



## Paper 1: Agricultural Land Conversion

Hsiao-lan Liu

Diversity in land use is commonly observed. However, in the early stage agricultural productivity was the primary source of GDP; agricultural use was the dominated land use type in the world. Von Thunen (1826) developed the Thunen's rings which refers to the spatial distribution of crops according to yield per unit area around a central city. Alonso (1964) extended the Thunen's model to explain the land use competition among different sectors. Alonso concluded that the sector which can pay the highest land rent will get the right to use the land at that location. This is the so-called "bid rent function" which is the basic concept used to explain the land use competition (Richardson, 1977).

After World War II, the economic development shifted from agriculture to manufacturing industry. At the same time, people moved from rural areas to cities. The manufacturing industry and urban land use possess a better advantage on the competition of land.

Since 1949, Taiwan had proposed a series of measures to implement the land reform. As the agricultural sector had been transformed through the land reform, the goal of economic development was shifted to how to speed up industrialization of Taiwan. In order to further strengthen the development of industrial sector, "Statute for the Encouragement of Investment" was passed in 1960, which specified the establishment of industrial districts. It resulted in a rapid increase of agricultural land conversion to industrial use.

According to the Agricultural Statistics of Council of Agriculture, from 1952 to 2017, the agricultural land decreased by 82,097 hectares. From 1952 to 2013, the paddy field has decreased by 137,139 hectares in contrast to the upland field has increased by 60,868 hectares. Then, the total agricultural land loss is 76,270 hectares. Obviously, a great amount of the high productivity agricultural land was conversed into other use. From agricultural land survey in 2017, there is a total of 11.8% of agricultural land which is not for agricultural use. Among this 67.4% are for farm housing, residential use, factory, restaurants, temples, recreational facilities etc.

The purpose of this paper is to overview the background of the agricultural land use conversion policy during past 50 years and the conflicts between ideal policy and practice. Finally, we hope to find out what we have learnt from the experience of the past half century.

**Keyword:** Agricultural Land Conversion, Land Use Competition, Farm Housing, Illegal Factory



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# Agricultural Land Conversion

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# Overview of Presentation

- Introduction
- Overview the policy of agricultural land conversion
- Review the effect of agricultural land conversion policy
- Non-Agricultural Use on Agricultural Land
- Recommendations for future



# Introduction

- Diversity in land use is commonly observed.
- In the early stage agricultural use was the dominated land use type in the world. Von Thunen (1826) developed the Thunen's rings
- Alonso (1964) extended the Thunen's model to explain the land use competition among different sectors.

- As the agricultural sector had been transformed through the land reform, the goal of economic development was shifted to how to speed up industrialization of Taiwan. The import substitution policy was put into effect in 1953. Since then, a large amount of agricultural land began to convert to industrial and urban development use.

# Overview the Policy of Agricultural Land Conversion

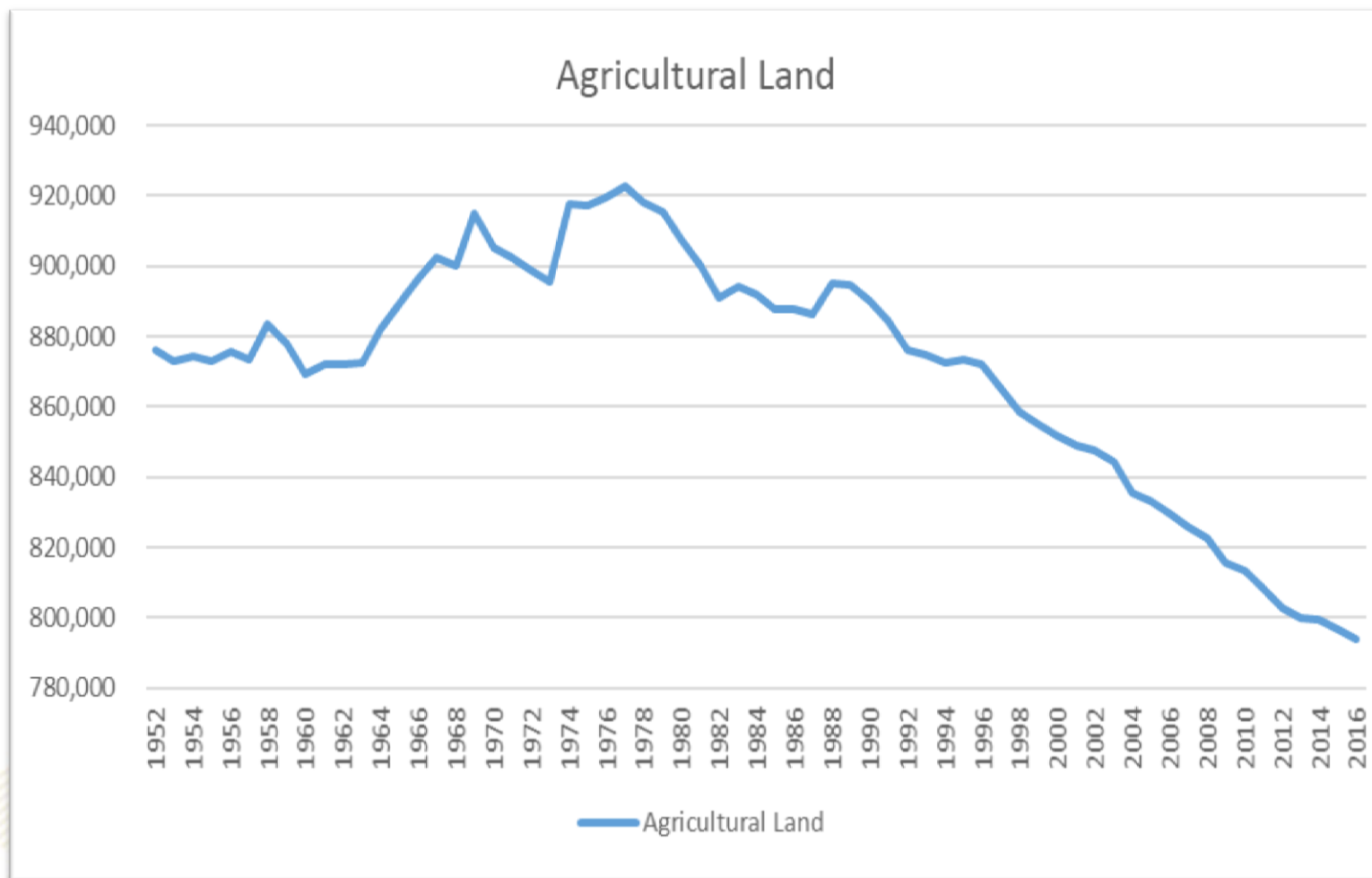
- At the early stage of industrialization, the agricultural sector still had the economic advantage; therefore, the land use conversion policy was focused on helping industrial sector to acquire more land.
- After 1970, the economic development was transited from agricultural development to industrial development. The land use conversion policy was shifted to protect agricultural sector.
- After 1990, the economic role of agricultural sector was decreased. The agricultural land policy switched to release the agricultural land to industrial sector and urban land use.

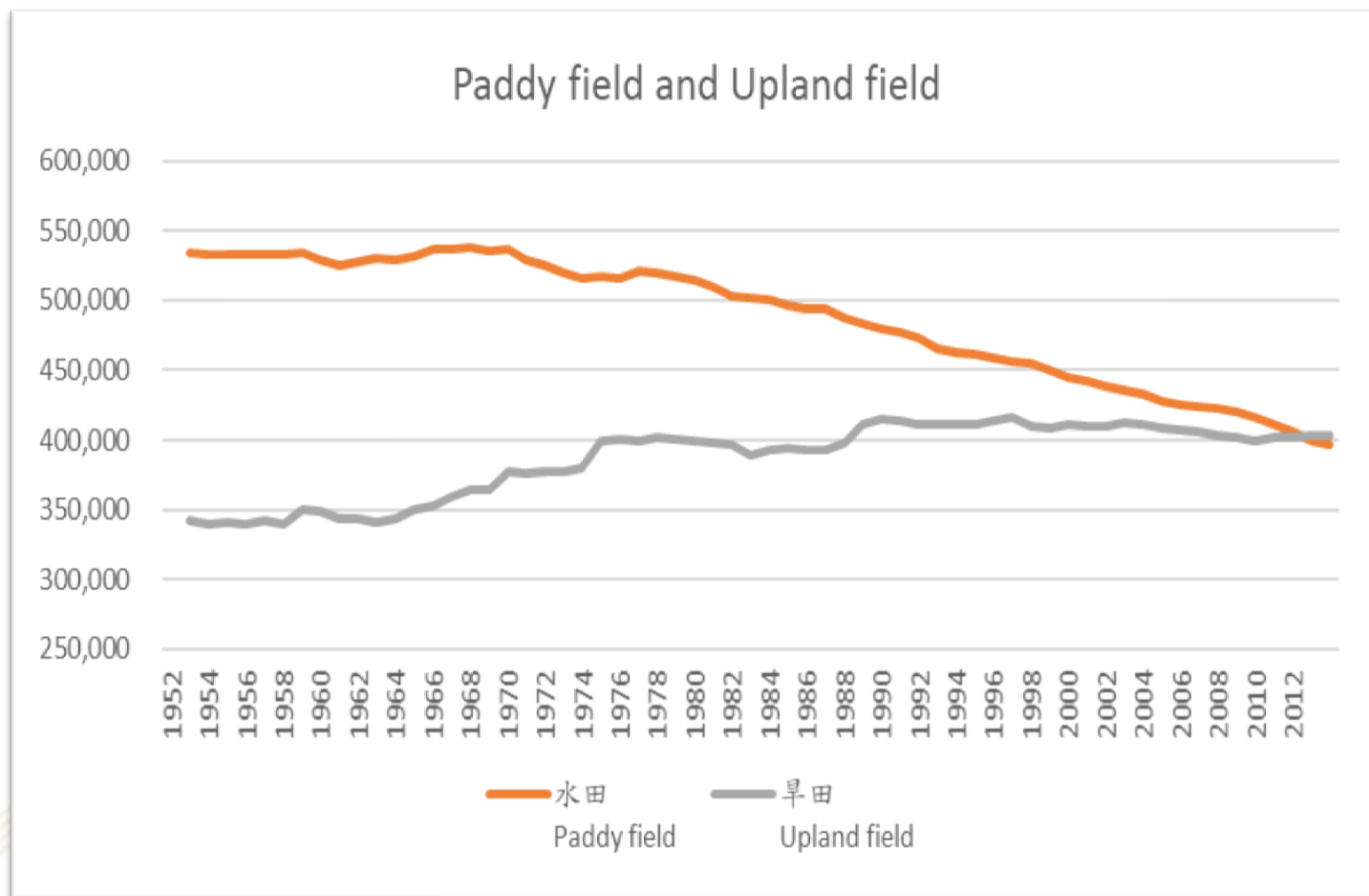
- Land Law in 1930
- Statute for the Encourage of Investment in 1960
- Agricultural Development Act in 1973
- Regional Plan Act in 1974 and Regulations on Non-urban Land in 1976
- Release the Agricultural Land Scheme in 1995
- Amendment of Agricultural Development Act in 2000
- Spatial Planning Act in 2016

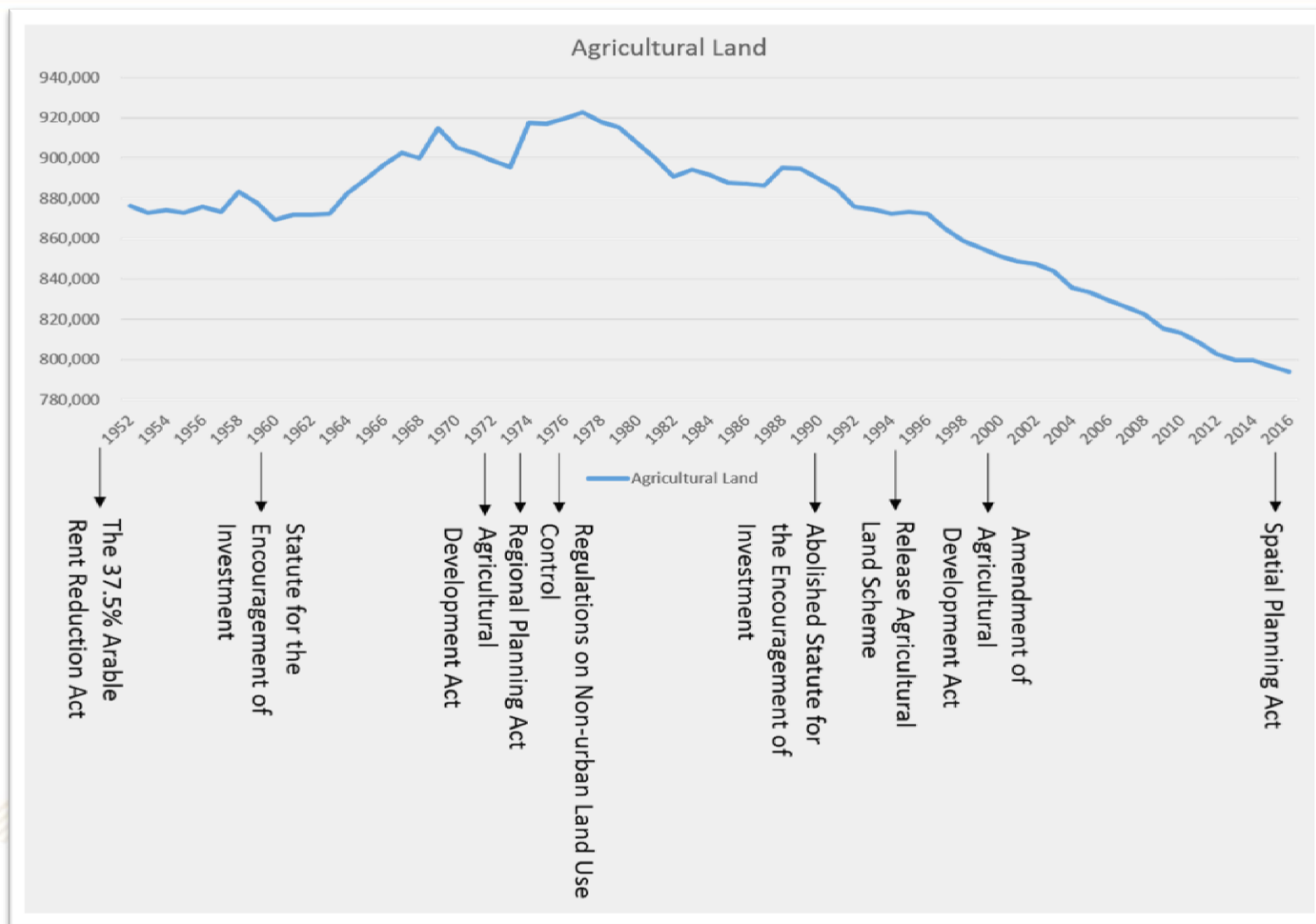
# Review the Effect of Agricultural Land Conversion Policy

- From 1952 to 2016, the agricultural land has decreased by 82,097 hectares. Owing to data limitation, we don't have the paddy field and upland field data after 2013. From 1952 to 2013, total loss agriculture land is 76,270 hectares. However, in the same period, paddy field decreased 137,139 hectares of but upland field increased 60,868 hectares. In summary, Taiwan lost about 25.7% of paddy field during the same period.









# Non-Agricultural Use on Agricultural Land

- According to the agricultural survey in 2017(Platform of Agriculture and Farmland Survey), the non-agricultural use on agricultural land, housing and factory' use are 27.52% and 28.80% respectively. Therefore, farm houses and illegal factories on the agricultural land are the major issues in Taiwan right now.



# Farm house

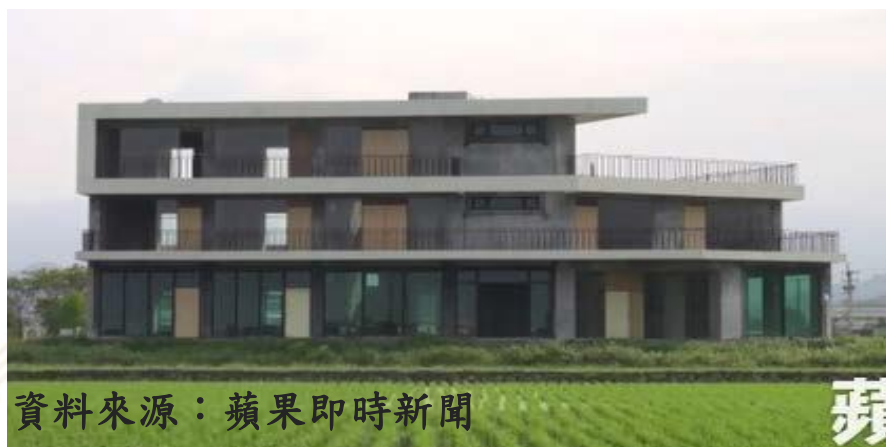
- The Amendment of Agricultural Development Act was promulgated in 2000.
- 1. The agricultural land use policy had switched from agricultural land owned by cultivators and used by agricultural production in the past to agricultural land should be used for agricultural production but not necessarily owned by cultivators.
- 2. Another significant change is allowed cultivators to build farm house on their agricultural land.

The Statute of Building Farm house on Agricultural Land was proposed in 2001.  
According to the Statistics data that 66% of agricultural land lots with farm house are less than 0.25 hectares.

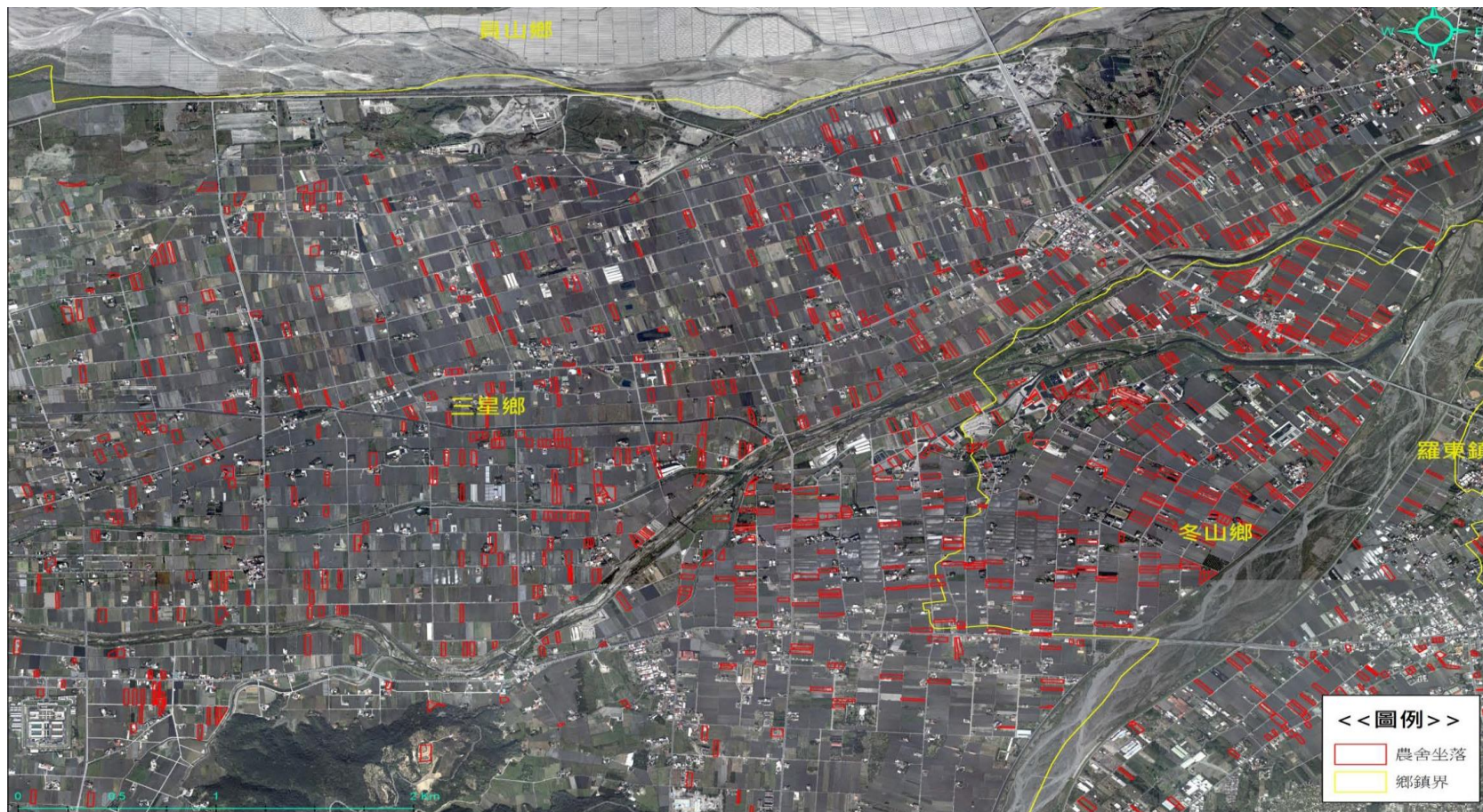
# Farm house on Land Use Zoning in Non-urban Planned Districts

Land Use	Number of Farm Housing	%
Primary Agricultural Zone	10,835	70.5%
General Agricultural Zone	2,151	14.0%
Slope Land Preservation Zone	1,976	12.9%
Scenic Zone	321	2.1%
Special Zone	61	0.4%
Forestry Zone	27	0.2%
Village Zone	3	0.0%
Total	15,374	100%

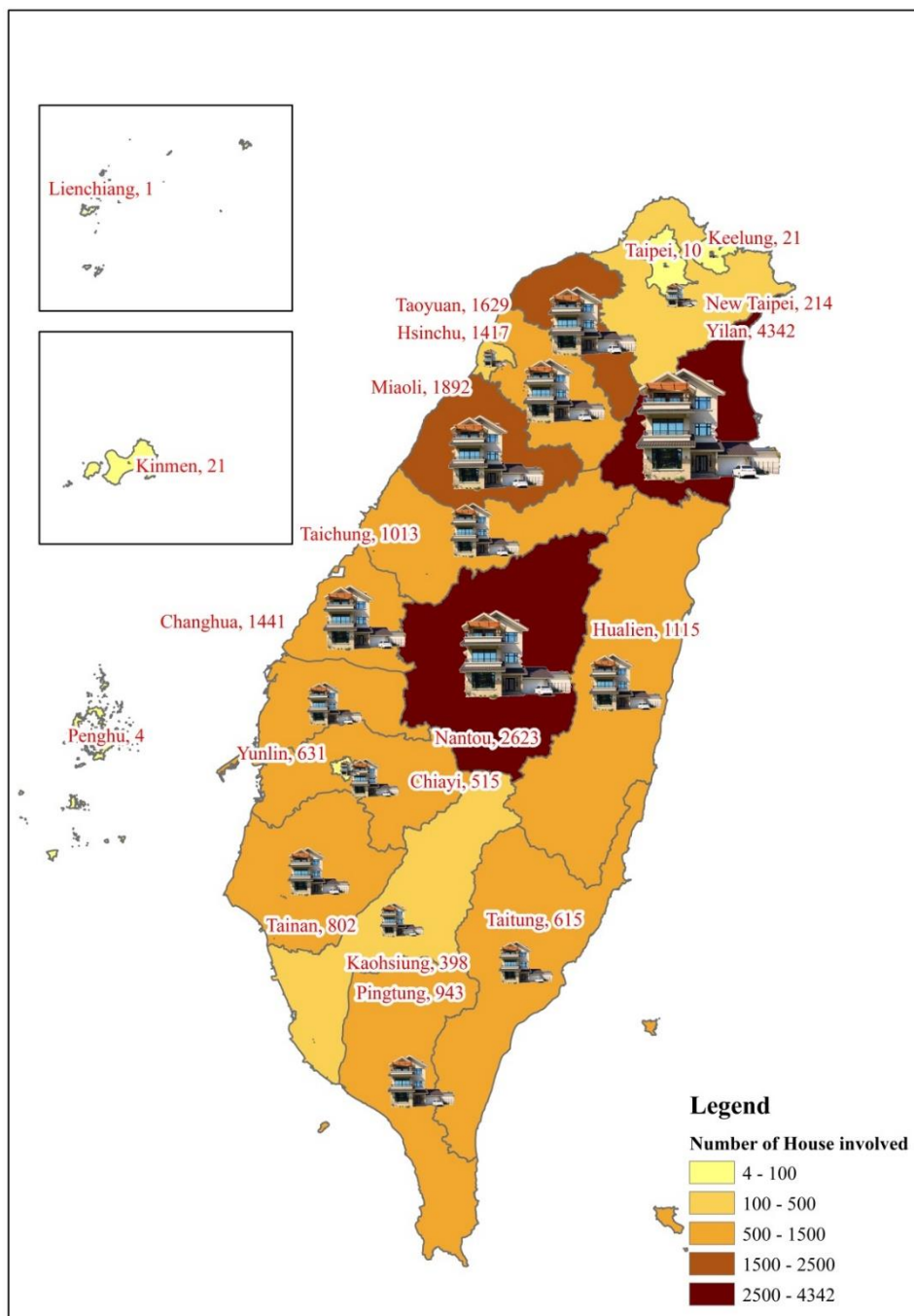
Source: Lin, 2017







Source: Council of Agriculture



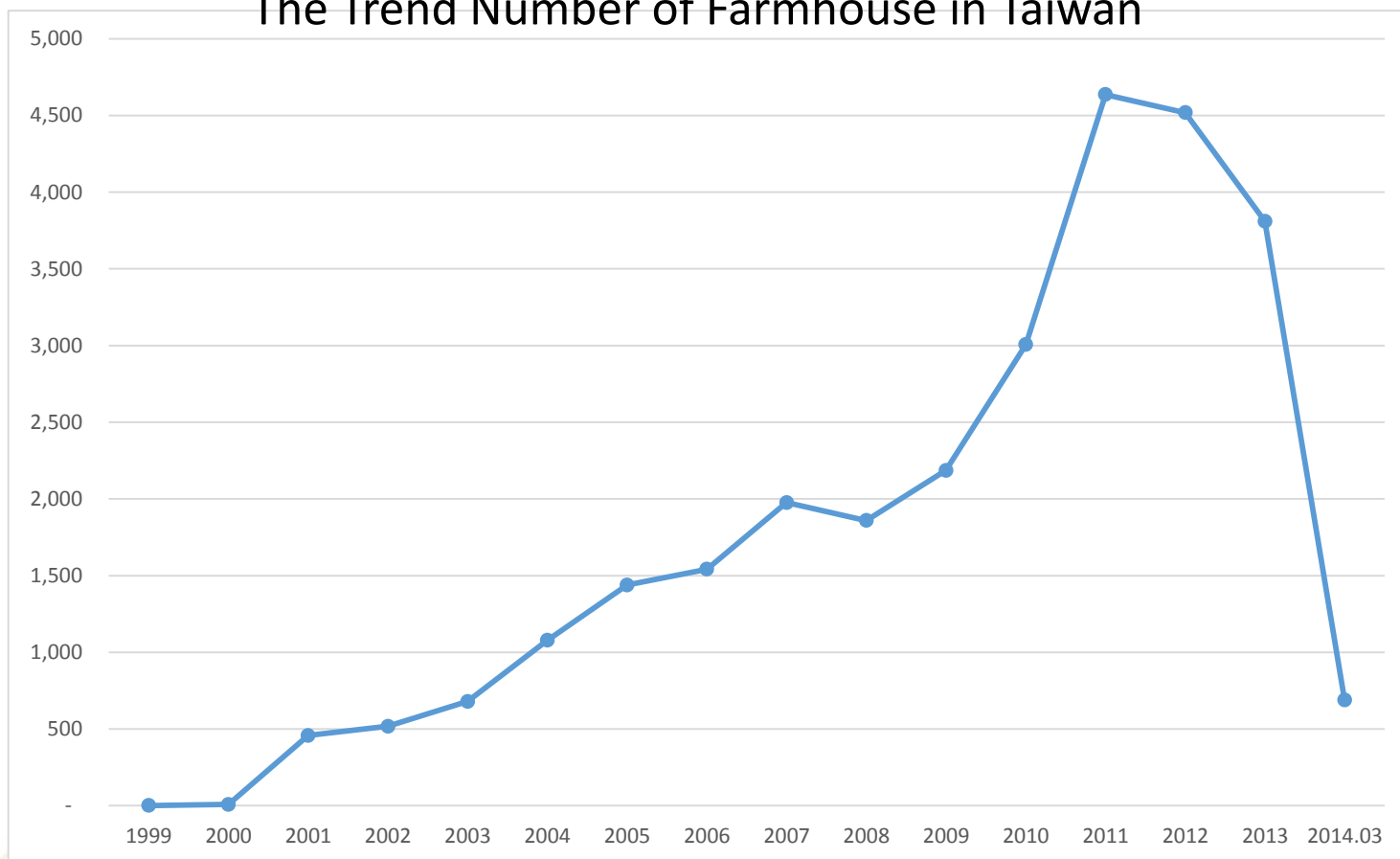


- At the same time, the ratio of the farm house owners are farmers is only 38.8%.
- On the other hand, the major of the farm houses are restaurants, resorts....., etc.

- In 2013, Council of Agricultural revised the regulations of building farmhouse. For example, the type of the land, the minimum of the building lot size, effluent standards, schedule inspection, etc.



## The Trend Number of Farmhouse in Taiwan



Source: Lin, 2014

- Cluster Farm House

In order to provide a better living environment, Council of Agricultural proposed statutes to encourage farmers to build the cluster farm house. There are at least 20 farmers in group to apply for the construction of the cluster farm house.

Zoning		Construction Area ( Hectares )	Percentage of Construction Area	Related Cultivate Land ( Hectares )	Percentage of Related Cultivate Land
Rural Area	Primary Agricultural Zone	28.4	46%	23.1	4%
	General Agricultural Zone	8.9	14%	80.0	15%
	Village Zone	-	0%	-	0%
	Forestry Zone	-	0%	12.4	2%
	Slope Land Preservation Zone	9.8	16%	323.5	59%
	Scenic Zone	0.5	1%	4.6	1%
	National Park	-	0%	13.1	2%
Urban Area	Agricultural Zone	14.0	23%	85.1	15%
	Preservation Zone	0.1	0%	9.1	2%
	Both of Agricultural and Preservation Zone	0.4	1%	-	0%
Total		62.0	100%	550.8	100%

Source: Lin, 2014

# The Illegal Factory on Agricultural Land

- According to the survey, there are 134,574 illegal factories on 13,859 hectares of agricultural land.





Source: Business Today

- The Reasons:
  - 1. Labor Supply
  - 2. Land Tax
  - 3. Location
  - 4. Land Price
  - 5. Agglomeration economies.
  - 6. Fiscal Effect



# Recommendations for Future

- Land conversion is related to market lead and planning lead.
- For the market lead: How to apply the ecological value of agricultural land transform to the market value is an important issue.
- For the planning lead: Government should execute the policy strictly.



# Thank You

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