

# **Survey on Socio-Economic Development Strategy for the South-Central Coastal Area in Vietnam**

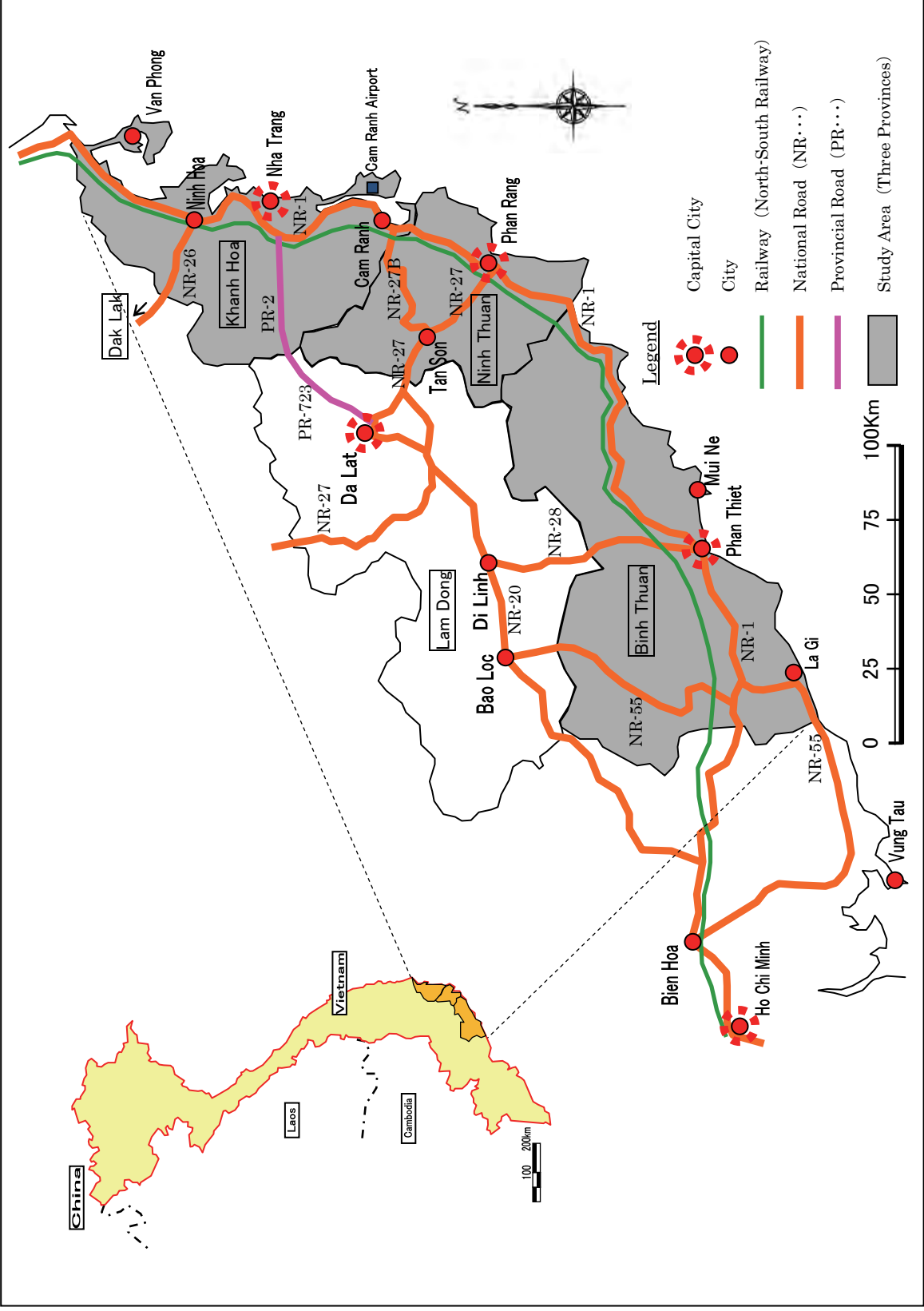
## **Final Report**

**October 2012**

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

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Location Map of the Study Area

**Survey on Socio-Economic Development Strategy for  
the South-Central Coastal Area  
in Vietnam**

**Final Report**

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## **List of Abbreviation**

AIDS	Acquired Immune Deficiency Syndrome
ADB	Asian Development Bank
BOET	Bureau of Education and Training
CHC	Commune Health Center
CT	Commuting Time
CT	Connecticut Computerized Tomography
DARD	Department of Agriculture and Rural Development
DDI	Domestic Direct Investment
DOET	Department of Education and Training
DOIT	Department of Industry and Trade
DOH	Department of Health
DOLISA	Department of Labor, Invalids and Social Affairs
DPC	District Peoples' Committee
DPI	Department of Planning and Investment
EDO	Economic Development Office
EM	Ethnic Minority
FDI	Foreign Direct Investment
GIZ	Gesellschaft für Internationale Zusammenarbeit
HCMC	Ho Chi Minh City
HIV	Human Immunodeficiency Virus
IPA	Investment Promotion Agency
MDG	Millennium Development Goal
MMR	Mother Mortality Rate
MOET	Ministry of Education and Training
MOH	Ministry of Health
MRI	Magnetic Resonance Imaging
NGO	Non-Governmental Organization
NR	National Road
ODA	Official Development Assistance
PCI	Provincial Competitive Index
PPC	Provincial People's Committee
PR	Provincial Road
SME	Small and Medium-sized Enterprise

## **CHAPTER 1 OBJECTIVE AND STUDY AREA**

### **1.1 Objective of the Study**

The objective of the Study is to propose regional development strategies which is expected to contribute to the balance growth of three districts in the South-Central Coastal Area (Ninh Thuan, Khanh Hoa, Binh Thuan) and promote sectoral and regional linkages. In order to achieve the objective, three activities will be conducted for the Study, as follows:

- Collect information in order to confirm the position of the South-Central Coastal Area in the existing mid-term development plan in Vietnam, and understand the development direction/strategy, progress, and issues for implementation of the target provinces;
- Review of the “Social and Economic Development Plan 2010-2020 and Vision for 2030 for Ninh Thuan Province”, compile issues for designing measures and priorities for implementation, as well as examine the sectoral and regional linkages; and
- Propose a regional development strategy for the South-Central Coastal Area based on the development direction derived from information and analysis.

### **1.2 Study Schedule**

#### **(1) Activities from May to July, 2012**

The activities from May to July was composed of the field survey starting from the end of May to the end of July. Work continued at home at the beginning of August.

The different activities for the field survey are summarized as listed below:

- Courtesy call and kick-off meetings with concerned agencies in the Ninh Thuan Province, Khanh Hoa Province, and Binh Thuan Province;
- Site visit;
- Interview regarding development issues and directions with concerned agencies;
- Data and information collection; and
- Discussion of outline of regional development strategy with concerned agencies.

Activities for work at home are summarized as listed below:

- Analyze the collected data and information;

- Prepare the outline of the regional development strategy; and
- Prepare the interim report.

(2) Activities from August to September, 2012

Activities from August to September was composed of the second field survey and second work at home. Activities of the second field work are summarized as listed below.

- Prepare draft regional development strategy;
- Prepare strategies for regional linkages;
- Conduct sectoral discussion;
- Conduct workshops with stakeholders in the South-Central Coastal Area,
- Report to the Ninh Thuan Provincial People's Committee;
- Prepare the draft final report;
- Preparation of final report.

### **1.3 Focus of Regional Strategy Preparation**

The South Central Coastal Region comprising of the three provinces, namely, Khanh Hoa, Ninh Thuan and Binh Thuan is located in the southern part of central coastal area. Khanh Hoa currently enjoys its leading economic status represented by Van Phong Special Economic Zone and the famous tourism spot, i.e. Nha Trang and Binh Thuan in proximity to Ho Chi Minh City is benefited with economic transactions with the Southern Economic Key Zone. Ninh Thuan is currently in a position of the poorest and the least industrialized province. Social and economic disparity exists in the region. Under such a circumstance, The US-based foreign consultant group, the Monitor Group employed by Ninh Thuan province prepared the long-term master plan for the province's social and economic development. The master piece of the master plan was creation of the Economic Development Office (EDO) as the organization or window for foreign and domestic investors taking interest in investment to Ninh Thuan. Nevertheless the fundamental issue of regional disparity will continue to be the challenging subject. The Study "Survey on Socio-Economic Development Strategy for the South Central Coastal Area" is basically intended to tackle the issue of regional disparity. The Study primarily focuses on strategy for socio-economic development of Ninh Thuan while taking into consideration regional linkage and cooperation among the three provinces.

## CHAPTER 2 GENERAL CHARACTERISTICS OF THE STUDY AREA

### 2.1 Study Area

The Study area is composed of three provinces located in the southern part of Central Coastal Area, namely, the Ninh Thuan Province, Khanh Hoa Province, and Binh Thuan Province. In addition, the Ninh Thuan Province is positioned as a priority area of the Study.

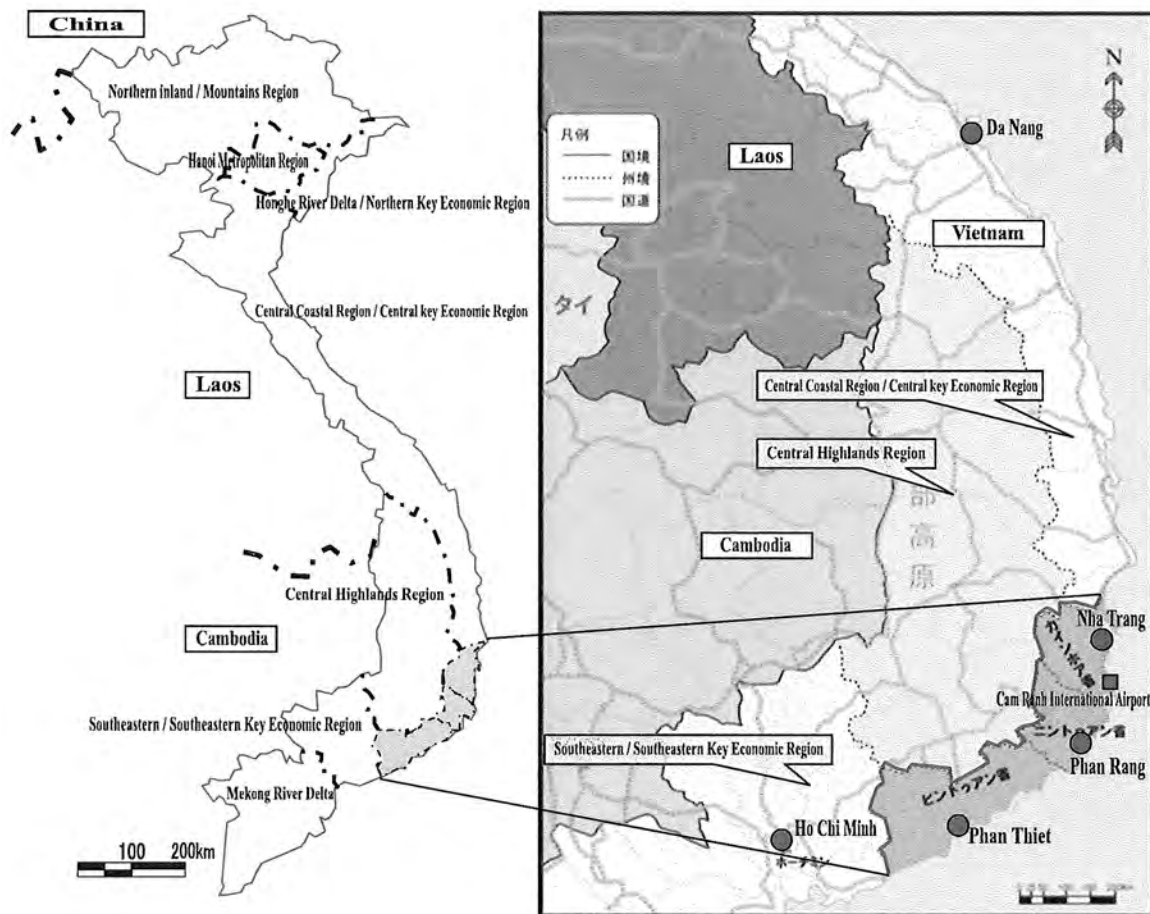


Figure 2.1.1 Location Map

## 2.2 Outline of the Study Area

Some features of the South-Central Coastal Area are long and beautiful coastlines utilized for tourism, aquaculture, and good harbor. Mountainous area, on the other hand, have poor access compared with the coastal areas. Socio-economic environment among the three provinces, on the other hand, is different. The Ninh Thuan Province is the smallest province if compared with the other two provinces in terms of population size, economic indicators, etc. The characteristics of the three provinces are shown in the Table 2.1.1 below.

**Table 2.2.1 Outline of the Three Provinces**

	<b>Ninh Thuan</b>	<b>Khanh Hoa</b>	<b>Binh Thuan</b>
Major Urban Center	Phan Rang	Nha Trang	Phan Thiet
Population	570,078	1,167,744	1,176,913
Area (km <sup>2</sup> )	2,260	5,197	7,828
GDP (VND billion)	6.72	34.30	24.40
GDP/Population (VND million)	11.79	29.37	20.74
Industrial Composition(%)			
Primary Industry	42.6	13.5	21.0
Secondary Industry	22.2	41.8	34.2
Tertiary Industry	35.2	44.6	44.8
Fertility Rate (%)	2.42	2.06	2.09
Population Growth Rate (%)	0.76	0.83	0.64
Poverty Rate (%)	19.0	9.5	10.1
Characteristic	<ul style="list-style-type: none"> <li>• National roads 1A and 27 pass through the province.</li> <li>• Climate around Phan Rang is dry, semi-desert location can be seen.</li> <li>• Fruits and garlic have been cultivated extensively.</li> <li>• There are a lot of salt fields in the coastal area where good-quality salt are made.</li> <li>• The Cham ethnic minority group has been settled as well as the majority of the Kins.</li> </ul>	<ul style="list-style-type: none"> <li>• Nha Trang City is an international tourism destination.</li> <li>• National roads 1A and 27B pass through the province.</li> <li>• Cam Ranh International Airport is the gateway for tourists into the city.</li> <li>• Khanh Hoa Province has good harbors such as the Cam Ranh Bay, Van Phong Bay, Nha Trang Bay, and has become a nodal point of regional logistics.</li> </ul>	<ul style="list-style-type: none"> <li>• National Road 1A passes through the province.</li> <li>• Climate around Phan Thiet is dry, semi-desert location can be seen.</li> <li>• Marine product industry has been practiced extensively.</li> <li>• Mui Ne has been attracting tourist attention as an international tourism destination.</li> </ul>

Sources:

- A Summary of Ninh Thuan's Master Plan for Socio-economic Development to 2020
- The Overall Planning on Socio-economic Development of Khanh Hoa Province up to 2020
- The Master Plan on Socio-economic Development of Binh Thuan Province up to 2020

### **2.3 Characteristics of Ninh Thuan Province**

Ninh Thuan is a province in the South Central Coastal region of Vietnam with a land area of 2,260 km<sup>2</sup>. It has a population of over 570,000, 26% of which are ethnic minorities from 28 different ethnic groups. The capital of Ninh Thuan is Phan Rang.

Ninh Thuan is covered by mountains from three sides (north, south, and west). The east side of the province faces long seaside with length of 105 km. Transport to and around the provinces is dependent on two national roads, 1A and 27. The condition of National Road 27 is poor (pavement, landslide prone), and the transport capacity is limited.

The economic structure of the province is mainly composed of agriculture, aquaculture, and forestry, which employs 42% of the province's working population and accounting for 46% of its GDP. Ninh Thuan's agriculture is mostly based on rice. Its other products are corn, sugarcane, and grapes. Grapes are used for wine processing. The share of the industry sector is small with 22% of its share being left behind from Vietnam's industrialization.

Ninh Thuan has a beautiful coastline, which is an important tourism resource. There are some resort hotels along the coastal areas, but tourism and commercial services are underdeveloped.

### **2.4 Characteristics of Khanh Hoa Province**

Khanh Hoa is a province in the South Central Coastal region of Vietnam with a land area of 5,197 km<sup>2</sup> and a population of over 1,167,744. The capital of Khanh Hoa is Nha Trang. Khanh Hoa is located along Vietnam's main north-south transport corridors. National Road 1A and the North-South Railway run through the province.

The provincial coastline spreads from the Đại Lanh commune in the north to the end of Cam Ranh Bay in the south with a total length of 385 km. The province features numerous creek mouths, lagoons, river mouths, and hundreds of islands and islets. The province also administers large territorial waters. The coastline consists of several bays, most notably the four bays, i.e., Van Phong Bay, Nha Phu Bay, Nha Trang Bay, and Cam Ranh Bay. Cam Ranh Bay with its area of around 200 km<sup>2</sup> is encompassed by mountain ranges and is regarded as one of three best natural seaports in the world. Cam Ranh Bay is strategically important and has been used as a naval base by several powerful countries throughout history. Today, Cam Ranh Bay has an important role as a logistics hub of the South Central

Coastal Area. Nha Trang is a coastal city and is one of the best tourist cities in Vietnam.

As a coastal province featuring several natural deep water bays, Khanh Hoa has what is needed to develop its deep-water seaports. The Nha Trang Port (a tourist and cargo port) and Doc Let Port (a shipbuilding and logistics port) are now currently in use. The Van Phong Port is a megaproject intended to be developed in the Van Phong Bay. The Cam Ranh International Airport is located south of the province and is the gateway for tourism in the area.

## **2.5 Characteristics of Binh Thuan Province**

Binh Thuan, located east of Ho Chi Minh City, is a province in the South Central Coastal region of Vietnam. It has a land area of 7,828 km<sup>2</sup> and a population of over 1,176,913. The capital of Binh Thuan is Phan Thiet.

Much of the borders with Lam Dong and Ninh Thuan are mountainous, while the rest of the province is relatively flat. The province's highest peak (1,548 m amsl) is in the north-west of Tanh Linh District near Lam Dong Province.

Binh Thuan is well-known for its fishing industry and its popular Vietnamese fish sauce. It is also famous for the beautiful beach in Mui Ne, which is one of the sightseeing spots that represents Vietnam, and has become more and more popular. Binh Thuan's agriculture is mostly based on rice. Others products include dragon fruit, rubber, and cashew.

Binh Thuan's industry has been booming from 2000 until 2007. Its industrial development is currently facing problems regarding land management. Licensed industrial parks have been found to overlap with titanium reserves and its development may be delayed as a result.

## **2.6 Ethnic Minorities**

### **2.6.1 Distribution of Ethnic Minorities**

Distribution of ethnic minorities in the South Central Coastal Area is summarized below.

#### **(1) Ninh Thuan**

Majority of the ethnic groups living in Ninh Thuan are the Kinh (77 %). Apart from the Kinh ethnic group, significant parts of the population belong to the Cham and Raglai ethnic groups. Many of the Cham lived near the capital Phan Rang TP and along coastal districts. The Raglai lived in more mountainous parts of the



province, such as the Bac Ai or Thuan Bac districts in the north-east and the west part of the province. Compared with other two provinces, the share of ethnic minorities in Ninh Thuan is high (23 %).

i) Cham

The Cham people are mainly living along coastal areas. They follow Islam and Brahmanism. About three-fifths of the Cham population in Ninh Thuan and Binh Thuan provinces believed in Brahman doctrines. The main economic activity of the Cham is rice farming in submerged fields. Pottery making and cotton cloth weaving are two other sideline occupations.

ii) Ra-Glai

The Ra-Glai people are living mainly in mountainous areas. Their villages are along the road with a second home situated near their slash and burn fields in the forest. They grow maize, cashew nuts, rice, beans, and manioc. They cultivate cash crops such as coffee and cotton, and exploit forest products such as bamboo, resin, and wild animal hunting. (Van Bortel et al.2010)

(2) Binh Thuan

Same as in the Ninh Thuan Province, majority of the ethnic residents in the area are Kinh (93 %). Apart from Kinh, there are several ethnic minorities in the province. Some of the Cham communities are in the coastal regions of eastern Bình Thuận. Other minorities mainly inhabit the mountainous regions along the border to Lam Dong Province. They include Cơ Ho and Ra Glai.

(3) Khanh Hoa

Majority are Kinh (96 %). Minority people's dwelling in the province are the Ra Glai, the Hoa (Han Chinese), and the Cơ Ho.

As mentioned above, ethnic minority (EM) residential areas and poverty rate are closely related, particularly in the mountainous region. Reducing poverty will also contribute in improving the living conditions of ethnic minority groups. Characteristics of ethnic minorities in coastal regions and mountainous regions are summarized below.

(1) EMs in coastal regions

In each province, some Cham communities exist in coastal regions where they mainly engaged in animal feeding/raising, pottery, trading and agriculture. Intense heat and oligotrophic soil in the area affect many crops to grow sufficiently, therefore, agricultural production is quite limited. Access to the main stream economy on the other hand, is better than in mountainous regions. If the quality

and quantity of education are enough to produce quality human resources, they are relatively easily regarded as qualified human resources.

The ethnics preserve their own culture by still practicing old customs like traditional weaving, pottery, and dancing. These cultures can help in promoting tourism.

#### (4) EMs in mountainous regions

In each province, some Ra-Glai and Co Ho communes exist in mountainous regions. They mainly engaged in agriculture (some are still engaging in shifting cultivation) and animal feeding/raising. Very hot weather with limited land for cultivation and insufficient water make harvest difficult. Poor road condition and low quality education affect the possibility for people to acquire other means to improve their livelihood. Improving the condition of basic human needs including health care is the first priority for EMs in mountainous regions.

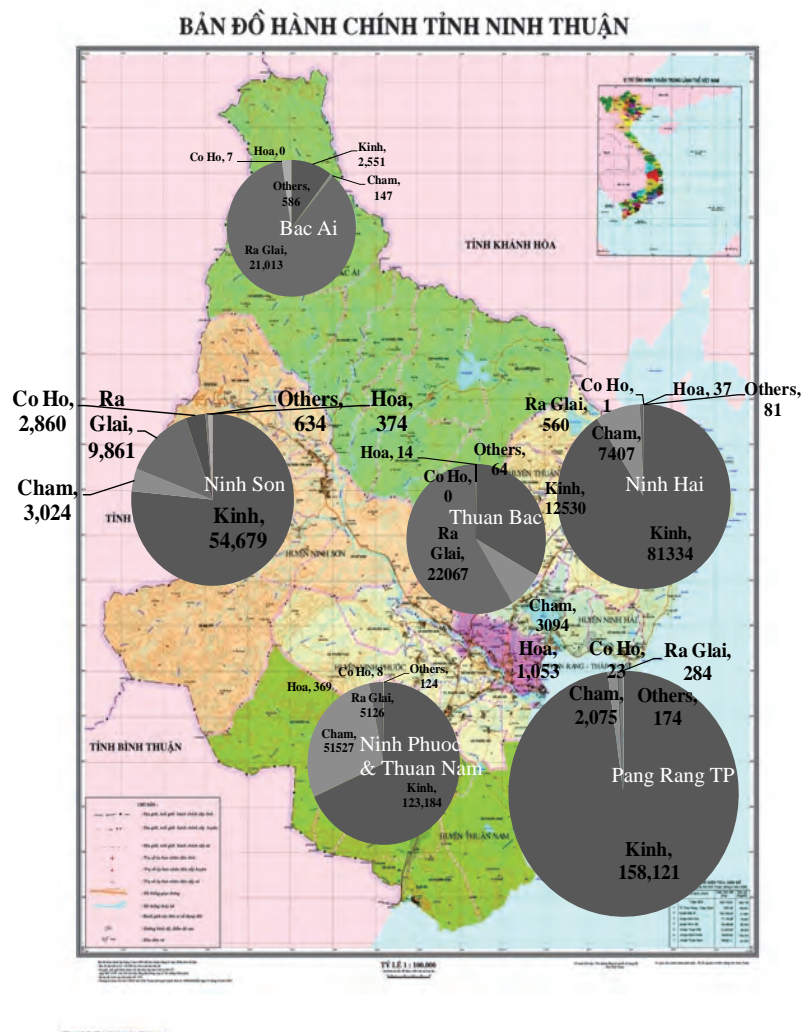


Figure 2.6.1 Distribution of Ethnic Minorities in Ninh Thuan Province

## **CHAPTER 3 REVIEW OF EXISTING DEVELOPMENT PLANS**

### **3.1 Review of the Socio-economic Development Plan 2011-2020 and Vision 2030 for Ninh Thuan Province**

#### **3.1.1 General Direction on Regional Development for Ninh Thuan Province**

The Socio-Economic Development Master Plan of Ninh Thuan Province 2020 (herewith referred to as “the Master Plan”) was approved on July 22, 2011 by the decision of the Prime Minister. It was considered as an umbrella plan for regional development. Sector development plans are under preparation by concerned agencies based on the Master Plan.

The Master Plan is composed of: (i) Vision/objective; (ii) Development target for economic sector, social sector and environment sector; (iii) Development orientation (six priority clusters, infrastructure and social development); (iv) Spatial development (two corridors, six major development areas); (v) Priority investment programs/projects; (vi) Major solutions to implementation of the Master Plan; and (vii) Implementation and monitoring plan.

#### **3.1.2 Summary of Socio-economic Development Plan for Ninh Thuan Province**

##### **(1) Objective**

##### **2030 Vision**

- Build Ninh Thuan into a destination of Vietnam in the future. Developing the model of “fast economic growth” based on four major solutions: increasing competitiveness, improving infrastructures, developing brand and increase capacity, and improve operational efficiency of the provincial administrative agency;
- Building liberal business and investment environment with high competitiveness, good living environment, environment friendly; and
- Develop the province’s socio-economy towards balancing rapid growth and sustainable development, fast urbanization and synchronize infrastructure investment in rural areas, building new countryside model.

##### **Priorities to the development of four key economic programs in the 2030 Vision**

- Develop Ninh Thuan Province into a center for clean energy and renewable energy production in the country, the largest center for salt production in the country;
- Develop Ninh Thuan into a key tourism destination of the country and the region, with high quality facilities and services to attract wealthy local tourists

and international tourists as well;

- Vigorously develop food and beverage production and processing industries with strong brands and popularity in the world and Asia, and
- Develop Ninh Thuan into a center of high quality training in the field of science and technology, focusing on clean energy sector.

### 2020 Objective

Development of Ninh Thuan Province to become a first class tourist destination of Vietnam in the future equipped with synchronized infrastructure systems, open investment and business environment, with a good capability to cope with climate change and mitigate natural disaster.

### (2) Development target

Development targets are set for the 2030 vision and 2020 development objectives.

**Table 3.1.1 Target for GDP Growth Rate for Ninh Thuan Province**

Indicators		2001-2010	2011-2015	2016-2020
GDP growth rate	(%)	9.4	16~18	19~20
Industry/construction	(%)	21.6	30~31	32~33
Agriculture, fishery, forestry	(%)	40.4	5~6	6~7
Services	(%)	38.0	15~16	16~17
Per capita GDP	USD	-	1,400	2,800

Source: A summary of Ninh Thuan's Master Plan for Socio-Economic Development to 2020, Ninh Thuan, December 2011

**Table 3.1.2 Target for Economic Structure for Ninh Thuan Province**

Indicators		2011-2015	2016-2020
Industry/construction	(%)	40	52
Agriculture, fishery, forestry	(%)	25	20
Services	(%)	35	28

Source: A summary of Ninh Thuan's Master Plan for Socio-Economic Development to 2020, Ninh Thuan, December 2011

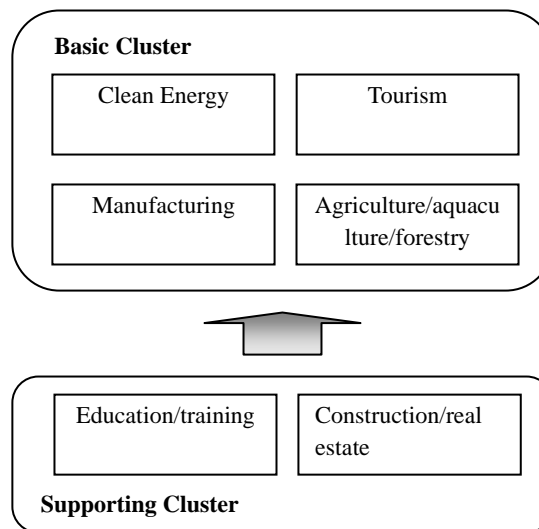
**Table 3.1.3 Target for Social Sector for Ninh Thuan Province**

Indicators		2011-2015	2016-2020
Population growth rate	%	1.15	1.10
Population	persons	640,000~650,000	740,000~750,000
Poor household (decrease rate)	(%)	1.2~1.5	

Source: A summary of Ninh Thuan's Master Plan for Socio-Economic Development to 2020, Ninh Thuan, December 2011

### (3) Development orientation

In 2020, six clusters are expected to contribute 91% of the GDP and 85% of labor in the province. These six clusters, which include four basic clusters (i-iv) and two supporting clusters (v-vi) are: (i) Clean energy; (ii) Tourism; (iii) Manufacturing; (iv) Agriculture/forestry/fishery; (v) Education and training; and (vi) Construction and real estate. The six clusters will be considered as pillars for regional development. The following figure illustrates cluster structure (refer to Figure 3.1.1).



**Figure 3.1.1 Structure of the Six Development Clusters**

**Table 3.1.4 Development Orientation for Ninh Thuan Province**

Types of Cluster	Six Cluster	Outline
Basic Cluster	Clean Energy	<ul style="list-style-type: none"> <li>Two nuclear power plants: No. 1 is located in the Phuoc Dinh commune, No. 2 is in Thai An village</li> <li>Solar energy at the Ninh Phuoc, Thuan Nam, Than Bac districts</li> <li>Wind power energy</li> </ul>
	Tourism	<ul style="list-style-type: none"> <li>Development of coastal tourism, eco-tourism, cultural tourism</li> <li>Provision of high quality services</li> <li>Development of tourism products and services (resort, spa, yacht)</li> </ul>
	Manufacturing	<ul style="list-style-type: none"> <li>Development of processing industries</li> <li>Development of food and beverage processing</li> <li>Mineral mining and processing industries</li> <li>Other supporting industries</li> </ul>
	Agriculture/aquaculture/forestry	Agriculture <ul style="list-style-type: none"> <li>Stabilization of agricultural products</li> <li>Improvement of quality of livestock</li> </ul> Forestry <ul style="list-style-type: none"> <li>Improve land use efficiency (Bac Ai, Ninh Son)</li> </ul>

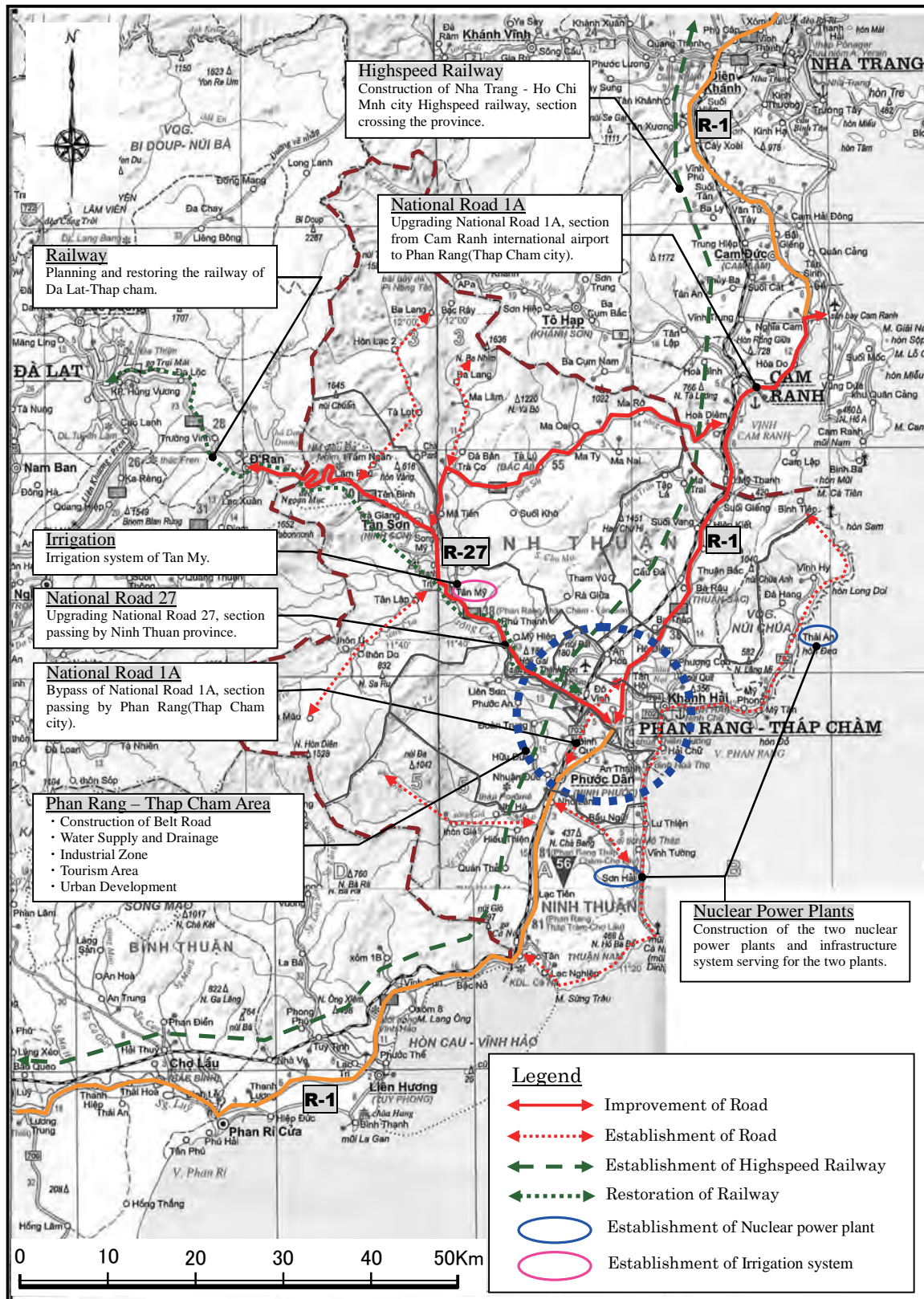
Types of Cluster	Six Cluster	Outline
		Fishery <ul style="list-style-type: none"> <li>• Offshore fishing protection and storage</li> <li>• Brackish water aquaculture</li> <li>• Seafood processing</li> </ul>
Supporting Cluster	Education/training	<ul style="list-style-type: none"> <li>• Improvement of secondary education</li> <li>• Vocational training systems to support industries, including clean energy</li> <li>• Establishment of a university</li> </ul>
	Construction/real estate	<ul style="list-style-type: none"> <li>• Construction of industries to support the development of other sectors</li> </ul>

Source: A summary of Ninh Thuan's Master Plan for Socio-Economic Development to 2020, Ninh Thuan, December 2011

#### (4) Spatial development

With regards to spatial development, two corridors and six urban areas were proposed, as shown below.

- Two corridors: National Highway No. 1, Coastal road
- Six urban areas: (i) Western area (mountain district), (ii) Northern tourism area, (iii) Dam Nai area, (iv) Southern industrial area, (v) Suburban villages (Phuoc Dam – Ninh Phuoc), (vi) Phan Rang – Thap Cham City Center



Source; Prepared by JICA Study Team based on the regional development plans of Ninh Thuan

**Figure 3.1.2 Spatial Development Area Map for Ninh Thuan Province**



(5) Priority investment programs

Based on the six development clusters, a list of priority projects for development in 2010~2020 were proposed. Priority projects were divided into different investment projects, including national projects, local projects, and private investment projects.

**Table 3.1.5 List of Priority Projects for 2011-2020 in Ninh Thuan Province**

No	Project Title
<b>Project Invested by the Ministries and Branches in Ninh Thuan Province</b>	
1	Project on the upgrading of National Road No.1, National Road No.1A, section from Cam Ranh International Airport to Phan Rang – Thap Cham City
2	Project on the bypass of National Road 1A, section passing Phan Rang to Thap Cham City
3	Project on the upgrading of National Road 27, section passing Ninh Thuan Province
4	Project on the construction of Nha Trang to Ho Chi Minh City high speed railway, section crossing the province
5	Project on planning and restoring the railway of Da Lat to Thap Cham City
6	Project on the construction of Nuclear Power Plant 1 and infrastructure system serving for the two nuclear power plants 1 and 2
7	Project on the irrigation system of Tan My
<b>Projects of which the Province is the Investor</b>	
<b>I Transportation Infrastructure</b>	
1	Project on the construction of belt roads surrounding Phan Rang to Thap Cham City
2	Project on the coastal road section from Binh Tien to Ca Na
3	Project on the construction of Lam Son to Van Hai Road
4	Project on the construction of National Road 1A to Phouc Ha
5	Project on the construction of the road from Kien Kien to Ninh Chu Cargo Port
6	Project on the construction of National Road 27 to Ma Noi to Phuoc Ha
7	Project on the upgrading of urban roads, inter-district roads to join with other provincial districts of Ninh Son, Thuan Bac, Bac Ai, Ninh Hai and Ninh Phuoc
8	Project on the construction of roads leading to commune centers
9	Project on the upgrading and enlarging of fishing ports combined with the building of storm shelters for fishing ships in Dong Hai, My Tan, Son Hai, Vinh Hy, and Ninh Chu
<b>II Irrigation</b>	
1	Project on Cai Lake
2	Project on Than Lake
3	Project on the Tan Giang 2 Lake
4	Project on the Ta Lam Lake
5	Project on the O Cam Lake
6	Project on the Da May Lake
7	Project on the lower section of the Dinh River dam
8	Project on the upgrading of the canal system of grades II and III for reservation
<b>III Water Supply and Drainage</b>	
1	Project on the construction of water supply system for industrial parks, new urban areas, and two nuclear power plants
2	Project on the construction of wastewater drainage system in Phan Rang and Tap Cham City
3	Project on the construction of wastewater drainage system in the towns of Tan Son, Khanh Hai, and Phuoc Dan
<b>IV Social and Welfare Construction Works</b>	
1	Project on the construction of traditional medicine hospital
2	Project on the construction of vocational training centers in the districts of Ninh Hai, Thuan Bac, Ninh Phuoc, Thuan Nam, Ninh Son, and Bac Ai



No	Project Title
3	Project on the upgrading of district hospitals, local clinics, healthcare centers reaching national standard in communes and wards
4	Project on the relocation of coastal habitats
5	Project on infrastructure facilities investment of resettlement areas when implementing nuclear power plants 1 and 2
<b>Projects for Private Investment</b>	
<b>I Agriculture, Forestry, and Aquaculture</b>	
1	Project on sustainable forestry development
2	Project on grape farm development
3	Project on the planting of Jatropha trees
4	Project on the development of rubber trees
5	Project on industrial shrimp farming in An Hai and Son Hai
6	Project on aquaculture breeding production in An Hai and Khanh Nhon
<b>II Industry</b>	
1	Project on steel production in Doc Ham
2	Project on exploiting and processing Titan in Phuoc Nam Industrial Park
3	Project on industrial salt production in Ninh Hai District with capacity of 1500 ha
4	Project on industrial salt production in Thuan Nam District with capacity of 2500 ha
5	Project on salt-based chemical production plant with output of 350-400 thousand ton/year
6	Project on the construction of mineral water production plants in Nhi Ha with capacity of 2 million L/yr
7	Project on the investment of seafood processing plants
8	Project on the investment of livestock meat processing plants with capacity of 3,000-5,000 ton/yr
9	Project on the processing of wood plants and interior decoration with capacity of 30,000 products/yr
10	Projects on the investment of cashew kernel processing plants
<b>III Infrastructure Investment in Industrial Zones</b>	
1	Project on the expanding Du Long and Phuoc Nam industrial zones
2	Project on the expansion of the Thanh Hai Industrial Zone
3	Project on the expansion of the Thap Cham Industrial Zone
4	Project on the expansion of the Hieu Thien Industrial Zone
5	Project on the investment of the Ca Na Industrial Zone
6	Project on shipbuilding, mechanical industrial park, and fishing logistics service in Ca Na
7	Project on the investment of Tri Hai Industrial Zone
8	Project on the investment of Tan Son and Quang Son industrial zones
9	Project on the investment of Phuoc Thang Industrial Zone
10	Project on the investment of Suoi Da Industrial Zone
<b>IV Transportation, Sea Port</b>	
1	Project on the upgrading and enlarging of fishing ports in Ca Na and Dong Hai
2	Project on the Doc Ham cargo bay with capacity of 15 million ton/yr
3	Project on the Ninh Chu cargo bay with capacity to receive ships of 10,000 tons
4	Develop ports specialized for tourism services in Binh Tien,, Vinh Hy and Binh Son, Ninh Chu resorts
5	Project construction of the An Dong Bridge (Phu Tao to An Hai)
<b>V Tourism</b>	
1	Project on the Mui Dinh tourism area
2	Project on eco-tourism and urban area of Dan Nai Lake
3	Project on cultural tourism of the Cham ethnic people
4	Project on Binh Son, Ninh Chu Resort and tourism area
5	Project on the Mai Trai Resort and Hotel (Trau River)
6	Project on the Hon Do Resort
7	Project on the high class tourism area of Bai Thung
8	Project on the high class eco-tourism area, marina at Vinh Hy Bay

No	Project Title
<b>VI Renewable Energy</b>	
1	Wind energy projects in 14 potential locations planned in some provincial districts
2	Solar energy projects
3	Thermo electric projects having total capacity of 1,450 MW
4	Pumped storage hydro energy projects having capacity of 1,200 MW
<b>VII Education, Training, and Health Care</b>	
1	Universities of international standard
2	General and specialized hospitals of international standard
3	Project on the construction of specialized colleges
<b>VIII Urban Areas</b>	
1	The residential areas of K1 and K2
2	Residential areas in the east of Van Son ward and in the north of Binh Son Village
3	The North-west residential area, Dam Nai Lake urban area
4	The South-east residential area on both sides of the Dinh River

Source: A summary of Ninh Thuan's Master Plan for Socio-Economic Development to 2020, Ninh Thuan, December, 2011

## **3.2 Development Plans for Khanh Hoa Province**

### **3.2.1 General Direction on Regional Development for Khanh Hoa Province**

The main focus of the regional development for Khanh Hoa Province is the development of three zones in the coastal area, specifically the; Van Phong area for SEZ development, Nha Trang for urban and tourism development, and Cam Ranh for gateway and tourism development. Industry and service development are the focus of the three development zones mentioned above.

### **3.2.2 Summary of Socio-economic Development Plan for Khanh Hoa Province**

A summary of the socio-economic development of the Binh Thuan Province is prepared based on the Prime Minister Decision No. 251/2006/QĐ-TTg, which was declared on October 31, 2006. The act was entitled "Approving of the Overall Planning on Socio-economic Development of Khanh Hoa Province up to 2020".

#### **(1) Objective**

The regional development plan aims to build Khanh Hoa into a center in South Central Vietnam. The Central Highlands ensures the relationship between economic growth and satisfactory settlement of social issues, particularly: employment, poverty rate reduction, and handling of ethnic and religious affairs between economic development and maintenance of security and defense, consolidation of political system, and state administration as well as environmental protection.

## (2) Targets

The social and economic development targets are summarized in the following table.

**Table 3.2.1 Targets for GDP Growth Rate for Khanh Hoa Province**

Indicators		2006-2010	2011-2015	2016-2020
GDP growth rate	(%)	12.0	12.5	13.0
Industry/Construction	(%)	14.0	14.6	
Agriculture, fishery, forestry	(%)	-	-	-
Service	(%)	13.8	13.1	12.8
Per capita GDP	VND	19.47 million	32.77 million	56.71 million

Source: Prime Minister Decision No. 251/2006/QĐ-TTg of October 31, 2006, Approving the Overall Planning on Socio-economic Development of Khanh Hoah Province up to 2020

**Table 3.2.2 Targets for Economic Structure for Khanh Hoa Province**

Indicators		2010	2015	2020
Industry/construction	(%)	43.5	45.0	47.0
Agriculture, fishery, forestry	(%)	13.0	8.0	6.0
Service	(%)	43.5	47.0	47.0

Source: Prime Minister Decision No. 251/2006/QĐ-TTg of October 31, 2006, Approving the Overall Planning on Socio-economic Development of Khanh Hoah Province up to 2020

**Table 3.2.3 Targets for Social Sector for Khanh Hoa Province**

Indicators		2011-2015	2016-2020
Population growth rate	%	1.15	1.1
Population	persons	640-650,000	740-750,000
Poor household (decrease rate)	(%)	1.2-1.5% / year Under 3% (2011-2016)	

Source: Prime Minister Decision No. 251/2006/QĐ-TTg of October 31, 2006, Approving the Overall Planning on Socio-economic Development of Khanh Hoah Province up to 2020, Industrial Development Plan of Khanh Hoa to 2015 and 2020, September 2006. Notification for DPC and CPC members 2011-2016, September 2006 .

## (3) Development orientation (direction, priority)

Development direction by sector is summarized in the table below.

**Table 3.2.4 Development Orientation for Khanh Hoa Province**

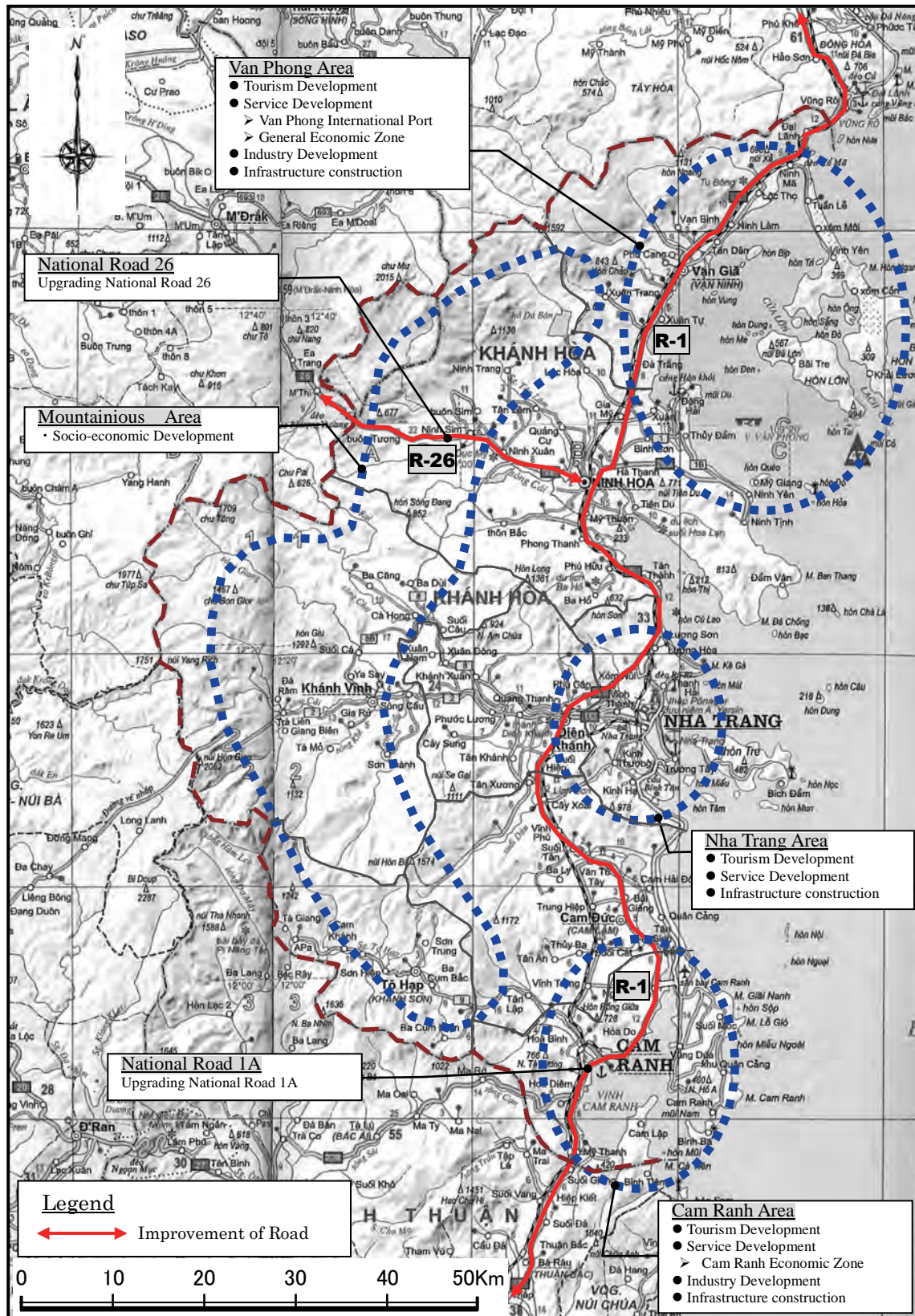
Sector	Outline
Agriculture, forestry, fishery, natural disaster prevention	<ul style="list-style-type: none"> <li>• Agriculture: diversify crops and animal husbandry, synchronize with processing industries, improve the value of the products</li> <li>• Forestry: protect existing forest areas</li> <li>• Fishery: develop aquaculture and offshore fishing</li> <li>• Natural disaster: increase in the investment of disaster forecasts and warning, modernize all search and rescue equipment</li> </ul>
Industry development	<ul style="list-style-type: none"> <li>• Restructure the industry in the direction of aquatic product processing, farm product processing, forest product processing,</li> </ul>

Sector	Outline
	<p>handicraft/fine art, mineral exploitation and processing, building materials, textile and garment, beer and mineral water, mechanical engineering, electronics, ship building and repair, information and technology</p> <ul style="list-style-type: none"> <li>• Develop rural industries for handicraft and cottage industry</li> <li>• Develop five industrial parks</li> </ul>
Tourism development	<ul style="list-style-type: none"> <li>• Develop tourism into an economic branch with important contribution to the province's economic development</li> <li>• Develop international tourism</li> <li>• Diversify tourism products: Cham culture tourism, rest and recreation, sports, weekend tourism, coastal landscape tourism</li> <li>• Step up tourism thru promotion and marketing</li> <li>• Promote tourism investments in Nha Trang, Van Phong, and Cam Ranh</li> <li>• Synchronize tourism infrastructures and services</li> <li>• Organize tourism routes</li> </ul>
Service development	<ul style="list-style-type: none"> <li>• Transport service: development of Van Phong International Port, expand Cam Ranh Airport into an international airport</li> <li>• Commerce and export import business: <ul style="list-style-type: none"> <li>➢ To develop commerce and conduct modernization of services, ensure fast, convenient goods circulation, stimulate production development, develop tourism service centers in Nha Trang and Cam Ranh</li> <li>➢ Finance, banking, and consultancy services</li> </ul> </li> </ul>
Infrastructure construction	<ul style="list-style-type: none"> <li>• Maritime and inland waterway: Van Phong International Container Port, upgrade to Ba Ngoi Port</li> <li>• Roads: upgrade National Road 1A, improve roads in the Cam Ranh area, improve National Road 26, improve the provincial road.</li> <li>• Railway: upgrade railway routes and stations</li> <li>• Airport: continue upgrading the Cam Ranh International Airport</li> <li>• Electricity: standardize distribution networks, provide electricity in rural areas</li> <li>• Water supply and drainage: complete on-going works, develop new networks, link water reservoirs with spillways and pumping station, canal system and dykes, embankments, the Hoa Son Reservoir to Van Phong Gulf, from Suoi Dau and Cam Ranh Reservoir to Nha Trang and Cam Ranh area, cooperate with Phu Yen Province, wastewater in Nha Trang</li> <li>• Post and telecommunication, radio, television: modernize postal networks, upgrade telephone switchboards</li> </ul>
Social development	<ul style="list-style-type: none"> <li>• Education and training: improve enrollment rate for primary and secondary education, improve vocational education (technical), boarding school for minority groups, improve educational facilities</li> <li>• Health care and protection of people's health: develop grass root healthcare networks, create conditions for everyone to access health care service, and provincial hospital improvement</li> <li>• Culture information, physical training, sports: develop a grass root cultural movement wherein "all people unite together in building a cultural life, develop mass physical training and sports"</li> <li>• Science and technology, environment protection: bring into full play and efficiently apply scientific technology program</li> </ul>

Source: Prime Minister Decision No. 251/2006/QĐ-TTg of October 31, 2006, Approving the Overall Planning on Socio-economic Development of Khanh Hoah Province up to 2020

(4) Spatial development

Spatial development is planned for three priority areas, namely: Nha Trang and its vicinity region, Van Phong International Port and Economic Zone, and Cam Ranh Economic Zone. In addition, several mountainous regions are designated as regions for socio-economic development. Spatial development is illustrated in the Figure 3.2.1 below.



Source; Prepared by JICA Study Team based on the regional development plans of Khanh Hoa

**Figure 3.2.1 Spatial Development Area Map for Khanh Hoa Province**

(5) Priority investment programs

Based on the development orientation and spatial development, priority investment programs are being proposed for the three development zones and for its concerned sectors; particularly the industry sector. Many programs are expected to be implemented by private sectors. Priority investment programs are shown in Table 3.2.5 below.

**Table 3.2.5 Priority Investment Programs for Khanh Hoa Province**

No	Project Title
<b>I Development and investment program on the formulation of projects under the orientation for planning of the Van Phong International Port and general economic zone</b>	
1	Van Phong International Port area
2	Van Phong Economic Zone
<b>II Development and investment program on projects under the orientation for planning of the Cam Ranh Economic Zone</b>	
1	Cam Ranh Thuong water plant and urban water supply system
2	Upgrading and renovation of the Cam Ranh Airport
3	Through fare system, north of the Cam Ranh peninsula
4	Upgrading of the Ba Ngoi Port and Cam Ranh Fish Port
5	Renovation and upgrading of the Cam Ranh electricity supply system
6	Urban water drainage system in Cam Ranh
7	Building of fence, walls, protection, and relocation of military facilities, north of the Cam Ranh peninsula.
8	Ba Ngoi and Com Thinh Dong industrial parks
9	Upgrading of Ba Ngoi export and marine product processing plant
10	Ba Ngoi shipbuilding and repairing factory
11	Cam Thuan glass construction and glass factory
12	Cam Thin Dong shrimp and fish feed plant
13	Export of garments and leather shoes factory
14	Cam Thinh Dong commercial concrete plant
15	Cam Thinh Dong canned food and agricultural products processing plant
16	Cam Ranh shipyard
17	Cam Ranh cement plant
18	Bai Dai marine tourist recreation resort
19	The international conference trade center, north of the Cam Ranh peninsula
20	Entertainment and recreation botanical garden
21	Cam Lap Eco-tourism Resort
22	Improvement of the 4 km sea beach at Cam Ranh
23	Upgrading of hot water bath service at Ba Ngoi
24	Regional trade service centers in Cam Ranh Province
25	Tourism information center at Cam Ranh Airport
26	The tourism secondary school at Nha Trang
27	The tariff and non-tariff trade zone in Van Phong
28	Exhibition trade fair workshop center
29	Trade center department store
30	Retail shop system and duty free shops at Cam Ranh Airport
31	The general trade zone in Nih Hoa District, Cam Ranh Province
32	Cam Loc breeding shrimp project, 1,000 ha
33	Cam Hai Dong high tide shrimp rearing project, 30 ha
34	Cam Hai Dong aquaculture project, 40-50 ha

No	Project Title
35	Cam Thinh Dong industrial shrimp rearing project, 390 ha
36	Offshore fishing development project
37	Renovation and construction of vocational training school
38	Upgrading of general consultation clinic in new township
39	Renovation and construction of health stations, communes, and wards
40	Construction of new population quarters for inner city areas
41	Construction of commune cluster centers
42	Construction of central flower garden in Cam Ranh provincial town and playgrounds in communes and wards
43	Construction of networks of regional markets and commune/ward marketplace
<b>III Program in infrastructure development and investment expansion of Nha Trang City</b>	
1	Traffic projects
2	Projects on construction of new urban centers on the expanded area of Nha Trang City
3	Urban and rural water supply projects
4	Projects on construction of trade and service centers
5	Social infrastructure projects
<b>IV Program on high quality human resource development</b>	
<b>V Further implementation of program on economic development in mountainous regions of Khanh Hoa Province in 2006-2010</b>	
<b>VI Industrial development program and projects calling for investment in industrial development</b>	
1	Industrial salt production plant in Ninh Diem, Ninh Hoa with capacity of 50,000-200,000 tons/yr
2	Motor, machine tool, mechanical part manufacture and assembly factory
3	Children's toys factory
4	High-grade glass factory
5	Medical supplies factory
6	Textile and garment industry accessories plants
7	Factory for production of used Nix granules from waste of Hyundai-Vinasin shipyard, in Ninh Tuy Industrial Park
8	Metal consumer goods factory
9	Industrial alcohol and food alcohol production factory
10	Factory for processing aquatic products from bivalve mollusks
11	Workshop for manufacture of equipment of composite materials in service of shipbuilding and repair
12	Micro-biological fertilizer and biological preparation plant with capacity of 350-400 tons/day
13	Cattle and poultry meat processing plant
14	Artificial wood production factory
15	Granite stone product factory
16	International container entry port
17	Computer component manufacture and assembly factory
18	Electronic and electric refrigerating equipment manufacture and assembly factory
19	Physical training and sport equipment production factory
20	Stationery and school instrument manufacture factory
21	Factory for manufacture and assembly of light truck in service of agriculture
22	Calling for investment in the industrial park north of Cam Ranh

Source: Prime Minister Decision No. 251/2006/QĐ-TTg of October 31, 2006, Approving the Overall Planning on Socio-economic Development of Khanh Hoah Province up to 2020



### **3.3 Development Plans for Binh Thuan Province**

#### **3.3.1 General Direction on Regional Development for Binh Thuan Province**

Regional development for Binh Thuan Province is planned in three development zones: Phan Thiet-Mui Ne area for industry development, tourism development, and port development (La Gi); Bac Binh area for tourism development and agriculture development; and Binh Than-Thu Phong for agriculture development energy development, and port development. The economy, particularly the industry of Binh Thuan Province is closely related to the South Key Economic Zone where seven out of eight industrial estates are located south of Phan Thiet along National Road 1A. Energy is also considered an important sector to be developed.

#### **3.3.2 Summary of Socio-economic Development Plan for Binh Thuan Province**

Summary of the socio economic development of Binh Thuan Province is prepared based on the Prime Minister Decision No. 120/2009/QD-TTg.

##### **(1) Objective**

To build and develop Binh Thuan into a modern and dynamic industrial and service province in 2010 with modern and synchronize infrastructure, which is nationally and internationally interconnected, progressive production relations and increasingly improved living conditions of people.

##### **(2) Target**

Social and economic development targets are summarized in the following table.

**Table 3.3.1 Target for GDP Growth Rate for Binh Thuan Province**

<b>Indicators</b>		<b>2009~2010</b>	<b>2011-2015</b>	<b>2016-2020</b>
GDP growth rate	(%)	14.0 (2009~2010)	13.0~14.3	12.0~12.8
Industry/construction	(%)	20.0~21.0	18.0~19.0	16.0~17.5
Agriculture, fishery, forestry	(%)	6.0~7.0 (2009~2020)	-	4.0~5.4
Service	(%)	15.6 (2009~2010)	15.3	12.8
Per capita GDP (VND 14.4 million, 2008)	-	1.84 times from 2005 level	1.78 times from 2010 level	1.7 time from 2015 level

Source: Prime Minister Decision, Approving the Master Plan on Socio-economic Development of Binh Thuan Province up to 2020

**Table 3.3.2 Target for Economic Structure for Binh Thuan Province**

Indicators		2011-2015	2016-2020
Industry/construction	(%)	36.29	45.6
Agriculture, fishery, forestry	(%)	20.97	12.8
Service	(%)	42.74	41.6

Source: Prime Minister Decision, Approving the master plan on socio-economic development of Binh Thuan Province upto 2020

**Table 3.3.3 Target for Social Sector for Binh Thuan Province**

		2011-2015	2016-2020
Population growth rate	%	1.14	1~1.10
Population	persons	640,000~650,000	740,000~750,000
Poor household (decrease rate)	(%)	Reduced to 2/3	

Source: Prime Minister Decision, Approving the Master Plan on Socio-economic Development of Binh Thuan Province up to 2020

### (3) Development orientation

The development direction by sector is summarized in Table 3.3.4 below

**Table 3.3.4 Development Orientation for Binh Thuan Province**

Sector	Outline
Industry, cottage industry and construction development	<ul style="list-style-type: none"> <li>To develop industries towards diversification: high technology, added value. Energy, mining, construction material, food processing, biotechnology, mechanical engineering, manufacturing in marine economy and agriculture, rural development, supporting industry for the Southern Key Economic Region</li> <li>Re-structuring industries: <ul style="list-style-type: none"> <li>➢ Energy: thermo, hydro, wind power</li> <li>➢ Frozen and processed aquatic products</li> <li>➢ Exploitation and processing of minerals, petroleum, and construction material production</li> <li>➢ Mechanical engineering, electronics, building and repair of fishing vessels and boat, sea shipping</li> </ul> </li> <li>To develop rural industries and traditional cottage industry</li> <li>To develop Vinh Tan and Son My as power centers. Develop 11 industrial parks</li> </ul>
Agriculture, forestry, fisheries development	<ul style="list-style-type: none"> <li>To develop agriculture, forestry, and fisheries towards an ecological sustainable and highly efficient market driven commodity production; associated with trade development and building of new countryside</li> <li><u>Fisheries</u>: development of offshore fishing and aquaculture, accelerate fishing infrastructure construction, build and complete fishing infrastructures (fishing ports), combine exploitation with protection</li> <li><u>Agriculture</u>: diversify plants and livestock associated with processing and market outlets, restructure agricultural economy towards increasing product value, take safe production measures</li> <li><u>Forestry</u>: To protect and tend existing forests, to actively plant, zone off for regeneration, tend and reasonable exploitation of forest.</li> </ul>
Tourism development	<ul style="list-style-type: none"> <li>To develop tourism into a sector, making important contributions to the province's economic development</li> <li>To develop overseas tourism as a motive to promote the development of domestic tourism and services</li> </ul>

Sector	Outline
	<ul style="list-style-type: none"> <li>• To diversify tourism products, concentrating on cultural, ecological, rest, recreation and sports and MICE tourism</li> <li>• To boost tourism promotion and marketing</li> <li>• To build and promote the Binh Thuan tourism brand on a world market as well as seek and expand new markets.</li> <li>• To build key tourism sites</li> <li>• To invest in comprehensive development of tourism infrastructure for all service system</li> </ul>
Service development	<ul style="list-style-type: none"> <li>• Transport: Develop transport service to meet economic development requirements and demand. Build sea shipping fleets. Boost cargo development</li> <li>• Trade and export-import: To develop step by step, modernized trade. Ensuring fast and convenient circulation of goods to stimulate production efficiency</li> <li>• Other sectors: finance, banking insurance, consultancy, information technology</li> </ul>
Infrastructure development	<ul style="list-style-type: none"> <li>• Transport: Upgrade National Highway 1A, build coastal road (706B), upgrade National Highway 28, upgrade provincial road, bridges, connect district and commune roads, upgrade railway, build ports, upgrade airport</li> <li>• Electricity: Vinh Tan and Son My thermopower centers</li> <li>• Irrigation: build and complete irrigation systems at Phan Ri-Phan Thiet, Luy River reservoir, Ta Pao, Long Song, Ca Tot, Capet, Dinh River, Gieng River, Phan River reservoir, canal and reservoir, canal embankment</li> <li>• Water supply and drainage: Vinh Tan and Son My thermopower centers, Phan Thiet and La Gi urban centers, Phu Quy island and coastal tourists sites, improve water quality</li> <li>• Environment: wastewater treatment, solid waste, cemeteries</li> <li>• Communication: modernize post and communication network, invest and upgrade telephone switchboards, develop ew services and modernize radio television network.</li> </ul>
Social branches and domains development	<ul style="list-style-type: none"> <li>• Education and training: pre-school, primary schools, lower and upper secondary education, consolidate ethnic minority culture, vocational training, university education</li> <li>• Health care: <ul style="list-style-type: none"> <li>➢ provincial general hospital, specialized hospital, district hospital, health care network,</li> <li>➢ upgrade commune health center</li> <li>➢ preventive medicine network</li> <li>➢ improve life expectancy</li> </ul> </li> <li>• Culture-information, physical training-sports <ul style="list-style-type: none"> <li>➢ Promote movement for cultural lifestyle, diversify cultural activity, promote grass root activity</li> <li>➢ Organize traditional festivals and folk lore events to increase unity, promote community spirit and remembrance of the root, preserve and promote cultural heritage value and preserve national cultural identity</li> <li>➢ Develop mass physical training and sports activities</li> <li>➢ Science and technology: promote and apply science and technology programs</li> </ul> </li> </ul>
Environment protection	<ul style="list-style-type: none"> <li>• To combine economic growth with social development and environmental protection to ensure sustainable development</li> <li>• To sustainably develop eco-agriculture</li> <li>• To increase management of environment and biodiversity protection</li> </ul>

Source: Prime Minister Decision, Approving the Master Plan on Socio-economic Development of Binh Thuan Province up to 2020

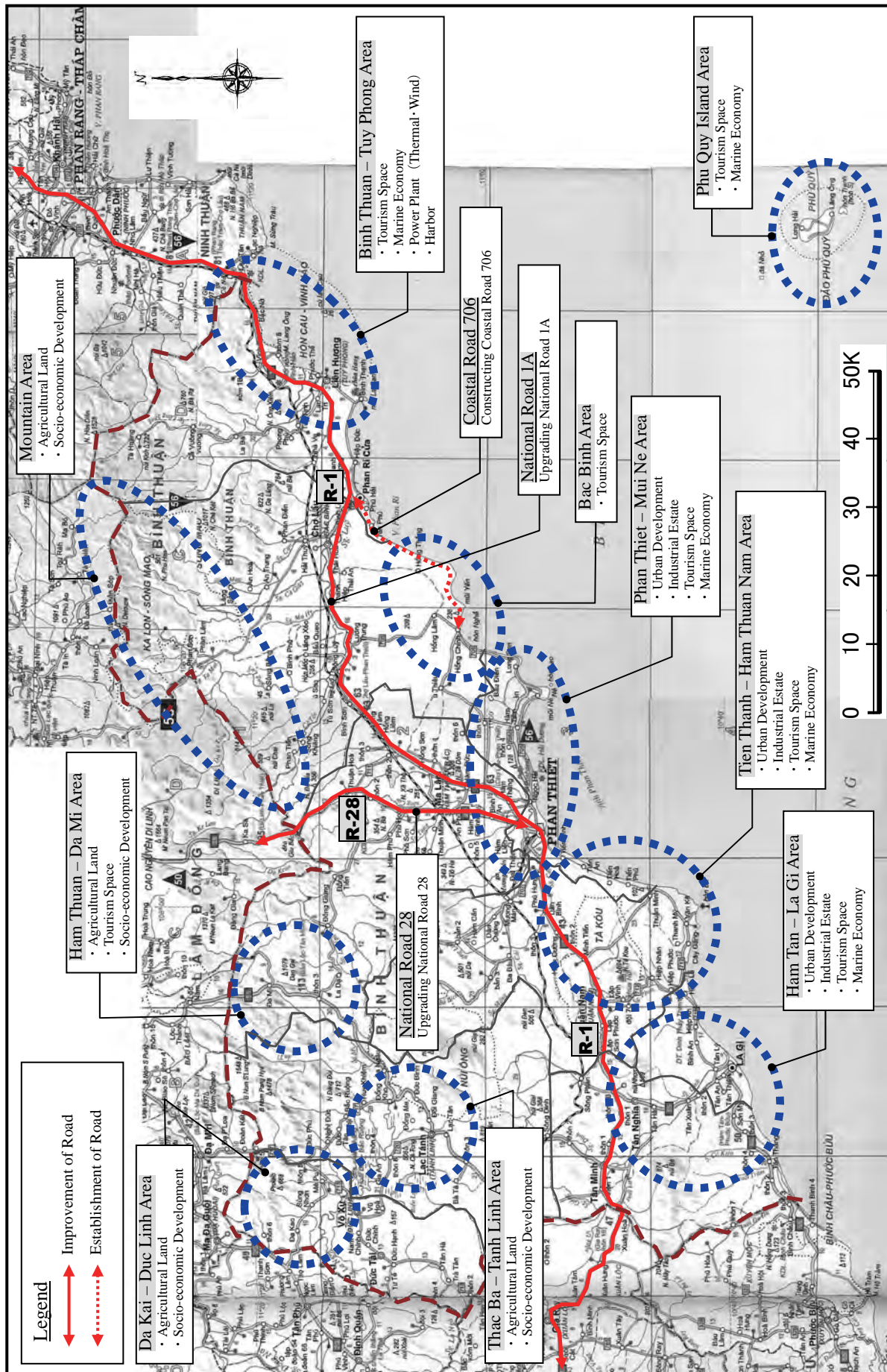
(4) Spatial development

Spatial development of Binh Thuan Province is divided into urban development zoning and sector development zoning. Urban development zoning is divided by urban hubs and other areas. Sector development zones are divided into industrial estate, agricultural land, tourism space, marine and island economy, social, and economic development in rural and mountainous area. Spatial development is summarized in Table 3.3.5 below.

**Table 3.3.5 Spatial Development for Binh Thuan Province**

<b>Spatial Plan</b>	<b>Description</b>
(i) Urban development zoning of the province	<ul style="list-style-type: none"> <li>Urban hubs and major urban centers: Phan Thiet-Mui Ne urban hub</li> <li>Northern urban centers: Phan Ri Cua</li> <li>Southern urban areas: La Gi, Ham Kiem, Ham Cuong, Ke Ga, Tan Hai, and Ba Dang industrial parks</li> <li>Southern urban area connected with Tan Phuc, Tan Duc, and Son My industrial parks</li> <li>Cluster of La Nga River centers at Vo Xu and Lac Tanh towns</li> </ul>
(ii) Industrial estate	Construction at Phan Thiet-Ham Kiem Ham Cuong-Ke Ga, Phan Ri Cua-Vinh Hao-Vinh Tan, Tan Duc-Son My, and Tan Hai Ba Dang
(iii) Agricultural land	Production of rubber, cashew, dragon fruit, cattle with processing
(iv) Tourism space	Development at Phan Thiet City, La Gi Town and Tuy Phong, Bac Ninh, Ham Tan and Thuan Nam Districts and Phu Quy Iland
(v) Marine and island economy	Maritime economic hubs at Tuy Phong, Phan Thiet-Nui Ne, La Gi, Ham Tan, Ham Thuan Nam, and Phu Quy Island
(vi) Socio-economic development	Around rural and mountain areas

Source: Prime Minister Decision, Approving the Master Plan on Socio-economic Development of Binh Thuan Province up to 2020



Source; Prepared by JICA Study Team based on the regional development plans of Binh Thuan

**Figure 3.3.1 Spatial Development Area Map in Binh Thuan Province**

(5) Priority investment programs

Based on the development orientation and spatial development, priority investment programs were proposed as shown in Table 3.3.6 below.

**Table 3.3.6 Priority Investment Programs for Binh Thuan Province**

No	Project Title
<b>Development Programs</b>	
1	Program 135, Phase 2 (poverty program)
2	Program 134
3	Employment program
4	Program on clean water and environmental sanitation in rural areas
5	Population and family planning program
6	East sea and island program
7	Culture program
8	Food hygiene and safety program
9	Education and training program
10	Program on prevention of social diseases and dangerous epidemics
11	Five million ha forestation program
12	Program on building of permanent schools, district level hospitals, and auto accessible roads to commune centers
<b>Development Investment Projects</b>	
<b>I Central Projects in the Province</b>	
1	Ta Pa irrigation work
2	Phan Ri-Phan Thiet irrigation system and Luy River reservoir
3	Upgrading and expansion of National Highway 55
4	Construction of Dau Giay-Phan Thiet and Phan Thiet-Nha Trang expressways
5	Construction of Ho Chi Minh City-Nha Trang high-speed railway
6	Construction of Phan Thiet Airport
7	Construction and upgrading of Phu Quy Airport
<b>II Provincial Projects</b>	
<b>1</b>	<b>Project with Central Budget</b>
	<ul style="list-style-type: none"> <li>• Dinh River reservoir III</li> <li>• Mong River reservoir</li> <li>• Phan Dung reservoir</li> <li>• Bien Lac Ham Tan water transmission canal</li> <li>• Project to supply water from Luy River to the Le Hong Phong area</li> <li>• Project to supply water to the Vinh Tan coal run thermopower center</li> <li>• Construction of Phan Thiet Mui Ne Coaster Urban Road 706B</li> <li>• Project to build roads DT720 and DT766</li> <li>• Upgrading of Phu Quy Port, Phase 2</li> <li>• Construction of anti-erosion embankments along the coast and at Phu Quy Island</li> <li>• Upgrading and expansion of the beltway around Phu Quy Island</li> <li>• Water supply for daily life and production on Phu Quy Island</li> <li>• Modernization of the telecommunications system on Phu Quy Island</li> <li>• Construction of regional storm-shelter fishing vessels on Phu Quy Island</li> </ul>
<b>2</b>	<b>Projects with Central Budget Support and Local Budget</b>
	<ul style="list-style-type: none"> <li>• Project to improve and upgrade clean water plants in coastal urban areas</li> <li>• Upgrading of Phan Thiet Fishing Port</li> <li>• Upgrading of La Gi Fishing Port</li> <li>• Upgrading of Phan Ri Cua Fishing Port</li> <li>• Construction of storm shelter areas for fishing vessels at Phan Ri Cua, Phu Hai estuary, La Gi, Lien Huong estuary, Ba Dang River estuary, Mui Ne, and Chi Cong</li> <li>• Phan River dam</li> <li>• Resettlement projects</li> <li>• Plant to treat waste, garbage and wastewater from industrial park and consolidated aquatic processing zones</li> <li>• Construction of Cu Lao Cau and Phu Quy Island marine reserves</li> <li>• Construction of Tuy Phong La Gi Ham Tan Coastal Road</li> </ul>

No	Project Title
	<ul style="list-style-type: none"> <li>Establishment and construction of Binh Thuan University</li> </ul>
<b>III Infrastructure, Production, and Business Projects for Private Investment</b>	
<b>1</b>	<b>Industrial Park Infrastructure</b>
	<ul style="list-style-type: none"> <li>Ham Kiem Industrial Park infrastructure</li> <li>Tan Duc Industrial Park infrastructure</li> <li>Son My Industrial Park infrastructure</li> <li>Tuy Phong Industrial Park infrastructure</li> <li>Ke Ba Industrial Park infrastructure</li> <li>Hanal Cuong Industrial Park infrastructure</li> <li>Ba Dang ship Industrial Park infrastructure</li> <li>Tan Hai Industrial Park infrastructure</li> <li>Tan Phuc Industrial Park infrastructure</li> </ul>
<b>2</b>	<b>Transport Infrastructure and Seaports</b>
	<ul style="list-style-type: none"> <li>Construction of the new Phan Thiet Railway Station</li> <li>Construction of Central Highland Binh Thuan Railway</li> <li>Construction of Vinh Tan special use port</li> <li>Construction of Ke Ga General Port</li> <li>Transshipment port for coal import for thermo power plants</li> </ul>
<b>3</b>	<b>Industry</b>
	<ul style="list-style-type: none"> <li>Urban waste treatment plant</li> <li>Exploit and refine benetonite with annual capacity of 5,000 tons</li> <li>Exploitation and processing of zircon and ilmenite at Go Dinh Mine</li> <li>Production of pigment (T20) with annual capacity of 5,000 tons</li> <li>Export of garments from factories with an annual capacity of 3 million products</li> <li>Son My Oil Refinery with annual capacity of 3-6 million tons</li> <li>Construction of power plant on Phu Quy Island</li> <li>Vinh Tan thermopower center project with a capacity of 4,400 MW</li> <li>Son My thermopower center project with a capacity of 3,000-6,000 MW</li> <li>Gas-run power plant with a capacity of 1,200-2,400 MW</li> <li>Wind-power plants with a capacity of 500-3,000 MW</li> <li>Liquefied gas processing plant (in Son My Industrial Park)</li> <li>Nitrogenous fertilizer plant (in Son My Industrial Park)</li> <li>Plant to refine aluminum and manufacture aluminum products</li> <li>Plant to build ships with composite materials with a capacity of up to 1,000 HP in Phan Thiet</li> <li>Project to produce annually 30,000 tons of refined salt</li> <li>Plant to process annually 10,000 tons of cashew nuts in Ham Tan</li> <li>Plant to process annually 10,000 tons of animal feeds in Phan Thiet City</li> <li>Vegetable oil refinery</li> <li>Plant to produce canned seafood and high-grade frozen products</li> <li>Carton packaging material plant</li> <li>Artificial board plant</li> <li>Project to process annually 6,000 tons of latex</li> <li>Dragon fruit juice processing mill project</li> </ul>
<b>4</b>	<b>Agriculture, Forestry and Fisheries</b>
	<ul style="list-style-type: none"> <li>Project to develop centralized raising of beef cows</li> <li>Project to grow 38,000 ha of coastal protection forests</li> <li>Project to grow forests for pulp supply</li> <li>Project to build Tuy Phong a 200 ha industrial aquatic breed production zone</li> <li>Project to rear specialty marine resources at sea</li> <li>Project to renew and modernize offshore fishing and service fleets</li> <li>Project to culture and process freshwater aquatic products</li> </ul>

Source: Prime Minister Decision, Approving the Master Plan on Socio-economic Development of Binh Thuan Province up to 2020

### **3.4 Regional Development and Linkage Formulation**

#### **3.4.1 Regional Development Context and the Review of the Master Plans**

Master plans of the three provinces were reviewed from a regional development point of view. The master plans were summarized as follows:

(1) Development concentration along National Road 1 and at coastal areas

- National Road 1 which runs through three provinces plays an important role in the regional development for transport network and logistics, industry development, urban development of all provinces proposed for improvement;
- Many industry areas are located along National Road 1 and at coastal areas where land access and sea access are considered strategically important; and
- Since beach tourism is a main tourism product, tourism is planned to be developed along the beach areas of Ninh Hai and Phan Rang in Ninh Thuan, Nha Trang and Cam Ranh in Khanh Hoa, and Phan Thiet and Bac Ninh in the Binh Thuan Province, which are considered major tourism areas. Infrastructure, such as road and water supply are planned for tourism development. In order to realize these plans, a regional development plan covering these three provinces is effective.

(2) Natural resources processing industry

- One of the main targets of regional development is the industrialization of the economy, for which natural resources processing is placed as a core industry, particularly for the Ninh Thuan Province and Khanh Hoa Province,
- For the Ninh Thuan Province, its natural resources are salt processing, wood processing, seafood processing, and livestock processing; and
- For the Khanh Hoa Province, salt processing, forestry product, and meat processing are included in the priority programs/projects. Private investment is expected for industry development.

(3) Ports and hinterland development

- Port development as key infrastructure for each hinterland economic development is incorporated into each master plan in every province, according to the national port development plan by international gateway port (IGP) and regional hub port (RHP) and other port (OP), such as Khanh Hoa: Van Phuong (IGP), Cam Ranh (RHP), Ninh Thuan: Phan Rang (OP), Ca Na (OP), Binh Thuan: Phan Thiet (OP), La Gi (OP) in conjunction with hinterland industrial developments.



- In Cam Ranh port and hinterlands industry have been developed by ship building industry from old time. These industry needs to be encouraged by related industries to generate synergy effect, although Vietnam government may revive navy base function for current international conflicts

(4) Tourism development

- Together with industry development, tourism development is considered an important sector for regional development;
- An approach of tourism development is the diversification of tourism, such as beach tourism, cultural tourism, and eco-tourism;
- Tourism promotion is also considered an important part of tourism development.

(5) Social concerns

Social concerns, including health, education, minority groups, and cultural aspect are considered important sectors for regional development. Social development is expected to improve the living conditions of residents in the area and to support economic activity, particularly to create attractive investment from private sectors.

(6) Demarcation (role) between public sector and private sector are not clearly defined

Priority programs/projects are planned to be implemented by both the public finance and private investment. Private investments are expected, particularly for industry development, energy development, and tourism development. In some cases, investments for infrastructure development are also expected to be implemented by the private sector.

(7) Infrastructure as base for regional development

Infrastructure development, covering agriculture, industry, energy, transport, and tourism, is expected to support and contribute to regional development.

### 3.4.2 Current Regional Cooperation for Socio-economic Development

The leaders of three provinces of Phu Yen, Khanh Hoa, and Ninh Thuan have exchanged the notice for sub-regional socio-economic cooperation in 2006, while Ninh Thuan Province has agreed to another socio-economic cooperation program

between Ninh Binh Thuan and Lam Dong provinces and separately with Khanh Hoa.

Socio-economic development cooperation programs cover three fields, namely; 1) economic sector, 2) culture and society, and 3) security and defense. These were formulated in 2006 for the three provinces of Ninh Thuan, Lam Dong, and Binh Thuan, where there are tight geographic linkages as neighboring provinces with each other. Also, a tourism cooperation memorandum was made in 2005 among the three provinces of Lam Dong, Ninh Thuan, and Binh Thuan focusing on hospitality improvement of the three provinces.

**Table 3.4.1 Regional Cooperation Agreements 2005-2010**

Regional Cooperation Agreements	Phu Yen	Khanh Hoa	Ninh Thuan	Binh Thuan	Lam Dong	HCMC
Socio-economic Development (Policy) 2005	--	●	●	--	--	--
Socio-economic Development (Notice) 2006	●	●	●	--	--	--
Socio-economic Development (Program) 2006	--	--	●	●	●	--
Tourism Support for Service Quality (Program) 2005	--	--	●	●	●	●
Sports/Culture/Tourism Cooperation 2010	--	●	--	--	●	--
Triangle Tourism Cooperation (Program) 2012	--	--	--	●	●	●

Source: Each official document between Ninh Thuan Province and relevant provinces

**Table 3.4.2 Regional Cooperation Programs for Ninh Thuan Province**

Sector		Key Program Concept	Provinces
Economic Sector	Industry and Trade	<ul style="list-style-type: none"> <li>Produce joint promotion and investment</li> <li>Capacity development of human resources</li> </ul>	Lam Dong Ninh Thuan Binh Thuan
	Agriculture Forestry	<ul style="list-style-type: none"> <li>Cooperative research and development</li> <li>Production cooperation for aqua-culture and environmental protection</li> </ul>	
	Tourism	<ul style="list-style-type: none"> <li>Improve hospitality industry and human resource development</li> <li>Experience and lessons exchanges</li> </ul>	
	Science, Technology and Environment	<ul style="list-style-type: none"> <li>Technology development for selected fields of production</li> <li>Human resource development</li> </ul>	
	Infrastructure	<ul style="list-style-type: none"> <li>Key regional routes (QL1A, 14, 20, 27, 28,55) with funding mechanism</li> <li>Key sea ports development</li> </ul>	
Culture and Society	Culture and Sports	<ul style="list-style-type: none"> <li>Joint organization of events and festivals</li> </ul>	
	Education and Training	<ul style="list-style-type: none"> <li>Professional education</li> <li>Human resource development</li> </ul>	
	Health	<ul style="list-style-type: none"> <li>Technology development against diseases</li> <li>Higher education cooperation</li> </ul>	
Security and Defense		<ul style="list-style-type: none"> <li>Risk management cooperation</li> <li>Traffic safety and social stability cooperation</li> </ul>	
Tourism	Human Resource	<ul style="list-style-type: none"> <li>Short training courses, workshops, and seminars</li> <li>Tourism information, etc</li> </ul>	Lam Dong Ninh Thuan Binh Thuan
	Product and Promotion	<ul style="list-style-type: none"> <li>Promote and market exploration for handicraft development</li> </ul>	

Source: Programme/social and economic development cooperation between Ninh Thuan, Binh Thuan and Lam Dong provinces, period 2010-2015, Memorandum of Inter-regional Cooperation Programs of the Three Provinces of Ninh Thuan, Binh Thuan, and Lam Dong Regarding Raising the Quality of Service Activities to Support Tourism

## CHAPTER 4 DEVELOPMENT ISSUES AND CONSTRAINTS BY SECTOR

### 4.1 Agriculture, Forestry, and Fishery

#### 4.1.1 Development Potential and Constraint

##### (1) Agriculture

Geographic conditions in Khanh Hoa and Ninh Thuan provinces are identical in terms of having a narrow flat terrain surrounded by mountain ranges, resulting in small land allotted for agriculture (about 87,000 ha or 17% of total area in Khanh Hoa, and 70,000 ha or 20% of total area in Ninh Thuan). On the other hand, most of the Binh Thuan Province except for the borders with Lam Dong and Ninh Thuan are terrains that are relatively flat; thus, land for agriculture is extensive, that is, 284,000 ha or 35 % of the total area in Binh Thuan.

**Table 4.1.1 Main Agricultural Products for Three Provinces**

Provinces	Major Products
Khanh Hoa	Rice (188 kt), sugarcane (738 kt), cashew nuts (5.3 kt)
Ninh Thuan	Rice (188 kt), tobacco (3.2 kt), sugarcane (87 kt), cashew nuts (1.4 kt), grapes (16.1 kt), cassava (42.3 kt)
Binh Thuan	Rice (434 kt), cashew nuts (17.5 kt), maize (100 kt), rubber (12.3 kt), pepper (2.3 kt)

Source: Statistical Yearbook (2010) of the three provinces

Remarks: Kilo tons (kt)

Due to the limited flat land, both Khanh Hoa and Ninh Thuan have relatively small agricultural production compared with the land in Binh Thuan. Sugarcane and cashew nuts are planted and produced in the large low land area in the northern east area of the Khanh Hoa Province and in the hilly area (Back Ai District) of Ninh Thuan Province. The sugarcane and cashew nuts productions are much larger in Khanh Hoa than in Ninh Thuan. Cashew nuts are the only product for export. Ninh Thuan is famous for tobacco (about 10% of national tobacco production) and grape production. The province with an arid climatic condition is the best place for grape production, which has never been challenged by other provinces. Cassava production is also outstanding in Ninh Thuan. Major products such as rice, cashew nuts, and maize are produced in Binh Thuan in much larger scale than in Khanh Hoa and Ninh Thuan. In this sense, Binh Thuan has a comparative advantage in agricultural production in terms of extensive land for agriculture.

## (2) Forestry

Forestation has been recognized as an effective measure to be used as a natural dam for water resource and for prevention of flooding due to climate change. It also contributes to the improvement of ecological condition. The government has implemented a program of planting 5 million ha of forest from 1998 to 2010 nationwide. Nevertheless, dozens of protected forests have been destroyed to harvest timber in the Central Highlands and the coastal area, including the three provinces. According to the Minister of MARD, the Central Highlands and South Central Coast lost more than 158,000 ha of forest during 2006-2010. The government now plans to increase the country's forest coverage to 44-45% in 2020. Forest coverage has been around 44% during 2006-2010 in the three provinces, which is a good news considering environmental requirements for sustainable development.

The major river in Ninh Thuan is Dinh River, which flows through the main lowland of the province as well as Phan Rang. The distance between Phan Rang (downstream) and upstream of Dinh River is just 80 km while the difference of elevation between the upstream and downstream is around 1000 m, thus, Dinh River is regarded as steep. Deforestation in the upstream brought about a big scale flooding which passed through the steep river to the downstream area. The big scale flooding actually took place in 2010, damaging an extensive area in Phan Rang including areas along the National Road 1. There is another concern caused by deforestation. Deforestation in the hilly area further aggravates the salinity of soil in the lowland area; thus, DARD limits the use of some parts in the lowland area for agricultural activity. The deforestation-related problems have been long shared by the concerned agencies, i.e., DARD and Department of Environmental Protection. In order to overcome deforestation-related problems, the province has a long history of planting neem trees from 1991 to date. A Japanese investor assists the province in the extension of neem tree plantation, and acts as support for local people's livelihood and supplemental income derived from neem seed oil.

## (3) Fishery and aquaculture

Khanh Hoa is one of the few provinces where gross output shared by fishing is larger than that shared by agriculture. This is mostly due to the large number of aquaculture farms in the province, which make up around two-thirds of fishing output. There are large fishing grounds (shrimp, squid, and tuna) off the coast around Phu Quy Island belonging to Binh Thuan. However, the gross output

shared by fishing has been smaller than that shared by agriculture. Fishing and aquaculture in Ninh Thuan have been on a small scale, though GDP shared by fishing has grown, to a point in which it is almost equivalent to GDP shared by agriculture in 2010. There are currently three big aquaculture farms (FDI) operating shrimp breeding along the coastal road in both districts of Ninh Phuoc and Thuan Nam. Nevertheless, investors control all the supply chain as follows: i) import of baby shrimps, ii) breeding, and iii) exporting. No value-added is given to the local market except for the cost of cheap labor working for shrimp breeding. Local fishermen are still dependent on the local market and therefore, they can earn small income from fishing. There is no direct linkage between the local fishermen and foreign investors.

#### 4.1.2 Direction of Agriculture, Forestry, and Fishery in Ninh Thuan

The primary sector of Ninh Thuan Province has many handicaps such as i) limited land for agriculture, ii) small scale, iii) salinity of soil, which further limits land for agriculture, iv) scarce water resource, v) few special products highlighted in the market, and vi) few supply chain. The primary sector actually reduced its share of GDP from 43% in 2006 to 35% in 2010. Given such circumstance, the Socio-economic Development Master Plan of the Province for 2011-2020 puts less priority on this sector in terms of sector's share of GDP and labor force. This section discusses the direction of agriculture, forestry, and fishery of the province by focusing on the potentiality of this sector.

##### (1) Agricultural development in challenging environments

The small-scale production under the fragmented land holdings, sandy soils, and water-limiting conditions needs efficient and effective farming activities. The traditional approach to agricultural development relying on increase of rice production is not appropriate for Ninh Thuan placed in challenging environments (poor, salinity of soils, and shortage of water). The province has a long history of operating the existing Phan Rang irrigation area, as shown in Figure 4.1.1, where farmers plant paddy three times a year, i.e., three cropping pattern. Annual net income earned from rice production (three cropping) is around VND 24 million per farmer, which is supposed to be the subsistence level of income for a household. The dependence of farmer's income on rice production only narrows the possibility of increasing agricultural income. The province also faces chronic water shortage and water allocation for the priority industry/sector will be the smallest matter to be solved.

A question is raised as to whether new irrigation area is necessary or not for the further increase of rice production. The agricultural development master plan of Ninh Thuan estimated the increase of irrigation area (29,000 ha in 2010 → 37,400 ha in 2015 → 44,000 ha in 2020 ) due to the following three methods: i) upgrading and repair of existing facilities, ii) expansion of reservoirs under construction, and iii) new projects. Irrigation area to be expanded between 2010 and 2020 due to the 12 works under construction was estimated at 9200 ha while those due to new projects was estimated to be 3700 ha. The master plan estimated an increase of planting area by crop as follows.

**Table 4.1.2 Plan of Planting Area by Crop in Ninh Thuan**

Unit: ha

Crops	2010	2015	2020
Rice	37,750	43,000	47,800
Corn	8,500	13,250	16,700
Sugarcane	500	2,000	3,500
Tobacco	350	1,500	2,500
Vine	750	2,000	2,500
Apple	800	1,000	1,000

Source: Agricultural Master Plan of DARD, Ninh Thuan

The master plan placed emphasis on the increase of rice planting area. Therefore, it is necessary to consider the direction of agricultural development placed in challenging environments. The neighboring Khanh Hoa surrounded by similar challenging conditions already shifted its agricultural development policy towards crops resilient on water shortage and salinity of soils. Thus, Khanh Hoa puts emphasis on sugarcane and cashew nuts.

Ninh Thuan may shift its policy towards higher value-added products such as grape and apple. Tapioca (a starch extracted from cassava) may bring benefits to Ninh Thuan as it is used as raw material for food, paper, and other consumer products. Tapioca is a good example linking agriculture with food industry. Agricultural development in challenging environments would be the main agenda to be taken into account in the decade from 2011 to 2020.



**Figure 4.1.1 Present Phan Rang Irrigation Area**

(2) Exploitation of comparative advantage

Grape production has never been challenged by other provinces. It implicates that Ninh Thuan has a great comparative advantage over grape production. In the last decade, the area of vineyard has dramatically decreased due to pandemic grape disease and urbanization, that is, 1809 ha (2000)→1615 ha (2005)→758 ha (2010). There are currently three grape varieties, i.e., i) red cardinal, which shares about 70% of grape area, ii) NH0148, which shares about 25% of grape area, and iii)



grape for wine-making, which shares 5% of grape area. Red cardinal are small grapes distributed to local markets (neighboring provinces) at lower prices. The problem is the susceptibility of this specie to grape disease. The market price of red cardinal is around VND 7000 per kg. NH0148 is a better variety since it is resilient over grape disease. Its market price is supposed to be VND 14,000 per kg. DARD plans to extend the grape-growing area from 758 ha in 2010 to 3750 ha in 2015. It has already studied appropriate areas for grape-growing. About 3500 ha turned out to be highly adaptable to grape-growing according to the study. DARD's plan of extending the grape-growing area seems to be ambitious. A more practical approach would be desirable. For instance, adopting an approach that will increase the production of grape farms with better specie (NH0148). The better specie needs better farming practice based on Good Agricultural Practice (GAP). DARD implemented training to about 200 farmers based on GAP in the past. The result showed that majority of grape farmers who were recipients of the training could not follow the farming practice that requires lots of equipment and monitoring records. This is because GAP's requirements are far beyond the capability of ordinary farmers. There is only one farm that obtained the certificate of GAP.

### (3) Linkage with industry

Ninh Thuan endowed with sugarcane and cassava is in a good position of producing high value products using those products as raw material. Bio-ethanol is a form of renewable energy that can be produced from agricultural feedback. The province already welcomed one investor manufacturing bio-ethanol using sugarcane and cassava. The province may become the production base of tapioca which is extensively used as raw material for the growing demand for confectionary. This is discussed in detail in the section of industry.

### (4) Fishery based on marine aquaculture

Trash fish species are those that fishermen throw away, because they have little to no commercial value. Trash fish landings are estimated to account for two-thirds of marine fishing production in the South Central Coast region including Ninh Thuan. Trash fish species are i) sold for local markets, ii) used for direct feeding to fish or livestock, and iii) used for manufacture of fish sauce or fish meal. Inshore fisheries capturing trash fish contributes a small portion to the value-added of local economy.

Instead, fisheries based on marine aquaculture, which is based on catching young wild fish and raising them in cages to commercial size, is more and more practiced. Methods of marine aquaculture include cage farming for grouper, cobia, and lobsters, oyster raising for pearl, marine fish raising in ponds, and mollusk raising. Inshore and offshore fishing grounds in Ninh Thuan are not endowed with shrimp as a marine resource. Thus, the existing breeding farms dominated by foreign investors import shrimp fingerlings from foreign countries. There is therefore little linkage between shrimp breeding business and local fishery. Instead, the province is endowed with the species of lobster, mollusk (squid), and seaweed. The marine aquaculture based on local resources could bring more value-added products to the local economy. Moreover, sustainable cage farming for such species will be much supported by clean environment in cage breeding area. Furthermore, binding concepts of marine aquaculture based on clean environment could revive the fishery sector in the province. In addition, linking marine aquaculture with tourism industry would accelerate the growth of local economy.

## **4.2 Industry**

### **4.2.1 Industrialization in the South Central Coast Region**

The section highlights means of industrialization as follows: i) port development as a gateway, ii) new economic zone, and iii) industrial parks in the region.

#### **(1) Resource-based industry**

The industrial sector in the region has been traditionally dominated by the region's resource-based industry. They are as follows: i) production of bottling of mineral water, ii) exploitation of mining resources, iii) production of construction materials such as sand, gravel and cement, and brick and construction industry, and vi) production of primary marine aquaculture products (shrimp and squid) and agriculture product (cashew nuts).

Resource-based products are almost processed raw materials so that raw materials and employed labor are only accounted as value-added to the local economy. Thus, the secondary sector dominated by resource-based industry makes a small contribution to local GDP. In view of Ninh Thuan's products being dominated by seafood products (frozen aquatic products, fish sauce, etc.), shelled cashew nuts, processed raw materials (granite stone, building brick, etc.), compost fertilizer, and wheat starch, the industry in Ninh Thuan is almost in the beginning stage of industrialization. Ninh Thuan is currently the poorest and least industrialized province in the South Central Coast Region.

#### **(2) Gateway to overseas markets**

Da Nang is a good example of industrialization brought about by international port development. Da Nang Port as a gateway to overseas markets triggered off advancement of foreign direct investment (FDI) in the fields of garments, automobile and machinery parts, and generators. Chu Lai Economic Zone (Quang Nam) and Dung Quat Economic Zone (Quang Ngai) as hinterlands of Da Nang Port have further accelerated industrialization featured by the exporting and supporting industries.

Khanh Hoa Province, having a long coastal line of about 380 km, is uniquely characterized by Van Phong Bay, Nha Trang Bay, and Cam Ranh Bay. Van Phong Bay, which is located in the northern province, is 35 km long, 25 km wide and 20 m deep in average. Hom Gom peninsula, which is 18 km long, is the most ideal location for the establishment of a deep sea port. Van Phong's transshipment port has already been established, and currently being built in the first phase to become

a large port in the regional and international level in the future. There is Van Phong Economic Zone as hinterland of the deep sea port where the petrochemical industry of a leading economic sector has been developed. Japanese and Korean investors have advanced to establish ship building/repairing dockyard to exploit deep sea water. Nevertheless, the transshipment port construction suddenly stopped due to bankruptcy of Vietnam National Shipping Lines (Vinalines) as an investor.

### (3) Gateway to Central Highlands

Quy Nhon Port (Binh Dinh Province) has been able to capitalize on its advantage as a gateway to Central Highlands to develop resource-based industry such as wood processing and stone processing industries.

Cam Ranh Bay in the southern Khanh Hoa Province is also endowed with deep sea water. Cam Ranh Port has benefited from the investment of the former Russian Naval Base. There is the Cam Ranh ship building dock including around 30 more related factories. The port is granted with many favorable conditions for growing into an international seaport. It now handles not only traditional goods such as sand and salt, but also other items such as cement, coal, pulp, clinker, steel and equipment. It may also serve as potential gateway to Central Highlands as well as to the neighboring provinces (Ninh Thuan) without any commercial port in order to develop resource-based industry.

### (4) Industrial parks

The development of industrial parks (IPs) and export processing zone (EPZ) has marked the impact of industrial development in the Southern Key Economic Zone (SKEZ) around Ho Chi Minh City. About 100 IPs accommodated 3700 companies in SKEZ. In this sense, industrial parks accommodating large number of companies has contributed to the industrial development in SKEZ. On the other hand, there are only seven IPs in Binh Thuan, two IPs in Ninh Thuan, and five IPs in Khanh Hoa. Ninh Thuan currently calls for investors (developers) to construct two IPs. There are still few tenant companies in IPs in Binh Thuan and Khanh Hoa. Therefore, IPs in the three provinces appear to have minimal impact on the industrial development in the region.

The minimal impact of IPs on industrial development in the coastal region would be attributed to the following concerns;

- No clear policy to call for specific investment;
- Weak capacity of IP management board to call for FDI or DDI;
- Absence of IP consultants to consult tenant candidates;
- Absence of ready-built factory inside the IPs;
- Long distance from HCMC; and
- Poor infrastructure surrounding the IPs.

Many of the IP's promotional materials or manuals deliver ambiguous messages and inefficiently attract the specific/target tenant industries therefore their target industries tend to be too general. The IP management board has little knowledge to attract and invite FDI or DDI. Many potential tenant's businesses are still dependent on the market of HCMC. IPs that are far from HCMC have limited advantage to attract foreign or domestic investors to locate in the area. As a whole, IPs are still on the developmental stage of industrialization in the coastal region.

#### 4.2.2 Direction of Industrial Development in Ninh Thuan

Manufacturing contributed to about 10% of Ninh Thuan's GDP in 2010, compared to the GDP share (over 20%) of the manufacturing sector in the national economy in the same year. Low value-added products shared by manufacturing can be explained by the current situation that manufacturing is primarily dependent on raw material extraction with basic processing. Departure from the least industrialized status appears to be not so easy. A question is posed whether Ninh Thuan can follow the industrialization experiences of other provinces. The answer may not be affirmative. This is because coastal provinces compete with each other in order to call investors to invest in their area through the development of port facilities. As a result, Ninh Thuan entry to industrialization based on port development is too late and costly. What could then be the most likely direction of industrialization in Ninh Thuan in the future? This section focuses on possible approaches to industrial development in the province.

##### (1) Building a brand image of “fresh” and “natural” for Ninh Thuan

Building a brand image for Ninh Thuan is an effective measure to call investors to invest in the area. This development will improve the current status of Ninh Thuan being the poorest and least industrialized province. The term fresh and natural may be suitable for Ninh Thuan as an image. Fresh fruits (grape, apple, etc.), fruit-based beverages (wine, juice, etc.), seaweed derivatives (cosmetics, pharmaceutical, healthy food, etc.), and salt in chlorine chemistry (caustic soda as

the secondary raw materials, healthy products consisting of magnesium) are products with fresh and natural image. In order to attract investors, there is a need for special investment facility or area, i.e., i) a combination of vineyard and wine factory complex and ii) industrial cluster area for seaweed derivatives or salt in chlorine chemistry. Consequently, building a brand image of Ninh Thuan meets the supply chain of at least three processes as follows: raw materials, processing, and packaging. Thus, value-added products will be contributed to the local economy. A high priority should be placed on investment promotion and the related investment projects on building a brand image. Accordingly, Ninh Thuan will become famous for its image, which will further bring more investments to the province.

## **(2) Building a good access to the Central Highlands**

Binh Dinh is known for being a successful province by transforming itself into a regional center of furniture industry using wood/timber transported from the Central Highlands. Binh Dinh capitalized its advantage as a gateway to Central Highlands in order to develop resource-based industry.

The short distance of 110 km between Phan Rang and Da Lat (Lam Dong Province) could provide Ninh Thuan with the advantage to create new industrial linkage between the two provinces. One possibility would be a logistics business at Phan Rang where cargos from HCMC or Da Lat are transshipped to either large or small-sized trucks. Improvement of the existing National Road 27 could activate trade between the two provinces, resulting to the new role of Phan Rang of being a land transshipment center.

A good access to Da Lat could make it possible to combine sea and highland tourism. Many of highland tourists would come to coastal tourism spots via Phan Rang. The capital city of Ninh Thuan will be the intermediate spot functioning as a gateway to the highland area. Michino-Eki at Phan Rang would bring up the capital city's image as a gateway to the Central Highlands, resulting to an increase of tourists arrivals in Phan Rang via Da Lat or from the neighboring coastal tourism spots such as Nha Trang and Phan Thiet. A gateway to the highland area could flourish the tourism industry in Ninh Thuan.

A good access to the highland area could also provide Ninh Thuan with opportunities of establishing new resource-based industry. For instance, the food industry using raw materials from the highland and furniture using highland wood combined with Ninh Thuan's granite stone as accessories would be the conceivable products. New resource-based products would be transported via the

Cam Ranh Port so that a good access to the highland area contributes to the activation of the port as well. It is recommended for two stakeholders of EDO and Vinalines to jointly study what sort of resource-based industry would come out due to having a good access to the highland area.

(3) Businesses based on cassava and sugarcane products

Cassava and sugarcane products have been recently highlighted in business reports and newspapers. Cassava is processed into cassava chip, which is further processed into cassava pellet or cassava starch (tapioca). Cassava chip and pellet are usually used in animal feed production. Tapioca is also highlighted as an additive ingredient for various processed foods. It is also used as a raw material in paper/adhesive agent production. Raw sugar and molasses are products generated in the process before achieving the final product which is white sugar. They are also used in confectionary making.

The most highlighted product using cassava or sugarcane is bio-ethanol as fuel. The bio-ethanol production meets the demands for energy security, saving of foreign currency, and development of local economy. Moreover, it is also environmentally friendly. Raw materials of bio-ethanol are raw sugarcane, molasses, tapioca, and tapioca chips. In Vietnam, the principal raw materials of bio-ethanol are cassava products. A bio-ethanol production is currently in the beginning stage in Vietnam. Ten factories are currently under operation or planned. In the South-Central Coast Region, the bio-ethanol factory in Quang Nam Province is now under operation. Those in Quan Ngai and Ninh Thuan provinces are currently under construction. Petro Vietnam started sales of E5 gasoline (5% bio-ethanol with 95% gasoline) at their twenty gas stations located in five major cities since August 2010. In Ninh Thuan the bio-ethanol production is scheduled to start in 2013.

Industries based on cassava and sugarcane products could trigger off new type of industrialization in the coastal area such as Binh Thuan, Ninh Thuan, and Khanh Hoa. The target industries are as follows: i) cassava chip/pellet production, ii) tapioca production, iii) sugar production, and iv) bio-ethanol production. A business based on cassava and sugarcane products will be the typical industry requiring cooperation between the three provinces and linkage between industry and agricultural sectors. A market study on the demand of cassava/sugarcane products should be made clear, and related stakeholders in the three provinces should jointly make a production plan.

(4) Market of the 9.5 million population

Many of manufacturing companies producing consumable products such as beverages, instant foods, toiletry goods, and business/office equipment place their main production base in Hanoi or Ho Chi Minh City. Thus, these products have to be transported by big container freights or lorries to remote consumption areas such as the coastal region. Transportation/delivery cost may be added to the production cost, resulting to a high or non-competitive price of these products. A company may make a business plan to shift part of the main production to the coastal region. A company's decision of production shift may depend on the planned price at production level. If the price of local production is cheaper than that of headquarter production, investors may go to the coastal area.

The South Central Coast Region (Da Nang and seven more provinces) has a total population of about 9.5 million at present, which is about 10% of the national population. Saigon Beer already decided to shift a part of its production to Ninh Thuan. A 9.5 million population market may be big enough to invest production facility in the coastal area. The selection of Ninh Thuan as production base depends on the type of consumable products. The EDO may be responsible in finding the next candidate site to invest their production facilities.

(5) Du Long IP as the first experiment of investment promotion

An area of about 400 ha situated inside Du Long IP in Thuan Bac District on Highway 1A, 20 km north of Phan Rang, was invested by a Vietnamese investor. Infrastructure investment is divided into two phases as follows: 250 ha implemented from 2011-2013 (Phase 1), and 150 ha implemented from 2013-2016. The target investors (tenants) could be the types of industries discussed in items (1), (2), (3) and (4) of Section 4.2.2. The first phase of Du Long IP could be the first testing of investment promotion based on the direction or strategy for industrial development discussed in this chapter. To do so, the Du Long IP Management Board should cooperate with EDO regarding investment targets, then consult with investors regarding their facility plan, budget constraint, and production plan. Small and medium investors may look for ready-built factory, thus, IP should accommodate area for standardized facility/factory. Du Long IP could be ideally located to accommodate new resource-based industry whose products are to be loaded at the Cam Ranh Port. Therefore, Du Long IP Management Board must cooperate with the Cam Ranh Port's management.



### 4.3 Tourism

#### 4.3.1 Tourism Attractions in the South Central Coast Area

The South Central Coast Area embraces the well-known sea resorts represented by Nha Trang (Khanh Hoa) and Phan Thiet – Mui Ne (Binh Thuan), while Da Lat offers attractive highland as one of the famous highland resorts in Vietnam. Another distinct tourism attraction is the historical-cultural resources where Cham ruins are scattered in the area and tourists can enjoy the ethnic cultural products.



**Figure 4.3.1 Tourism Resources in the South Central Coast Area**

#### 4.3.2 Tourism Market of the South Central Coastal Area

In 2011, Vietnam received about 6 million international visitors, of which Nha Trang and Phan Thiet – Mui Ne welcomed about 0.7 million international tourists. Ninh Thuan having no famous resort spot received just 0.04 million foreign visitors. The following table summarizes tourism statistics of the South Central Coast Area.

**Table 4.3.1 Tourism Statistics of the South Central Coastal Area in 2011**

	Binh Thuan	Ninh Thuan	Khanh Hoa
Foreign tourist	300,000	39,000	385,000
Domestic tourist	2,502,000	736,000	1,458,000
Average length of stay (days)	1.4	n/a	2.2
Expenditure (USD billion)	3,389	976	2,252
Number of rooms	5,700	1,500	10,200
GRDP shared by tourism (%)	15.1	3.9	28.9

Source: Statistics of Binh Thuan, Ninh Thuan and Khanh Hoa

Note: The figure in the Table 4.3.1 (Provincial statistics) and Table 4.3.3 (a document from Vietnam National Administration of Institute for Tourism Development Research) are different due to different sources

The tourists shown in the table refer to tourists who stayed. The region received much larger number of domestic tourists than foreign ones. Binh Thuan particularly welcomed domestic tourists of about 2.5 million that are mostly coming from Ho Chi Minh City. The average length of stay for both the domestic and foreign tourists is almost identical in Binh Thuan and Khanh Hoa. The length of stay of foreign tourists may only be much longer than the average length of stay of foreign and domestic tourists. The number of accommodation room is largest in Khanh Hoa, followed by Binh Thuan.

### Nha Trang

Nha Trang have been seen to have a delighted change in cruise tourism with an increasing number of cruise passengers, represented by Queen Marry 2, which is one of the world's biggest cruise ship. Nha Trang tourism currently plunges into popularization of its tourism status in the world. Nha Trang, having experienced many national and international festivals/fairs/seminars/conferences, has been gradually becoming famous in the world, but not comparable to the status of Bali and Phuket. Nha Trang is now in a transitional position of shifting its status from Vietnam's No. 1 to being one of the world's tourism spots.

### Phan Thiet – Mui Ne

The proximity to HCMC is a favorable condition to attract tourists and business purposes (conferences, business trainings, seminars, etc.) in Phan Thiet – Mui Ne. Of course, high class sea resorts concentrated in the urban and tourism corridor connecting Phan Thiet to Mui Ne have been supported by foreign tourists led by Russian, Germany, and other nations. Binh Thuan puts an emphasis on tourism

development, i.e., i) islands tour, ii) cultural/heritage tour, and iii) status-up of local airport to call more tourist passengers from HCMC.

#### 4.3.3 Tourism Market of Ninh Thuan

Tourism sector is expected to significantly contribute to the local economy in the future. GDP shared by the sector is planned to be 8% in 2015, 12% in 2020, and 30% in 2030. Despite the expected high sector's growth, tourism development in Ninh Thuan is placed in a challenging environment, i.e., i) poor level of infrastructure, ii) Ninh Thuan as unknown tourism market, particularly for international tourists, iii) slow tourism-related investment projects, iv) insufficient level of tourism facilities such as hotels of high quality, and v) lack of competent human resources in the private and public sectors for tourism promotion. Such constraints are clearly spelled out by the Province's Tourism Development Program 2011-2015. This section highlights the most fundamental issue of "how Ninh Thuan is viewed as a tourism market", because this is the most important issue which has to be clarified prior to the presentation of the direction of tourism development.

##### (1) Ninh Thuan as tourism market

Ninh Thuan is sometimes expressed as the unknown tourism market with hidden charm and untouched beauty of nature. This is supposed to be the selling point of Ninh Thuan. Unfortunately, the province does not know how its tourism market is viewed. Ninh Thuan's value in tourism market is almost determined by what market segment the province is placed. If the tourist's preference over Ninh Thuan is put on a niche market represented by a hidden charm, its tourism market size is supposed to be not dynamic but small. Even if tourists view Ninh Thuan as a second class tourism market or a specific market represented by its culture and history, its market size would be small too. If so, the province would not be able to expect its tourism sector to grow as what the master plan presents. The question is then what sort of tourism market would be necessary for Ninh Thuan in order for its tourism sector to grow rapidly. The number of tourist arrivals was about 700,000 in 2010. The master plan expects the number to increase up to a range of 1.5 million to 1.7 million in 2015.

##### (2) Ninh Thuan as part of an extensive tourism market

Perhaps it is not appropriate to view Ninh Thuan as a single tourism market. How

is then the tourism market of Ninh Thuan be presented? Ninh Thuan as part of an extensive tourism market could better be viewed by activating the tourism potential of Ninh Thuan. The question is what extensive market would be commercially possible. Is this the extensive coast-based tourism including Nha Trang and Phan Thiet-Mui Ne? Both Nha Trang and Mui Ne have established the first class sea-based tourism, the extensive coast-based tourism market formation of the different classes would not be promoted by the private tourism agencies. As a matter of fact, sea-based tourism spots are competing among themselves; thus, they can never be integrated as a tourism market.

So what tourism market would complement Ninh Thuan? The answer is the tourism market of the Central Highlands, which is dominated by domestic tourists rather than international tourists. Needless to say, coastal provinces have strong intention to strengthen linkages with highland region in the fields of economic transaction including tourism. To link with the highland area is virtually competitive among the coastal provinces. Ninh Thuan is strategically located with its proximity to Da Lat (Lam Dong Province), although the National Road 27 needs to be improved a lot.

**Table 4.3.2 Number of Tourists and Length of Stay in Lam Dong Province**

			No. of Days		Share (%)	
			2008	2011	2007	2011
No. of Tourists	Visited	Vietnamese	2,180,000	3,345,800	94.78	94.86
		Foreigners	120,000	181,200	5.22	5.14
		Total	<b>2,300,000</b>	<b>3,527,000</b>	100.00	100.00
	Stayed	Vietnamese	1,261,200	2,179,600	94.09	95.86
		Foreigners	79,200	94,200	5.91	4.14
		Total	<b>1,340,400</b>	<b>2,273,800</b>	100.00	100.00
Accumulative Length of Stay (Days)		Vietnamese	2,687,886	4,660,545	94.84	96.37
		Foreigners	146,210	175,392	5.16	3.63
		Total	<b>2,834,096</b>	<b>4,835,937</b>	100.00	100.00
Average Length of Stay (Days)		Vietnamese	2.13	2.14		
		Foreigners	1.85	1.86		
		Total	<b>2.11</b>	<b>2.13</b>		

Source: Lam Dong Statistical Yearbook 2011

As shown in Table 4.3.2, majority of tourists who visited Lam Dong Province are Vietnamese, accounted for 3.3 million in 2011, which increased from 2.2 million in 2008. The number of domestic tourists who stayed was also substantial,

accounted to 2.2 million in 2011. The average length of domestic tourist stay was two days in 2011. With the rise of income, a combination of sea and highland tourism could come out in the domestic tourism market. It could be realistic that Ninh Thuan be included as part of Da Lat (Lam Dong) tour.

(3) Place of Ninh Thuan in the domestic tourism market

Foreign tourists

The three provinces of Khanh Hoa, Ninh Thuan, and Binh Thuan recently appear to enjoy the tourism sector development. As shown in Table 4.3.2, foreign visitors to the three provinces have increased during 2005-2010. Foreign visitors in 2010 accounted to 380,000 in Khanh Hoa, 245,000 in Binh Thuan, and 59,000 in Ninh Thuan. Both Nha Trang and Mui Ne are famous for beautiful beach resorts. On the other hand, there are no well-known beach resorts in Ninh Thuan. The beach area where the foreigners stay is currently restricted to Ninh Chu Bay, in which the four-star hotel of Saigon Ninh Chu is located. Thus, most of the foreign tourist arrivals (59,000) were assumed not as tourists who stayed long, but the ones who just visited.

**Table 4.3.3 Number of Foreign Visitors to Three Provinces**

Province	2005	2006	2007	2008	2009	2010
Khanh Hoa	248,000	255,000	282,000	315,000	281,000	380,000
Ninh Thuan	14,000	24,000	33,000	38,000	51,000	59,000
Binh Thuan	128,000	151,000	178,000	195,000	222,000	245,000

Source: Vietnam National Administration of Institute for Tourism Development Research

In order to attract foreign tourists and make them stay for a few days, Ninh Thuan should appeal to its tourism resource supported by hidden charm and untouched beauty of nature. Binh Tien South to Vinh Hy Bay will be the only coastal area symbolizing hidden charm and untouched beach beauty. There will be a complex type of resort development projects accommodating 160 residential units and an international hotel of 260 guest rooms. With the completion of the resort development project in Binh Tien South, about 60,000 foreign tourists will be expected to stay longer every year.

Domestic tourists

There are currently group of domestic tourists staying at the Saigon Ninh Chu Hotel every weekend. They are mostly a group tourists coming from Ho Chi Minh City. According to the tourism statistics, the number of tourist arrivals in Ninh Thuan was 700,000 in 2010. Nevertheless, most of them were just visiting tourists.

In order to increase the number of tourists who will be staying longer, a tour package combining highland with sea tourism should be promoted by Ninh Thuan in cooperation with Lam Dong Province. A typical tourist choosing highland and sea tour stays in the highland for two days and in the coast for a day. About 1 million tourists joining in the highland tour are expected to participate in sea tourism too.

#### 4.3.4 Direction of Tourism Development

As presented in Section 4.3.1, there will be two types of tourists in Ninh Thuan as follows: a) short or long-staying foreign tourists who have preference for untouched sea resort, and b) short-staying domestic tourists who also go to a highland tour. Tourism development for foreign tourists concentrates mainly on the coastal area in Ninh Chu Bay to Binh Tien South. On the other hand, tourism development in Ninh Thuan will be directed based on the previously mentioned two types of tourists.

##### (1) Establishment of a gateway to the Central Highlands

The priority should be given to the proximity (110 km) to Da Lat in order to make Ninh Thuan a gateway to Lam Dong Province. A priority will be firstly given to the improvement of the National Road 27 connecting Phan Rang with Da Lat. Building a good access to Da Lat will render benefits to Ninh Thuan in terms of tourism and industrial linkages to Lam Dong Province. The recognition of Ninh Thuan as a gateway to hinterland will be stressed with respect to the following facilities:

- a. Michino-Eki at Phan Rang;
- b. A terminal coach station at Phan Rang; and
- c. Service area at the border of Lam Dong Province.

Michino-Eki is a roadside station to be located in the center of Phan Rang, providing tourists with nature and local restaurants, tourism information, tourism spots pictures exhibition, souvenir shops, and recreation place. Michino-Eki scattered throughout Japan not only function as gateways but also places for selling local goods. Michino-Eki at Phan Rang could surely make Ninh Thuan famous as a gateway to the highland, which is never challenged by Khanh Hoa or Binh Thuan. A terminal coach station at Phan Rang would connect the capital city with Da Lat, Nha Trang, Phan Tiet, and Cam Ranh Airport by shuttle buses. The services of shuttle buses are included in the conditions for being a gateway function.

Both Michino-Eki and the terminal coach station would be the target of cooperation among Khanh Hoa, Binh Thuan, and Ninh Thuan, because both of the two facilities contribute to regional development through increase in the number of tourists.

## **(2) Cooperation of tourism promotion**

Ninh Thuan's Tourism Development Program 2011-2015 introduces tourism promotion in the following form; i) tourism information, ii) organization of events to travel agents and organization of tourism promotion conference, and iii) tourism publication and websites. Nevertheless, the program appears to be insufficient in terms of promotional strategy, because the development program does not mention the target of tourists to be promoted. This study targets both foreign and domestic tourists. Foreign tourists visiting or staying in Ninh Thuan were assumed to be primarily those adhering to the hidden charm which Ninh Thuan provides, while target domestic tourists were those who prefer a combination of beach and highland tourism.

### **Foreign tourists**

Foreign tourists visiting the sea resort area were categorized according to the following characteristics: i) a long stay (one week), ii) a family stay, iii) one-place stay, iv) pursuit of sea leisure, and v) preference over natural ecology. Targets of foreign tourists for promotion in Ninh Thuan are basically the same as those who are visiting and staying at Nha Trang and Mui Ne. If so, what effective measures would be necessary for calling them to the untouched beach resorts in Ninh Thuan? Many beach resorts appear to be competitive, but cooperation between competitors may augment potential foreign visitors in the future. A cooperation between beach resort areas may need the following: i) agreement on a circular excursion trip among Khanh Hoa, Ninh Thuan, and Binh Thuan, ii) provision of crushing ships calling at objective beach resorts, iii) agreement on discount prices for staying among beach resort investors, and iv) packaging of a circular excursion by private travel agents. This cooperation involving the concerned stakeholders will be worth a consideration.

### **Domestic tourists**

The rise of income could make the length of stay of domestic visitors longer in the future. Over 2 million domestic tourists visited Da Lat in 2009. Part of them were

expected to join tourism in coastal area. A cooperation between coastal and highland tourism may increase tourism expenditure in the future. Such a cooperation would include the following items: i) a member list of staying hotel's visitors, ii) agreement on sea and highland excursion trip, iii) public bus transportation, and iv) packaging of a sea and highland excursion trip by travel agents in HCMC.

For the first step, cooperation between beach resort areas will be implemented. Japan has been conducting the so-called extensive tourism promotion across the region. A knowhow may be transferred to coastal provinces including Ninh Thuan.



## **4.4 Energy**

### **4.4.1 Issues on clean energy development**

Despite the common view that energy issues should be discussed within the context of national policy and planning, clean energy (renewable and nuclear energy) was highlighted in the context of the regional socio-economic master plan of Ninh Thuan. This is primarily because Ninh Thuan emerges as the center for two nuclear power plants that might alleviate the power shortage problem in the southern area of Vietnam. Ninh Thuan is also viewed as the province having potential renewable energies such as hydroelectric power and wind power. Although energy is traditionally a weak employment creator, nuclear power plants would require large number of local employees, which Ninh Thuan has never experienced before. Clean energy appears to be a new approach to regional development, but there are some issues on clean energy development that need to be considered.

#### **(1) Role of Da Nhim Hydropower**

Ninh Thuan has a large hydroelectric power plant (Da Nhim) and several small hydropower plants. Power generated by Da Nhim and other hydropower plants is directly supplied to the national power grid's network. For the past years, Da Nhim having installed capacity of 160 MW generated a large share of power supply to the southern power system of Vietnam. In view of the annual average operation hours (over 6000 hrs), Da Nhim appeared to operate as a power plant for base load, similar to a thermal power plant. A growing power demand in the southern Vietnam could further aggravate the power shortage problem in the future.

Under such circumstance, the state power company (EVN) plans to expand the existing Da Nhim's capacity from 160 MW to 200 MW (two more hydroelectric power plants) by making the best use of annual unused water discharge every year. The question is to what extent the expansion of Da Nhim hydropower could bring benefits to the local economy. Augmentation of power supply certainly discharge more water to irrigation and urban residential area in the downstream plain area. A simple study on the economic impact of Da Nhim's expansion to the local economy, at least if EVN desires ODA for its plan, is needed.

(2) Off-take tariff of wind energy

Ninh Thuan endowed with excellent wind flow (average wind flow is 7.5 m/sec, which is almost double the Vietnamese national average) has been carrying out the feasibility study to select spots for wind energy projects in 26 windy zones. Some of the projects were granted investment certificates. The government has strived to come up with a more reasonable pricing for wind energy. The sole buyer (EVN) must purchase electricity from on-grid energy projects at the VAT-excluded price of VND 1614 (equivalent to USD 7.8 cents/kWh). Investors are given incentives such as import duty exemptions, reduction of land use fee, and low corporate income taxes. Power Purchase Agreement (PPA) for wind power projects, for a 20-year term, must be made in accordance with standard PPA issued by the Ministry of Industry and Trade.

The wind power project (20 wind power poles) in Binh Thuan was the first wind energy business with its installed capacity of 30 MW. Although the off-take price was set out at USD 0.078, it is reported that EVN has an intention to pay USD 0.06 only. The basic price of USD 0.078 is somehow appealing at first. Nevertheless, such an off-take price of USD 0.078 is not big enough to entice investors. The cases of neighboring countries show that a feed-in-tariff for wind energy developers is USD 0.23/kWh in the Philippines, and USD 0.18/kWh in Thailand. Vietnam is apparently less attractive for wind energy developers to spend their millions of dollars compared with the neighboring countries.

(3) Nuclear energy cluster

The 4 units x 1000 MW Ninh Thuan Nuclear Power Plant No. 1 at Phuoc Dinh District will be built in collaboration with Russian state company. The 4 units x 1000 MW Ninh Thuan Nuclear Power Plant No. 2 at Ninh Hai District will be built in collaboration with Japanese consortium. The Ninh Thuan Nuclear Power Plant No. 2 is now under the feasibility study which is scheduled to complete in March 2013. One site could need technical staff members of 400-500 and local employees of about 1000 for maintenance works. The latter (local employees) will be needed for the following works: i) radioactive decontamination works of radiation protective equipment, ii) cleaning of power plant site, iii) maintenance of fence, iv) security, v) operation of power plant, vi) maintenance of drainage pipes, vii) maintenance of auxiliary generators, and viii) catering services. Needless to say, a nuclear power plant requiring 1000 local employees is virtually one industry, requiring education and training for power plant operation, local supply chains for maintenance of equipment, and energy services. A wide range of operation and

maintenance works for one nuclear power plant would form energy cluster. The current EVN has neither have experience nor expertise for education/training and local supply chains for maintenance works and energy services. Thus, there could be a need for assistance from foreign companies having lots of experience and expertise about the operation and maintenance of nuclear power plants.

#### 4.4.2 Direction of Clean Energy Development

Vietnam recently appears to plunge into the clean energy development era. Clean energy as an industry may boost new types of investments, contributing to regional economic development. However, the country's energy institution such as off-take price and subsidy is within the control of the national government. This section focuses on the approach to clean energy development while considering the role of the government.

##### (1) Renewable energy as pilot PPP project

The laws on infrastructure projects in Vietnam are represented by the Decree 108 (2009) for BOT/BTO/BT schemes, and the PPP Regulation (the PM Decision 71) enacted in 2010. The former is often called the new BOT Law replacing the old BOT Law (Decree 78) while the latter is not a law but a pilot regulation subject to its amendment. The coexistence of the new BOT Law and the PPP Regulation implicates that the country is still in a transitional stage of improving the legal and regulatory framework for investment promotion in infrastructure.

The present renewable energy projects are practiced based on power purchase agreement (PPA) where EVN has a take-or-pay obligation towards investors. However, the Binh Thuan's wind power project shows that EVN is willing to pay USD 0.06 instead of USD 0.078. This is called a regulatory risk which discourages investors to further invest in renewable energy projects. Under such circumstance, the future renewable energy projects should be implemented based on a BOT contract which spells out the government subsidy, guarantee, land use, and other incentives. Renewable energy as part of power supply can be applied to either the new BOT Law or the PPP Regulation. Ninh Thuan currently proposes several wind power projects, of which one or two are to be selected as pilot projects. Ninh Thuan may cooperate with Binh Thuan in order to carry out feasibility studies of wind power projects jointly. A feasible project is then to be reported to the Ministry of Industry and Trade that is the contracting agency. A BOT contract is then made between the investor and the ministry. Expansion of

Da Nhim Hydropower as a renewable energy project could be applied to PPP scheme.

The remaining question would be about the renewable energy tariff. Vietnam has not established a feed-in-tariff for renewable energy. EVN adopts the “avoided cost tariff” which is defined as electricity tariff calculated by avoided costs of the national power grid when 1 kWh is generated to the distribution power from a small renewable energy power plant. Feed-in-tariff with cost-based prices is currently popular in other countries. Feed-in-tariff should not be uniform, but be differentiated according to region. For instance, an area with better wind power should have lower feed-in-tariff while an area with weak wind power should have higher tariffs. Feasibility study of pilot projects should reflect feed-in-tariff.

(2) Special subsidy to support Ninh Thuan for nuclear power operation

As presented in Section 4.4.1, for nuclear power plants, large-scale energy resource needs education and training of local operators, and related and supporting industries considering auxiliary generators, drainage pipes, contaminated water, radiation protective equipment, and other equipment. The so-called nuclear energy cluster could bring a tremendous burden on the local entity (Ninh Thuan).

In Japan, the central government has enticed local bodies to host nuclear power plants with huge amount of fiscal grants, which are originally collected as taxes on top of electricity charges. This grant system is exclusive for local governments hosting power plants including nuclear power plant. The grants are used for infrastructure, regional development, thermal discharge related activities, local social welfare, industrialization, and subsidy to electricity users. The grants accounted for about USD 1,500 million last year.

The Ministry of Industry and Trade should take into account the grant system on top of electricity charges, which would be used for infrastructure on access road, water supply and electricity supply to nuclear power plant

## **4.5 Transportation**

### **4.5.1 Transportation condition in the South Central Coastal Area**

Present transportation condition in the study area (Khanh Hoa, Ninh Thuan and Binh Thuan) is described below.

#### Ninh Thuan

National Road 1A as well as the North-South Railway run through the province. Ninh Thuan's main railway station is at Phan Rang/Thap Cham. Phan Rang is connected to Da Lat by National Road 27. However, since the road has a winding mountainous section, heavy trucks are difficult to pass. There used to be a railway serving on the same route, but it has not been used since the start of the Vietnam War. There is no major port in the province.

#### Khanh Hoa

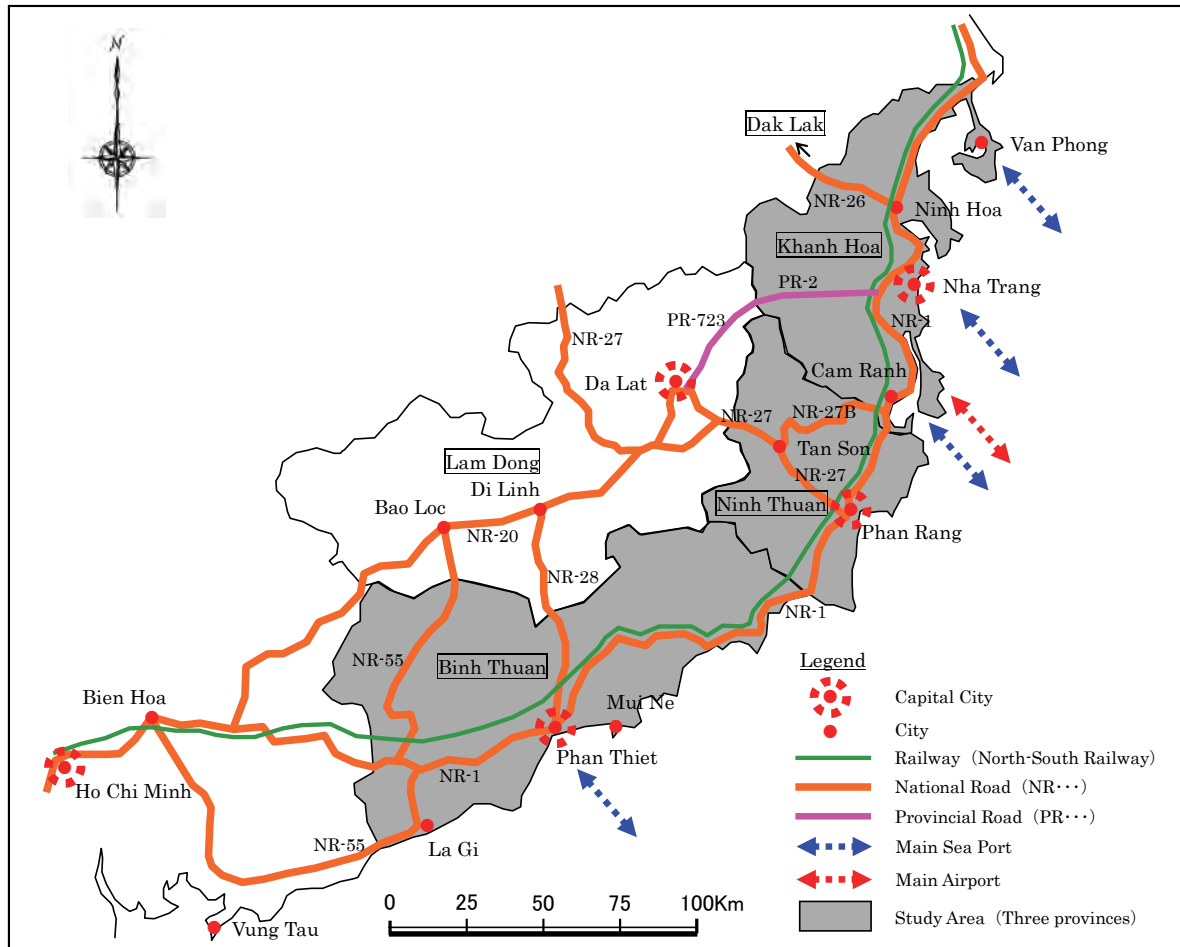
The North-South railway runs through the province (149 km in the province). Nha Trang is the main station. It is responsible for the distribution of goods and passengers to Lam Dong, Buon Ma Thuot (Dak Lak), and the north and south provinces. National Road 1A runs through Khanh Hoa. National Road 26 connects to Dak Lak Province. The new road to Da Lat (provincial road) was opened recently; thus, the distance to Da Lat was reduced to approximately 140 km.

Nha Trang Port and Ba Ngoi (Cam Ranh) Port are in use at present. Nha Trang Port is a multi-function port for tourism, and a gateway of transport for carrier passengers and goods. The quay of the port is 172 m long, 20 m wide, and 8.5 m deep. Ba Ngoi Port has a quay of 110 m, that is 15 m wide and 8.5 m deep. Construction of Van Phong Port in Van Phong Bay is going to start. Upon completion, the sea port will be capable of handling ships up to 100,000 t and of 100 million t of loaded/unloaded cargo per annum.

Cam Ranh International Airport having 3,048 m of runway is located in the south. It is the only airport in which regular flights are operating in the study area.

#### Binh Thuan

National Road 1A as well as the North-South Railway runs through the province. Binh Thuan's main railway station is Binh Thuan station located in Muong Man around 10 km north-west of Phan Thiet. The province is connected to the Central Highlands by two national roads as follows: a) National Road 28 from Phan Thiet to Di Linh, Lam Dong Province, and Dak Nong Province, and b) National Road 55 from La Gi to Bao Loc, Lam Dong Province.



**Figure 4.5.1 Transportation in the South Central Coastal Area**

#### 4.5.2 Transportation Conditions in Ninh Thuan

##### (1) Short distance of coastal line

The South Central Coast terrain has a diverse topography with mountain ranges and hills extending to the coast, forming several passes, bays, peninsulas, and beautiful beaches. Mountain ranges and hills extending to the coast are particularly prominent along the borders of Binh Thuan and the National Road 1A from Phan Rang to Cam Ranh. On the other hand, the neighboring provinces (Khanh Hoa and Binh Thuan) have a flat terrain along the coastal line. The distance of the coastal line is 380 km in Khanh Hoa and about 70 km in Ninh Thuan. Having a unique topographic feature and short coastal line limit land use for urban formation. This makes Phan Rang the only city (urban area) along the coastal line. A short coastal line also restricts the possibility of constructing medium-sized ports. This implicates that Ninh Thuan has a handicap of developing sea transportation and road transportation to assist port development.

(2) Passage traffic in National Road 1A

Absence of a sea gateway implicates that the National Road 1A within the Ninh Thuan section virtually serves traffics passing through the province. Ninh Thuan, the poorest and least industrialized province has the less active economy, hence trip generation rate was assumed to be low in Ninh Thuan. The following table shows the number of vehicles by type on the National Road 1A between Cam Ranh and Phan Rang.

**Table 4.5.1 Traffic Volumes between Cam Ranh and Phan Rang**

unit: vehicle/day

	2007	2008	2009
Sedan	516	320	331
Small bus	565	353	548
Big bus	546	455	1,106
Light truck	772	459	1,292
Medium truck	559	519	1,239
3-axis truck	548	363	531
4-axis truck	566	353	548
Others	127	27	49
Total number of cars	4,199	2,849	5,644
Motorbike	4,507	3,185	3,135
PCU	10,220	7,069	13,215

Source: DOT in Ninh Thuan

The table shows an increasing trend of traffic volume on the National Road 1A between Cam Ranh and Phan Rang during 2007-2009, though year 2008 showed reduction of traffic volume. Most cars (5644 cars in 2009) were assumed to be those passing through the province while the majority of motorbikes were assumed to belong to Ninh Thuan.

The Asian Development Bank (ADB) currently conducts the study on the “Improvement of Road Safety and Climate Resilience on National Highways”. The study will cover necessary traffic safety upgrading of infrastructure and climate resilience of approximately 180 km of NH 1A in Ninh Thuan and Binh Thuan. The objective of the study is to identify critical traffic safety black spots and sections of recurrent flooding of the roadway. The question would be that the project’s benefit would be rendered to passage traffics only, not the local users. Generation of project benefit could only be expected if trip generation rate becomes outstanding in the future.

(3) Coastal road

A coastal road along sea shoreline was already constructed between the Cam Ranh Airport and Nha Trang in Khanh Hoa Province, and between Phan Thiet and Mui Ne in Binh Thuan. The coastal road is well maintained and mainly used for vehicles for tourism and commercial businesses in the two provinces. That is why heavy lorries and trucks are prohibited from passing through the coastal roads. In Ninh Thuan, a coastal road was already constructed between Mui Dinh and Phan Rang along the southern coastal line.

(4) National Road 27

Among the coastal provinces, Ninh Thuan is endowed with proximity to Da Lat, the well-known tourism city. The distance between Phan Rang and Da Lat is only 110 km. National Road 27 penetrating into Ninh Thuan plays a significant role in not only for the economic transactions between the sea and mountainous area, but also for accessibility between hilly and mountainous districts. Nevertheless, the present condition of National Road 27 may be categorized as “very poor”, because the road surface is terribly damaged all throughout the sections. Particularly, the part of National 27 around the mountainous section before the border of Lam Dong Province is utterly damaged, making travel trip from Phan Rang to Da Lat to almost 4 hrs.

Ninh Thuan is already aware of the significance of National Road 27. The project for the restoration and improvement of National Road 27 has started in 2008, but the project was not completed and totally was stopped. Deterioration of the road surface is now severe, causing lots of accidents and serious environment pollution. The flood occurrence in 2011 further degraded the road surface. National Road 27 is virtually the backbone of the province; thus, the road’s restoration and improvement could bring a substantial benefit not only to the road users but to the whole economy.

The reason for the delay in construction was land clearance. There are still 339 households to be relocated in Ninh Son District. Public facilities such as fiber cable, domestic water, and transformers have not yet been taken. In Lam Dong side, some sections have not yet been cleared yet. The recent landslides along the road in the mountainous area, caused by the October 9, 2011 flooding, made the relevant authority (MOT) rethink for a road-slide proof road construction. Continuation of the project would be halted due to the limited state budget.



#### 4.5.3 Direction of Transportation Development

##### (1) Core road network

Gateway is a key place/facility to determine the direction of principal transportation development. They are the Cam Ranh Airport (to be an international airport), the Cam Ranh Port (one of the ten commercial ports in Vietnam, to be a port with container yard), and Phan Rang as gateway city to the Central Highlands. A road network connecting the Cam Ranh Airport/the Cam Ranh Port to Da Lat through Phan Rang of the province's capital city will be the core infrastructure for vitalization of Ninh Thuan. A core road network consists part of NH 1A and National Road 27.

The ADB project "Improvement of Road Safety and Climate Resilience" focuses on the length of 180 km on NH 1A in Ninh Thuan and Binh Thuan sections. The original purpose of this project is to identify critical traffic safety spots and sections of recurrent flooding of roadway. At the progress meeting of this project between MOT and ADB, MOT insisted some alternatives (critical spots and expansion of NH 1A into four lanes). The section to be expanded into four lanes is between the border with Khanh Hoa and the end of Phan Rang by-pass. However, the current road surface condition from the border to Cam Ranh City appears to be terribly bad. Some spots between the southern border to Cam Ranh need to be rehabilitated.

National Road 27 was partially improved due to the previous state budget, but firstly, it would need a detailed design for the entire length of the road. Particularly, the construction method of the winding section before the border of Lam Dong Province should be carefully studied and designed.

The road network in Ninh Thuan is shown in Figure 4.5.2.

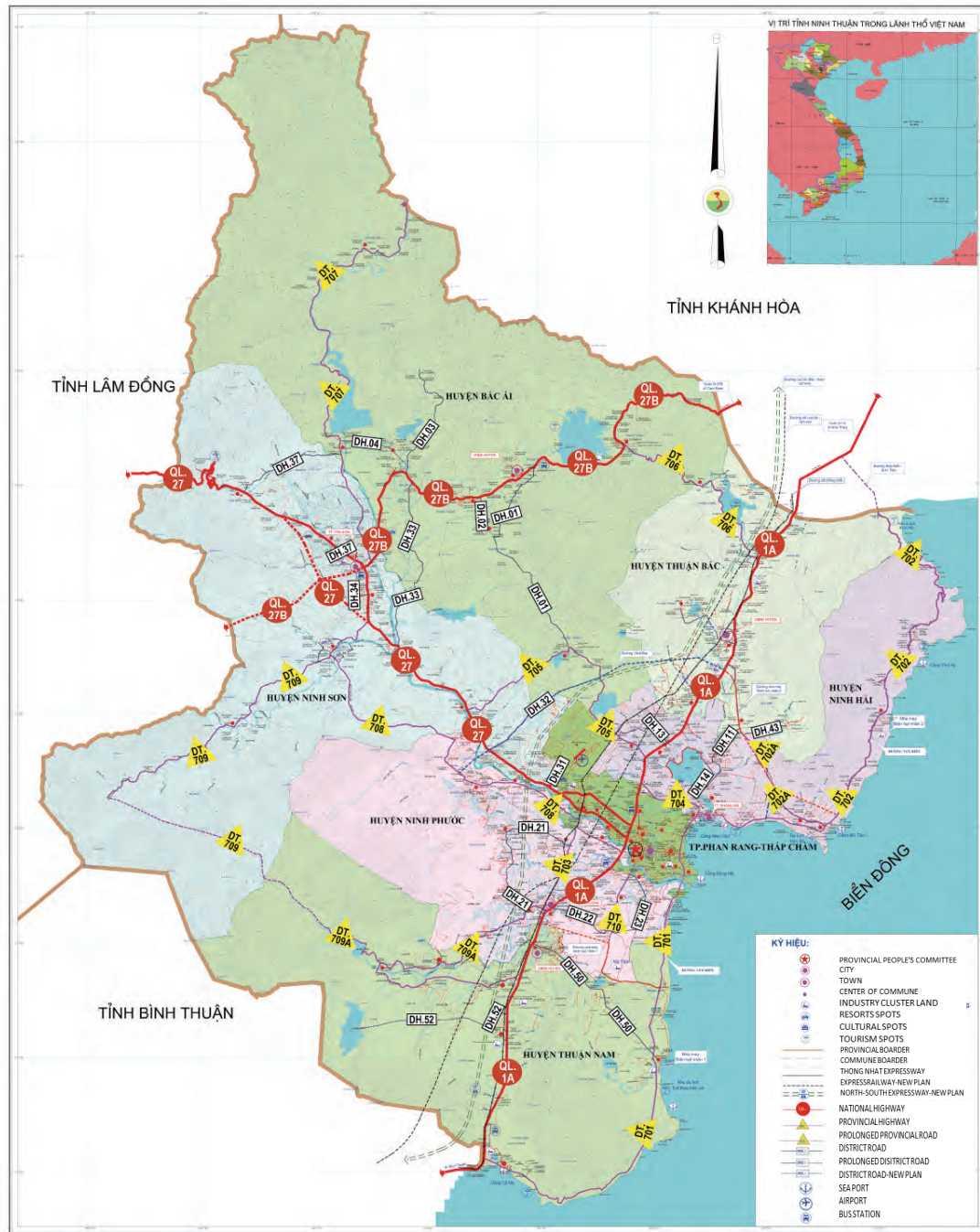


Figure 4.5.2 Road Network in Ninh Thuan

## (2) Urban and tourism roads

Future land use for new urbanization and special tourism spots is also given a great importance to determine the secondary transportation (road) function. The isolated high-class beach resort is the province's asset; thus the coastal road plays an important role in tourism development. New urbanization is the face of the next Phan Rang so that the city's road (i.e., DT 704) helps the capital city to be expanded and graded up from Grade 3 to 2. Nha Trang, the capital city of Khanh

Hoa now corresponds to Grade 2. In the future, until the year of 2020, Phan Rang will be equivalent to the status of Nha Trang. Road system inside Phan Rang must be functional in accordance with the direction of new urbanization. The coastal road (DT 701) from Ca Na in the southern area connects with another coastal road (DT 702) extending to Vinh Hy area, where high-class beach resort is to be built. The important thing is that the tip of DT 702 should be extended to NH 1A in order to transport tourists from the Cam Ranh Airport. The entrance of DT 702 should be exclusively for tourist passengers.

The Ninh Thuan Nuclear Power No. 2 is planned to be constructed near Thai An in Vinh Hai District. The southern part of the coastal road (DT 702) will be open to heavy trucks transporting equipment necessary for nuclear power plant operation. EVN's plan about the access road to Nuclear Power Plant No. 2 is shown in Figure 4.5.3. The access road planned will be extended from NH 1A to the southern part of the coastal road (DT 702). This plan should be discussed among the relevant authorities in order to minimize negative externalities expected from heavy trucks delivering equipment for nuclear power plant operation.

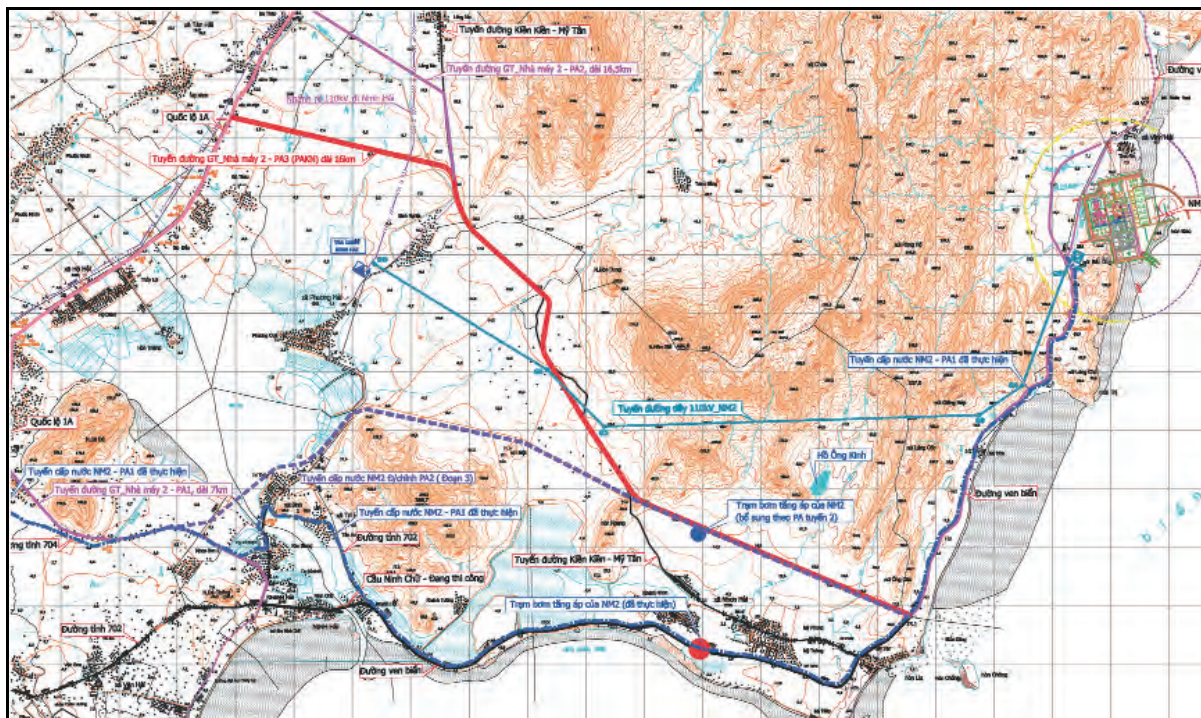


Figure 4.5.3 Access Road Plan to Nuclear Power Plant No. 2

## **4.6 Urban Development**

### **4.6.1 Background**

In the urban development sector, which includes Khanh Hoa and Binh Thuan, industrial development focused on tourism is developing with the utilization of logistics and traffic infrastructure such as seaport and airport. The planned urban development is progressing because private investment are used effectively. On the other hand, although Ninh Thuan has the same tourism resources, the delay of industrial development is remarkable because geographical conditions and urban infrastructure are still underdeveloped, and the planned urban development progresses too slowly. The survey in Ninh Thuan showed the present condition and issue about urban development in consideration of the actual condition of each province.

City development of Ninh Thuan Province is largely dependent on future industrial development. Land development should be carried out in response to the various needs of industrial development particularly on the sectors of industry, commerce, agriculture, tourism, etc. In respond to the progress of industrial development, the increase in labor, residential, and tourism population are expected, and the necessity for urban development will increase because the demands for residential, commercial establishment, offices, and hotels will eventually increase. At present, although there is an urban development plan in Phan Rang City of Ninh Thuan Province, and gradual improvement is observed, implementation is dependent on the socioeconomic circumstances, national budget, and foreign investment. Moreover, the development project is in a situation where the province faces difficulty in implementing its initiative.

In the viewpoint of raising the status of Ninh Thuan Province, which is behind in industrial development and strengthening for regional linkage with the neighboring provinces (Khanh Hoa, Binh Thuan, and Lam Dong), urban development plays an important role in a long-term period. Therefore, public investment should be implemented based on the industrial development projects and community development projects, which will be decided in the future, for efficient and effective implementation.









#### 4.6.2 Present Condition and Issues of Urban Development

##### (1) Phan Rang City

The old city of Phan Rang is formed along the north side of Dinh River as shown in Figure 4.6.2. The construction of the new town is developed along the arterial road which extends to the east side from the center of the old city. Although public facilities, such as administration institution and school, are mainly built in the new town, land usage for commerce, business, and residence is not progressing as planned. Urban development is advanced gradually even though industrialization is not yet developed. Currently, there is no demand on land, and as a result, there will be a slow progress on the development of land use. Therefore, the planned and efficient urban development is currently facing difficulties. The following present conditions and the issues of Phan Rang City are shown below:

- In Phan Rang, the drainage is located at the middle of the community road along the residential area, and some areas are easily inundated by small amount of rain. Moreover, there are towns that are frequently damaged by floods during rainy season due to lack of proper drainage facilities. Poor drainage aggravates environmental sanitation. Furthermore, there are many towns where the necessity for the drainage repair and construction is high. In consideration of future urbanization, examination for measures against flooding and environmental hygiene should be carried out through the formulation of a drainage master plan.
- Even though traffic congestion is not yet seen in city arterial roads, construction of the arterial road has been carried out as planned. On the other hand, the road in a particular community has narrow width and some areas are dangerous for passing vehicles. In consideration of prospective increase in number of motorized vehicles, the road condition (width in alignment) should be improved for healthy urban growth.
- Since considerable number of relocation of houses is expected for the execution of urban development, it is required to formulate the resettlement action plan with precedence development of the new address, and to execute it based on the plan.
- It is difficult to develop the whole region only by public investment, considering the financial condition, so the technique of inviting the private sector in urban development with industrial development is required.
- The land use concept is considered in the urban development plan, and it is necessary to formulate the plan in consideration of the condition of the development and preservation based on the present land demand and land use.

- There is a plan to absorb Dam Nai Lagoon area to Phan Rang in the future. Expansion of the city area corresponding to the increase in population has a risk of urban sprawl, and the regulation and guidance of development toward planned urbanization are required. Salt farm and aquaculture are prosperous in the Dam Nai Lagoon area, and it is considered as tourism resources, and the development utilized the present land use is required.

	
Photo 1__Development of the new town area did not follow land use.	Photo 2__Community road is flooded due to temporary downpour where the drainage function is inferior.
	
Photo 3 __ Road, which has a narrow width, makes the passing through of a motorbike or car dangerous.	Photo 4 __ Community road where the drainage function does not exist.
	
Photo 5 __ Fishing village where environmental pollution is getting worse due to the effluence of drainage coming from households and abandonment of garbage.	Photo 6__ Waterway always releases foul smell and causes frequent flooding during rainy season.

**Figure 4.6.1 Present Condition and Issues of Urban Infrastructure**



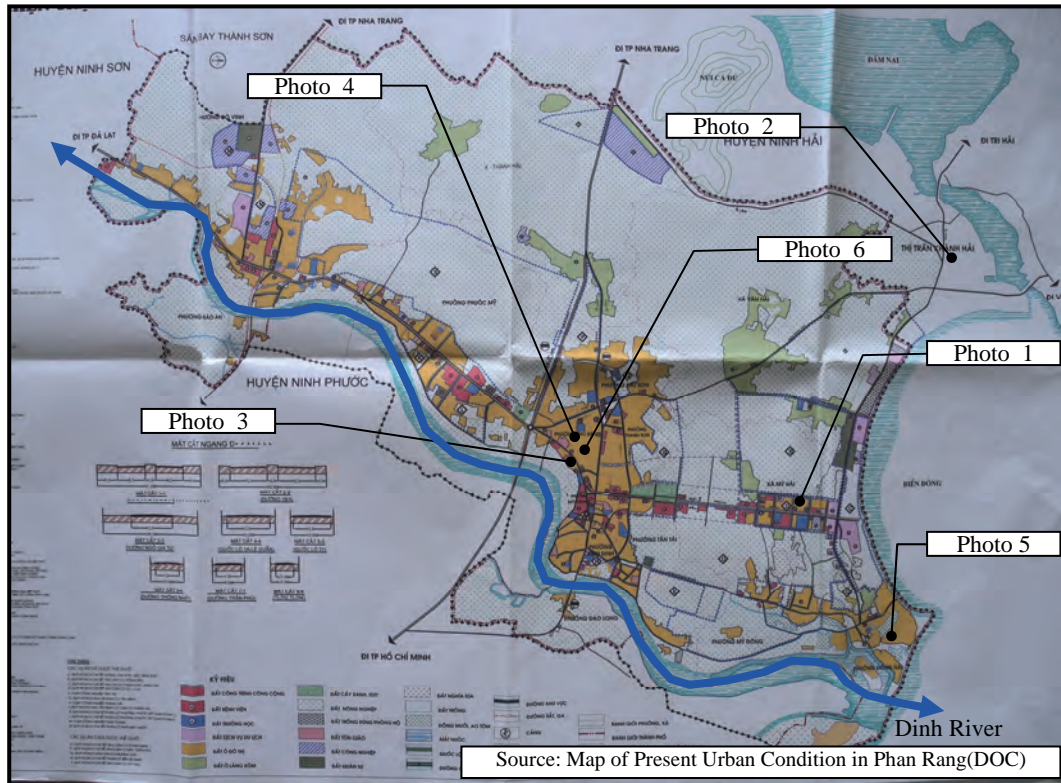


Figure 4.6.2 Map of Present Urban Condition in Phan Rang

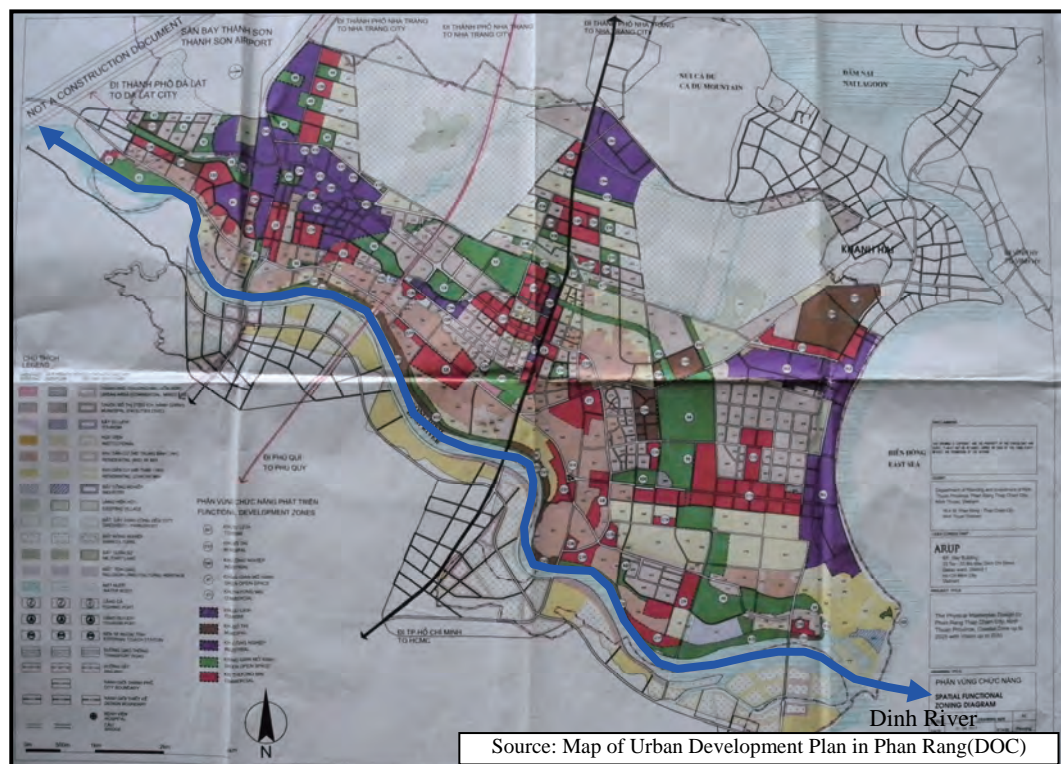


Figure 4.6.3 Map of Urban Development Plan in Phan Rang

(2) Districts other than Phan Rang City

Regional linkage of six districts other than Phan Rang City needs to be strengthened to support the industrial development through utilization of the local characteristic. The following features, present conditions, and issues of each district are shown below:

➤ Ninh Hai

Ninh Hai is a district with a natural scene of the sea and mountain including a Quasi-National Park. The promotion of tourism which utilizes the beautiful coastline is expected. At present, development of multi-functional resort facilities is under implementation. The of a nuclear power plant site (Thai An Village) is in this district. More precious natural environment exists in the neighboring seashore; thus, regional development in consideration of these environments is required. Salt manufacturing is also popular in the region, and regional development in order to promote this industry is also required.

➤ Thuan Bac

Thuan Bac is a district located between Cam Ranh and Phan Rang, which is the ideal location for gateway and cross border area development for industry development. The development project of large-sized industrial complex by private investment exists in Loi Hai. Moreover, urban development on the roadside of the National Road 1A has high potential; thus, planned promotion is required. Thuan Bac is a rural area focused on rice cultivation, so there is a need for rural development with an aim to improve the living environment.

➤ Bac Ai

Bac Ai is a district which is located in a mountainous area studded with farm villages. National Road 27B functions as an important route for physical distribution connecting Da Lat (mountain area) to Cam Ranh (port area). The flow of traffic is promoted by the new route construction of National Road 27, and the land use for service on the roadside is also expected in the future. Development aiming to improve the living environment of the farm villages is required in the short-term.

➤ Ninh Son

Ninh Son is characterized by farm areas located on the mountainous area. National Roads 27A and 27B connecting Da Lat, Phan Rang, and Cam Ranh are expected to become the connecting points of logistics for the mountain and coastal areas. However, the present condition of National Road 27 is poor. In effect, a safe and smooth transport is difficult. The new route construction plan of



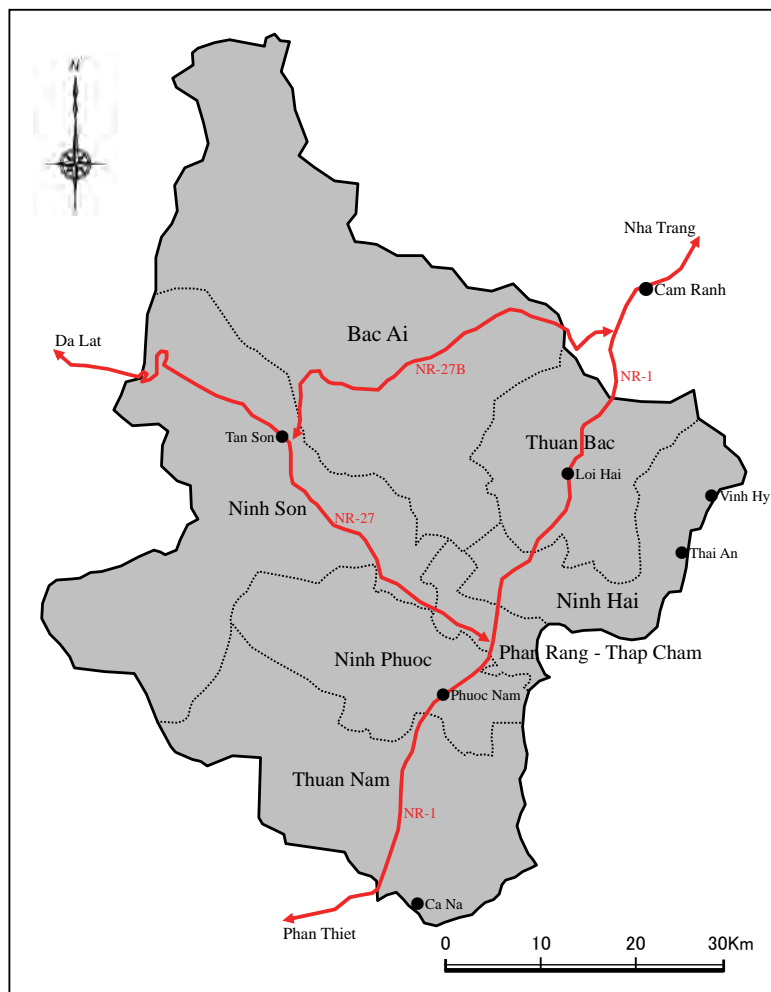
National Road 27 exists, and its condition is expected to be improved. Therefore, rural development utilizing the benefit of the improved logistic is required.

➤ **Ninh Phuoc**

Ninh Phuoc is a district of rural villages where many Cham people live. The Cham people have preserved their traditional culture, such as style of architecture, textile, language, festival, and faith. The traditional culture of Cham people serves as resources for tourism; thus, rural development on condition of the preservation is required.

➤ **Thuan Nam**

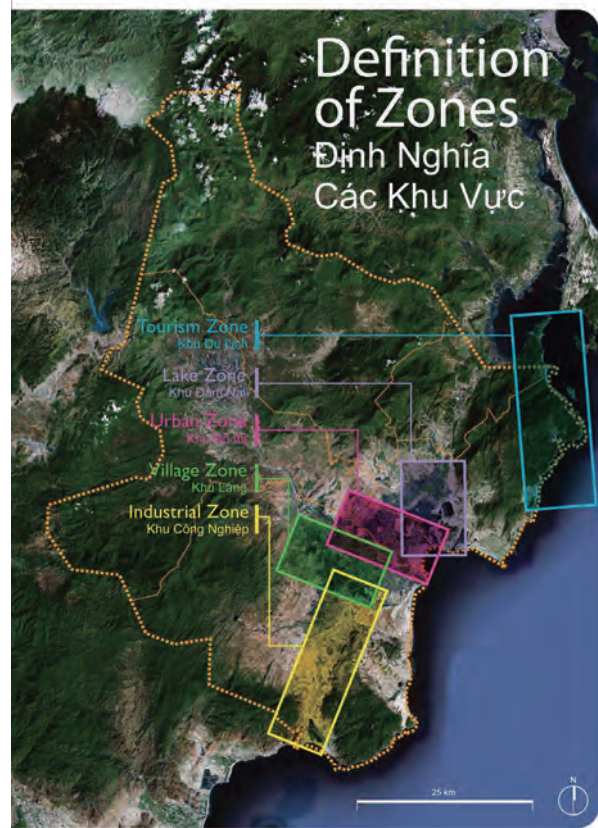
Thuan Nam is a district for nuclear power plant, wind power project, and solar power project. Therefore, energy-based industrial development is expected. Ca Na Harbor and National Road 1A perform an important infrastructure function in the industrial development. Thus, urban development towards industrialization using such infrastructure environment is required.



**Figure 4.6.4 Districts Position**

#### 4.6.3 A Sustainable Development Plan (Proposal of ARUP)

In the "sustainable development plan" which ARUP proposed, the development zoning area in Ninh Thuan Province is presented as follows.



**Figure 4.6.5 Map of Development Zoning**

Source : A Sustainable Development Plan (ARUP)

**Table 4.6.1 Development Zoning Area**

Area	Place	Development Outline
Urban Development Area	Phan Rang — Thap Cham	Preservation of valuable agriculture land and urban development based on the principle of 'compact city'
Local Development Area	Dam Nai Lagoon	Local development which leads to improvement of the existing agriculture and aquaculture
	Ninh Phuoc	Local development which leads to preservation of the existing farm village environment
Industrial Development Area	Thuan Nam	Industrial development which utilizes the National Road 1A and Ca Na and power generation plant
Tourism Development Area	Ninh Hai	Tourism development which utilizes the existing natural environment

Source : A Sustainable Development Plan (ARUP)

## 4.7 Water

### 4.7.1 Background

#### (1) National policy on water supply (National target)

The national target has been set for water supply, which is divided into two categories, namely urban water supply and rural water supply, and stimulated by the decision of Prime Minister 1929/2009/QD-TTg and 366/2012/QD-TTg, respectively.

**Table 4.7.1 National Target of Urban Water Supply**

City level	City Scale	Coverage Rate (Water quality shall meet the MOH Standard)	
		2015	2020
I	Hanoi and Ho Chi Minh City	90% 120 L/person/day	90% 120 L/person/day
II	Over 300,000 population	90% 120 L/person/day	90% 120 L/person/day
III	Over 150,000 population	90% 120 L/person/day	90% 120 L/person/day
IV	Over 50,000 population	70% 100 L/person/day	90% 120 L/person/day
V	Over 4,000 population	50% (no description)	70% 100 L/person/day

Source: Decision of Prime Minister 1929/2009/QD-TTg

**Table 4.7.2 National Target of Rural Water Supply**

	Water Category	2015 (End of the Year)	
		Access to Clean Water	Access to MOH Standard Water
1	Daily life water	85% 60 L/person/day	45%
2	School and hospital	100%	(no description)

Source: Decision of Prime Minister 366/2012/QD-TTg

In the rural water supply, the access rate to “clean water” is higher than “the MOH standard water”. It is because “clean water” is defined as drinkable water including ground water, stream water, and rain water. It has to be noted that “clean water” and “MOH standard water” is not the same. Urban water supply shall meet the MOH standard, so it could be said that the targets of “clean water coverage rate” and “MOH standard water rate” are the same.

#### (2) Finance for water supply and state support

In the decision of Prime Minister 366/2012/QD-TTg, the financial resources are also prescribed to achieve the target of rural water supply. It shows that the investment for water supply and sanitation in rural area in 2012-2015 is VND 27,600 billion in total, of which 14.9% and 11.2% are provided by the central government and the local government, respectively. The other 29.7% is planned to be covered by international support and 44.2% by private sectors such as bank loan. For the priority areas such as ethnic minority, mountainous, coastal island,

and the national border, the central government supports 90% of the construction cost.

On the other hand, there will be no central government support for urban water supply. The project owner must cover the construction cost as well as the operation cost through imposition of water tariff. It means that the private sector including foreign companies can competitively invest into this market in addition to public investment.

### (3) The role of MOC and MARD

In Vietnam, two ministries manage the water supply, which is divided into urban water supply and rural water supply. At the central government level, MOC manages the urban water supply and MARD manages the rural water supply. On the other hand, at the local government level, DOC, the local branch of MOC, manages the urban water supply and DARD, the local branch of MARD, manages rural water supply.

Basic rule is that urban water supply covers the cities and towns, and rural water supply covers the communes. Non-agricultural use such as industrial zone or tourism zone is covered by MOC even if it exists in the rural area. Due to practicality, if the project is financially feasible, any water supply company or other private sector can invest freely into the water supply market under DOC management even in the rural area. Governmental rule is only a fundamental manner, but economical reason will precede the basic rule practically. At the planning stage in some cases, demarcation for urban or rural is not clear; therefore, urban water supply system (MOC) and rural water supply system (MARD) need to make their plan parallel in order to arrive with a holistic approach.

Generally, it is difficult to construct water supply system in rural areas, because it is not financially viable serving only a small population. Usually, these rural areas are covered by rural water supply system with the support of the government. However, some rural communes close to urban area could be covered possibly by the urban water supply system. Or in case of city/town merging communes, or commune raising to town, etc., the local government will judge the jurisdiction of department by an official decision.

#### 4.7.2 Present Situation of Water Supply in the South Central Coast Area

##### (1) Basic information of the provinces

Table 4.7.3 shows the population, area, and number of city/town/commune of each province. It helps to image the total water demand which includes some urban areas and huge number of small-scale rural areas.

**Table 4.7.3 Population, Area, and Number of City/Town/Commune**

	Population (persons)	Area (ha)	City (Thanh Pho)	Small City (Thi Xa)	District (Huyen)	Town (Thi Tran)	Commune (Xa)
Khanh Hoa	1,160,900	5193.2	2	1	6	6	99
Ninh Thuan	574,600	3356.3	1	0	6	3	47
Binh Thuan	1,166,900	7809.3	1	1	8	12	97

Source: Official website of each province

Thanh Pho is a “city” in which the population is generally 100-400 thousands. Thi Xa, which is between a city and town, directly belongs to the province, and has same the number of population as of a city. Thi Tran is a “town” with 10-20 thousands population, and Xa is “commune” with 1-5 thousands population. Both of them belong to a district (huyen).

##### (2) Present situation of water supply in each province

Table 4.7.4 shows the present situation and the future targets on water supply in the three provinces. Each number is described in two lines because the urban and rural are separately managed by DOC and DARD.

**Table 4.7.4 Present Situation and Future Target of Water Supply**

	At Present					Future Targets	
	Number of WSS		Capacity (m3/day)	% of Achieving MOH Standard	% of Access to Clean Water	% of Achieving MOH Standard	% of Access to Clean Water
Khanh Hoa	Urban WSS	6	93,000	Around 80%	-	Follow national target	
	Rural WSS	4	5,854	20%	83%	95% (2015)	95% (2015)
Ninh Thuan	Urban WSS	4	74,500	80%	-	90% (2015)	-
	Rural WSS	55	23,969 (main: 38 plants)	50%	79%	85% (2015)	95% (2015)
Binh Thuan	Urban WSS	6	65,000	Around 90%	-	Follow national target	
	Rural WSS	60	6,000	32%	40%	85% (2020)	85% (2020)

Source: Interview comments and description in June 2012

According to the urban water supply, the three provinces have already achieved 80-90% water supply coverage and have not find any significant problem to reach the 2015 target. On the other hand, in rural areas, only 20-50% people received safe water based on the MOH standard and only 40-83% have access to clean water including groundwater, stream, and rain water. Binh Thuan has the lowest percentage among the three provinces due to shortage of water source from rivers and dam storage.

#### 4.7.3 Present Situation and Issue of Water Supply in Ninh Thuan Province

##### (1) Urban water supply

Table 4.7.5 shows existing urban water supply plants in the Ninh Thuan Province.

**Table 4.7.5 Existing Urban Water Supply Plants in Ninh Thuan**

No.	Name of Water Supply System	Capacity (m <sup>3</sup> /day)	Performance	Investor
1	Phan Rang City Water Plant	52,000	Covering whole Phan Rang – Thap Cham City, part of Ninh Hai, Ninh Phuoc and Thuan Nam Districts. Reinforced by ADB project in 2009. Actual supply amount is 30,500 m <sup>3</sup> /day.	Provincial Water Supply Company
2	Nhon Hai Pump Station	4,000	Boost the water from Phan Rang WP supplying to some parts of Nhon Hai commune. Constructed by ADB project in 2011.	Provincial WSC
3	Phuoc Dan Water Plant (now used as a pump station)	8,000	Boost the water from Phan Rang WP supplying to Phuoc Dan town and some communes in Ninh Phuoc District and three communes in Thuan Nam District. Installed by ADB project in 2011. The old plant had stopped its operation.	Provincial WSC
4	Phuoc Nam Water Plant	10,000	This plant was constructed to supply water for two industrial zones in Thuan Nam District in 2011, but not yet operated because the industrial zones are not developed and there is no water demand.	DOC
5	Tan Son Water Plant	2,000	Covering Tan Son town.	Provincial WSC
6	Dong My Hai Water Plant	2,500	Supply to some parts of Phan Rang – Thap Cham City. Use underground water for its water source.	Private WSC

Source: Data source: interview comments and description in June 2012

The Water Plant in Phan Rang Thap Cham City (52,000 m<sup>3</sup>/day) was constructed in 2009 by ADB fund, covering the entire city area, and a town and a commune in the Ninh Hai District. Furthermore, it was branched into two booster pump

stations of Nhon Hai and Phuoc Dan to supply water to some parts of Ninh Phuoc, Thuan Nam, and Ninh Hai Districts. These pump stations were constructed by ADB project in 2011. In addition, there is one small-scale water plant (2500 m<sup>3</sup>/day, Dong My Hai Water Plant) covering some parts of the coastal area of Phan Rang-Thap Cham City.



**Figure 4.7.1 Phan Rang Water Plant**

These two water plants and two pump stations covers 80% of the city and surrounding area's population, and there are no particular issues in supplying water in these areas. Another urban water supply is the Tan Son Water Plant (2000 m<sup>3</sup>/day), supplying clean water to Tan Son town area on the National Road 27, which is also well operated. Cities and towns in the Ninh Thuan Province have no particular issues on water supply at present.

The Phuoc Nam Water Plant (10,000 m<sup>3</sup>/day, completed in 2011) is not for domestic water use, but for the industrial zones in Thuan Nam District. DOC is the investor and provincial water supply company responsible for the operation. Since the industrial zones have not been developed as originally planned and there are no water demands yet, the Phuoc Nam Water Plant has not started its operation at present (June 2012).

Another noteworthy issue is the Nhon Hai Pump Station. This pump station (4000 m<sup>3</sup>/day) was planned to cover the whole two communes of Nhon Hai and Thanh Hai in Ninh Hai District, but it supplies only some part of Nhon Hai commune with rural water supply after the territory delineation, which causes the operation rate to be extremely low. The rural water supply system named "My Tuong Water" has been funded by JICA, therefore, two ODAs were providing assistance in the small rural area at the same time.

All the water source of urban water supply except Dong My Hai Water Plant (2500 m<sup>3</sup>/day) originates from Dinh River. Da Nhim Hydropower in Dac Lac Province discharges water of 12~24 m<sup>3</sup>/sec into one branch of upper Dinh River, which provides stable water source throughout the year. Ninh Thuan Province has several dams and lakes for irrigation which also contribute to the stable water supply.



## (2) Rural water supply

There are 55 rural water plants existing in Ninh Thuan Province which cover around 50% of the total population in the rural area.

Figure 4.7.3 shows the map of non-supplied area, in which the red color represents the non-supplied commune while the yellow mark represents the partially-supplied communes. There exists non-supplied communes remarkably in the mountainous areas of the north (Bac Ai District), the west (Ninh Son District), the middle (Thuan Bac District), and in the south coastal area (Thuan Nam District). Stream and rain water are used for daily life in the non-supplied areas as well as wells too.

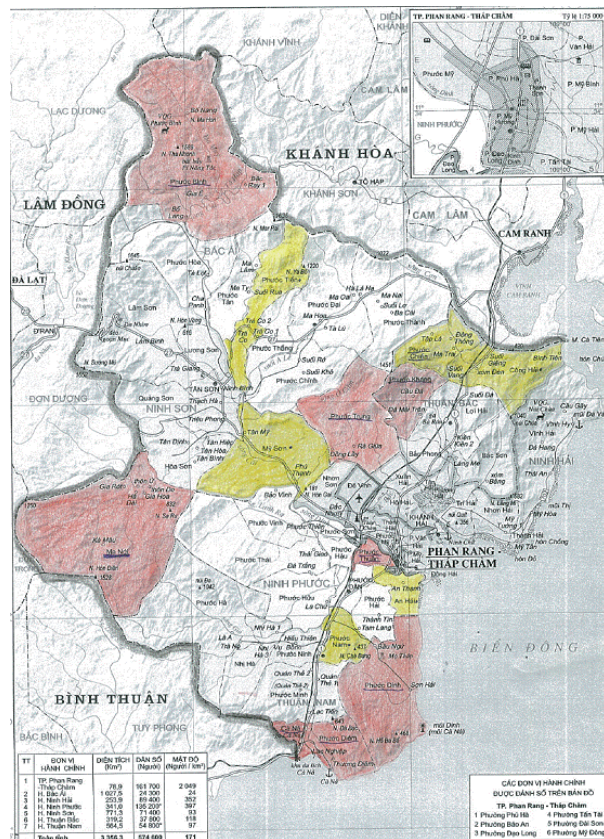
The scale of rural water plant varies depending on the area. One commune (Xa) is usually composed of several villages called *thon* in Vietnamese, which is the smallest unit of social life with several hundreds of

households. The smallest scale of rural water system covers one village, some water supply systems supply several villages while others cover the whole commune (around 1,000 households). Recently, the commune level system has increased of individual village level system.

Operating bodies of water supply system are “the center of water supply and



**Figure 4.7.2 Rural Water Supply Plant Commune Level (Supply for six villages)**



**Figure 4.7.3 Map of Non-Supplied Communes**  
(red=non-supplied, yellow=partially supplied)



sanitation system in rural area”. The DARD operates for commune level and the cooperatives operate for village level system.

The construction cost is hardly covered by the water fees in such small-scale system. Only the operation cost is covered by the water fee with the support of the central and/or local government budget.

The water sources for rural supply mainly originate from two kinds. One is the irrigation canals originating from Nha Trinh Weir at the midstream of Dinh River. It has two canals irrigating both sides of Dinh River (called the North Canal and South Canal). The other comes from the small streams or irrigation dams in the mountainous area. Groundwater is not used, especially in the coastal area where underground water contains salt and not suitable for drinking. JICA already implemented boring test of groundwater at eight points in Ninh Thuan Province. The result implicated that there were no economical water sources from underground.



**Figure 4.7.4 Nha Trinh Weir**



**Figure 4.7.5 South Irrigation Canal**

There are some urgent problems in rural water supply. One is the water quality and quantity of the South Canal, which was originally constructed for agricultural purpose and also for drainage of agricultural wastewater which is recently polluted by chemicals. The water quantity is also affected by agricultural usage. Furthermore, the intake gate must be closed for annual maintenance which causes the canal to dry up for a month.

The other problem, as described above, is the inaccessibility of clean water for some rural villages. These villages in the mountainous and coastal areas where the minority group lives are remarkably under bad condition. These areas are listed in the priority support of the government but the budget is not enough to cover all the areas until the target year.

#### 4.7.4 Future Water Supply in Ninh Thuan

##### (1) Projects of urban water supply in Ninh Thuan

DOC of Ninh Thuan Province has formulated the master plan of urban water supply according to the future demand as shown in Table 4.7.6. This master plan is mainly for the water use of industrial and economic zones and/or tourism. Supplying water for the new town area is a minor portion.



**Figure 4.7.6 Song Sat Dam**

**Table 4.7.6 Urban and Industrial Zone Water Supply Projects in Ninh Thuan**

No.	Project Name	Capacity (m <sup>3</sup> /day)	Performance	Investor
1	Water supply for relocated residents of No.1 Nuclear Power Plant	2,000	Booster pump station and supply network in Thuan Nam District from existing Phan Rang Water Plant	EVN
2	Water supply for relocated residents of No.1 Nuclear Power Plant	2,000	Booster pump station and supply network in Ninh Hai District from existing Phan Rang Water Plant. Planning to transfer in 2014	EVN
3	Water supply for the No. 1 Nuclear Power Plant	12,000	Limited use for No. 1 Nuclear Power Plant in Thuan Nam District	EVN
4	Water supply for the No. 2 Nuclear Power Plant	12,000	Limited use for No. 2 Nuclear Power Plant in Ninh Hai District	EVN
5	Thanh Trung Water Supply Plant	6,000	Water supply system for the tourist area in northern Thuan Bac District using the Song Chau Dam water. Will be completed in September 2012	Private company (already)
6	Thanh Hai Water Supply Plant	20,000	Water supply system for Thanh Hai new urban area and some tourism area in Ninh Hai District, and Du Long Industrial Zone in Thuan Bac District, using water from Dinh River	Not yet
7	Reinforce the Phuoc Nam Water Supply Plant	10,000	Water supply system for tourism areas like Son Hai and Phuoc Dinh Industrial Zone in Thuan Nam District using water from Dinh River	Not yet
8	Reinforce the Tân Sơn Water Supply	4,000	Water supply system for Tan Son Town and some communes in Ninh	Not yet

No.	Project Name	Capacity (m <sup>3</sup> /day)	Performance	Investor
	Plant		Son District.	
9	Thuan Bac District Water Supply Plant	4,000	Water supply system for Loi Hai commune (district center) and the surroundings in Thuan Bac District.	Not yet
10	Bac Ai District Water Supply Plant	4,000	Water supply system for Phuoc Dai commune (district center) and the surroundings in Bac Ai District.	Not yet

Source; Interview comments and description in June 2012

Among the ten projects in the table above, items [1] to [4] are related to nuclear power plants and invested by EVN. Thanh Trung WSP, that is item [5], which supplies for the tourism area in the northern Thuan Bac District, is invested by a private developer of the resort. These five projects are private investments and out of ODA loans.

The Thanh Hai Water Supply System, that is item [6], is promoted by DOC of Ninh Thuan Province to supply for the new urban area, since Thanh Hai commune is expected to be a county town in 2015 (now Thanh Hai commune), in conjunction with the new industrial zone in Thuan Bac District (Du Long Industrial Zone) and the new coastal tourism in Ninh Hai District.

Water demand of each development was estimated as shown in Table 4.7.7. Most of the Thanh Hai Water Supply Plant capacity of 20,000

**Table 4.7.7 Demand Plan of Thanh Hai Water Plant**

	Phase I (2010~2020)	Phase II (2020~2030)
Thanh Hai New Urban	500 m <sup>3</sup> /day	2000 m <sup>3</sup> /day
Du Long IZ	14500 m <sup>3</sup> /day	21500 m <sup>3</sup> /day
Coastal Tourism	Not yet estimated	
Sum	15000 m <sup>3</sup> /day +tourism	23500 m <sup>3</sup> /day +tourism

m<sup>3</sup>/day is strongly devoted to industrial water particularly for Du Long IZ. Therefore, this project should be scheduled carefully looking at the progress of Du Long Industrial Zone and other water demands. Moreover, coordination with other projects in Ninh Hai District, like items [2] and [4] on the water source and demand, is needed.

Phuoc Nam water supply project, listed as item [7] is planned to supply water for Son Hai and Phuoc Dinh Industrial Zone and some tourism areas in Thuan Nam District. This project is now in the same situation as Ninh Hai project and should be implemented considering the progress of water demand projects.

Items [8], [9], and [10] are projects which aim to supply water for the central town and communes of each district. These three projects require coordination in order to determine the territory delineation with rural water supply before the investment by the provincial committee.

DOC has no reinforcement plan of domestic water supply for Phan Rang Thap Cham City and the surrounding areas. It is reasonable because the capacity of Phan Rang Water Plant has been expanded in 2009 and has some surplus at this moment. The actual volume of supplied water is about 30,000 m<sup>3</sup>/day for the capacity of 52,000 m<sup>3</sup>/day in August 2012. According to the FS document drawn in 2001, the population of Phan Rang Thap Cham City, including the surrounding supply area, was predicted to be 335,000 people in 2020 with water demand of 75,000 m<sup>3</sup>/day. In fact, the population increase is much lower than the prediction, i.e., the existing water plant will cover the planned supply area until year 2020, when the population in Phan Rang Thap Cham City and the surrounding areas grows up to 220,000 and 50,000, respectively.



Figure 4.7.7 Location of Urban Water Supply Projects



(2) Projects of rural water supply in Ninh Thuan

DARD Ninh Thuan presented four urgent projects as shown in Table 4.7.8.

**Table 4.7.8 Rural Water Supply Projects in Ninh Thuan**

No	Project Name	Performance	Estimated Cost (Billion VND)
1	South Canal Improvement Project (Raw water pipe installation)	Install the raw water pipe along the South Canal from Nha Trinh Weir to provide raw water for seven existing rural water plants. Water volume; 66,000 m <sup>3</sup> /day Supplied for 70,000 persons (Cham ethnic area)	80
2	Ma Noi Commune Water Plant	Install the rural water plant at Ma Noi commune in Ninh Son District. DacLay ethnic and poor area. Capacity; 378 m <sup>3</sup> /day, supplied for 3,800 persons	17
3	Phuoc Trung Commune Water Plant	Install the rural water plant at Phuoc Trung commune in Bac Ai District. DacLay ethnic and poor area. Capacity: 350 m <sup>3</sup> /day, supplied for 3,000 persons	18
4	Phouc Dinh Commune Water Plant	Install the rural water plant at Phuoc Dinh commune in Thuan Nam District (No.1 Nuclear Power Plant area) Capacity; 1,200 m <sup>3</sup> /day, supplied for 9,000 persons	25

Source; Report of DARD and interview comments in June 2012

South Canal Improvement Project, listed as item [1] in the above table, plans to install raw water pipe along the South Canal from Nha Trinh Weir together with raw water supply pump. On both sides of the canal, seven rural water plants will provide water for 70,000 persons in Ninh Phuoc District, which is the area of Cham ethnic group. Seven plants now use canal water but the quality is not suitable for water source because it is contaminated by chemicals and other materials from agricultural wastewater. The new raw water pump and pipes will supply 66,000 m<sup>3</sup>/day and project cost is estimated about VND 80 billion (JPY 320 million).



**Figure 4.7.8 Water Quality of Ma Noi River**

Items [2], [3], and [4], are projects which aim to install new water plants in the non-supplied communes. Target communes are item [2] Ma Noi in Ninh Son District (378 m<sup>3</sup>/day, 3800 persons), item [3] Phuoc Trung in Bac Ai District (350 m<sup>3</sup>/day, 3000 persons), and item [4] Phuoc Dinh in Thuan Nam District (1200 m<sup>3</sup>/day, 9000 persons). The project cost is VND 17-25 billion (JPY 58-100 million). Ma Noi and Phuoc Trung communes are areas for Dac Lay ethnic residents and considered as poor areas. Phuoc Dinh is the host commune for No.1 Nuclear Power Plant.

In Ma Noi commune, there are some common traps (no treatment water) in central area taken 5 km upstream of Ma Noi River, which covers 100 families (500 persons)

only. The other 80% of the total number of families tap river water and rain water for domestic use and drinking. Groundwater is very poor in this mountainous area after 100 m depth test bowling. Rain water stored in the tank is used in short rainy season while river water from Ma Noi River is used by the commune in dry season. However the water is not suitable for drinking.

Phuoc Trung commune only has a small water supply system (116 m<sup>3</sup>/day) which only good for 100 families (500 persons) of dam relocated residents and almost all villagers have no water supply service. The villagers use the O'Cam River water for domestic and drinking use, but it is not suitable for drinking. They are planning a new rural water supply system for 300 people of the three villages with water source coming from upstream of O'Cam River

Phuoc Dinh commune has no river to supply water to the community. Groundwater is being used, which is contaminated with sea water making it unsuitable for drinking.



**Figure 4.7.9 House in Ma Noi Commune**



**Figure 4.7.10 Take River Water  
in Phuoc Trung Village**

Generally speaking, rural water supply is so small in scale and the tariff is rather low compared with the rate in urban area, which makes the business financially not feasible. The central government supports the poor minority area in the priority through the decision of Prime Minister 366/2012/QĐ-TTg, but the total budget is limited to achieve the target of 85% people having access to clean water based on the MOH standard in 2015.

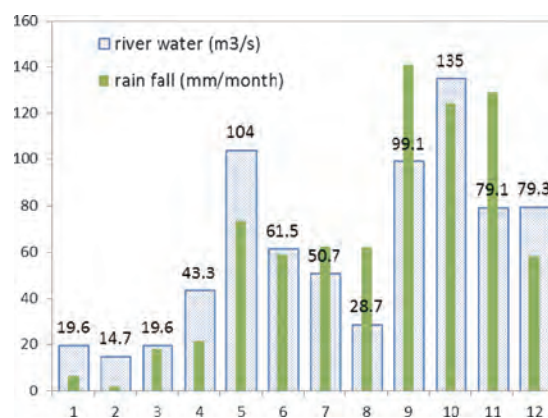
### (3) Water source balance

Almost all urban water systems in Ninh Thuan Province are using the Dinh River water for their water sources as well as planned water plants.

Figure 4.7.11 shows the water source of Dinh River. Dinh River has three main water sources as follows: [1] discharged stream of Da Nhim hydropower plant, [2] the Cai River flows down from Khanh Hoa Province, and [3] discharged water of Song Sat Dam, meeting at Tan My point. The river flows down to Nha Tring Weir, where it branches off into the North and South irrigation canals, while the main flow goes down to another weir of Lam Cam, where urban water supply and some agricultural irrigation where taken, then goes through Phan Rang Thap Cham City area reaching into the sea. Other water sources other than the stated above are ignorable in the supply demand balance due to limited water level in dry season.



**Figure 4.7.11 Map of Water Source  
of Dinh River**



**Figure 4.7.12 Rainfall and River Flow Rate**

Figure 4.7.12 shows the monthly data of rainfall and flow rate of the Dinh River at

Nha Trinh Weir. Ninh Thuan has eight months of dry season (January to August) and four months of rainy season (September to December), in which January to March is the serious drought season. As to the supply demand balance in these three months, the flow rate of the Dinh River is only  $14.7 \sim 19.6 \text{ m}^3/\text{sec}$  (occurrences 75%), the designed demand of North and South canals is  $12.5+7.0=19.5 \text{ m}^3/\text{sec}$ . It means that the demand exceeds the supply considering the water demand of downstream city. In the survey, the interviewee said they made an agreement to reduce water from the canals during these three months to secure domestic usage.

Focused into the water source during the three-month drought period, almost all the water coming from the Da Nhim Hydropower Plant (EVN) is used for irrigation, which is the lifeline of agriculture in this area. The Director of Irrigation Section in DARD frequently asked the Da Nhim's Director to secure the water level of Dinh River.

On the other hand, the capacity of urban water supply taken from Dinh River is about  $70,000 \text{ m}^3/\text{day}$  at present. Another  $60,000 \text{ m}^3/\text{day}$  is planned to be added, which will be converted into  $0.81 \text{ m}^3/\text{sec}$  and  $0.64 \text{ m}^3/\text{sec}$ , respectively, i.e., an equivalent of around 10% of the river flow rate in February, that is the minimum month. This seems a little percentage taken from the water source but still painful for the farmers to reduce the water in the canals resulting to cut down in agricultural production. DARD and DOC understand such situation of demand supply balance; thus, a new dam is now under construction located at the upstream of Cai River, and another dam is being planned in Tan My, which is the meeting point of the three water sources. DARD and DOC both pointed out that they can get enough water supply once these new dams are completed.

#### 4.7.5 Actual Situation and Future Plan of the Drainage in Ninh Thuan

There are serious floods in the Ninh Thuan Province, particularly in Phan Rang Thap Cham City, Khanh Hai town, Phuoc Dan town, and some rural areas. There is an action plan of urban drainage which successfully got the support from other donors, i.e., ADB-IV project (2012-2014) in Phan Rang Thap Cham, Belgium ODA in Khanh Hai town and Phuoc Dan town. These ODA projects do not cover the whole flooding area in the city or town, therefore, there is a need to discuss "who covers where" before a new ODA project is planned because the city is not as big as HCMC or Hanoi.

Another priority area is the "comprehensive flood control plan" in Phan Rang Thap Cham City including Dinh River embankment and high tide protection wall.



Serious flooding occurred in the city not only due to rainfall, but also due to high tide or the overflow of Dinh River. It means that the urban drainage system is a part of the “comprehensive flood control plan”.

#### 4.7.6 Domestic Water Treatment in Ninh Thuan Province

There is one domestic water treatment plant operating in Phan Rang Thap Cham City with a capacity of 5000 m<sup>3</sup>/day, which has started its operation in July 2011. The main procedure is “lagoon with mechanical aeration” and the third lagoon roles the sludge sedimentation basin.

This plant is installed as one of the five model plants of “provincial domestic water treatment” promoted by MOC in 2009 and transferred to Phan Rang Thap Cham City after its completion in 2011. Unfortunately, it is not operating at present due to pump maintenance, but it seems that the operation has stopped for at least a month by the appearance of glasses on the last pond dried up.

The capacity of 5000 m<sup>3</sup>/day can cover 130,000~150,000 people as much as the population of Phan Rang Thap Cham City at present. This capacity, however, is not enough to cater the water demand of the future population of the city, but this is not urgent enough to reinforced as a priority project from the viewpoint of the whole country since domestic water treatment is still on the stage of a model project.



**Figure 4.7.13 Domestic Water treatment Plant in Phan Rang (first pond)**



**Figure 4.7.14 Domestic Water Treatment Plant in Phan Rang (last pond)**

## 4.8 Education

### 4.8.1 Background

#### (1) Education system in Vietnam

##### i) General education

The primary education is the first stage of schooling and it covers five years of study, i.e., from Grade 1 to Grade 5. It is then followed by lower secondary education which covers four years of study, i.e., from Grade 6 to Grade 9. Primary and lower secondary schools are being managed by the Division of Education and Training under DPC. School children proceed to upper secondary education which covers three years of study from Grade 10 to Grade 12. Upper secondary school is being managed by the Department of Education and Training (DOET) under PPC.

##### ii) Higher education and post graduate education:

College level education offers two to three years of study for students who graduated upper secondary school or intermediate degree.

**Table 4.8.1 Education System in Vietnam**

Higher Education	University	College		
Secondary Education	Upper Secondary Education	Vocational Education	Professional Secondary Education	Medical High School
	Lower Secondary Education	Vocational Training		
Primary Education	Primary Education			
Pre-primary Education	Kindergarten			

#### (2) Millennium Development Goals (MDGs) in Vietnam

In 2000, 189 nations made a covenant to free people from extreme poverty and multiple deprivations. This pledge will materialize through the realization of the eight MDGs. Vietnam has taken various actions to achieve these goals.

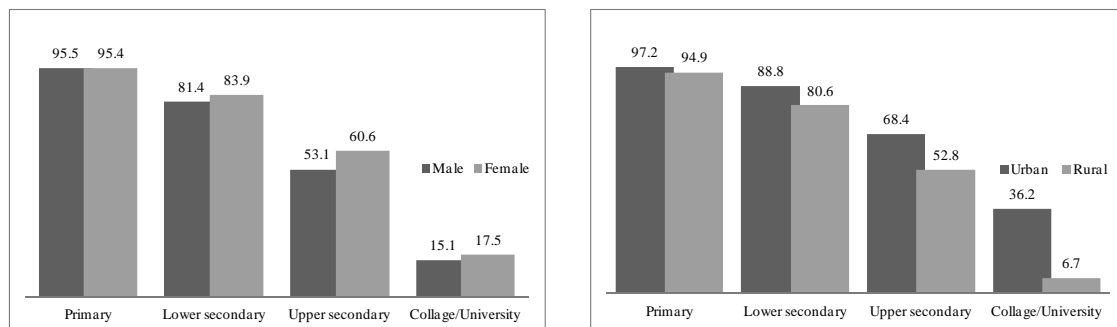
The MDG 2 which aims to “Achieve Universal Primary Education” has made significant progress in Vietnam. In 2009, the net enrollment in primary school was 97%, of which 88.5% of children who entered primary school completed the five years of primary education. Moreover, over 90% of those who completed the five years of primary education continued to enroll in the lower secondary education, with no significant differences between regions or between urban and rural areas.

Vietnam also shows good gender parity, with almost half the number of students being female in both primary and secondary education (UNICEF, 2011). Ninh Thuan, Khanh Hoa, and Binh Thuan Provinces have also been trying to achieve MDG 2.

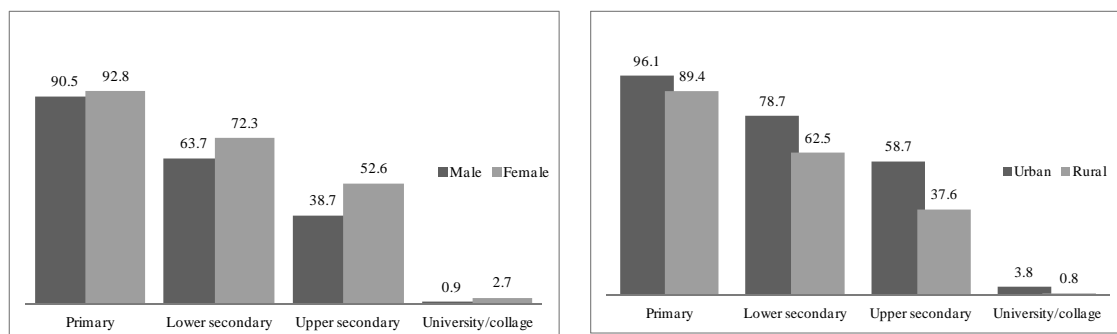
#### 4.8.2 Present Situation of Education

##### (1) Basic information of the provinces

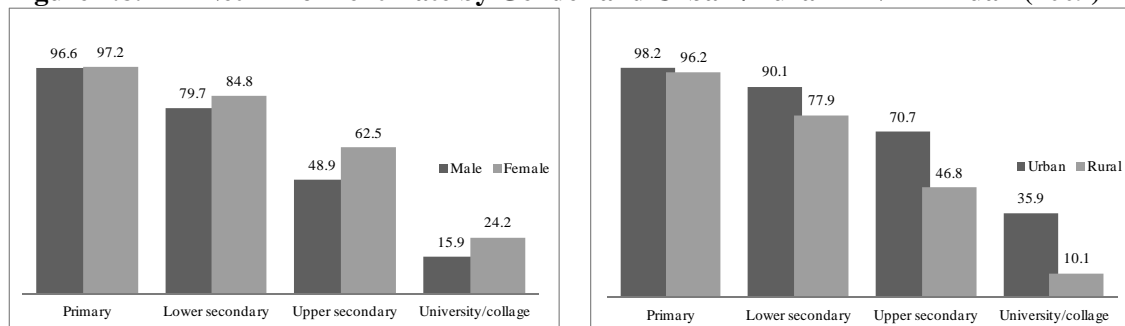
##### i) Enrolment rate by gender in urban /rural provinces



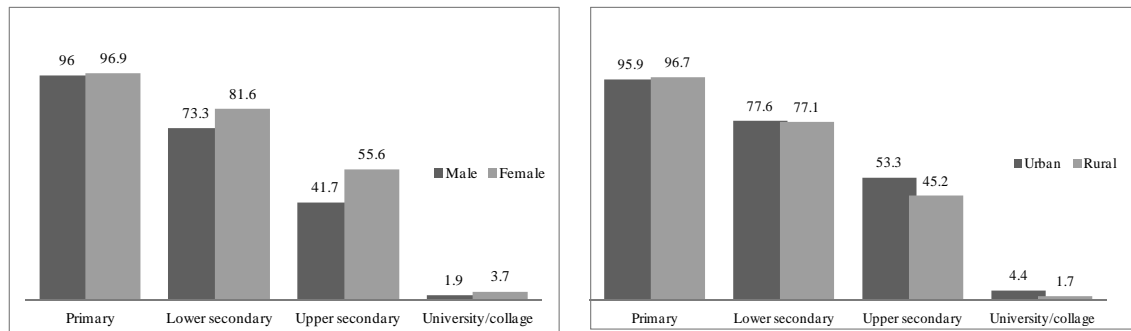
**Figure 4.8.1 Net Enrolment Rate by Gender and Urban /Rural in Vietnam (2009)**



**Figure 4.8.2 Net Enrolment Rate by Gender and Urban /Rural in Ninh Thuan (2009)**



**Figure 4.8.3 Net Enrolment Rate by Gender and Urban /Rural in Khanh Hoa (2009)**

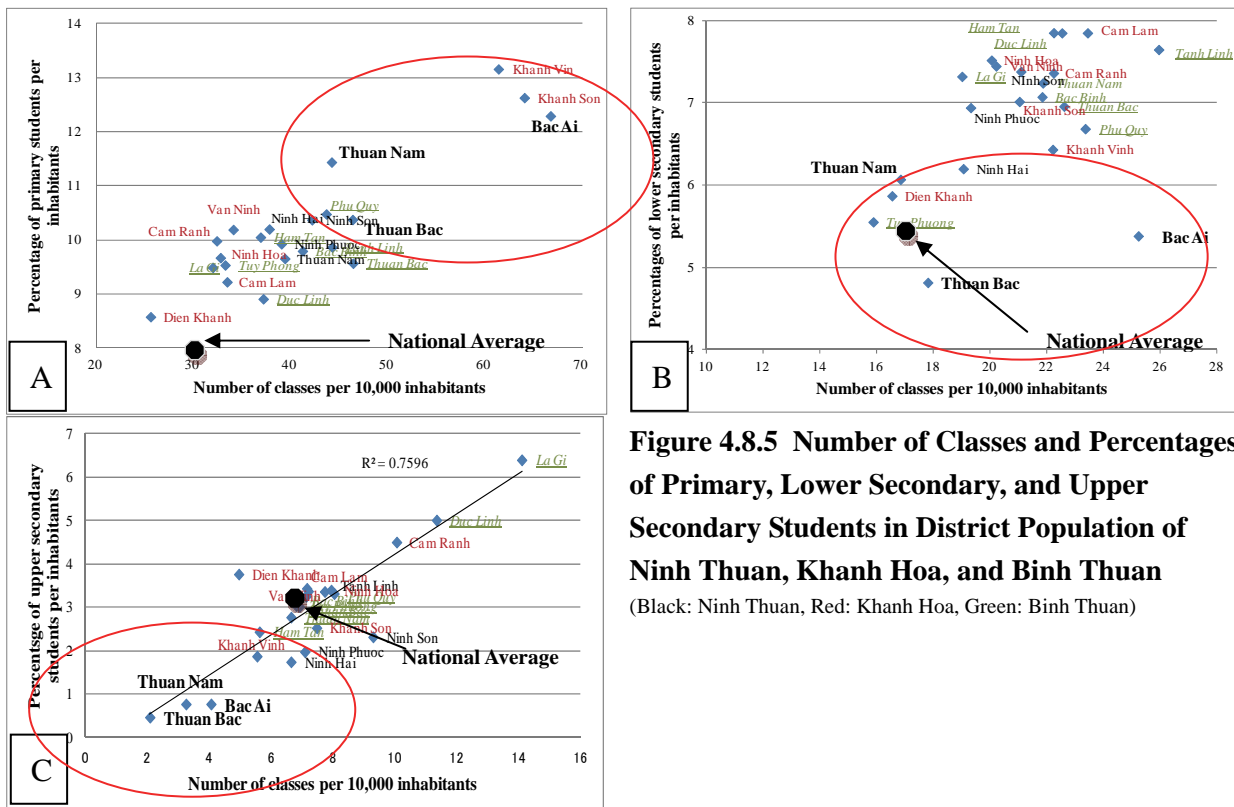


**Figure 4.8.4 Net Enrolment Rate by Gender and Urban /Rural in Binh Thuan (2009)**

*Vietnam Population and Housing Census 2009*

Ninh Thuan, Khanh Hoa, and Binh Thuan have also been trying to achieve distribution of universal education. According to Vietnam Population and Housing Census 2009, all the three provinces achieved more than 90% enrolment on primary education. They almost complete the universal requirement of primary education. In all educational levels of the three provinces, the enrolment rate of females is higher than that of the males. Enrolment rates in urban areas are prominently higher than that in the rural areas especially for secondary and higher education. Ninh Thuan and Binh Thuan have only less than 5% enrolment rates for university or college education, which is far less than the national average. One of the reasons is the “lack of universities and colleges in these provinces, that generate needs for students to venture outside the province” (*Ninh Thuan Master Plan*). In the rural areas, regardless of school type, Ninh Thuan always shows the lowest enrolment rate among all the provinces.

ii) Number of classes and percentage of students at each school stages in district population



**Figure 4.8.5 Number of Classes and Percentages of Primary, Lower Secondary, and Upper Secondary Students in District Population of Ninh Thuan, Khanh Hoa, and Binh Thuan**  
(Black: Ninh Thuan, Red: Khanh Hoa, Green: Binh Thuan)

Source: Annual Statistics Book of Ninh Thuan, Khanh Hoa, and Binh Thuan 2011, General Statistics Office

The enrolment rate at primary education is considerable high in all provinces. Districts like Khanh Vin, Khnah Son (Khanh Hoa), Bac Ai, Thuan Nam, Thuan Bac (Ninh Thuan), etc. which are located near the top of Y-axis of graph A show higher percentage of primary school students, which means that these schools have many enrollees. These districts overlap with the ethnic minority dominant areas. Eventhough these districts have higher percentage of children in district population, some districts have still quite low percentage at the lower secondary education. At Bac Ai District, there are quite large number of classes (per 10,000 person) at the lower secondary education and they have higher percentage of children in population, but the percentage of lower secondary students in district population is quite low. It indicates that increasing the number of classrooms does not necessarily become the solution to low enrolment rate of the district. Staff of DOET and Bureau of Education and Training (BOET) of Bac Ai explained the background as summarized below:

- 1) In Bac Ai District, many students are living in villages located on the mountains or remote villages far away from school, the road access to school

is still very poor and commuting time to school sometimes exceeds two hours.

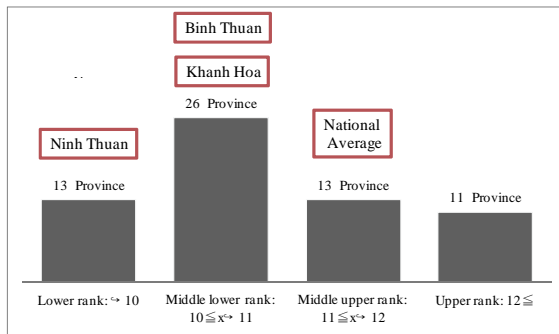
- 2) Eventhough they graduated from lower secondary schools, students have little chance to get better jobs. Certain number of students and their families considered the present secondary education not effective or does not contribute to the improvement of their livelihood.
- 3) Although education is free for all, enrolment to school actually costs a lot for poor families. Several months before harvesting period, these families often experienced shortage in food, and preparing lunch for students becomes a burden for the families. In addition, children who are supposed to help in cultivation, go to school where they are considered as a source of labor. There is a “*tendency for some students to divert their time and attention in assisting family businesses, mostly agricultural. (Ninh Thuan Master Plan)*”

Poor accessibility, low impact of education, and financial costs may be some of the main bottlenecks of low enrolment to lower secondary education in these areas.

The percentage of students in district population enrolled in the upper secondary education is also low in these districts. Besides, the number of classes per 10,000 inhabitants is also quite low. As there is relatively strong correlation (0.75) between percentage of upper secondary students in district population and the number of classes per 10,000 inhabitants, if learning condition and impact of studying will be improved, an expected increase of classes will lead to a percentage increase of upper secondary students in these districts.

### iii) Scores of national unified test

Quality of education for each province is categorized into four groups by the average score of national unified test at the upper secondary level. The four categories are as follows: lower, middle lower, middle upper, and higher. Ninh Thuan Province is categorized into lower rank, while Binh Thuan and Khanh Hoa are categorized into middle lower rank. National average is categorized into middle upper.



Source: Results of the National Unified Test 2011, MOH

**Figure 4.8.6 Ranking the Quality of Education of 63 Provinces into Lower, Middle Lower, Middle Upper, and Higher. By the average score of national unified test at upper secondary level (2011)**

#### iv) Summary

Comparing the educational conditions of Ninh Thuan with Khanh Hoa Binh Thuan, on national average, Ninh Thuan has insufficient quantity and low level quality of education.

### 4.8.3 Future Education in Ninh Thuan

#### (1) Future education in Ninh Thuan in the master plan

In the master plan of Ninh Thuan, education and health sectors are considered as two key vehicles for social development. In 2020, Ninh Thuan aspires to satisfy the educational demands of 100% students and achieve 100% secondary school attendance. Both targets will help propel high school graduation rates toward national averages in 2020. The key elements of success in primary and secondary education includes coverage, access, and quality.

**Table 4.8.2 Serious Problems, Their Causes and Solutions Referred in the Master Plan for the Educational Sector, Ninh Thuan**

Problems Referred in the Master Plan	Problem Cause	Proposed Solution of the Master Plan
<ul style="list-style-type: none"> <li>- Low enrolment to secondary education</li> <li>- Low penetration of secondary education</li> <li>- Production of low quality human resources</li> </ul>	<p>1. Poor access to education in the rural areas.</p> <p>2. Little impact to contribute in the improvement of livelihood especially in the</p>	<ul style="list-style-type: none"> <li>- Improve accessibility Providing greater and easier access through the following: <ul style="list-style-type: none"> <li>1) Better road connection upgrading existing roads or making new linkage.</li> <li>2) Better transport choices, such as provision of school bus services in remote areas</li> </ul> </li> <li>- Innovate mechanisms of service delivery such as</li> </ul>

<b>Problems Referred in the Master Plan</b>	<b>Problem Cause</b>	<b>Proposed Solution of the Master Plan</b>
	<p>rural areas.</p> <p>3. Poor learning condition</p> <p>4. Low quality of education</p> <p>1) Low quality of teaching staff, curriculum, and facilities in education.</p> <p>2) Shortage of school hours due to implementation of two-shift schooling.</p>	<p>mobile education</p> <p>(-Not mentioned)</p> <ul style="list-style-type: none"> <li>- Construct/retrofit existing buildings to meet the national standard.</li> <li>- Secure proper equipment and facilities in all education.</li> <li>- Enhance the quality of primary to secondary education, with clear standards and performance metrics as well as monitoring system.</li> <li>- Improve teacher's skills and knowledge through trainings.</li> <li>- Provide sufficient classrooms</li> </ul>

## (2) Possible assistance from international donors

To achieve MDG 2 and to produce quality human resources for regional development, the priority should be put on the improvement of secondary education as the enrolment rates at lower and upper secondary education are quite low in Ninh Thuan,.

### 1) Poor access to education

In flat land areas, improvement of roads contributes to easy access to schools, but for mountainous areas, considerable number of children live in scattered villages on several mountains. Improvement of all roads and provision of school bus services in these mountainous areas will be very difficult. Instead, provision for dormitories or accommodations in secondary schools for remote children will be an effective way to improve the accessibility to education, and will expect an improvement to the enrolment rate.

Lack of school capacity also agitates the accessibility of education to students. It also contributes to the inaccessibility to higher education. Ninh Thuan is seriously lacking the capacity of upper secondary school. Construction of new upper secondary school with accommodation can contribute in solving the poor access to education and promote an increase in the quality of human resources for regional development of this region.



## 2) Poor learning condition

There are three types of school buildings, i.e., permanent, semi-permanent, and temporary. A temporary school building is made either from bamboo or wood. Some temporary buildings have leaks on the roof, or corrosion on the wall, and some are almost about to collapse. Temporary school building in bad condition should be upgraded into permanent buildings to achieve good learning condition.

The construction of a nuclear power plant is planned at Ninh Hai District. The population of the district will increase rapidly. Insufficient capacity of present schools cannot accommodate the number of incoming students in the near future. To expand the capacity of schools is highly recommended.

Food is a very important element for boarding students to survive and concentrate on studying. If students will eat three times a day, cooking will deprive two to four hours of their time for studying per day. Canteen will secure more time for studying. Food nourishment will remarkably increase the effects of learning to the students

## 3) Low quality of education

Introduction of clear standards and performance metrics as well as monitoring system are ways to clarify and improve the present condition of education provided in schools. Ninh Thuan Province is trying to upgrade the learning capacity of teacher college into university in 2020. The school will contribute in establishing clear standards, performance metrics, and monitoring system.

Pre- and in-service teacher's training can improve directly the skills and knowledge of teachers. ADB has implemented a project for pre- and in-service teacher's training in "lower secondary education for the most disadvantaged regions" as well as to the 17 most disadvantaged provinces in Vietnam including Ninh Thuan Province. It aims to improve generally the present poor teaching skills. Ninh Thuan requires quality human resources with scientific background for industrial development of this region. The training conducted is effective in improving science lessons to some extent, but it does not cover the improvement of teacher's scientific knowledge and skills for teaching. Without understanding the contents of science very well, it will be very difficult for teachers to produce high quality of students. JICA has implemented a project which aims to improve science education at secondary level in many countries. The experience is also useful as a benchmark to improve the learning condition in the Southeast coastal area, for example by developing science teacher's text books for teaching.

Around 65.8% of primary schools and a lot of secondary schools implement the

two-shift schooling in order to deal with the lack of classrooms. Two-shift schooling cannot provide enough school hours. The MOET promotes the implementation of whole-day schooling. To increase the number of classrooms to be able to implement a whole-day schooling is also a solution to improve the quality of education. The ADB project mentioned above assisted the construction of classrooms in Ninh Thuan. Target schools, of which ADB is planning to build in Ninh Thuan Province, should be selected carefully by examining the target schools and number of classrooms.

**Table 4.8.3 Possible Projects in Educational Sector in Ninh Thuan Province**

<b>Project Name</b>	<b>Location</b>	<b>Contents</b>	<b>Construction Cost (million VND)</b>
Construct Ninh Thuan Upper Secondary School for the Gifted	Phang Rang TP	Construct upper secondary school for the gifted with accommodation.	134,000
Construct Boarding Rooms and Canteens for Schools	Bac Ai	Construct boarding rooms and canteens for schools.	10,000
Enlarge and Improve School Facilities	Ninh Hai	Improve facilities of schools to meet the national standards.	92,000
Develop Teacher's Textbook for Teaching in Science	Ninh Thuan, Khanh Hoa, Binh Thuan	Develop teacher's textbook in science at secondary level. Implement pilot teacher training using the textbook.	30,000 (personnel expenses of the experts are excluded)

## **4.9 Health**

### **4.9.1 Background**

#### **(1) Healthcare system in Vietnam**

The Vietnamese healthcare structure is based on a referral system connecting the Commune Health Center (CHC), which is established at the commune level, district hospitals, and provincial and central hospitals. If the basic treatment offered at the CHC is not sufficient, patients are referred to the district level hospital which has inpatient facilities as well as more medical treatment options. The next stage is the provincial hospital, which is equipped with more doctors and facilities, and finally the central hospitals that have specialized services (MoH 2007). Medical establishments provide not only medical treatments, but also health and family planning education to inhabitants.

#### **(2) Millennium Development Goals (MDGs) in the health care sector**

Three MDGs are set in the health care sector as follows:

##### **1) MDG 4: Reduce Child Mortality**

Vietnam has already achieved both the targets for under-five mortality and infant mortality, where both rates reduced to half from 1990 to 2006. The infant mortality rate was reduced from 44.4 per 1000 live births in 1990 to 16.0 in 2009. The under-five mortality rate has also been reduced considerably, from 58.0 per 1000 live births in 1990 to 24.4 in 2009. Furthermore, the ratio of children under-five who are underweight fell from 25.2% in 2005 to 18.9% in 2009 (UNICEF, 2011). To build on these achievements in the next five years, and ensure that child mortality rates continue to improve further, several areas require needed attention, particularly neonatal mortality and stunting.

##### **2) MDG 5: Improve Maternal Health**

Maternal mortality has declined considerably over the last two decades, from 233 per 100,000 live births in 1990 to 69 per 100,000 live births in 2009, with approximately two-thirds of this decrease is related to safer pregnancy. Good progress has also been made in expanding access to quality reproductive health, including maternal and neonatal health, family planning, increased use of modern contraception, and establishment of stronger programs, policies, and laws for reproductive health and rights, as well as measures to provide quality services to the poor and other vulnerable groups. Although maternal health has improved substantially, the maternal mortality rate (MMR) has remained unchanged from

2006 to 2009. In order to reach the MDG target of reducing maternal mortality by three-quarters (to 58.3 per 100,000 live births) greater efforts are needed. There are also remaining disparity gaps which are important to address, with the MMR higher in remote and ethnic minority areas (UNICEF, 2011).

### 3) MDG 6: Combat HIV/AIDS, Malaria and Other Diseases

Vietnam has made significant improvements in the legal and policy framework in recent years, and has a sound national strategy and plans in place for responding to HIV. The HIV prevalence rate is estimated at 0.28% for all age groups in 2010. The scope of anti-retroviral treatment has expanded from an estimated 30.0% in 2007 to 53.7% in 2009. Impressive progress on prevention and control of malaria shows that Vietnam has already achieved the MDG target on malaria control. Vietnam is also acknowledged to have done a good job in controlling other epidemics such as SARS, H5N1, and H1N1 (UNICEF, 2011).

## 4.9.2 Present Situation of Health Care

### (1) Basic information of the provinces

In every province, basic indexes are improving for the past five years except for the percentage of HIV infected person per population. Khanh Hoa and Binh Thuan Province has indexes better than or almost same as the national average, but the health indexes of Ninh Thuan is worst in all values except for HIV infected person. Ninh Thuan's mortality rate for under one year and that of five years, and life expectancy rate are far worse than the national average.

**Table 4.9.1 Basic Health Indexes of Three Provinces**

	<b>Maternal Mortality Rate</b>	<b>Mortality Under 1 year Infant</b>	<b>Mortality Under 5 Year Children</b>	<b>% of HIV Infected Person/Popu- lation</b>	<b>Life Expectancy</b>
Ninh Thuan	45	22.6	34.3	0.01	70.6
Khanh Hoa	29	16.5	24.9	0.26	72.6
Binh Thuan	n.a.	15	22.5	0.03	73.2
National Average	69	16	28.2	0.23	72.8

Source: 2009 Vietnam Population and Household Census, Interview to DOH in Each Province

In the three provinces, one big problem is the shortage of doctors. The number is smaller than that of the national average. At present, the provincial government tries to increase the number of doctors by sending the assistant doctors (Y Si) to medical centers and universities in Hue and HCM to make them certified doctors

(Bac Si). The number of beds of the three provinces is almost the same as that of the national average. Annually, 30 upper secondary level nurses are sent to medical colleges in Hue or TP HCM for them to earn bachelor's degree. As long as the projects are successfully implemented, the shortage of doctors and nurses will not be serious a problem.

**Table 4.9.2 Number of Beds, Doctors, and Nurses per 10,000 Inhabitants in Three Provinces**

	<b>Number of Beds</b> (Per 10,000 inhabitants)	<b>Number of Doctors</b> (Per 10,000 inhabitants)	<b>Number of Nurses</b> (Per 10,000 inhabitants)
Ninh Thuan	20.5	5.4	5.3
Khanh Hoa	30.1	5.6	9.6
Binh Thuan	24.1	5.1	7.6
National Average	21	7	9.35

Source: Annual Statistics Book of Ninh Thuan, Khanh Hoa, and Binh Thuan (2010)

## (2) Basic information in Ninh Thuan Province

### 1) Basic health indexes of each district

The number of beds, doctors, and nurses per 10,000 inhabitants are quite low in many districts except for Phang Rang town. Ninh Thuan Provincial Hospital is located in Phang Rang town. New buildings of provincial hospitals were already constructed and facilities of the old buildings are planned to be relocated to the new buildings in October 2012. Some buildings of old provincial hospital will become private hospital. The new hospital has more area and capacity than the old hospital. The number of beds will increase in Pang Rang town. Aside from this, the road access to the provincial hospital from each district center is within 60 minutes travel time except for Bac Ai District. The access time is less than 60 minutes and the capacity of provincial hospital is large at present. If referral system of patient will be strengthened, many inhabitants can receive better medical services more easily.

**Table 4.9.3 Number of Beds, Doctors, and Nurses per 10,000 Inhabitants in Each District, Ninh Thuan Province**

	Number of Beds (Per 10,000 inhabitants)	Number of Doctors (Per 10,000 inhabitants)	Number of Nurses (Per 10,000 inhabitants)
Phang Rang Thap Cham	43.5	12.5	11.7
Bac Ai	20.4	4.1	3.7
Ninh Son	23.6	3.7	5.7
Ninh Hai	11.1	2.4	2.7
Ninh Phuoc	8.7	1.9	0.4
Thuan Bac	2.6	2.6	1.8
Thuan Nam	3.6	1.6	4.2

Source: Annual Statistics Book in Ninh Thuan, Khanh Hoa and Binh Thuan

At present, the road condition of National Road 27A which connects Phang Rang and Nin Son is quite poor (Ninh Son is located on the way from Phang Rang to Bac Ai). The poor road condition makes the access time from Bac Ai to Phang Rang longer. If the road will be improved, the access time will be shortened within 60 min, which will contribute in the improvement of the medical referral system of the province, especially in emergency cases.

**Table 4.9.4 Access Time From Each District Center to Provincial Hospital**

(Unit: minutes)

	Phang Rang	Bac Ai	Ninh Hai	Nhin Phuoc	Ninh Son	Thuan Bac	Thuan Nam
Access from district hospital to provincial hospital	10	80	10	30	60	30	30
If the National Road 27A will be improved	10	60	10	30	40	30	30

Source: Interview to DOH

The other two provinces also face difficulty in providing good medical services for people living in the remote areas from the provincial center.

DOH at Ninh Thuan set the target values of these health indexes in 2015 and 2020 in the Health Care Sector Development Plan.

**Table 4.9.5 Desired Value of Each Basic Health Care Indexes of Ninh Thuan in 2015 and 2020**

	Maternal Mortality Rate	Mortality Under 1-year Infant	Mortality Under 5-year Children	% of HIV Infected Person/Population
2010	45	22.6	34.3	0.01
2015	50	14.0	19.0	0.03
2020	40	10.0	15.0	0.02

Source: Health Care Sector Development Plan in Ninh Thuan Province from 2011 to 2020

**Table 4.9.6 Desired Value of Number of Beds and Number of Doctors  
in Ninh Thuan in 2015 and 2020**

Per 10,000 Inhabitants	Number of Beds	Number of Doctors
2010	20.5	5.4
2015	24.6	7.0
2020	25.6	8.0

Source: Health Care Sector Development Plan in Ninh Thuan Province from 2011 to 2020

## 2) Medical services required in Ninh Thuan Province

The ten most common diseases and injuries by which people die in Ninh Thuan Province are shown in Table 4.9.7. Brain and heart diseases are the most prominent cause of deaths. For the diagnosis and treatment of diseases, special skills like bypass operation and specific equipment like CT scan, MRI, etc, are sometimes required.

**Table 4.9.7 Ten Main Diseases and Injuries in Ninh Thuan**

Disease	Number of Deaths over 100,000 Inhabitants (per year)
- <b>Brain Injury</b>	3.92
- Damage to respiratory-specific perinatal period	3.56
- Sepsis	2.84
- <b>Brain hemorrhage</b>	2.66
- <b>Heart attack</b>	2.12
- Toxicity of substances not derived drugs	2.02
- Pneumococcal	1.65
- <b>Brain Stroke</b>	1.59
- <b>Heart failure</b>	1.19
- Inflammation of the central nervous system	1.08

Source: Health Care Sector Development Plan in Ninh Thuan Province from 2011 to 2020

The ten most common diseases for people to go to medical establishments in Ninh Thuan Province are shown in Table 4.9.8. Almost all the diseases are very common and do not require special skills or expensive equipment for treatment, so treatment should only be in a commune health center or district hospital. Some diseases are frequently present at specific regions, e.g., malaria at the west mountainous part of Ninh Thuan; thus, preparation for prompt action in treating such diseases in each district is needed.

**Table 4.9.8 Ten Main Diseases/Group of Diseases in Ninh Thuan**

<b>Diseases</b>	<b>Number of Cases over 100,000 inhabitants (per year)</b>
Influenza cause by viral infection	3,829
Diarrhea	1,272
Injury, poisoning	788
Intestinal gastro with origin of infection	520
Damage caused by traumatic femur	455
Pneumonia	388
Sorethroat and Amydal level	227
Appendicitis	211
Hypertension	187
Inflammation of the stomach – duodenum	143

Source: Health care sector development plan in Ninh Thuan Province from 2011 to 2020

In the future, the construction of nuclear power plant in Ninh Hai District will increase the population rapidly. At present, the capacity of medical establishments and quality of equipment in Ninh Hai are insufficient to meet the future increase in population, inhabitants, and labors. With this insufficiency, the population may not be able to receive necessary medical services.

### 3) Summary

Comparing the health care service condition in these three provinces, the situation of Ninh Thuan is worst in almost all items. This is due to poor access, limited human resources and equipment, and low quality of services. Ninh Thuan already carries out several projects to increase the number of medical staff. Assistances are required mainly for the improvement of medical access, equipment, and quality of medical staff. Preparing facilities and equipment for the increase in population due to the future nuclear power plant is also necessary.

#### 4.9.3 The Future Health Care in Ninh Thuan

##### (1) Future health care in Ninh Thuan in the master plan

In the master plan, most pressing health problems and focus are described as “infant mortality, child malnutrition, and starvation rates, which are prevalent throughout the province’s poorest communes. The province must focus on remediating current constraints in healthcare access, quality, and cost”.



**Table 4.9.9 Serious Problems, Their Causes and Solutions Referred in the Master Plan for the Health Care Sector, Ninh Thuan**

<b>Problems Referred in the Master Plan</b>	<b>Cause of the Problem</b>	<b>Solutions Proposed in the Master Plan</b>
Poor value in basic health indexes, e.g., infant mortality, child malnutrition and starvation rates, prevalent throughout the province's poorest communes	<ol style="list-style-type: none"> <li>1. Limited infrastructure and equipment</li> <li>2. Limited capacity of medical staff <ul style="list-style-type: none"> <li>- Limited number of medical staff</li> </ul> </li> <li>3. Inhabitants lack of knowledge on how to prevent diseases</li> <li>4. Poor access to medical services</li> </ol>	<ul style="list-style-type: none"> <li>- Construct new and retrofit existing buildings to meet the national construction standards.</li> <li>- Secure proper equipment and facilities in medical facilities.</li> <li>- Offer sufficient hospital beds.</li> <li>- Establish network of healthcare centers throughout the province.</li> <li>- Provide training for medical workers about how to use medical equipment and technology employed in urban hospital networks.</li> <li>- Monitor the quality and outcomes of medical establishments.</li> <li>- Send local doctors (assistant doctors) for training in both Hue and Ho Chi Minh health and medical universities (to upgrade doctor's capability). <i>(already implemented)</i></li> <li>- Send nurses and other medical staffs to receive additional trainings through reputed regional institutions. <i>(already implemented)</i></li> <li>- Provide preventive care and specialized care services by medical establishments.</li> <li>- Innovate mechanisms of service delivery such as mobile health services.</li> <li>- Better road connections by upgrading existing roads or making new linkages.</li> </ul>

(2) Possible assistance from international donors

The provincial target is to provide inhabitants with basic medical services for poverty reduction and regional development.

1) Improving infrastructure and equipment (Poor access to medical service)

Ninh Thuan can provide high level medical treatment at the provincial hospital. If the road access will be improved, patients can easily go to the provincial hospital, therefore, CHCs and district hospitals may no longer have to provide high quality medical services and focus more on providing basic medical services for common diseases in Ninh Thuan and disseminate basic knowledge and treatment in preventive medicine and family planning. If CHCs and district hospitals do not have necessary equipment to treat common diseases, the target of donor's assistance may be on the provision of equipment and facilities for treatment. Aside from this equipment in treating frequently occurring and endemic diseases or

diseases that need prompt treatments from each district, road improvement will contribute greatly in establishing the network of healthcare in Ninh Thuan.

## 2) Improving the number and quality of medical staff

The Department of Health (DOH) of the three provinces are already implementing projects that aim to increase the quantity and quality of medical staff. They send medical staff to universities in Hue and Ho Chi Minh. These projects contribute to the improvement of the limited number and quality of medical staff in this region. They are also planning to send doctors to earn master's degree in the university. Some of the medical staff who studied in the university should learn how to monitor the quality and outcomes of medical establishments or how to educate the people on preventive medicine and family planning to improve the standard of medical service at the provincial level. It is expected from these graduates upon returning to the provinces that they will improve the present monitoring system and make good materials to carry out workshops for the inhabitants. In this way, community will learn basic preventive medicine and family planning that will contribute in the improvement of their knowledge on how to prevent diseases.

JICA assisted Hoa Binh Province to strengthen the regional medical service system through establishing a better training management system for the medical staff and referral system of patients. This experience is also effective in improving the quality of medical service.

### 4.9.10 Possible Projects in the Health Care Sector in Ninh Thuan Province

Project Name	Location	Contents	Construction Cost (million VND)
Supply of some basic medical equipment for district hospitals and commune health centers	Ninh Hai	Assess what kind of basic equipment are necessary for district hospitals and CHCs. Provide necessary equipment to target medical establishments.	18,000
Strengthening health service provision by introducing Hoa Binh model	Ninh Thuan, Khanh Hoa, Binh Thuan	Improve the capacity of DoH and provincial hospital staff. Establish training management system.	100,000 (personnel expenses of the experts are excluded).

## **4.10 Poverty**

### **4.10.1 Background**

#### **(1) Poverty and ethnic minority in Vietnam**

The Government of Vietnam has developed a number of important poverty reduction programs and policies in poor ethnic minority (EM) areas over the past two decades, including Program 135 which invested approximately USD 1 billion over the period 2006-2010. These initiatives have also been strongly supported by development partners in Vietnam. As a result, poverty reduction in ethnic minority areas has taken place, although not as rapidly compared to the country in overall. Although EMs accounted only to 14.5% of the population, they now account for over half of the total poor population in 2008 (represents a big increase from 18% in 1993). Thus, unless more rapid and significant improvements in the living standards of EMs can be achieved, poverty will become almost exclusively an ethnic minority phenomenon in the near future. EMs are also demonstrably lagging behind not only on income aspect, but also on landholdings, ownership of assets, and access to essential public goods and services such as clean water and electricity (IRC, 2011).

#### **(2) Millennium Development Goals (MDGs) in poverty reduction sector**

##### **MDG 1: Eradicate extreme poverty and hunger**

Of all the MDGs, Vietnam has made the most impressive progress on MDG 1 - poverty reduction. From a poverty rate of 58.1% in 1990, the country has successfully reduced poverty to an estimated rate of 14.5% in 2008, i.e., a reduction of 75%. The food poverty rate has been reduced by more than two-thirds, from 24.9% in 1993 to 6.9% in 2008. While the overall poverty levels have dropped remarkably, wide disparities still exist. For instance, more than half of ethnic minority groups still live below the poverty line. New forms of poverty are also starting to emerge. This includes chronic poverty, urban poverty, child poverty, and poor migrants. Tackling these new forms of poverty will require tailored and multi-sectoral approaches that recognize poverty being more than just a household's income level in relation to monetary definition of poverty line (UNICEF, 2011).

### **4.10.2 Present Situation of Poverty**

#### **(1) Basic information of the provinces**

The poverty rate is decreasing gradually in all provinces. The rates for Khanh Hoa

and Binh Thuan are better than the national average, while that of Ninh Thuan is 5.9% higher than the national average.

The Gini coefficients gradually increased from 0.2 to 0.3 in all provinces. If the value is below 0.3, this indicates that the society have little earnings differentials. If it is over 0.3, the society has certain earnings differentials. If the value is over 0.4, the society has considerable large earnings differentials among people and many inhabitants cannot be satisfied with the situation. Eventhough the poverty rates for the three provinces are better than the national average, they are already in desperate situation.

People below poverty line (income is below VND 400,000/month in rural areas) can receive free medical service, and free school fee except that 60% of food expense at boarding schools will be shouldered by the student. There are many poverty reduction projects for EMs especially in the mountainous areas. Ethnic minority's committee apprehend that some of EMs who are used to receiving aids treat it as due payment. With this mindset, it will be difficult for them to strive to improve their livelihood.

**Table 4.10.1 Basic Poverty Indexes of Three Provinces**

	Poverty Rate		Income Gap	Gini Coefficient		Ethnic Minority Poverty Rate
	2006	2008	2010	2006	2010	2010
Ninh Thuan	22.3	19.3	8.9	0.28	0.31	72.6
Khanh Hoa	11.0	9.1	7.5	0.27	0.33	77.1
Binh Thuan	11.0	9.2	5.4	0.27	0.30	63.7
National Average	15.5	13.4	9.2	0.42	0.43	n.a.

Source: 2010 Vietnam Population and Household Census

## (2) Basic information in Ninh Thuan Province

### 1) Basic health indexes of each district

The situation of poverty is quite different among districts, but the situation is not good especially in the mountainous areas, i.e, Bac Ai, Ninh Son, and Thuan Bac. Bac Ai, being the worst, is the target district of 135 poverty reduction programs for years but the poverty improvement is very limited. Nin Son and Thuan Bac are also located in the mountainous areas. In the three districts, the percentage of EMs is quite high especially for Ra-Glai EM group. In the mountainous areas, most people engage in agriculture, but due to climate and lack of land suitable for cultivation, the productivity is limited or low. Moreover, difficulty in the increase of production up to a large extent can be encountered. To improve the livelihood

in this region, more choices of potential livelihoods are needed to improve the present situation. Therefore, it is necessary for these people to enhance their ability by taking up general education and vocational trainings, in order to improve access in the main stream of the economy through infrastructure and to guarantee good health by provision of quality health service and clean water. Also, provision of human resources will contribute to the regional development of Ninh Thuan Province. The Government of Vietnam already decided to assist the improvement of CHCs in Bac Ai District due to national policy to reduce poverty.

**Table 4.10.2 Poverty and Near Poverty Rate at Each District in 2011**

	Poverty Rate (%)	Near Poverty Rate (%)
Bac Ai	55.0	10.2
Ninh Son	26.7	9.4
Thuan Bac	21.0	10.9
Thuan Nam	12.2	5.9
Ninh Phuoc	10.4	11.7
Ninh Hai	7.8	9.3
Phang Rang Thap Cham	6.5	8.8

Source: Interview to DOLISA

## 2) Summary

Comparing the poverty condition in the three provinces, Ninh Thuan has the worst poverty rate. This is because most people in Ninh Thuan engage in agriculture, and their agricultural productivity and land for cultivation are quite limited. At present, there are few secondary and tertiary industries that have sufficient labor absorption. Moreover, staff of these industries have poor educational background to produce quality human resources.

### 4.10.3 The Future Situation of Poverty in Ninh Thuan

#### (1) Future situation of poverty in Ninh Thuan in the master plan

In the master plan, the future situation of society is described as follows: “Ninh Thuan will eradicate poverty, and seek to resolve critical challenges in social service access and delivery for remote, ethnic minorities. The future economy will feature linkages to these communities, not only in agriculture, aquaculture, and forestry, but also in clusters like tourism. The end result will be an integrated and harmonious society, which blends, but does not dissolve ethnic heritage with foreign populations and fully protects the resident community from impoverishment and starvation.”

**Table 4.10.3 Serious Problems, Their Causes and Solutions Referred in the Master Plan at Poverty Reduction Sector, Ninh Thuan**

<b>Problems Referred in the Master Plan</b>	<b>Cause of the Problem</b>	<b>Solution Proposed in the Master Plan</b>
- Many of ethnic minorities are in the remote highland areas and all of whom suffer from various degrees of social exclusion.	<ol style="list-style-type: none"> <li>1. Difficult climate conditions for traditional agriculture.</li> <li>2. Geographic, linguistic, and cultural divisions from main stream of economy.</li> <li>3. Limited funds for social investment and service delivery, such as health and education, which can upgrade the income opportunities available to the poor.</li> </ol>	<ul style="list-style-type: none"> <li>- Define the key products for investment, and understand potential impacts on poverty alleviation for remote ethnic minorities.</li> <li>- Make social services (education and health care) accessible to poor populations.</li> <li>- Develop programs to ensure access to services for remote ethnic communities.</li> <li>- Improve access to rural and remote areas.</li> <li>- Promote tourism related to natural and cultural experiences, targeting local job creation and poverty alleviation.</li> <li>- Implement rural outreach training programs.</li> <li>- Obtain funding for a pilot in clustered development assistance.</li> </ul>

Poverty reduction is related to all sectors. Improvement of each sector can lead to reduce poverty by the following: road construction, better education, healthcare, etc. Poverty reduction has some priorities on the regions where the poverty rates are quite high. Too much direct support to people sometimes deprive people's will to work. In order to assist their sustainable improvement with spontaneous efforts to get them out from poverty, direct financial support to households is not needed but provision of effective knowledge and skills should be disseminated to them. In addition to this, chances to get jobs should be provided sufficiently. For that purpose, government should assess what kind of educational contents are effective for participants to improve their livelihood conditions.

With better and improved education, health, infrastructure care, etc., Ninh Thuan will improve the overall quality of life, enhance the province's competitiveness and productivity, reduce poverty, and ensure a more equitable and inclusive society. Most of potential projects related to poverty reduction are proposed in each sector.

## **4.11 Organizations**

### **4.11.1 Organizations for the Implementation of the Socioeconomic Development Plan**

The Socioeconomic Development Plan of Ninh Thuan was prepared by the initiative of the DPI and it was designed to be implemented through the leadership of relevant departments under the coordination of the Economic Development Office (EDO), that was established in March 2010 by merging the External Economic Division and the Investment Promotion Center of the DPI according to the plan formulated by the Monitor Group. The EDO was developed as a new model of administration on the basis of the Economic Development Board in Singapore. Although the EDO is under the management of the DPI, it reports to and receives direct guidance from the Chairperson of the Provincial People's Committee. Whereas the Planning Division of DPI is responsible to allocate and monitor the implementation of the budget, there seems to be no specific section in the provincial government responsible in monitoring the implementation of the plan itself except the EDO.

### **4.11.2 Current Conditions of the EDO**

#### **(1) Objectives and main functions of the EDO**

The EDO was established with the aim of creating a breakthrough in attracting investors. The EDO has three functions as follows:

- (i) Investment and development assistance attraction,
- (ii) One-stop shop service for investors and donors, and
- (iii) Business support to investors and donors.

At present, the main function of the EDO is limited to one-stop shop service. At the EDO, investors can complete all the procedures required to start their business in Ninh Thuan and solve all the problems they may face during the investment project application and implementation.

#### **(2) Organizational structure and staff of the EDO**

The EDO consists of three divisions, namely, (i) Investment Division, (ii) Development Assistance Division and Administrative, and (iii) General Affairs Division. Twenty-five staff members work at EDO with 12 part-time officers from other departments, who take turn to station at EDO to facilitate the investment application procedures required by their departments. Figure 4.11.1 shows the staffing of the EDO. Ten out of 25 are permanent officers transferred from other departments and the rest are hired on a contractual basis. Most of the

staff members are relatively young and few speak English. The majority of the members in the Investment Division have science background and all the members of the Development Assistance Division have social science background except the head.

The EDO can perform its functions promptly through weekly meetings of the EDO Steering Committee headed by the Chairperson of the People's Committee, where investment certificates are approved and decisions are taken to solve the problems.

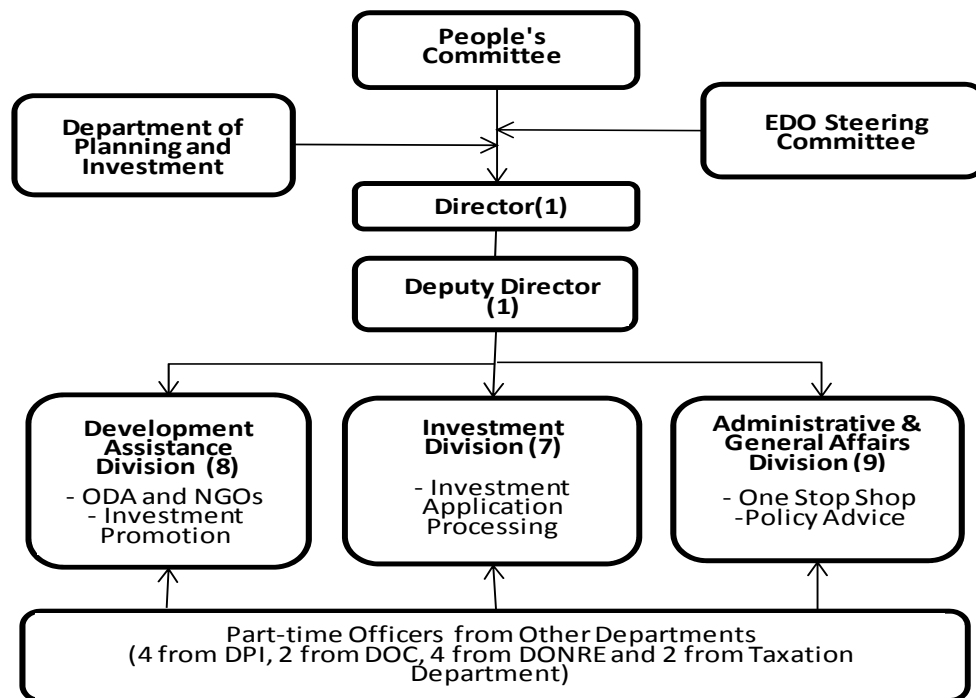


Figure 4.11.1 Organizational Chart of EDO

### (3) Current duties and their division

According to the Article 3 of the PPC's decision No. 207/2010/QD-UBND on EDO, EDO has 12 major tasks as shown in Table 4.11.1.

Table 4.11.1 Duties of EDO

	Duties	Functions	Stages
1	To provide advice in the development and implementation of plans and programs on investment promotion and mobilization of official development assistance and aids from NGOs.	- Advising on plans of investment promotion and aid mobilization	Before receiving applications
2	To organize activities on investment promotion and aids mobilization with a view to introducing and promoting the province's investment and aids projects to attract both domestic and foreign investors and donors and thus further investment flows in the province.	- Investment promotion - Aid mobilization	



	<b>Duties</b>	<b>Functions</b>	<b>Stages</b>
3	To establish the database and operate the information system to introduce the province's potentials, investment opportunities, master plans, land, list of projects calling for investment, and aids to investors and donors.	- Information provision	
4	To provide advice to the Director of the Planning and Investment Department in proposing to the Province People's Committee decisions on approval of investment sites and granting of investment licenses to investors from different economic sectors.	- Advising on investment approvals and licensing	During the process of applications
5	To serve as the focal point in providing guidance as well as receiving and processing applications or forwarding them to relevant agencies for processing according to the "one-stop shop model" as provided for by the Provincial People's Committee.	- One-stop shop service for investors	
6	To serve as the focal point in providing guidance and support for donors in the process of acquiring information and implementing aids projects and programs in the province.	- One-stop shop service for donors	
7	To provide advice on reception and management of ODA and supervising ODA implementation and disbursement in the province.	- ODA management	
8	To provide guidance on steps and procedures on NGOs project approval in the province so as to advise the director of the Department of Planning and Investment in proposing the Provincial People's Committee for approval.	- Advising on NGO project approvals	
9	To work with departments and agencies in providing advice to the Provincial People's Committee in supporting investors and aids donors in solving issues rising during investment and aids implementation in the province.	- Investment implementation support - Aid implementation support	After approving applications
10	To propose reforms relating to processes and procedures according to the "one-stop shop model" at the EDO along the lines of simplification and consistency.	- Policy advising on one-stop shop model	Policy proposal
11	To provide advice on mechanisms and policies in attracting investment as well as mechanisms on attraction and management of ODA and NGOs aids programs and projects in the province.	- Policy advising on investment attraction and aid management	
12	To coordinate with functional agencies in organizing professional training courses for staff in charge of implementing EDO's functions and duties.	- Coordination in staff training	Coordination

At each stage, the Investment Division is supposed to perform the duties related to private investment, while the Development Assistance Division performs the duties related to ODA and NGOs, and the Administrative and General Affairs Division performs the duties related to one-stop shop service and administration of the EDO. In practice, however, the main tasks of the Investment Division are

to prepare investment profile, evaluate the submitted papers, monitor investment activities, and solve the difficulties encountered by the investors, while the investment promotion activities are performed by the Development Assistance Division.

#### (4) Budget for EDO

The budget of EDO totally comes from the provincial government. The EDO budget has been increasing since its establishment as presented in Table 4.11.2. The budget for investment promotion is mainly spent on printing of the EDO brochure, list of projects calling for investment and general information booklet, and making promotional CDs. The cost of organizing conferences is not included in the budget.

**Table 4.11.2 Trend in EDO Budget**

(VND)

Budget Item	2010	2011	2012
Employment Cost (Salaries)	1,376,177,824	718,930,000	1,073,680,000
Investment Promotion		881,751,788	875,000,000
<b>Total</b>	<b>1,376,177,824</b>	<b>1,600,681,788</b>	<b>1,948,680,000</b>

Source: Document provided by the EDO

#### (5) Achievements and self-evaluation

##### 1) Quantity of investment and development assistance

Table 4.11.3 illustrates the trend in the number of approved investment projects and total registered capital of investment projects in Ninh Thuan for the last six years. There is a trend of increase in the number of the projects with investment certificates as well as the total registered capital since the establishment of EDO.

**Table 4.11.3 Trend in Number and Capital of Investment in Ninh Thuan**

Year	2007	2008	2009	2010	2011	2012*
Number of Issued Investment Certificates	19	23	26	23	41	13
Total Registered Capital of Approved Investment Projects (billion VND)	4,237.2	3,785.5	10,122.4	3,530.0	12,235.6	1,578.0

\* Figures as of May 2012

Source: Calculated based on the document provided by EDO

##### 2) Provincial investment environment

Table 4.11.4 shows the ranking of the Provincial Competitive Indicator (PCI) of Khanh Hoa, Ninh Thuan, and Binh Thuan. The ranking of Ninh Thuan went up from 48<sup>th</sup> to 41<sup>st</sup> in 2010 after the establishment of the EDO, before going down to 46<sup>th</sup> place in 2011.

**Table 4.11.4 Ranking of the Provincial Competitive Index (PCI)**

Year	2008	2009	2010	2011
Khanh Hoa	36	30	40	34
Ninh Thuan	47	48	41	46
Binh Thuan	17	11	28	40

Source: Website of the Vietnam Provincial Competitive Index <http://www.pcivietnam.org/>

As Table 4.11.5 shows, Ninh Thuan improved in the five indexes, namely, market entry costs, time costs of regulatory compliance, informal charges, pro-activity and attitude, and legal institutions. However, four of the nine indexes dropped, including land access and tenure security, transparency, business support services, and labor training. The indexes to which the performance of the EDO is directly related are market entry costs, transparency, time costs of regulatory compliance, business support services indexes, among which the EDO had not performed well to improve transparency and business support services.

**Table 4.11.5 Change in the Nine Indexes of PCI of Ninh Thuan**

Index	2010	2011	Trend
<b>Market Entry Costs</b>	6.85	8.55	↗
<u>Land Access and Tenure Security</u>	5.89	5.45	↘
<b><u>Transparency</u></b>	6.12	5.75	↘
<b>Time Costs of Regulatory Compliance</b>	6.10	7.00	↗
Informal Charges	5.68	5.72	↗
Pro-activity and Attitude	4.24	4.27	↗
<b><u>Business Support Services</u></b>	5.76	5.57	↘
<u>Labor Training</u>	5.32	4.27	↘
Legal Institutions	4.06	5.57	↗

Source: Two-Year Evaluation Report of the EDO (2012)

### 3) Self-Evaluation of the EDO Performance

Table 4.11.6 shows the result of self-evaluation of the EDO performance tentatively done by the Director of the EDO upon the request of the JICA Study Team. The strength of the EDO is in the function of one-stop shop service for donors whereas the weakness of EDO lies in functions of information provision, business support, and policy proposal making on investment attraction. It corresponds to the results of the Provincial Competitive Indexes (PCI).

**Table 4.11.6 Self-Evaluation of EDO Performance**

	<b>Functions</b>	<b>Score</b>
1	-Advising on plans of investment promotion and aid mobilization	B
2	-Investment promotion -Aid mobilization	B
3	-Information provision	C
4	-Advising on investment approvals and licensing	B
5	-One-stop shop service for investors	B
6	-One-stop shop service for donors	A
7	-ODA management	B
8	-Advising on NGO project approvals	B
9	-Investment implementation support -Aid implementation support	C
10	-Policy advising on one-stop shop model	B
11	-Policy advising on investment attraction and aid management	C
12	-Coordination in staff training	C

The result also showed that the EDO has not performed well in developing a strategy to attract foreign investment, providing business advisory services, and seeking investor's feedback on the investment process and environment, all of which are the tasks assigned to the Investment Division.

#### 4.11.3 Development Plan of the EDO

Table 4.11.7 shows the development plan of EDO based on the evaluation of their two-year operation. The EDO plans to improve its one-stop shop service as well as strengthen relatively weak functions such as business support to investors, coordination, investment promotion, and policy advising. Although the tasks relating to one-stop service are clearly defined in the plan, the tasks to strengthen the other functions are yet to be elaborated, and the restructuring of the EDO organization and capacity building of EDO staff are considered important.

**Table 4.11.7 Development Plan of EDO**

	<b>Measures</b>	<b>Related Functions</b>
1	Streamlining administrative procedures - Amendment of Decision No. 290/2010/QD-UBND on regulations on coordination mechanisms to address administrative procedures - Reconstruct the procedures related to investment and business - Parallel processing of application documents - Unification of formality	One-stop shop service
2	Capacity building of EDO members	-
3	Establishment of Business Support Advising Section at EDO - to support investors in investment procedures and business registration process such as filling in the applications for investors - currently learning from good practices	Business support to investors

	<b>Measures</b>	<b>Related Functions</b>
4	Upgrading EDO electric portal to online application system - to put information such as plans, maps and calls for investment - to enable investors to see the progress of the applications online - to compile handbook on the investment procedures to make the progress of the application clear to investors	One-stop shop service
5	Improvement of facilities and introduction of IT technology -to follow the modern electronic one-stop shop model	One-stop shop service
6	Strengthening the follow-up support to investors with investment certificates	Business support to investors
7	Organization of regular meetings of EDO's Board of Directors and Standing Committee to enhance PCI - to assess the progress of the action program to raise PCI and direct each department and locality to propose action programs	Coordination
8	Strengthening investment promotion and mobilization of ODA and NGOs	Investment promotion fund mobilization
9	Advising on policies on investment promotion - to propose preferential policies for nuclear power projects - to propose the criteria to select additional investors	Policy advising
10	Upgrading structure of EDO - considered to place EDO under PPC - requesting PM for special fund and investment incentives	

#### 4.11.4 Constraints to the EDO as an Organization for Economic Development

##### (1) Authority to coordinate other departments

The EDO has been making a lot of progress to strengthen its one-stop shop function by streamlining administrative procedures related to investment. For further progress, the EDO needs the authority to instruct related departments and agencies, that is currently not possible because the EDO is at the same level as the other departments in the current provincial government structure.

##### (2) Proactive approaches to private investment attraction

The EDO has not performed functions such as investment promotion activities and business support to investors and the future plans of these areas are yet to be elaborated. This is mainly due to understaffing and lack of expertise of the current staff in these fields. Considering Ninh Thuan is not yet well known as a destination of investment among investors, especially foreign investors, the EDO needs to adopt more proactive approaches to private investment attraction in addition to administrative reform.

##### (3) Clear strategy for private investment attraction

The EDO does not have a clear strategy for private investment attraction. The EDO treats private investment attraction and development assistance attraction in the same manner. However, investors and donors have different logic and motivations to come to the province and such differences need to be recognized when formulating the investment attraction strategies.

(4) Improved working conditions and capacity development of the EDO staff

According to the Socioeconomic Development Plan, the EDO staff is supposed to receive special salaries and various incentives so as to attract talented people. Despite the EDO's request for the salary increase, the PPC concluded that it was impossible within the current legal framework. Due to the low level of the staff salary, only young people can join the EDO. Even the experienced staff who are transferred from other departments do not have expertise in investment and business support. Considering the importance of the EDO for the successful implementation of the Socioeconomic Development Plan, the provincial government needs to improve the salaries and working conditions of the EDO staff as well as allocate more budget on their capacity development.

(5) EDO as propulsive force of the Socioeconomic Development Plan

Currently, Ninh Thuan does not have a body to push forward the Socioeconomic Development Plan on a daily basis and the EDO is the only agency that could play this role. In fact, the EDO was designed to have Policy Division and Capacity Development Division in the original plan by the Monitor Group, but it did not materialize due to limited budget and human resources.

#### 4.11.5 Organization for Regional linkages

(1) Types and Implementation System of Regional Cooperation

There are mainly two forms of regional cooperation in general as follows: (i) joint project implementation, and (ii) indirect or consequential cooperation, in which market expansion or enhancement of functions in one province would eventually benefit other provinces. Regional cooperation could be done at an equal partnership basis or centered on a leading province. The regions promoting regional cooperation have high awareness and strong leadership. The obstacles to regional cooperation are the scale and limitation of authorities of local governments. The types of implementation system for regional cooperation vary from forming councils to establishing formal organizations. Cooperation in promotional activities

usually starts with forming a council with the participation of the departments concerned which will eventually develop into a promotional organization.

(2) Organizational Constraints to Implementing Regional Linkages Programs

As mentioned in Section 3.4, the previous attempts to form regional linkages did not succeed due to lack of detailed and concrete plans and coordination among relevant departments in each province. According to one of the programs, DPI is the lead agency to coordinate the linkages and propose the programs to PPC. To promote the linkages, a mechanism to link PPC, DPI, and other departments is required.

## 4.12 Human Resources Development

### 4.12.1 Human Resource Development for Economic Development in Ninh Thuan

#### (1) Preliminary stage of human resource development

Human resource development is a prerequisite for the success of the social and economic development plan aiming for industrial structural change. However, human resource development in Ninh Thuan is still at a preliminary stage. As Table 4.12.1 illustrates, the employment of Ninh Thuan is still heavily based on agriculture and the employment structural change from agriculture to industry and services has not yet been realized.

**Table 4.12.1 Employed Population by Economic Activity in the Three Provinces  
(2010)**

	Khanh Hoa		Ninh Thuan		Binh Thuan	
	Persons	%	Persons	%	Persons	%
<b>Total</b>	<b>620,134</b>	<b>100.00</b>	<b>287,935</b>	<b>100.00</b>	<b>609,540</b>	<b>100.00</b>
Agriculture, Forestry and Fishery	260,575	42.02	148,602	51.61	316,666	51.95
Manufacturing	79,854	12.88	30,657	10.65	61,214	10.04
Construction	37,503	6.05	16,827	5.84	36,445	5.97
Hotels and Restaurants	41,783	6.74	13,357	4.64	33,817	5.54
Education and Training	23,827	3.84	9,345	3.25	19,482	3.19
Arts, Entertainment and Recreation	3,825	0.62	1,929	0.67	2,032	0.33

Source: Statistical Yearbook 2010 of Khanh Hoa, Ninh Thuan, and Binh Thuan

Note: Figures for Ninh Thuan and Binh Thuan are preliminary statistics.

#### (2) Low quality of human resources

Table 4.12.2 shows the rates of graduates from upper secondary schools in Khanh Hoa, Ninh Thuan, and Binh Thuan. The rate for Ninh Thuan is very low compared to the rates for the other two provinces and the national average.

**Table 4.12.2 Rate of Graduates from Upper Secondary Schools in 2010**

<b>Khanh Hoa</b>	<b>Ninh Thuan</b>	<b>Binh Thuan</b>	<b>Whole Country</b>
96.64	69.3	80.74	92.57

Source: Statistical Yearbooks of Khanh Hoa, Ninh Thuan, and Binh Thuan 2010

#### (3) Brain drain

Table 4.12.3 indicates the net migration rates for the three provinces. Although all the provinces have been losing its population through migration, Ninh Thuan experiences the highest rate among the three and continually will lose its qualified human resources. This is mainly because higher educational institutes and professional schools are very limited in the province as shown in Table 4.12.4 and 4.12.5. All the high school graduates in Ninh Thuan who wish to pursue higher



education have to leave the province after the graduation. Those who studied outside of the province usually find jobs and continue to stay near the place of work. The main destination of migration is Ho Chi Minh City and some go to Da Lat or Nha Trang. Job opportunity is very limited in Ninh Thuan.

**Table 4.12.3 Net-Migration Rate by Province**

		2005	2007	2008	2009	2010
						‰
<b>North Central and Central coastal areas</b>		<b>-2.6</b>	<b>-2.6</b>	<b>-1.9</b>	<b>-7.7</b>	<b>5.7</b>
	Khánh Hòa	-2.7	-3.0	-0.4	-1.5	8.3
	Ninh Thuận	-0.5	-2.7	0.5	-6.6	14.2
	Bình Thuận	-1.1	-8.3	-3.4	-4.6	5.4

Source: National Statistical Yearbook 2010 (online)

Note: The figures for 2010 are preliminary statistics.

**Table 4.12.4 Number of Higher Educational Institutes (2010)**

	Khánh Hòa	Ninh Thuận	Bình Thuận
Universities and colleges	7	1	2

Source: Statistical Yearbooks of Khanh Hoa, Ninh Thuan, and Binh Thuan 2010

**Table 4.12.5 Number of Students of Professional Secondary Schools**

	2008		2009		2010	
	Student	Of which: Public	Student	Of which: Public	Student	Of which: Public
Khánh Hòa	8,744	8,744	9,881	9,322	10,064	8,401
Ninh Thuận	103	103	103	103	108	108
Bình Thuận	2,950	2,950	8,035	8,035	3,394	3,394

Source: National Statistical Yearbook 2010 (online)

## 4.12.2 Human Resource Development Plan

### (1) Plan of human resource development

According to the Human Resource Development Plan of Ninh Thuan 2011-2010, Ninh Thuan plans to increase the educational level, increase professional and technical qualification of human resources through training, develop training facilities, and expand the training scale. The priority of training is focused on developing six key industries and vocational training for rural workers to restructure the rural economy. The training priority and target numbers of trained workers for the six key sectors are shown in Table 4.12.6. Five-year human resource development plans for each sector are currently being formulated by the department concerned.

**Table 4.12.6 Training Orientation for Six Economic Pillars**

<b>Economic Pillar</b>	<b>Training Priority</b>
Clean Energy	Workforce in Electricity, Mechanics, Manufacturing Electrical Components, Electronics, Machining and Assembly Target: 4,600 trained workers (2015)
Tourism	Managers and Staff in Hotels, Restaurants, Tour Guides Target: 23,700 trained workers (2015)
Agriculture, Forestry and Fisheries	Scientific and Technical Staff in Horticulture, Livestock, Forestry, and Fishery Target: 17,400 trained workers (2015)
Industry	Managers, Engineers, and Technical and Skilled Workers in Food Processing, Agro Processing, Fisheries, Mineral Processing, Material Production Target: 30,700 trained workers (2015)
Construction and Real Estate	Technical Workers in Construction, Irrigation, Electricity, Civil Engineering, Land Management Target: 43,500 trained workers (2015)
Education and Training	Managerial Staff in Education and Teachers of All Levels Target: 9,500 trained workers (2015)

The training demand of the human resources for the construction and operation of the two nuclear power plants was also considered. The total training demand was estimated at around 8,000 people, out of which, 2,750 people will be trained in six national training institutions. The training demand within Ninh Thuan is about 5,250 people who will work in the construction of nuclear power plants. The training will be given especially in infrastructure construction and equipment installation.

Emphasis is also put on the training of entrepreneurs on legal knowledge, business management skills, and global economy as well as on the training of civil servants and officers.

(2) Priority projects for training facilities and equipment

In order to meet the training needs in the province, the following are the major facility development plan for human resource development for the industry.

**Table 4.12.7 List of Priority Facility Development Plans Related to Vocational and Higher Education**

	<b>Plans</b>	<b>Current Status</b>
1	Developing vocational training centers at the districts	Some constructed
2	Construction of a regional vocational college	-
3	Upgrading the Teacher's College in a multi-disciplinary college	Strategy approved, support from the National Target Program
4	Upgrading the Health Secondary School to Health College	-
5	Upgrading Vocational Secondary School into Vocational College	Upgraded in cooperation with GIZ and Saudi Arabia
6	Establishing Ninh Thuan University	-
7	Developing a database system on labor and employment	

Source: Decision No. 546/QĐ-UBND dated December 13, 2011 of Ninh Thuận People's Committee

(3) Vocational College of Ninh Thuan

In 2012, Vocational Secondary School of Ninh Thuan was upgraded to Vocational College, i.e., a junior college under the management of MOET. The college provides two-year intermediate courses, equivalent to a secondary school level, and three-year advanced courses, equivalent to a college level. College level courses will be provided in partnership with Khanh Hoa University, Vocational College in Khanh Hoa, and Construction University in Phu Yen.

The Gesellschaft für Internationale Zusammenarbeit (GIZ) has just started to provide assistance totaling to EUR 1.7 million for the improvement of facilities and some courses of the college. For the first two years, a German expert on electrical technology will provide technical assistance for the three courses on industrial electricity, industrial electronic, and electrical installation. The assistance may be extended up to five years. The main activities of technical assistance will be curriculum development and teacher's training in advanced electrical technology.

Saudi Arabia also provided USD 11.2 million for the improvement of the college's facilities.

4.12.3 Issues and Constraints of Human Resource Development for Economic Development

(1) Lack of training capacity

Table 4.12.8 demonstrates that there is a large gap between the number of currently employed personnel and the target number of trained personnel. It is obvious that the current quantity of training is not adequate and more training opportunities have to be provided. The curriculum of the training courses requires modification to match the current industrial needs.

**Table 4.12.8 Number of Employed Personnel and Trained Personnel**

	2010		2015 (Target)		2020 (Target)	
	Employed	Ratio (%)	Trained	Employed	Trained	Employed
<b>Total</b>	<b>287,935</b>	<b>100.00</b>	<b>179,000</b>	<b>358,000</b>	<b>252,000</b>	<b>420,000</b>
Agriculture, Forestry, and Fishery	148,602	51.61	17,400	132,824	20,000	119,760
Manufacturing	30,657	10.65	30,700	40,933	42,000	54,545
Construction	16,827	5.84	43,500	66,616	80,000	105,263
Hotels and Restaurants	13,357	4.64	23,700	34,150	39,900	53,919
Arts, Entertainment, and Recreation	1,929	0.67				
Education and Training	9,345	3.25	9,500	10,337	10,400	10,924

Source: Statistical Year Book of Ninh Thuan 2010, Human Resource Development Plan of Ninh Thuan 2011-2020

Note: Total numbers of labor in 2015 and 2020 are calculated based on the percentage of trained workers to total employment in Human Resource Development Plan 2011-2020

## (2) Lack of budget for training

Despite the high target numbers set by the human resource development plan, the budget allocation from the national and local governments on its implementation is not adequate, just covering 20% of the estimated total cost. Moreover, most of the government budget for vocational training goes to infrastructure and equipment, and the budget for the so-called soft components such as curriculum development and hiring trainers is extremely small. The government relies on the investment of private investors and donors in developing training infrastructure as well as curriculum and training for teachers. The provincial government needs to allocate more budget on human resource development in the key sectors.

## (3) Lack of information on the current and future labor market and proper career guidance

Lack of information on the labor needs of the existing industries is considered a problem by the president of the newly established private professional school as well as the vice-president of the vocational college. Without such information, the skills taught in the training course often do not match labor demand and the students cannot find a job related to the field of training after graduation. High school graduates also merely choose to go to universities without considering an option to go for professional education in Ninh Thuan due to lack of labor market information and proper career guidance. A survey on labor demand is required for effective human resource development.

(4) Trapped by a vicious cycle of human resource development in the initial phase of development

Ninh Thuan's economy is still based on agriculture and structural change in industry has not yet happened. The companies in Ninh Thuan are still in low-value-added product and service markets, which do not require high level of skills. To promote industrial development and attract investors, high-skilled labor needs to be fostered, but no one is willing to pay for the training cost without any prospect for future benefit. As a result, the workers in Ninh Thuan are matched with jobs that are at low level, therefore, the quality of products and services remains low. For instance, a private professional school plans to open a long-term tourism course this year, but it has not attracted enough number of students to open the course. One of the reasons is the lack of job prospect after the completion of the course on the student's side and hotels in Ninh Thuan are not willing to hire high-skilled workers due to their high salaries.

(5) Lack of detailed plans and effective coordination and cooperation mechanism for human resource development

According to the provincial Human Resource Development Plan, the five-year plans for human resource development of each sector are formulated by the departments in charge, but most of the departments have not prepared them yet. Department of Planning and Investment (DPI) is a position responsible for the publication of plans to the public, and monitoring and supervision of the implementation. The provincial Human Development Council is expected to be set up to perform these tasks. However, the council has not been established yet. A mechanism is required to make a network of all the concerned parties, in which necessary information and knowledge are shared and the detailed plans are formulated to achieve the goals of human resource development.

#### 4.13 Public Finance

The revenue accrued in the provincial area is largely comprised of those (i.e., revenue from import-export or exploitation of minerals) transferred to the national and provincial governments. The latter plus subsidy transferred from the central government forms the local budget revenue. On the other hand, local budget expenditures are divided into recurrent expenditures and development investment expenditures. The 2010 local budget revenue and local budget expenditures of the three provinces are shown in the following table.

**Table 4.13.1 Local Budget Revenue and Expenditures in the Three Provinces**

Unit: billion VND

	Khanh Hoa	Ninh Thuan	Binh Thuan
Domestic Revenue	5,743	1,356	3,632
Subsidy from the National Government	1,095	2,359	1,549
Total Revenue	6,838	3,715	5,181
Recurrent Expenditures	2,150	1,194	2,272
Development Expenditures	2,460	886	586
Others	1,656	1,412	2,276
Total Expenditures	6,266	3,492	5,134

Source: Statistical Yearbook

The local budget revenue of Khanh Hoa is featured by the largest amount of revenue (VND 6,838 billion) and the smallest amount of subsidy (VND 1,095 billion) while that of Ninh Thuan is characterized by the smallest amount (VND 1,356 billion) of domestic revenue and the largest amount (VND 3,715 billion) of subsidy. The national government's grant shares 63% of local budget revenue in Ninh Thuan. Local budget revenue of Binh Thuan is placed between Ninh Thuan and Khanh Hoa.

Khanh Hoa allocates sizable amount of cash (VND 2,460 billion or 39% of total expenditures) to development expenditures while Ninh Thuan allocates an amount of VND 886 million or 25% of total expenditure into development expenditures. Binh Thuan allocates VND 586 billion only or 11% of total expenditures into development expenditures.

#### **4. 14 Regional Development Linkage and Cooperation with Ninh Thuan**

##### **4.14.1 Constraints in regional cooperation**

As result of regional cooperation programs as mentioned in previous section, they has not been implemented successfully. It is envisaged that there are difficulties in general and limited activities for regional cooperation to be done beyond own administrative role and function and that there is under conditions provincial governments has to promote more competitive development by own efforts rather than cooperation with other provinces.

Therefore concrete actions and implementation would take times through consensus building including budget and human resource mobilization in spite of agreement among relevant provinces in general. The following problems are observed in case of Ninh Thuan province.

- Two programs has not been implemented yet till now after establishment of the steering committee in 2006. The officer of Ninh Thuan province mentioned that one of reasons for attempted programs was not to be able to have made detailed and concrete implementation plans or projects by provinces.
- Other reason was mentioned also that internal coordination among relevant Departments within each province seemed not to be successful in terms of lack of discussions to achieve sector cooperation and focus on implementation of concrete projects.

##### **4.14.2 Issues on formulation for regional linkage and cooperation**

Taking account of these difficult circumstances for regional linkage cooperation, it is necessary for its programming and implementation to rebuild from starting points in terms of defined area and fields to be cooperated, practical cooperation through identification clearly of needs for cooperation.

- (1) Re-defining common socio-economic development issues (conditions) to be carried out complementary functions among provinces
  - In order to implement practical cooperation programs, clear vision and target for regional cooperation including building consensus among relevant provinces for concrete ideas will be inevitable and essential.
  - Regional potentials and constraints (e.g. coastal marine resources, forest protection, port development, etc) to be coped with should be clarified through identification of possible cooperation programs taking account of strengthen and weakness of each province with mutual understandings.

- (2) Formulating strategic measures for linkage consolidation
  - In order to implement sustainable cooperation programs, effective and efficient measures through technical assistance, budget provision and experimental approach will be required to be incorporated by sector projects.
  - Potential linkages should be identified strategically by certain criteria to achieve effective cooperation such as geographical proximity, project similarity and necessary complementary effect.
- (3) Promoting and integrating public and private partnership by appropriate initiation and organization
  - Private sector will play key roles in developing cooperation linkage. Therefore private sector as actual players for economic linkage formulation should be supported and encouraged by appropriate guidance and initiation through promotion of efficient understandings by public sector.
  - Public sector is required by well-organized implementation and coordination in integrated manner through encouragement of organizational consolidation.
- (4) Approaching gradual development for linkage formulation
  - In order to encourage and promote cooperation programs, successful result or good practice will become an important factor. Therefore one of the most potential and practical sector for regional cooperation program should be taken as model program based on appropriate roadmap for development.



## **CHAPTER 5 REGIONAL DEVELOPMENT STRATEGY**

The objective of the survey is to propose a regional development strategy for three provinces in the South Central Coastal Area, namely Ninh Thuan, Khanh Hoa and Binh Thuan. The socioeconomic condition of Ninh Thuan Province is the worst in the region. Therefore, a regional development strategy is proposed in order to improve the condition of Ninh Thuan Province with the cooperation and collaboration of neighboring provinces, through strengthening regional linkage/cooperation.

### **5.1 Issues in the South Central Coastal Area**

The current conditions of the South Central Coastal Area have been analyzed by sector, and the results were summarized in Chapter 4 in order to clarify the characteristics of the region. The South Central Coastal Area faces various issues, which are considered as constraints to regional development. Many of the issues observed in each sector are interrelated. This section summarizes the issues that the region faces.

#### **(1) Basic issues**

The basic issues that the South Central Coastal Area faces are summarized as follows:

- The regional development strategies, in the context of national development, for the northern area centered at Hanoi, the Southern Key Economic Zone centered at Ho Chi Minh City and the central area centered at Da Nang are well-established. On the other hand, the regional development strategy in the South Central Coastal Area is weak on the part of regional development in Vietnam.
- Social and economic disparity exists within the region. Ninh Thuan Province is the smallest in terms of population and economy among the three provinces in the South Central Coastal Area. The population of Ninh Thuan Province is half of Khanh Hoa Province and Binh Thuan Province. The size of Ninh Thuan Province's economy in terms of GDP per capita, as compared with Khanh Hoa Province and Binh Thuan Province, are 40% and 57%, respectively.
- Geographical location of Ninh Thuan is strategically disadvantaged. Ninh Thuan is inter-positioned between Nha Trang/Cam Ranh in the north where is a gateway to outer area and Phan Thiet in the south where economy is closely linked with Southern Key Economic Zone. This implicates disconnection of

Ninh Thuan with the neighboring provinces in terms of regional linkage. This makes flow of goods and people from north and south to Ninh Thuan limited.

- The poor living condition in rural area is somehow featured by low coverage rate of water supply, low quality of social services and poor accessibility, limited land for agriculture and low opportunity of employment.
- Urban centers in the region concentrate on provincial capitals so that further urbanization on provincial capitals will cause degradation of urban environment. Ninh Thuan particularly needs the balanced formation of urban and urban sub-centers.

## **(2) Economic issues**

The major issues in the economic sector are summarized as follows:

- The primary sector of Ninh Thuan Province has many disadvantages, such as: i) limited land for agriculture, ii) small scale, iii) salinity of soil, which further limits land for agriculture, iv) scarce water resources, v) few special products offered in the market, and vi) an inadequate supply chain;
- Low value-added share from manufacturing can be explained by the current situation that manufacturing is primarily raw material extraction with basic processing;
- Tourism resources are not fully utilized;
- Investment promotion and tourism promotion capacity are low; and
- Economic infrastructure and social infrastructure are not developed to attract investment.

These issues typically take forms of low income, and limited employment opportunities, causing large out-migration.

## **(3) Social issues**

The major problem in the social sector may be summarized as disparities in social services between urban and rural areas due to poor access, lack of social facilities, and low quality of services. Access is the major issue in the rural area. In addition, most of ethnic minority groups live in the mountain area where living conditions are also poor and economic activity is limited. In view of further urbanization, higher level of social services such as education and medical/public health will be required to cope with commercial business and urban migration.

(4) Organizational and human resource development issues

Organizational Issues

- Ninh Thuan does not have any governmental body to push forwards the Socioeconomic Development Plan on a daily basis.
- As an investment promotion agency (IPA), the EDO does not have a clear strategy for private investment attraction. It needs to adopt more proactive approaches to private investment attraction in addition to administrative reform currently undertaken.
- The EDO staff salary is too low to attract experienced staff who have expertise in investment and business support.
- The EDO does not have enough authority to instruct related departments and agencies to adjust their administrative procedures related to investment to one stop shop service by the EDO.
- Promotional activities are particularly weak in tourism development and industry development.

Human Resource Development Issues

- The quality of the work force in Ninh Thuan is not high. The current quantity and quality of training is very limited and the curriculum of the training courses do not match the current industrial needs.
- Detailed human resource development plans by sectors are yet to be prepared and there is no effective coordination and cooperation mechanism among related department and agencies to develop human resources required for priority sectors.
- Ninh Thuan is trapped by a vicious cycle of human resource development in the initial stage of development. Though high-skilled labor needs to be fostered to promote industrial development and attract investors, no one is willing to pay for the training cost without any prospect for the future benefit. The workers in Ninh Thuan are matched with their jobs at a low level.

## **5.2 Regional Development Objectives**

Based on the existing regional development plans in the concerned provinces and the constraints defined in each sector, four objectives are defined below corresponding to the overall, economic, social and organizational issues, respectively.

Objective 1 (overall):

To narrow regional disparities in the South Central Coastal Area, through raising the socio-economic condition of Ninh Thuan province and strengthening regional linkage/cooperation.

Objective 2 (economy):

To strengthen economic structure, responding to emerging opportunities, in order to diversify industry, employment opportunities, and raise income level in the region.

Objective 3 (social):

To promote regional integration or social cohesiveness by minimizing intra-regional disparities and securing self-sustainability.

Objective 4 (organization):

To strengthen organization for efficient and effective implementation of regional development strategy.

### 5.3 Basic Strategy for the South Central Coastal Area

Based on the review of existing development plans, interview with stakeholders, analysis of the study team, the development strategy is proposed as follows:

The basic strategy for the regional development of the South Central Coastal Area was prepared based on issues and development direction that were addressed in the concerned development plans. The following five elements contribute to the basic strategy for the regional development of the South Central Coastal Area:

- (1) Strengthening of regional linkage/cooperation to narrow regional disparities;
- (2) Introduction of the comprehensive approach or inter-sector approach,
- (3) Linking local resources based industries to new industries;
- (4) Human resources development to support regional development; and
- (5) Organizational strengthening, to promote regional development

(1) Strengthening of regional linkage/cooperation to narrow regional disparities

In order to overcome the issues regarding regional disparities, regional linkage/cooperation has to be strengthened. The following components constitute to this strategy:

- Even though the Study Area covers three provinces in the South Central Coastal Area, since Lam Dong province, particularly Da Lat city) plays important role in regional linkage/cooperation, Lam Dong is included for

regional linkage/cooperation consideration.

- Inter-regional road development connecting coastal areas and coastal area/central highland area to strengthen linkage with neighboring provinces,
- Regional cooperation on tourism development, with other popular tourism destination like Khanh Hoa, Mui Ne and Da Lat, to be implemented through public and private collaboration, tourism product development, tourism route development, and marketing promotion,
- Gateway approach to industrial diversification covering inter-organization collaboration and cross-border area development (Cam Ranh port and its hinterland),
- Sub-center development along national road No. 1 and No. 27,
- Regional cooperation on renewable energy projects to facilitate private sector to invest those projects, and
- Regional management of environmental protection for forest, river basin and maritime resources through promotion of borderless management..
- Regional coordination mechanism

Regional linkage/cooperation is implemented in the form of physical connection, technical cooperation, and regional cooperation/coordination, which will be discussed in detail in Chapter 7.

## (2) Introduction of the comprehensive approach or inter-sector approach

Many of the issues observed by sector are inter-related, which means solving one problem or one sector problem may not be a solution for overall problem. The comprehensive or inter-sector approach will be taken, in which several projects or sub-projects are implemented under one objective. The following are particularly important.

### (i) Tourism development including infrastructure and non infrastructure

The primal constraint of tourism development in Ninh Thuan province is tourism resources that are unknown to many tourists. In order to promote tourism in Ninh Thuan province, the following actions need to be taken:

- Tourism marketing and promotion aiming to focus on the target tourism segment and to create a good image for tourism;
- Tourism product development to expand the range of products and attractions in order to raise visitor satisfaction through utilization of local resources (sea, forest, culture, salt, and clean energy);

- Human resources development for execution of tourism promotion; and
- Tourism infrastructure development (road, tourism facilities).

(ii) Rural development to improve living conditions

It would be effective if a multi-sector approach is applied to rural development since many aspects are related. The problems on health and education are caused not only by the quality and quantity of services provided but also by accessibility, style of living, and culture. Some villages are located in remote areas where access to health and education facilities is difficult. In some villages, children are considered as important laborers in agricultural activities, and their parents do not send them to school. The following constitutes this strategy.

- Improvement of health care by providing/improving medical equipment, and strengthening of health services;
- Improvement of education through boarding school, improvement of school facilities, and development of teacher's textbooks;
- Improvement of access by providing rural roads to reach remote areas;
- Skills development based on local culture and products;
- Rural development targeting ethnic minorities through vocational training (improvement to the quality of handicrafts, collaboration with the tourism sector, development of handicrafts which can be marketed outside Ninh Thuan Province); and
- Strengthening of cultural activities (traditional dances, houses, and handicrafts) which will contribute to tourism development.

(iii) Urban development

Economic activities in the region will increasingly concentrate on urban centers or provincial capitals in the process of further urbanization. How to make cities and towns more attractive in terms of social services and urban environment would be one of key strategies for formation of business center and the relating investment promotion. Improvement of social services and urban living environment will be challenged in urban centers in the region. Ninh Thuan plans to grade up Phan Rang City from the third to the second grade. The province will need urban hierarchy comprising of centers combined with sub-centers.

(3) Linking local resources based industries to new industries

The traditional industry in the coastal area has been resource-based industry, i.e. the primary processing using raw materials in the area. The departure from the traditional resource-based industry has two approaches. One is the gateway approach, i.e. industrialization linked to near-by ports. Past experiences of the coastal area exemplify industrialization of hinterland behind the gateway. Industrialization will shift to high valued processing products using local resources depending on the market (demand) condition. Another is new type of products using primary agricultural and sea raw materials, which is supported by a growing demand in domestic market. Strategy for industry is composed of the followings:

- Diversification of resource-based products using a mixture of coastal and highland area,
- Cassava and sugarcane-based conglomerate industry and salt and seaweed-based conglomerate industry
- Market-driven products using local resources through the near-by gateway,

(4) Human resources development to support regional development

The fundamental issue to be tackled by the human resource development strategy is how to develop skilled workers required for the six priority sectors that have not been developed yet in Ninh Thuan. Ninh Thuan needs to formulate human resource development strategies for the six sectors and implement the strategies in cooperation with all the concerned agencies in addition to improvement of general education quality. The following are the measures to be taken:

- Building a human resources development network composed of related organizations and agencies to formulate and implement human resource development strategies, which aims to match the demand and supply of the labor market
- to provide more skilled laborers to the industry and tourism sectors
- Improvement of quality of general and higher education.

(5) Organizational strengthening to promote regional development

Since the Economic Development Office (EDO) is the only agency that could play the role of driving force for economic development, the EDO shall perform functions of both an investment promotion agency (IPA) and those of a provincial economic development board. The functions of the EDO to be strengthened as an

investment promotion agency are investment promotion, business support services and policy advocacy and coordination. The functions to be added to the EDO as an economic development board are creation of new industries and cooperation of human resources development activities and coordination on the implementation of regional development.

In addition to capacity development of the EDO, capacity of the departments and agencies related to tourism, industry and investment need to be strengthened especially in their coordination and promotional functions to ensure the successful implementation of the Socioeconomic Development Plan.

To achieve economic development at a regional level, The EDO could facilitate the formation of councils to promote regional cooperation among the neighboring provinces especially in the areas of tourism and industrial promotion.

#### **5.4 Development Scenario**

Given the existing conditions of the South Central Coastal Area, regional development will be pursued in order to attain the objectives defined in the basic strategy, various elements of the basic strategy will be implemented step by step, and the regional development of the South Central Coastal Area will be realized over time as resources increase and institutional measures are implemented.

The planning period is tentatively divided into three phases: short-term in 2012-2015, medium-term in 2016-2020, and long-term in 2021-2030. The planning phase will be revised according to construction development such as construction schedule of the nuclear power plant.

The economic plan for the South Central Coastal Area is characterized as follows:

- Short-term: preparation for economic restructuring;
- Medium-term: economic restructuring; and
- Long-term: sustainable economic growth.

Regarding social development, local foundation for social development should be established in the short-term, followed by extending improved social services in the medium-term, and then upgrading the social services network linking other regions in the long-term.

With regard to organizational strengthening, investment promotion capacity, training network capacity, and inter-regional linkage coordination capacity should be strengthened in the short-term, followed by strengthening of tourism promotion capacity in the medium- and long-terms.

Regarding the improvement of regional linkage, linkage among Ninh Thuan



Province, Binh Thuan Province, and Lam Dong Province should be strengthened in the short and medium terms. Then linkage between Ninh Thuan and Binh Thuan Provinces should be strengthened in the long-term.

**Table 5.4.1 Development Scenario for the South Central Coastal Area Regional Development**

	<b>Short Term (2012-2015)</b>	<b>Medium Term (2016-2020)</b>	<b>Long Term (2021-2030)</b>
Development Target	Preparation for launching development	Launching development	Sustainable development
Economic Development	Preparation for economic restructuring <ul style="list-style-type: none"> <li>• Primary sector: product diversification, improve productivity, link with agro-processing</li> <li>• Institutional strengthening for industry and tourism promotion</li> </ul>	Economic restructuring <ul style="list-style-type: none"> <li>• New industry development</li> <li>• Industry diversification model development preparation</li> </ul>	Sustainable economic growth <ul style="list-style-type: none"> <li>• Industry diversification model realization</li> </ul>
Social Development	Establishment of local foundations for social development <ul style="list-style-type: none"> <li>• Improve facilities and services in rural area</li> <li>• Improve access to social services</li> <li>• Improve vocational training mechanism</li> </ul>	Extension of improved social services <ul style="list-style-type: none"> <li>• Expansion of facility and service improvement</li> <li>• Expansion to other areas</li> </ul>	<ul style="list-style-type: none"> <li>• Upgrading of social services network linking other regions</li> </ul>
Spatial Development/Infrastructure	<b>Transportation Network Improvement</b> <ul style="list-style-type: none"> <li>• Inter-regional road development to strengthen inter-regional linkage (National road No. 1, No. 27)</li> </ul> <b>Urban Development</b> <ul style="list-style-type: none"> <li>• Urban development through strengthening of urban hierarchy (urban sub-center: Loi Hai, Tan Son)</li> <li>• Development of urban infrastructure in Phan Rang urban area</li> </ul>	<b>Transportation Network Improvement</b> <ul style="list-style-type: none"> <li>• Intra-regional road development to strengthen linkage within the province</li> <li>• Development of community/district roads to improve access in the rural area</li> </ul> <b>Urban Development</b> <ul style="list-style-type: none"> <li>• Urban development through strengthening of urban hierarchy (urban sub-center: : Loi Hai, Tan Son)</li> <li>• Development of urban infrastructure in Phan Rang urban area</li> </ul>	<b>Transportation Network Improvement</b> <ul style="list-style-type: none"> <li>• Intra-regional road development to strengthen linkage within the province</li> <li>• Development of community/district roads to improve access in the rural area</li> </ul> <b>Urban Development</b> <ul style="list-style-type: none"> <li>• Urban development through strengthening of urban hierarchy (urban sub-center: Phuoc Nam)</li> </ul>
Organization and Human Resources Development	<ul style="list-style-type: none"> <li>• Strengthening of EDO, industry promotion, and training</li> <li>• Formation of a steering committee to study inter-regional cooperation mechanism</li> <li>• Establishing a human resources development council and a human resources development center</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening of EDO, industry promotion, tourism promotion, training, and additional function</li> <li>• Continue to develop inter-regional cooperation mechanism</li> <li>• Improvement of vocational training and professional education to support providing</li> </ul>	<ul style="list-style-type: none"> <li>• Upgrading the Teacher Training College into a multidisciplinary university</li> </ul>

	<b>Short Term (2012-2015)</b>	<b>Medium Term (2016-2020)</b>	<b>Long Term (2021-2030)</b>
		workers to industry and tourism	
Regional Linkage	<ul style="list-style-type: none"> <li>• Strengthening the linkage and cooperation between Phan Rang and Cam Ranh/Nha Trang</li> <li>• Strengthening the linkage and cooperation between Phan Rang and Da Lat</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening the linkage and cooperation between Phan Rang and Cam Ranh/Nha Trang</li> <li>• Strengthening the linkage and cooperation between Phan Rang and Da Lat</li> <li>• Strengthening the linkage between Ninh Thuan and Binh Thuan Provinces</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening the linkage and cooperation between Phan Rang and Da Lat</li> <li>• Strengthening the linkage between Ninh Thuan and Binh Thuan Provinces</li> </ul>
Role of Public/Private Sector	<ul style="list-style-type: none"> <li>• Public investment</li> </ul>	<ul style="list-style-type: none"> <li>• Public investment and private investment</li> </ul>	<ul style="list-style-type: none"> <li>• Private and public investment (social and economic)</li> </ul>

Source: JICA Study Team

## **CHAPTER 6 STRATEGY BY SECTOR**

The basic strategy for the South Central Coastal Area, which primarily focuses on Ninh Thuan Province, includes the following: i) strengthening of regional linkage and/or cooperation, ii) inter-sector approach, iii) rural development to improve living conditions, iv) diversification of industry, v) human resources development, and vi) organizational development. This chapter presents the strategies by sector, which are related to Chapter 7 (Strategy for Strengthening of Regional linkage and Cooperation) and Chapter 8 (Priority Programs).

### **6.1 Strategy for Economic Development**

#### **6.1.1 Industry Diversification**

The traditional industries in the coastal area have been dominated by resource-based industries that make use of raw materials in the coastal area. Industry diversification in the coastal area has been observed in the hinterland behind major ports such as Da Nang and Van Phon Bay (Khanh Hoa). Industrialization in the hinterland behind such ports is featured by i) heavy industries (power plants, petrochemical industries, and oil refineries), and ii) assembly/parts/components industries.

Ninh Thuan have had the image of the poorest and least industrialized province, resulting to a slower pace of investment than as planned. It is about time that Ninh Thuan should take the initiative to start a new era for industry diversification in order to eradicate its old image. Without any major port, Ninh Thuan Province has to have a link to a port nearby in order to follow the port development-based industrial diversification. This section presents the strategy of a possible plan on industrial diversification in Ninh Thuan while considering the possible regional and inter-sector linkages.

##### **(1) A gateway approach to industrial diversification**

##### **Diversification of resource-based industry**

The Cam Ranh Port (Khanh Hoa), one of the ten biggest commercial ports in Vietnam, is currently handling many types of bulk cargo. The hinterland behind the said port is a strategic location for the development of resource-based industries. Such hinterland covers the area along Cam Ranh Bay and the industrial park in Ninh Thuan near the border of Khanh Hoa. The current salt farms along the bay (Khanh Hoa) is planned to be converted into an industrial area. The Du

Long Industrial Park (Du Long IP) on National Road 1A (Ninh Thuan), close to the border with Khanh Hoa is ideally located to accommodate resource-based industries. With the improvement of National Road 27, a future supply chain connecting the highlands in Lam Dong (raw material resources) with the industrial area in the hinterland (Du Long IP and area along Cam Ranh Bay) and loading and shipping at the Cam Ranh Port (as the gateway) will be established. This supply chain would contribute to the diversification of resource-based industry. The possible resource-based industries utilizing highland raw materials are the following: i) wood chips, ii) plywood, iii) furniture, iv) high-valued furniture using granite stone (Ninh Thuan), and v) food industry using highland raw materials.

#### The port development-based industry

The status of the Cam Ranh Port from the current commercial port handling bulk cargoes mainly to the port handling container cargo may hinder the attraction of new types of industries into the hinterland of the port. Such industries include the following: i) machine industry, ii) electronics components/parts industry, iii) machine components/parts industry, iv) consumer goods industry with their main outlet to the South Central Coastal Area, and v) container cargo handling services. With the emergence of new types of industries, the hinterland behind the port will be the cross-border region where division of labor between companies in Khanh Hoa and in Ninh Thuan may be established. The cross-border region will need regional cooperation on: i) the physical development plan of the hinterland, ii) investment promotion for new industries, and iii) mutual agreements on regulations and tax conditions of raw materials or parts to be transacted among companies within the cross-border region.

#### (2) Resource-based new industry

The possible resource-based new products are the following: i) cassava chips or animal feeds, ii) cassava starch (tapioca) which is an additive ingredient for food and paper, iii) seaweed derivatives (cosmetics, pharmaceutical, and healthy foods), and iv) salt in chlorine (caustic soda as secondary raw material, magnesium-based derivatives such as healthy products).

### The agro-based conglomerate industry

The sugarcane- and cassava-based products, chips, pellets, molasses are raw materials for bioethanol as well. Such products including refined sugar compose the conglomerate industry. The products of the conglomerate industry under a growing domestic demand are currently considered as the strategic ones as recommended by the MARD. Those products consumed throughout the country are suitable for agro-products on region-based production. The South Central Coast Area's population of three million would form the appropriate market size for the conglomerate industry therein. The volume of raw materials needed for the conglomerate industries' products would be beyond the production capacity of a single province, thus regional cooperation such as a joint undertaking among the three provinces to supply raw materials will be required. Horizontal division of labor among firms in the three provinces can be considered so that regional cooperation on regulations and tax conditions of raw materials and inter-sector linkage in terms of production planning of raw agricultural materials would be needed.

### The sea-based conglomerate industry

Spirulina, chlorella, and blue-green algae (seaweed) are food that could help increase energy, decrease fatigue, enhance brain function, nourish the nervous system, and purify blood. EDO of Ninh Thuan is promoting a spirulina seaweed production center as one of its investment projects. Spirulina seaweed can be used for a variety of products such as supplements, fertilizer, and ingredients of final food products. Spirulina seaweed is mostly consumed in the market of developed countries. With the rise of people's income, there will be a steady market for algae-based products, therefore, Ninh Thuan would have the opportunity to establish its algae-based conglomerate industry.

Salt in chlorine chemistry produces chlorine, caustic soda, and numerous other products created from these basic chemicals. In Japan and Europe, the chlorine industry use natural salt to produce chlorine and caustic soda. Chlorine is utilized to keep drinking water safe while caustic soda is used in pulp processing and formulating other chemicals. Magnesium chloride produced from salt is the basic chemical used as additives in food, medicine, supplements, and health products. Since Ninh Thuan is endowed with natural salt of good quality, it has the potential of establishing salt in chlorine industry, particularly producing caustic soda and magnesium chloride.

### 6.1.2 Creating Brand Images of Local Products

Ninh Thuan Province at present completely lacks an “image”, particularly a brand image suggesting the characteristics of the province. As famous tourism spots, Nha Trang and Mui Ne have established their own brand images in the international and domestic tourism markets. Creating the brand image of Ninh Thuan is an efficient and powerful strategy to attract investors. The issues or questions to be answered are how to disseminate the brand image of the province, and if the brand images would consist of the name of places or its products or people? This section presents an effective approach in creating the brand image of Ninh Thuan.

#### (1) Creating brand products

Ninh Thuan is endowed with resources of excellent quality, such as grape, seaweed, and salt. However, such products have never been tried as target products to upgrade their brand images. Products are divided into: i) raw materials, ii) processed raw materials, and iii) processed products. If a priori is given to the image of “freshness”, raw materials such as grape or salt are to be symbolized as brand products. If a priori is given to a commercial image, products such as wine or healthy magnesium-based products are to be developed. The latter will consist of a market strategy that is entirely dependent on private investors, though the province may try to upgrade both raw materials and products simultaneously through a pilot project. The following presents an example on how to build a brand image for raw materials and products from a vineyard and a wine factory:

- Identification of the best grape specie for wine: The share of grape specie for winemaking is currently just 5% of grape varieties. The grape species that would create the best wine will be determined based on: i) the climate condition, ii) soil condition, and iii) the quality of wine to be sold as a brand product. The foreign species may be applied to the grape species for wine if the three conditions mentioned are satisfied;
- A pilot vineyard and wine factory: A pilot vineyard is intended to produce the best species following the conditions regulated by Good Agricultural Practice (GAP). The requirements for a GAP certificate are so complex that a pilot vineyard exemplifies more practical requirements which may be applied to the rest of the vineyard farmers. A pilot investor is to be invited to make an experimental wine that is supposed to be classified among the best in the wine market;
- The experimental wine will be experimentally sold in HCMC and Hanoi in

order to see the market's reaction on the product; and

- Advertisement of wine: At first the name of wine is important for the image shared by consumers. The term “Ninh Thuan” is not an appropriate name, although a foreign name may be a candidate. The wine is to be advertised through TV or newspaper.

DARD of Ninh Thuan implemented training of about 200 grape farmers on GAP in the past, but the majority of trainees failed to follow the complicated regulations of GAP. A pilot project could contribute to the improvement of grape growing practices, which are equivalent to the requirements of GAP, and production of wine of the best quality.

## **(2) Building of a brand name and image**

Building a brand name and image is particularly significant for tourism promotion. The issue on what could be the symbolic feature of tourism in Ninh Thuan should be answered. The term “hidden charm” may suitably describe the untapped sea resorts from around Binh Tien South to Vinh Hy Bay in order to attract foreign and wealthy domestic tourists in the first-class sea resort area. Another feature will be a gateway linking to hinterland tourism spots. The gateway to the hinterland could be a cable car connecting from the Lam Dong and Ninh Thuan sides. Such cable car, which is to be developed by a private investor taking interest in a combination of coast and highland tourism, could be the sales point of tourism promotion. The following are considered as pilot projects for tourism brand making:

- Drafting brand names: This is the first task to apply the image Ninh Thuan's tourism resources. If a cable car as a gateway to the hinterland is acceptable as a symbolic facility applying the image, the brand name such as “a rainbow bridge to hinterland” could be suitable;
- Regional cooperation on a market survey of brand image: This survey needs cooperation from Khanh Hoa, Binh Thuan and Lam Dong Provinces. The main purpose of the survey is to identify a brand image/name for Ninh Thuan's tourism resources. The survey also contributes to the image branding of tourism resources in other provinces. The survey could be in the form of mass sampling (tourists visiting respective tourism spots in the four provinces) so that the preferences of draft brand names are to be quantified; and
- Advertisement of a brand name/image: If the draft names/images are sustained through the market survey, they are to be advertised through newspapers and/or tourism magazines.



The creation of a brand image of Ninh Thuan's tourism resources would benefit the neighboring provinces in the long term because tourists in the future may choose not only a single tourism destination but also other tourism areas within the four provinces.

### 6.1.3 Extensive Tourism Market Formation

The South Central Coastal Area and hinterland consist of different tourism resources but only tourism promotion by province has been executed so far. The three coastal provinces plus one hinterland province could form the new tourism market segment that would attract foreign and domestic tourists. Japan has a long history of the so-called extensive tourism market formation in which both public and private sectors have jointly made efforts to create tourism products. This section presents the possibility of creating an extensive tourism market formation which will complement the region members.

#### (1) Tourism patterns in a “triangle tourism market”

The hinterland tourism area of Lam Dong and tourism spots in the South Central Coastal Area form the so-called “triangle tourism market”. Lam Dong resembles the apex of the triangle while the coastal region form the base of the triangle. Ninh Thuan is placed at the middle of the base of the triangle. Tourism patterns in the triangle tourism market will be determined by: i) tourism routes, ii) tourism products, and iii) visiting or stay type.

Majority of domestic tourists are classified into the short-stay type, sightseeing at around one particular place, while foreign visitors mostly belong to the long-stay type at around one particular place. The attractiveness of Ninh Thuan's tourism resources includes: i) the “hidden charm” symbolized by the high-class beach resorts from Bien Tien South to Vinh Hy Bay, and ii) other products such as ecotourism, historical places, and marine sports/leisure/nature. The “hidden charm” spot may be the target for “stay type”, while other products would be for tours. Examples of tourism arrangements in the triangle tourism market are as follows:

For foreign tourists:

- Long stay (Nha Trang or Mui Ne) + visiting tour (Ninh Thuan);
- Long stay (Nha Trang or Mui Ne) + short stay (Da Lat);
- Long stay (Bien Tien South to Vinh Hy Bay) + visiting tour (Ninh Thuan);  
and
- Long stay (Bien Tien South to Vinh Hy Bay) + short stay (Da Lat)

For domestic tourists:

- Short stay (Da Lat) + short stay (Nha Trang or Mui Ne); and
- Short stay (Da Lat) + visiting tour (Ninh Thuan)

The potential tourism arrangements are not limited to the above examples. An extensive market survey, in collaboration with private travel agents, will be needed to grasp the possible tourism arrangement.

(2) Provision of common tourism facilities

The common tourism facilities consist of: i) roadside station for resting and also as a place for promoting local products (*michi-no eki* in Japanese), ii) access road to tourism spots, iii) water treatment and water supply facilities for tourism spots, and v) bus stations for transfers. The challenging issue will be how to operate and maintain such facilities. Participation of the private sector will be the key solution on the management of common tourism facilities.

(3) Land and marine transportation

An extensive tourism market formation will require both land and marine transportation connecting tourist spots. At present, there are no shuttle buses or buses on regular routes for tourists inside the coastal region and connecting to the hinterland (Da Lat). There are no cruise ships travelling to sea resort spots either. Participation of the private sector in land and marine transportation business will depend on the size of the extensive tourism market. There are a few PPP modalities for land and marine transportation businesses.

(4) Establishment of the extensive tourism development committee

Japan has many case samples of extensive tourism development bodies, consisting of local governments and the private sector. Japan's management knowhow and experience will be provided to the committee to be established.

A technical cooperation project will be an ideal method to implement the above tasks on the formation of the extensive tourism market. The relevant provinces are requested to form the committee at the beginning of the technical cooperation project.

#### 6.1.4 New Roles of the Agricultural Sector

The current direction of the agricultural sector will be given less priority. The direction of agricultural development will be as follows: i) departure from rice production to high-valued products applying the “fresh” image of the production area, ii) agricultural products linked to high-valued processing products, and iii) marine products with local supply chain. All of the three directions could render improvement to the local economy. An important issue is how the three directions will be achieved. This section presents practical approaches on how to achieve the three directions.

##### (1) High-valued products

The agricultural sector in Ninh Thuan currently produces standard food crops including rice, which render low value to the local economy. Rice, which is the main food crop, will no longer be given high priority. Accordingly, the high-valued products would be regarded as those which are not produced in coastal areas. Fresh vegetables usually produced in highland areas would be one of the candidates. Considering the required time and transportation cost to deliver fresh greens from the hinterland to coastal areas, such productions even on a small scale would be able to supply fresh greens to the urban areas of coastal areas. Fresh grapes and apples are the other candidates for high-valued products. The following will be needed for the future high-valued products:

- Investment promotion for fresh greens and fruits: Some investors already expressed their interest in the production of fresh vegetables in coastal areas. This is a good opportunity to introduce fresh greens to an area with semi-arid climate conditions such as Ninh Thuan; and
- Building the transportation route of fresh greens and fruits: The big demand for fresh greens is supposedly tourism related as from hotels (high-class hotels), restaurants, roadside stations (*michi-no eki*), and supermarkets.

It will be worthwhile for DARD to plan the production and distribution of these high-valued products. Perhaps pilot projects will be worthwhile for the sustainable development of high-valued products.

(2) Agricultural products linked to high-valued processing products

Agricultural products such as sugarcane and cassava are used as raw materials to produce various processing products. Accordingly, inter-sector linkage will be aimed in determining the production requirements of sugarcane and cassava. Agricultural products linked to high-valued processing products will be determined in the production plan of the conglomerate sugarcane-based and cassava-based industries, which are among the regional industries to be diversified. The supply sources of sugarcane and cassava as raw materials would be multiple fields scattered in the coastal provinces. Regional cooperation on division of raw materials supply will be required.

This is a case of a typical industry based agricultural product. The conglomerate industry may put a different production process into different places of the three provinces. Likewise raw materials supply will be from different places. Regional cooperation will be required for the production and procurement of raw materials.

(3) Marine products with local supply chain

Given the situation that shrimp based aquaculture is practically controlled by investors, which result to low value added to the local economy, fishery based marine aquaculture will be focused on because of the value it adds to the local economy. More value will be given to fishery based marine aquaculture products with cold chains since they can give high-valued marine products to tourism-related high-class hotels, restaurants, roadside stations (*michi-no eki*), and supermarkets. The necessary actions will be almost the same as those presented for high-valued products.

6.1.5 Encouraging Private Investors to Invest in Renewable Energy Projects

The recurring power shortage in southern Vietnam has become serious because there have been no substantial measures to augment the continuous increase of power demand. The country now imports power from China. Under such circumstance, renewable energy comprising of wind, solar, and hydropower will be focused on more. The constraint is the low power purchasing price, which is US\$6 per kWh for wind power and US\$6.5 per kWh for hydropower in Binh Thuan. The current power purchasing price is based on a take-or-pay obligation in which EVN purchases power produced from renewable energy projects. This means that the power market is not liberalized yet. The majority of domestic power investors expect EVN to raise the current price to a reasonable electricity

sale price. Nevertheless a take-or-pay obligation with low purchasing price is difficult to revise. This section presents a possible approach to encourage private investors to participate in renewable energy projects through PPP scheme. The Ministry of Trade and Industry (MTI) is the contracting agency which contracts with private investors for renewable energy PPP projects. The MTI on behalf of the national government is responsible for subsidy, guarantee, incentives, and even the purchasing price of electricity, which is stipulated in the contract. The expansion of Da Nhim hydropower and future wind power projects will be the candidate PPP projects.

(1) Implementation of a PPP feasibility study

A PPP feasibility study is quite new and a little complicated. It covers i) PPP modality (what PPP scheme is appropriate for a power project), ii) power supply capacity based on natural conditions, iii) financial analysis on equity with subsidy or without subsidy under the given purchasing price, iv) security packages for debt financiers, and v) preparation of a draft contract including the draft guarantee and incentive clauses. A donor (i.e. Japan or Germany) may assist in the implementation of a PPP feasibility study instead of investors because a donor basically encourages its country's investors to advance renewable energy projects in Vietnam.

(2) A contract negotiation with the contracting agency

This process is very important for investors because a contract negotiation makes a clear level of subsidy, guarantee, and incentives. Even the sale price would be negotiable, particularly a renewable energy project under severe natural conditions. The successful negotiation will be important for the South Central Coastal Area since it may discourage future investments.

(3) Monitoring of project implementation

DTI may assign a professional expert to monitor both technical and financial performances, which will be the program for future projects.

(4) Regional cooperation between Ninh Thuan and Binh Thuan

Binh Thuan is ahead in terms of a wind power project. It is recommended that both provinces would cooperate on the implementation of future renewable energy projects with respect to: i) information sharing, ii) capacity strengthening of

relevant staff with respect to a PPP feasibility study (to be conducted during a PPP feasibility study), and iii) preparation of the TOR of a PPP feasibility study if it is to be made by a local consultant.

The DTI will be the primal body for the promotion of renewable energy PPP projects. The two DTIs of Ninh Thuan and Binh Thuan may discuss the implementation schedule of future renewable PPP projects in consultation with international consultants.

## **6.2 Strategy for Social Development**

### **6.2.1 Social Service Improvement in the Urban Area**

The quality and quantity of education are relatively low in Khanh Hoa and Binh Thuan and extremely low in Ninh Thuan. Extremely low quality of education results in low quality human resources. Furthermore, the capacity of higher education in Ninh Thuan is quite small (it has only a few colleges that provide higher education). Enrollment to secondary education is also low and talented students who are expected to be quality human resources go out of the province and look for better higher education and job opportunities. In order to promote the development of the region, the production of more and quality human resources by providing students more opportunities to access education and improving the quality of education are considered to be effective.

In health care sector at Urban Area, the situation is under the process of improvement. Provincial hospital is enlarged and relocated to new place in 2012 and old one will be converted into private hospital, preventive medicine center and traditional hospital. In urban area, the number of beds will become sufficient and health indexes are expected to be improved much.

(1) Increase the number of quality human resources

#### Increase the number of children enrolled in higher education

In urban areas of Ninh Thuan, the enrollment to basic education is relatively high, but the enrollment to upper secondary education and higher education are still low. One of the reasons is that the capacity of present upper secondary schools is very limited. Some students give up studying due to the lack of the school's capacity. The construction of upper secondary schools with accommodations in Phan Rang City will increase the number of enrollments in upper secondary education. It would produce more quality human resources for regional development and increase the number of children who will enrol in higher education.

### Improve the quality of basic education

The quality of education is quite low in Ninh Thuan and relatively low in Khanh Hoa and Binh Thuan. One of the reasons for this is that teachers do not have sufficient knowledge and teaching skills. The Director of DOET in Ninh Thuan said that “There are quite a lot of teachers, especially who specialize in science, feel hardship to implement attractive classes”. As in urban areas, teachers already received training on how to implement teacher training based on ‘lesson study method’, at schools around Phan Rang city in Ninh Thuan Province. They carry out lesson study workshops once a month by themselves, but the problem is their knowledge in science and their idea of good lesson is quite immature. If teachers’ guidebook with model lesson plans is distributed to them, they can improve their quality of lessons more effective.

The development of guidebooks for science teachers including lesson plans at the lower secondary level and implementation of model trainings are effective measures to improve the quality of lessons and raise the quality of students in the three provinces.

- (2) Enhance educational and medical facilities that would accommodate the expected population increase

Urban development is expected to increase the population. Workers as well as external technical staff, tertiary workers such as cooks or laundry personnel, and their families are expected to accumulate and reside around the industrial zone, nuclear power plant, etc. If the area cannot satisfy basic human needs such as educational services and medical services, people are inclined to leave the area. In order to attract quality human resources for industrial development, basic educational and medical services of national quality standards should be provided to inhabitants.

#### 6.2.2 Social Service Improvement in the Rural Area

Indexes related to poverty shows that the income difference between the urban area and rural area is gradually increasing in the three provinces. In order to restrain such increase, the rural area needs development not only in agriculture but also in secondary and tertiary industries, e.g. food processing industry such as production of hams and sausages using pigs of local variety aiming to send such products to Nha Trang or Mui Ne where many foreign tourists visit, and ecotourism industry utilizing resources such as waterfalls or well-preserved

forests in national parks. Due to the low enrollment rate for basic education at present, many people in the rural area cannot seize opportunities such as participation in vocational training and application in better jobs. Even if such people can take vocational training, the contents and quality of many present trainings do not match the actual needs of the market.

If the poor access and low educational effect is improved, the enrollment of people in basic education in this area will increase and more children will have the potential to choose better alternatives of improving their livelihood. If the management and contents of vocational training are improved, the potential of rural people improving their livelihood would increase.

The strategy for improving the living conditions in the rural area aims to improve the condition of education for children, improve vocational training which expects to contribute to more job opportunities, and improve medical and health services to improve BHN. The lack of medical facilities and the deficiency of knowledge and skills of medical staff result in poor quality medical services and poor figures of health indexes. The healthcare indexes are low in Khanh Hoa and Binh Thuan and quite low in Ninh Thuan except for the percentage of HIV infected persons.

Insufficient medical and healthcare services are one of the hindrances for quality human resources to work in this region. By improving the access and quality of medical services, quality human resources, as a requirement for regional development, would be attracted to work in the region.

(1) Increase the potential of children to improve their livelihood

Improve access to basic education

In the rural area especially in Ninh Thuan, many students live too far away from schools. The commuting time (CT) is sometimes about two hours per way. As the density of population is low and students live scattered in the rural area, the building of new schools is not a very effective way to improve CT. The construction of boarding rooms and canteens will shorten the CT and increase the opportunity of children to go to school.

Provide more effective and better quality basic education

One of the causes of low enrollment to basic education in the rural area is that some students and parents cannot clearly feel that the education provided in schools is helpful to improve their livelihood. On the contrary, to let children go to school is sometimes a burden for parents. At present, some primary and lower



secondary schools are implementing subjects related to agriculture and vocational training aiming to help students to improve their livelihoods. The ability of the focal person in charge of developing the curriculum and contents of the subject is quite low based only on transfer of knowledge type of classes. By improving the ability of the focal person in charge, basic education will be more effective in improving the people's livelihood. As a result, it will attract more students to enroll in schools.

- (2) Increase the number of participants who acquire jobs after receiving vocational training

Improve the management of vocational training

Even if basic education is distributed more in the rural area, there are little chances for people in the rural area to find jobs except in the agriculture sector. Local governments are considering that tourism and food processing industries can improve the people's livelihood, however they do not know how to promote these potential industries. The DOLISA at the provincial level is managing vocational trainings at vocational centers in the rural area. They form survey teams and carry out short-term surveys in the rural area to assess what kind of trainings are suitable for the development of the region, however, the quality of their assessment is inadequate.

The system "to assess what kind of local industries that have high potential and reflect the results of the assessment to the promotion and to the implementation of vocational trainings by cooperating with private sectors" is required for focal persons who manage the vocational trainings. The improvement will increase the percentage of laborers who can acquire jobs after training.

Improve the curriculum and teaching of vocational training

Even if the management of training is improved but the curriculum and way of teaching are still in poor quality, the effects of training will be limited. Therefore the improvement of the capacity of staff in vocational centers to develop curriculums and teaching is also very important.

(3) Improve health care and educational services and realize the livelihood with BHN

Raise the quality of medical and health care services by improving the capacity of medical staff

At present one of the most important problems unsolved in the rural area is insufficient capacity of medical staff. In several medical establishments in the rural area, the facilities and equipment are almost sufficient as provided by government support but medical staff do not know how to use them properly. Inhabitants prefer to go to better medical establishments which are located far from their dwellings. That indicates that the present training implementation and management system for medical staff is not functioning well.

JICA succeeded in assisting Hoa Binh Province to strengthen its regional medical service system by establishing a better training management system for medical staff. The system is called the Hoa Binh model. JICA has been trying to disseminate it to other provinces in Vietnam. The dissemination of the said system at Ninh Thuan, Khanh Hoa and Binh Thuan will improve the effects of training to medical staff and raise the quality of medical and health care services.

Improve and strengthen the patient referral system

CHCs only provide very basic medical treatments and more advanced services are provided at district and provincial hospitals. In case of emergency, the quality of the referral system of patients is quite necessary especially for rural inhabitants who have limited access to advanced medical treatment. Though there exists a referral system in each province, the cooperation among commune, district and provincial levels is insufficient. JICA succeeded in improving the referral system in Hoa Binh Province in northern Vietnam. The dissemination of such experience by JICA to the three provinces would be effective to improve the rural health care situation.

Enhance educational and medical facilities that would accommodate the expected population increase

Workers as well as external technical staff, tertiary workers such as cooks or laundry personnel, and their families are expected to accumulate and reside around the planned nuclear power plant. If the area cannot satisfy basic human needs such as educational services and medical services, people are inclined to leave the area. In order to attract quality human resources for industrial

development, basic educational and medical services of national quality standards should be provided to inhabitants.

### **6.3 Strategy for Spatial Development/Infrastructure**

#### **6.3.1 Transportation Network Improvement**

The issues of transportation network include poor inter-regional road condition, and lack of inter-regional and intra-regional linkage formations. National Roads 1A and 27 are considered inter-regional roads which connect the coastal area and the central highland area. The road conditions are poor which result to negative impacts on efficient transport and safety. Coastal roads are developed by province, and the connection among coastal roads are poor which lead to negative impacts on tourism development and other developments along the coastal area. Intra-regional linkage is not formed due to the lack of provincial connections with inter-regional roads, and the lack of district/community roads which connect villages with rural centers.

For the transport/road sector, the following three development targets were set up:

- Strengthen regional linkage through development of inter-regional roads;
- Promote the sector's programs based on the development strategy through development of intra-regional roads; and
- Promote rural development and support ethnic minority groups in remote areas through development of community/district roads.

The details of each strategy are given below.

##### **(1) Inter-regional road development to strengthen inter-regional linkage**

Inter-regional road development is one of the most important infrastructure developments needed for the regional development of Ninh Thuan Province, in which the increase of flow of goods and people is expected. National Road 1, particularly the section from Phan Rang to Cam Ranh, is vital to both the economies of Ninh Thuan and Khanh Hoa. Increase in flow is expected to vitalize Cam Ranh Seaport and Cam Ranh International Airport, and also accelerate development along the road. National Road 27 is expected to link the central highland area and the coastal area in which Phan Rang becomes the point of intersection. The improvement of National Road 1 and National Road 27 would form the Da Lat-Phan Rang-Cam Ranh corridor.

Coastal road development is also important for tourism development, industry

development, and clean energy development. Coastal roads connecting Ninh Thuan, Khanh Hoa, and Binh Thuan can be considered as an alternative to National Road 1 and can be used for emergency situations.

The development of inter-regional roads is expected to contribute to industry development, tourism development, energy development, and also to improve the accessibility of people in the region.

**Table 6.3.1 Outline of Inter-Regional Road Development**

Development Target	Required Term of Implementation	Required Road Function	
Strengthen regional linkage	Short Term (2012-2015)	Inter-Regional Road A	<ul style="list-style-type: none"> <li>Conform to formulate core /trunk road network (Cam Ranh, Khanh Hoa – Phan Rang, Ninh Thuan – Da Lat, Lam dong)</li> <li>Function as main corridor to efficiently transport various commodities</li> <li>Comply with standards for heavy vehicles (trailer level)</li> </ul>
		Inter-Regional Road B	<ul style="list-style-type: none"> <li>Formulate tourism linkage road among three provinces</li> </ul>

Source: JICA Study Team

(2) Intra-regional road development to strengthen linkage within the province

An intra-regional network is not formed yet. The roads connecting the coastal area and mountain area, and the network connecting the urban center and rural area are in poor condition. The provincial government plans to develop intra-regional roads to improve access within the province. Since most of the areas are mountainous, access from settlements to urban centers or to the main road is difficult in some areas. Provincial roads play an important role in forming the intra-regional network.

**Table 6.3.2 Outline of Intra-Regional Road Development 1**

Development Target	Required Term of Implementation	Required Road Function	
Promote sector programs based on development strategy	Medium Term (2016-2020)	Intra-regional Road	<ul style="list-style-type: none"> <li>Conform to strengthen road network in Ninh Thuan</li> </ul>

Source: JICA Study Team

(3) Development of community/district roads to improve access in the rural area

Poor living conditions in the rural area is partly due to poor accessibility. Due to

poor road conditions, residents have difficulty receiving social services and government support, and reaching commune centers or urban centers.

Access in the rural area should be improved together with other measures to improve the living conditions in the rural area. Rural roads need to be developed to improve access to social facilities, markets, and provincial roads.

**Table 6.3.3 Outline of Intra-Regional Road Development 2**

Development Target	Required Term of Implementation	Required Road Function	
Promote agricultural development and minority support in remote areas	Medium Term (2016-2020)	Rural Road	<ul style="list-style-type: none"> <li>Conform to road development for improvement of access of the rural area with national/provincial roads</li> </ul>

Source: JICA Study Team

### 6.3.2 Urban Development

In order to support regional development, a strategy for urban development was proposed to strengthen urban hierarchy through development of urban subcenters and to improve the urban environment in Phan Rang Thap Cham.

#### (1) Urban development through strengthening of urban hierarchy

The hierarchical structure of urban centers should be clarified in order to improve urban functions for strengthening regional linkage. Unlike other provinces where several urban centers are designated within the province, the urban structure of Ninh Thuan has not yet been clearly developed. The urban hierarchy proposed in Ninh Thuan assigns Phan Rang as the urban center which is composed of several subcenters in each district. In order to strengthen regional linkage along inter-regional roads to develop the Da Lat-Phan Rang-Cam Ranh corridor, Tan Son and Loi Hai are prioritized for subcenter development. In addition, the subcenters of Phuoc Nam are also developed in Phuoc Nam, which is located in the south of Phan Rang. It is a strategic area for industry and port development (Ca Na) and is connected with Binh Thuan.

The purpose of developing subcenters is discussed as follows. The role of a city center is to provide synthetic urban functions, such as commerce, business, and residential functions. Subcenters on the other hand are positioned as relay points which connect cities, and aim at forming the urban area equipped with services, residential functions, and urban infrastructure that support economic development (industry, agriculture, tourism, etc.) of the district. Subcenters contribute to

regional development based on its characteristics through realizing land use, which cannot be realized in the city center.

➤ Tan Son

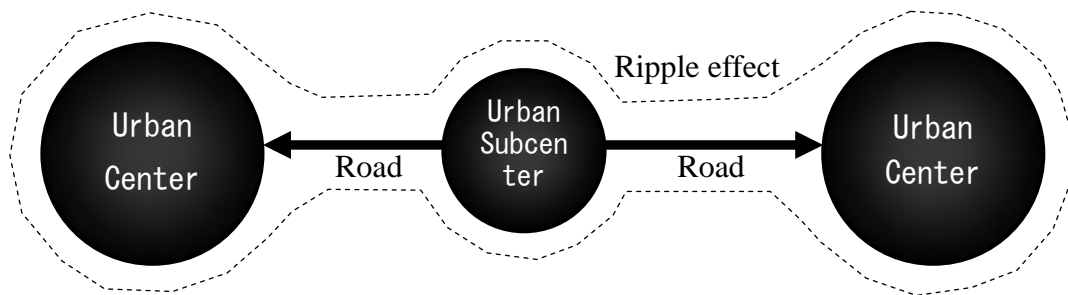
Tan Son is a rural village located on the foot of mountain roads (National Road 27). Should National Road 27 be repaired and route establishment is realized, regional growth is expected and Tan Son will be a nodal point for physical distribution of Phan Rang-Da Lat and Cam Ranh-Da Lat.

➤ Loi Hai

An industrial complex project is being developed in Loi Hai. Regional growth is expected using the potential of National Road 1A and Cam Ranh Port.

➤ Phuoc Nam

An industrial complex project is being developed in Phuoc Nam. The synergistic effect of a neighboring nuclear power plant and Ca Na harbor is expected, thus the potential of growth is high.



**Figure 6.3.1 Ripple Effect Image**

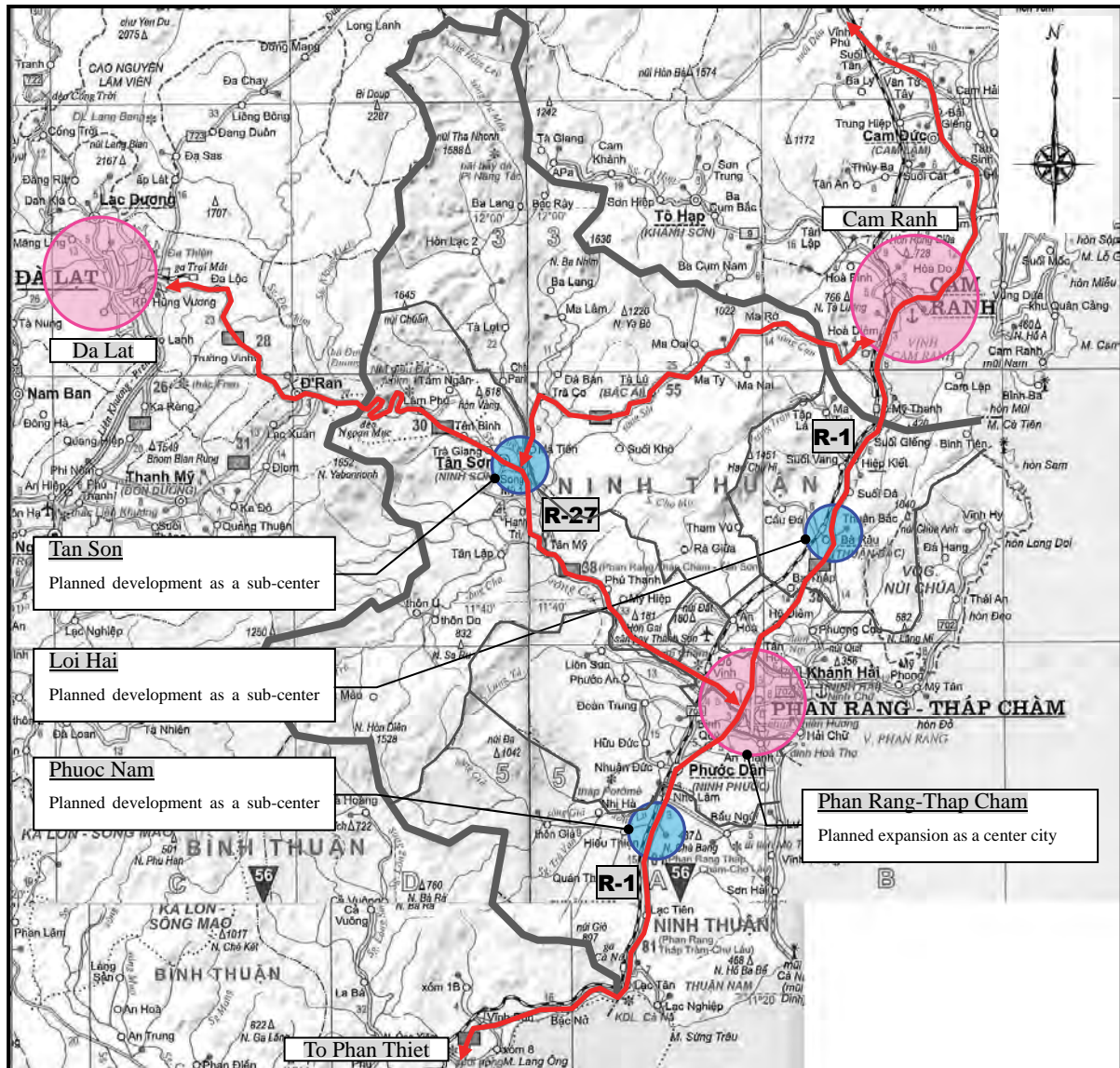


Figure 6.3.2 Map of Subcenters

## (2) Development of urban infrastructure in Phan Rang urban area

Phan Rang City is at the center of Ninh Thuận and designated as a Class 3 city. The Phan Rang government is planning to expand its urban area and also targeting to upgrade it to a Class 2 city (population of 300,000, and other criteria such as population density and economic structure). Nha Trang is a Class 2 city. The major issues of the urban area include frequent flooding during rainy season (October and November), which is caused by the overflowing of the Dinh River poor drainage, and poor living environment.

In order to improve the urban function and create an attractive urban environment for Phan Rang Tháp Chàm, various urban infrastructure facilities should be selectively improved, among them are infrastructure for flood control and living

environment improvement such as road, drainage, and solid waste management. There is no comprehensive master plan on flood control, thus a master plan has to be prepared to show how flood control should be managed and provide an implementation plan for flood control works.

### 6.3.3 Water and Drainage Improvement

The following three basic strategies for water supply and drainage systems development are proposed in the three provinces in the South Central Coastal Area:

- (1) Supply water to communes where access to safe water is difficult (short-term)

The compliance rate on Ministry of Health standards in the rural area is as low as 20-50%, which is significantly lower than the rate in urban areas. Since the budget of the sector is limited, it is difficult to achieve the target set for 2015 (85-90%). There are villages in mountainous areas where ethnic minority groups reside and water supply is underdeveloped. Some water supply systems draw water from the irrigation channel which is contaminated by agriculture chemicals. Priority should be given to provide safe water supply in those areas.

- (2) Urban water supply development in anticipation of the time axis of urban and industrial development (medium-term)

Since the Ninh Thuan local government is planning new urban areas together with new industrial zones and tourism areas as part of its preparation for two nuclear power plants, it is necessary to develop new water supply systems for the proposed areas. However, since the implementation schedule of such development is not certain, the water supply system should only be developed as the development progresses.

- (3) Urban drainage system should be considered as part of a “comprehensive flood control system”

In the city of Phan Rang Thap Cham, serious flooding happens frequently during rainy season, and an urban drainage system is considered as one of the important measures for flood protection. However, the main cause of large-scale flooding is caused by the overflowing of the river or high tide. Therefore a “comprehensive flood control system” should be considered prior to the development of the urban drainage system.



## **6.4 Strategy for Organization and Human Resources Development**

### **6.4.1 Strategy for Organization**

#### **(1) Capacity development of the EDO**

Ninh Thuan needs a driving force for the development of its detailed strategies and plans, and lead them in cooperation with related departments. The EDO was planned to play a coordinating role in the execution of the Socioeconomic Development Plan and it is so far the only agency that could play such a role, in addition to its being an investment promotion agency (IPA). In the initial stage of economic development, the EDO will play the lead role in investment attraction, creation of new industries, and human resources development of priority sectors. Once things start rolling, relevant departments can take over the work from the EDO.

#### Strengthening the function of investment promotion

The EDO has already carried out image building activities such as creating websites and organizing general investment conferences to a certain extent, however more target programs, such as investment generation, are yet to be carried out. Industry- or sector-specific investment missions, information seminars, and face-to-face contacts are some examples of investment generation activities. Currently, the function of investment promotion is performed by the Development Assistance Division, but a separate division for investment promotion may be set up to enhance the quality and quantity of promotional activities. A system for coordination with related departments is required to be established for effective formulation and implementation of investment promotion strategies.

#### Providing business support services

Business support service to investors is also an important function of an investment promotion agency. The EDO could provide investors with investment counseling services and aftercare support such as providing real estate information, supporting business establishment processes, finding business partners, and linking investors with experts in language, law, patent, tax, and accounting. In addition, it could also provide investors and local SMEs with information on various policies and subsidies of new and continuing projects currently distributed to various departments.

### Policy advocacy and coordination

Policy advocacy is the most effective function for investment attraction. According to the original design of the EDO by the Monitor Group, the role of policy advocacy was supposed to be carried out by the Policy Advocacy Division which has not been set up yet in the EDO. Actually, such role has been performed by the Director of the EDO. The Policy Advocacy Division would be set up in order to research regulatory and administrative best practices, recommend improvements, follow up and guide other departments to enhance the Provincial Competitive Index, and formulate and propose investment policies based on feedback reports from investors.

### Creation of new local industries and products

The Socioeconomic Development Plan defines the six key economic sectors to be developed, and is aimed at shifting the economy from agriculture-based to industry- and service-based. Since most of the six sectors have not been fully developed, Ninh Thuan needs to develop new industries or new products in the existing sectors. Despite of the great potential of local resources in Ninh Thuan, there is little chance available to try out and see the feasibility of new ideas using local resources. Therefore, the EDO could provide small-scale competitive funds or provide information on all the subsidies for pilot projects that are currently distributed to different departments, and coordinate with them strategically to promote innovation in the direction of the Socioeconomic Development Plan. The results of the pilot projects will be publicized to demonstrate and promote the potential of Ninh Thuan to potential investors.

### Human resources development for the six sectors

Human resources of high quality are a prerequisite for private investment attraction. Currently, the human resources development programs are implemented by various departments and agencies, such as MOET, DOLISA, DARD, DOIT and Tourism Division, depending on the sector and educational level. According to the Provincial Master Plan of Human Resources Development, The DPI is responsible for monitoring and coordinating all human resources development efforts, but such system has not functioned well so far. The EDO could be such a coordinator in human resources development, partly because it is in a position to know the human resource needs of potential investors and SMEs through its day-to-day activities. The EDO could create and maintain a network of

key private and public representatives, host networking events and organize training sessions to the private sector on the six priority sectors in cooperation with other professional institutions.

#### External assistance to capacity development

To fill the expertise gap in the abovementioned functions, the EDO needs technical and financial support from the central government, development partners as well as domestic and international professional agencies. In the initial stage, an investment promoter, a new local industry producer, and an expert in human resources development are to be assigned to formulate and implement action plans to enhance the capacity of the EDO.

#### (2) Capacity development of local government officials on marketing and promotion in key economic sectors

Provincial departments, especially DOIT and Tourism Department, also need to build their marketing and promotion capacity to implement sectoral development strategies.

#### Tourism Marketing and Promotion

Tourism in Ninh Thuan is still at the dawn of development compared to Khanh Hoa and Binh Thuan, and Ninh Thuan tourism brand image has not been developed yet. At this stage, it is important to develop human resources that can find potentiality of local tourism resources, develop them into tourism products, set target market, and promote them. Especially marketing and promotion capacity of the Tourism Division, the Tourism Association and community leaders of tourist destinations are to be developed with support from experts of surrounding provinces as well as other local and international experts.

#### Investment and Industry Promotion

Attraction of investment and enterprises is a key to economic development in Ninh Thuan. It requires not only general promotional activities but also proactive sale activities in the current competitive environment. Therefore, government officials working in the EDO, the Industry and Trade Promotion Center and industrial parks need to learn how to formulate investment attraction strategies, reach potential investors, and market the province or parks with proposals based on analysis of comparative advantages of the locations and potential investors’

requirements. Change in mindset and capacity development of government officials are to be supported by external experts.

(3) Development of implementation mechanism for regional linkages

Regional linkages are also an important tool to accelerate economic development in the region. The EDO can start to review the previous attempts of regional linkages, analyze the causes of failure, and examine the proposed projects for regional linkages in this report with the support of an expert. A steering committee for regional linkage promotion will then be formed within Ninh Thuan, wherein the EDO will discuss with relevant departments the tentative regional linkage mechanisms as well as the initial pilot projects. After consensus is built among relevant departments, the EDO can assist the political leaders of relevant provinces to organize a meeting aimed at agreeing on the pilot projects and facilitating the creation of an executive committee for each pilot project. The pilot projects would help the region to further explore a suitable mechanism for regional linkages.

6.4.2 Strategy for Human Resources Development

The employment structure of Ninh Thuan is still heavily based on agriculture and the rate of graduates from upper secondary schools in Ninh Thuan is very low compared to Khanh Hoa, Binh Thuan and the national average. This implies that a large number of the workforce does not have enough basic academic skills to receive training. On the other hand, the lack of professional schools and higher educational institutions forces talented students to leave the province resulting in the lack of medium- and high-skilled workers.

Among a few vocational training institutes, the skills often taught do not match the labor demand. Accordingly, after the completion of the courses, the students cannot find work in the field of training. Such mismatch arises partly because of the lack of labor market information and proper career guidance.

A fundamental challenge in the field of human resources development is how to stop this vicious cycle, in which the low demand of high-skilled labor discourages people to participate in trainings and low-skilled labor does not attract investors to create jobs requiring high-skilled labor. In this way, the remaining laborers in Ninh Thuan are matched with their jobs at a low level. This situation hinders local economic development.

- (1) Establishing a human resources development council and a human resources development center

#### The Human Resources Development Council

In order to change the above situation, Ninh Thuan needs to make a policy to create labor demand rather than merely responding to it. A Human Resources Development Council that would formulate strategies as well as detailed human resources development plans for the six priority sectors has to be established soon. The objectives of the council include establishing a linkage among related departments and agencies so that current human resources development efforts distributed to various departments can be grasped and integrated, and also establishing a linkage between the local government and private enterprises in order to make the human resources development plans for sectors reflect the labor market needs better. The council should also be able to raise the awareness of provincial leaders to increase the local budget on human resources development.

The council would form working groups by sector to conduct necessary surveys, collect market information and current human resources development program information, and define the types of human resources required for each sector. Based on the above research results and analysis, sector human resources development plans will be formulated and the means of implementation and cooperation among stakeholders will be discussed. Issues such as on curriculum reflecting market needs, quality assurance of training courses, and career guidance services will also be discussed in the council.

#### The Center of Human Resources Development for Economic Development

The Center of Human Resources Development for Economic Development is to be established to collect and analyze labor market information on a day-to-day basis and function as the secretariat of the council. The center can also invite and organize training courses required for the development of the six priority sectors and organize career guidance according to sectors. The center can be placed under the EDO in order to have good access to information on human resources requirements of potential and current investors through day-to-day business.

- (2) Improvement of vocational training and professional education to support providing workers to industry and tourism

In the formulation of human resources development strategies by sector, the types of required human resources have to be defined. Since tourism does not require human resources with very high educational background, Ninh Thuan can start with human resources development for tourism.

#### Tourism

The tourism industry in Ninh Thuan includes hotels, cafes and restaurants, travel agencies, tour operator services, and various transportation services, which require mainly two kinds of human resources: i) those engaging in practical operations such as planning, sales, and public relations, and ii) those who directly serve the customers such as hotel staff and tour conductors. Especially, mid-level clerical, sales and service workers who can actually do practical business need to be trained in professional and vocational education. Some institutes have either a plan or intention to open long-term tourism courses. With the support of tourism experts and enterprises outside and inside Vietnam, they can assess labor market needs, make a joint training plan, develop curriculum, and provide courses jointly.

#### Industry

Industrial development in Ninh Thuan will start with the development of local resource-based products especially from the agriculture and forestry industries. Therefore, human resources with good knowledge on food and wood processing technology will be required in the short term. In the long term, engineers with expertise on technology related to bioethanol need to be trained as well. At present, there is no vocational training institute in Ninh Thuan that provides training in processing technology though some of the institutes are willing to do so. Technical support along with appropriate equipment is required to start the courses. In addition to such engineers, people who have profound knowledge on local resources, and product development, and marketing capabilities are also required to develop new resource-based products of high value. Such “local industry producers” can be hired initially from outside and shall be developed locally later in partnership with universities of surrounding provinces.

#### Government incentives and support from industry groups

The abovementioned vicious cycle in human resources development can be overcome with financial support from the central and provincial governments

provided to students and vocational training institutes. Related industry groups also need to be determined to cooperate with such government initiatives in order to enhance the overall level of industries in Ninh Thuan in such a way that they hire trained people with higher pay or receive trainees in their work places.

(3) Upgrading the Teacher Training College into a multidisciplinary university

It is also important to have a higher education institute in Ninh Thuan so as to prevent the need of high school graduates from leaving the province for higher education. Upgrading the Teacher Training College to a multidisciplinary university could be a good option instead of setting up an entirely new university considering budget constraints. In the short term, the college needs support to open new courses on tourism, economics and finance, processing technology, and energy. Then in the long term, the college facilities and equipment need to be improved before the college is upgraded to a university.

## **CHAPTER 7      STRATEGY FOR STRENGTHENING REGIONAL LINKAGE AND COOPERATION**

### **7.1      Approaches for Regional Linkage and Cooperation**

#### **7.1.1      Rationale for Regional Linkage and Cooperation**

Regional linkage for regional development for Ninh Thuan Province is important and has to be strengthened to promote economic and social development. The South Central Coastal Area is considered as hinterland of the Southern Key Economic Zone (HCMC and surrounding provinces) and its economy relies on the zone for market, international trade, and human resources. The development in the three provinces is concentrated along the coastal area facing towards the open sea (industrial estate, port development, and coastal road development). Ninh Thuan Province is the smallest among the three provinces in the South Central Coastal Area, in terms of its population size (approximately half as that of Khanh Hoa Province) and economy (20% of Khanh Hoa GDP and 30% of Binh Thuan GDP). Also, the economic structure relies mainly on agriculture.

In order for Ninh Thuan province to execute regional development effectively and accelerate economic growth, strengthening the linkage with neighboring provinces is essential. In addition, linkage with the central hinterland, particularly with Lam Dong Province, has to be strengthened to compete with other provinces in the coastal area. The existing linkage with the inland area is still limited.

Table 7.1.1 below shows the regional development zones and the position of the South Central Coastal Area.

**Table 7.1.1 Regional Development Zones and the Position of South Central Coastal Area**

Vietnam Economic Region		FEZ	SEZ	Sector Gross Output per Capita*(mil VND)		
				Ag/For	Fishery	Industry
Northern Vietnam (six regions)		●NFEZ	5	1,525	139	6,426
Central Coast Region	North Central Coast (sub-region)	○partially*1	4	722	128	1,139
	Central Coast (sub-region)	●MPFEZ	4	1,108	563	3,591
	<b>South Central Coast</b> (sub-region)*2	--	1	1,307	845	4,251
	Central Highlands (sub-region)	--	--	4,207	29	1,152
Southern Vietnam (three regions)		●SFEZ	7	3,578	1,881	18,278

Note: FEZ = Focal Area Economic Zone, SEZ = Special Economic Zone, \*1 = Hue Province is included in the middle part of FEZ, \*2 = This sub-region consists of the study area and Phu Yen, \*3= Ag/For = Agriculture and Forestry

Source: JICA Study Team



**BOX: Regional Linkage Formulation and Cooperation in Other Countries**

**EUREGIO** (Integrated Regional Cooperation in Border Municipalities of Germany-Netherlands)

The EUREGIO is a Dutch-German CBR in the area of Enschede, the Netherlands, and Münster, Germany, involving approximately 140 local authorities with a total population of 3.2 million. The EUREGIO is governed by a set of formal bodies, most notably an executive board composed by the key member authorities, and a cross-border 'parliament', the EUREGIO Council. EUREGIO is effectively a policy implementation partner of the EU Commission for these regional policy measures in the Dutch-German border areas. The primary interest was to create a platform for the improvement of the local and regional infrastructures which in the eyes of the local elites were neglected on the part of the Land (North Rhine Westphalia) and central governments. As a non-mandatory body, the EUREGIO depends on voluntary cooperation among local authorities although common rules and obligations have been defined via formalized agreements. The member authorities are linked via a set of networks that tend to have visible, formalized front-ends as formal bodies. The most important among these is the so-called "Working Group" that acts as a supervisory board and involves senior civil servants and political officers from the most powerful and active member authorities on both sides of the border.

**The Georgia Basin-Puget Sound** area is located in the western trans-boundary coastal region of Canada and the United States (US), and consists of the Georgia Basin in Canada and Puget Sound in the US. The Georgia Basin-Puget Sound International Airshed Strategy is a multi-agency, international co-operative effort to address shared air quality management concerns. These include impacts to human and environmental health specific to this region. This strategy also aims to prevent future deterioration of air quality, and is particularly important due to the recent significant regional population growth, which is expected to continue for at least the next two decades.

## 7.1.2 Basic Approach for Regional Development Linkage and Cooperation

### (1) Regional character and necessary integrated management

The South Central Coastal Area has common issues and objectives to develop and manage each environment and natural resources as borderless resources of which distribution are spread across the four provinces, namely, Ninh Thuan, Khanh Hoa, Binh Thuan and Lam Dong. These borderless resources and environment have at times brought difficulties to each province in carrying out environment protection and exploitation management in a well-organized manner. Table 7.1.2 shows the potential areas where regional linkage formulation and cooperation would be necessary to make mutual benefits or synergistic effects to the four provinces.

**Table 7.1.2 Shared Issues for Development in the South Central Coastal Area**

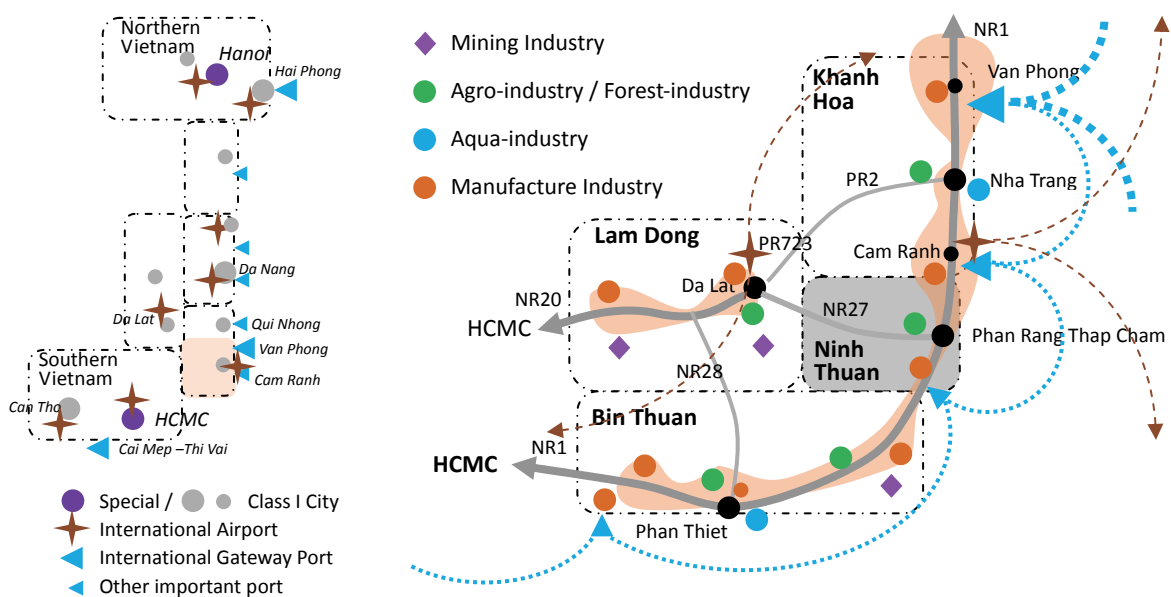
Economic Activities		Management Issues	Intensity of Necessary Linkage for Common Resource			
			NT	KH	BT	LD
Natural Environment	Coastal/Marine	• Coral reef protection along coast	●	●	○	--
	Mountain/Flora and Fauna	• National park protection, improvement • Biosphere protection and management	●	●	○	●
Resource Exploitation	Natural Climate	• Strong wind distribution • Strong sun beam and long sunny days	●	○	●	--
	Water Resource	• Increase demand for development • River basin water and utilization	●	○	●	●
	Mining/Mineral	• Mining-processing-transfer-production – shipping linkage	○	○	○	○
	Forestry, Hazard Protection	• Reforestation, fostering forest industry • Planting, logging, processing, and production	●	●	○	●
	Fishery	• Resource protection and management • Fishery industry linkage	●	●	●	--
	Agriculture	• Semi-arid agriculture production • Agro-industry linkage	○	○	○	●
	Tourism	• Key nature tourism products • Excursion tourists	●	●	●	●

Note: NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, ● = strong, ○ = in general, -- = not shared  
Source: JICA Study Team

## (2) Regional network and international gateways

As one of the pivotal positions in Vietnam, the South Central Coastal Area has two key international gateways to the region by airport and seaport. The Van Phong transshipment seaport as an international gateway port and the Cam Ranh port as a regional hub seaport are expected to play essential roles in serving hinterland economic development in terms of import and export trade. The two international airports of Cam Ranh and Da Lat serve also international and domestic business and tourism activities.

These key international gateways are connected and linked with the major cities of Nha Trang (Class I), Da Lat (Class I), and other cities of Cam Ranh, Phan Rang-Tap Cham, and Phan Thiet by National Road (hereafter NR) No.1 (NR1), which acts as the spine of the region in combination with NR20, NR27 and NR27B and Provincial Road (hereafter PR) 2/723. This regional network including future Expressways and High-speed Railways in combination with gateways is inevitable element and function to enhance and promote the regional linkage formulation. Figure 7.1.1 below shows the regional network and international gateways.



Source: JICA Study Team

**Figure 7.1.1 Regional Network and International Gateways**

## (3) Focused regional development linkage/cooperation domains

Taking into account the character and uniqueness of the South Central Coastal Area, several focused potential development linkage domains are identified to

promote effective and practical linkage formulation as follows. Table 7.1.3 summarizes application of regional development/linkage by sectors.

**Table 7.1.3 Application of Regional Linkage/Cooperation by Sectors**

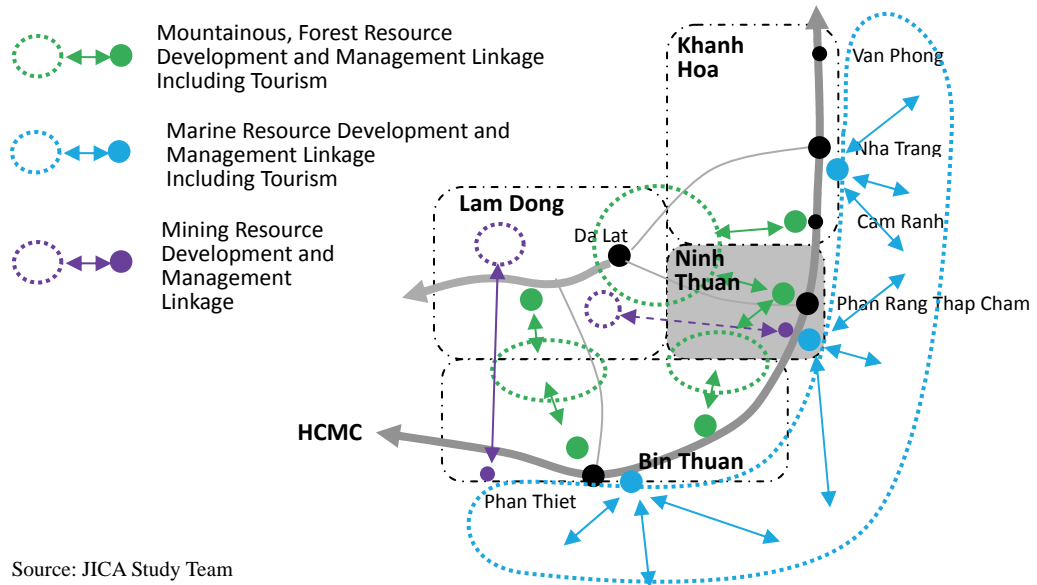
Regional Development Sector	Sector Strategy	Regional Linkage/Cooperation Strategy			
		Resource-based development linkage/cooperation formulation	Cross-border economic development linkage formulation	New frontier development linkage/cooperation formulation	Cooperative social development linkage/cooperation formulation
Economic Development	<ul style="list-style-type: none"> <li>• Industry Diversification</li> <li>• Creating Brand Images of Local Products</li> <li>• Extensive Tourism Market Formation</li> <li>• New Roles of the Agricultural Sector</li> <li>• Encouraging Private Investors to Invest in Renewable Energy Projects</li> </ul>	●	○	●	--
Social Development	<ul style="list-style-type: none"> <li>• Social Service Improvement in the Urban Area</li> <li>• Social Service Improvement in the Rural Area</li> </ul>	○	○	--	●
Spatial Development/Infrastructure	<ul style="list-style-type: none"> <li>• Transportation Network Improvement</li> <li>• Urban Development</li> </ul>	○	●	●	○
Organization and Human Resources Development	<ul style="list-style-type: none"> <li>• Organization</li> <li>• Human Resources Development</li> </ul>	○	○	●	●
Role of Public/Private Sector	<ul style="list-style-type: none"> <li>• Public investment</li> <li>• Public investment and private investment</li> <li>• Private and public investment (social and economic)</li> </ul>	●	●	●	○

Note ● = Actively apply, ○ = Apply if possible, -- = Not apply

Source: JICA Study Team

### Resource-based development linkage/cooperation formulation

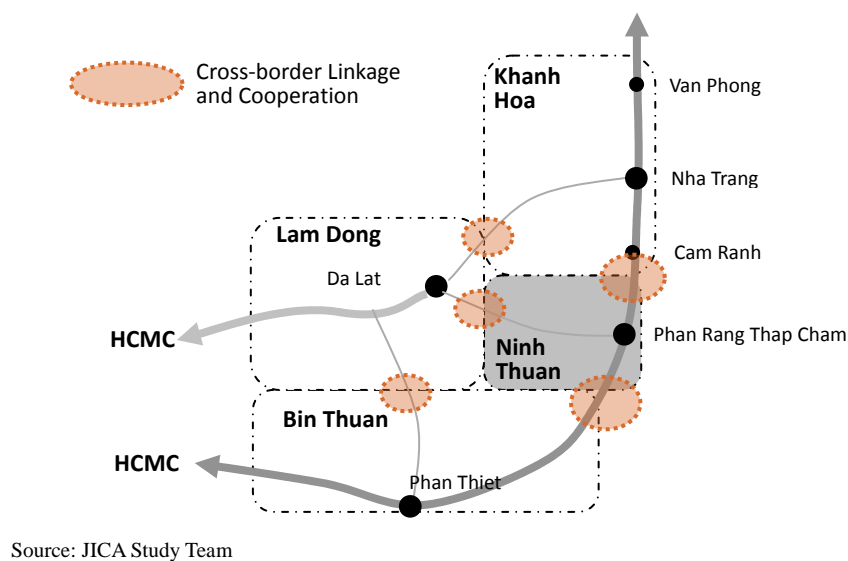
Maximizing and sharing common resources of this region by coastal marine resources (e.g. fishery, salt farming, shrimp farming, and tourism), mountain forest resources (e.g. nature reserve area, watershed protection forest, and minerals), and semi-arid belt agriculture production are common issues to be addressed in the region. Research and development of agricultural products, protection of natural resources, and agro-industry development cooperation or linkage including tourism will play an important role in encouraging and promoting the utilization and protection of resources in the region in an integrated manner.



**Figure 7.1.2 Resource-based Development Linkage and Cooperation in the Region**

#### Cross-border economic development linkage formulation

This linkage aims to encourage and promote effective economic development or resource management in cross-border areas between provinces by maximizing current development programs, potentials, and necessary environmental management. Investment plans or environmental management plans are formulated in each province, and development on both sides will bring supplemental and synergistic effects (e.g. Cam Lap Peninsula resort development and Cam Ranh port development at Khanh Hoa & Ninh Thuan border, and Ninh Thuan and Binh Thuan border with Ca Na port development).

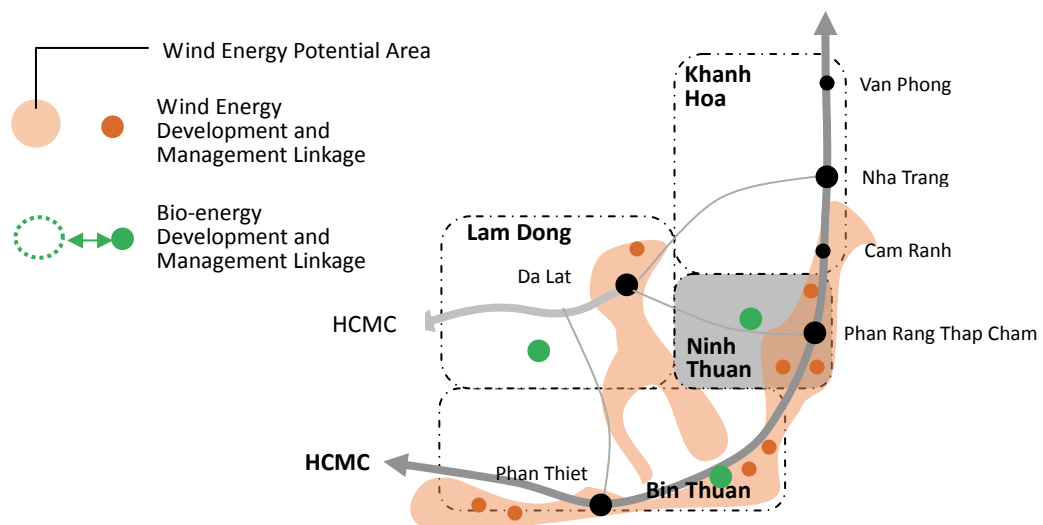


**Figure 7.1.3 Cross-border Linkage and Cooperation in the Region**

### New frontier development linkage/cooperation formulation

New energy development in this region including nuclear energy and renewable energies such as solar energy, wind power energy, and bioenergies (biomass, biofuel, etc.) is expected to provide a spark to promote new frontier development in Vietnam. Taking full advantage of the rich resources (strong sunlight and wind, semi-arid environment, etc.) in the region, this new frontier development will be considered as a competitive development in Vietnam. However, relevant provinces should be able to successfully develop and effectively establish its system and products in cooperation with each resource and technology.

The new energy system requires advanced technologies, well-organized production management, and strong institutional support from the central and local governments; however, not all the provinces can achieve influential economic development effectively and efficiently. Therefore, regional cooperation, especially for renewable energy development in the region, might be one of the important factors that will encourage and promote an integrated development mechanism needed for primary production, processing, distribution, and operation management.



Source: JICA Study Team based on the Information on Wind Energy of Vietnam 2011/MOIT-GIZ

**Figure 7.1.4 New Frontier Development Linkage and Cooperation in the Region**

### Cooperative social development linkage/cooperation formulation

Mountainous areas in this region where ethnic minority has settled, have common issues to encourage their socio-economic development in order to fill big gaps between the coastal area settlements and mountainous settlements in terms of income level and social services. Vertical (rural – urban linkage such as

exchanges by tourism and recreation by town-side guests and village hosts, movable library from town to village, movable clinic, etc) and horizontal (joint cultural events, succession of traditional performance, joint development of traditional handicrafts) linkage developments will be encouraged and promoted effectively and efficiently.

## (2) Types and definition of regional linkage

“Regional linkage” is a key word for regional development strategy, yet, the definition of “regional linkage” is not clearly defined. There are several types of regional linkage that can be applied for regional development strategy. These are as follows:

### Physical connection

Physical connection is a type of linkage that physically connects several areas through transportation, logistics network, and land use. Physical connection plays an important role in regional development. Road has to be linked among strategic areas and land use has to be considered not by administrative boundary but by functional characteristics such as settlement area, industry area, and tourism area.

### Technical cooperation

Technical cooperation is a type of linkage in which the provinces depend on each other technically. The Ninh Thuan Province needs support from provinces which have technical experiences in specific fields. For example, tourism sector in Ninh Thuan is desirable sector to be supported by experienced staffs from Nha Trang as an advanced province in tourism. Capacity development programs as one of major tools for technical cooperation can be applied to tourism sector to improve tourism administrative or professional services through training courses, workshops, seminars and on the job trainings.

### Collaboration with coordination for projects

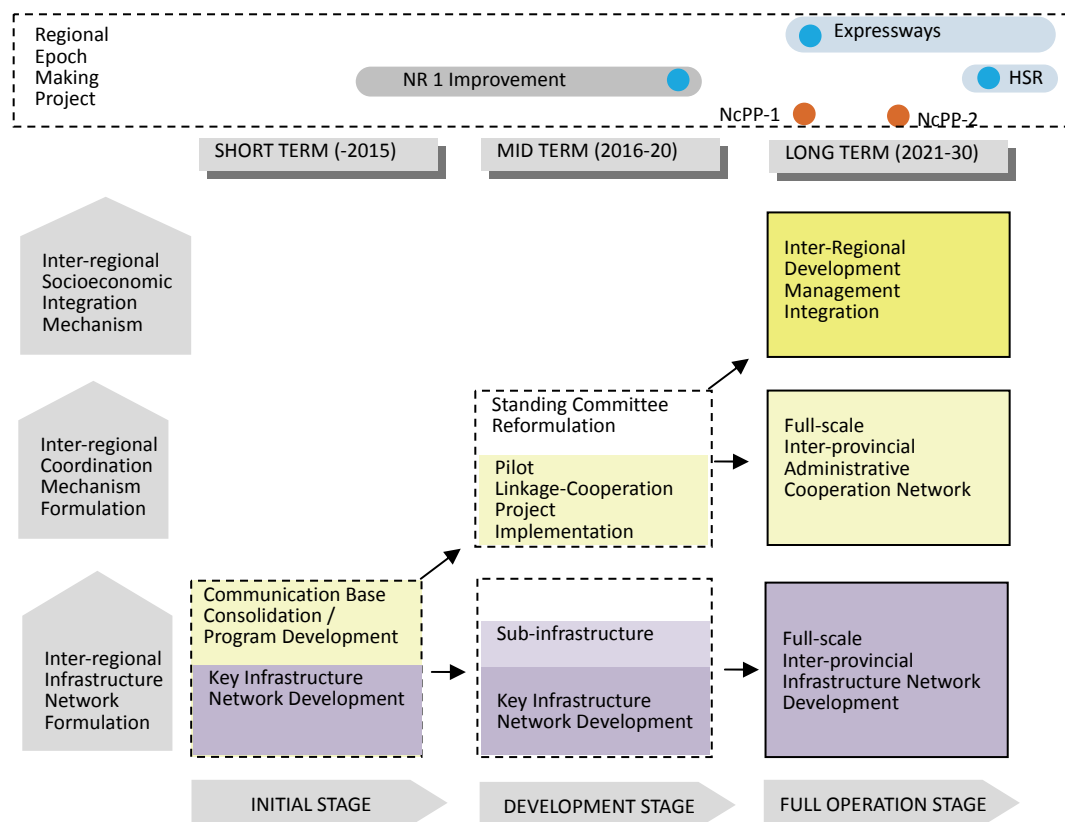
The collaboration work based on the same objectives for linkage formulation of which some programs/projects are implemented and managed together among relevant provinces, is one of the most challengeable type for regional linkage formulation in terms of well-organized coordination to achieve same level of output quality in each project at each province.

## (3) Step-by-step formulation of linkage and cooperation

Although each province in this region are involved in several regional agreements

and programs for inter-provincial cooperation since 2005, some provinces have established separate mutual cooperation programs between relevant provinces in order to maximize economic development linkage. There would be worthwhile areas and fields for integrated formulation of regional linkage and cooperation to achieve more effective and efficient socio-economic development for the mutual benefit of each province.

Taking into account the lessons learned on the difficulties of actual linkage and cooperation, especially for Ninh Thuan Province, gradual steps and actions need to be taken based on certain programs. Concrete actions and clear vision for regional linkage and cooperation are needed to maximize the potential of necessary areas and fields based on common issues among provinces. Strategic actions for the establishment of a regional linkage and cooperation mechanism will be essential through step-by-step development in order to address new coming regional infrastructure (e.g. expressway, high-speed rail, and new power plant) which will have great impacts on the region.



Note: NcPP = Nuclear Power Plant, HSR = High-speed Rail  
Source: JICA Study Team

**Figure 7.1.5 Gradual Development of the South Central Coastal Area Regional Linkage and Cooperation**

## **7.2 Regional and Ninh Thuan Linkage and Cooperation Formulation**

### **7.2.1 General Direction of Spatial Linkage and Cooperation between the Region and Ninh Thuan**

As described in the previous sections, Ninh Thuan Province would be in a strategic position in the future economic development of Vietnam, taking full advantage of the nodal point of economic corridor activities (NR1 and NR27) and proximity to international gateways through regional linkage and cooperation. The following illustrates the general direction of the formulation of regional linkage and cooperation:

#### **(1) Strengthening the linkage and cooperation between Phan Rang and Cam Ranh/Nha Trang**

This linkage is important for logistics, tourism, and industry development. Cam Ranh is considered the gateway for both provinces of Khanh Hoa and Ninh Thuan where international and domestic access through the Cam Ranh international airport and Cam Ranh seaport are available. Regional cooperation and necessary consolidation of the infrastructure network are expected to promote mutual benefits and synergistic effects on economic development.

#### **(2) Strengthening the linkage and cooperation between Phan Rang and Da Lat**

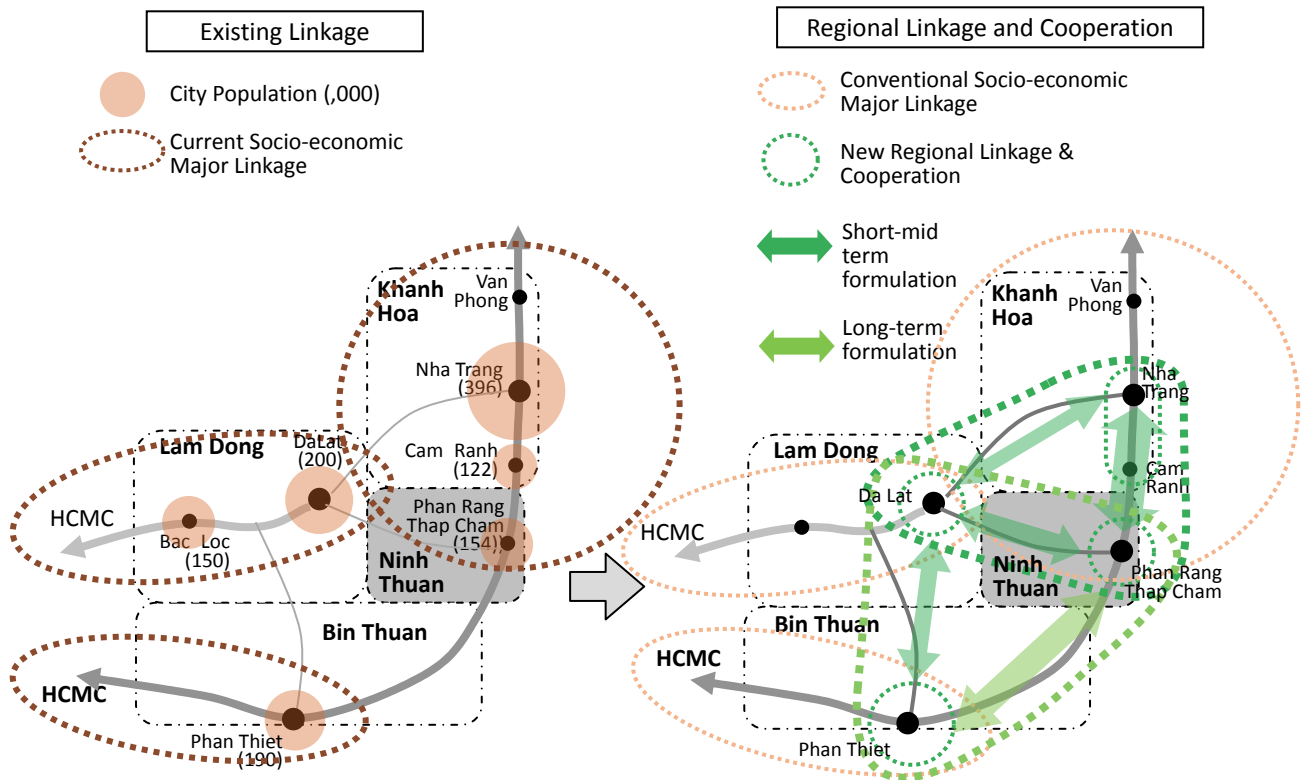
Phan Rang – Da Lat had a historical and stronger linkage with NR27 and a railway in the past than other cities. The current mobility between Phan Rang and Da Lat is still weak and its past thriving development has not been enjoyed since. As a result, it will be necessary to revive and enhance the connection between Ninh Thuan and Lam Dong Provinces in terms of resource-based development including tourism through road network, urban service improvement, and economic development linkage and cooperation.

#### **(3) Strengthening the linkage between Ninh Thuan and Binh Thuan Provinces**

The existing linkage between Ninh Thuan and Binh Thuan is limited because the economic activity in Binh Thuan holds a stronger connection with the Southern Focal Economic Zone and some tourism linkage with Lam Dong Province (Da Lat). Therefore, the linkage is expected to formulate a long-term relationship taking into account the social service, ethnic minority group support, and some collaborative activity along the border.

Figure 7.2.1 below shows the direction of the strategic spatial linkage and cooperation in the region.





Source: JICA Study Team

**Figure 7.2.1 Direction of Strategic Spatial Linkage and Cooperation in the Region**

## 7.2.2 Strategic Regional Linkage and Cooperation Program for Ninh Thuan Province

### (1) Priority sectors for Ninh Thuan Province

Based on the approaches and direction of regional linkage development, Ninh Thuan Province should take strategic actions in consideration of the potential fields or areas for linkage formulation with cooperation programs. It is proposed that three programs/projects for 1) tourism, 2) industry, and 3) natural environment are key areas to be developed and promoted through relevant stakeholders' cooperation and participation among the provinces in the region.

### (2) Tourism linkage and cooperation

The tourism industry is considered as one of the most favorable sectors to formulate and promote regional linkage development and cooperation. The quality of tourism circuit and product attractiveness should be considered to extend the length of stay of tourists, increase tourist demand and enhance tourism revenues.

Taking advantage of the strategic position of Ninh Thuan Province as it shares borders with famous neighboring tourism destinations of Khanh Hoa, Binh Thuan and Lam Dong Provinces, the tourism region should rebuild the linkage and

cooperation system based on the following objectives:

Objectives

- To formulate integrated tourism destinations offering various tourist attractions and products through partnership between the public and private sectors and through tourism infrastructure provision in the region;
- To utilize and sustain common tourism resources spread over the region beyond the boundaries through cooperation and mutual management system; and
- To ensure viable and long-term tourism operations, sharing socio-economic benefits to the region that are fairly distributed, including stable employment and income-earning.

Strategy for linkage formulation and cooperation

- Regional tourism branding and marketing

It will be essential for both international and domestic tourists (excursionists) to have an integrated image and visitor experience in the tourism region through market promotion. Based on the current tour packages in conjunction with the region promoted by the “Triangle Tourism” (KH-LD-BT) or an official agreement by the “Triangle Tourism” (HCMC-LD-BT) excluding Ninh Thuan, new regional images should be formulated by the rectangular structure including new tourism products from Ninh Thuan Province.

- Regional tourism promotion and product development

Joint promotion through various means to attract tourists to the region with various destinations will play an important role in the demand and development of new domestic and international markets, while Ninh Thuan Province should formulate distinct and high-quality tourism products to be incorporated in the formulation of the regional tourism circuit.

- Formulation of pilot model projects

It is proposed that practical pilot linkage and cooperation projects with all the necessary components in the tourism sector and utilizing potential tourism resources in Ninh Thuan Province should be examined and reviewed to reflect appropriate mechanism of regional cooperation.

Regional tourism linkage and cooperation platform programs

Table 7.2.1 shows the proposed common programs/projects to promote regional linkage and cooperation focusing on rebuilding regional institutional cooperation mechanism as basic platform formulation among the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan and Lam Dong.

**Table 7.2.1 Ninh Thuan Tourism Sector Programs for Strategic Linkage and Cooperation**







Theme and Program		Project Component			Stakeholders				Phasing		
		Physical Development	Institutional and Human Resource Development	Private Partnership	NT	KH	BT	LD	S	M	L
1. Joint Tourism Promotion Formulation	1-1 Joint promotion strategy formulation	--	• Standing committee rebuilding	• Professional advisory	◎	◎	◎	◎	■	■	■
	1-2 Regional branding and marketing	--	• Technical working group formulation • Professional advisory group formulation	• Professional advisory	◎	◎	◎	◎	■	■	■
	1-3 Regional hospitality standard improvement	• Regional hospitality service manual	• Hospitality service training course		◎	◎	◎	◎	■	■	■
	1-4 Joint Promotion Implementation	• Joint Tourism Information Center • Joint Regional web-portal • Regional tourist map printing	• Coordination unit formulation • Periodical coordination and cooperation • Monitoring tours and improvement	• Press conference • Joint promotion cooperation • Reflection to own products	●	◎	◎	◎	■	■	■
2. Regional Tourism Circuit Formulation	2-1 Model route formulation	• Regional model route promotion by media / TIC	• Press conference and promotion • Working group and discussion • Professional advisory	• FAM trip • Operator business promotion	●	◎	◎	◎	■	■	■
	2-2 Regional product promotion	• Regional products/handicraft center	• Product development and marketing studies • Design development and skill development	• Cooperative sales promotion • Consigned selling contract	●	◎	◎	◎	■	■	■
	2-3 Regional scenery spots / rest place development	• Scenery observation place / rest place • Sign & information • Michino-eki	• Key scenery spot selection and planning • Design standard	• Souvenir shop • Coffee shop	◎	◎	◎	◎	■	■	■

Note: ● = taking initiative role, ◎ = collaboration, ○ = cooperation, NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, S = Short-term ( ~ 2015), M= Mid-term (2016-2020), L = Long-term (2021-2030)  
Source: JICA Study Team

### Ninh Thuan pilot model project for tourism linkage and cooperation

In order to strengthen productive linkage and cooperation among the region, actual projects will have various opportunities of practical linkage and cooperation with efforts on issue solutions and linkage encouragement through implementation of the projects. Table 7.2.2 shows the proposed “Pilot Model Projects” in Ninh Thuan Province in order to establish an effective and practical coordination mechanism through the assessment and verification of projects among the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan and Lam Dong.

**Table 7.2.2 Ninh Thuan Pilot Model Projects for Tourism Linkage and Cooperation**

Theme and Program	Project Component			Stakeholders				Phasing		
	Physical Development	Institutional and Human Resource Development	Private Partnership	NT	KH	BT	LD	S	M	L
1. Cam Lap Peninsula Tourism Area Integration	<ul style="list-style-type: none"> <li>Common utility supply</li> <li>Common transportation network system</li> <li>Common recreational cruising ship</li> </ul>	<ul style="list-style-type: none"> <li>Nui Chua National Park guide system</li> <li>Coral reef protection and guide</li> <li>Instructor and guide skill development</li> <li>Marine recreation management</li> </ul>	<ul style="list-style-type: none"> <li>Professional advisory</li> <li>Special nature tourism product development</li> <li>Market exploitation</li> </ul>	◎	◎	--	--			
2. Phuoc Binh National Park Tourism Integration	<ul style="list-style-type: none"> <li>National Youth Nature Center</li> <li>Trekking route</li> <li>Camping site</li> <li>Guide map</li> </ul>	<ul style="list-style-type: none"> <li>Environment education program</li> <li>Local community livelihood improvement program</li> <li>Outdoor recreation instruction skill development</li> </ul>	<ul style="list-style-type: none"> <li>Commission of operation and management</li> <li>Special nature tourism product development</li> <li>Market exploitation</li> </ul>	●	○	--	◎			
3. Salt Farm Tourism Integration	<ul style="list-style-type: none"> <li>Traditional Salt Production Museum</li> <li>Interactive field museum of salt farm with visitor facilities (parking, rest place)</li> <li>Restaurant</li> </ul>	<ul style="list-style-type: none"> <li>Traditional production system conservation and skill succession</li> <li>Traditional salt farm management program</li> </ul>	<ul style="list-style-type: none"> <li>Traditional salt branding and sales promotion</li> <li>Circuit tourism involvement</li> </ul>	●	○	○	--			
4. Semi-arid Environment Tourism Integration	<ul style="list-style-type: none"> <li>Desert botanical garden</li> <li>Desert museum</li> <li>Regional tourist map printing</li> </ul>	<ul style="list-style-type: none"> <li>Semi-arid environment research program</li> <li>Desert plants exploitation research for products</li> <li>Resource mapping and utilization program development</li> </ul>	<ul style="list-style-type: none"> <li>Desert tour products</li> <li>Joint promotion cooperation</li> <li>Reflection to own products</li> </ul>	●	--	○	--			
5. Grape and Wine Tourism Integration	<ul style="list-style-type: none"> <li>Grape garden</li> <li>Shop and Restaurant</li> <li>Parking</li> <li>(Winery-developed by Agriculture Program)</li> </ul>	<ul style="list-style-type: none"> <li>Wine tourism product circuit formulation with Da Lat-Lam Dong</li> <li>Investor promotion for wine tourism</li> <li>Capacity development for wine tourism hospitality</li> </ul>	<ul style="list-style-type: none"> <li>Winery investor cooperation</li> <li>Grape product promotion</li> <li>Wine products promotion</li> </ul>	●	--	--	○			
6. Fishermans' Warf (Market)	<ul style="list-style-type: none"> <li>Seafood Market</li> <li>Seafood restaurant</li> <li>Waterfront park</li> <li>New energy promotion center</li> </ul>	<ul style="list-style-type: none"> <li>Aquaculture products sales and promotion</li> <li>Seafood market operation and management system by joint association</li> <li>Distribution system formulation</li> </ul>	<ul style="list-style-type: none"> <li>Aquaculture associations involvement</li> <li>Joint investment or new investor involvement</li> </ul>	●	○	○	--			

Note: ● = taking initiative role, ◎ = collaboration, ○ = cooperation, NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, S = Short-term (~ 2015), M = Mid-term (2016-2020), L = Long-term (2021-2030)  
Source: JICA Study Team

(3) Other economic sector development linkage and cooperation

Successful economic development in the region requires essential driving factors of 1) tight business network and production chains, 2) innovative production and management, 3) skilled human resources, 4) supporting infrastructure by transportation systems and logistics (seaport, airport, and logistics), and 5) competitive and sustainable resource management.

Having the advantages of its strategic position and proximity with the developing provinces of Khanh Hoa, Binh Thuan and Lam Dong in terms of economic development by manufacturing and service industry, agriculture/aquaculture and fishery, and social/urban services, Ninh Thuan Province should utilize and maximize those economic resources and opportunities to promote economic development.

Objectives

- To diversify and promote competitive primary sector industries (agriculture, aquaculture, fishery, forestry, and mining) offering high value-added products through regional business linkage and cooperation;
- To encourage secondary and tertiary sector industry focusing on resource-based industrialization through the maximization of the regional network and utilization of international gateways; and
- To support economic development through efficient provision of key regional infrastructure.

Strategy for linkage formulation and cooperation

- Resource-based industrial diversification through business linkage in the region

By utilizing the present business network, technologies and trade system in the neighboring provinces of Khanh Hoa, Lam Dong, and Binh Thuan, resource-based industries in Ninh Thuan Province can be encouraged and developed by a similar resource-based industry group (industrial cluster of agro/aquaculture, forestry, and mining). Provincial governments and the investment promotion section can be catalytic agents to promote industrial diversification.

- Industry development led by regional infrastructure

There will be essential regional transportation network in this region such as NR1 as the spine of the coastal area, NR26, 27, and 28 connecting the coast and highlands, Cam Ranh Port, and Cam Ranh international airport. They are linked physically with relevant provinces wherein major economic activities have been formulated. Industrial development can be maximized by this potential regional network through strategic positioning.

- Frontier industry promotion and regional support

Apart from conventional industry in the region, new industrial development has been highlighted recently where an advantageous natural environment would bring opportunities to foster the renewable energy industry such as wind and solar energy systems, and bioenergy development in semi-arid production plants. These common opportunities, especially between Ninh Thuan and Binh Thuan Provinces, are worthwhile and will maximize tight industrial linkage and cooperation supported by appropriate assistance and incentive measures.

#### Other economic sector development linkage and cooperation programs

Table 7.2.3 shows the initial proposed programs and projects to support regional economic development through regional infrastructure development in the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan, and Lam Dong.

**Table 7.2.3 Regional Infrastructure Programs in Ninh Thuan and Neighboring Provinces through Strategic Linkage and Cooperation**

Theme and Program		Project Component			Stakeholders				Phasing		
		Physical Development	Institutional and Human Resource Development	Private Partnership	NT	KH	BT	LD	S	M	L
4. Regional Economic Infrastructure Development	4-1 Regional Road Development and Improvement	• NR1 extension	• ADB funding extension • Feasibility study • Request and approval	--	⊙	⊙	--	--			
		• New Long Ho bridge development	• Adjustment of project implementation body (ODA/PPP)	• Involvement in case of PPP	○	●	--	○			
		• NR27 (new) extension	• Coordination with Lam Dong Province • Feasibility study • Funding project	--	⊙	--	--	⊙	....		
		• Coastal roads (Soi Hai – Ca Na)	• Feasibility study • Requested and approval	--	●	--	○	--	....		
	4-2 International Scheduled Flight Expansion	• Air terminal upgrading (international standard)	• Regional joint promotion to government • Air terminal operation capacity development	• Air industry sales promotion • Consigned selling contract	○	●	--	○	....		
	4-3 Sea Port Development	• Ca Na seaport	• Mining exporting and processing linkage • Van Phong connection	• Logistics company investment • Processing	●	--	--	⊙	....		
		• Ke Ga seaport			--	--	●	⊙	....		

Note: ● = taking initiative role, ⊙ = collaboration, ○ = cooperation, NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, S = Short-term ( ~ 2015), M= Mid-term (2016-2020), L = Long-term (2021-2030)  
Source: JICA Study Team

Based on regional infrastructure development, Table 7.2.4 shows the proposed programs and projects that will promote other economic developments in Ninh Thuan Province through the formulation of regional linkage and cooperation focusing on the development program of industrial diversification among the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan, and Lam Dong.

**Table 7.2.4 Other Economic Sector Programs in Ninh Thuan through Strategic Linkage and Cooperation**

Theme and Program		Project Component			Stakeholders				Phasing		
		Physical Development	Institutional and Human Resource Development	Private Partnership	NT	KH	BT	LD	S	M	L
1. Gateway South Corridor Economic Development	1-1 Cam Ranh / Thuan Bac Economic Development Priority Zone Formulation	<ul style="list-style-type: none"> <li>Cam Ranh/Thuan Bac Special Industrial Park (SIP) including Du Long IP</li> </ul>	<ul style="list-style-type: none"> <li>Joint SIP master plan formulation, promotion and approval</li> <li>SIP management capacity development</li> </ul>	<ul style="list-style-type: none"> <li>Partnership with investors</li> <li>Formulation of investors value chain</li> </ul>	◎	◎	--	○			
	1-2 Inland Distribution Hub Formulation	<ul style="list-style-type: none"> <li>Advanced Bonded Logistics Center (ABLC)</li> </ul>	<ul style="list-style-type: none"> <li>Bonded area designation in the region proximity to sea port and airport</li> </ul>	<ul style="list-style-type: none"> <li>Transportation company advisory</li> </ul>	●	◎	◎	◎	----	----	
2. Agro/Aqua Industry Diversification	2-1 Wine Industry Value Chain Development	<ul style="list-style-type: none"> <li>Winery development</li> <li>Wine research institute</li> </ul>	<ul style="list-style-type: none"> <li>Wine production quality management</li> <li>Market and distribution, branding management</li> <li>Collaboration with research institute (VN, International)</li> </ul>	<ul style="list-style-type: none"> <li>Joint promotion cooperation with wine wholesaler, retailers</li> <li>Promotion events in tourist sites (restaurants/hotel)</li> </ul>	●	○	○	◎			
	2-2 Agro-products Applied Industry	<ul style="list-style-type: none"> <li>IPs in Ninh Thuan</li> </ul>	<ul style="list-style-type: none"> <li>Chemical utilization research development</li> <li>Process management &amp; supply chain formation</li> <li>Raw material production management</li> </ul>	<ul style="list-style-type: none"> <li>Chemical manufacturer participation</li> <li>Private investment</li> <li>Farmers cooperation</li> </ul>	●	○	○	--			
	2-3 Coastal Fishery Management and Improvement Project	<ul style="list-style-type: none"> <li>Marine resource management center with IT system</li> <li>Fishery cold storage and refrigerator trucks</li> </ul>	<ul style="list-style-type: none"> <li>Capture Fishery Zoning system (CFZ) through TAC and TAE mechanism (total allowable catch and efforts)</li> <li>Capacity building for fishery management administration and private sector</li> </ul>	<ul style="list-style-type: none"> <li>Fishery total management training course</li> <li>Fisherman's association participation</li> <li>Coordination and cooperation through association</li> </ul>	◎	◎	◎	--	----	----	
	2-4 Aqua-products Applied Industry	<ul style="list-style-type: none"> <li>IPs in Ninh Thuan</li> </ul>	<ul style="list-style-type: none"> <li>Chemical utilization research development</li> <li>Process management &amp; supply chain formation</li> </ul>	<ul style="list-style-type: none"> <li>Bio-chemical manufacturer participation</li> <li>Private investment</li> </ul>	●	○	○	--			
3. New Frontier Industry Development	3-1 Wind and Solar Energy Industry Promotion (WSEIP)	<ul style="list-style-type: none"> <li>WSEIP industrial manufacturer park</li> </ul>	<ul style="list-style-type: none"> <li>Joint Province Investment Fund for REIP co-financing</li> <li>Joint Province WSEIT CDM project facilitation</li> <li>WSEIT investment coordination (land use, permission, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>PPP model implementation</li> <li>Joint production with international manufacturers</li> <li>OEM production for REI</li> </ul>	◎	--	◎	○	----	----	
		<ul style="list-style-type: none"> <li>National Renewable Energy Research Institute</li> </ul>									
	3-2 Bioenergy Industry Promotion (BEIP)	<ul style="list-style-type: none"> <li>Bioenergy industrial park (Phuoc Nam IP)</li> </ul>	<ul style="list-style-type: none"> <li>BEIT investment coordination (land use, permission, etc.)</li> <li>BEIT CDM facilitation</li> </ul>	<ul style="list-style-type: none"> <li>Bioenergy planting farmers cooperation</li> <li>Promotion of energy crop in farmers</li> </ul>	◎	--	◎	○			
	3-3 Integrated Sustainable Off-grid Energy Management Projects	<ul style="list-style-type: none"> <li>Rural area small-scale integrated renewable energy system</li> <li>Small-scale hydropower, individual solar, integration control hub</li> </ul>	<ul style="list-style-type: none"> <li>Micro-grid renewable electricity distribution mechanism development</li> <li>Micro-electricity distribution mechanism with stakeholders building consensus</li> </ul>	<ul style="list-style-type: none"> <li>Local community involvement and cooperation</li> <li>Capacity development of operation of renewable energy equipment operation</li> </ul>	●	○	--	--	----	----	

Note: ● = taking initiative role, ◎ = collaboration, ○ = cooperation, NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, S = Short-term (~ 2015), M = Mid-term (2016-2020), L = Long-term (2021-2030)  
Source: JICA Study Team

#### (4) Natural environment linkage and cooperation

The region in Vietnam consisting of the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan, and Lam Dong embraces a rich and valuable natural environment of natural forests in mountainous areas and coastal marine resources with vulnerable species of coral reefs. These natural fields spread over beyond the boundaries of the provinces in the region.

There are common issues among the provinces especially in mountainous areas where local communities of ethnic minority groups live. The natural resources beyond administrative boundaries are exploited and abused causing natural disasters. The coastal area faces similar issues in terms of deterioration of sea or coastal environment by human activities for coral reef in the coastal areas of Ninh Thuan, Khanh Hoa and Binh Thuan provinces beyond the administrative boundary.

Taking into account the key natural environment in Ninh Thuan Province as common natural resources with common issues shared by Khanh Hoa, Binh Thuan, and Lam Dong Provinces, the mountainous forests, natural resources, and marine environment should be protected, properly utilized, and managed effectively by the linkage and cooperation mechanism based on the following objectives.

##### Objectives

- To formulate an integrated natural environment conservation and management mechanism for common natural resources through the cooperation and collaboration among relevant provinces; and
- To ensure sustainable and long-term resource protection and management, sharing socio-economic benefits to the relevant communities that are fairly distributed, including stable employment and income earning.

##### Strategy for linkage formulation and cooperation

- Community-based natural resource protection and utilization

Assistance to sustainable conservation of the natural environment and support from the key players of the local community will be needed to protect and utilize the natural environment even in national parks. The experiences and practices by a similar project of Bidoup-NuiBa NP in Lam Dong next to Ninh Thuan Province can be applied to nature protection areas in Ninh Thuan.

- Tourism-led nature conservation and management

Nature conservation requires appropriate funding in order to achieve sustainable activities for nature protection as well as public understanding and cooperation. Tourism will also play an important role in generating the necessary revenue to protect nature and contribute to local communities in



order to get their cooperation. A broader nature network will also be attractive and various natural environments through a joint collaboration with relevant provinces should be offered.

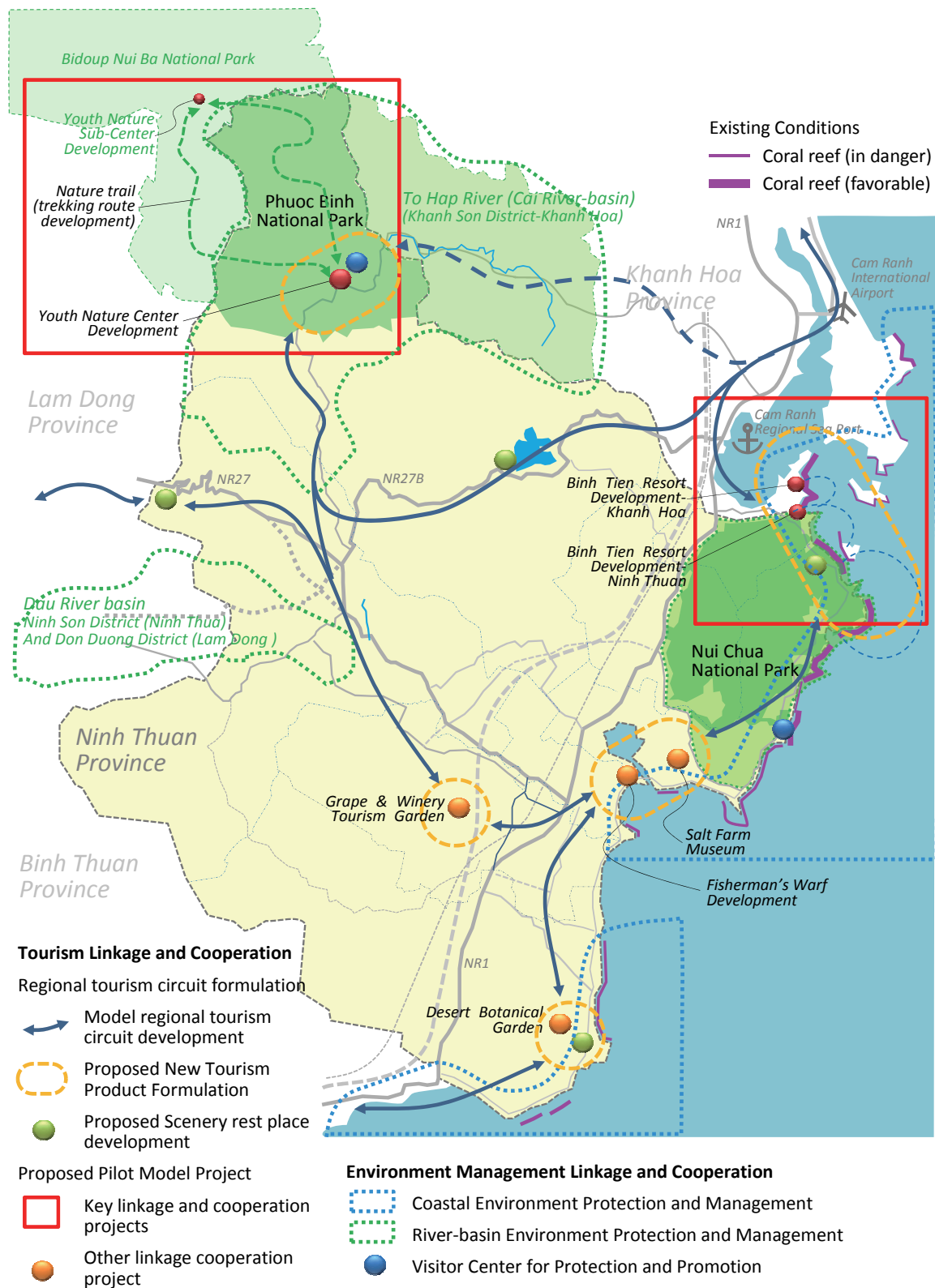
#### Regional linkage and cooperation programs for living and nature environment

Table 7.2.5 shows the proposed programs and projects to promote natural resources protection, and management linkage and cooperation among the four provinces of Ninh Thuan, Khanh Hoa, Binh Thuan, and Lam Dong.

**Table 7.2.5 Ninh Thuan Living and Natural Environment Sector Programs for Strategic Linkage and Cooperation**

Theme and Program		Project Component			Stakeholders				Phasing		
		Physical Development	Institutional and Human Resource Development	Private Partnership	NT	KH	BT	LD	S	M	L
1.Coastal Environment Protection and Management	1-1 Coral Reef Conservation and Tourism Integration	<ul style="list-style-type: none"> <li>• Coral Reef Conservation Visitor Center in Ninh Hai</li> <li>• Glass-bottom boat improvement</li> <li>• Diving Center</li> </ul>	<ul style="list-style-type: none"> <li>• Coral reef protection management planning</li> <li>• Marine diving tourism guide skill development</li> <li>• Press conference and media promotion</li> <li>• Awareness program</li> </ul>	<ul style="list-style-type: none"> <li>• Professional advisory</li> <li>• Coral reef diving, watching tourism product sales</li> <li>• Joint promotion cooperation</li> </ul>	●	◎	○	--			
	2-1 Phuc Binh National Park and River Basin Management	<ul style="list-style-type: none"> <li>• Joint facilities of National Youth Nature Center</li> <li>• Natural forest protection program</li> </ul>	<ul style="list-style-type: none"> <li>• Natural forest recovery project</li> <li>• Flora and fauna protection and guide program</li> <li>• Instructor and nature guide skill development</li> <li>• Phuc Binh Commune livelihood program and awareness for nature protection</li> </ul>	<ul style="list-style-type: none"> <li>• Joint management program with Phuc Binh Commune</li> <li>• Forestry industry company joint program</li> </ul>	●	◎	--	◎	----		
2.River-basin Environment Protection and Management	2-2 Lang Bah/Ma Noi River Basin Management	<ul style="list-style-type: none"> <li>• Natural forest protection program</li> <li>• Industry forest ration in the river basin area</li> <li>• New NR 27 (B) road development</li> </ul>	<ul style="list-style-type: none"> <li>• Forestry management program</li> <li>• Natural hazard prevention program</li> <li>• Quang Son Commune livelihood program and</li> </ul>	<ul style="list-style-type: none"> <li>• Joint management program with Quang Son Commune</li> <li>• Forestry industry company joint program</li> </ul>	●	--	--	◎	----		

Note: ● = taking initiative role, ◎ = collaboration, ○ = cooperation, NT = Ninh Thuan, KH = Khanh Hoa, BT = Binh Thuan, LD = Lam Dong, S = Short-term ( ~ 2015), M= Mid-term (2016-2020), L = Long-term (2021-2030)  
Source: JICA Study Team



Source: JICA Study Team

**Figure 7.2.2 Tourism and Environmental Sector Regional Linkage and Cooperation**

## CHAPTER 8 PRIORITY PROGRAMS

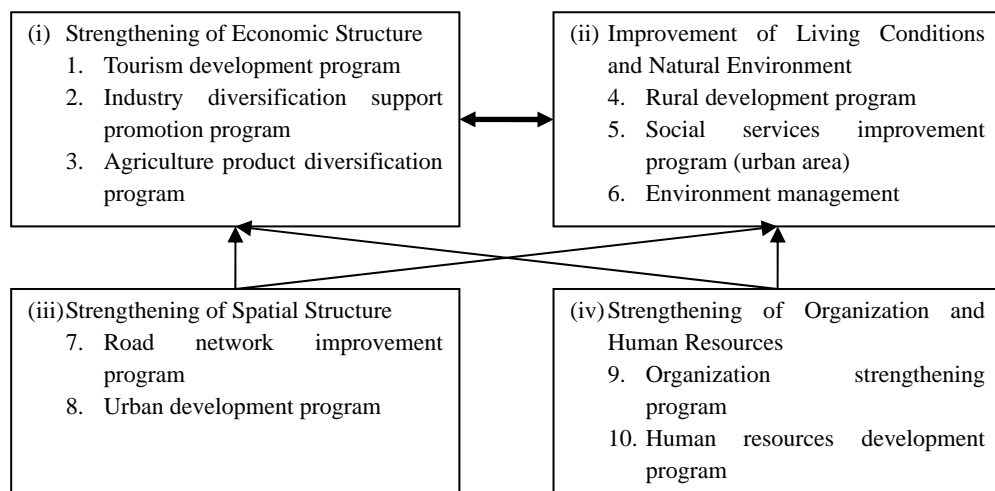
### 8.1 Structure of Priority Programs

The regional development in the South Central Coastal region will be supported by a set of development programs/projects, which are considered instruments for executing the socio-economic development plans and also to supplement the regional development strategy proposed in Chapter 6.

Majority of the programs/projects have been compiled based on the priority projects proposed in the socio-economic development plans and programs of respective agencies. In addition, new programs/projects were formulated to supplement the regional development prepared by provinces.

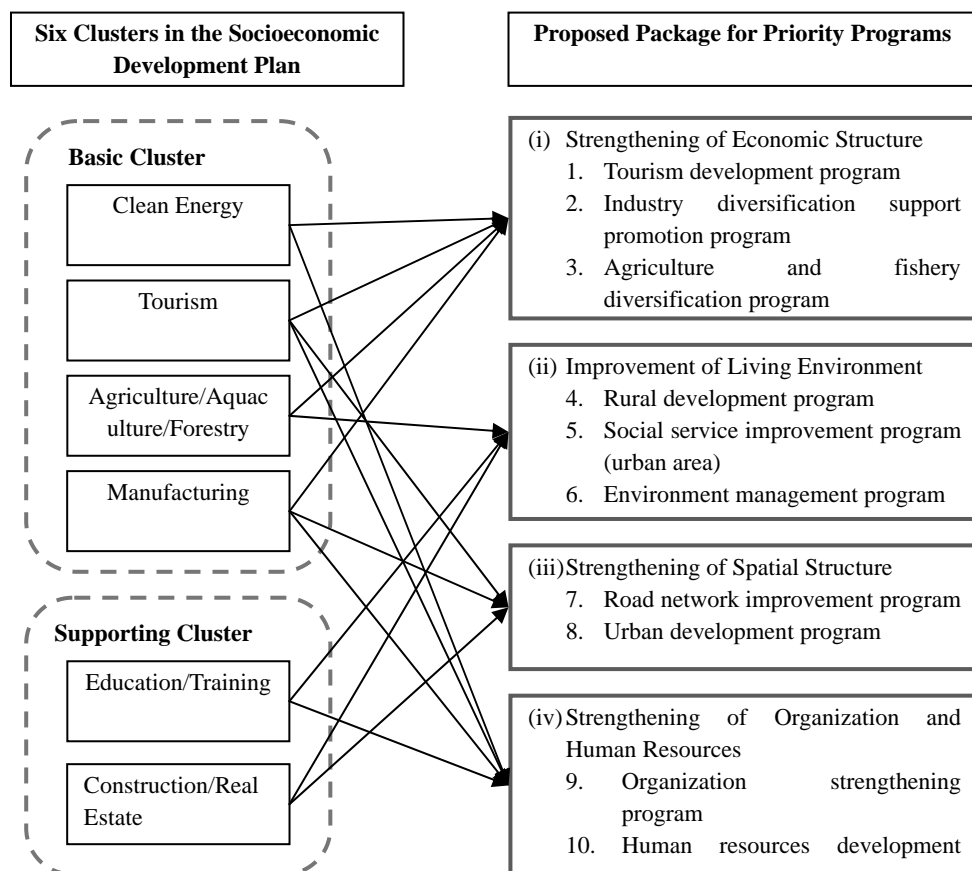
Programs are packaged to support the following: (i) strengthening of economic structure, (ii) improvement of living conditions and natural environment, (iii) strengthening of spatial structure, and (iv) strengthening of organization and human resources.

(i) Strengthening of economic structure is aimed at accelerating economic development and focusing on primary, industry and tourism sectors. (ii) Improvement of living conditions and natural environment is aimed at supporting the improvement of basic social services and strengthening skills development particularly in the rural areas, which also expects to secure self-reliance of ethnic minorities, and to intensify natural resources and environmental management. (iii) Strengthening of spatial structure, and (iv) strengthening of organization and human resources are aimed at supporting the implementation of (i) and (ii) programs through strengthening of spatial structure and organizational/human resources capacity.



**Figure 8.1.1 Structure of Priority Programs**

The proposed package is closely linked with six development clusters proposed in the Socio-economic Development Plan for Ninh Thuan Province. The six clusters are composed of the basic clusters (priority sectors) and supporting clusters. Social and infrastructure aspects are formulated to support these clusters. Since some clusters are closely related, the social and infrastructure aspects have to be integrated to achieve the sector target. Several sectors/components are integrated in one program. For rural development, for example, a proposed program includes health, education, road, and skills development. For manufacturing development, the social and economic infrastructure should be developed to create an attractive investment environment and to conduct active promotion by the EDO. This means, in order to promote manufacturing development, infrastructure development, organization strengthening, and research function strengthening are necessary. Training and different educational programs are proposed to meet the needs of different target groups. A program targeting people in the rural areas focuses on basic education and skills development. Whereas, a program that focuses on providing labor to the industry sector including the energy sector targets the people in the urban areas.



**Figure 8.1.2 Relationships between the Six Development Clusters and Priority Programs**

## 8.2 Priority Programs

### 8.2.1 Strengthening of Economic Structure

The strengthening of economic structure is composed of three programs and ten subprograms. The programs include tourism development, industry development, and agriculture/fishery development. The programs are designed to start from non-physical measures including marketing survey and capacity development which are considered the base for economic development.

Description of the programs and subprograms are provided in Table 8.2.1 below.

**Table 8.2.1 Strengthening of Economic Structure**

	Program/Subprogram	Description	Regional Linkage
1	Tourism development program	Tourism is considered a high priority in regional development. This program aims to promote tourism in order to increase the number of domestic as well as international tourists. Resorts, beach tourism, ecotourism, and culture tourism are identified as the types of tourism to be promoted.	
1.1	(Joint )Tourism product development subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to expand the range of products and to substantially and visibly raise the quality of products, and visitor satisfaction. Developing tourism products is essential for accelerating tourism growth in Nha Trang and Da Lat.</li> <li>Michino eki (roadside station) provides a place for tourists to stop for rest and also a place for promoting local products.</li> <li>Potential tourism products: Cam Lap Peninsula Tourism Area Integration, Phuc Binh National Park Tourism Integration, Salt Farm Tourism Integration, Semi-Arid Environment Tourism Integration, and New Energy Tourism Integration</li> </ul>	●
1.2	(Joint) Tourism marketing and promotion subprogram	<ul style="list-style-type: none"> <li>This subprogram will support developing capacity on marketing, promotion and information delivery, and building differentiated images of Ninh Thuan.</li> </ul>	●
1.3	Tourism infrastructure development subprogram	<ul style="list-style-type: none"> <li>Infrastructure related to tourism is mainly road and water supply. This subprogram includes road and water supply development that would support tourism development specifically at tourism sites (Ninh Hai).</li> </ul>	●
2	Industry diversification support program	This program aims to support the building base for industry development and also support in developing new industries.	
2.1	Gateway and cross-border area development subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to promote diversification of the resourced-based industry and the new industry in the cross-border area adjacent to Cam Ranh Port and the Du Long IP (Ninh Thuan) while facilitating regional linkage and cooperation.</li> <li>Discussion on how to implement the market</li> </ul>	●

	<b>Program/Subprogram</b>	<b>Description</b>	<b>Regional Linkage</b>
		<p>survey for diversification of resource-based and new industries between Khanh Hoa and Ninh Thuan.</p> <ul style="list-style-type: none"> <li>• Implementation of market survey for specific products/industries to be identified and funded by Vinaline.</li> <li>• Joint work for cross-border area development plan between Khanh Hoa and Ninh Thuan.</li> <li>• Joint investment promotion between the EDO and Khanh Hoa.</li> <li>• Capacity building of the Du Long IP management board and the EDO.</li> </ul>	
2.2	Resource-based new industry (agricultural product-based industry) subprogram	<ul style="list-style-type: none"> <li>• This subprogram aims to support agricultural product-based industry based on regional cooperation (three provinces) and inter-sector linkage.</li> <li>• Nationwide and regional market surveys for agriculture product-based industries.</li> <li>• Regional cooperation on procurement of agricultural products as raw materials.</li> <li>• Regional discussion and plan on placement of agricultural product-based industries.</li> <li>• Joint investment promotion.</li> </ul>	●
2.3	Resource-based industry (sea product-based industry) subprogram	<ul style="list-style-type: none"> <li>• This subprogram aims to promote seaweed and salt-based products/industries.</li> <li>• Nationwide and regional market surveys for seaweed and salt-based products.</li> <li>• Investment on the promotion of these industries in the south of Ninh Thuan.</li> <li>• Capacity building of industry cluster estates' management board.</li> </ul>	●
2.4	New frontier industry development subprogram	<ul style="list-style-type: none"> <li>• This subprogram aims to encourage private investors to invest on renewable energies (wind and hydropower) projects.</li> <li>• Implementation of donor funded, joint PPP projects and feasibility studies on renewable energy projects between Binh Thuan and Ninh Thuan.</li> <li>• Support for investors' negotiation on subsidy, guarantee and purchasing price per kWh of Electricity of Vietnam (EVN).</li> <li>• Promotion of liberalization of the renewable energy market.</li> </ul>	●
2.5	Building of brand image subprogram	<ul style="list-style-type: none"> <li>• This subprogram aims to establish the brand image/products for Ninh Thuan's promotion/popularization.</li> <li>• Implementation of a donor funded, pilot project for vineyard and winery operations in Ninh Thuan.</li> <li>• Implementation of a brand image of tourism and resort areas in the South Central Coastal Area and Lam Dong Province, funded by a donor</li> </ul>	●
3	Agriculture and fishery	This program aims to support the shifting from the	

	Program/Subprogram	Description	Regional Linkage
	diversification program	utilization of high value-added products to local-based products which contribute to the local economy.	
3.1	Agricultural product diversification subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to develop the marketing of potential high-value, local agricultural products and the establishment of the processing industry.</li> <li>Investment promotion of high-value products such as fresh greens and fruits.</li> <li>Marketing promotion of new agricultural products.</li> </ul>	●
3.2	Fishery and marine, aquaculture product development subprogram	<ul style="list-style-type: none"> <li>This subprogram supports the development of fishery and aquaculture products marketing with a cold chain, aiming at local supply chain.</li> <li>Finding investors of fishery and aquaculture products to collaborate with a local supply chain.</li> <li>Marketing promotion of locally made aquaculture products.</li> </ul>	●

## 8.2.2 Improvement of Living Conditions and Natural Environment

Improvement of living conditions and natural environment is composed of three programs, namely, rural development program, social service improvement program, and environment management program including ten subprograms.

Rural development program is designed to improve the living conditions in rural areas in the three provinces. The Bac Ai District and Ninh Son District and Ninh Hai were selected as priority areas in Ninh Thuan Province. Social service improvement program covers the improvement of the physical condition and service quality of the health and education sectors. Environment management program focuses on coastal and river basin environment protection which are precious assets for tourism development, if effectively implemented by regional cooperation with neighboring provinces.

The description of programs and subprograms are provided in Table 8.2.2 below.

**Table 8.2.2 Improvement of Living Conditions and Natural Environment**

	Program/Subprogram	Description	Regional Linkage
4	Rural development program	Constraints in the rural area are complex and a comprehensive approach is necessary in order to solve the problem.	
4.1	Bac Ai region rural development subprogram	<ul style="list-style-type: none"> <li>Rural development aims to improve the living conditions by providing social services, improved access (rural roads), improved water supply, and skills development to raise income levels.</li> </ul>	
4.2	Ninh Son region rural	<ul style="list-style-type: none"> <li>Rural development aims to improve the</li> </ul>	

	<b>Program/Subprogram</b>	<b>Description</b>	<b>Regional Linkage</b>
	development subprogram	living conditions by providing social service, improved access (rural road), improved water supply, and skills development to raise income levels.	
4.3	Ninh Hai region infrastructure and social services equipment enhancement subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to satisfy the basic human needs (BHN) of people who will work and live in Ninh Hai District by constructing community health centers (CHC) and providing basic medical equipment in district hospitals.</li> </ul>	
4.4	Rural infrastructure improvement subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to improve infrastructure including road, water supply, and agricultural facilities (e.g. irrigation and water resources) for better living conditions.</li> </ul>	
4.5	Strengthening vocational training support subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to develop the vocational training management skills of the resource person. This also aims to equip curriculum development and improve the teaching abilities of staff in vocational centers, and primary and lower secondary schools in order to enhance their opportunities for better livelihoods.</li> </ul>	●
4.6	Improvement of the quality of medical services subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to improve the management skills training of the Department of Health (DOH) and the provincial hospital in order to extend the effect of training for district staff and commune level medical establishments as well as the quality of their medical and health care services.</li> <li>It also aims to improve the patient referral system from commune to district levels, and from district to provincial levels in order to aid more individuals.</li> </ul>	●
5	Social service improvement program (urban area)	This program aims to improve the poor quality of education and medical services, which are problems that prevent the development of this region.	
5.1	Enlargement of the capacity of upper secondary education subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to increase the number of high quality human resources by enhancing the capacity of upper secondary schools with the construction of a new school in Phan Rang.</li> </ul>	
5.2	Improvement of the quality of education subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to improve the low quality of science education at lower secondary schools by developing teacher's guide books and by implementation of training of teachers.</li> </ul>	●
6	Environmental management program	This program aims to protect and manage the environment, which consist of forests, river basins, and sea resources.	
6.1	Coastal environmental protection and management subprogram	<ul style="list-style-type: none"> <li>Sea turtle conservation (linked with tourism).</li> <li>Coral reef conservation (linked with</li> </ul>	●



	Program/Subprogram	Description	Regional Linkage
		tourism).	
6.2	River basin environment protection and management subprogram	<ul style="list-style-type: none"> <li>• Management and protection of Phuc Bin National Park and its river basin.</li> <li>• Lang Bah/Ma Noi River basin management.</li> </ul>	●

### 8.2.3 Strengthening of Spatial Structure

The strengthening of spatial structure is composed of two programs and six subprograms. The road network will be implemented for inter- and intra-regional network strengthening. The development and improvement of inter-regional roads (National Road 1 and National Road 27) should be implemented in the short term since its impacts to regional development are expected to be significant. Supporting subprograms for rural development and minority promotion in remote areas should be implemented together with the proposed four rural development programs.

For urban development, improvement of living conditions and urban environment including flood protection in Phan Rang Thap Cham should be implemented in the short term.

Description of the programs and subprograms are provided in Table 8.2.3 below.

**Table 8.2.3 Strengthening of Spatial Structure**

	Program/Subprogram	Description	Regional Linkage
7	Road network development program	Road network is a fundamental infrastructure for economic and social activities through which inter-regional access and intra-regional access are expected to be improved.	
7.1	Inter-regional linkage strengthening subprogram	<ul style="list-style-type: none"> <li>• This aims to improve inter-regional access and strengthen international linkage.</li> <li>• Project on upgrading National Road 1A, particularly the section from Cam Ranh international airport to Phan Rang – Thap Cham City.</li> <li>• Project on upgrading National Road 27, particularly the section passing Ninh Thuan Province.</li> <li>• Coastal road project – section from Binh Tien to Ca Na.</li> </ul>	●
7.2	Intra-regional linkage strengthening subprogram	<ul style="list-style-type: none"> <li>• This aims to strengthen the provincial road network to improve urban and rural access and support industry activities.</li> <li>• Construction of Ring Road surrounding Phan Rang – Thap Cham City (PR702-NR1A-NR27).</li> <li>• Construction of Van Lam-Son Hai Road.</li> <li>• Construction of National Road No. 27 – Ma Noi – Phuoc Ha – National Road 1A (Phuoc</li> </ul>	

	Program/Subprogram	Description	Regional Linkage
		<ul style="list-style-type: none"> <li>Ha – National Road 1A).</li> <li>National Road 27B extension to Lam Dong</li> <li>Widening of Provincial Road 704.</li> <li>Ba Tháp Street – Le Spring -Phước Kháng.</li> <li>Upgrading of Provincial Road 703.</li> <li>Expansion of 21-8 Street (Hai Muoi Mot Thang Tam Street)</li> <li>Integrated Coastal Area Development Project - Nhon Hai, Thanh Hai, and Vinh Hai Communes in Ninh Hai District.</li> <li>National Road 27 bypass in Tan Son Town, Ninh Son District.</li> </ul>	
7.3	Rural development and ethnic minority promotion in remote areas support subprogram	<ul style="list-style-type: none"> <li>This aims to improve urban and rural access.</li> <li>Construction of National Road 27 – Ma Noi – Phuoc Ha – National Road 1A (Ma Noi – Phuoc Ha).</li> <li>Upgrading the road from Phuoc Dai to Phuoc Trung (DH1 upgrade gravel to BPM).</li> <li>Phuoc Chien – Phuoc Thanh in Tuan Bac and Bac Ai District.</li> </ul>	
8	Urban development program (Phan Rang urban development)	This program aims to strengthen urban hierarchy through urban center and subcenter development. Also, to develop infrastructure to improve the urban environment in Phan Rang Thap Cham.	
8.1	Urban subcenter development subprogram	<ul style="list-style-type: none"> <li>This aims to develop subcenter in Ninh Thuan along inter-regional roads (Tan Son, Loi Hai, and Phuoc Nam).</li> </ul>	
8.2	Flood protection in Phan Rang Thap Cham subprogram	<ul style="list-style-type: none"> <li>This aims to improve urban infrastructure for Phan Rang Thap Cham.</li> <li>Since there is no master plan, the action should include master plan formulation to show clear direction and measures for the improvement of flood condition.</li> </ul>	
8.3	Urban environment improvement subprogram	<ul style="list-style-type: none"> <li>This aims to improve urban environment where living condition is poor (drainage, road, and solid waste).</li> </ul>	

#### 8.2.4 Organizational Strengthening and Human Resources Development

The priority program for organizational strengthening and human resources development is composed of two programs and six subprograms. Organizational strengthening for economic development will be done at three levels: i) strengthening of the EDO as the provincial economic development promotion headquarters (Subprogram 9.1), ii) capacity development of sector departments on coordination and promotion (Subprogram 9.2), and iii) development of regional cooperation mechanism (Subprogram 9.3). All three subprograms will start at the same time but will be implemented gradually.

Human resources development for economic development will be done in two phases: i) the formulation of inter-sector human resources development strategies and action plans, and program implementation mechanisms; and ii) the implementation of the plans using the mechanism agreed in the first phase. Subprogram 10.1 corresponds to the first phase, in which the human resources development council and network will be set up and the human resources development strategies and action plans by sector will be formulated. Subprograms 10.2 and 10.3 are examples of programs to be implemented in the second phase.

Some of the subprograms are linked to each other or to other programs. Subprogram 9.2, which aims to develop the coordination and promotion capacity of government officials in the Tourism Division, will be implemented with tourism development programs. The industry promotion capacity will be strengthened in cooperation with the EDO strengthening subprogram. The details of the regional coordination management strengthening subprogram could be developed as one of the activities of the EDO strengthening subprogram. Furthermore, the human resources development network support subprogram can be implemented as part of the EDO strengthening subprogram since EDO will play the role of secretariat for the said network.

Description of the programs and subprograms are provided in Table 8.2.4 below.

**Table 8.2.4 Strengthening Organizational and Human Resources Development**

	Program/Subprogram	Description	Regional Linkage
9	Organizational strengthening program	In addition to sector development and infrastructure development, organizational capacity strengthening is conducted to support regional development.	
9.1	EDO strengthening subprogram	<ul style="list-style-type: none"> <li>• This subprogram focuses on strengthening the capacity of industry and tourism promotion, training coordination, and coordination with other programs. <ul style="list-style-type: none"> <li>➢ Tourism: strengthening interagency cooperation, public awareness, and visitor survey</li> <li>➢ Industry: investment promotion, marketing, and coordination</li> <li>➢ Training: coordination and information sharing</li> </ul> </li> </ul>	●
9.2	Local government capacity enhancement subprogram	<ul style="list-style-type: none"> <li>• This subprogram aims to develop the capacity of local governments for tourism and industry through coordination and promotion of skills for the industry and tourism sectors. This program will be implemented together with</li> </ul>	

	<b>Program/Subprogram</b>	<b>Description</b>	<b>Regional Linkage</b>
		Subprogram 8.1.	
9.3	Regional coordination management strengthening subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to establish regional coordination organization in order to strengthen coordination among concerned agencies .</li> </ul>	●
10	Human resources development program	Human resources development focuses on industry and tourism.	
10.1	Human resources development network support subprogram	<ul style="list-style-type: none"> <li>This subprogram aims to establish a human resources development network through which joint formulation and implementation of projects for career development, vocational training, and employee training support system will be established.</li> </ul>	
10.2	Vocational training strengthening support subprogram	<ul style="list-style-type: none"> <li>This subprogram will upgrade the vocational training program, teaching skills strengthening, and facility improvement to supply workers to the tourism and industry sectors.</li> </ul>	
10.3	Upgrading the teacher's college into a university support subprogram	<ul style="list-style-type: none"> <li>This subprogram is intended to improve the facility and curriculum, to promote partnership between industry and government, and to match the demand and supply in the industry sector.</li> </ul>	

### 8.3 Implementation Schedule

The implementation schedule is prepared based on the development scenario proposed in Chapter 5. The short term (2012-2015) is characterized as “preparation for launching development” in which basic infrastructure is developed, basic surveys for industry and tourism are conducted, education and health service programs are prepared, organizational strengthening is executed, and programs for execution will be implemented immediately. Public funds are necessary for the implementation of the said programs. The medium term (2016-2020) is characterized as “launching development” in which infrastructure and facilities are developed. The long term (2021-2030) is characterized as “sustainable development” in which the private sector is expected to be more active. The implementation schedule of the priority programs is proposed for the short, medium, and long terms, as shown in Table 8.3.1 below.

**Table 8.3.1 Implementation Schedule of the Priority Programs**

	Program/Subprogram	Phasing		
		S	M	L
1	Tourism development program			
1.1	(Joint) Tourism product development subprogram			
1.2	(Joint) Tourism marketing and promotion subprogram			
1.3	Tourism infrastructure development subprogram			
2	Industry diversification support program			
2.1	Gateway and cross border area development subprogram			
2.2	Resource-based new industry (agricultural product-based industry) subprogram			
2.3	Resource-based industry (sea product-based industry) subprogram			
2.4	New frontier industry development subprogram			
2.5	Building of brand image subprogram			
3	Agriculture and fishery diversification program			
3.1	Agricultural product diversification sub-program			
3.2	Fishery and marine aquaculture product development subprogram			
4	Rural development program			
4.1	Bac Ai region rural development subprogram			
4.2	Ninh Son region rural development subprogram			
4.3	Ninh Hai region infrastructure and social services equipment enhancement subprogram			
4.4	Rural infrastructure improvement subprogram			
4.5	Strengthening vocational training support subprogram			
4.6	Improvement of the quality of medical services sub-program			
5	Social service improvement program (urban area)			
5.1	Enlargement of the capacity of upper secondary education subprogram			
5.2	Improvement of the quality of education subprogram			
6	Environmental management program			
6.1	Coastal environment protection and management subprogram			
6.2	River basin environment protection and management subprogram			
7	Road network development program			
7.1	Inter-regional linkage strengthening subprogram			
7.2	Intra-regional linkage strengthening subprogram			
7.3	Rural development and ethnic minority promotion in remote areas support subprogram			
8	Urban development program (Phan Rang urban development)			
8.1	Urban subcenter development subprogram			
8.2	Flood protection in Phan Rang Thap Cham subprogram			
8.3	Urban environment improvement subprogram			
9	Organization strengthening program			
9.1	EDO strengthening subprogram			
9.2	Local government capacity enhancement subprogram			
9.3	Regional coordination management strengthening subprogram			
10	Human resources development program			
10.1	Human resources development network support subprogram			
10.2	Vocational training strengthening support subprogram			
10.3	Upgrading the teacher's college into a university support subprogram			

Note: S: Short term (2012-2015), M: Medium term (2016-2020), L: Long term (2021-2030)



## **CHAPTER 9 RECOMMENDATIONS FOR FURTHER ACTION**

In order to ensure the smooth transition or implementation of the socio economic development strategy for the South Central Coastal Area, recommendations are prepared as follows:

### **(1) Preparation of regional cooperation mechanism**

The strengthening of the regional linkage/cooperation is important not only for Ninh Thuan but also for the South Central Coastal Area to compete with other areas in Vietnam. The bargaining power to the central government and donor, and the policies toward attracting foreign direct investment (FDI) will be strengthened if a regional cooperation mechanism is developed. Thus, it has to be developed as soon as possible. The following actions should be taken as initial steps for accelerating regional cooperation:

- Workshops shall be conducted to discuss regional linkage and cooperation with concerned agencies, including the central government, the local governments (Ninh Thuan, Khanh Hoa, Binh Thuan, and Lam Dong), donors, and the private sector; and
- An agreement or a memorandum of understanding (MoU) among the three provinces in the South Central Coastal Area, Ninh Thuan, Khanh Hoa, and Binh Thuan, and Lam Dong Province in the Central Highlands region has to be prepared for regional cooperation.

### **(2) Implementation of pilot projects to form regional cooperation**

The implementation of regional cooperation has not been successful after signing the MoU among the concerned provinces mainly due to weak implementation mechanism. In order to accelerate regional cooperation, pilot projects for selected sectors or fields will have to be conducted. The mechanisms shall be examined and developed for further regional cooperation.

### **(3) Further study to justify (preparation) the programs/projects**

Some data may not be enough to determine in detail the program components. Market and demand surveys for industry development, as well as natural resources survey for agriculture development, have to be conducted. For the human resources sector, a similar survey needs to be conducted to select which skills have to be developed to prepare and supply workers to the industry and tourism sectors. For organizational strengthening, the advantages and disadvantages of role sharing among concerned organizations have to be examined also.

(4) Conduct feasibility study or pre-feasibility study of priority programs

In order to proceed with the implementation of the programs, a detailed studies have to be conducted to secure budget from both the Vietnamese government and donors. A very important study would be a feasibility study. It aims to examine the technical, financial, and institutional feasibility which are required for project approval and also requests the budget for implementation.

(5) Strengthening of the EDO

The EDO plays an important role in regional development in terms of investment promotion, tourism promotion, and coordination among stakeholders. Strengthening of the EDO has to be executed to accelerate the implementation of regional development. Strengthening of the EDO, which include structure reform, staff capacity development, and budget preparation, has to be implemented, as shown below.

- Strengthening the function of investment promotion: set up separate division for investment promotion to enhance the quality and quantity of promotional activities. A system for coordination with related departments is required,
- Providing business support services: provide investors with investment counseling services and aftercare support,
- Policy advocacy and coordination: formulate and propose investment policies based on feedback reports from investors,
- Creation of new local industries and products: provide small-scale competitive funds, provide strategy to promote innovation in the direction of the Socioeconomic Development Plan, and
- Human resources development for the six sectors: maintain a network of key private and public representatives, organize training sessions to the private sector on the six priority sectors in cooperation with other professional institutions.