

เล่มที่
6



Office of Transport and Traffic Policy and Planning

EXECUTIVE SUMMARY REPORT

THE STUDY OF STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR THE DEVELOPMENT OF SOUTHERN COASTAL AREAS



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การศึกษาผลกระทบเชิงยุทธศาสตร์ (Strategic Environmental Assessment : SEA)

สำหรับการพัฒนาพื้นที่ชายฝั่งทะเลภาคใต้

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การศึกษาผลกระทบเชิงยุทธศาสตร์ (Strategic Environmental Assessment : SEA)
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- เล่มที่ 3 รายงานการประเมินผลกระทบเชิงยุทธศาสตร์
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- เล่มที่ 6 Executive Summary Report
The Study of Strategic Environmental Assessment (SEA) for the
Development of the Southern Coastal Areas



รายงานฉบับนี้เป็น เล่มที่ 6 “Executive Summary Report

The Study of Strategic Environmental Assessment (SEA) for the Development
of the Southern Coastal Areas”

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The Study of Strategic Environmental Assessment (SEA) for the Development of the Southern Coastal Areas

1. Background of the project

1.1 Principle and Rationale

The Problems of inconsistency in plans and public perceptions in the national development of the Southern Coastal Areas is an important issue. Although the Government puts efforts to the development of the areas by providing involved government agencies to follow a policy direction given by the Eleventh National Economic and Social Development Plan as the frame work to determine the direction and provide the subsequent plans in various downstream levels i.e. the regional plan, the provincial cluster plan and the provincial plan while the ministries, government agencies and state enterprises will create a plan respected to the economic sector based on their field as important. The Southern area development scenes proposed to the stakeholders are still lack of mutual learning process between the government and stakeholders, causing the stakeholders have not received the development facts and information. This may also lead to uncorrelative hoslistic actions between the government agencies and therefore the invisibility of the truly Southern area potential growth and finally the resistance from the stakeholders.

The implementation of state developments and the necessity to develop should be made upon a Strategic Environmental Assessment (SEA) to consider the impacts on the overall level and the participation from all stakeholders, and to jointly determine the development direction. By choosing an alternative for the development of the Southern Coastal Areas to be the sustainability development based on a balance between economic, social and environment. The Strategic Environmental Assessment (SEA) is thus an important tool to be used in solving problems across multiple dimensions such as inconsistencies of policies integration, inconsistencies of policy and environmental objectives, the participation of stakeholders and understanding and acceptance of the community, so as to allow the involved agencies can use to develop their own guidelines for the area development, which are accepted by all parties.

1.2 Objectives of the study

(1) To prepare a report on Strategic Environmental Assessment (SEA) for the development of the Southern Coastal Areas according to the guideline of the Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment.

(2) To study, analyze and prepare the Master Plan for the Southern Coastal Areas development to be used as a framework for the government in order to decide on a large-scale project development, which is based on sustainability and balancing between the social, economic, environment, and technology dimensions, provided by the philosophy of the sufficiency economy concept.

(3) To promote a process of mutual learning with stakeholders throughout the studies of the Southern Coastal Areas development, including the peoples in the area, general public sector, the government sector, and the political sector to jointly acknowledge and participate in the study processes to make a decision in the development guidelines.

1.3 The study areas

The study areas were assigned to cover the Gulf of Thailand and Andaman Sea. The initial set of the study theme was on the three corridors covering six provinces, i.e. Chumphon, Ranong, Nakhon Si Thammarat, Krabi, Songkhla and Satun. The study process was considered on the potential of the development areas in the fields of agriculture, industry, energy, tourism, transportation and security, leading to the balance and sustainability to cover comprehensive insights of the economic, social, environment and technology dimensions.

1.4 Scope of the study

Scope of the study consists of following details;

(1) Study, review, gather and analyze the Southern Coastal Areas development data

- 1) Review and synthesize the documents, study reports, policies and strategies of the various agencies involved with the development of the Southern Coastal Areas
- 2) Study, survey and analyze the feasibility of the Southern Coastal Areas development in 3 areas, which have physical and economic feasibility on the landbridge policy
- 3) Study, survey and analyze the feasibility of the various projects, which are likely to arise from the sea port and landbridge
- 4) Study and analyze the choice of investments in the transportation infrastructure projects in the Southern Coastal Areas

(2) To prepare a report on Strategic Environmental Assessment (SEA) for the development of the Southern Coastal Areas

- 1) Study, review and synthesize technical papers or study reports related to Strategic Environmental Assessment (SEA) of the various departments
- 2) Study, survey and assess the Strategic Environmental Assessment (SEA) of the Southern Coastal Areas from the existence of the sea port, landbridge, logistics activities and above economic activities
- 3) Study, analyze and provide a report of the Strategic Environmental Assessment (SEA) of the Southern Coastal Areas

(3) Mutual learning with stakeholders

- 1) Provide planning and public relations programs
- 2) Provide learning activities with stakeholders as required by law
- 3) Support the implementation the Information Operations (I/O)

(4) Prepare a master plan for the Southern Coastal Areas development

- 1) Prepare the recommendations on the development of Southern Coastal Areas, to be used by the policy level for making a decision
- 2) Plan a suitable alternative to the Government to take action, related to the development of the Southern Coastal Areas and to drive the landbridge
- 3) Recommend a mechanism to push forward the concerted development projects in the Southern Coastal Areas into action

2. Guideline and Implementation Plan**2.1 Guideline**

The guideline adopted by the Consultant was elaborated in the following.

(1) The consistency of the policies and plans at various levels including the importance of the policies and the plans that does not correspond to the environmental objectives.

(2) The important concept of policies and plans in the national level used to screen the projects, based on key issues. Then integrated in the projects to study the feasibility of the projects in all their dimensions.

(3) Guideline and the implementation to avert the impacts (Options) are proposed to initially configure the project framework (Pre-Think).

(4) Plans to develop the projects in the national and local levels are proposed respectively.

(5) A master plan and recommendations for the Southern Coastal Areas development are prepared.

(6) The process of SEA procedures is tailored according to the guidelines of the Agency of Natural Resources and Environmental Policy and Planning (ONEP).

By dividing the activities into four groups;

Activities Group1: Is the procedure study, and policies analysis/project feasibility study plan. Initially, the feasibility of the projects screened from the plans/policies in different dimensions is reviewed for the screening of activities group 2.

Activities Group2: Starting from reviewing the related SEA report, and the information from the reviews on plans and policies used in the screening, then would step into the details of its assessment on the strategic impacts suggested by the Office of Natural Resources and Environmental Policy and Planning (ONEP), whereas focusing on the participation of all stakeholders.

Activities Group3: A learning process with stakeholders is consist of 60 small group meetings, 8 small group seminars, and two large group seminars (one as the southern region level and the other as the country level) and 3 focus group meetings with media (in Ranong, Songkla and Nakorn Si Thammarat provinces).

Activities Group4: A master plan for the Southern Coastal Areas development is prepared by having activities to integrate the results of studies in different parts together, such as the study procedures, policy and planning analysis, project feasibility study, strategic environmental impact assessment and including stakeholders participation, in order to provide the deliverables into a master plan for the Southern Coastal Areas development, and derived from a consideration of all relevant information.

2.2 Implementation Plan

The duration of this project is 12 months from October 1, B.E. 2558 till September 30, B.E. 2559. The implementation plan was given by the Consultant to be used in accordance with the specified period with respect to the practicality and the quality standards of each task within a set time period. These tasks were performed and completed within a specified period, as planned in the **Figure 2-1**.

3. The results, reviews, collection and analysis for the Southern Coastal Areas development

3.1 Scenarios for developing the Southern Coastal Areas

The Consultant purposed the scenarios for the Southern Coastal Areas development to response to the concept of stakeholder diversity, divided into three scenarios.

Scenario 1: Base Case Growth

Implementing of the current conditions as it is in the South. There are no new economic activity to occur, still using the existing economic structure as the limited growth of agricultural sector, gradual increase in industrial output, the tourism, transportation and logistics sectors to grow in a steady pace. This would have growth with a gross regional domestic product, (GRP Growth) during the year B.E. 2560-2574 at 2.5 percent per year.

Scenario 2: Full-Potential Growth

Implementing of prime local resources with full potential uses in the South, such as agriculture, agro-processing industries and tourism, consistent with the Eleventh National Economic and Social Development Plan. This supports the growth in the agricultural and industrial products, and tourism, with full potential use would provide the gross regional domestic product (GRP Growth) during the year B.E. 2560-2574 to increase from 2.5 in the first scenario to 3.5 percent per year.

Scenario 3: Accelerated Growth Case

The development is consistent with the objectives of economic growth rate defined in the Twelfth National Economic and Social Development Plan of 5 percent per year. Under this scenario would need to develop large-scale industries, which create high value-added economic level in order to achieve the growth target. The Gross Regional Product (GRP Growth) during the year B.E. 2560-2564 would rise to 4 percent per year, due to the investment period of building infra-structures, causing no adding economic output before moving to 5 percent per year during the years B.E. 2565-2574. Comparison of economic growths were shown in the **Table 3-1**.

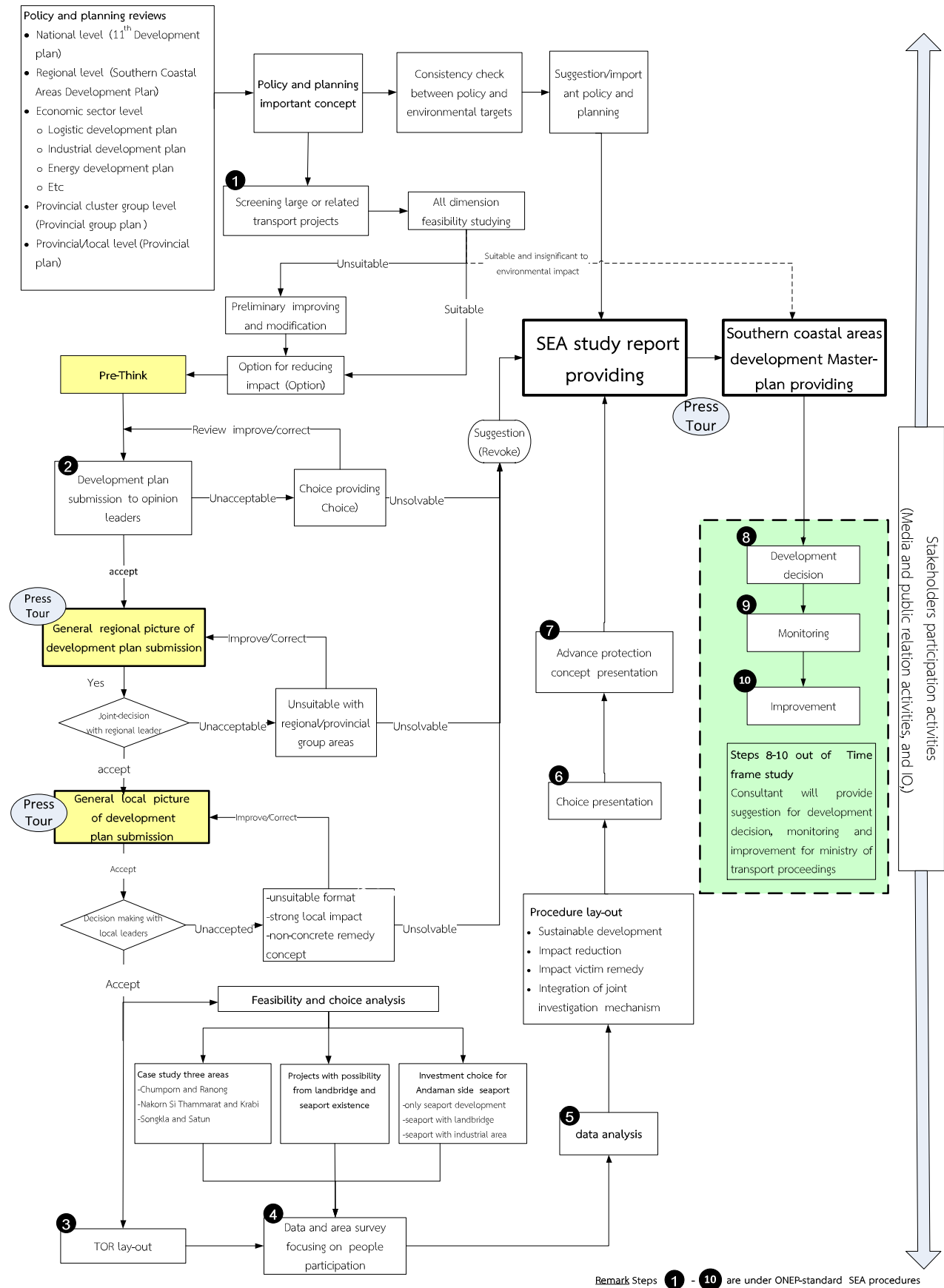


Figure 2-1 Conceptual Framework of Strategic Environmental Assessment (SEA) for the Southern Coastal Areas Development

**Table 3-1 Comparison of economic growths between three scenarios
for the Southern Coastal Areas development**

Scenario	Base Year B.E. 2556	the National Economic and Social Development Plan		
		No.12 (B.E. 2560-2564)	No.13 (B.E. 2565-2569)	No.14 (B.E. 2570-2574)
Scenario 1: Base Case Growth	2.0	2.5	2.5	2.5
Scenario 2: Full-Potential Growth	2.0	3.37	3.37	3.5
Scenario 3: Accelerated Growth Case	2.0	4.0	5.0	5.0

Source: Estimation by the Consultant

3.2 The analysis of the consistency between the economic sector development plan and the scenarios for the Southern Coastal Areas development

The Consultant selected the development plans in the economic cluster which were consist of seven sectors: transportation and logistics, energy, industry, agriculture, tourism, natural resources and environments and security to analyze consistency of the plans with the three development scenarios. However, the plans were virtually regarded, therefore the essence of the plans were described in the criteria method so as to provide tangibility. Then, they were taken into consideration by the experts in all sectors, with the round table discussion to obtain opinions for the analysis decisions. The analysis results were shown in the **Table 3-2**.

**Table 3-2 Conclusion of consistency analysis results
between development plans in different economic sectors**

Economic sectors	Scenario 1	Scenario 2	Scenario 3
Transportation and logistics	Support/Promote all economic sectors	Support/Promote energy, industrial and natural resources and environment sectors	Support/Promote all economic sectors
Energy		Support/Promote all economic sectors	
Industry			
Agriculture			
Tourism			
Natural resources and Environment			
Security	Support/Promote energy, industrial and environmental sectors.	Support/Promote energy and environmental sectors.	Support/Promote energy, industrial, agricultural and environmental sectors.

3.3 The initial project screening according to the alternative for the Southern Coastal Areas development

To get a project representing an overview to develop in the future, according to the scenarios for the Southern Coastal Areas development, the Consultant screened the projects from various plans; the strategic plans, development plans, provincial cluster plans, provincial plans as well as plans of the agencies associated with the development in the Southern areas, in all seven economic sectors. From an initial screening of 53 projects and with an addition of 4 projects which the Consultant also added to help achieving economic goals as stated. The added projects were already studied and under the study plan for scenario 3; 1) sea port for energy bridge 2) oil and gas refinery 3) oil and gas pipelines 4) petrochemical complex. There were therefore a total number of 57 projects to be screened.

3.4 The feasibility study of goods transportation through the landbridges in Southern Coastal Areas

The Consultant considered the feasibility of landbridges in three points: 1) quantity of goods 2) transfer rates per container through the landbridge and 3) financial returns that earned from the project development. The Consultant already reviewed the previous studies related to the development of landbridges, aiming on time and cost saving during maritime travels. By referring the successful development of the Panama Canal which helped to shorten the time required to detour Drake Passage and Cape Horn of South America and Suez Canal, and reduced the distance to travel around the Cape of Good Hope in Africa. This was compared to the development of Thai canal/landbridge, showing that in the far east-middle east route, the Thai canal shortened the distance of approximately 635 km. (342.8 miles), which was not enough to divert the goods transportation to use the canal and could save fuel costs of shipping approximately 4,683,038 baht (round-trip). This savings were insignificant for large container ships while considering the bridge fees can be charged shall not exceed the cost of the saved fuel. This calculated to 585.38 baht¹ per TEU² transported. The total revenue from the transportation through landbridges was not worth enough for the cost of operations and maintenance and not feasible for investment. Thus, the landbridge project should be postponed under these circumstances.

From the aboved analysis, the Consultant suggested to develop the projects only the sea ports in the Gulf of Thailand areas, to which the 2nd Songkhla deep sea port project could be reviewed for the benefits of supporting the exceeded export capacities of the 1st Songkhla deep sea port and for the future development to the international deep sea port with a role changed to transshipment port, based on the economic output and imports in the South for the

¹ Studied, analyzed and compared to save time and costs of maritime, in case: have a Land Bridge (4,683,038 million Baht/Ships with 8,000 TEU= 583.38 Baht per TEU)

² "TEU" refers to "Twenty-Foot" equivalent unit cargo capacity in length 20 feet containers.

Andaman sea ports, they were still important for the transport to the countries in the Indian ocean, with a current need to pass through the Strait of Malacca, which was the only path to use and posted the risk to Thailand's economic system. Moreover, if there is a situation that threatened to the main ports such as the Port of Bangkok, Port of Laem Chabang, and Port of Map Ta Phut, the Andaman sea ports as prime ports may be needed, therefore this alternative plan should be made to accommodate such situation.

3.5 The feasibility study of the Southern Coastal Areas in 6 provinces development

It was found that, Ranong province was appropriate for the conservation area, and should be considered as a more stable place from foreign worker issues. Chumphon province had the potential for development of agriculture and hub of transportation and logistics. Krabi and Satun provinces had the potential to develop tourism, and together with some areas suitable for conservation. While Songkhla and Nakhon Si Thammarat provinces had high potential for the development of transport and logistics hub, energy and industry. Analysis of the area development potential for economic sectors were shown in the **Table 3-3**

Table 3-3 Analysis of the area development potential for economic sectors










Province	Economic sectors						
	Transportation and logistic	Energy	Industry	Agriculture	Tourism	Natural resources and environment	Security
Ranong					✓	oo	**
Chumphon	✓			✓✓		o	*
Krabi		✓		✓	✓✓	oo	*
Nakhon Si Thammarat	✓	✓✓	✓✓	✓✓		o	*
Songkhla	✓✓	✓✓	✓✓	✓✓	✓	o	*
Satun					✓	oo	*

- Note:** ✓✓ means the area has a high potential level for development.
 ✓ means the area has a secondary potential level for development.
 oo means the area is suitable for a high level of conservation.
 o means the area is suitable for a secondary level of conservation.
 ** means there should be security considerations (the high level of foreign labour issue).
 * means there should be a secondary level of security considerations.

3.6 The direction of Southern Coastal Areas development

From the Strategic Environmental Assessment (SEA) for the development of the Southern Coastal Areas with the integration of four dimensions considered i.e. economic, environment, social and technology, as well as participation with stakeholders in all sectors. They were used to determine the direction of the Southern Coastal Areas development, whereas the Consultant considered the sustainability and balance approach in accordance with the drafted 20-year National Strategic Framework (B.E. 2560-2579); with summary concluded in the **Table 3-4**.

Table 3-4 Summary of strategic environmental assessment for the development of The Southern Coastal Areas and participation with stakeholders in all sectors

Development scenarios	Scenario 1 Base case	Scenario 2 Full potential case	Scenario 3 Accelerated growth case
Economic	 (Growth rate of 2.5 percent)	 (Growth rate of 3.5 percent)	 (Growth rate of 5 percent)
Environment and Technology			
Social			

From the results, the Southern Coastal Areas development direction was determined to the Scenario 2, which was Full-Potential Growth Case, allowing the Southern economic growth rate of 3.5 percent per year. Under this scenario, full potential of the Southern areas such as agricultural, agro-processing and tourism would be used from existence to full drive.

However, to achieve the goal of 5 percent economic growth, stated in the 12th National Economic and Social Development Plan and corresponding to the proposed 4-dimensions Strategic Environment Assessment (SEA) for the Southern Coastal Areas, the scenario 2 of full-potential growth case was selected under the potentials of tourism and agro-processing industries by adding with the other three important economic sectors, i.e. tourism, halal industries and transport and logistics hub. This was so called scenario two plus (2+). The Consultant used to elaborate details in the master plan for the Southern Coastal Areas development, separately presented in the master plan report.

4. Strategic Environmental Assessment (SEA)

4.1 Principle and Rationale

The Strategic Environmental Assessment (SEA) as part of the Southern Coastal Areas development, which was on the balance and sustainability development concept, by using the factors that were relevant in different dimensions have been taken into account, i.e. the environment, economic, social, and technology management. There were options to consider and compare, and consistent with the needs of the peoples in the areas, and with the participation of all sectors, policies and plans. In view of indept analysis by bringing relevant issues into consideration (cross-cutting perspectives) to analysis the whole system connection both cumulative effects and the effects that enhanced the capabilities following to the capabilities and limitations in the area, which would help reducing the uncovered impact considerations in the project level, by making sure that the environmental issues and related impacts, including options and guidelines, the goals of the development plan, were considered in the development master plan. This would support true understanding of those issues, including a focus on communication and opportunities providing for stakeholders to participate in the comments and suggestions during the development of a master plan to consider the potential impact with a wide variety of perspectives and dimensions.

4.2 Guidelines for Strategic Environmental Assessment

Strategic Environmental Assessment was considered in both areas and development sectors. The evaluation was considered with the project area and nearby areas, which were likely to be affected, and conducted according to the guidelines of strategic environmental assessment of the Office of Natural Resources and Environmental Policy and Planning, consisting of 10 steps, which were: (1) project category screening (2) secondary documents reviewing (3) scope of the study (Scoping) (4) collection of additional information (5) information analysis and evaluation (6) alternative proposal (7) precautionary principle (8) decision to develop (9) monitoring and evaluation (10) improvement and correction Procedures owing to no.8 to 10 were given in the recommendations part for further development.

4.3 Scope of the Strategic Environmental Assessment

From the feasibility study of the Southern Coastal Areas development by reviewing the existing development projects in various economic fields in the government plans, and analyzing the feasibility of other alternatives to increase the rate of Southern economic growth. The assessment was focused on the mutual learning with stakeholders of both directly and indirectly involved, in every step of the proceeding,

It was found that the suitable approach for the Southern Coastal Areas development was scenario two plus (2+), which focused on the development of the tourism potential in the South, and increasing tourism revenue, coupled with the development of cultivated areas and increasing productivity in the agricultural sector for the industrial and export uses. The 20-year development master plan (B.E. 2560–2579) was separated into two periods, as follow:

1st period of the “scenario two plus (2+)” focused on the tourism potential development of the South, and increasing tourism revenue, coupled with the cultivated areas development and increased productivity in the agricultural sector for industrial and export uses, including industrial sector related with agro-processing sector and accommodating the products cultivated from the Southern areas, such as rubber, palm oil, fishery and aquaculture products. In the first 10 years (B.E. 2560-2569) of the Southern development plan, it was to setup a target of increasing revenue from tourism of 80 percents, and the other 20 percents from sources including: 1) transportation 2) light industries apart from agro-processing and 3) halal industry.

2nd period, the development on the last 10 years (B.E. 2570-2579), the tourism revenue was to reduce to 50 percent and require new economic activities, focusing on the renewable energy industry including biodiesel industry using agricultural products and their raw materials from the South, such as palm oil, etc.

The study of the Southern Coastal Areas development plan required to bring relevant issues to be considered in the overview (cross-cutting perspectives), which were components of the development in other sector fields, relating to the targets of economic growth and direction of investment in the areas. The Southern Coastal Areas from the past to the present had the economic structure in the agricultural, industrial, trade and tourism sectors, to which each sector also had the capabilities and the potential to grow.

To bring other issues into consideration such as; (1) government policy and planning related to the promotion of investment in the areas such as tourism strategy, special economic zones in the border areas, and special economic cluster zones (2) resources management plan in the areas such as marine and coastal resources management, land uses and preservation areas management, and (3) other infrastructures development such as energy supply plan, water resources management, etc.

4.4 Suitable Alternatives Proposal

The Consultant studied the SEA procedures, to start with the project category screening, secondary documents reviewing, scope of the study (Scoping), collection of additional information, information analysis and evaluation. From the feasibility study of the Southern Coastal Areas development, by reviewing development projects of various economic sectors, already contained in the government development plans. The analysis of the feasibility of other alternatives to increase the rate of economic growth of the South confirmed that the proper approach was the scenario two plus development (2+); the development of the tourism potential of the South, and increasing tourism revenue, coupled with the cultivated areas development and increasing productivity in the agricultural sector for the industrial and export uses. The 20-year development master plan (B.E. 2560–2579) was separated into two periods, as stated in the previous section.

To create a balance between conservation and utilization of natural resources and environment to achieve the equilibrium in economic, social and environment to contribute to sustainable development and awareness of the principles of natural resources and environmental management, with regarding of the systematic or holistic relationship in the "Ecosystem Approach", and to focus on the proactive management to prevent consequences in advance, based on the "Precautionary Principle".

The guidelines from the strategic environmental assessment were taken to append as a part in the preparation of the 20-year Southern Coastal Areas development master plan (B.E. 2560–2579). They were classified into four dimensions, having the setup operations guideline and the indicators as the framework to achieve the sustainability targets from the strategic environmental assessment procedures and the participation of all stakeholders.

4.5 The guidelines for sustainable development according to precautionary principle

The Southern Coastal Areas development must be consistent with the targets of sustainable development, of which the indicators, objectives and goals in each dimensions, were described as follow:

1st Dimension: Natural resources and sustainable environment management

1.1 Marine resources and coastal management

Goals: Conservation and utilization from the ocean, sea and marine resources, based on potentials and capabilities of the long-term benefits sharings.

Indicators and targets

- 1) The marine utilization area setup
- 2) The capability setup to accommodate the number of tourists per beach and the island

Procedure guideline

1) The marine resources and coastal areas utilization setup, categorized by 4 zones as follow:

- 1.1) The security zone, consisting of military zone, energy zone such as petroleum areas, power transmission line areas
- 1.2) The wealth zone, consisting of tourism zone, fishery zone such as community fishery, commercial fishery, development zone such as the transport industry.
- 1.3) the sustainability zone consisting of marine resources and coastal areas, with the objectives to preserve and conserve the important natural marine resources and recover to the natural integrity so as to be a source of livelihood, career creation, ecological quality to cushion the impacts from natural disasters, such as the wind slap into the coastal, and most importantly the promotion the self-reliance of the peoples in the South.
- 1.4) The special zone, consisting of management templates, such as the touristic island, and specialized management zone such as coastal erosion.

2) The utilization from the marine resources for sustainable tourism, by setting up the capability to accommodate tourists in the important islands and beaches.

1.2 Protection of natural disasters and risk areas

Goals:

- 1) To relief from natural disasters in risk areas with serious and urgent issues in all area.
- 2) To practically control the land utilization plan, the public having knowledge in the guidelines for risk areas as well as adapting for living and livelihoods in risk areas.

Indicators and targets

- 1) Number of injuries and deaths, and worth of damages from natural disasters
- 2) Number and proportion of the villages experiencing problems from natural disasters

Procedure Guidelines

- 1) Protection against flood in risk areas
- 2) Protection against drought in risk areas
- 3) Protection and resolving of landslide
- 4) Relief and protection against from the large undercurrents (Tsunami)
- 5) Protection and resolving of coastal erosions

1.3 Land and forests ecosystem

Goals: The land utilization according to the potentials and suitability for preserving the land sustainability and ecosystem, having forests and forest source areas management to halt land degradation and to rehabilitate the lands, including the loss of biodiversity.

Indicators and targets

- 1) Class-A agricultural area conservation, for important food supply of the region, to be around 3 million rai (1,875 square metres), or around 7 percent of the regional area
- 2) Rehabilitating the agricultural areas and developing areas for rural settlements, given most of the peoples to have quality living of around 21 million rai (13,125 square metres), or 49 percent of the regional area
- 3) Land reforming to utilize the land for agriculture of around 0.7 million rai (437.5 square metres), or 2 percent of the regional area
- 4) Reserving the forest areas to be the forest sources and land ecosystem of around 12 million rai (7,500 square metres), or about 7 percent of the regional area
- 5) Rehabilitating the ailing forest areas from invasion, destruction of around 2 million rai (1,250 square metres), or about 5 percent of the regional area
- 6) Reserving the mangrove areas, wetlands, and important sensitive ecological areas of around 3 million rai (1,875 squaremetres), or about 6 percent of the regional area
- 7) Conserving the water resources areas for consumption, including areas along the coastal line in the distance of 3 km for fishery purposes
- 8) Developing the residential areas in the city, given to beautiful, tidy, and livable on all the cities in the region
- 9) Developing the industrial promotion areas to be completed in all potential areas
- 10) Conserving the historic, arts and culture areas to be completed in all areas

Procedure Guidelines

To setup the land utilization zone, to be consistent with the targets of land utilization for the management and control of land utilization in the future, as follows:

- 1) Forest conservation area
- 2) Forest rehabilitation area
- 3) Reserved area for preserving the mangrove forest and ecology

Such as wetlands, mangrove areas, economic forest park areas, community forest areas, agricultural areas, community areas, open area for conserving of environmental quality, fishery, tourism, and industrial areas

1.4 Water resources

Goals: Conservation of watershed areas, water resources development, and water resources management in efficient ways

Indicators and targets

- 1) Percentage of preserved watershed areas
- 2) Size of the irrigation areas
- 3) Proportion of sufficient receiving services (demand-supply) of water usages, in all sectors

Procedure Guidelines

- 1) Strictly control the land utilization plan in the area of water usage
- 2) Rehabilitate the forest sources to exuberance, and given the peoples in area to participate in rehabilitation and utilize the forest
- 3) Procure and develop the water sources effectively, to be the effective original water sources management, develop additional water sources according to the potentials and demand in the future, including the distribution and allocation of water from the sources to the target areas, covering all areas such as the agricultural, community, and other development areas

1.5 Environmental quality (air and noise)

Goals: Safety environment, and reasonable utilization

Indicators and targets

- 1) The air quality index in a level not harmful to health
- 2) The level of noise in the community area, lower than the standard level
- 3) Complaint statistics on environmental issues

Procedure Guidelines

- 1) The classification of the utilization areas, and promotion of industrial factories to be located in the industrial estate or designated area
- 2) Control and record the pollution sources in the area
- 3) Creation of consciousness in environmental problems
- 4) Creation the mutual learning process with community in monitoring and checking the environmental quality

1.6 Climate change

Goals: Operations in reducing the climate change and the impacts.

Indicators and targets

- 1) The average ratio of greenhouse gas emissions per capita into the province. (unit: the tons of greenhouse gases per person)
- 2) The proportion of forest area per provincial area. (unit: percentage)

Procedure Guidelines

1) Implement according to the United Nations Framework Convention on Climate Change (UNFCCC) for the greenhouse gas inventory accounting in Thailand (GHG Inventory), prepare the short, medium and long term national action plans on the climate change management, and the development guidelines to reduce the greenhouse gases in accordance with Nationally Appropriate Mitigation Actions (NAMAs), etc.

- 2) The technology used, with awareness on greenhouse gas emissions reduction

2nd Dimension: Sustainable economic growth

2.1 Stable economic growth

Goals: Distributed income, poverty eradication, inequality reduction

Indicators and targets

- 1) The average income of households, referring to "money or something" as the households received from working or production or received assistance from someone else
- 2) The proportion of the poor population referring to a percentage of the population with average consumer spending per person per month lower than the poverty line, reflecting to the livelihood of the people lower than the minimum standard of living of the society in Thailand
- 3) The proportion of households with debt in consumption referring to a percentage of households with formal debt, and/or informal debt in consumption per household
- 4) The index of income inequality (GiNi index), an index to reflect the distribution or inequality of income in the society. By using the Gini coefficient as an indicator for income inequality, to which the coefficient was between 0 and 1 and higher coefficient showing greater inequality of incomes or more inequality, if the coefficient was 0 showing the equality of income distribution, and if the coefficient was 1 showing the inequality of income distribution. The GiNi Index was shown as a percentage.

Procedure Guidelines

- 1) Provincial gross domestic product expansion policy to reduce inequality
- 2) The foundations of the financial system for access to funding sources
- 3) The budget allocation policy was based on spatial inequality. The budget allocation regarded per province in Thailand was another factor affecting the level of spatial inequality. Because the budget allocation in the provinces, was a direct result from the Government action, thus the budget allocation was an important tool in controlling and solving problems in the society properly.

2.2 Occupations

Goals: Promotion of local occupational potential and employment

Indicators and targets

1) **Unemployment rate:** the percentage of the total unemployed labor per total labor force; the total labor force is total number of persons who are at 15 years and over of being employed or unemployed, and total unemployed is the number of persons at 15 years and over, of being unemployed but ready to work.

2) **The percentage of workers with social security** refers to the percentage of insured on sections 33, 39 and 40 per employed number (insured person data in December).

Procedure Guidelines

- 1) Occupational development to be consistent with the local way of life
- 2) Educational development and the readiness of educational institutions in the areas, to be correspondant with employments

3rd dimension: social wellbeing

3.1 Population and habitation

Goals: The increase in population and the growth of cities/communities, having a balance with environments to offer social well being, safety in life and assets, and well equiped for changes

Indicators and targets:

- 1) To adjust the Southern community system to be in better balance
- 2) To strengthen the community center in the secondary cities with potentials, with the role of promoting the economic and social sectors of the Southern
- 3) To improve the urban cluster group under the mutual economic and social systems, and given roles divided by the potential

Procedure guidelines

1) Develop city centre to be safe and livable cities

To prepare the supports for the city both utilities system management and public transport system in the city area, environmental management system, education system and public health system, of having quality standards and sufficient for the city peoples

2) Develop the centre of the region with urban public transportation development centre

To increase capacity, market access and low-cost public services, including relief of traffic congestion problems by providing vital public bus system with an emphasis on safety and convenience to travel with connectivity

3) **To increase efficiency and transparency in city management by participation with local administration organization,** giving peoples to participate and supervise the direction of development as well as strengthen the ability of local administration organization to manage the problem proactively and be equipped with changes, especially the urban planning, environmental management, and public transport in the urban areas

4) **To develop of the city group as the regional center,** in order to develop the city and community of the region, especially high economic growth cities in the region

3.2 Quality of life

Goals: The increase in population and growth of cities/communities are to be balanced with environments to promote the wellbeing of living, safety in life and assets, and well equipped for changes.

Indicators and targets:

1) Green areas not less than 9 square metres per person (The criteria of the World Health Organization: WHO)

2) Center cities growth in region, developed to be safe and livable cities with standard urban environmental management and with the public transport development thoroughly in the urban areas, together with the public participation and corporate governance in the local administration organization

Procedure guidelines

1) To develop the centre cities growth as the safe and livable cities

To prepare the supports for the city both utilities system management and public transport system in the city area, environmental management system, education system and public health system, of having quality standards and sufficient for the city peoples

2) To develop public transportation system in the centre city of the region

To increase capacity, market access and low-cost public services, including relief of traffic congestion problems by providing vital public bus system, bicycle system, and pavement with an emphasis on safety and convenience to travel with connectivity

3.3 Food security

Goals: Having a safe food supply, sustain and treatment of an important source of food production, and promoting to sustainable agriculture

Indicators and targets:

1) Designated safe food supply zone

2) Major food producing area size

Procedure guidelines

1) Natural resources and environmental conservation to support the strong and sustainable agriculture production base, by maintaining the ecosystem from upstream protection of agricultural areas and expanding opportunities for access to production factors, such as access rights to farmer arable lands

2) Scoping of suitable arable land zoning and size, according to the differences in area conditions, and potential agricultural areas development

3) Water resources for agriculture development with restructuring water systems, contributing to agriculture areas leading to farmer's income increases; to prepare water management plans in the agricultural sector, watershed and accelerate reforestation and develop the agricultural forms appropriate for the area and quantity of water

4) Organize the production system to be consistent with the potential areas and market demands from the upstream to the downstream in both physical and economic senses, leading to the results in infrastructure development supporting in each area

5) Create opportunities for innovation and access to modern technology to enhance the farmer's quality of life including the promotion of grain selection and development, suitable for the areas and water resources, by using suitable production technology

6) Adding value to agricultural output from the primary agricultural production to high valued agricultural product, quality and international standards, and exchangeable raw materials with the neighboring countries, and reducing the primary production of lost competitiveness to the necessary production for the creation of food and energy security

The production of food and goods should be given as priority.

7) Develop farmer to be sufficient for agricultural demand in the next 10 years. Promote the production and agricultural sector development in order to create value added and enhance the potential of the value chain in the agricultural sector production to the next level

8) Improve the farmer's quality of life for self-reliance, promote the access to capital for developing the production process, including research and development with the participations from the parties involved and research and innovation utilization to drive agricultural sector development in the long time

9) Accelerate and drive the production development of organic agriculture, by setting up the prices on organic products differently from the agricultural products with chemical use, market promotion, packaging development and value added creation to organic products including proper knowledge creation about organic products among the consumers, certification system of development, and organic products quality monitoring in order to build confidence among consumers and zoning the organic system in practice, together with sustainable agriculture system

Arrange the pilot provinces of having suitable areas or in the ready irrigation zones, and including the agricultural tourism or Thai-style tourism development to generate extra income throughout the year

3.4 Public utilities

Goals: Having sufficient infrastructure to be equipped for changes and equality in access of services.

Indicators and targets:

1) Being one of the marine transport hubs of the country and regional with multiple-mode transport development for saving energy, security and comfort through the transportation network covering the whole land, water and air

2) Energy security in the South as the model area for appropriate renewable energy development and distributable types and patterns of resources in the energy production

Procedure guidelines

- 1) The efficiency road network development
- 2) The efficiency rail network development
- 3) Enhancing the performance of marine transport for the regional gateway
- 4) Developing transport to become the regional aviation hub
- 5) Supporting multimodal transportation and efficiency logistics development
- 6) Creating energy security for sustainable development
- 7) Developing and Promoting efficient renewable energy

3.5 Social services

Goals: Educational/public health services of having quality with equality throughout the region and consistent with the areas development and ready for changes

- 1) Peoples in the urban and rural areas to equally receive the education and health services
- 2) Service places efficiently distributed in the areas
- 3) The proportion between the population, and educational and public health personnel, of being balanced in both the city and rural communities, according to the standards in Thailand

Indicators and targets:

- 1) All peoples to receive basic services
- 2) Workers, to be more qualified and skillful, and directly with the market's needs and the quantities corresponding to the production sector's demands
- 3) Every citizen of all genders and all areas having good quality of life with good health system and conveniently access to quality medical services
- 4) The health services of high quality and international standards

Procedure Guidelines

- 1) Higher education development to support the manpower needs for developing areas
- 2) Vocational education development to support the manpower needs for the production sector
- 3) Workforce development in accordance with development activities

Goals: To sustain the identities, and unique characters in religious, culture and local traditions

Indicators and targets:

- 1) Preparation of identity of the areas
- 2) Registration for cultural conservation areas

Procedure Guidelines

- 1) The areas of history and culture

Archaeological areas, ancient places and communities and important historic places worthed for preservation and development as tourist attraction and a source of public learning as the important history and culture of the South

3.6 The normal happiness in the society

Goals: Peoples in the society having no conflict and not divided, promotion of all level participation and strength

Indicators and targets:

- 1) The number of community enterprise groups
- 2) The participation of the community

Procedure Guidelines

- 1) Promote the participation at all levels
- 2) Promote the activities of strengthening the community

4th Dimension: Technologies suitable for development

Goals:

- 1) To have production plan and sustainable consumption, and promote the green industries/ecosystem
- 2) Access to suitable technologies and supporting local innovative developments

Indicators and targets:

- 1) Sustainable production and consumption
- 2) Suitable technologies for local developments

Procedure Guidelines

- 1) Economic restructuring from resources-based growth towards knowledge-based growth
- 2) Creative economic development, innovative activity and value added tourism
- 3) Higher education development to support the areas development

5. Preparation of the Southern Coastal Areas development master plan

From the analysis of the economic potentials, and the impacts of the development on the environments and the public participation in the areas, it could be concluded that the scenario two plus (2+) in the direction for developing of the Southern Coastal Areas was appropriate for the balance concepts, which was based on the development of existing potentials, i.e. agriculture, agro-processing and tourism industries. However, additional potentials could be added, especially on tourism, agro-processing, and transport sectors, including developing new types of tourism and their attractions, creating transport connectivity to the South, and the center of the halal industrial development. Thus, "two plus (2+)" scenario was selected as the direction in the preparation of the Southern Coastal Areas development master plan.

From the direction of the Southern Coastal Areas development in accordance with the scenario two plus (2+), the master plan for the Southern Coastal Areas development was prepared, and to have duration of 20 years as the National Strategic Framework during the year B.E. 2560-2579, was divided into four periods, each had 5 years; the first period of B.E. 2560-2564, the second period of B.E. 2565-2569, the third period of B.E. 2570-2574, and the fourth period of B.E. 2575-2579. The essence of the plan was as follows.

5.1 The Master Plan for the Southern Coastal Areas development

5.1.1 SWOT Analysis for the Southern Coastal Areas development

The SWOT analysis of Southern Coastal Areas was an important element in the preparation of the master plan for the Southern Coastal Areas development. In the results, strength, weakness, opportunities and threats of the South were given, therefore, adopted as the guidelines for the preparation of the master plan, summarized were shown in the **Table 5-1**.

Table 5-1 The SWOT Analysis for the Southern Coastal Areas

Strength	Weakness	Opportunities	Threats
1) A source of abundant agricultural and agro-processing industry can be developed continuously. 2) Tourism resources are beautiful, with diversity in land and sea. 3) There is a strong and unique local culture. 4) The terrain is suitable for a transport hub in the regional and international levels.	1) Lack of integration on tourism development plans in various levels. 2) The transport connectivity has not been completed. 3) Insufficient infrastructure to accommodate further developments of tourism and the new travel style. 4) Energy sufficiency corresponding to the economic expansion.	1) Growth in the world tourism industry. In particular, new travel style, such as travel, health tourism, cruises. 2) Cost per person/day, and accommodation in the South lower than the averages in many countries. 3) Muslim population, having high proportion, making it ideally suited for the halal industry and tourism industries related to the Muslim population. 4) Malaysia, as the border country, where the population has high income per capita. Makes it possible to increase both trade and tourism.	1) The tourism industry is a highly competitive industry. 2) Marine resources are sensitive to, transport and Tourism industries. 3) Small number of population, posing risk on labour shortage. 4) Agriculture is concentrated and dependent on export, making it vulnerable to global economic fluctuations.

5.1.2 Vision and Mission

Vision

**"Towards balanced and sustainable growth on the resource base.
with the new potential plus"**

Mission

- 1) The development is based on the balance between economic, natural resources, environment and society.
- 2) The Southern development is primarily driven by their own resources, with low dependable on foreign capitals and technology.
- 3) Strengthening the economic potentials with additional existing resources
- 4) Developing the South into the goal of Thailand 4.0

5.1.3 Strategic issues were divided into seven economic sectors as follow:

(1) Transportation and logistics

Goals: Support and establish linkages in transportation and logistics, and become the network in Southern areas

Strategy 1 Improve, develop and expand the network of the land transport system

Strategy 2 Improve and develop the air transport system

Strategy 3 Improve and develop the water transport system

Strategy 4 Improve and develop the rail transport system

(2) Energy

Goals: (1) Sufficient electrical supply for demands

(2) Cost of electricity reflecting the actual costs

(3) Promotion of the impact reduction of greenhouse gases

Strategy 1 Improve, develop and expand the energy network

Strategy 2 Improve and develop the electricity costs

Strategy 3 Developing the renewable and alternative energies

(3) Industry

Goals: To develop the infrastructures and strategic plan to integrate the industrial cooperations

Strategy 1 Restructuring of production in order to increase the potential of the industrial sector

Strategy 2 Support investment factors and industrial development

Strategy 3 Developing halal industry with focuses on four southern provinces

(4) Agriculture

Goals: To develop the transport infrastructures and logistics for supporting the agricultural development

Strategy 1 Developing logistics and the supply chain of agricultural sector

Strategy 2 Developing agricultural activities to support activities of energy sector

(5) Tourism

Goals: Development of tourism infrastructures and tourist attractions

Strategy 1 Provide the tourism master plan to cover all tourism industries in all dimensions, and create a balance between the tourism industry, environmental conservation and the demand of local stakeholders

Strategy 2 Conserve and restore the tourism resources to be sustainable

(6) Natural resources and environment

Goals: Preparation of natural resources and environment management for various economic development plans

Strategy 1 Reservation, restoration and conservation strategies for natural resources and marine and coastal resources management

Strategy 2 Strategy for maintenance of environmental quality and pollution management to support the climate change

Strategy 3 Strategy for strengthening the capacity in disaster management, and natural and public disaster warning systems

(7) Security

Goals: Protection of the national security and interests

Strategy 1 Strategy of the border and coastline stability

Strategy 2 Strategy of the transnational threats prevention and solutions

Strategy 3 Strategy of national marine security

Strategy 4 Strategy of unrest prevention and solutions in the southern border provinces

5.2 20-Year Action Plan (B.E. 2560-2579) This action plan was divided into 2 periods as follow:

1) The First 10-year period (B.E. 2560-2569), the action plan was presented in the Appendix B of the master plan for the Southern Coastal Areas development, and was divided into four groups as follow:

Group 1 Development projects to be accelerated.

Group 2 Development projects to proceed as original plans.

Group 3 Development projects to be further studied.

Group 4 New development project should be included in the Southern Coastal Areas development master plan.

2) The last 10-year period (B.E. 2570-2579), the action plan was presented in the appendix C of the Southern Coastal Areas development master plan, and was a guideline for the government agencies to apply to use in preparing the work plan to develop southern coastal areas. The important projects under the scenario two plus (2+) were shown in the Figure 5-1.



Figure 5-1 The important projects under the scenario two plus (2+)

5.3 Driving guideline for the Southern Coastal Areas development (Road Map)

5.3.1 The periods of the strategic plan and road map

The development was divided into four periods, in accordance with the periods of the National Economic and Social Development Plans from no. 12 to 15, as follows:

Period 1 B.E. 2560-2564	Consistent with the period of the 12 th National Economic and Social Development Plan
Period 2 B.E. 2565-2569	Consistent with the period of the 13 th National Economic and Social Development Plan
Period 3 B.E. 2570-2574	Consistent with the period of the 14 th National Economic and Social Development Plan
Period 4 B.E. 2575-2579	Consistent with the period of the 15 th National Economic and Social Development Plan

5.3.2 Economic Targets

Targets and economic indicators of the Southern Coastal Areas development plan were the targets that

- 1) Consistent with the 20-year national strategic framework, defined Thailand as developed country (Tier 1 world's country group), so that the gross domestic product (GDP) growth to be greater than 5 percent per year
- 2) Using local resources and do not overuse resource capabilities
- 3) Balanced between economic, environment and social
- 4) Having income distributions and reducing inequality in the society, to give the GINI coefficient number result within the OECD standards

The Southern Coastal Areas development was not depended on the expansion of the tourism industry alone. This required the expansion of other industries, to which the master plan suggested that the development of agriculture by developing from the agro-based exports and focuses on few agricultural crops to the more diversified agriculture, domestic dependable and agro-processing industry especially the Halal and the hub of transportation in the region and international level. The economic targets of the South given during the strategic plan periods were shown in the **Table 5-2**.

Table 5-2 The economic targets of the South given during the strategic plan periods

periods	The rate of economic growth (percent per year)	The average tourism income per year (million baht)	The average non-tourism income per year (million baht)
1	3.7	39,139	9,785
2	4.8	192,969	48,242
3	4.9	409,515	216,805
4	5.1	651,715	651,715

5.3.3 Activities time table, type of activities and indicators

The duration of the development was divided into 2 terms; the first 10 years (B.E. 2560-2569), which covered the strategic plans period 1st and 2nd and the last 10 years (B.E. 2570-2579), which covered strategic plans period 3rd and 4th.

The reason to divide the development plan into two terms was that the early development in the South would rely on the tourism resources as main drive, by 80 percent of revenues to come from tourism industry. When the tourism industry was to use its full potential and cause an environmental impact larger than acceptable levels, thus, the development would focus on the other industries, especially industrials under the Thailand 4.0 framework.

The revenue from tourism would then drop to only 50 percent of total revenues during the last 10 years. Each term of the development was divided into 2 periods; the first period was the period of planning and investment, while the second period was the period of the operations to achieve the objectives. The first two years of the period 1st would be a planning and the last three years after would be a long-term investment plan.

Activities should be work out for a success in each period, were shown in the **Table 5-3**.

Table 5-3 Activities planned for a success in each period

1 st period (B.E. 2560-2564)	2 nd period (B.E. 2565-2569)	3 rd period (B.E. 2570-2574)	4 th period (B.E. 2575-2579)
<p><u>The first 2 years</u></p> <ul style="list-style-type: none"> - The 20-year tourism master plan - 5-year Strategic Southern development plan for 5 years, the first period <p><u>The last 3 years</u></p> <ul style="list-style-type: none"> - Establishing /improving the organizations under the master plan and strategic plan. - Prepare the zoning in accordance with the plan - Improve / modify relevant laws and regulations - Investment in the infrastructure, according to the plan. 	<ul style="list-style-type: none"> - Review the master plan for the Southern Coastal Areas development, in accordance with the issues, threats and environment. - Preparing the Strategic plan (2nd period) for southern development - Follow the roadmap - Evaluate the operation performance <ul style="list-style-type: none"> ● economic impact ● environmental impact ● social impact 	<p><u>The first 2 Years</u></p> <ul style="list-style-type: none"> - Review the master plan - 5-year Strategic plan (3rd period) for Southern development, focused on the development of various innovative industries for generating revenue according the objectives <p><u>The last 3 years</u></p> <ul style="list-style-type: none"> - Establishing /improving the organizations under the master plan and strategic plan. - Prepare the zoning in accordance with the plan - Improve / modify relevant laws and regulations - Investment in the infrastructure, according to the plan. - 5-year Strategic plan (3rd period) for Southern development , focused on the development of various innovative industries for generating revenue according the objectives 	<ul style="list-style-type: none"> - Review the master plan for the Southern Coastal Areas development, in accordance with the issues, threats and environment. - Preparing the Strategic plan (4th period) for Southern development - Follow the roadmap - Evaluate the operation performance <ul style="list-style-type: none"> ● economic impact ● environmental impact ● social impact

5.3.4 The development under the division of economic sectors

Master plan and strategic plan were the macro level planning and not related to the defining of relevant projects, but were the guidelines for the preparation of the project listing in the adjunct to the master plan for the Southern Coastal Areas development and strategic Southern development plan, especially the preparation of the sectorial action plans to support the master plan and strategic plan. Therefore, the developments under 7 economic sectors were described as follows.

(1) Transportation and logistic

In the development of the first 10 years (B.E. 2560-2569) of the the Southern Coastal Areas under the scenario two plus (2+), 80 percent of the increased revenue would come from tourism while 20 percent from industrial sectors such as transport, light industries outside agro processing and halal food industries. The transport infrastructure would be necessary to support these activities to develop the economy. Therefore, considering the transport infrastructure to be a systematic network would be important. In the first 10 years, the transport infrastructure to connect with tourism attractions, and for the transport of agricultural products and agro-process products, would be required. The development in the later 10 years (B.E. 2570-2579), since the revenue from tourism would gradually reduce from 80 to 50 percent, therefore new economic activities would need to substitute, by stressing on being the transport hub of the region and the international level.

(2) Energy

In the first 10 years (B.E. 2560-2569), the stability of the Southern electricity system should be considered in the context. There would be a need to develop more power plants. For the development in the later 10 years (B.E. 2570-2579), the renewable energy industry including the biodiesel industry, biomass energy industry would be focused, using agricultural products in the South as raw materials, and requiring to support the farmers to grow crops to support these industries such as palm oil, or other types of energy plants etc.

The electrical power must be necessary to support the development in other sectors, and energy requirements are necessary to support the industrial development of the Southern region during the period, and compliance to the development direction stressing on renewable energy produced from agriculture production of the South. By increasing the agricultural products mainly, the energy crops, i.e. palm oil, which could be used to mix with fossil fuel, along with the government policy. This can be proceeded by replacing the rubber planting areas or expired rubber trees into palm oil planting areas or other renewable energy plants, to be started in B.E. 2565.

(3) Industry

This industrial sector was focused on the development of agro-processing to accommodate the agricultural production growth in the South. In the first 10 years of development, the agricultural produce of the South would not much different from the present; with main products such as rubber, palm oil, and fishery products, therefore focus on developing critical infrastructure, and the development of productivity for agro-processing industries would be important.

For the development in the later 10 years (B.E. 2570-2579), new economic activities would be necessary and to be focused on the renewable energy industry i.e. biodiesel industry by using agricultural products as raw materials of the South such as palm oil. However, the Southern industrial development programme during this time should correspond to the development direction, which emphasized on the renewable energy from agricultural produce of the South, and continue to develop halal food industry, which is consistent with the national strategy of "Kitchen of the World". These would increase the export value and the industries also add high economic value.

(4) Agriculture

Agricultural products and plantation in the South have limited expansion due mainly to the limited planting areas. However, the development of land resources and water resources would still be beneficial to the efficiency and productivity of the agricultural sector. Therefore, the development plan during the first 10 years, stressed that water resources development was the primary target.

In the development of later 10 years (B.E. 2570-2579) agricultural development projects must be consistent and supportive to the industrial development plan. Southern agricultural development project during this period should be considered on the changing economic environments from the main development plan. In the later 10 years, the productivity of the agricultural sector would be increased and applied to the industrial sectors in the South, with a reduction of export proportion. Therefore, agricultural products needed to be preserved and prepared for industrial uses. When the productivity per area could not be significantly increased, therefore, the Farmers would have to use more agricultural area and use of technology and machinery for producing energy plants for renewable energy.

(5) Tourism

The South has a potential which is the strength of tourism and among the top numbers of the world's ranks, such as Natural resources (ranked 4 out of 141 countries), services (ranked 21 out of 41 countries), cultural resources (ranked 34 out of 141 countries) and the price of goods and services (ranked 36 out of 141 countries). From the development direction, divided into the first 10 years and the last 10 years periods, the plan focused on the provincial cluster development with the objectives to enhance the competitiveness of the tourism industry in the three provincial clusters in the South and to adjust the environment and tourism industrial structure, contributing to the sustainable development of tourism in the future.

In the sustainable tourism development, there were related four dimensions in the development to be managed to cause a "balance": (1) Host (2) Guest (3) Tourism Mechanism, and (4) Service Quality. Thailand's tourism development issues from the past to the present were not about the "quantity" of the tourists because the number of visitors had been continuously increased although the country faced many crises. It was rather the subject of the "quality" of the tourists.

However, a major problem had been overlooked and directly impacted the quality of the tourists. There was about the inefficient management of tourism fundamental resources and tourism products (Supply), since the involved authorities were fragmented in many organizations, such as the local government organizations, the ministries and other agencies. This resulted into loss direction of the supply management, not aggregated. The problems caused by the fragmentation of management authorities, in opposite to the national development policy and marketing of the tourism agency, reflecting to the interrupted development and management, without holistic and integration of both public and private sectors.

Therefore, development should be foster and focused on marketing activities to attract/retain quality tourists, together with the promotion of travel with responsible behavior with the tourist groups at high risk of causing impacts, by several channels to provide conscious in conserving the tourism resources. This would help to boost the number of new quality tourists and lead to sustainable tourism.

(6) Environment

The 20-year Southern Coastal Areas management for sustainability (B.E. 2560–2579) was separated into two periods, were shown in the **Table 5-4**.

Table 5-4 National Resources and Environmental Management Procedures

1 st period (B.E. 2560-2569)	2 nd period (B.E. 2570-2579)
<ol style="list-style-type: none"> 1) Usage designation of coastal areas and marine resources, biodiversified ecosystems, habitats and food sources of rare and endangered species have been reserved and protection for well-being 2) To setup capability to accommodate tourists in the important islands and beaches, according to the potentials, and the long-term benefits sharing 3) To setup land utilization criteria based on potential and suitability to maintain the land sustainability and ecosystem. To manage forests and forest source areas to halt land degradation and to rehabilitate the land, including the loss of biodiversity 4) Prepare the marine resource monitoring system and the KPI, and plan to accommodate tourism, reform the sewage treatment system in the large tourist attractions such as Patong, Phi Phi Island, Ao Nang, together with imposing the penalties on the offenders 	<ol style="list-style-type: none"> 1) Divide the utilization of marine resources systemically, by setup the area boundary measures for marine utilization, security area in the energy zone, wealth zone, tourism zone, fishery and transport development, and including the sustainability area in the preservation and conservation management zone 2) Execute the plan to help conservation of rare marine animals, which at risk of extinction, and develop the sustainable tourism

(7) Security

The security policy for the Southern Coastal Areas had 20-year development period, during B.E. 2560-2579, as well as the other economic sectors, was separated into two periods, were shown in the **Table 5-5**.

Table 5-5 Security Development

1 st period (B.E. 2560-2569)	2 nd period (B.E. 2570-2579)
<ol style="list-style-type: none"> 1) To review, develop, update laws, rules and regulations to prepare for security management, focused on priority issues for the Southern Coastal Areas development, to be achievable as planned 2) To prepare the work plan, project and budget for the proceedings of the relevant departments, and in consistent with the existing and future strategic development plans so as to support each other 3) Link the community networks for supporting the security to cover all units in the public and private sectors, along with citizens, community, local governments in order to cooperate to solve security issues from all sectors 4) Create a network and cooperation with foreign organizations to prepare for the changes 5) Evaluate the results and impacts by defining the indicators to evaluate the situation that was expected to affect the security in the area 	<ol style="list-style-type: none"> 1) Enhance the marine security by linking the transport route through the development of new main port in the country Support the marine businesses to perform effectively 2) Promote the regional and international cooperations in order to create all-dimension securities and disaster management 3) Prepare the project security's work plan, consistent with the changing development of the Southern Coastal Areas 4) Evaluate the results and impacts on development

5.4 Area zoning for planning the Southern Coastal Areas development (Zoning)

Important areas were shown in the Figure 5-2.

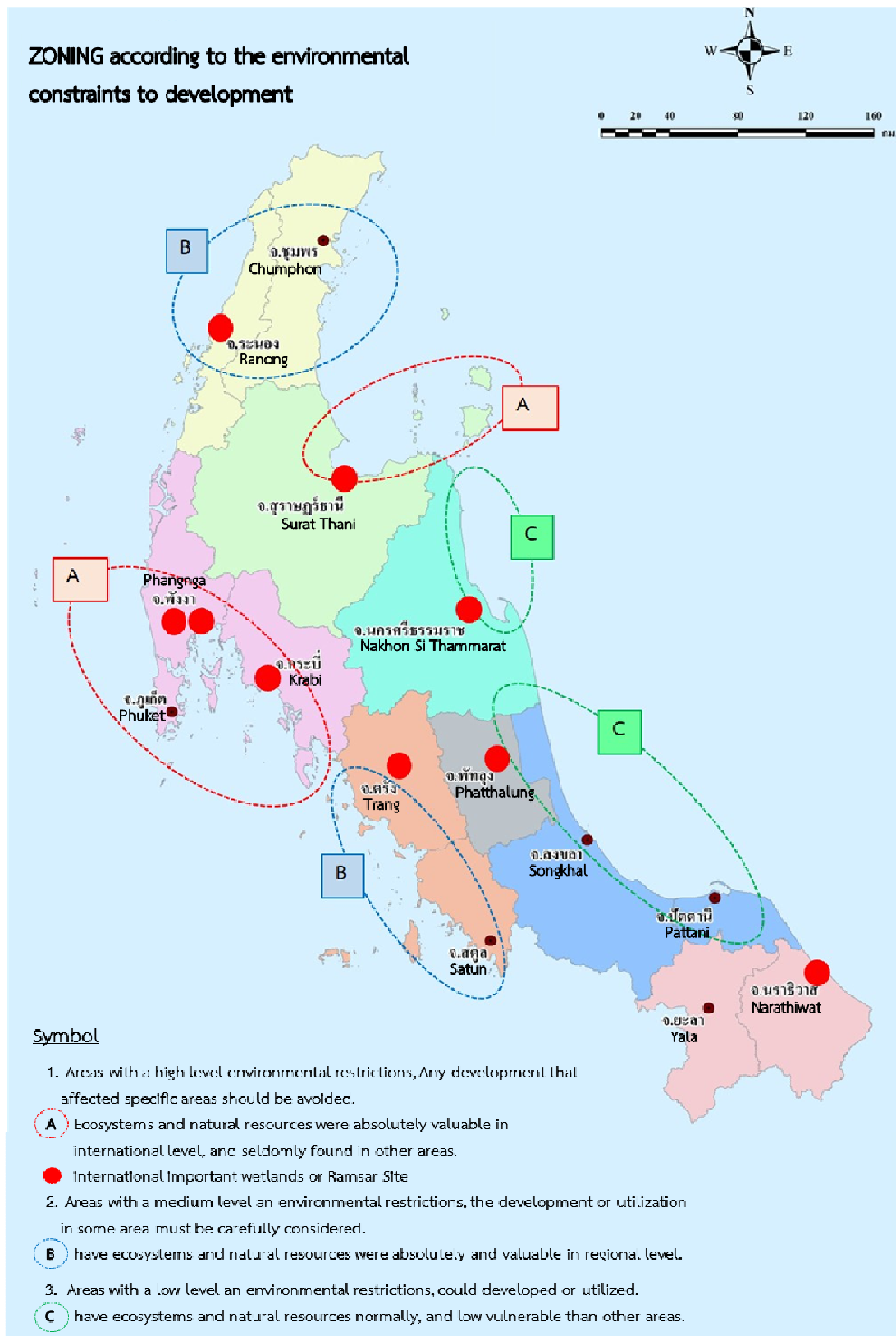


Figure 5-2 Area zoning in accordance with the environmental constraints

From the **Figure 5-2**, Area zoning in accordance with the environmental constraints, given by the Consultant was used to arrange the economic activities assigned to develop the Southern Coastal areas under the 20-year road map (B.E. 2560-2579), were shown in the **Table 5-6** to **Table 5-8**.

Table 5-6 Conservation Areas Development (Area A)

Restrictions on the use of areas	Allowed activities
<ul style="list-style-type: none"> • Determine the carrying capacity of the areas • Set the budget on care/treatment/rehabilitation • A systematic resources management 	<ul style="list-style-type: none"> • Ecotourism <ul style="list-style-type: none"> ◦ To limit the number of tourists ◦ Define the type and style of the activities ◦ No permanent stay • Necessary infrastructures for tourism such as a small tourist port

Table 5-7 Environmental Sensitive Area Development (Area B)

Restrictions on the use of areas	Allowed activities
<ul style="list-style-type: none"> • Define the clear policy and area usage guideline • Measures to control all-side impacts on the environment, such as marine, water, soil and air resources • Proper waste disposal system 	<ul style="list-style-type: none"> • Develop to a new tourist attraction • Develop new tourist activities such as cruise tourism, health tourism, adventure tourism, etc. • Having limits on the number of tourists in the commercial tourism activities • Community enterprise and light industry, including agricultural and small agro-processing industries • Innovation business industries, of having low environmental impacts, such as industrial design, creative industries, etc. • Educational institutions • Small community • Infrastructures, which environmental impact can be controlled

Table 5-8 Common Area Development (Area C)

Restrictions on the use of areas	Allowed activities
<ul style="list-style-type: none"> • Environmental restrictions, similar to the common area • Use existing environmental and urban management laws 	<ul style="list-style-type: none"> • Commercial tourism • Trade Centre • Agricultural and agro-processing industries including large halal food processing factory • Heavy industry • Business innovation industries with a high environmental impact, such as the alternative energy industry, biodiesel industry, and biomedical industry, etc. • Large infrastructure, including energy infrastructure

5.5 Legal and corporate guidelines

5.5.1 An Overview on the legal and corporation

From the study of law and corporate actions to support the implementation of the 20-year Southern Coastal Areas development plan (B.E. 2560-2579), and the goals, with details given in the annex D of the master plan of the Southern Coastal Areas development. It was found that the laws and the organizations enforcing the laws in this study and in the existence were still sufficient to support the development proceedings by the master plan.

5.5.2 Legal and corporate recommendations

The Consultant proposed the establishment of a "National Committee for Developing Southern Coastal Areas", which was the national level committee to coordinate operations between relevant government agencies to provide law enforcement, according to the master plan's goals and to monitor the evaluation of the on-going implementation of the plan. By establishing the committee in this manner to resolve the issue of the public administration, thus the mechanisms were relied on the pursuant to section 11 (8) of the National Government Organization Act, B.E. 2534, stating that Prime Minister with the approval of the cabinet for the benefits of fast and efficient public administration and without violating or conflicting to the Act, can issue the secondary regulations called "the office of the prime minister's regulation on the Southern Coastal Areas development B.E..."

6. Mutual learning with stakeholders

Mutual learning with stakeholders was consist of three supporting tasks; (1) learning activities with stakeholders (2) public relations program (3) implementation of Information operations (I/O). This was to create knowledge, understanding and public opinion hearings from stakeholders and to use in the study and to the guideline for the acceptable and suitable Southern Coastal Areas development.

Learning activities with stakeholders were held in the main areas of the study in six provinces; Chumphon, Ranong, Nakorn Si Thammarat, Krabi, Songkhla and Satun provinces to provide information of the project and listen to comments from the attendants, including primary stakeholders and secondary Stakeholders. Starting from the meetings with top executives of the six provinces to introduce the project and obtain the areas potential information, constrains, opportunities, policy and plans/projects development related to agriculture, industry, tourism, energy, transportation and security as well as comments and suggestions towards the project. All the comments and received feedback showed that the provinces had the development concepts from their existing potentials.

For example, Ranong province, where there was a deep sea port in the area, so they expected the province to be the transportation hub and medical tourism. Nakhon Si Thammarat province has Thung Song district in the centre location of the South; therefore the distribution centre was built in the district with an aim to distribute by rail mode. Whereas Krabi province was designated to be a source of ecotourism, while Satun province had the idea to

develop a route link between the coastal areas of the province with Perlis state in Malaysia, etc. However, the Southern areas are still having problems on natural resources and environments in many areas such as coastal erosions, which are found in Chumporn, Nakhon Si Thammarat and Songkhla, waste issues, waste water from palm oil factories, and etc. In the study proceedings by the Consultant, small group meetings were held in different areas, giving suggestions that receiving clear information and understandings with community leaders were crucial for avoiding rifts in the areas.

Learning activities with stakeholders of the project in the later stage was the meeting in three levels;

(1) Small group meetings as an activity the Consultant additionally offered from the scope of the project (TOR), by hosting 60 informal meetings in the areas such as villages, communities or various occupational groups offices to increase the opportunities of the project stakeholders from the peoples to community/village/occupational group/NGOs group leaders in the areas to participate with the project from the start till the end. This would provide the SEA study and the master plan for the Southern Coastal Areas development to be most acceptable from the stakeholders. The meetings were held in the areas previously against the projects development in the first place since understanding with the opposition party would not be easy and time consuming so as to manage time effectively.

(2) Focus Group meeting for provincial level attendants (2 increased from that stated in the TOR) to provide all stakeholders in each province, such as those who attended small group meetings, district-chief officer, provincial and private sector NGOs, etc. to join and receive the information and give opinions to the project.

(3) Seminars, which were the meetings extended with the purpose for regional attendance. The attendants were the stakeholders from small group meetings, focus Group meetings to attend with participants from the Southern Bureau of Economic and Social Development, the Regional Environmental Office 15 (Phuket), the Regional Marine Office 4, and the Andaman coast Strategy Group in the Office of Songkhla province, etc.

The results of the meetings in each level were summarized as follows:

(1) Small group meetings

The meetings started since the middle of November B.E. 2558 continuing throughout the project's period, with the total number of 60 meetings. The summary, comments and recommendations were following.

1) Areas should be firstly developed by using the full potential of the existing areas. For the development of the deep sea port in the Chana, Songkhla province, mutual understandings and agreements on compensations and remedies should be reached before.

2) Economic–Social aspects, there were still requests for maintaining the old lifestyle and independent careers directly benefit from these lifestyle activities, such as tourism, community, agriculture and fisheries.

3) Environmental disagreement with the development of the heavy industries in the areas such as petrochemical

(2) Focus Group meetings

Throughout the study period, the Consultant organized 8 focus group meetings, by the first 6 meetings were at the provincial levels. Additional 2 meetings (additional from TOR) were meetings at each province on the Andaman coast and the Gulf of Thailand coast, respectively. Every meeting had a number of 60 attendants with the majority from the government agencies, and the rest from the private sectors, NGOs, peoples and media etc.

The first six focus group meetings were held with the objectives to introduce the project and to obtain their opinions on the development of the Southern Coastal Areas. The meetings of 1-3 were held during 16-18 February B.E. 2559 in Satun, Songkhla, and Nakhon Si Thammarat provinces, respectively. While the meetings of 4-6 were held during 23-25 March B.E. 2559 in Chumphon, Ranong, and Krabi provinces, respectively. The results from the meetings were summarized in the following.

1) The Southern Coastal Areas development should be made on the basis of existing resources. The development should aim on the tourism, agriculture, fishery, and agro-processing industries. Industries with pollution output were not welcomed, whereas the development should be based on sustainability, not focusing only on economy side, but comply with the public; the communities or the peoples in the affected areas to receive compensation and replacements should be offered on career and income aspects.

2) Tourism, and community tourism should be promoted including the developments of land, water and air transportations to commute to touristic attractions, together with the development of tourism resources. The possible impacts such as increased wastes from tourists should also be aware.

3) Natural resources and environmental aspects: current arise problems in the South are such as forrest encroachment for agriculture purpose, coastal erosion, polluted water and solid wastes from community etc.

4) Social: the quality of education should be raised to improve the efficiency in fishery and agriculture doings in the areas.

The focus group meetings No. 7 and 8 were intended to listen to the opinions on the best approach selected for the guidelines of the Southern Coastal Areas development. The meetings were held on 22 and 23 June B.E. 2559, in Krabi and Nakhon Si Thammarat provinces, respectively. The results from the meetings were concluded as follow.

1) The development of the Southern Coastal Areas: agreed with the scenario two plus (2+), which aimed at the development of tourism and agro-processing industries to their full existing potentials.

2) Transportation: opinions supporting the Pak Bara deep sea port and the Land Bridge project should not be aborted but the rail link to Hat Yai district should also be reviewed. In addition, the sea port would also help to transport halal food production in the South to the Middle East.

3) Industries: opinions supporting the production of halal food, also the possibility that produced by the communities, allowing product diversity

4) Tourism: there was a proposal to raise Krabi province as the Landmark and hub of the west coast trail and tourism links with other areas. Andaman coast areas should also be regarded as the world heritage to serve as a support tool for sustainable tourism development. In the management side, suggesting that the special economic zone for tourism should be granted and to be holistically managed. The protected areas for conservation of pink dolphins should be announced in Nakhon Si Thammarat province etc.

5) Energy: opinions did not agree on coal-fired and nuclear power plants and to use alternative fuel instead.

6) Natural resources and environmental aspects: the important issue was the coastal erosion which was severely increased in Hua Sai and Pak Panang districts. This problem should be solved by consulting with the community who might have the wisdom appropriate with the context of the area.

(3) Seminars

The seminars were held twice, the first was held on Thursday, April 28, B.E. 2559 in Hat Yai district of Songkhla province, aiming to present and receive feedback on the scenarios for the development of coastal areas of the South, which were improved from the opinions during 6 focus group meetings. The total participants were 230 from all Southern provinces (14 provinces), mostly representatives from the government agencies, the private sectors, NGOs, civil societies, media, etc. The results from an open forum in this seminar were summarized in the following.

1) In the development aspect of the Southern Coastal Areas, the existing potentials in the areas should be fully used and the income should be well distributed throughout the areas. Besides, the tourism should be promoted on the community itself, but the establishment of oil refinery and petrochemical were still not acceptable by the community.

2) Transportation; Opinions were still mixed as follow:

- Port of Songkhla today should be improved for enhanced efficiency by installing three cranes, while the second port of Songkhla should be built for export mission.
- Pak Bara deep sea port, Comments were to adjust the size into medium-scale deep sea port, and adjusting the existing touristic passenger port into this port to avoid building the new port.
- Port of Chumpon, Opinions were made to have the linkage with the port of Ranong and promoting the port utilization.
- Cruise port should be established to support tourism development, which should be developed in the Phuket deep sea port, rather than building the new one and avoiding the costs on the environments.
- The facilities for tourists, including railway stations, airports and roads should be created for touristic purpose to travel.

3) Energy; Tera power plant capacity should be reduced to match with the tourism concept of the region.

4) Natural resources and environment; There were problems needed to be solved, including the problems of coastal erosion, and including solid and waste water in the touristic sites, particularly those famous places, such as Koh Phi Phi, Koh Lan Ta.

5) Social; development concept should be considered on the aging society that would arrive.

The second seminar was held on Monday, September 19, B.E. 2559 in Bangkok, with the objectives to present and obtain opinions on the draft final report on the strategic environmental assessments for the Southern Coastal Areas development (including the SEA studies and draft master plan for the Southern Coastal Areas development). The total number of participants was 211, with largest portion from the representatives of the involved central government agencies, the rest from regional or local authorities, as well as the peoples from the South and the media. The opinions and recommendations on the draft reports from the forum and the meeting were concluded as follow:

1) In the Southern Coastal Areas development, the guideline should be made on the income distribution throughout the South region, rather than Bangkok or offshore.

2) In the transport, the development should be made to promote various existing activities than developing infra-structures first to attract the new activities. Attention should be paid on the development of secondary roadwork to transport agricultural products and community tourism. Besides, the port of Chumphon should be stated in the report, since this project could help linkage with the Andaman Sea through the port of Ranong.

3) Industry; "halal food" should be replaced with "halal industry" since halal is not only about the food, but also various products such as medicine, cosmetics, as well as halal tourism. By developing the halal industry, this should aim to form SME or grass-root economy for job and career creations, and the community sustainability. It was expected that the demand for halal products would increase in the future due to the increase of Muslim population was around 3.1 fertility rate. The areas should be developed were the industrial estates in Pattani province, whereas the provinces of Songkhla and Satun should be considered to follow. The areas to promote the halal tourism should be in Phuket, Phang Nga, Ranong, Trang and Satun provinces, due to heavy density of Muslim population.

4) Tourism; current tourism is the mainstream tourism; therefore the tourism resources are seriously affected. There was lack of integration or cooperation with various sectors including government, private sector, civil society, the academic community to drive the tourism. In addition, the development and promotion of tourism also required human resources who were well equipped. In terms of revenue from tourism should focus on quality tourists and the sales of tourist souvenirs.

5) Natural resources and environment, the importance of SEA was mentioned to help people understanding prior to the area developing. This could help to reduce the project resistance. Additional comments were as follow.

- SEA in each economic sector should be arranged after this project, i.e. SEA of transport sector should be used to integrate the pictures together. SEA should not be viewed as fragmented.
- The environmental strategy should be made in conjunction with other strategies since the master plan was in the early phase.
- When developing the project, the communities should be responsible for their own environments.

In addition to the aboved meetings, the public relations with the stakeholders were also implemented together with the main learning process, by using a variety of media such as brochures, websites, exhibition, and the press tour, etc., and establishing the "Mutual learning center for the Southern Coastal areas development" as the source in Songkhla province to give and receive information from all stakeholders throughout the project period.



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