The Influence of the Regional Revitalization Policy on Taiwan's Land Planning—Taking Pingtung County Township as an Example

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Abstract. Taiwan's population estimate report released in August 2018 shows that the population will decrease by over 1/4 by 2065, and the proportion of the elderly population in the total population will increase to 41.2%. In addition, in terms of population distribution, the urban population accounted for 69.2% of the total in 2017 and will exceed 70% by 2065, thus, the problem of uneven regional population distribution will become more severe. Moreover, as the young and strong labor force flock in large cities, the rural industrial labor force is insufficient, and the gap between urban and rural areas is widening. Therefore, the Executive Yuan set 2019 in Taiwan as the first year of local revitalization as a land development strategy to address population loss, recreate local employment opportunities, and revitalize the local industrial economy. In this context, Taiwan began promoting the Land Planning Law in 2016, which aims to cope with climate change, ensure land safety, conserve the natural environment and cultural assets, promote rational allocation of resources and industries, and pursue sustainable development. However, the priority areas for local revitalization are mostly remote and vulnerable areas, such as agricultural, hillside, and forest lands. Land use laws and regulations have many restrictions and lack flexibility in use, which is not conducive to attracting industries or population return. Thus, this study chose Pingtung County as a case study to explore the related factors of land use under the promotion of local industrial development, and provide strategic direction for Taiwan's township land planning.

1. Research Motives
Taiwan's population estimate report released in August 2018 shows that the total population will show negative growth in 3 to 10 years.[1] Compared with 23.57 million in 2017, the total population is estimated to decrease to 17.35 million by 2065, for a population decrease of more than 1/4. In terms of the population structure, the proportion of the elderly population in the total population will increase from the 13.9% in 2017 to 41.2% by 2065, which is an increase of more than 60%. In addition, in terms of population distribution, the population of 6 municipalities accounted for 69.2% of the total in 2017, thus, the problem of uneven regional population distribution will become more severe. Moreover, as the young and strong labor force flock in large cities, the rural industrial labor force is insufficient and the gap between urban and rural areas is widening. In light of the decreasing total population, aging and sub-replacement fertility, over-concentration of population in metropolitan areas, and the imbalance in urban and rural development, the Executive Yuan declared 2019 the first year of Taiwan's local revitalization, fully launched local revitalization-related works, and developed local industries...
according to local characteristics, in order to attract young people to return home, and solve population changes.

However, the priority areas for local revitalization are mostly remote and vulnerable areas, such as agricultural, hillside, and forest lands. There are many law and regulation restrictions on land use, and the use of agricultural land is mostly limited to one-level production activities related to agriculture. In addition, there are many restrictions on value-added services or other new industries, which is not conducive to attracting industries or the population to return. Taiwan's Land Planning Law mentions the "overall planning of rural areas", which can be connected with the overall planning and development or transformation strategies of rural areas in land planning, such as adjusting land use and tourism regulations, promoting the development of local industries, activating existing land and facilities, assisting in the development of creative undertakings, and promoting local creative plans. Thus, this study chose Fangliao Township, Pingtung County as a case study to explore the related factors of land use under the promotion of local industrial development, and provides a strategic direction for Taiwan's township land planning.

2. Land Space Planning and Local Revitalization Policy

In order to meet the needs of globalization, the overall development of the country, the changing trend of the natural environment, and the operation of the high-speed rail in the South, and in the context of aging and sub-replacement fertility, global climate change, energy conservation, carbon reduction, and other changes at home and abroad, and uphold the principles of sustainable economy, sustainable society and sustainable environment, the National Development Council successively put forward the "Land and Space Development Strategy Plan" in 2010, issued the Land Planning Law in 2016, and designated 2019 as the first year of Taiwan's local revitalization.

2.1. Land and Space Development Strategy Plan

The 2010 Land and Space Development Strategy is divided into 4 parts for the sustainable development of urban and rural areas.[2]

- Strengthen competition in urban areas and promote growth management; adopt the Green TOD development concept, develop important transportation routes in an orderly way, and take high-speed rail stations, Taiwan rail stations, rapid transit stations, and passenger transfer stations as the overall network type of transfer points. Moreover, as the total population growth is slowing down and shows a negative trend, the newly developed areas should adopt the development model of ecological urban and rural areas, while the old urban areas should gradually adopt this development model and develop towards intensive cities, and the rural areas can adopt the Traditional Neighborhood Development (TND) model.

- Pursue the overall development of rural areas and tribes to balance the gap between urban and rural areas: Mainly promote rural regeneration and build a partnership between urban and rural areas. Construct and perfect rural public facilities services and improve accessibility, provide proper public transportation services, use digital services (such as long-distance medical services, long-distance libraries, etc.), and mobile services (such as mobile medical services, mobile libraries, etc.), in order to enhance the livability of rural areas and attract urban immigrants.

- Construct green infrastructure, and improve disaster prevention ability in urban and rural areas: During architectural planning and design in urban and rural areas, great attention should be paid to enhance urban disaster prevention functions; for example, proper countermeasures should be taken for areas suitable for living or industrial activities, or regional building regulations oriented to disaster prevention should be established in areas with subsidence of strata and flooded areas to avoid disasters and losses caused by climate change.

- Provide public facilities and living facilities to meet quality of life: Consider and adjust the regional characteristics and population structure, and build a hierarchical supporting structure of facilities; for example, efforts will be made to divide the urban and rural strata into the main urban cities (2 million people, 60 minutes of driving), regional centers (1 million people, 45 minutes of
driving), local centers (500,000 people, 30 minutes of driving), and municipal centers (50,000 people, 10 minutes of driving); plan different service infrastructures according to the urban and rural strata.

2.2. Land Planning and Rural Development

In response to the challenges of the global environment and climate change, and to solve the disorder of Taiwan's land development, the Land Planning Law was promulgated on January 6, 2016. The "National Land Plan" is the highest legal outline guiding plan for Taiwan's land planning, which considers land conservation, food security, urban and rural development, and local flexibility. Among them, the promotion of the overall planning of rural development areas is mainly based on the land space development and growth management strategy of the National Land Plan. Rural area planning includes introducing regeneration plans for the concepts of life, production, and ecology, and land planning principles that meet the needs of the population structure and development trends.[3][4]

Introducing the concept of regeneration planning for life, production, and ecology

- **Life**: Introduce digital environments, activate idle spaces, promote urban-rural communication, preserve rural culture and community awareness, etc., and improve basic service facilities, such as local commerce, tourism, assembly places, cultural facilities, and belief centers.
- **Production**: Maintain the agricultural land environment, promote six-level agriculture, enhance rural tourism, construct tourism service facilities, etc. to support tourism and leisure activities that are beneficial to businesses, communities, and tourists in rural areas.
- **Ecology**: Avoid damaging the habitat environment of important animals and plants, improve the water permeability of the base, and create a biodiversity ecological environment.

A Principles of land planning

In order to improve the problems of lack of public facilities, shortage of construction land, destruction of rural environments, and disorderly development in rural areas, the overall planning of rural areas should consider the population structure and development trend. The principles of land use planning for residential, industrial, transportation, and basic public facilities needs are, as follows:

- **Residence**: In areas with growing population, efforts should be made to guide intensive development; in areas with reducing population, the existing idle spaces should be evaluated, transformed, and reused to improve the environment quality.
- **Industry**: To meet the needs of local agriculture, characteristic industries, and commercial services, flexible land use control regulations should be formulated to promote the sustainable development of rural real estate industries.
- **Transportation**: Plan a green transportation environment, such as bicycles and electric vehicles, and create an efficient and friendly transportation environment oriented by the basic transportation needs of the public.
- **Basic public facilities**: According to the development of rural areas, efforts should be made to plan and set up basic public facilities, such as elderly and child care service facilities, sewage treatment, tap water, electricity, telecommunications, etc.

2.3. Local Revitalization Policy

The purpose of local revitalization is to develop the local economy according to local characteristics, ease the trend of over-concentration of the population in the six municipalities, and gradually promote immigration on the island with the vision of maintaining Taiwan's total population of not less than 20 million people in the future. It is hoped that the population moving to the island will be equal to the population leaving the island by 2022, and the local population will return to achieve the goal of "a balanced Taiwan" by 2030. Therefore, the priority areas for local revitalization are mainly concentrated
in the non-six municipalities, such as the central, southern, and eastern regions, which covers 66.5% of the total land area and 11.6% of the total population. If the population continues to decrease, it will be difficult to maintain the basic living facilities and functions in these regions in the future.

At present, there are 368 villages and towns in Taiwan. After analyzing the population change rate, population size, residents' income, and other factors, and considering the priority of resource utilization and the economic weakness of residents in the region, 134 villages and towns are listed as priority areas for local revitalization to promote regional and local revitalization development strategies. It is of great importance to create a virtuous circle of local "work" and "people", in order that work can drive the growth of the local population, and the region will gradually prosper. However, according to the "2018 Local Revitalization Priority Promotion Areas", as shown in Figure 1, and the comparison chart of the "2010 Land and Space Development Strategic Plan", it is found that the two major objectives of the land and space development policy in 2010 are: Reasonable land planning and suitable regional development, and guidance for vulnerable development areas. Efforts should be made to enhance continuous promotion in local priority areas, in order to solve the lack of employment for the rural industrial labor force, and fill the gap between urban and rural areas.[5]

Therefore, in addition to optimizing local industries, promoting local brands, expanding international links, and providing employment opportunities, local revitalization will strengthen and maintain the basic living functions of remote and vulnerable areas, such as upgrading education functions, medical care, and related public services, and strengthening related infrastructure, such as external transportation systems, etc. In this way, it may connect local industries and cities, and attract urban population to move and gradually live stably in local regions.

![Figure 1. The comparison chart of the “2010 Land and Space Development Strategic Plan” and the “2018 Local Revitalization Priority Promotion Areas”](image)

3. Methodology

This paper is based upon Fangliao case study from the 2018 Local Revitalization Priority Promotion Areas. Efforts should be made to analyze demographic change rates, population size, residents' income, and other factors, and consider the priority of resource utilization and economic vulnerability of residents in the region. Thus, the 134 villages and towns were listed as priority areas for local revitalization. As shown in Figure 2, Pingtung County tops the list with 27 townships listed for local revitalization. The land area and population of the 27 townships account for about 60% and 80% of Pingtung County, respectively. Therefore, through the promotion of local revitalization, Pingtung County will achieve overall balanced development. Fangliao Town, Pingtung County was selected as an example, as shown below. The Local Revitalization Plan of Fangliao Town is the second plan submitted by Pingtung County to the "Local Revitalization Conference of the Executive Yuan", and the main contents of its proposal plan are, as follows.
4. Case study Analysis

4.1. Origin

Fangliao is the most important transportation node from western Taiwan to Hengchun and the eastern region. There are 3 main roads and an ancient flooding camp road, as well as other important settings. In the current highway network, Provincial Highway 1 and Provincial Highway 17 meet at Shuidiliao and move towards Provincial Highway 26 to the south of the border. They also go south, and then, east through Provincial Highway 9 to Taitung. In terms of railway transportation, Fangliao Station is an important third-class station at the southernmost end of the western trunk line. Due to its strategic position on the coast, Japanese troops led by Governor Nogi Maresuke landed at Fangliao to take over Taiwan according to the Treaty of Shimonoseki in 1895. In recent years, direct flights from the Fangliao Fishing Port to Hsiao Liouciou have become a hot topic for tourism development.

Today's Fangliao gives visitors the impression of an old business signboard of Shuidiliao, and because of its crowded intersections, visitors prefer to avoid the congested traffic flow and dimly lit business stores as possible. Moreover, in light of the subsidence of the strata, flooding caused by extreme climate, the lack of infrastructure, such as seawater pumping stations, and the aging population migration, Fangliao Town has developed slowly, and gradually lost its attraction. Featuring a large number of people and cars, Fangliao has been used as a station instead of a destination. Therefore, in line with the local revitalization policy of NDC, efforts should be made to "optimize local industries, consolidate employment opportunities", "build villages and towns, light up towns and villages", and "promote brand Taiwan and expand international ties", in order to create a virtuous circle of "work" and "people", support the virtuous activation of urban and rural areas, and achieve the primary vision and goal of keeping "people" and stabilizing the local population.

4.2. Plan positioning

In order to achieve the above-mentioned vision and goal of keeping "people", Fangliao is positioned as a "seven-star tourist post station of sea, roads, and railway". By using its transportation advantages of sea, roads, and railway, it is used as a tourist entrance hub for Pingtung County and even South Taiwan. In addition, Fangliao's local characteristics are integrated to render unique highlights and create a rest node to attract tourists to stop during their journey, as shown in Figure 3.
4.3. Implementation strategy

The vision, goal, and orientation of Fangliao's local revitalization will be put into practice in line with the 5 strategic plans of NDC for local revitalization, and the implementation strategies are introduced, as follows.

- **Enterprise investment:** Through various incentives, such as tax concessions and adjustments of laws and regulations, enterprises are encouraged to invest in their hometown and adopt local businesses. For example, the Pingnan Industrial Zone can propose more favorable investment conditions for food processing and biotechnology-related industries to cooperate with local farmers and fishery producers, in order to attract manufacturers for investment.

- **Technology introduction:** Efforts should be made to introduce AI + IoT, cloud computing, and big data, and use sensors and environmental control facilities to monitor farmland and fishing grounds, maintain quality of crops or catches, etc. In addition, innovative production and management methods should be adopted to improve the working environment of traditional agriculture and fishing, which will attract young people to return. Further efforts should be made to build and improve the digital foundations of villages and towns, extend the concept of the IoT to the grassroots villages and towns, and thoroughly improve the convenience and safety of Fangliao Town's various industries and daily life through the introduction of applications, such as telemedicine, health monitoring, and intelligent transportation networks.

- **Integration of creative resources:** The National Development Council will integrate the resources of finance, information, and talents of the central ministries and commissions, and work hand in hand with county-level administrative teams, local community autonomous associations, agricultural and fishery association organizations, religious and cultural organizations, and local aspiring young people to form a Fangliao local revitalization team.

- **Social participation in revitalization:** Through the joint participation of the USR resources of universities, the Industrial Technology Research Institute, Fangliao General Hospital, and other corporate institutions, consulting and marketing teams, knowledge, technology, and talents are jointly invested for local revitalization.

- **Brand establishment:** Efforts should be made to build a seven-star post station brand to attract visitors to "stay in Fangliao", which will drive the overall development of Fangliao through sightseeing consumption. Through brand development, the resources of different industries, such as agriculture, fishery, food processing, local cultural revitalization, intelligent service, railway sightseeing, infrastructure, and long-term medical care may be integrated to create a seven-star post industry chain, as shown in Figure 4.
4.4. Survey research and implementation plan result

In light of the resources and software and hardware construction required for the long-term development of Fangliao Town, in terms of culture, industry, construction, transportation, education, and social welfare, the Fangliao Town Office works through the participant study with its revitalization partners, including the Fangliao Fishery Association, Fangliao Farmers’ Association, Hsinlung Community, Tunghai Community, Dachuan Community, and Hsinka Community, to form the "Fangliao Revitalization Plan for Business Integration", and put forward an implementation plan centered on value-added plans for the agriculture and fishery industries, an environmental preparation plan, and an exhibition space. There are 4 value-added items for the agricultural and fishing industry: the intelligent application and six-level plan for the aquaculture industry, development of the characteristics of innovative products and the Fangliao brand design plan, the five-sense experience sightseeing industry plan for agricultural and fishing villages, and brand building plans for characteristic post lunches. There is 1 exhibition space: the F3 characteristic post industry revitalization hall. There are 3 items of environmental preparation: the Fangliao F3 Art Special Zone Industrial Activation Plan, the Fangliao Station Commercial Street Environmental Improvement Plan, and the Smart Green Energy Public Transport Plan, as shown in Figure 5.

4.5. Plan benefits

The introduction of mini-industries, such as fresh lunches made from local products, will promote the development of relevant industrial chains. Starting from local grass-roots needs, the "seven-star post station of sea, roads, and railway" will be gradually created. The implementation of this plan will reverse the image of the western trunk line in Fangliao, and it will become a "destination", as it was in the past. In this way, Fangliao will be built as the "entrance and starting point" for the future development of
southern Taiwan in the spirit of local revitalization. Table 1 shows Fangliao's revitalization career concept and KPI.

5. Conclusions

Taiwan's local revitalization plan hopes to attract industries and populations to return. Based on the case analysis of Fangliao Township, this study found that the plan is implemented in principle over 4 years, and the existing space can be used for evaluation, transformation, and activation according to the land planning law of 2016. As the laws and regulations concerning land control are very complicated, the local revitalization policy has not been greatly adjusted at this stage; however, the draft of "Measures for the Administration of Primary Processing Plants of Agricultural Products" have been announced in 2019, which introduce the flexible use regulations of agricultural land. It not only solves the problem that small farmers' processed agricultural products cannot be distributed to large-scale channels due to their failure to obtain legal factory registration, it also increases the items sold by farmers, enhances the added value of agricultural products, and attracts young people to return home for employment, thereby, promoting the sustainable development of the rural real estate industry. This is also the impact of local revitalization policies on Taiwan's land planning.

Table 1. The Conception and KPI of Fangliao's Local Revitalization

| Subject | Seven-Star Post Value-added Plan | Responsible Team | Source of income |
|---------|----------------------------------|------------------|------------------|
| Intelligent Application and Six-level Plan of the Aquaculture Industry Brand Design Plan Development of the Characteristic Innovative Products and Fangliao Fishery Association, Fangliao Farmers’ Association Hsinhong Community, Tunghai Community, Dachuan Community, Hsinka Community | F3 and Characteristics Industry Operation Service F3 Station Local Physical Exhibition and Sales Center (Daozhiyi) Post Lunch Catering Service Marketing Revenue of Brand Management Local Brand Value Creation | FangLiao F3 and Characteristics Industry Operation Service | F3 Station Local Physical Exhibition and Sales Center (Daozhiyi) Post Lunch Catering Service Marketing Revenue of Brand Management Local Brand Value Creation |
| [Description] | [Local Revitalization KPI] Sum of Seven-Star Post Stations | | |
| Intelligent Application and Six-level Plan of the Aquaculture Industry Brand Design Plan Development of the Characteristic Innovative Products and Fangliao Fishery Association, Fangliao Farmers’ Association Hsinhong Community, Tunghai Community, Dachuan Community, Hsinka Community | Employment Opportunities Attractive Investment/Yuan Number of Investment Entrepreneurs Youth returning population/person New brand Visitors Overall turnover New Direct Channel Purchases (retail)/person | Planned KPI/Unit Value (Year)/Value (4 Years) 8/42 2,250,000/7,175,000 5/14 5/24 8/19 91,600/497,000 4,718,000/79,740,000 3/10 62,00/342,000 |
| [Place of implementation] Fangliao Station Square and Storage and Transportation Road Fangliao Town Characteristic Community | | |

References

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[3] Spatial Planning Act Promulgated on January 6, 2016.
[4] National Development Council 2018 The 2019 National Development Plan-Speeding up National Development, Achieving Excellence in Execution ISBN 9789860583991. [in Chinese]
[5] National Development Council 2018 National Strategic Plan for Regional Revitalization (Approved version) (Taipei City)

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