RESILIENCE CAPACITY

SUSTAINABLE DEVELOPMENT VISION IN NORTHEASTERN COASTAL NATIONAL SCENIC AREA

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Contents

ABSTRACT

Acronyms and Abbreviations

CEPD	**Taiwan Council for Economic Planning and Development**
CPAMI	**Taiwan Construction and Planning Agency, Ministry of the Interior**
ESA	**Environmentally sensitive area**
FACOA	**Taiwan Fisheries Agency, Council of Agriculture**
FBCOA	**Taiwan Forestry Bureau, Council of Agriculture**
NCNSA	**Taiwan Northeast Coastal National Scenic Area**
NLPL	**Taiwan National Land Use Plan Law**
SWCB	**Taiwan Soil and Water Conservation Bureau,Council of Agriculture**
TBMTC	**Taiwan Tourism Bureau, Ministry of Transport and Communications**
WRA	**Taiwan Water Resources Agency, Ministry of Economic Affairs**
AEC	**Taiwan Atomic Energy Council**

Preface

The research theme is a study of sustainable development capacity in natural conservation area. The research tackles with a territorial management issue that competing interests happened in Taiwan National scenic area. In conservation areas management and planning, there are few general problems happened.

1. The rigid plan and regulations which exclude the capacity for human activities lead to conflict relationship in the designated conservation areas and local communities.
2. The conservation area management and regional planning often lack of sufficient local involvement in plan making process which lead to unwanted development strategy.
3. Although landscape protection and economy development sometimes have competing interests, the planning agency underestimates the potential to integrate flood prevention, landscape protection, and tourism development in regional plan.

In this research project, Northeast coastal national scenic area is an area with similar problems that states above. The effective of the master plan and latest policy provision in Northeast Coastal National Scenic Area shows insufficient integration of landscape and natural resource protection, tourism development, flood prevention. In addition, the lack of value and consensus are caused by ineffective coordination between government agencies in decision making process. Moreover, the insufficient local involvement in the planning process leads to seriously local protests. In short, the existing planning regime needs to be elaborated and find alternative instruments to resolve the conflicts in the case study area. Therefore, a regional plan in Northeast coastal national scenic area will be developed as an exemplary case that can provide development capacity for that fulfil different stakeholders.

The research goal is to define the development capacity in a regional plan, that response national policies and local initiatives of sustainable development. Therefore, stimulating possible future development directions that can integrate flood prevention, landscape protection, and tourism development is the first step of this research. In addition, finding a sustainable industry development that relating to local lifestyle and cultural landscape is the second step of this research. In order to formulate this research, the policy analysis will help me to highlight the development regulation and constrains in conservation areas. Moreover, the stakeholder analysis will help me to clarify the relationship between stakeholders. In addition, the landscape analysis will help me to find the potential site of this area.

Few scenarios will be created for compare the competing interests in different stakeholders. Since scenario creation can be used as a framework to understand and anticipate landscape change, four scenarios presenting stakeholders perspective will be stimulated to test the planning framework. The overlapping issues of the scenarios will indicate the inevitable spatial development trends, which need to be the review for development capacity.

Figure 1. Terrace farming in Gongliao

Source: www.eeft.org.tw

Figure 2. Au'ao downtown and surrounding landscape

Source: www.eeft.org.tw

I. Introduction

1. Back ground Information

In Taiwan, mountainous slopeland areas, where development is restricted, cover 73 per cent of the entire island (SWCB, 2013). The total environmentally sensitive area (ESA) delineated by the Ministry of Interior to be reserved for natural resource conservation covering 77 per cent of the total area of Taiwan (CPAMI, 1992). The ESAs can be categorized as four classes and various types of natural protection areas (NPAs). Development in these areas is neither prohibited or subject to strict regulation but different types of laws and regulations (Bristow et al., 2010)

The value and paradigms of international preservation areas have changed from a "preservation doctrine" which excludes human society in creating a pure island of preservation, to the integration of the "human ecosystem" (Hsu & Lin, 2013).

Northeast Coastal National Scenic Area also provides the opportunity to develop and protect the quality of Taipei Metropolitan. Northeast Coastal National Scenic Area (NCNSA) located 40 km away to Taipei city and ranked as 4th popular National Scenic Area in Taiwan. However, the opportunity to develop and protect the quality of Taipei Metropolitan through tourism development was lacking feasible and sustainable vision in Northern Regional plan (1995). Due to the lack of a precise inventory of natural factors, the delineated ESAs in regional plans are not zoning controls (Kuo & Huang, 2010). However, the master plans in local level reflecting the guidance in natural protection areas but is lacking flexible framework for the locals need.

The main problem is the conflicting relationship between designated preservation areas and the locals. Although most stakeholders agree that the landscape and natural resource protection are necessary, the locals and the government take the opposite attitude to landscape and environment development. The strict regulations and complex actors make it more difficult to reach agreement in the decision making process. In order to adjust the integration of human activities in protection areas, the research will evaluate the existing environmental policy and strategy of natural protection area in Taiwan.

2. Societal relevance

Healey defined the participatory approach as 'involving all relevant stakeholder stakeholders already in early stage of the planning process to achieve wide support to the resulting of spatial development plan' (Healey, 2006). Innes et al. suggested the governance system need to involve not only governments and public sectors, but also profit and non-profit entities, civic organisations and representatives of a large public (Innes et al., 2010). As the civic awareness increased in Taiwan, the case in the creation of Taijiang National Park used a political ecology perspective and analytical matrices of stakeholders, to understand the competing interests, conflicts, compromises and interactions between those stakeholders and to clarify the important development issues and local opinions (Hsu & Lin, 2013). They both emphasize the importance to accommodate ideas and regulate conflicts between relevant stakeholders. The initiative of Civilian Economic Improvement Strategic Plan- Improving Land Utilization and Landscape Quality of Northeaster Coastal National Scenic Area was the national policy in 2010. The objective was to provide new development instruments and to resolve the conflicting relationship between policy and local community. However, the proposal enhance the conflict relationship instead of reduce it because the lacking of local consultation in the plan-making process and led to large against the proposal and demonstrate.

3. Scientific relevance

My research theme is a study of sustainable development capacity in natural conservation area. The research tackles with a territorial management issue that competing interests happened in Taiwan National scenic area.

Adaptive approach in environmental planning has been advocated not only by ecologists but also political scientists and land use planner (Briassoulis, 1989). Representing a mentality of prepared responsiveness (Holling, 1978), the adaptive approach consists of a series of successive and continuous adaptation of human activates to variable, over space and time, environmental and socioeconomic conditions (Briassoulis, 1989). Since the existing planning regime in Taiwan needs to be reviewed and find alternative instruments to accommodate competing interests and conflicts, the research in Northeast coastal national scenic area will be an exemplary case that can define the development capacity for sustainable development. Hence, a planning regime that consider environmental, economic, and social factor into the conservation areas management will transfer as an international spatial planning comparative analysis for further research.

TAIPEI TIMES

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Land seizure plans for NE coast anger residents

'WORSE THAN BANDITS': Residents said that despite promises they could keep half their land, they would have to sell at NT$1,000 a ping and buy it back at NT$28,000

By Lee I-chia / Staff Reporter

Environmental groups and landowners from the northeast expressed anger at a land expropriation project to make way for hotels.

The project is part of an "action plan for a land amendment to improve the people's living" originated by the Ministry of Transportation and Communications and passed by the Ministry of the Interior's Construction and Planning Agency last year, which intends to use land in the northeast coastal area for tourism.

Smoothly sloped areas near Hemei Township (和美), Audi Village (漢底) and Fulong Village (福隆), as well as locations in Gongliao District (貢寮) and New Taipei City (新北市), are to be expropriated for development.

The initial plan, outlined in March last year, covered 688.5 hectares of land, including high-quality farmland and wetlands. After provoking strong opposition from local residents, the area was reduced to 102.56 hectares last month, but of that territory, about 88 percent is private land.

Figure 3. The local demonstration of Civilian Economic Improvement Strategic Plan

Source: Taipei Times, 2011

II. Project object

1. Problem define

1.1 The natural protection framework and development restrictions in Northeastern coastal area environmentally sensitive areas (ESAs)

Under the supervision of the Council for Economic Planning and Development of the Taiwan government, the Ministry of Interior completed studies of delineation of ESAs completed in the Northern and Southern regions, Central region, and Eastern region in 1992, 1996 and 1997 respectively (Huang, Jen, & Hung, 2006). The primary studies of the delineation of ESAs are seemed as the strategy basis of natural resource protection in national-level, regional level and local level. Moreover, the delineation of ESAs response to the study of natural protection areas defined in the Natural environment preservation plan in Taiwan (1984).

In NCNSA, four categories of ESAs are defined: Ecologically sensitive area (national forests, wetlands, coastal zone conservation areas and natural preservation areas); Cultural and landscape sensitive area (scenic areas); Resource production sensitive area (forest and prime agricultural land) ; Natural hazard sensitive areas: flood prone areas and geologically hazardous areas (Kuo & Huang, 2010). Development in these areas is either prohibited or subject to strict regulation by different types of laws and regulations. (Huang et al., 2006).

In the existing planning system, the primary purpose of the delineation of ESAs in Taiwan at present is for the incorporation of resource conservation within the revision procedures of the four regional plans as required by the Regional Planning Act (Huang, Jen, & Hung, 2006). Since the new draft National land use planning law (2010) has not passed by Legislative Yuan, regional plan is the highest level of statutory spatial plan in Taiwan. In this case, regional plan is the basic guidance of urban and rural area development, as well as the protection of natural resource and landscape areas. Since the Northern regional plan (1992) emphasized the spatial development in urban areas, the vision and development pattern to urban-rural relationship need to be clarified.

1.2 The restriction for environmental and landscape planning in Northern coastal area

The initiative of Civilian Economic Improvement Strategic Plan- Improving Land Utilization and Landscape Quality of Northeaster Coastal National Scenic Area was the national policy in 2010, approved by Executive Yuan and implemented by Construction and Planning Agency of Ministry of Interior (CPAMI). CPAMI, the highest planning agency in Taiwan, plays the leading authority to coordinate other ministries and local municipality. Since Gongliao located in four types of ESAs, development is highly restricted. The local residents need to apply building permit through complicated procedure for housing renovation. The negative effect of the strict regulation result in poorly maintained living environment. Hence, the strategic plan intended to solve the conflicting problem in designated protection area with the locals by integrating hotel area development, change land use in conservation areas, and disaster prevention into a single protect (CPAMI, 2010).

After 30 years of developments restriction, the local expected the strategic plan to solve the spatial problem and enhance local economic development. However, the local were disappointed to CPAMI's draft proposal, 102.56 hectare lands were designated as collective development areas. In order to attract tourism investors, 8.58 hectare of the hotel zone were proposed in the project (CPAMI, 2010). Due to the lack of transparent information in the planning process, the benefit for local sustainable economy development and landscape protection is questionable. In addition, as civic awareness increased, the creation of new collective development areas in NCNSA resulted in conflicts of interest with the local community. In general, applying adaptive approach and planning framework to integrate natural resource protection and landscape development for sustainable future need to be clarified and implemented in NCNSA. The effective mechanism and tools that require and facilitate a social context with flexible and open institutions and multi-level governance systems need to be identified.

2. Problem statement

2.1 The existing planning regime and strategy did not provide effective solution to accommodate conflicts and values.

For example, the Construction and Planning Agency delineated environmentally sensitive area for national land use protection and hazard prevention; the Tourism Bureau proposed new collective development in order to attract hotel investment for tourism development; the Water Resource Agency proposed ecological engineering methods for flood prevention. In addition, the local people wanted to maintain small scale farming and renovated their house with less restricts; environmental groups claimed an eco-tourism related to local life style. Moreover, the real estate developer intended to develop the area into luxury resort. The relevant stakeholders proposed different development values in northeast coastal areas, but the existing plan cannot integrated all demands into one single project.

2.2 The proposed strategy by CPAMI did not resolve the conflict but enhance the conflict instead.

The government strategy and policy is too rigid that not allow local people to development. The four types of environmentally sensitive areas (ESAs) were designated according to Northern Regional plan (1995). In the past 30 years, development in Northeast coastal area was prohibited and restricted because of the land use regulation highly prohibit restoration and expansion of existing settlements. However, the new strategy from CPAMI in 2011 reduced the regulative intensive majority in order to attracting hotel investor for tourism development.

2.3The urgent need for sustainable vision that accommodates national policy and facilitates competing interests.

Northeast coastal area is a place with high landscape value, environmentally vulnerability and risk. The complex value of the territory generates pressures between conservation and development. The nature of Northeast coastal area was well preserved because of strict land use regulation. However, the development potential for sustainable development was underestimated. A sustainable vision that integrates ecosystem, risk prevention system, and socio-economic system need to be reviewed and clarified in regional level.

III. Research question

1. Research goal

The research goal is to define a development capacity in a regional plan, that response national policies and local initiatives of sustainable development. In addition, define the sustainable vision with social and ecological aspect in northeast coastal area.

2. Main research question

The main research question that should be answered is the following:
What is a sustainable spatial development vision including social and ecological aspect in environmentally sensitive area?
In order to find the answer to the question the element that contains should be researched and first. The current physical environment quality, the planning regime and instruments in research site Northeast Coastal National Scenic Area, and the interrelationship between stakeholders need to be clarified.
The following sub-research questions, therefore, represent the in-between steps that will be taken:

2.1. What is the quality of exist physical environment in northeast coastal area?

a. What is the constraints and potential of coast, mountain and valley area ?

b How does these elements distribute in the area? What is the nature of the element and what is function? (soil and water conservation, natural resources protection, agriculture and aquaculture, mobility, recreation and tourism)

c. What are the suitable activities patterns of this area (agriculture development works, accessibility, transport nodes, landscape, recreation and tourism, water and soil protection)?

2.2 What is the strength and weakness of existing planning instrument in research site?

a. What are the instruments to regulate development activities? And what is the effectiveness of the instrument?

b. What is the policy provision in national, regional, prefecture and local level?

c. How the instruments response policy provision, and what is the value and purpose for the instruments?

2.3 What is the interrelationship between the relevant stakeholders?

a. What is the responsible body for regulation, management, and development in the area?

b. What are the conflict values and competing interests happened in the territory

2.4 What is the sustainable development vision that response national policy and reflect local characteristic?

a. What is the priority developmen principle to achieve social-ecological content?

b. What are the alternative visions represent this region?

c. What does the ecological system, mobility system, landscape function in this region?

IV Brief analysis

1 Geographical type and conservation areas distribution in Taiwan

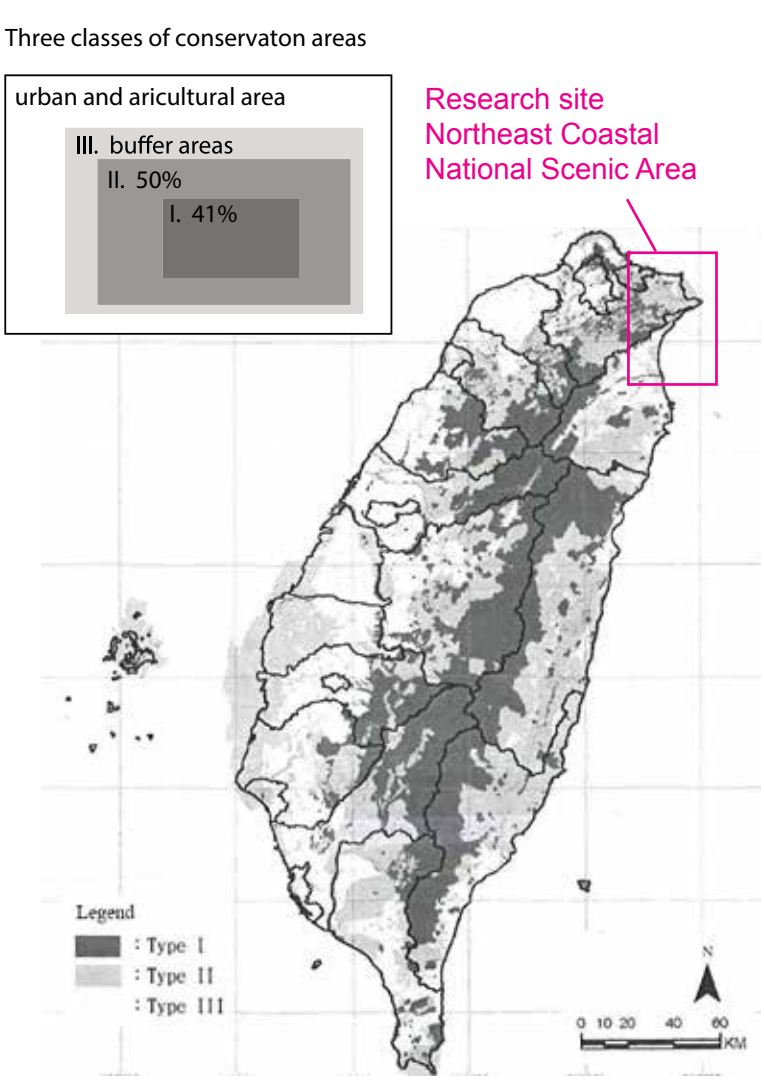


Figure 4. Conservation areas distribution in Taiwan

Source: Map by author ,adapted from SWCB

Figure 5. Plain area is the major urban development

Source: www.flytiger.com.tw

Figure 6. Slopeland & valley is buffer area (Type III & II)

Source: www.flytiger.com.tw

Figure 7. Mountain areas (Type I.)

Source: www.flytiger.com.tw

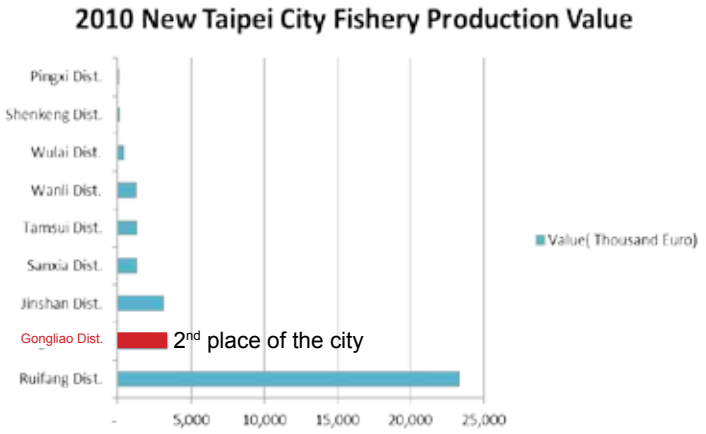
Class I : most sensitive part of Taiwan, cover 41 percent of the total Taiwan area.
Class II : mid-level sensitive part of Taiwan, nearly 50 per cent of the entire island.
Class III : serves mainly as buffers between the conservation areas and the man urban and agricultural areas.
Gongliao is located at the class II and class III areas, the buffer zone plays critical roles because the trade-off in protection and development activities.

2 Economy and primary industry

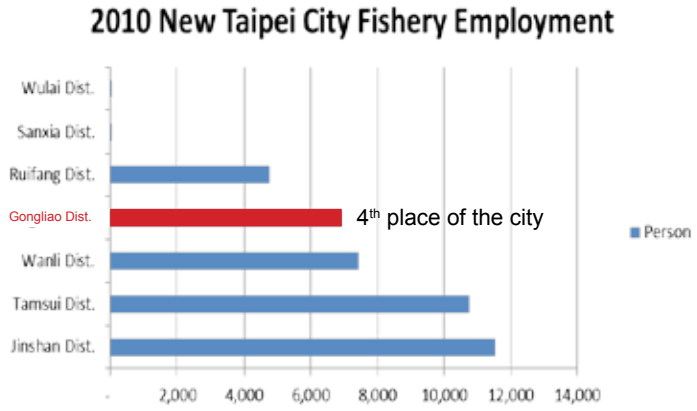
Northeaster Coastal area attracts more than 4.3 million visitors per year, which has potntial to generate 204 million euros tourism income (0.06% GDP)

€ 204,310,895	Tourism revenue (2011) 0.06% GDP
€ 3,382,204	Fishery production value (2011)
€ 145,475	Industry, commerce and service production value (2011)

Source: Source: Directorate-General of Budget, Accounting and Statistics, Executive Yuan (Taiwan),



Source: New Taipei City Government (2010)



Source: New Taipei City Government (2010)

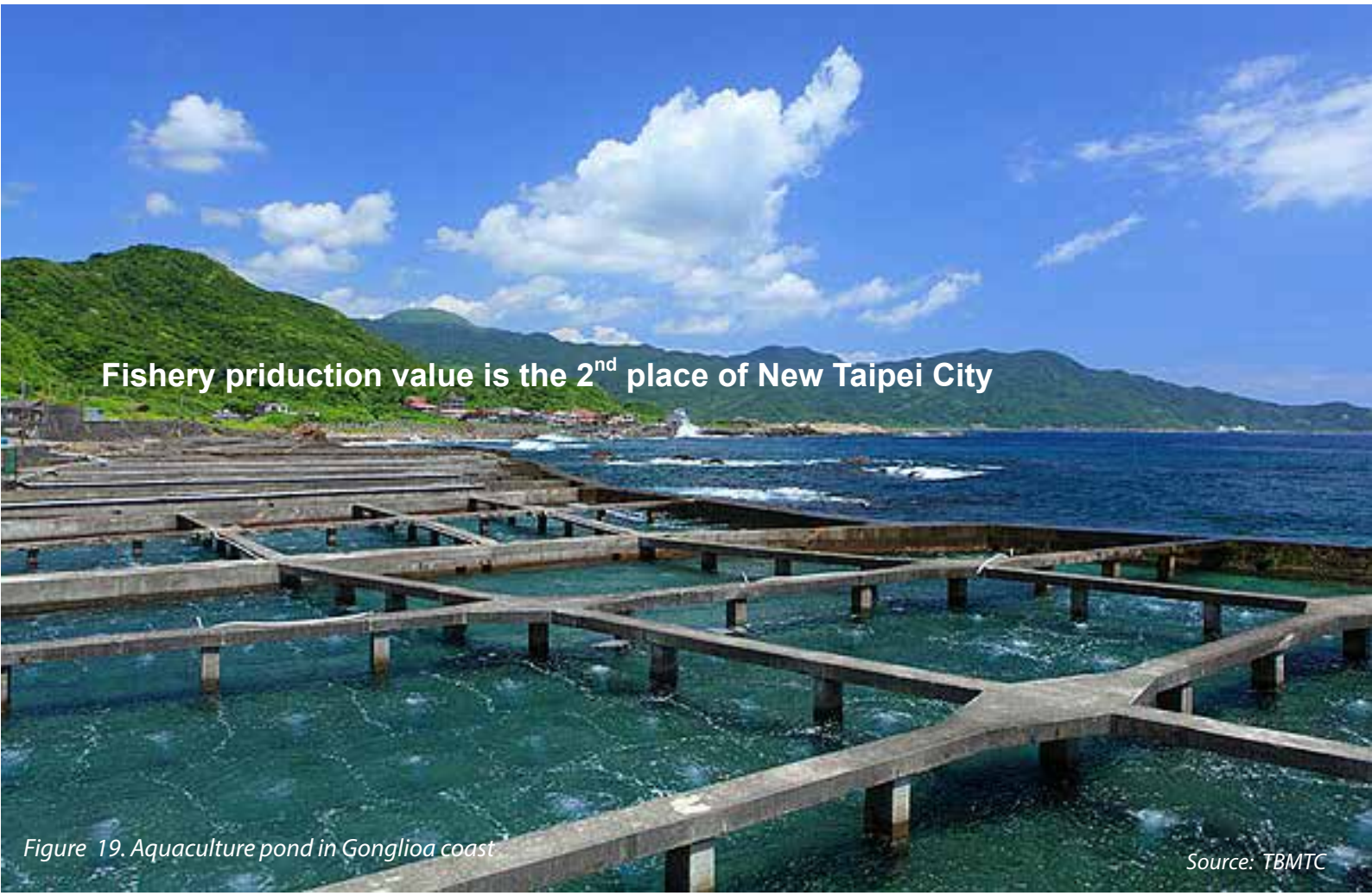


Figure 19. Aquaculture pond in Gonglioa coast

Source: TBMTC

Figure 20. Gongliao coast

Source: TBMTC

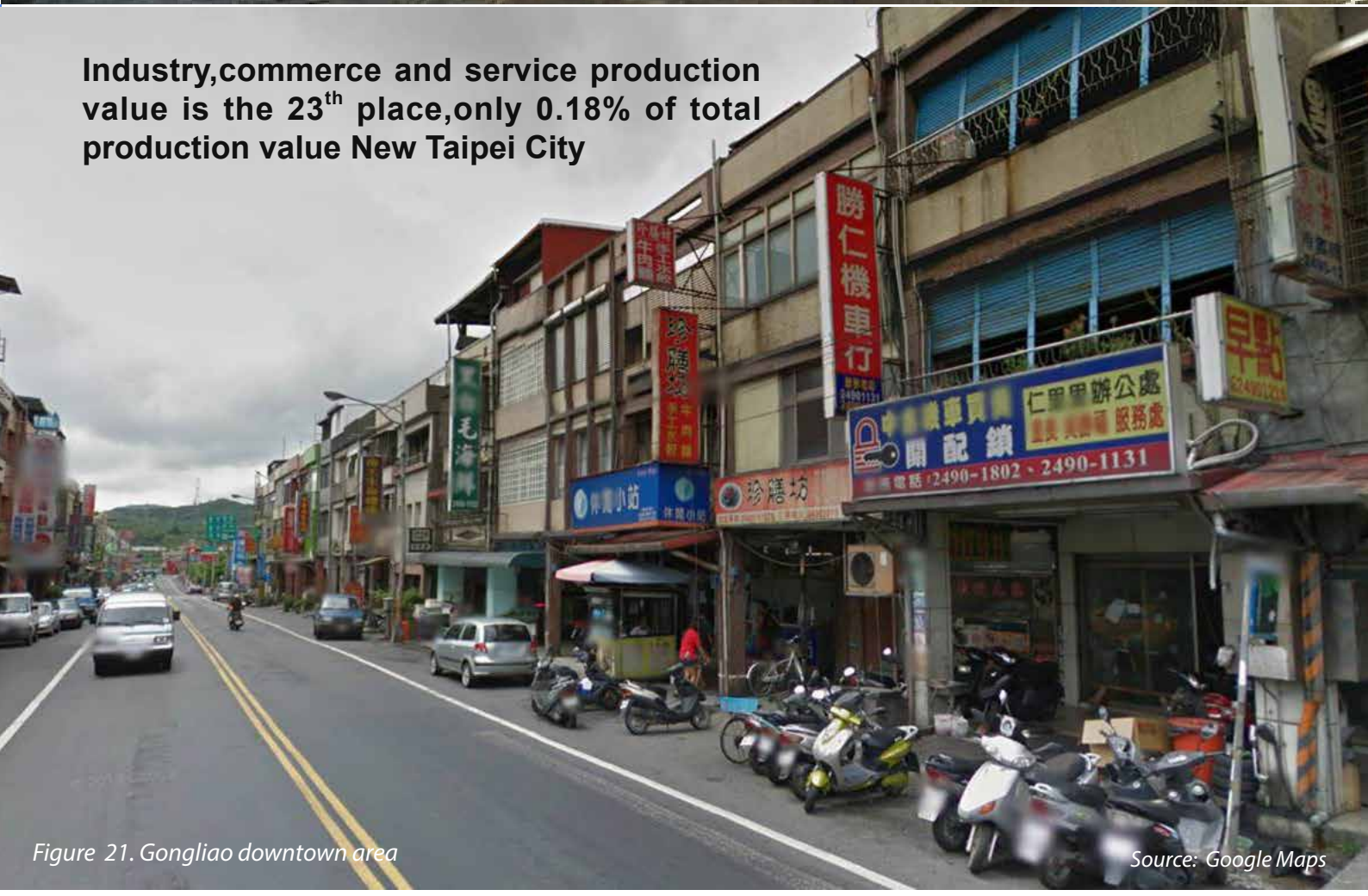


Figure 21. Gongliao downtown area

Source: Google Maps

3 Planning regime and hierarchy

3.1 Natural conservation area planning system

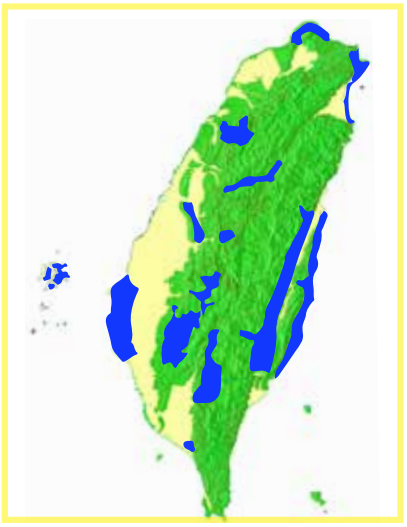
Natural conservation area type	National Park	National Scenic Area	National Forest Recreation Area
			
Authorities	Construction and Planning Agency, Ministry of Interior (CPAMI)	Tourism Bureau, Ministry of Transportation and Communications (TBMTC)	Council of Agriculture, Forestry Bureau (FBCA)
Function	Preserve the nation's unique natural scenery, wild fauna and flora and historic sites and provide public recreation and areas for scientific research	Locations with picturesque natural landscape, ecosystem, culture and humanism tourism values shall be designated and developed as a tourism location.	Protection of landscape, conservation of forest ecosystem, and provision of eco-tourism, leisure, educational/recreational activities, environmental education and natural experiences to tourists.

Figure 8. Environmental sensitive area types protection areas in Taiwan

Source: Adapted from CPAMI, TBMTC and FBCA websites (2013).

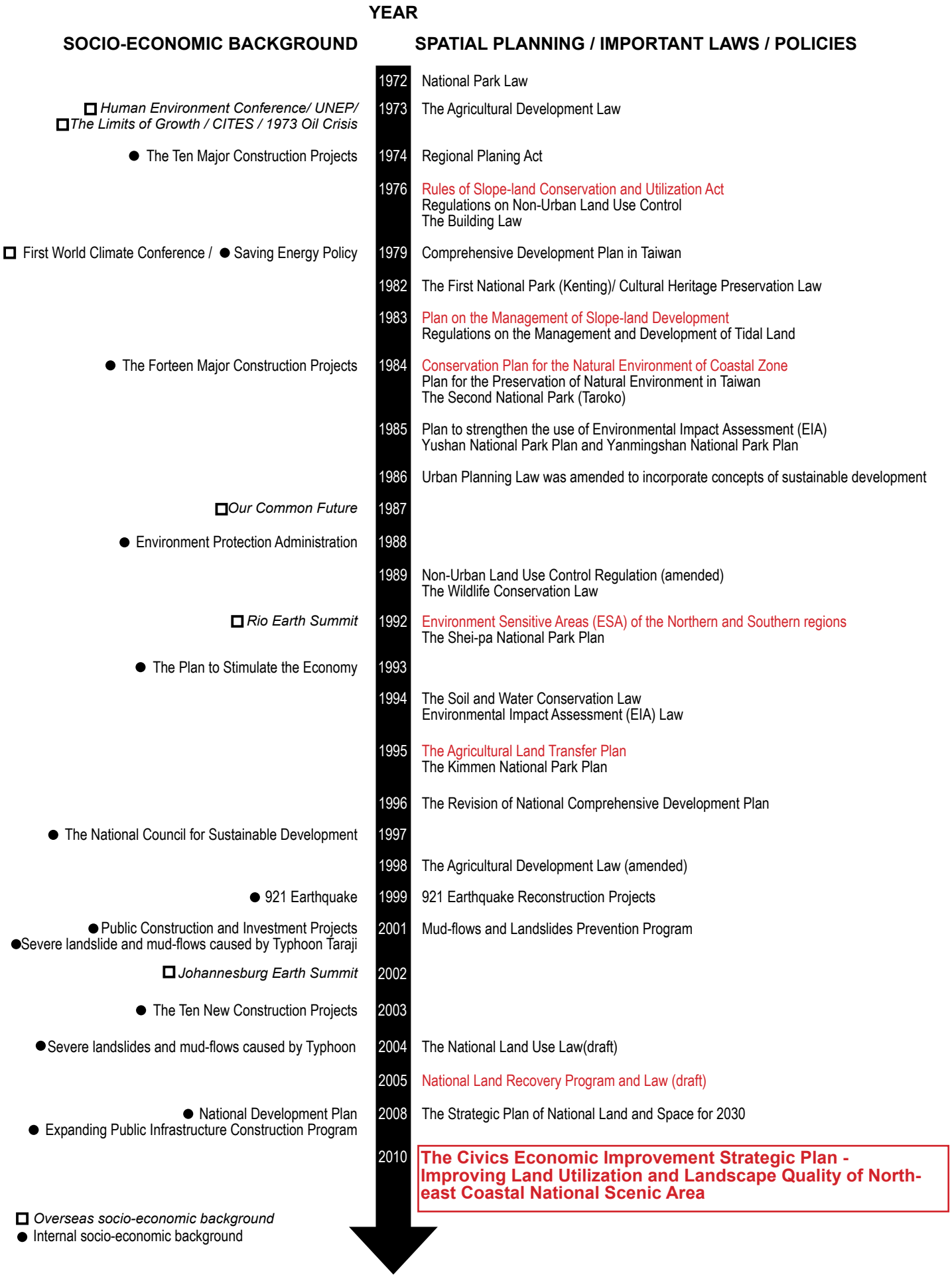


Figure 9. Chronological list of Taiwan's efforts on resource conservation

Source: Council for Economic Planning and Development (2005) , Taiwan

3.2 Planning hierarchy and planning system

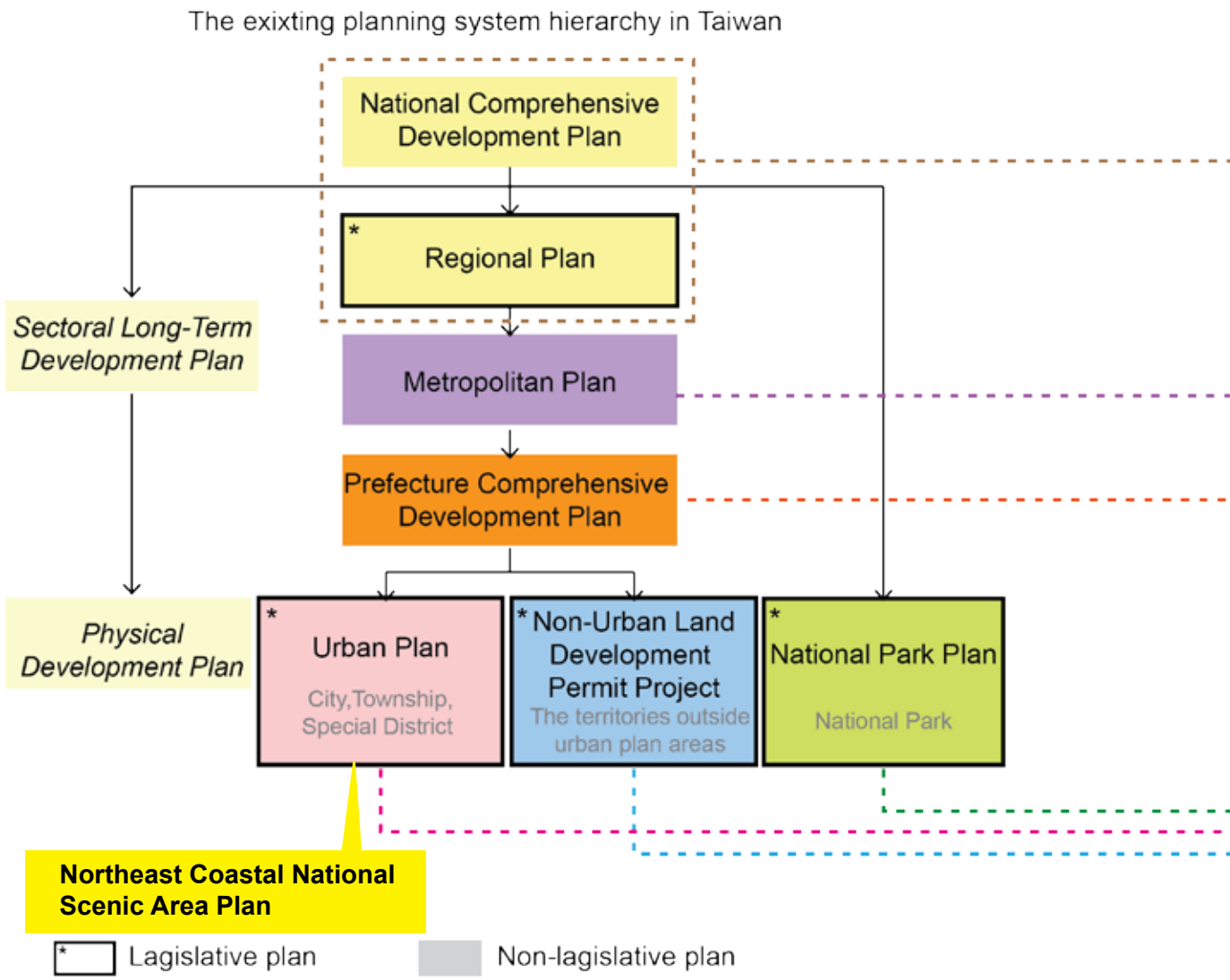


Figure 10. Planning regime and system in the transition period.

Source: Current planning mechanisms in Taiwan, Chen et al.(2010)

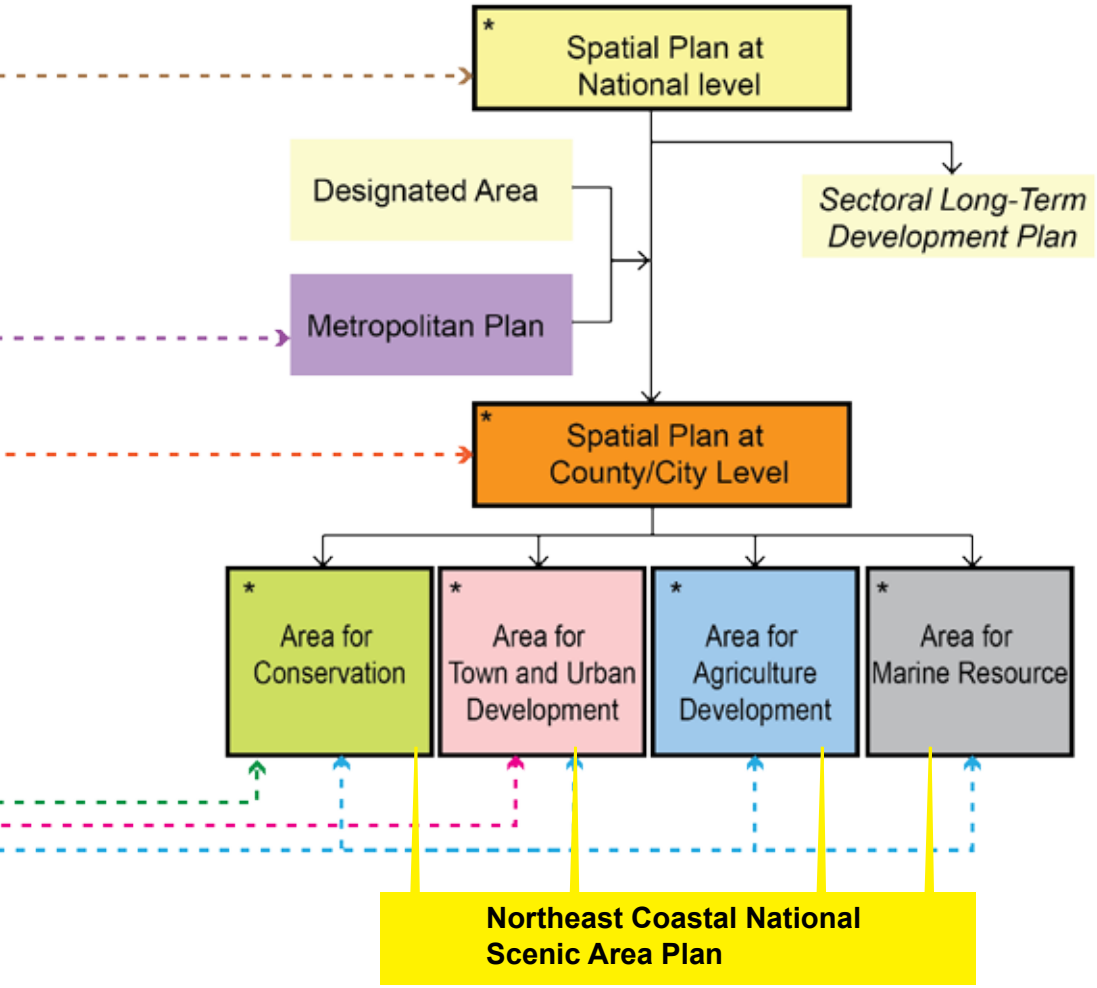
The planning system in Taiwan is now in the transition period (see the figure above), this research will contribute to the understanding of how conservation area plannings can be done under new national land use planning law.

A fundamental conflict in current planning system is that NCNSA master plan is special district plan under urban plan category. The main purpose of special district plan is to delineate certain area for special purpose such as economy and industrial development of resource protection. However, only 5 per cent of the total area is defined as urban settlement in NCNSA, the other areas should be categorized as conservation areas

The new draft National Land Use Planing Law (2010) requires that the whole country be divided into four zones: conservation areas, town and urban development areas, agriculture development areas and marine resource areas. According to Huang study on National conservation area planning in Taiwan conservation areas need to be categorized into four types: ecological resources, scenic landscapes, water resources and natural hazards. Each of conservation area is then classified into two classes according to their resources characteristics, which combined into three classes of conservation areas for the entire Taiwan area.
In this case, Northeast coastal national scenic area will be categorized both in 'conservation area' and 'town and urban development area'.

The future development and vision need to be define, especially the development capacity for tourism, industry (agriculture and fishery). The development vision need to response national land protection as well as local vision.

The planning system hierarchy under new National Land Use Act in Taiwan



4 Planning policies and instruments in natural conservation area

4.1 The designation of environmentally sensitive area (ESA)

Under the supervision of the Council for Economic Planning and Development of the Taiwan government, the Ministry of Interior completed studies of delineation of ESAs completed in the Northern and Southern regions, Central region, and Eastern region in 1992, 1996 and 1997 respectively (Huang, Jen, & Hung, 2006). The primary studies of the delineation of ESAs are seemed as the strategy basis of natural resource protection in national-level, regional level and local level. Moreover, the delineation of ESAs response to the study of natural protection areas defined in the Natural environment preservation plan in Taiwan (1984). In NCNSA, four categories of ESAs are defined: Ecologically sensitive area (national forests, wetlands, coastal zone conservation areas and natural preservation areas); Cultural and landscape sensitive area (scenic areas); Resource production sensitive area (forest and prime agricultural land) ; Natural hazard sensitive areas: flood prone areas and geologically hazardous areas (Kuo & Huang, 2010). Development in these areas is either prohibited or subject to strict regulation by different types of laws and regulations. (Huang et al., 2006)

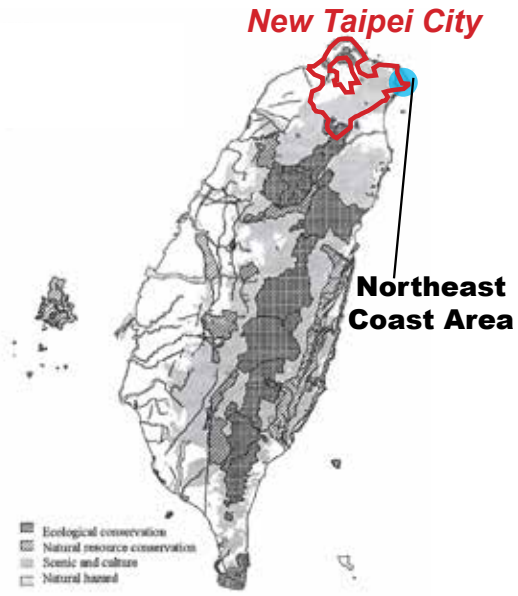


Figure 11. Conservation areas distribution in Taiwan

Source: National Conservation Area Planning and Disaster Prevention Space Planning (CPAMI, 1984; Huang et al., 2006).

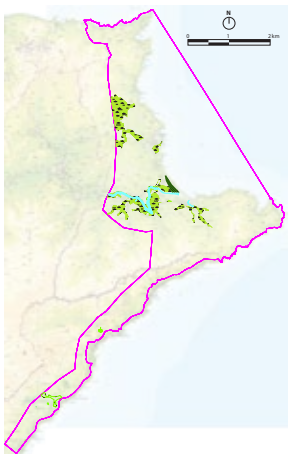
⟵ Policy objectives ⟶	⟵Characteristic types ⟶	⟵Environmentally sensitve areas (ESAs) ⟶
Conserve natural and cultural landscape	I. Ecologically sensitive area	1.National parks 2.Wildlife protection areas 3.Natural protection areas 4.Wildlife habitat conservation areas **5.National forests*** **6.Wetlands*** **7.Coastal zone conservation areas*** **8.Natural preservation areas***
	II. Cultural and landscape sensitive area	1.Heritage preservation areas 2.Historical sites **3.Scenic areas***
Protect resource production	III. Resource production sensitive area	1.Drinking water protection areas 2.Water resource conservation areas 3.The watersheds of important reservoirs **4.Forest*** **5.Prime agricultural lands*** 6.Fishery resource areas 7.Mining resource areas
Prevent natural hazard	IV. Natural hazard sensitive areas	**1.Geologically hazardous areas*** **2.Flood prone areas***

*Note: * ESAs located inside the territory of NCNSA*

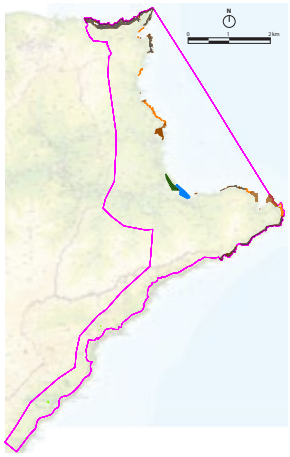
Source: Source: Northern and Southern Regional Plan(CPAMI, 1995)

I.5 National forest

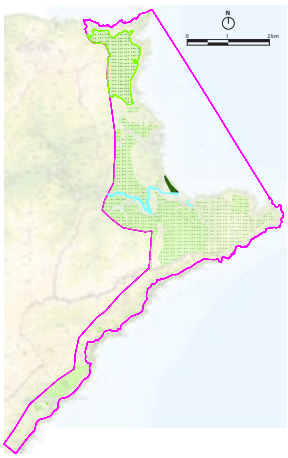
I.6 Wetlands



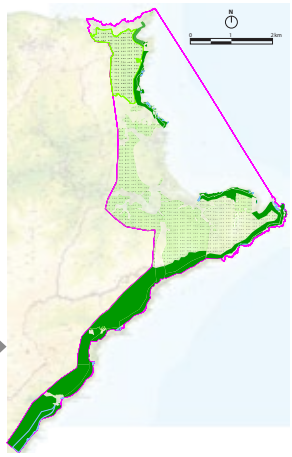
I.7Coastal zone



I.8 Natural preservation areas

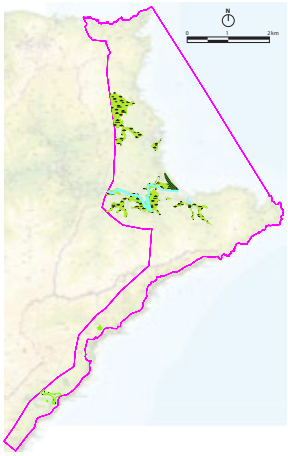


II.3 Scenic areas

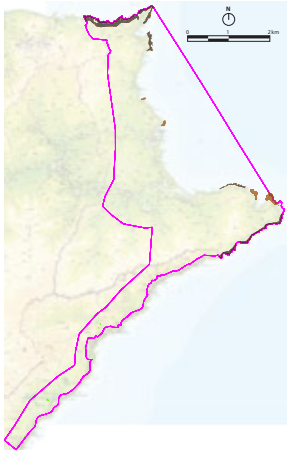


III.4 Forest

III.5 Primary agricultural lands



IV.1 Geologically hazardous areas



IV.2 Flood prone areas

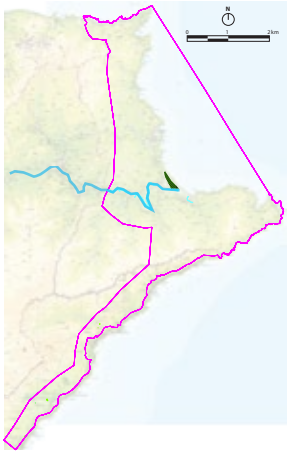


Figure 11. Conservation areas distribution in Taiwan

Source: Adapted from CPAMI, gisapsrv01.cpami.gov.tw

4.2 The role of ESA in Northern Region and Taipei metropolitan

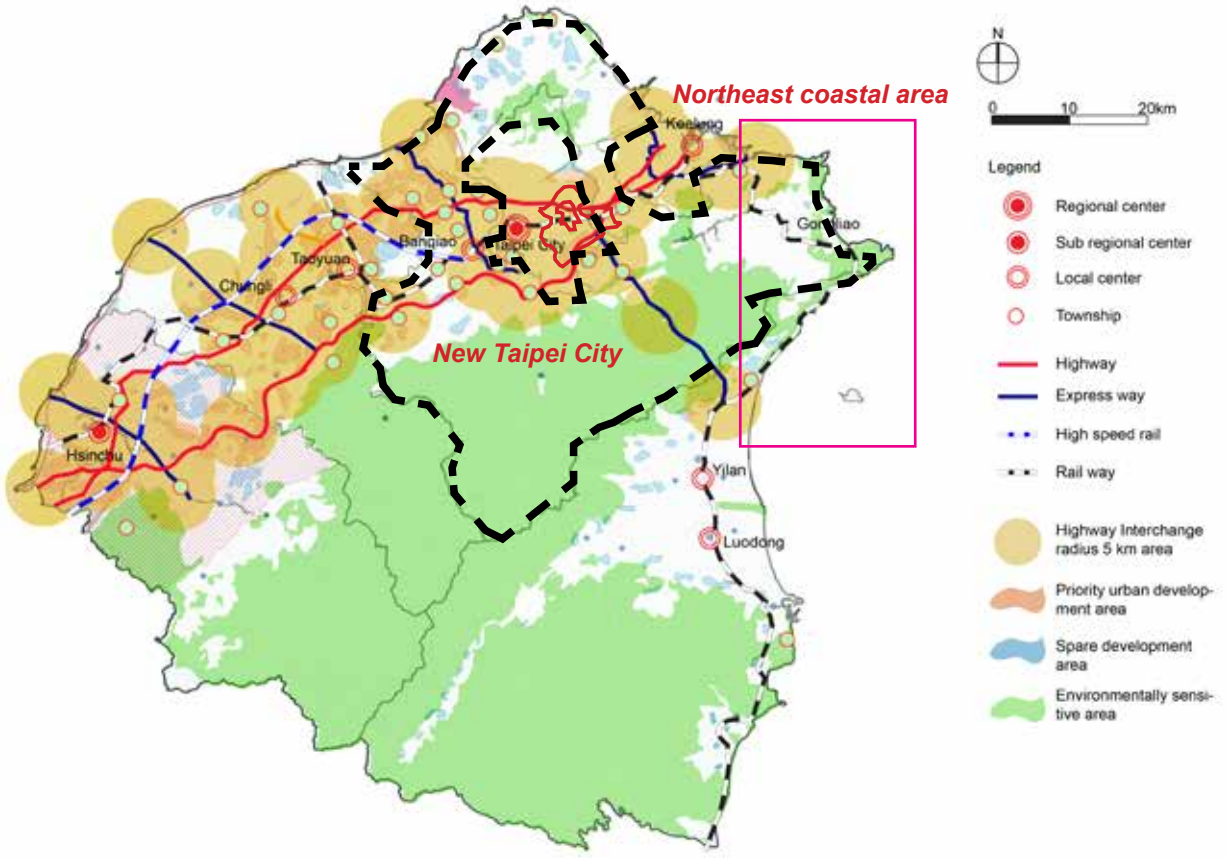


Figure 12. Northern Region spatial development vision in 1995

Source: Taiwan Northen Regional Plan (1995)

In the existing planning system, the primary purpose of the delineation of ESAs in Taiwan at present is for the incorporation of resource conservation within the revision procedures of the four regional plans as required by the Regional Planning Act (Huang et al., 2006). Since the new draft National land use planning law (2010) has not passed by Legislative Yuan, regional plan is the highest level of statutory spatial plan in Taiwan. In this case, regional plan is the basic guidance of urban and rural area development, as well as the protection of natural resource and landscape areas. Since the Northern regional plan (1992) emphasized the spatial development in urban areas, the vision and development pattern to urban-rural relationship need to be clarified.

Northeast Coastal National Scenic Area (NCNSA) provide the opportunity to develop and protect the quality of Taipei Metropolitan.NCNSA locates 40 km away to Taipei city, and ranked as 4th popular National Scenic area in Taiwan. National Scenic Area was originally set up for tourism function by Tourism Development Law, however, the opportunity to develop and protect the quality of Taipei Metropolitan should be considered in the Northern Regional development.

NCNSA can serve as Regional Park in Taipei Metropolitan, and can be used as a strategy for spatial development in terms of collaboration, integration, qualification of the landscape, regional action and network (Steffen,2006).In Northern Regional plan (1995) NCNSA is categorized as four types of environmentally sensitive areas (ESAs), and serves as buffer area between natural conservation area and urban areas (Huang et al., 2006).

4.3 Environmentally sensitive areas in Northeast Coastal National Scenic Area

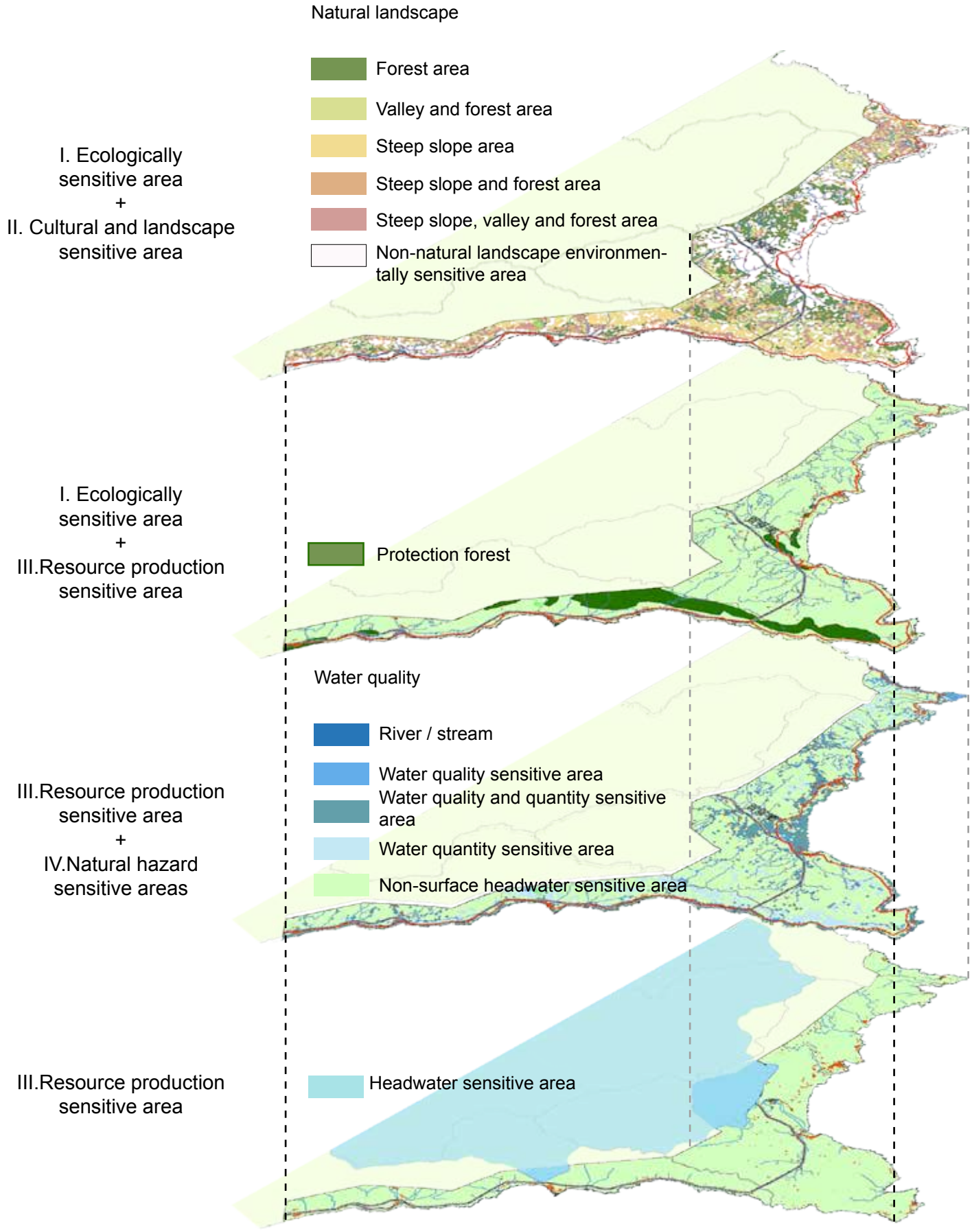


Figure 13. Environmentally sensitive areas in Northeast Coastal National Scenic Area

Source: Map by author, adapted from CPAMI website, 2006

4.4 Noetheast Coastal National Scenic Area Master plan

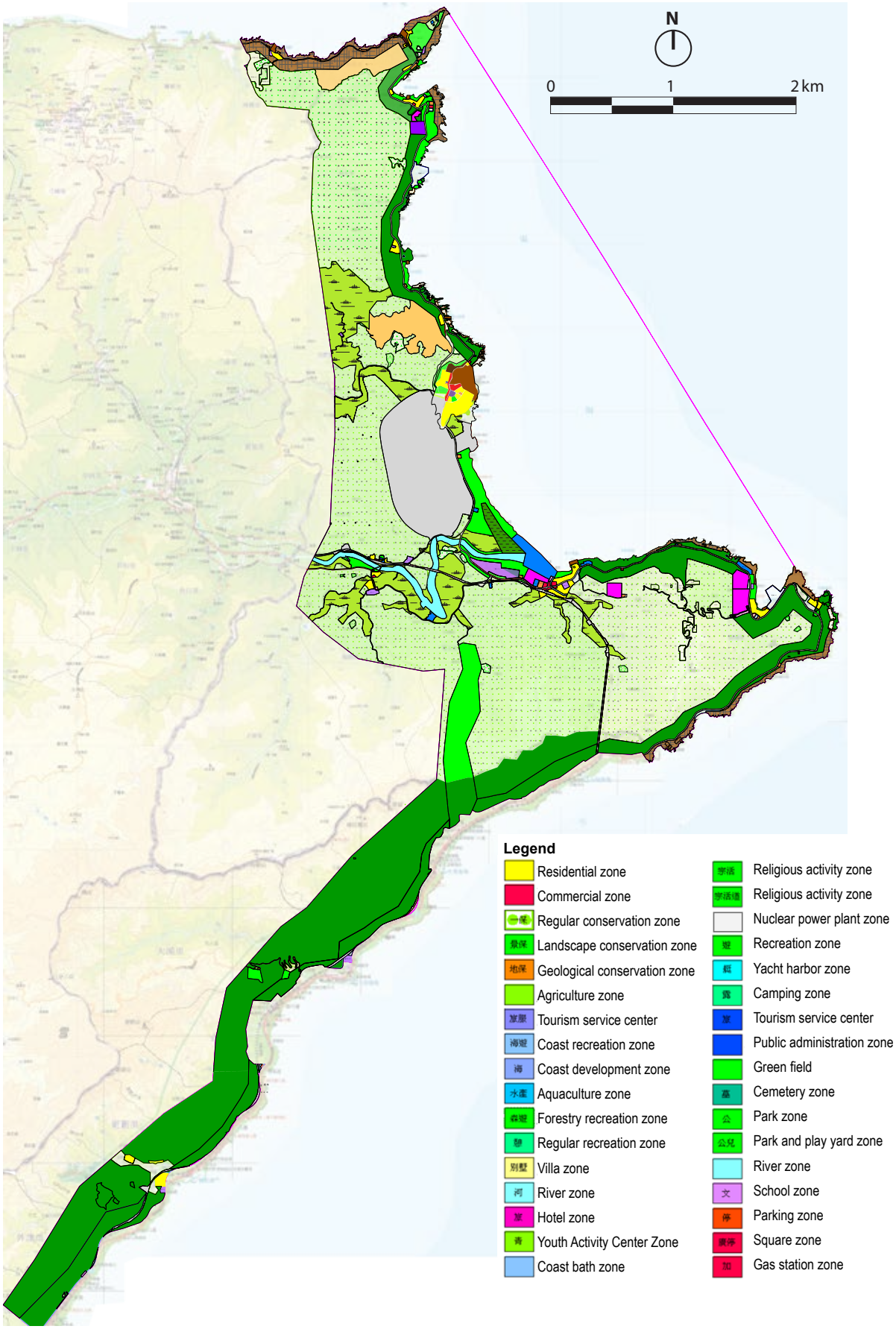


Figure 14. Northeastern Coastal Scenic Area Master Plan map (2010)

Source : Construction and Planning Agency, Ministry of Interior, 2010

Northeast Coastal National Scenic area master plan and land use regulation

In order to protect natural resource and landscape from development without order, the master plan uses different regulatory intensity of land use regulation. Although the landscape is well preserved in scenic conservation zone, ecological conservation zone, geological conservation zone, water resource protection zone,marine resource conservation zone, the land use regulation is too strict and lack of flexible for local development.

Table 1.Northeast Coastal National Scenic area master plan and land use regulation

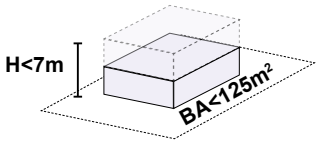
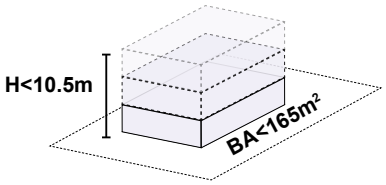
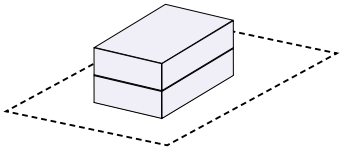
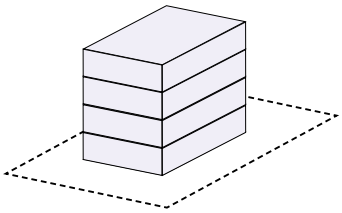
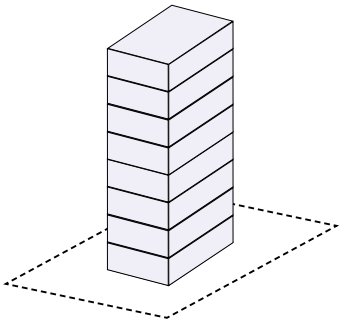
Regulatory Intensity

Highly restricted Regulation

Middle restricted regulation

Normal restricted regulation

Low restricted regulation

Land use	New construction	Renovation / Reconstruction/ Expansion
Ecological Protection Zone, Geological Protection Zone, Water Resource Protection Zone Marine Resource Protection Zone	**X**	
Scenic conservation zone	**X**	 The constructions need to be reviewed and approved under competent authorities for national defense and security, public facilities purpose.
Natural conservation zone Slope-land	**X**	 The constructions need to be reviewed and approved under competent authorities for national defense and security, public facilities purpose.
Residential zone	**BCR: 0.5** **FAR: 1** 	
Commercial zone	**BCR: 0.6** **FAR: 2.4** 	
Hotel zone	**BCR: 0.4** **FAR: 3.2** 	

H: Building height
A: Site area
BA: Building area
BCR: Building coverage ratio = Building are / Site area
FAR: Floor area ratio = Gross floor area / Site area

Source: Northeastern Coastal Special Scenic Area Plan third comprehensive review (2010)

4.5 Civilian Economic Improvement Strategic Plan (draft) (2008-)

a. National Policy

2008 Civilian Economic Improvement Strategic Plan- Improving Land Utilization and Landscape Quality of Northeastern Coastal National Scenic Area

b. Vision

1. Integrated spatial plan for living, tourism, and ecological environment.
2. New instrument in private land ownership and national development

c. Conflict interests

NATIONAL ENERGY AND SECURITY
(LONGMEN NUCLEAR POWER PLANT)
Atomic Energy Council, Executive Yuan

TOURISM DEVELOPMENT
Tourism Bureau, Ministry of Transportation and Communications

NATIONAL SCENIC SENSITIVE AREA
Construction and Planning Agency, Ministry of Interior

LAND APPROPRIATION IN SCENIC SENSITIVE AREA
New Taipei City

NEW HOUSING DEVELOPMENT
Municipality of Gongliao

d. Spatial issues

Ecological preservation **Housing development** **Tourism development** **Water management**




e. Development Scenarios

S1 **Reduce land use Regulation standard**

S2 **Transfer development rights (TDR)**

S3 **Land expropriation**

f. Background information

In Taiwan, the environmental preservation areas are restricted for development; it shows the poor integration of living environment, recreational function, and natural protection in spatial planning. The government planning authorities had developed few scenarios without negotiating with stakeholders in the decision making process led fierce protests. Moreover, budgetary constraints and lack of legal planning instruments are the most hectic task.

Figure 15. Coast in Gongliao

Source: TBMTC

4.6 The decision making process in Civilian Economic Improvement Strategic Plan

Figure 16. Draft expropriation project of Civilian Economic Improvement Strategic Plan

Source: CPAMI,2010

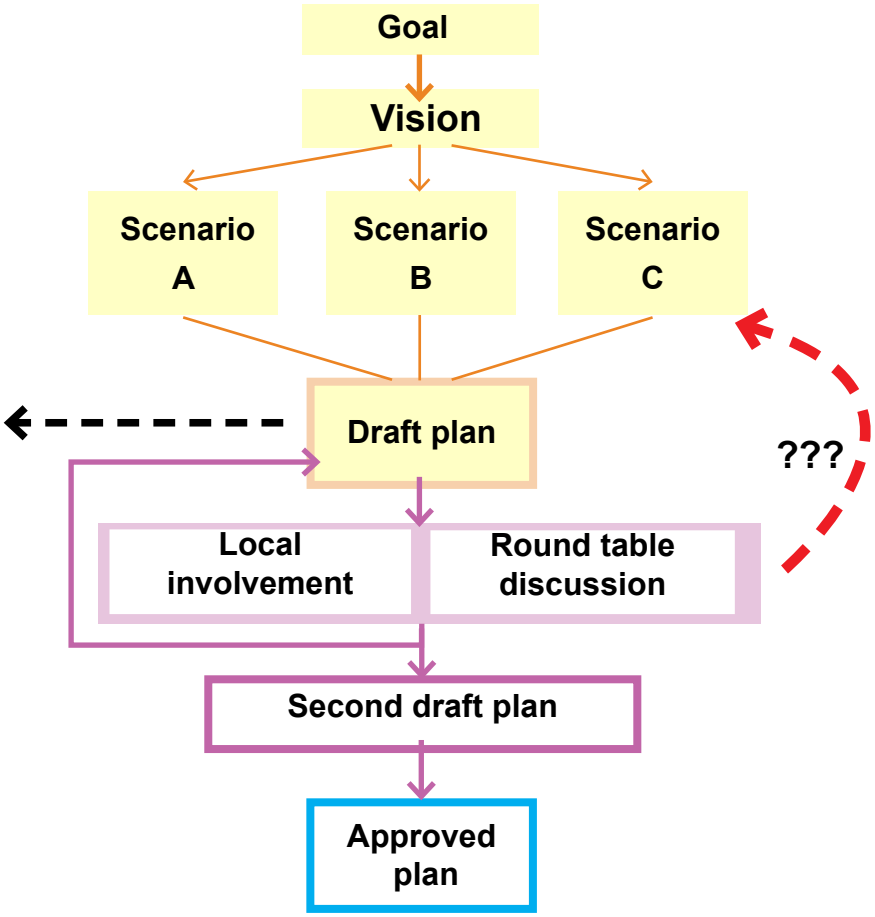


Figure 17. Decision making process diagram of Civilian Economic Improvement Strategic Plan

Source: Draw by author.

Figure 18. Cross sector meeting and local consultation for draft expropriation project of Civilian Economic Improvement Strategic Plan

Source: Photo by author.

5. Competing interests among different stakeholders (Public sectors)

From the public sectors from central government to local govenment, has thier proposals and claims to the site in Gongliao. Environmental and spatial planning responsible bodies are dispersed in different ministries, which lead to bureaucracy cooperation difficulties among authorities and planning agencies.

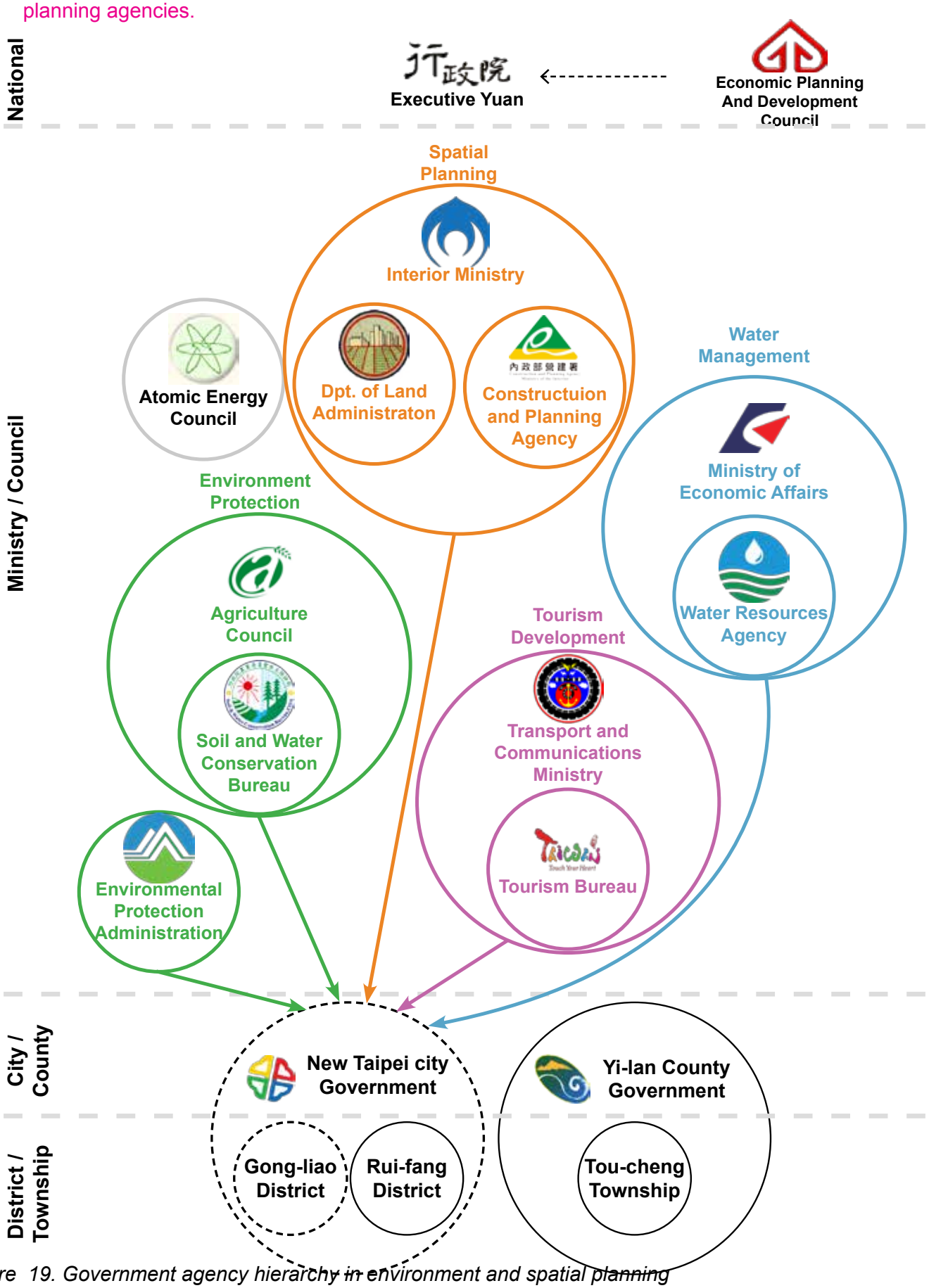


Figure 19. Government agency hierarchy in environment and spatial planning

6. Analysis conclusion

The existing planning regime and strategy did not provide effective solution to accommodate conflicts and values.
For example, the Construction and Planning Agency delineated environmentally sensitive area for national land use protection and hazard prevention; the Tourism Bureau proposed new collective development in order to attract hotel investment for tourism development; the Water Resource Agency proposed ecological engineering methods for flood prevention.

In addition, the local people wanted to maintain small scale farming and renovated their house with less restricts; environmental groups claimed an eco-tourism related to local life style. Moreover, the real estate developer intended to develop the area into luxury resort. The relevant stakeholders proposed different development values in northeast coastal areas, but the existing plan cannot integrated all demands into one single project.

How to maintain environmental quality and tourism resource?
Does tourism development help local economy?
What is the sustainable industry for local?
How to integrate water management into spatial planning?
Why does the environmental protection regulation lead to negative effect to living environment quality?

V. Research approach

The research goal is to define a resilient development capacity in a regional plan, that response national policies and local initiatives of sustainable development. Therefore, stimulating possible future development directions that can integrate flood prevention, landscape protection, and tourism development is the first step of this research. In addition, finding a sustainable industry development that relating to local lifestyle and cultural landscape is the second step of this research. In order to formulate this research, the policy analysis will help me to highlight the development regulation and constrains in conservation areas. Moreover, the stakeholder analysis will help me to clarify the relationship between stakeholders. In addition, the landscape analysis will help me to find the potential site of this area.

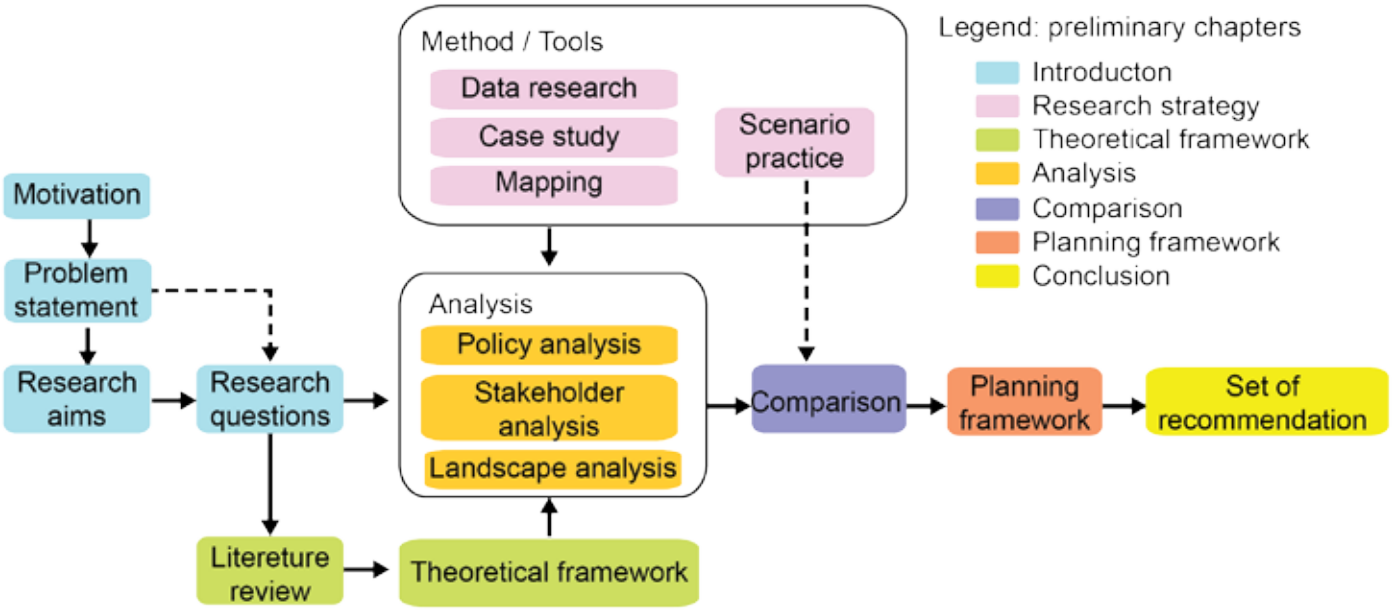


Figure 20 Methodology for the research project.

Source: Draw by author.

1. Literature review

Since adaptive approach in environmental planning has been advocated not only by ecologists but also political scientists and land use planner (Briassoulis, 1989), adaptive planning approach is the main theory I use in my research. Folke et al. introduced the concept resilience-building in social-ecological systems to achieve sustainable development of the World Summit on Sustainable Development. They conclude two useful tools for resilience-building in social-ecological systems are structured scenarios and active adaptive management (Folke et al., 2002). Wollenberg et al. advanced the adaptive management approach by seeking responsive framework to local demands and to facilitate collaboration among multiple stakeholders in the buffer zone of Indonesia Ranomafana National Park. In addition, the study addressed how scenario methods can be used to enable managers better understanding landscape, and improve adaptive action not only by responding to change, but also by anticipating them. (et al., 2000). I conclude that an interactive adaptive planning framework may be an effective way to implement a resilient and sustainable development.

Since scenario creation can be used as a framework to understand and anticipate landscape change, four scenarios presenting stakeholders perspective will be stimulated to test the planning framework. The overlapping issues of the scenarios will indicate the inevitable spatial development trends, which need to be the review for development capacity.

Policy analysis and stakeholder analysis including public and private sectors need to be clarified for creating scenarios. Thus the scenarios will be based on differences in formally published policy reflecting national strategies and policy aims. In addition, opinions from questionnaires reflecting private stakeholders' idea will take into account.

2. Method and tool

2.1 Policy analysis

Policy analysis will focus on the official report including policy and strategy report, natural conservation strategy and environmentally sensitive area delineation in National level, regional level and local level. The purpose of policy analysis is to understand the restriction and planning tool. The outcome of policy analysis will shows the governance of different territory.

2. Landscape analysis

Northeast coastal area is classified as scenically sensitive area in the draft National land use planning law. The cultural landscape sensitive area identify scheme shows bellow is used for understand the formation of physical environment. In order to define the environment quality, the landscape and land use change pattern, the relation between human activities with natural environment. The conclusion of landscape analysis will be a set of landscape typology in Northeast coastal area, which is the data for the test in scenario practice. The following diagram show the landscape analysis method and approach.

3. Stakeholder analysis

In order to understand the demand of different stakeholders, stakeholder approach was introduced and has been used in the creation of Taijian National Park in Taiwan. This case remarked that the policy makers started to allow the local government to make independent decisions in the creation process of Taijian National Park. The Stakeholder approach helps the research to interpret the interests, conflicts or complementary relationship between stakeholders the creation process of Taijian National Park in Taiwan (Hsu & Lin, 2013). The important book in strategic management, "Strategic Management: A Stakeholder Approach," edited by W. Edward Freeman in 1984, define stakeholders as "any group or individual who can affect or is affected by the achievement of the organization objectives " (Bryson,2003; Hsu et al., 2013).

In my research, stakeholder analysis will be divided into public sector analysis and private sector analysis. First, policy and report evaluation will help me understand the relationship (conflicts and opportunities) between public sectors. Second, questionnaire and news interview will help me understand the public preference and response to propose policy. The stakeholder analysis will indicate conflicts and opportunities of value and imagination for future development. In this case, the conclusion of stakeholder analysis will contribute to scenarios creation.

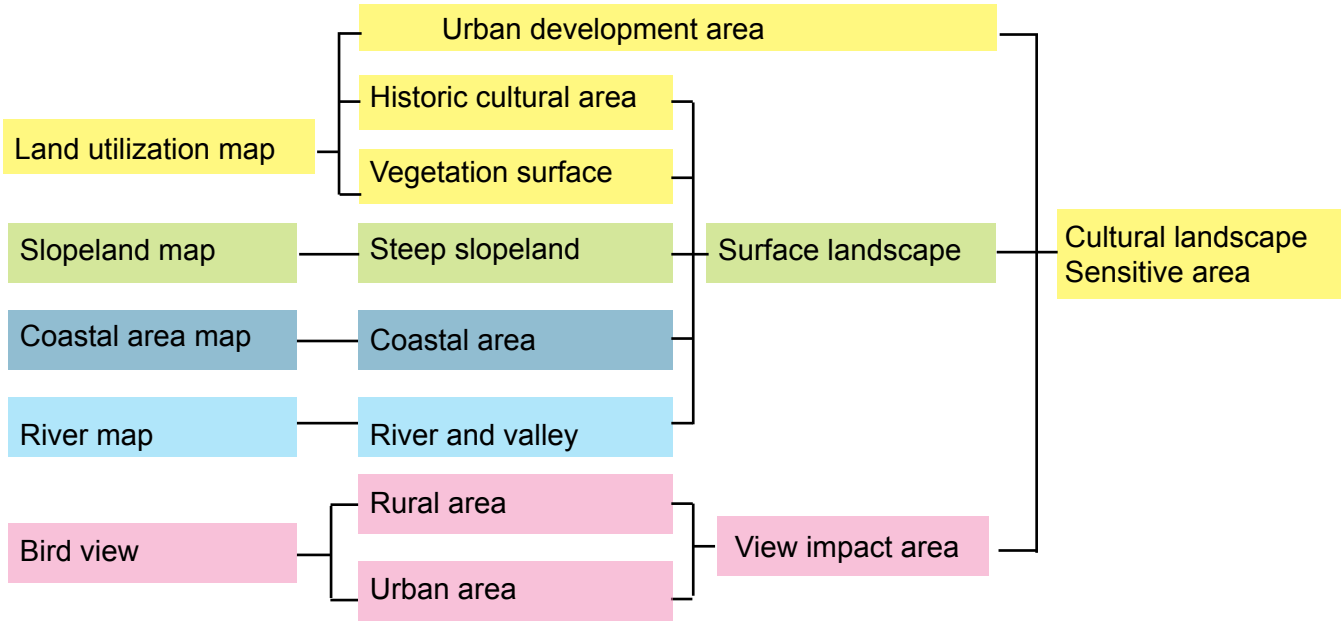


Figure 21 Approach for landscape analysis.

Source: Source: Ecological land use planning, Huang,2000

2.4 Scenario creation and comparison

This research tries to find the resolve the conflicts in the environmentally sensitive area. The scenario practice is a tool to understand the relationship between the interests. The cost and benefit of the proposals from stakeholders will be compared. In the end of the practice, the overlapping of each scenario will contribute to the development priority in different governance level. According to the policy proposals from CPAMI, TBTCM and WRA, tourism development, environment conservation and flood prevention are key issues in northeast coastal area. The local civic organization prefers and environmental groups claim the agricultural and farming industry should be one of the development start point.

Development oriented scenario

Scenario 1	Hotel and tourism development investment at tourism sites
Theme	Beach and costal resort
Policy/ trend	Promotion of private participation in public projects Privatization of public goods
Benefit	Integrate natural landscape planning and tourism industry as a whole development.
	Use tourism revenue in environment protection and management fund.
Cost	Visitor become pressure for the environment Locals and visitors need to pay for accessing natural landscape.

TOURISM DEVEOPLEMT

LOCAL ECONOMY

Restoration oriented scenario

Scenario 2	Eco tourism development from local community
Theme	Tarrace farming
Policy / trend	Tarrace restoration programme
Benefit	The industry is related with local life style
	The tarrace agriculture form is a sustainable way to maintain soil and water in slopeland area.
Cost	The economic benefit of this industry may not supportive enough for whole area.

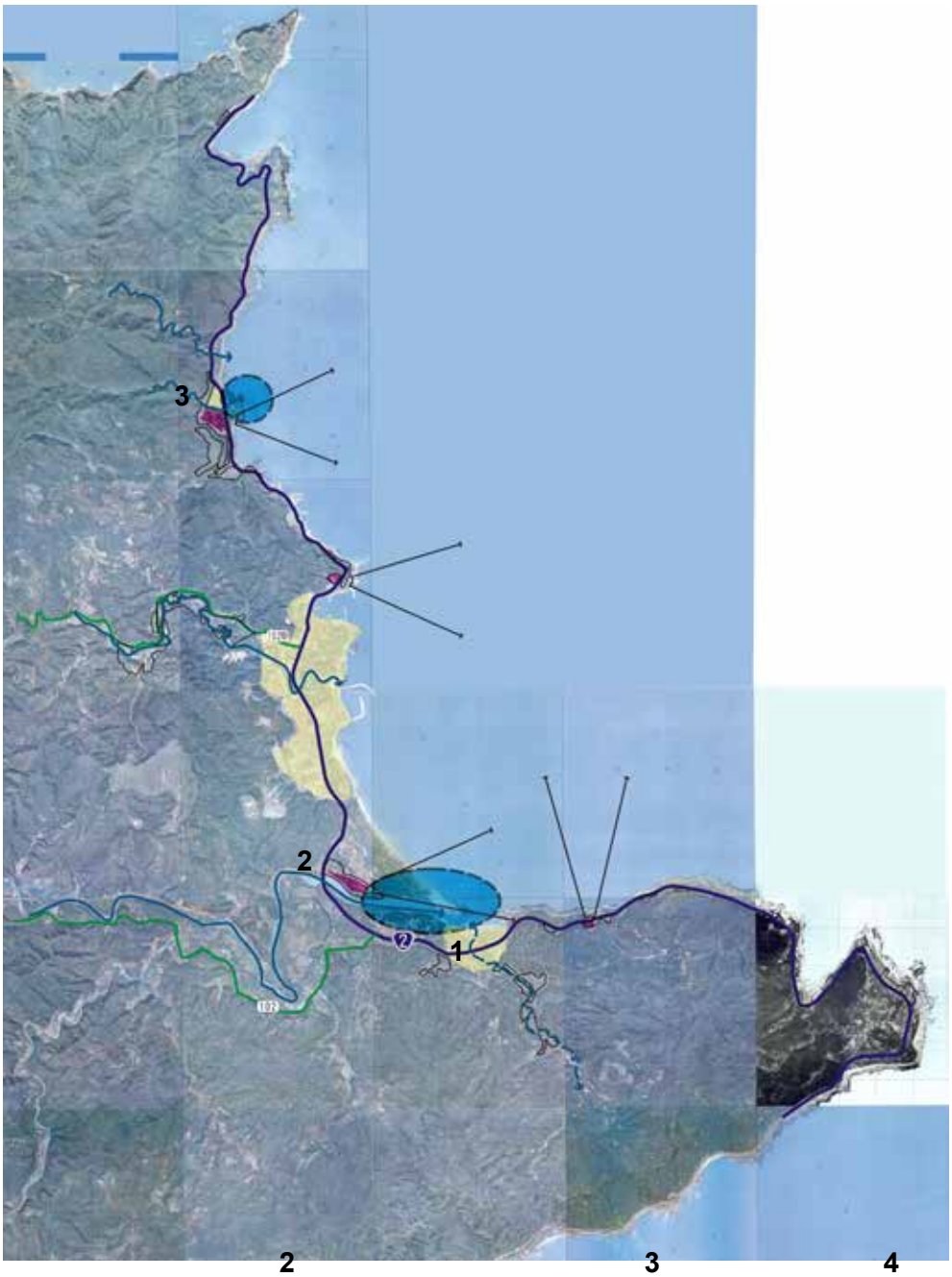
LANDSCAPE PROTECTION

Local Involvement

VII. Intended product: Regional plan in Northeast Costal Area

The intended product will be a regional plan in Northeast coastal area including

1. Vision: A map represents a new understanding of Northeast coastal area. Spatial development priorities (soil and water, natural resources, landscape, agriculture and aquaculture, live, recreation and tourism, mobility) will be defined.
2. Planning regime: A sustainable planning region that integrate policies and local initiatives.
3. Strategy: Strategic projects that shows short term action.



1

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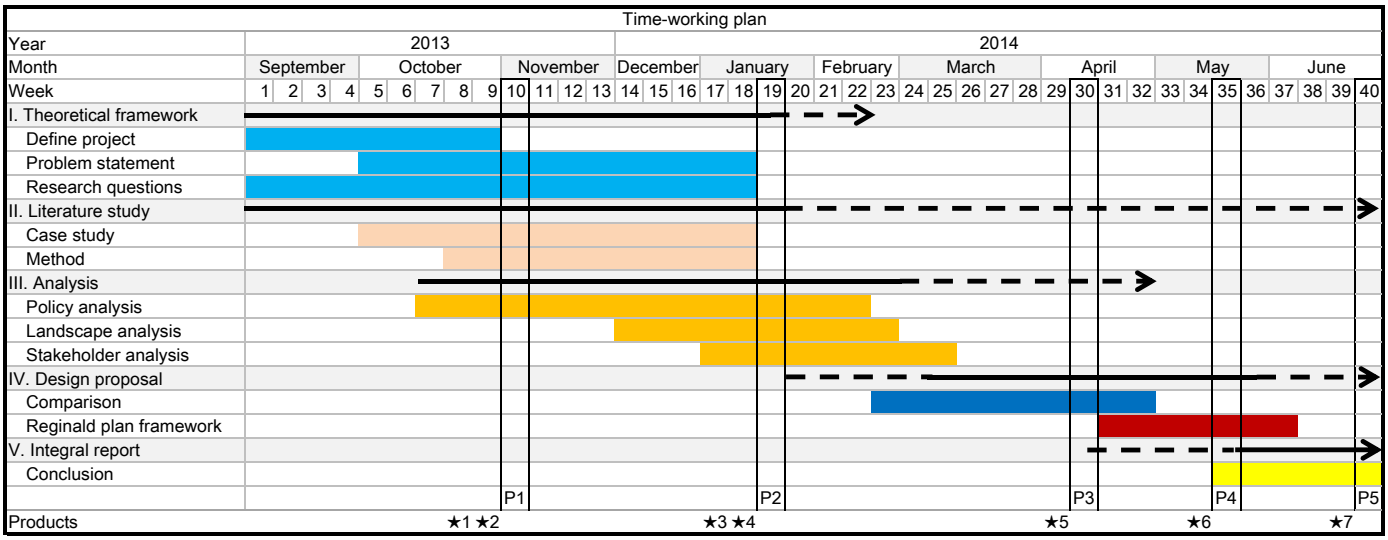
VIII. Time-working plan

The project will take 40 weeks, starting at the beginning of September 2013 and finishing with the final presentation in June 2014. The time-working plan scheme gives an overview of the in-between steps, products and milestones of the complete graduation project.
The scheme explains the action which should be developed during the research process. The actions and phases indicated in this scheme are integrating with each other; therefore the result of each action will be the foundation of next action.
In addition, there are some important products already defined in the scheme, the products are: Abstract; Preliminary thesis plan; Theory paper; Thesis plan; Preliminary thesis 1 ; Preliminary thesis 2; Final thesis.

Also, the research action will be evaluated in every presentation moments (P1, P2, P3, P4 and P5). The shown P2 and P4 moments are formal presentations which might delay the project, as they will be evaluated with a 'GO', 'Doubt' or 'No go'.



Official evaluation moments at Architecture TU Delft
P2 13-01-2014 t/m 24-01-2014
P4 12-05-2014 t/m 23-05-2014
P5 23-06-2014 t/m 04-07-2014

Products
★1 Abstract
★2 Preliminary thesis plan
★3 Theory paper
★4 Thesis plan
★5 Preliminary thesis 1
★6 Preliminary thesis 2
★7 Final thesis

Table 1.Time-working plan.

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Resilience Capacity

A review of adaptive planning approach for resilience and sustainable development

Course AR3U022, Theory of Urbanism
MSc track Urbanism, Delft University of Technology

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Complex cities studio

January, 2014
13th Graduation Lab Urbanism Conference

Abstract – In Taiwan, mountainous slopeland areas, where development is restrict, cover 73 per cent of the entire island (SWCB, 2013). The total environmentally sensitive area (ESA) delineated by the Ministry of Interior to be reserved for natural resource conservation covering 77 per cent of the total area of Taiwan (Huang et al., 2006).In order to conserve and enhance the natural beauty of the landscape, some unique scenic spots or tourist attractions in ESAs are designated as National Scenic Area (NSA). One main problem in Gongliao District, where is part of Northeastern Coastal National Scenic Area (NCNSA) and the slopeland covers 94.5 per cent of the total area, is the conflicting relationship between designated protection and conservation areas and the local communities. Hence the value and paradigms of international preservation areas have changed from a "preservation doctrine" which excludes human society in creating a pure island of preservation, to the integration of the "human ecosystem" (Hsu & Lin, 2013). An advanced study of flexible spatial planning approaches considering complex factors need to be clarified.

This research has two main aims. The first is to exam the relationship between the spatial planning framework and existing policy in the Northeastern Coastal National Scenic Area. The second is a case study to understand the possible adaptive planning approach and analysis tool in resilience sustainable landscape and environmental planning. This study may lead to better understand how and to what extent the planning framework response to different development factors, values and interests in natural conservation areas.

Key words –Environmentally sensitive area, national scenic area, sustainable and resilience landscape planning, adaptive planning approach, scenario based analysis,

1 Introduction

In Taiwan, mountainous slopeland areas, where development is restricted, cover 73 per cent of the entire island (SWCB, 2013). The total environmentally sensitive area (ESA) delineated by the Ministry of Interior to be reserved for natural resource conservation covering 77 per cent of the total area of Taiwan (CPAMI, 1992). The ESAs can be categorized as four classes and various types of natural protection areas (NPAs). Development in these areas is neither prohibited or subject to strict regulation but different types of laws and regulations (Bristow et al., 2010)

The value and paradigms of international preservation areas have changed from a "preservation doctrine" which excludes human society in creating a pure island of preservation, to the integration of the "human ecosystem" (Hsu & Lin, 2013).

Northeast Coastal National Scenic Area provides the opportunity to develop and protect the quality of Taipei Metropolitan. Northeast Coastal National Scenic Area (NCNSA) located 40 km away to Taipei city and ranked as 4th popular National Scenic Area in Taiwan. However, the opportunity to develop and protect the quality of Taipei Metropolitan through tourism development was lacking feasible and sustainable vision in Northern Regional plan (1995). Due to the lack of a precise inventory of natural factors, the delineated ESAs in regional plans are not zoning controls (Kuo & Huang, 2010). However, the master

plans in local level reflecting the guidance in NPAs but is lacking flexible framework for the locals need.
The main problem is the conflicting relationship between designated preservation areas and the locals. Although most stakeholders agree that the landscape and natural resource protection are necessary, the locals and the government take the opposite attitude to landscape and environment development. The strict regulations and complex actors make it more difficult to reach agreement in the decision making process. In order to adjust the integration of human activities in protection areas, the research will evaluate the existing environmental policy and strategy of natural protection area in Taiwan.
In the following reviews, I will review several aspect of the natural resource conservation area, especially the caring capacity and development action.

1.2 Research question

This review paper is part of graduation project" Resilience and Sustainable development vision in Northeastern coastal National Scenic Area" In this project an answer will be sought to the question what is a sustainable spatial development vision in Northeast Coastal National Scenic Area, considering the paradigm of conservation areas change from exclude human activates to integration of "human ecosystem" The delineation of National scenic area (NSA) and Environmentally sensitive area (ESA) have as a result of being integrated instruments to develop and protect the quality of Northeastern coastal area. Apart from the policy instrument, what landscape characteristics representing specific quality that has potential extra value for Northern Region in Taiwan. As elaborated on above connected to this question is the search of a sustainable and flexible planning framework to response to changing policies, interact with other projects and mediate with complexity actors, which is subject to this review paper.

1.3 Method

In order to build a theoretical framework for graduation project, literature review and case study method are used in this paper. First part of the paper introduces the idea and delineation of environmentally sensitive area (ESA) and designation of national scenic area (NSA) as national and regional level of policy for natural conservation area protection instruments.
The second part of the paper introduces adaptive planning theory and possible approach to achieve sustainable development in natural conservation area development. The tools to clarify resilience-building in social-ecological systems is considered as an effective learning and monitoring framework for anticipating landscape changes.
Third parts of the paper mainly discuss the involvement of local stakeholders and local involvement that were used in creating adaptive negotiation framework, which including both bottom up and top down strategies. Innes et al. suggested the governance system need to involve not only governments and public sectors, but also profit and non-profit entities, civic organisations and representatives of a large public (Innes et al., 2010).
Policy analysis, stakeholder analysis and scenario based approach are used to define the adaptive and responsive form of planning framework. This part of literature review conclusion will help my graduation project to define possible tools and analytical framework.

2 A brief planning history of Northeastern coastal area in Taiwan

This section gives brief review and discussion of environmental policy in national and regional level, and action plan in local level, which tends to explain the development constraints in Northeastern coastal area.

2.1. Background information in Northeastern coastal area

The search site Northeastern Coastal National Scenic Area (NCNSA) is an area in Northeastern Taiwan with special geographical and historical distinction, which was established through the Act for the Development of Tourism. The NCNSA range covers Ruifang and Gongliao District in New Taipei City to North part of Toucheng Town in Yilan County.
Gongliao is the dominating area of NCNSA, where the slopeland covers 94.6 per cent of the total area, the protection forest covers 5.4 present of the total area, the rest 0.2 per cent area is plain area. Since 1976, whole Gongliao area is designated as slopeland by Rules of Slope-land Conservation and Utilization Act, the development in Gongliao is restricted. In 1979, the "Report for Northeastern Coastal Scenic Area Planning" by the Tourism Bureau, Department of Transportation was ratified by Executive Yuan in 1982. As most planning system in the world, spatial planning in Taiwan in concerned with both planning making and the control of development (Chen & Shih, 2010). Hence, the Northeastern Coastal National Scenic Area Plan is the master plan of the traditional comprehensive model dominating land use and regional planning.
In general, the purpose of the designated National scenic area is to develop the scenic spots through landscape protection and management. The master plan and land use regulation is the implementation of landscape development and protection instrument in Northeastern coastal area.

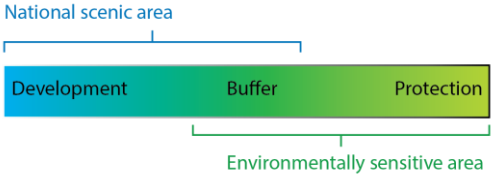

Figure 1. The development and protection integrated instruments in Northeastern coastal area

2.2 The natural protection framework and development restrictions in Northeastern coastal area environmentally sensitive areas (ESAs)

Under the supervision of the Council for Economic Planning and Development of the Taiwan government, the Ministry of Interior completed studies of delineation of ESAs completed in the Northern and Southern regions, Central region, and Eastern region in 1992, 1996 and 1997 respectively (Huang, Jen, & Hung, 2006). The primary studies of the delineation of ESAs are seemed as the strategy basis of natural resource protection in national-level, regional level and local level. Moreover, the delineation of ESAs response to the study of natural protection areas defined in the Natural environment preservation plan in Taiwan (1984).

In NCNSA, four categories of ESAs are defined: Ecologically sensitive area (national forests, wetlands, coastal zone conservation areas and natural preservation areas); Cultural and landscape sensitive area (scenic areas); Resource production sensitive area (forest and prime agricultural land) ;

Natural hazard sensitive areas: flood prone areas and geologically hazardous areas (Kuo & Huang, 2010). Development in these areas is either prohibited or subject to strict regulation by different types of laws and regulations. (Huang, Jen, & Hung, 2006)(Figure 2).

In the existing planning system, the primary purpose of the delineation of ESAs in Taiwan at present is for the incorporation of resource conservation within the revision procedures of the four regional plans as required by the Regional Planning Act (Huang, Jen, & Hung, 2006). Since the new draft National land use planning law (2010) has not passed by Legislative Yuan, regional plan is the highest level of statutory spatial plan in Taiwan. In this case, regional plan is the basic guidance of urban and rural area development, as well as the protection of natural resource and landscape areas. Since the Northern regional plan (1992) emphasized the spatial development in urban areas, the vision and development pattern to urban-rural relationship need to be clarified.

2.3 The restriction for environmental and landscape planning in Northern coastal area

The initiative of Civilian Economic Improvement Strategic Plan- *Improving Land Utilization and Landscape Quality of Northeastern Coastal National Scenic Area* was the national policy in 2010, approved by Executive Yuan and implemented by Construction and Planning Agency of Ministry of Interior (CPAMI). CPAMI, the highest planning agency in Taiwan, plays the leading authority to coordinate other ministries and local municipality. Since Gongliao located in four types of ESAs, development is highly restricted. The local residents need to apply building permit through complicated procedure for housing renovation. The negative effect of the strict regulation result in poorly maintained living environment. Hence, the strategic plan intended to solve the conflicting problem in designated protection area with the locals by integrating hotel area development, change land use in conservation areas, and disaster prevention into a single protect (CPAMI, 2010).

After 30 years of developments restriction, the local expected the strategic plan to solve the spatial problem and enhance local economic development. However, the local were disappointed to CPAMI's draft proposal, 102.56 hectare lands were designated as collective development areas. In order to attract tourism investors, 8.58 hectare of the hotel zone were proposed in the project (CPAMI, 2010). Due to the lack of transparent information in the planning process, the benefit for local sustainable economy development and landscape protection is questionable. In addition, as civic awareness increased, the creation of new collective development areas in NCNSA resulted in conflicts of interest with the local community.

In general, applying adaptive approach and planning framework to integrate natural resource protection and landscape development for sustainable future need to be clarified and implemented in NCNSA. The effective mechanism and tools that require and facilitate a social context with flexible and open institutions and multi-level governance systems need to be identified.

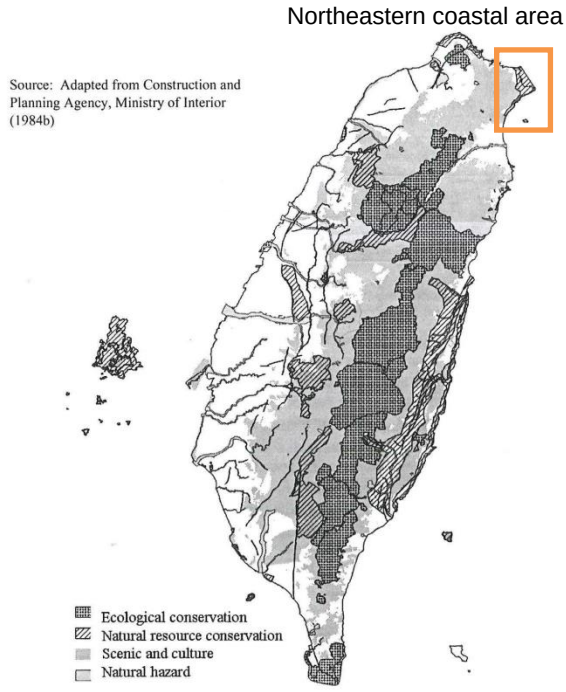

Figure 2. Natural protection areas in Taiwan
Source: National Conservation Area Planning and Disaster Prevention Space Planning (CPAMI, 1984; Huang et al., 2006)

3. Adaptive approach for resilience and sustainable development

3.1 Resilience-building in social-ecological systems

The goal of sustainable development is to create and maintain prosperous social, economic, and ecological systems. Folke et al. introduced the concept resilience-building in social-ecological systems to achieve sustainable development of the World Summit on Sustainable Development. The concept of resilience defined as the capacity to buffer change, learn and develop as a framework for understanding how to sustain and enhance adaptive capacity in a complex world of rapid transformations.

Two useful tools for resilience-building in social-ecological systems are structured scenarios and active adaptive management (Folke et al., 2002). People use scenarios to envision alternative futures and the pathways by which they might be reached. By envisioning multiple alternative futures and actions that might attain or avoid particular outcomes, we can identify and choose resilience-building policies (Raskin et al., 2002; Folke et al., 2002). Active adaptive management views policy as a set of experiments designed to reveal processes that build or sustain resilience. It requires, and facilitates, a social context with flexible and open institutions and multi-level governance systems that allow for learning and increase adaptive capacity without foreclosing future development options (Gunderson et al., 1995; Folke et al., 2002). The following paragraph will discuss the implantation of scenario-based approach and adaptive approach.

3.2 Adaptive approach in environmental planning

Adaptive approach in environmental planning has been advocated not only by ecologists but also political scientists and land use planner (Briassoulis, 1989). Representing a mentality of prepared responsiveness (Holling, 1978), the adaptive approach consists of a series of successive and continuous adaptation of human activates to variable, over space and time, environmental and socioeconomic conditions (Briassoulis, 1989).

Adaptive approach stresses the need for flexibility at each step of planning process to allow for changes in direction necessitated by changes in goals, revised future predictions, and availability of new evidence (Holling, 1978). Environmental planning becomes a continuous process of adaptive learning (Daneke, 1983), starting with plan (or policy) formulation, proceeding to implementation, and progressing with plan evolution into the future (Briassoulis, 1989). Although the landscape and environment change is not fully predictable, adaptive planning approach develops solutions to problems on the basis of predictable future events.

3.3 Scenario based approach in adaptive planning

According to Schoemaker (1995) scenario planning (or scenario learning) has proven to be a disciplined method for imagining possible futures in which decisions may be played out (Schoemaker, 1995), and a powerful tool for asking "what if" questions to explore the consequences of uncertainty (Duiner & Greig, 2007).

Wollenberg et al. advanced the adaptive management approach by seeking responsive framework to local demands and to facilitate collaboration among multiple stakeholders in the buffer zone of Indonesia Ranomafana National Park. In addition, the study addressed how scenario methods can be used to enable managers better understanding landscape, and improve adaptive action not only by responding to change, but also by anticipating them. (Wollenberg et al., 2000).

Scenarios can also be used to developed shared perceptions of different possible futures and create a platform for joint learning and negotiation (Wollenberg et al.; Stewart & Scott, 1995).

In sum, the purpose of scenario creation is used to work with stakeholders and improve adaptiveness not only by responding to landscape changes, but also by anticipating them.

4 The preference of stakeholders and local involvement

As the statement forehanded, scenario based approach provides an adaptive and responsive planning framework to achieve sustainable development. The following paragraph will discuss few cases that emphasis on the importance of stakeholders and local involvement.

4.1 Stakeholder analysis as a tool to understand the competing interests

The case in the creation of Taijiang National Park in Taiwan used a political ecology perspective and analytical matrices of stakeholders, to understand the competing interests, conflicts, compromises and interactions between those stakeholders and to clarify the important development issues and local opinions (Hsu & Lin, 2013). Taijian National Park is a place of diverse natural and historic resource, the study identified that involving the local community to integrate with the ecotourism with local value should be the main strategy and primary responsibility for future sustainable development in Taijiang National Park. In addition, the study highlighted the use of stakeholder analysis method in creation of Taijiang National Park brought a structural change from the top down to bottom up policy process and marked a turning point in the establishment of national parks in Taiwan.

The territory of landscape referred also to the group that shaped that area through practices, rituals, and institutions. Like the modern 'township,' landscape in the original sense was both a physical space and

political community. And like political communities everywhere, landscapes were almost always marked by unequal degrees of power. Landscapes were, and remain, places of contest and conflict, of hard work and brute force (Olwig, 2009; Oles et al., 2013). The same idea of power distribution was emphasised in the study of Indonesia Ranomafana National Park. In certain community of territory involve many competing interests especially across groups with vastly different influence and power. (Wollenberg, Edmunds, & Buck, 2000)

4.2 Scenario creation from policy analysis as an evaluation tool to predict landscape change

The study in the evaluation of landscape changes Estonia argues landscape change can be predicted and visualized by creating scenarios, which provide a framework to understand public's landscape preferences and gives good feedback for politicians and decision-makers about the outcome of different policies. Although the landscape change is not fully predictable, it can be used as a tool to examine the strategy for common issues in research area.

Policy analysis was used to create the scenarios. This analysis was based on differences in formally published political policy reflecting national strategies and policy aims. In this study, the main purpose of creating scenarios is to check the preferences of local people and then reflect the feedbacks for politicians (Palang, 2000). It recommended that the opinion and preferences from the public should be taken into account in the decision making process.

5 Conclusions

The adaptive approach recognizes the dynamic character of an ecosystem, the uncertainty associated with describing them and predating the environmental consequences of human activities, and the exercise of both sensitive and robust element in ecosystem Future landscapes and environment development depend largely on political decisions. It is not a decision made somewhere at the top of the political hierarchy that influences the landscape; instead, future landscape is an agreement between the users of the landscape. Using scenarios could help to come to this agreement, and to reveal possible problems and shortcomings. Creating scenarios and checking the preferences of local people gives good feedback for politicians and decision-makers about the outcome of different policies.

The stakeholder including public sectors and private sectors, they may claim the same territory for the different purpose. One territory at least covers by one layer of stakeholder claim. As Healey defined the participatory approach as 'involving all relevant stakeholder stakeholders already in early stage of the planning process to achieve wide support to the resulting of spatial development plan' (Healey, 2006). Once a landscape has been identified, community consultations are held to develop a landscape strategy to enhance resilience and sustainability. This process of social learning promotes the conditions for achieving long-term biodiversity conservation by building the capacity of communities to learn about the complexity of interactions in the landscape and to promote changes in behavior. In my research, the claim and demand of each stakeholder need to be clarified and mapping in layers, then the overlapped area will could shows the conflict and possibility of uses and function.

6 Recommendations for the graduation project

With regards to my graduation project I conclude that an interactive adaptive planning framework may be an effective way to implement a resilient and sustainable development.

Since scenario creation can be used as a framework to understand and anticipate landscape change, four scenarios presenting stakeholders perspective will be stimulated to test the planning framework. The overlapping issues of the scenarios will indicate the inevitable spatial development trends, which need to be the review for development capacity.

Policy analysis and stakeholder analysis including public and private sectors need to be clarified for creating scenarios. Thus the scenarios will be based on differences in formally published policy reflecting national strategies and policy aims. In addition, opinions from questionnaires reflecting private stakeholders' idea will take into account.

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Graduation Plan: Urbanism

The learning plan consists of at least the following data/segments:

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Studio	
Theme	Complex cities graduation studio
Teachers	Diego Sepulveda Carmona
Argumentation of choice of the studio	My research theme is a study of sustainable development capacity in high landscape value area. The research tackles with a territorial management issue that competing interests happened in Taiwan National scenic area.
Theme	Urbanism Research Theme international planning and developing regions.
Teachers	Dominic Stead, Steffen Nijhuis, Vincent Nadin
Title	
Title of the graduation project	Resilience Capacity- Sustainable development vision in Northeastern coastal National Scenic Area

Product

Problem Statement

1.The existing planning regime and strategy did not provide effective solution to accommodate conflicts and values.

For example, the Construction and Planning Agency delineated environmentally sensitive area for national land use protection and hazard prevention; the Tourism Bureau proposed new collective development in order to attract hotel investment for tourism development; the Water Resource Agency proposed ecological engineering methods for flood prevention. In addition, the local people wanted to maintain small scale farming and renovated their house with less restricts; environmental groups claimed an ecotourism related to local life style. Moreover, the real estate developer intended to develop the area into luxury resort. The relevant stakeholders proposed different development values in northeast coastal areas, but the existing plan cannot integrated all demands into one single project.

2.The proposed strategy by CPAMI did not resolve the conflict but enhance the conflict instead.

The government strategy and policy is too rigid that not allow local people to development. The four types of environmentally sensitive areas (ESAs) were designated according to Northern Regional plan (1995). In the past 30 years development in Northeast coastal area was prohibited and restricted because of the land use regulation highly prohibit restoration and expansion of existing,

settlements. However, the new strategy from CPAMI in 2011 reduced the regulative intensive majorly in order to attracting hotel investor for tourism development.
3.The urgent need for sustainable vision that accommodates national policy and facilitates competing interests.
Northeast coastal area is a place with high landscape value, environmentally vulnerability and risk. The complex value of the territory generates pressures between conservation and development. The nature of Northeast coastal area was well preserved because of strict land use regulation. However, the development potential for sustainable development was underestimated. A sustainable vision that integrates ecosystem, risk prevention system, and socio-economic system need to be reviewed and clarified in regional level.

Goal

The research goal is to define a development capacity in a regional plan, that response national policies and local initiatives of sustainable development.

Process

Method description

1. Policy analysis will focus on the official report including policy and strategy report, natural conservation strategy and environmentally sensitive area delineation in National level, regional level and local level. The purpose of policy analysis is to understand the restriction and planning tool. The outcome of policy analysis will shows the governance of different territory.
2. Landscape analysis

Northeast coastal area is classified as scenically sensitive area in the draft National land use planning law. The cultural landscape sensitive area identify scheme shows bellow is used for understand the formation of physical environment. In order to define the environment quality, the landscape and land use change pattern, the relation between human activities with natural environment. The conclusion of landscape analysis will be a set of landscape typology in Northeast coastal area, which is the data for the test in scenario practice. The following diagram show the landscape analysis method and approach.

3. Stakeholder analysis

Stakeholder analysis will be divided into public sector analysis and private sector analysis. First, policy and report evaluation will help me understand the relationship (conflicts and opportunities) between public sectors. Second, questionnaire and news interview will help me understand the public preference and response to propose policy. The stakeholder analysis will indicate conflicts and opportunities of value and imagination for future development. In this case, the conclusion of stakeholder analysis will contribute to scenarios creation.

Literature and general practical preference

1. Theory

Since adaptive approach in environmental planning has been advocated not only by ecologists but also political scientists and land use planner (Briassoulis, 1989), adaptive planning approach is the main theory I use in my research. Folke et al. introduced the concept resilience-building in social-ecological systems to achieve sustainable development of the World Summit on Sustainable Development. They conclude two useful tools for resilience-building in social-ecological systems are structured scenarios and active adaptive management (Folke et al., 2002). Wollenberg et al. advanced the adaptive management approach by seeking responsive framework to local demands and to facilitate collaboration among multiple stakeholders in the buffer zone of Indonesia Ranomafana National Park. In addition, the study addressed how scenario methods can be used to enable managers better understanding landscape, and improve adaptive action not only by responding to change, but also by anticipating them. (Wollenberg et al., 2000).

2. Research data

My research data can be classified into two types.

First type is official documents such as the following: National land use planning (draft); Northern Regional Plan in Taiwan (1995); and Master plan in Northeast Coastal National Scenic Area. Second type is data on website of the Laws and Regulations Database of the Republic of China (http://law.moj.gov.tw/Eng/), Construction and Planning Agency, Ministry of Interior, (http://www.cpami.gov.tw/english/), National Statistic of the Republic of China (http://www.stat.gov.tw/).

The information about planning process in Civilian Economic Improvement Strategic Plan- *Improving Land Utilization and Landscape Quality of Northeastern Coastal National Scenic Area* is based my experience in the period that I worked in planning consultant company, it was one of the project I was involve with.

Reflection

Relevance

1.Societal relevance

Healey defined the participatory approach as 'involving all relevant stakeholder stakeholders already in early stage of the planning process to achieve wide support to the resulting of spatial development plan' (Healey, 2006). Innes et al. suggested the governance system need to involve not only governments and public sectors, but also profit and non-profit entities, civic organizations and representatives of a large public (Innes et al., 2010). As the civic awareness increased in Taiwan, the case in the creation of Taijiang National Park used a political ecology perspective and analytical matrices of stakeholders, to understand the competing interests, conflicts, compromises and interactions between those stakeholders and to clarify the important development issues and local opinions (Hsu & Lin, 2013). They both emphasize the importance to accommodate ideas and regulate conflicts between relevant stakeholders. The initiative of Civilian Economic Improvement Strategic Plan- Improving Land Utilization and Landscape Quality of Northeastern Coastal National Scenic Area was the national policy in 2010. The objective was to provide new development instruments and to resolve the conflicting relationship between policy and local community. However, the proposal enhance the conflict relationship instead of reduce it because the lacking of local consultation in the plan-making process and led to large against the proposal and demonstrate.

2.Scientific relevance

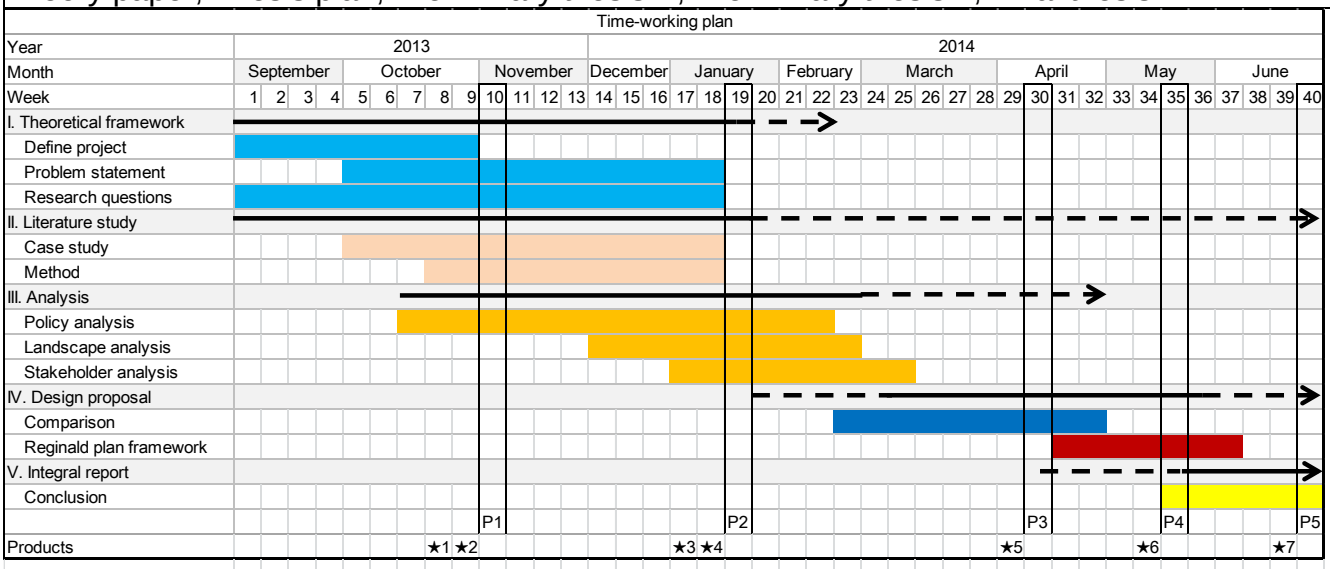
My research theme is a study of sustainable development capacity in natural conservation area. The research tackles with a territorial management issue that competing interests happened in Taiwan National scenic area.

Adaptive approach in environmental planning has been advocated not only by ecologists but also political scientists and land use planner (Briassoulis, 1989). Representing a mentality of prepared responsiveness (Holling, 1978), the adaptive approach consists of a series of successive and continuous adaptation of human activates to variable, over space and time, environmental and socioeconomic conditions (Briassoulis, 1989). Since the existing planning regime in Taiwan needs to be reviewed and find alternative instruments to accommodate competing interests and conflicts, the research in Northeast coastal national scenic area will be an exemplary case that can define the development capacity for sustainable development. Hence, a planning regime that consider environmental, economic, and social factor into the conservation areas management will transfer as an international spatial planning comparative analysis for further research.

Time planning

The project will take 40 weeks, starting at the beginning of September 2013 and finishing with the final presentation in June 2014. The time-working plan scheme gives an overview of the in-between steps, products and milestones of the complete graduation project.

The scheme explains the action which should be developed during the research process. The actions and phases indicated in this scheme are integrating with each other; therefore the result of each action will be the foundation of next action. In addition, there are some important products already defined in the scheme, the products are: Abstract; Preliminary thesis plan; Theory paper; Thesis plan; Preliminary thesis 1; Preliminary thesis 2; Final thesis.



Official evaluation moments at Architecture TU Delft

P2 13-01-2014 t/m 24-01-2014

P4 12-05-2014 t/m 23-05-2014

P5 23-06-2014 t/m 04-07-2014

Products

★1 Abstract

★2 Preliminary thesis plan

★3 Theory paper

★4 Thesis plan

★5 Preliminary thesis 1

★6 Preliminary thesis 2

★7 Final thesis

Course Graduation Orientation

MSc track Urbanism, Delft University of Technology

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January, 2014

My research theme is a study of sustainable development capacity in natural conservation area. The research tackles with a territorial management issue that competing interests happened in Taiwan National scenic area. The Urbanism Research Theme international planning and developing regions focus on comparative analysis of verify forms of intervention through spatial planning and territorial management and building valid methodology for international case studies. My research theme will be relevant to The Urbanism Research Theme international planning and developing regions.

Taiwan is located in seismic zone and on the routes of South Pacific typhoon, more than 70 per cent of the total Taiwan area are designated as environmentally sensitive areas. Because the rapid urban development has occupied most of the plain areas, which increases the development pressure in urban fringe and rural area. Therefore, the existing planning regime in Taiwan needs to be elaborated and find alternative instruments to resolve the competing interests and conflicts in the case study area. A regional plan in Northeast coastal national scenic area will be developed as an exemplary case that can define the development capacity for sustainable development.

Hence, a planning regime that consider environmental, economic, and social factor into the conservation areas management needs to be clarified. Taiwan is part of South-east Asia developing regions, the study in Taiwan can learn the international spatial planning methodology, and transfer the experience as part of comparative analysis for future research.