

# REFLECTION PAPER

Learning by doing in Cuban urban idyll  
The design of a pilot vocational school for  
urban agriculture

An attempt of the urban farmland/courtyard being an engine for  
activating the community and shaping the urban identity



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\*Even though each chapter contains a specific topic, the reflection is embraced into each chapter about each topic.

## 01 METHODOLOGY

### Research-based design of Complex Project and urban-based position for architecture design

The complex project studio owns a complete methodology from urban research to the architecture design to a detailed tectonic level. The studio encourages us students to explore the complex surroundings by gathering, organizing and analysing data as well as forces and finally manifest our own position and solution rooted into the built environment. The complexity and diversity of urban conditions are most interested in studio, which means it is the essential starting point of the thesis. Any architecture roots into its context should not only be related to the physical layers which we always concerns about as an architect, but also spiritual aspects such as economy, culture and ideology. It leads to the condition that today's architects, including myself, should not only observe the world through one single lens, but also as a planner, organizer, strategist and visionary.

That's what I insist during the graduation period, thinking as a multi-player stakeholder and acting as a mere architect, which means that all the ambitions should be translated into architectural language in different scales at the end.

In the thesis, I started from the general analysis of the area called Alamar in Havana Cuba and tried to get the intriguing and representative point of the area that can not only show the clues of the past but also the future. The second phase is to dive into the specific research of the topic of organic urban agriculture and summarise the problems according to a common vision of the area with other group members. The third phase is to extract research question from the complex conditions and translate it into several design questions. The fourth phase is to design the architecture as the answer or part of the answer to the research question, gradually from 1:2000 urban scale to 1:5 detail scale to realise the vision and ambition for the built environment. I position myself from urban scale to design and question myself not only from 'how' the architecture looks like but also 'why' and 'what' going first.

In the meantime, I try to approach the final result from the perspective of architectural typology, that is for me how a vocational school works as well as the study of Cuban education system, development of urban farming worldwide, etc. By combining all the research conclusions together and optimising

them, the design gradually comes into being.

Additionally, since the research covers a huge ranges of topics related to history, politics and economy, the unavoidable comparison or association in mind between Cuba and my home country, China, which are both socialist country and were once blocked from the outside world, is supporting and sometimes giving me some clues for the potential future of Cuba. Of course, the two countries diverse a lot. But what is possibly going to happen after the opening of the country and how people's mentality is going to shift and fluctuate is influencing me while designing my own project. The comparison makes me think that it is hard to predict the future even after 15 years because the country is experiencing a period of radical change. What I design about and for is based on a positive attitude to the future to make the city better.



Figure 01 | The urban farming project on site. It is a 'invention' of Cuban people to resist the lack of material and thus becomes business card of the area.

## 02 MAIN RESEARCH

### The problem and the attempt of solving it

Alamar is a residential area east to Havana and once was the largest social housing project in the world, however never fully finished due to the economical condition at that time. The city lives on its own due to the distance from the city centre. The enormous empty spaces are partly occupied by urban agriculture currently, shaping the most distinct characteristic of the area from the rest of Havana. The urban agriculture and self-built sheds of personal storages and workshops show the reality of Cuban people, that is, self-sufficiency. The organic urban agriculture sector came into being with a unique historical reason and gives a clue for the future development of the area.

The urban agriculture in Cuba roots in a poor economical condition but grows into a remarkable achievement to lead the whole region of Latin America. Cuba had insisted the one-crop economy of sugarcane until the Revolution. After the economical embargo, the Soviet Union replaced the USA, providing fuel resource and many other subsidies for Cuba as the payback for the sugar. However, after the collapse of the USSR in 1991, Cuba was cut off for both energy and food. The country has to be self-sufficient since then and until now. That's how the urban agriculture generated to resist the crisis in the Special Period and now over 20,000 people in Havana make a living by urban agriculture in Havana. Cuba needs to import 80% or so of the food overseas while 30% of the farmland are now abandoned. The proportion of agricultural population in Cuba, 11% is rather low, of which 40% is researchers and managers who don't participate into the practice actually. 20% of retired participators shows the ageing of urban farming, which means in 20 years the sector probably won't last due to the lack of labour force. A gap between generations becomes an alarm for the longevity of the sector. Secondly, the potential participators cannot find an access to start their own farm. Only 37% of the farms are owned by small private owner, who are not even able to get the reasonable tools and resources from the state-owned institutions. 'The market is empty'. Although the state will provide water, land and loan to the participators, they still cannot easily start up and make a living relying on the urban agriculture. The linkage between the materials and the profit from the soil is also disconnected. From the physical aspect, the ur-

ban farms are also hidden behind the green walls for the security consideration, which cut off the visual connection between the community and the rich agricultural activities inside.

However, there are also several potentials. Currently, there are only 37% private-owned lands for small farmers. As the economical reforms goes deeper and deeper, privatisation will be gradually realised in Cuba, which suggest a possibility of transforming the state-owned agricultural enterprises into small scale, eco-friendly and private-owned 'fincas'. Instead of traditional large-scale soviet farmland,

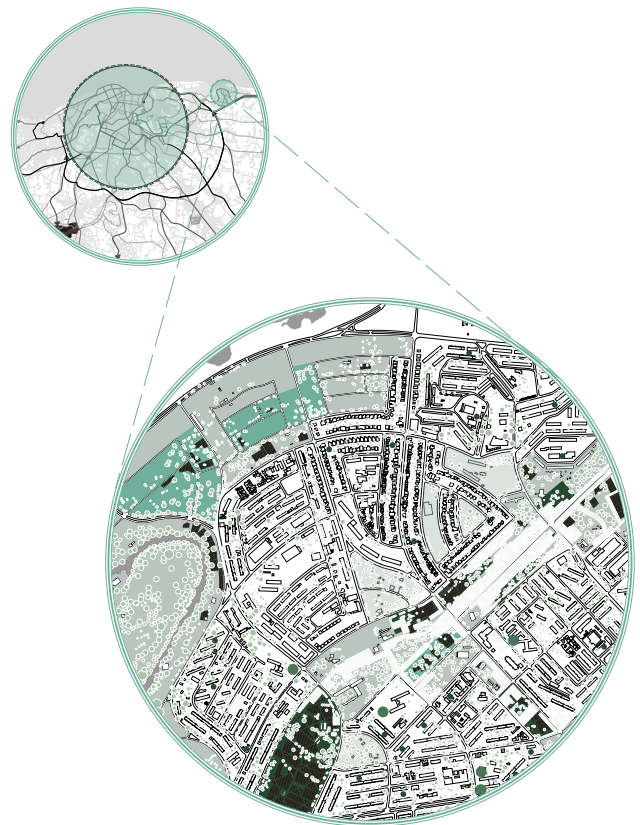


Figure 02 | The landscape mapping of the area. The natural landscape and agricultural landscape together shapes the backbone of the area in a physical way.

the decentralisation of agriculture is also the direction of future development. Reusing the abandoned lands or exploiting the suburban areas are both op-

tions for the next step. All these facts support the physical foundation of stimulating the sector to another booming point. Local Cuban farmers also own a lot of knowledge and innovations made by waste materials supporting the small-scale organic urban agriculture.

Thus, the core research question is:

By what means can the knowledge of the organic urban agriculture be carried on over generations by creating an effective interaction between generations, the farmland and the community as well as the materials and the value from them with architectural languages?

The question can be de-constructed into the following sub-questions:

How to build a linkage between the materials, resources for production and a profitable career

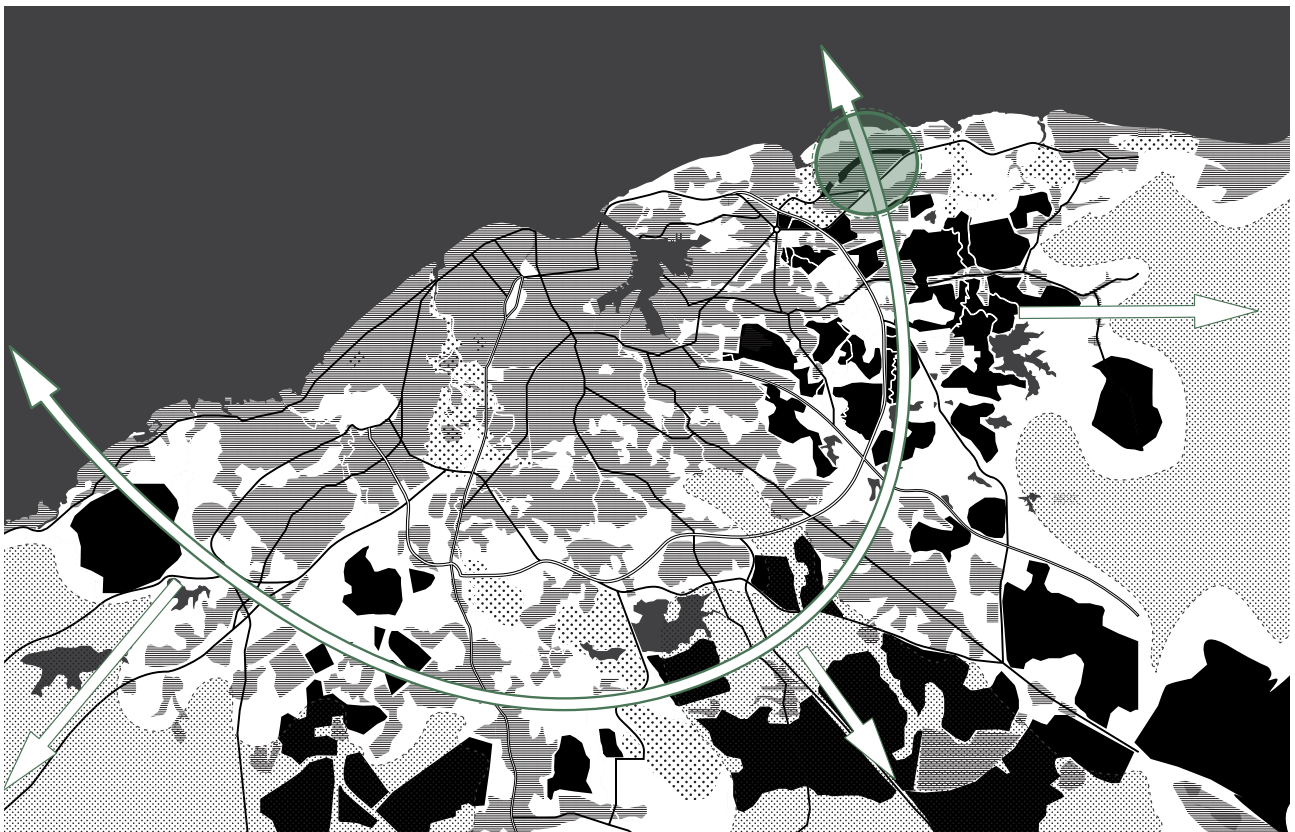
based on urban farming and activate the start-up process?

How does the support facility helping to start up the urban farming career can be attractive for younger generation?

How does the supportive facility link the communal life and the farmland?

To answer the research questions, the programme is designed as a complex of vocational school, a youth centre (will be further simplified and translated into actual functions) and a communal help-desk as three joints to fill up the gaps.

Figure 03 | The mapping of the future development of urban farming and sub-urban farming, showing Alamar is the ending point of the agricultural cordon around Havana. With the process of privatization and decentralization, Alamar will become an important node on the cordon in the sector.



### 03 REFLECTING WHILE DESIGNING

#### A reflection of Cuban school and the Organiponicos The fortress besides the farmland and the green walls

|| **Local-based vocational education is creating direct labour force and value.** ||

Havana, as the capital city of Cuba, owns an unique historical background and thus forming its own characteristics of development in the future. With the recovery of Cuba-US relationship in 2014, the economical reforms since 2011 and the death of Fidel Castro in 2016, Cuba is literally at its fatal historical turning point, giving us a chance to illustrate a wild and idealist future for the country. This preliminary condition determines the city owns a possibility of dramatic transformation, creating an unpredictable background for the Vedado and Vieja in Havana, but not necessarily for Alamar.

Instead of building for tourism or newly-arrived groups, building for local Alamar people and Alamar community is the consensus of the whole group. The overview strategy is based on the ‘Manifesto’, which owns two main axes of development in the area, forming the framework of a ‘new’ Alamar. Specifically, the former empty greenery is transformed into an agricultural park, providing fresh air and outdoor recreation activities for the whole community. The strip besides it is transformed into plots

for public buildings. This is where the school locates, a junction of different public and private functions, an relatively important communal social node.

Thus, it should be a joint-use learning facility serving for both the students and the community. But is it a school as what can be seen everywhere in Alamar? Is it a simple high school with small garden beside or a large agronomic university like a fortress with huge farmland hundreds metres Away?

Nowadays, the urban agriculture schools in developed countries has become ‘official’ with certifications in specific realm. In those schools, the students are trained into actual farmers of their own gardens and products. However, the Cuban agronomic education still insists the mainstream which is suitable for traditional heavy mechanised or large-scale production. Researchers and managers still occupy a large number of agriculture-related population.

A school specifically for urban agriculture based on labour education and local skills and materials can be a pilot education type in Cuba. Alamar, as a pioneering area of urban and suburban agriculture is appropriate for the new joint programme, training more talented people for the sector.

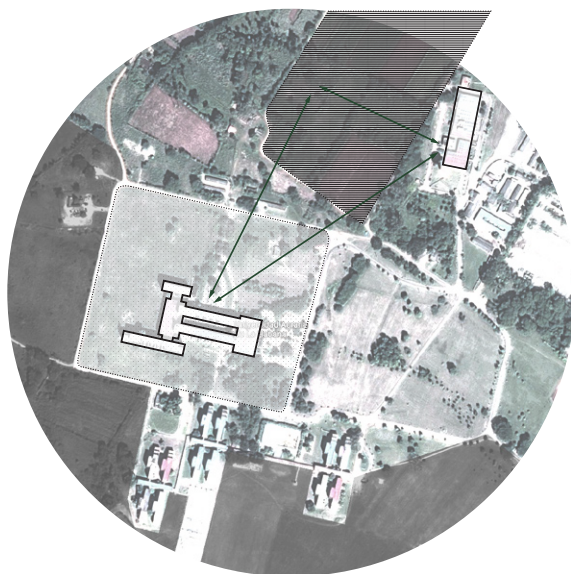


Figure 04 | The agronomic university in Havana, showing the educational building and the experimental farms are separated due to the education contents and scale.

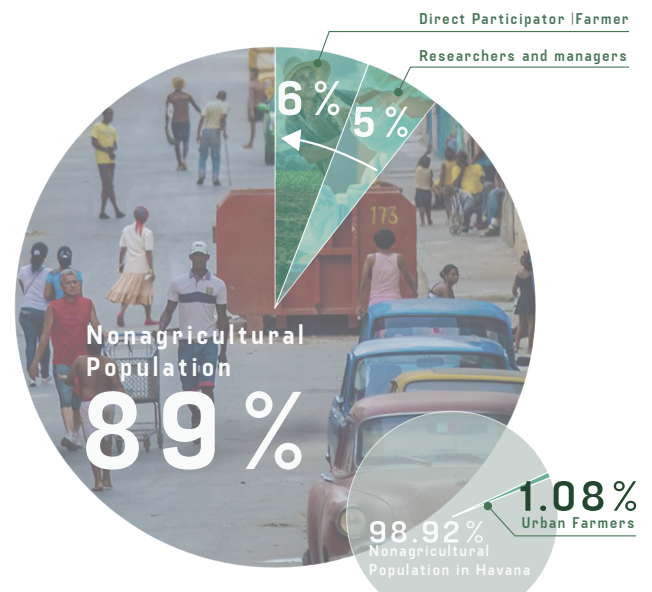


Figure 05 | Almost half of the agriculture-related population are non-direct labor force working with soil.

|| **The border is never a surface but a dynamic spatial process full of events and accidents** ||

From Le Corbusier to Bernard Tschumi, a lot of architects discussed the surface between public and private spaces. That is what I discussed in my position paper of how to create an dynamic border. As for the school, what kind of position should it be among the farmland and the complex community is essential in this case. From the perspective of research question, the school thus should not only be a buffer zone between the community and the farmland, but also a connecting joint for several social activities and agricultural activities.

Only if the agricultural production process is embraced into daily life, people will change their stereotype of it into a positive direction with a potentially brilliant future. The sense of knowing is the preliminary condition of being interested in.

In order to organise a more dynamic and adaptable loop, there are three aspects need to be developed:

Public responsibility | The specific surroundings determines four different ‘facades’ containing different atmospheres. To response the community and the inner need, the school should be responsive to its context, physically and functionally. The external ring serves for the different groups in the community and other neighborhood. Thus, the school becomes the hinge of different communal activities and bring different groups of people together, letting them have a chance to observe the ‘showcase’ while having their own social life.

Education philosophy | The knowledge of starting up a private urban farming business requires a large range of knowledge in different categories. The diversity of the knowledge increase the difficulties for potential participators. The education philosophy of the school is different from the conventional system that categorized the knowledge into disciplines, but the process of running a farm, creating a ‘toolbox’ for urban farm. The education system inside is regarding different subjects as equal. Although the curriculum is constructed along the building-up routine, the settings of workshops should decrease the emphasis of hierarchy and order, increasing the freedom for the trainees customizing their own system according to a mobile learning system. Therefore, from the outer circle to the inner circle, there’s a gradient of professional study, common learning landscape (also social spaces) and actual agricultural landscape.

Theory-practice integrity | In the vocational

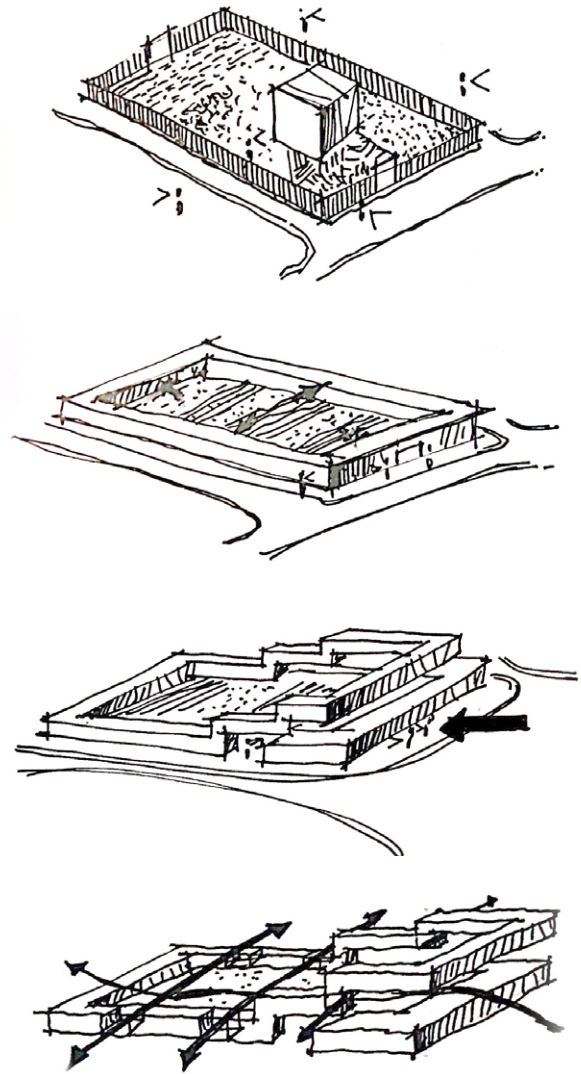


Figure 06 | The main conceptual diagram of the project. It shows the intention to create a cascade-like loop with communal functions at the urban side of the school. The loop serves main for the inner courtyard but also the community.

school, there’s no specific difference between theoretical education and practical education. The development trend of vocational education nowadays is towards a flexible and integrated mode. In the school, there’s no general classrooms but only workshops with some necessary furnitures inside, providing only a place for different types of education. Besides, there’s several shared-use library, lecture rooms and auditorium for holding events and pure theoretical lessons.

|| **Good quality is the direct and visible stimulation and demonstration to spread the knowledge.** ||

Architecture provides direct visual stimulation. The unwillingness of participating into urban farming sector is also partially because of the harsh working condition. The sense of form influences people’s mentality unavoidably. Thus, creating



Figure 07-01 | Perspective view of the vocational school from the community. One of the workshops opens its folding facade as a shutter to the passagers. People can walk into the workshop as kind of communal activity. When it is not necessary, the inner doors will shut but still provide sun-shading.

a qualified agronomic working environment is the most direct approach to activate the sector and raise the awareness of the public. The materialisation of the school should also be based on local identity but owning the feature of urban farming.

For the load-bearing structure, a hybrid structure of concrete and steel can be regarded as both traditions of Alamar community and agricultural architectures. In Alamar, the former soviet prefabricated concrete structure contains not only material memories but also the Microbrigadas from a social aspect. The steel structure is not only applied for the sheds in the farmland but also the self-built shed between the social housings, showing kind of autonomy and creativity of Alamar people. The lightness of steel structure also decrease the impact of the volumetric buildings upon the farmland.

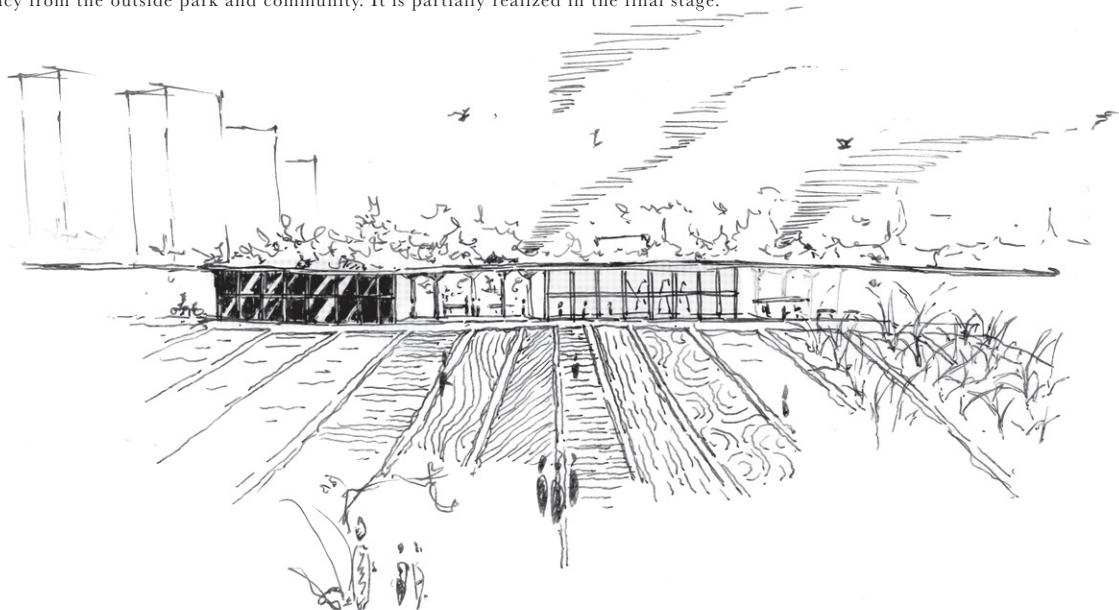
For the facade, a double facade of polycar-

bonate sheet and bamboo louvres can be regarded as both conventional materials of greenhouse and simple sheds in Cuban gardens. In fact, Cuba owns the most species of bamboo in Caribbean Sea area. As a eco-friendly material, bamboo grows much more faster than general timber materials. It is encouraged to be used in agricultural sector in Cuba nowadays as the government is seeking for renewable energy resources from a broader scope.

The canopy as the secondary roof is used for passive ventilation, water management and sun-shading, playing a essential role in climate control and maintains the life circle of the garden.

\*This part will be explained more detailed in presentation documents, models and drawings.

Figure 07-02 | Sketch drawing at the beginning of design phase. It shows the intention of the workshops around the farmland, owning some transparency from the outside park and community. It is partially realized in the final stage.



## 04 SOCIAL VALUE

### Breaking the stereotype of agricultural architectures and landscape

#### || Good quality reshapes the stereotype ||

Cuba is a country facing a 60-year long economical embargo, kind of missing the most prosper period of globalisation. Thus, the country is forced to be self-sufficient. With the international condition turning into an unpredictable direction recently, in the ‘post-globalisation’ era, self-sufficient becomes a potential direction for many countries. The urban farming in Cuba is one of the best epitomes of sustainability and multi-profits for society and economy. The spirit of Cuban urban farming and how the sector can become the resources of survival can give a clue for the current condition, both for developed and developing countries. Within the framework, how we educate the next generations and how we convey the spirit of practice, hard-working and self-innovation are significant and might be an interesting starting point of a new hybrid architectural type.

But it is not easy because the stereotype of agriculture is hard working conditions, old farmers and hands full of dirt. These are all the outcomes of economical foundation. But with the country gradually open to the world, the conditions will hopefully change within 10-20 years.

With the rapid economical development in China after its reforms since 1978, the concentration of architecture development has always been focusing on urban architectures such as skyscrapers and iconic cultural facilities in the mega-cities. However, with people’s attention shift to a more peaceful and essential direction while some of the agricultural participators are wealthy enough to care more about their living conditions, the ‘new vernacular architecture’ gradually becomes a popular topic in Chinese architecture field, especially about the organic agriculture. The small food production factories, the small pavilions on the farmland own a much better quality than before. The ‘good-looking’ architecture is also a good advertisement for those stakeholders. The building shifts a bit the conventional sense of agricultural buildings.

This is exactly what I start with, that is, architecture cannot solve the problem but well designed physical forms, no matter high-tech or low-tech, can show a good gesture towards the new direction and



Figure 08 | An organic food factory in Tangshan, China. It is in a traditional Chinese architectural style, owning a corridor and a courtyard as the hub for production. The application of modern material, creating a cozy working atmosphere increase the spatial quality of usual productive architecture.



Figure 09 | Visitor centre of an organic farm in Kunshan, China. The application of metal, the transparency of the facade creating a extreme light feeling of the volumetric building, creating a special artificial landscape on the agricultural landscape.

expectation. The pilot vocational school for urban farming can bring the benefits and the beauty of agricultural activities and products into people’s life, visible and tangible.

#### || Urban farming taken account into policies of urban planning and design ||

Another perspective is that how urban farming shapes the Cuban city shows the fact that the urban planning should never exclude the agriculture landscape from the overview strategy as to achieve sus-

tainability and improve the quality of human life. Or we can see, the courtyard in the city should be considered as a potential core of engine to activate the neighbourhood. The architecture should respond to the chaotic and dynamic urban conditions, as well as the earth where it is built on. The natural or agricultural landscape should be definitely considered as a key issue for the future urban plan and design. The design of mine shall be my personal position and response towards this direction.

|| Joint-use cultural facility is a way of increasing the efficiency of public resources ||

For developing countries' reality and the raising sustainable awareness, the concept of sustainability is not only from a physical construction level, but also about the efficiency of the building. Keep the building full of activities or functions for most of the daytime can also save the energy and resources to build other buildings.

The school, as an educational hub in the city, is responsible to play a multi-functional role in the social life, as a mere school, a small cultural centre, a consultation helpdesk, a small market and a youth recreation and learning place. Different activities can bring more vigour to the place and create more incidents within the area.

Figure 10 | Sketch drawing at the beginning of design phase. It shows the intention of how the external loop in the building serves the surroundings. It owns the functions of a small informal gym, library, cafe and communal farming help-desk. The big stair as the main entrance of the school can also be a stand towards the front plaza to contain some informal communal activities and small-scale gathering events.

