

MINISTRY OF EDUCATION AND TRAINING

MINISTRY OF CONSTRUCTION

HANOI ARCHITECTURAL UNIVERSITY

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**ORGANIZATION OF RESIDENTIAL SPACE ADAPTING TO
HIGH-TECH AGRICULTURAL ECONOMIC ACTIVITIES IN
RURAL AREAS OF THE RED RIVER DELTA**

FIELD OF STUDY: ARCHITECTURE

CODE: 9580101

SUMMARY OF DOCTOR THESIS IN ARCHITECTURE

HANOI – 2022

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Date:, 2022

The thesis can be found at:

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Introduction

1. Problem statement

- Since nearly 70% of the Vietnamese population is farmers, our Party and Government always lay great importance on Agriculture, Rural and Farmers. After more than 30 years of renovation, many rural development policies and programs of the Party and Government have been implemented which achieved certain successes.

- The Red River Delta, a large area located around the lower Red River area in the North. The region is also one of the most densely populated areas in the country. High-tech agriculture is an inevitable developing direction in the process of industrialization and integration of the region. New economic structures have been formed, applying high-tech agricultural models such as greenhouse farming, concentrated fish farming models, hydroponics, etc.

- In fact, after many years of renovation with many economic, cultural and social development policies changed both architectural form and functional space of rural architecture, especially the living spaces. Rural architectural space transformed from closed into open and more interactive spaces. The urgent task now is to come up with a model of residence, a new way of living in accordance with the conditions of new production technologies as well as modern production methods, creating a favorable environment for farmers' households, farms, enterprises conducting production and applying high-tech agriculture.

- The topic of new rural development and construction to meet developing requirements is a research direction that has attracted the attention of many scientists in the field of Architecture and Construction. In fact, there are many popular research works in living space organizations in villages in terms of preserving and promoting traditional values; ecological problems; sustainable development issues.

Besides, there are also a number of topics that mention the relationship between housing and production space. However, the issue of finding directions for rural areas architecture in the development of high-tech agriculture has not been mentioned. Therefore, the issue of researching and organizing a new way of living for rural people in accordance with high-tech research activities is extremely important and necessary. Therefore, the topic " Organization of residential space adapting to high-tech agricultural production activities in rural areas in the Red River Delta " is urgent and has practical significance.

2. Research purposes

Organization of residential space adapting to high-tech agricultural production activities in rural areas in the Red River Delta aims at: creating favorable conditions for farmers in agricultural production and service activities applying high technology; improving living conditions, accommodation, food sources, and livelihood for rural citizens; suiting the application of modern technology in production as well as the development of high-tech agriculture.

3. Research object and scope

Residential space in rural residential spots and rural houses with high-tech agricultural economic activities

Time limit: applying until 2050

Research scope: Rural areas of high-tech agricultural economic development in 6 provinces of the Red River Delta (except for the Northern Coast region) including Hanoi, Vinh Phuc, Hung Yen, Bac Ninh, Hai Duong, and Ha Nam

4. Research Methods

The methods used in the thesis: (1) Survey method (2) Statistical, comparative and contrasting method (3) Forecasting method (4)

Diagram method (5) Interdisciplinary method (6) Analytical and systems approaching method (7) Expert method

5. Significance of the study

(1) Supplementing the theory of rural planning and architecture, housing adapting to the development of high-tech state accounting activities. (2) Being the thematic learning material for students, learners, and postgraduate students of the Architecture and Planning departments in the fields of rural architecture adapting to modern agricultural production activities in the period of industrialization and modernization. (3) Creating working environments and jobs for farmers to prevent the excess migration of people from rural to urban areas. (4) Creating a favorable space and environment for economic restructuring in rural areas in the Red River Delta and providing developing conditions for modern production methods suitable to rural areas.

6. New contributions of the thesis

1/ Adding to the specialized theoretical system on the organization of residential space adapting to high-tech agricultural production activities in rural areas in the Red River Delta in which 05 new perspectives and 06 principles are proposed.

2/ Proposing a solution to organize the residential space in rural residential spots adapting to high-tech agricultural production activities in rural areas in the Red River Delta. In this proposal, the thesis has determined (1) the selection of new residential spots that are suitable for high-tech agricultural economic activities; (2) the economic and technical criteria for the suitable residential spots adapting to high-tech agricultural economic activities; (3) functional spatial components in rural residential spots adapting to high-tech agricultural economic activities such as residential functional space, business activity space, economic infrastructure and production service, space for community

activities. Besides, in this part, the thesis also proposes (4) residential spots of high-tech agricultural economic activities; (5) organization of architectural spaces of rural residential spots adapting to industrial agricultural economic activities; (6) solutions on landscape, environment and rural technical infrastructure to adapt to high-tech agricultural economic activities. Finally, (7) Proposing the living group model is to organize connected household precincts in order to create a space to connect in production right at the living quarters, facilitate the development of high-tech agriculture and access to equipment as well as high technology in the most favorable way.

3/ Proposing solutions to organize housing space for households participating in high-tech agricultural economic activities inside and outside their residence. In this context, the thesis proposes (1) the function in the housing space adapting to high-tech agricultural economic activities in the countryside; (2) the proposed functional structure of housing space; (3) the organization of housing space adapting to high-tech agricultural economic activities in residence.

4/ The thesis proposes housing models associated with specific activities in high-tech agricultural economic activities and models of organized house groups for households in the chain of high-tech agricultural economic production applied to a particular locality.

7. Concepts and terms used in the thesis

The thesis has introduced the following concepts: (1) Rural residential spots. (2) Residential precinct. (3) Residential space (4) High technology (5) High-tech agriculture (6) Agricultural economic activities (7) Adapting/ Adaptation

8. Thesis structure

In addition to the introduction, conclusion and recommendation, the thesis consists 3 chapters in content:

Chapter 1: Overview of residential space and high-tech agricultural production activities in rural areas

Chapter 2: Scientific basis for organizing residential space adapting to high-tech agricultural activities in rural areas of the Red River Delta

Chapter 3: Organizing solutions for residential space adapting to high-tech agricultural activities in rural areas in the Red River Delta

CHAPTER 1 OVERVIEW OF RESIDENTIAL SPACE AND HIGH-TECH AGRICULTURAL PRODUCTION ACTIVITIES IN RURAL AREAS

1.1 Overview of the residential space organization adapting to high-tech agricultural economic activities in some countries worldwide and in Vietnam.

1.1.1 In some countries with similar conditions.

The thesis selects Thailand, Israel, Japan, and Korea to study the current situation and propose issues that Vietnam can learn and apply

1.1.2 In some regions of Vietnam.

The thesis selects Lam Dong, Da Lat and Thanh Hoa as two typical provinces for the development of high-tech agriculture in two different regions, to be the study area for the actual development of residential space and the situation of high-tech agriculture activities.

1.2 Overview of the developing progress of hi-tech agricultural economic activities in rural areas of the Red River Delta

1.2.1 Overview of the development of hi-tech agricultural economic activities in rural areas of the Red River Delta

Red River Delta is one of the leading regions in the country in realizing the goal of industrialization and modernization of agriculture and rural areas, with remarkable results: Specialized production areas with modern technologies are applied (Table 1.2). Many biotechnological

achievements have been put into application in the cultivation and husbandry industries...; New varieties are commonly used. Solutions for applying biotechnology, nanotechnology, hydroponic technology, sheltered house technology, post-harvest technology, mechanization of agricultural tools, and application of VietGAP agricultural processes. High technology in agriculture is applied from seed production, from cultivation to post-harvest process and production of agricultural products. Therefore, high technology and techniques have opened a new direction in restructuring the agricultural sector of the region.

1.3 The current reality of living space of the countryside in the Red River Delta

In order to meet the conditions for the development of R&D activities, many changes will be needed to match (1) the Lack of technical infrastructure space to serve; (2) Overall functional structure: Lack of functional space to serve agriculture with high technology such as solar energy ; (3) Technical infrastructure: lack of adequate functional space ; (4) In the spatial organization of clusters and groups, there is no association, so it is difficult to produce large quantities and apply high-tech.

1.4 Overview of a number of related national and international research projects

The studies referenced by the thesis have paid attention to the living space and have solutions in a large area with different climates: preserving the traditional beauties in the customs and habits of the nation, having The topics have given practical solutions such as research on rural housing in the process of urbanization, and village planning and infrastructure for sustainable development, housing in floodplains and climate change. On the contrary, there are topics that only raise problems and are provocative such as the problem of organizing villages, rural

houses in combination with production in the village, but have not completely solved the problem of high technology affecting the structure of villages and rural houses. Through the research, it is clear that, in the period of international economic integration and the current process of industrialization and modernization, the topic of non-residential organization and operation space of high-tech agricultural economic activities is important but there is not yet a topic that goes in-depth on that problem.

1.5 Issues that need to be researched and solved

+ Systematize the theoretical point of view on the principles of living space organization with the high-tech agricultural economic activities operation space.

+ The spatial organization of high-tech residential spots adapting to the development of high-tech research activities: The thesis researches and proposes solutions to solve the inadequacies of the overall functional structure of the high-tech sites.

+ Organizing group of living space adapting to high-tech agricultural economic activities in residential spots to suit high technology: The thesis research proposes solutions to solve the inadequacies of fragmentation, lack of linkage function in production.

+ Organizing housing space adapting to high-tech agricultural economic activities in the precinct: The thesis research proposes solutions to solve the inadequacies of fragmentation, lack of linkage function in production; lack of functional components for agricultural services and high-tech agricultural development.

+ Organization of technical infrastructure, landscape and rural environment: The thesis researches and proposes solutions to solve the inadequacies in the lack of green space and environmental pollution.

CHAPTER 2 SCIENTIFIC BASIS FOR THE ORGANIZATION OF RESIDENTIAL SPACE ADAPTING TO HIGH-TECH AGRICULTURAL ECONOMIC ACTIVITIES IN RURAL AREAS OF THE RED RIVER DELTA

2.1 Legal basis

Through the study of legal documents; Resolutions, and development policies related to rural space, as well as high-tech agricultural economic activities to take the basis as an important directional premise to change the rural architectural space to meet the conditions of rural development. for the development of agricultural economic activities.

2.2 Theoretical basis

The thesis studies the theories of spatial organization such as: (1) Organizational theory of traditional housing architecture; (2) Theory of green architecture and sustainable architecture; (3) The theory of chain links in agricultural economic activities aims to provide the basis for a solution to organize suitable living space for the change of modern production methods; (4) Theory of urban agriculture

2.3 Factors affecting the organization of residential space adapting to high-tech agricultural economic activities in rural areas of the Red River Delta

- *Natural conditions*: Natural conditions affect the overall layout of the residential premises and the selection of appropriate spatial organization locations.

- *Rural economic conditions*: Directly impacting investment costs, determining the quality level of rural technical infrastructure as well as investment in rural housing architecture. Rural socio-cultural conditions: Cultural factors and customs, especially traditional production practices also influence and affect organizational solutions, especially the

transformation of rural society. due to urbanization and land consolidation

- *Technical and high-tech conditions:* Agriculture 4.0 trends and criteria for determining high-tech agriculture

2.4 Forecasting development trends in the residential space and high-tech agricultural economic activities

From the development orientations of the hi-tech agricultural sector of the provinces as well as the orientations on rural development and the criteria for the new advanced rural areas, the thesis gives forecast trends for the space in rural residential areas, and for housing types that are suitable for high-tech economic activities.

2.5 Lessons learned in some countries with similar conditions

From the reality of Israel, Thailand, and Japan, the thesis has drawn lessons for the development of residential space with 3 lessons on the spatial organization in rural residential areas (1) Spatial linkage based on the linkage of economic sectors; (2) Lessons from the movement “One village, one product”; (3) Organizational lessons and 2 lessons for adaptive rural housing space organization (1)

2.6 Requirements in space organization

Space in rural areas and rural houses need to meet the specific requirements of high-tech agricultural activities.

CHAPTER 3 ORGANIZING SOLUTIONS FOR RESIDENTIAL SPACE ADAPTING TO HIGH-TECH AGRICULTURAL ECONOMIC ACTIVITIES IN RURAL AREAS OF THE RED RIVER DELTA

3.1 Standpoint, goal and principle

3.1.1 Standpoint

Standpoint 1: Being consistent with the guidelines and policies of agricultural development and socio-economic development planning of each locality in the region and associating with neighboring regions

Standpoint 2: Consideration to all aspects for future development

Standpoint 3: Viewed on the basis of the interconnectedness of economic and technical functional components along with spatial linkage

Standpoint 4: Organization of residential space adapting to high-tech agricultural production activities in rural areas in the Red River Delta so as to strengthen the family members' relationships, to create a boost of mutual support in production and to promote traditional value of connection between family members in Vietnamese rural villages.

Standpoint 5: Organization of residential space adapting to high-tech agricultural production activities in rural areas in the Red River Delta in order to integrate with the modern world while preserving and promoting the traditional identity

3.1.2 Goal

Goal 1: Organizing residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities in order to create sustainable linking space in production chain.

Goal 2: Building and developing rural areas, creating favorable conditions for people to settle down, improving the quality of life in rural areas, and at the same time easily accessing services for production to

become "model villages" and "model gardens" for rural areas to develop high-tech agricultural.

Goal 3: Organize residential space with high-tech agricultural economic activities to improve living conditions, develop living and working conditions for the agricultural and rural areas of the Red River Delta, to promote future production and economy, creating a pattern for other regions' development. The solution is for one location but will be the lessons that are applicable to other regions with similar conditions.

Goal 4: Creating a favorable living and working environment, minimizing the harmful effects on the environment, and adapting to high-tech agricultural economic activities in order to improve the material and spiritual life of the rural population.

Goal 5: Remove the boundaries of private villages in economic development, creating a rural society with production linkages.

3.1.3 Principle

Principle 1: Being consistent with the guidelines and policies of high-tech agricultural development of the local provinces and regions;

Principle 2: Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities must be flexible in functional space distribution.

Principle 3: Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities must limit the adverse interactions between production functions and living functions.

Principle 4: Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities must meet integration requirements

Principle 5: Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities must contribute to economic development

Principle 6: Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities along with ensuring the preservation of local identity and traditional culture

3.2 Organization of residential space adapting to high-tech agricultural economic activities in rural areas in the Red River Delta

3.2.1 Selection of new residential spots suitable for high-tech agricultural economic activities

The rural agricultural production sites located in the high-tech agricultural development area are the high-tech agricultural residential spots with changing conditions to be suitable with development for the rural socio-economic in general and the state economy in particular.

3.2.2 Economic and technical criteria for residential spots adapting to high-tech agricultural economic activities

Soil type	Residential spots adapting to high-tech agricultural production	
	Target (m²/day)	Proportion (%)
Residential land (family plots)	30 - 100	45
Public land	10	20
Land for transport and technical infrastructure	10	20
Green land	6	15

Land for high-tech agricultural production outside the residential space	Depending on the planning of the local agricultural production area
--------------------------------------------------------------------------	---------------------------------------------------------------------

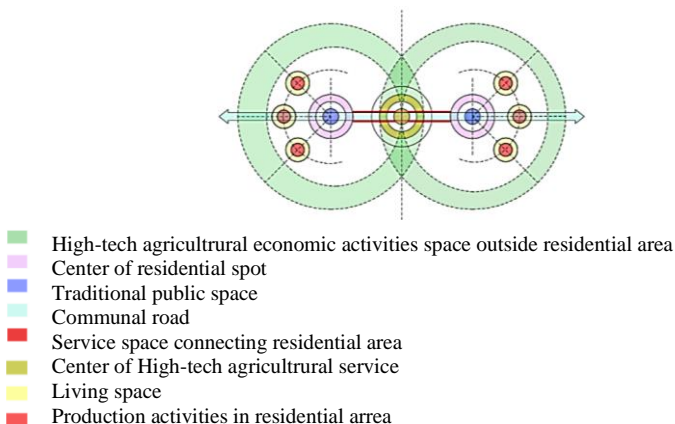
3.2.3 Functional spatial components in residential spots adapting to high-tech agricultural economic activities

Functional spatial components in residential spots adapting to high-tech agricultural economic activities

3.2.4 Residential spots of high-tech agricultural activities

The residential areas are adjacent and attached to each other in production activities. The population lives in a community style and supports each other in production and life. Community life cannot be erased. Besides, for large production and high-tech application, the requirement to link and remove commune boundaries in the operating space is an indispensable requirement.

The residential cluster space is linked and suitable for production and agricultural cooperation in the residential space adapting to high-tech agricultural activities. Due to the large production requirements of high-tech agricultural activities, clusters of settlements will form due to specific requirements in production.



3.2.5 Architectural space organization of residential spots adapting to high-tech agricultural economic activities



In order to develop residential space to adapt to the development of high-tech agriculture and to ensure that the development of high-tech agricultural activities in accordance with the planning, it is necessary to divide the space of traditional rural areas into zones. Traditional village space, border area for production services, border zone for new living space development, area for high-tech agricultural economic activities outside of controlled residence and open field production area far from residential areas. According to the situation and basis of the previous chapters, residential spaces adapting to high-tech agricultural activities tend to develop outside of traditional residence. The new spatial development orientation will need to pay attention to the existence and development of existing traditional villages. The functional structure for residential spaces adapting to high-tech agricultural activities includes: traditional residential spots and residential spots adapting to high-tech agricultural activities with the functions to meet requirements for high-tech agricultural economic activities' development.

3.2.6 Solutions for landscape, environment and rural technical infrastructure adapting to high-tech agricultural economic activities

- Create an isolated green tree system running along the ring road between traditional residential spots and high-tech agricultural activities outside residency
- Using renewable energy solutions for sustainable development

3.2.7 Proposing the living group model is to organize connected household precincts adapting to high-tech agricultural economic activities

The group of houses with a centrally organized hi-tech state-owned economic activity space is located in the center of a population center and linked in clusters to produce agricultural products. Living groups with agricultural economic activities vertical linkage is the solution to link households in an adjacent group with the orientation of adjacent agricultural production and services. All households form a supply chain from input to output of products.

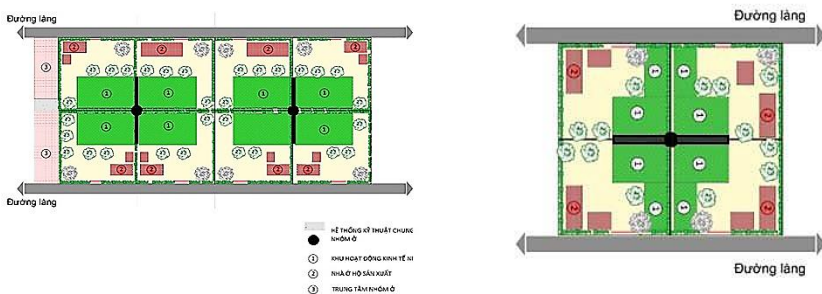


Figure 3.1. Group of housing in the production link

3.3 Organization of residential space adapting to high-tech agricultural economic activities

3.3.1 Proposing function in residential space adapting to high-tech agricultural economic activities

- a. Living function
- b. High-tech agricultural economic activities function:
 - + *Functions of production, care and harvesting of crops.*
 - + *Functional group of post-harvest service activities:*
 - + *Functional group of agricultural output trade services and High-tech agricultural tourism services*
- c. High-tech support function
- d. Traffic function
- e. Landscape function

3.3.2 Functional structure of living space

According to research on the scientific basis and the relationships between functional components, the researcher has come up with a functional chain that shows the relationship between functions together in residential and high-tech research activities in the area.

+ **Spaces with fixed functions (living spaces)** : are functional spaces that meet the requirements of living, eating, sleeping and personal activities of family members.

+ **Variable functional space (the space for the operation of high-level research and engineering)**: are functional spaces serving agricultural economic activities

- a. The relationship of functions in the house for households engaged in farm or garden economic production activities With the space to take care of plants on the premises , the relationship between the functions should be clear and do not affect the living space. (Figure a)
- b. The relationship of housing functions with post-harvest activities

located in the residential premises have a complete structure including many processes and are divided into 3 areas: living areas; washing, preliminary processing and sorting operations area; areas with direct access to outside traffic are import-export areas and product display areas (Figure b).

c. The relationship between functions in housing associated with commercial service activities for output products - agricultural tourism and product introduction: Housing associated with commercial services for the output of agricultural products is an important model in the development of agribusiness. (Figure c)

d. Functional relationship in housing associated with farm economic activities with a closed process: With this type of housing, it meets the requirements of production scale. This housing is usually a farm with a closed production process from production to product display. (Figure d)

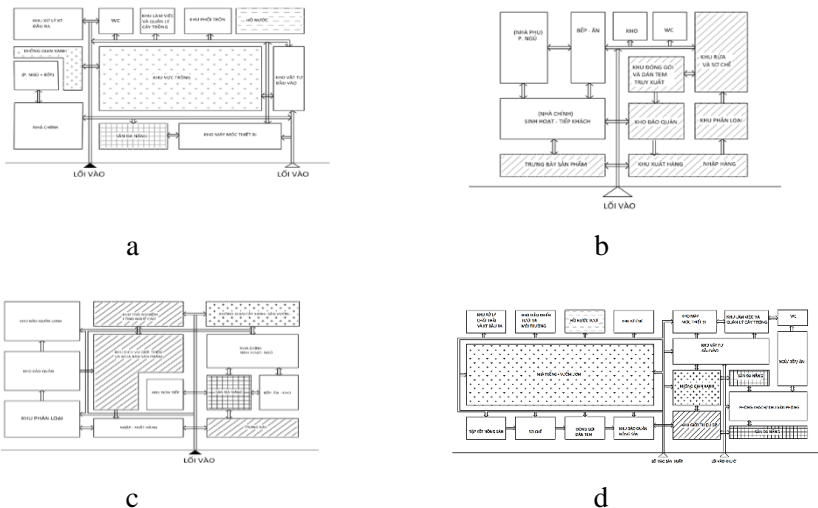


Figure 3. 2. The relationship between functions in the housing space

3.3.3 Organization of residential space in the residential spots suitable for the conditions and development of high-tech agricultural economic activities in residence

a. Housing combined with household garden production This type of space is suitable for new rural houses that are divided into adjacent lots with a narrow garden area. Smaller land area (minimum limit for households encouraged to do gardening is 500m²). The thesis offers the solution for this campus as a block solution; space in space. The solution of spatial integration will solve the problem of lack of arable land and still ensure the living and living area of the household. The solution for a small area is to raise the floor and put the technical system behind and combine a group of 2 adjacent houses with the same technical system.

- + Solution for traditional residential premises with an area of 500m² - 2000m²

- + The combined solution is used to combine and streamline a part of the campus and living space. The traditional residential space will still keep the main house, but the auxiliary function blocks will be combined with the auxiliary blocks in the high-tech manufacturing operation function.

b. Housing combined with high-tech agricultural services

- + Solution for rural housing premises with a small area With the type of housing campus located along the road and with trade conditions. The solution is to organize vertically with living and living areas arranged on the 2nd and 3rd floors, while the 1st floor focuses on post-harvest activities to ensure traffic access for import and export.

- + Solution for the traditional housing campus with an average area. With this type of campus, it is suitable for medium-sized post-harvest business activities and with a distributed solution to suit each

functional location. The dry and wet zones are clearly divided so as not to affect each other.

c. Housing combined with self-contained farm and high-tech agricultural tourism service. With this type of housing, the campus area must be over 5000 m². The solution for this type of large campus is that the residential space with the economic activity space will be separated and linked by the common green space.



Figure 3. 3. Organizing functional spaces in housing precinct associated with high-tech agricultural economic activities

3.4 Experimental design example

For the purpose of illustrating and demonstrating the research proposals of the thesis, the feasibility and flexible application of the proposals, the economic and technical indicators to the living space organization with high-tech agricultural economic activities. The researcher selected Thanh Lam village, Luong Tai district in accordance with the criteria.

3.4.1 General introduction about Thanh Lam village, An Thinh commune, Luong Tai district

Characterized as a purely agricultural district, which is planned as an important agricultural production area of the province, in recent years Luong Tai district, Bac Ninh has always determined and gradually developed agriculture in the direction of high-tech application.

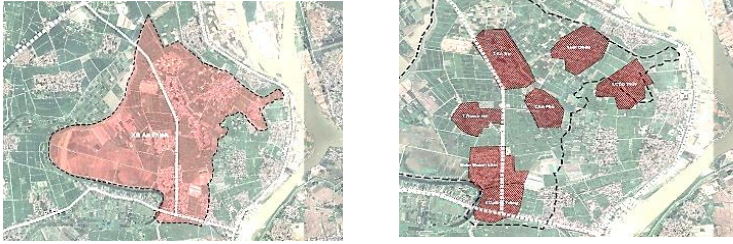


Figure 3.4. Location map of An Think commune and rural residential areas

3.4.2 Organization of residential space in rural residential spots adapting to high-tech agricultural production activities

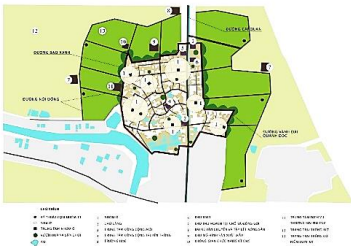


Figure 3.5. The solution of residential space adapting to high-tech agricultural production activities Thanh Lam village

3.4.3 Organization of residential space adapting to high-tech agricultural production activities in inhabitation

On the basis of the current campus, houses with narrow width and large length are typical for households sticking to the road. The renovate is to

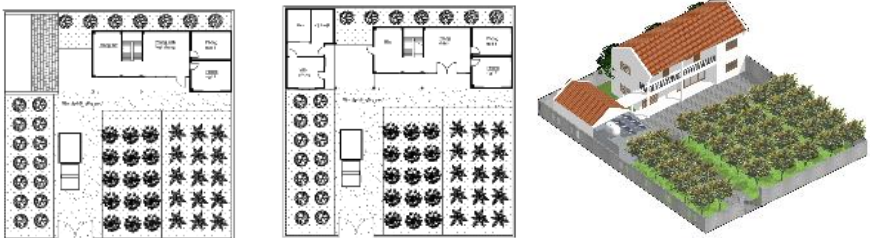


Figure 3.6. Model of a house that combines the orchard with a green technical system and an adjoining control room

raise main spaces to high level. The auxiliary area and the kitchen and warehouse works are concentrated in the main house. Behind the house is renovated and planned to grow vegetables in height with irrigation systems to ensure well water in the back yard.

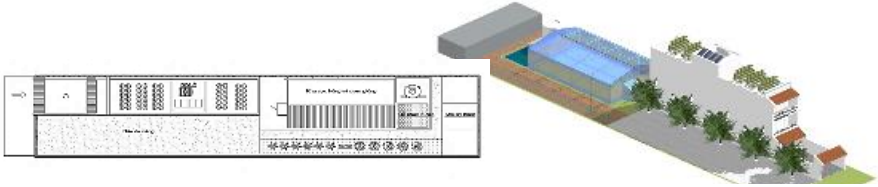


Figure 3.7. Model of a house that combines growing vegetables on high level and the yard behind the house

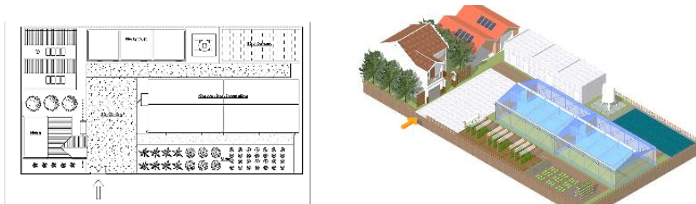


Figure 3.8. Model of housing combined with garden produced by a closed process of flowers and ornamental plants

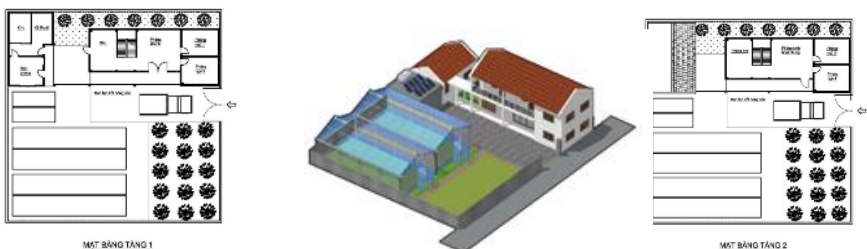


Figure 3.9. Housing model that combines living with growing of vegetable and flower garden

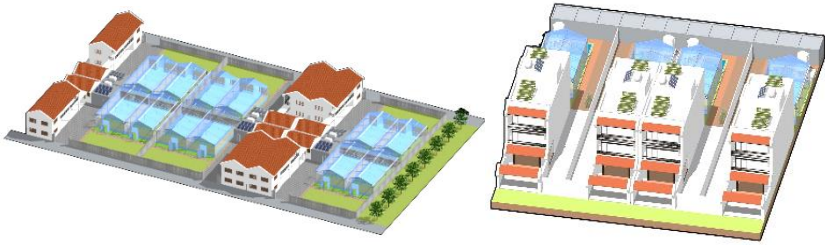


Figure 3.10. Model house for home associated with production and agricultural tourism service



Figure 3.11. Group of houses for households with cross-linked production or a type of high-tech agricultural service

3.5 Discussion of results and applicability

a. Residential spots with high-tech agricultural economic activities outside of residency:

The solution is to renovate and embellish the residential spots structure adapting to high-tech agricultural economic activities space through the addition and organization of new functional spaces and combination of old functions to suit living conditions and high-tech agricultural product along with ensuring the inheritance and development of spaces in the existing residential spots structure. The green belt will be a highlight for

the area and also a space between living and production under the impact of industrialization on the traditional spaces of the countryside.

b. Solutions for living space adapting to high-tech agricultural economic activities' space:

The thesis has proposed the solution of organizing living adapting to different types of high-tech agricultural economic activities suitable for each location of each type of house and the characteristics of horizontal and vertical production linkages. The living group appeared when there was the development of the chain link factor in agricultural production. When there is economic linkage and high-tech application, spatial linkage is also an indispensable requirement to reduce investment costs in the early stages and improve cooperation in production. Households with the same production purpose will build a cluster together

c. Housing solution with high-tech agricultural economic activities in precinct:

The thesis has proposed 3 types of housing associated with specific activities in high-tech agricultural economic activities. The solution has its own characteristics suitable for high-tech agricultural economic activities. The researcher classifies 4 types of housing with agricultural economic activities according to the production process from input to output products for consumption in order to create a system that links with households in production easily. In addition, the researcher has also proposed solutions to organize the residential campus and residential space, supplementing functional spaces to meet the requirements of high-tech manufacturing or service on the precinct.

CONCLUSION AND RECOMMENDATION

1. Conclusion

- In practice, the thesis has conducted an overview of the organization of residential space adapting to high-tech agricultural economic activities

in particular of the provinces of the Red River Delta, except for the North Central Coast provinces. The thesis has provided theoretical and practical foundations

- Proposing a solution to the group model in the residential areas of high-tech rural residents to adapt and create conditions for the development of high-tech rural residents. The living group model is organized based on the theory of chain linkage to create a space to connect in production right at the residence, facilitate the development of high-tech agriculture and access to equipment and high technology in a timely manner. most favorable way.

- The thesis has proposed a solution to organize housing that is suitable for development and meets the needs of modern agricultural technology and equipment. The solution has partially solved the problem of solving space for rural living spaces for the development of high-tech agriculture according to the development trends of new types of housing.

2. Recommendation

Policy:

+ It is necessary to have specific policies in the field of rural housing adapting to the operating conditions of high-tech agricultural economic activities.

Some issues need further study:

+ Organize residential spots adapting to high-tech husbandry activities outside of the residence

+ Planning a network of residential clusters to associate with large-scale production

+ Space organization of high-tech agricultural service center

+ Organizing living space associated with agricultural tourism

LIST OF WORKS PUBLISHED BY THE AUTHOR RELATED TO THE THESIS THEME

1. Dang Thi Lan Phuong (2018), *“Some problems in spatial organization in rural areas with high-tech agricultural economic activities in the Red River Delta”*, Science Journal of Construction and Urban Science No 60 - ISSN 1859 -3119

2. Dang Thi Lan Phuong (2020), *“Orientation of spatial organization in rural areas associated with high-tech vegetable production in coastal areas of Thanh Hoa province”* Science Journal of Architecture and Construction No 40 ISSN 1859 -350X

3. Dang Thi Lan Phuong (2020), *“Space for agricultural economic activities – Challenges for the development of rural landscape architecture space”*, Science Journal of Construction and Urban Science No 41- ISSN 1859 -3119

4. Dang Thi Lan Phuong, Nguyen Thi Bich Thao, Pham Anh Tuan, and Doan Anh Tu (2020) *“Organizing the architectural space of housing and production in the blacksmithing village of Ban Mac village - Ly Nhan commune - Vinh Tuong district - Vinh Phuc province,”* Science Journal of Architecture and Construction No 39-ISSN 1859-3