality. The linkage of cultural element attaches a unique story to the food, advancing the conviviality of dining. More importantly, they can truly enjoy a meal with sensation, culture and relation individually, or share the pleasure of table with their valuable guests. The journey provides a quality dining to consumers and engages them to become the co-producers, restoring their relationship with food.

Social Innovation

Urban farming will stimulate innovation to achieve social goals (Phillips et al., 2015). Reducing environmental impact is the utmost target in urban farming. A circular system will be essential in future urban farm. At the input side, producer needs to select and identify clean seeds with a wide variety of breeds to manage market demands, retrieve the ark of taste and present the farm's tradition and distinguishing feature. Natural fertilizer is recommended to reduce harmful effect during the process. The damaged vegetables will be recycled back to the farm as fertilizers or recovered and converted to other products through secondary production. Within the closing loop, technology, humanity, clean production and waste management are taking into account during design and operation to enhance resource efficiency, reduce emissions and waste during the progress and increase productivity (Loiseau et al. 2016). The momentum of big data will extend into agriculture to analyze bioresources to design for a sustainable farming approach. At the same time, urban farming will give impetus to eco-design and contribute to green city development. It stimulates creative work in space design, urban design and technological design. Since the free space for conventional, ground-based agricultural production in Hong Kong is very limited, innovative forms of green urban architecture become necessary to promote rooftop and in-building farming in a larger scale of production. Build-integrated agriculture is one of the design to locate high-performance hydroponic system on a mixed-use building to establish a rooftop farm in an existing building (Specht et al., 2014). With a long-term urban planning, the city shall be filled with multiple forms of farming design, such as on- and in-building farming, edible wall, community garden and underground farming.



Schnobrich, 2018

In addition, urban farming can initiate a wide range of business opportunities. A business model with long-term economic sustainability and a clear direction to meet the social goals is crucial for a business success (Dimitri et al., 2016). With the aid of technology, a collaborative strategy can be incorporated in urban farming. The specialty farming requires a large amount of capital for setup and maintenance. The high land cost and labour cost increase financial burden. Collaborative consumption model can ease the tension of owning an asset. Besides, virtual farmers' market can also be a feasible option to increase transaction flow. The platform gathers farmers on the platform to form a virtual market and take care on the delivery service. Farmers can focus on growing without a worry on logistics and customer service. These platforms can highly facilitate the interaction and collaboration within and out of the community, which creates a stronger connection without a geographic restriction.

Technology will definitely play a significant role during the innovation. No matter dragging out big data to facilitate design planning, or developing platforms to promote interaction and transaction, it is decisive to maintain a humanity in the process to achieve the real sustainability.

4.3.2 Value Creation to the Food System

The future system of urban farming has a diversified connection with the world. The proactive management and interaction with a broad range of stakeholders has leveraged new value to the environment, society and economy (Geissdoerfer et al., 2018; Liu, 2020b; Ouden, 2012).



Figure 13. New Value of the Food System (Liu, 2020b; Ouden, 2012)

To the Consumer

Urban farming connects closely with consumers in the future system. It boots happiness into dining and decreases eco-footprint through farmto-fork experience. By bringing consumers to farm tour, it delivers a sense of belonging to consumers which motivates them to engage in responsible consumption for the wellbeing of society and become a coproducers of the food system.

To the Community

Urban farming also connects with different experts and professionals. With the alliance of urban farmers (producers), urban farming has aroused a social responsibility to the community to participant for a common goal – to enhance food security and flourish the development of urban farming in Hong Kong. Professional training has also increased eco-effectiveness on the operation and reinforced core values of farming and dining, propelling the growth of the industry.

To the Ecosystem

The promotion of responsible consumption induces an eco-mindset in our daily life. The practice emphasizes on resource efficiency and reduction on environmental impact along the supply chain. From production to consumption, it stresses on a 'eat less, eat better' notion to produce a wide variety of food under clean production and to manage waste properly throughout the process. This can maintain biodiversity in the environment, pursing the stability and sustainability of our ecosystem.

To the Society

Urban farming connects producers to other business partners. It stimulates social innovation and initiates different design and business opportunities. Eco-design in urban architecture enhances the livability of environment and wellbeing of the society while the collaborative model and platforms facilitate trades and thus increase revenue to the society.

The future role of urban farming goes beyond food production. Its expansion of value into the level of ecosystem and society as illustrated in figure 13 will helps the promotion of responsible consumption and frame out the blueprint of a sustainable city.

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Appendix
Appendix

Interview Questions

- 1. What is your background?
- 2. Why are you interested in this industry or urban farming?
- 3. What are the barriers in running an urban farm in Hong Kong?
- 4. What are the impacts or benefits of urban farming on our society, economy, environment and politics?
- 5. How can urban farming contribute to our food system?
- 6. What is the effect of technology in our food system? Is it brining benefits or crisis to our food system?
- 7. What is the missing value of urban farming in Asia? What do you think of their future development?

Interview with Jessica Fong, Common Farms

1. What is your background?

Background: service business, mange and open restauarant, product development Related to supply chain, project management

2. Why are you interested in this industry or urban farming?

Being in the food service business, import produce from italy, food cost is so high and so much is going into waste, business oriented solution driven

Solve the niche problem in the restaurant business, coz getting some expeirence in distribution and sourcing, next thing is going to production Better management of cost and pricing, when importing produce, especially the freshly produce, the price is fluatuating daily

3. What are the barriers in running an urban farm in Hong Kong?

Need a vast knowledge, a bit hard especially in the urban and compact area as Hong Kong that do not have much agriculture environment

No Infranstructure, no community in the ecosystem, not much government support, cost on setting up urban farm, land cost, space cost, labour (lack of expertise – traditional farmers are generally older, but we are looking of differnet form of farming), no education (school or department) specializing in agriculture, interest level is quite low in HK but seems getting a bit better due to COVID

4. What are the impacts or benefits of urban farming on our society, economy, environment and politics?

US: has a strong level of agriculture, current model tend to be mono-cropping due to economic of scale at particularly region or state (specialise in one type),

farms are supplying to different kinds of consumers

Industry is divided into different sector Grow base on the people needs, more flexibility, develop direct relationship with the consumer

5. How can urban farming contribute to our food system?

Reduce wastage, manage cost and pricing coz not relying on third party so much (offer at a more affordable price)

6. What is the effect of technology in our food system? Is it brining benefits or crisis to our food system?

Technoloy: what technology and what is the outcome technology: for improvement, alleviating the issues The way people perceive technology to make things easier without thinking about the consequence Technology may help us to control the environment, but there is a lot more

that we cannot control.

Having technology, we are controlling the evinronment, but there is a lot more that we cannot control.

When you have another living organism that is part of the equation. If you put so much control on it, there is certain level of resistance.

Identify what can be improved with technology, and what we are gonna keep with human interpretation and human work.

Coping with planning and calcualtion, helping in distribution, anything that is high in human error, and be repetitive process

Resolve with some level of technoloy, but there's cost on technoloy and implementation

Goal (outcomes) vs the potential consequences

'growing technoloy', but applying technology in distribution and managing

7.What is the missing value of urban farming in Asia? What do you think of their future development?

Innovation: but not much young generation in the field Lack of community to commit and try to do things different in the field Not much expert, government support, especially monetary - education, supply, subsidization, so everyone is doing on their own

Sharing culture, not a competition Being the replacement of imported goods

Hong Kong is so concentrate, easier for corporation

Interview with Chris Li, Green Peng Chau Association Farm

1. What is your background?

I am helping the farming as volunteer for the association.

2. Why are you interested in this industry or urban farming?

Industrial agriculture is not a sustainable model. Urban farming can manifest the sustainable model Urban farming has more value than only food production: eco-friendly product, local prodce, recreation (e.g. rooftop) Restriction to land resources

3. What are the barriers in running an urban farm in Hong Kong?

Human resources

Money – Earning from farming may not be able to support the living standard in HK

HK people is not keen on farming

There are too many food choices or cuisines in HK, so people may not be motivated to stay in a simple diet at farm

Organic greens is more expensive and may not be competitive with the low price produce from industrial agriculture

4. What are the impacts or benefits of urban farming on our society, economy, environment and politics?

Social (+): It is too easy to find food or earn enough money for food in HK, so the young generation does not understand how complicated is in food production, distribution. If the new generation understands more on the food origin, this would be helpful in reducing food waste.

Economic(+): rovide employment for the society, but not much impact in young generaton

Economic (-) only suitable for higher class, not for teenage Environmental (-) damage to the eco-system

5. How can urban farming contribute to our food system?

There is no effect on the food system, only help on better living. Food can be traced back on the grown history if buying from urban farm.

6. What is the effect of technology in our food system? Is it brining benefits or crisis to our food system?

Benefit to food system

Farming is labour intensitve. Technology facilitates farming process especially in a lack of labour

Technology also helps on data anaylsis, providing a more specific method/ solution to tackle the problem

7. What is the missing value of urban farming in Asia? What do you think of their future development?

Community is missing and it needs expand more.

Government doesn't support much on connecting each other in urban farm. Government needs to promote more on urban farming or build up better resources.

"Please support the local urban farming"



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TO REBUILD A NEW ECOSYSTEM. COMMUNITY AND HUMAN VALUES ARE THE KEY.





I am a packaging and graphic design specialist in consumer goods. Inspired by the study in MDes, I am now engaging in urban farming to promote holistic wellbeing to the public by infusing new value to the urban farm. Let's join us at Crazy Auntie Republic!





