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People's Committee of Ba Ria-Vung Tau Province

Data Collection Survey
on Ba Ria-Vung Tau Province
Environment-Friendly Industrial
Accumulation and Logistics Hub Strategy

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Mizuho Research Institute Ltd.

Mizuho Bank, Ltd.

Institute for Global Environmental Strategies

Oriental Consultants Global Co., Ltd.

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Abbreviation

A	ADB	Asian Development Bank
	AEC	ASEAN Economic Community
B	BEPF	Ba Ria- Vung Tau Environmental Protection Fund
	BIZA	Ba Ria- Vung Tau Industrial Zones Authority
	BOT	Build Operate Transfer
	BRVT	Ba Ria- Vung Tau
D	DARD	Department of Agriculture and Rural Development
	DOC	Department of Construction
	DOET	Department of Education and Training
	DOF	Department of Finance
	DOIT	Department of Industry and Trade
	DONRE	Department of Natural Resources and Environment
	DOT	Department of Transport
	DPI	Department of Planning and Investment
	DWT	Dead Weight Tonnage
E	EDI	Electronic Data Interchange
	EIA	Environmental Impact Assessment
	EMS	Energy Management System
F	FEMS	Factory Energy Management System
	FS	Feasibility Study
G	GCTF	Green Credit Trust Fund
	GDP	Gross Domestic Product
	GNI	Gross National Income
	GRDP	Gross Regional Domestic Product
	GSCM	Global Supply Chain Management
	GT	Gross tonnage
H	HEMS	Home Energy Management System
I	ICD	Inland Container Depot
J	JBIC	Japan Bank for International Cooperation
	JICA	Japan International Cooperation Agency
	JV	Joint Venture
M	MIC	Ministry of Information and Communications
	MND	Ministry of National Defense
	MOF	Ministry of Finance
	MOIT	Ministry of Industry and Trade
	MOLISA	Ministry of Labour, Invalids and Social Affairs
	MONRE	Ministry of Natural Resources and Environment
	MOST	Ministry of Science and Technology
	MOT	Ministry of Transport
	MPI	Ministry of Planning and Investment
	MPS	Ministry of Public Security
	MSEF	MGM Sustainable Energy Fund
N	NGO	Non-Governmental Organizations
O	OCDI	The Overseas Coastal Area Development Institute of Japan

	ODA	Official Development Aid
	OECD	Organisation for Economic Co-operation and Development
P	PCU	Passenger Car Unit
	PE	Polyethylene
	PC	People's Committee
	PP	Polypropylene
S	SCM	Supply Chain Management
	SPC	Special Purpose Company
T	TEU	Twenty-Foot Equivalent Unit
V	VEC	Vietnam Expressway Corporation
	VEPF	Vietnam Environment Protection Fund
	VINAMARINE	Vietnam Maritime Administration
	VOC	Volatile Organic Compounds

Chapter 1 Direction of Industrial Development Strategy for BRVT Province

1. Discussion to Date Based on Province Based Economic Growth

In January 2016, in the policy dialogue between JICA survey team including Professor Kenichi OHNO of National Graduate Institute for Policy Studies and BRVT Province, the discussions were held regarding the validity of “conventional policy to generally exclude from attracting the industries that might pose high risks to the environment and promote to attract textile industries and high-technology industries” and “policy to control environmental load and positively attract heavy chemical industries/primary materials industries such as steel industry and petrochemical industry etc.” Consequently, it was concluded that promotion of establishment of the policy subject to the latter one would be determined as the direction of People’s Committee by the secretary general of BRVT Province.

Later, in response to the problem regarding the mass death of fish attributable to the steelworks of Hà Tĩnh Province that occurred in summer of 2016, citizens’ concerns grew about environmental pollution, which became the trigger for even stronger social demand for environmental consideration.

In these situations, it is extremely important to positively attract to control environmental load and positively attract heavy chemical industries/primary materials industries such as steel industry and petrochemical industry etc. as the new direction of BRVT Province in line with Province Based Economic Growth by JICA and realize the policy to establish logistics hub to support industrial accumulations. In that such policy sufficiently considers the influence on tourist industries and agricultural and fishery industries as the important industries of BRVT Province and promotes the development of heavy chemical industries/primary materials industries, it can be expected that such policy could be the pilot model for industrial policies of Vietnam for the future.

Subject to these discussions, we have conducted this research, as we recognized that the growth of BRVT Province should focus on industrial accumulations, be linked to the environmental countermeasures and conception of logistics hub and have the structure to support industrial accumulations.

2. Direction of the Environment-friendly Industrial Development in BRVT Province

Based on the industrial structure analysis of BRVT Province, in order to realize the environmental countermeasures and logistics hub structure while converting the industrial structure which is particularly emphasized on mining industry, setting non-mining industrial field as a new key industry and promoting industrial accumulations, we suggest that “advanced Province in Green Growth /international logistics hub” be set as the goal in three fields of industry, environment and logistics.

The essential points of this policy are strengthening of industrial structure, promotion of environmental countermeasures and formation of logistics network to support strengthening of industrial structure. By determining each goal for the above-mentioned three fields and three

strategies for each goal and setting these as three targets and nine strategies, we will aim at the development the whole BRVT Province through the Province-wide actions for creation and promotion of the policy.

The details of such goals, targets and strategies are shown below. These will be described in the following chapters.

Goal : No.1 Green Growth Province in Vietnam and International Logistics Hub

To become Green Growth model of the Southern Economic Zone; to become ASEAN's international logistics hub

Target1 : To build resilient industrial structure by increasing the GRDP
(triple increase of GRDP excluding mining)

Converting the industrial structure which is particularly emphasized on mining industry and setting non-mining industrial field as a new key industry (Annual average growth rate 7% of non-mining industrial field)

- (1)Strategy 1 : Create high-value added industries (automobile, food processing, pharmacy etc.)
- (2)Strategy 2 : Develop material industries (oil refinery, steel, textile etc.) as the supply hub
- (3)Strategy 3 : Diversify power supply (SPP, renewable energy etc.)

Target 2 : To become the most advanced Green Growth Province in Southern Economic Zone in Vietnam by leading environment-friendly economic development

Act the key role in connecting provinces/city in the South; leading role in regional environment-friendly economic.

- (1)Strategy 1 : Introduce advanced clean technology
- (2)Strategy 2 : Strengthen BRVT Environment Protection Fund
- (3)Strategy 3 : Establish Environment-Friendly Industrial Zone

Target 3 : To become an international logistics hub as a new “South Entrance” of the country

Become new “South Entrance” with the role as an international logistics hub

- (1)Strategy 1 : Strengthen logistics infrastructure
(construct the network of express way, bridge, railway)
- (2)Strategy 2 : Strengthen the functions of Cai Mep – Thi Vai Seaport
- (3)Strategy 3 : Establish Cai Mep Ha Logistics Center

Chapter 2 Target 1 To Build Resilient Industrial Structure

1. Strategy 1: Create High-value Added Industry (Automobile / Food Processing / Pharmaceutical etc.)

1.1 Industrial Structure of BRVT Province

1.1.1 Location of Southern Vietnam and Geographical Conditions and Characteristics

The southern part of Vietnam where BRVT Province is located is in the central part of ASEAN and has easy transport access both by land and by sea to each ASEAN member country. Being located at the departure/arrival point of the southern economic corridor, the province has also an excellent environment of access to the Mekong region such as Thailand and Cambodia etc. via the southern economic corridor. Additionally, as the southern part of Vietnam is located on the major international container while its ports have been developed, it has also easy access to the advanced countries such as Japan and European and US countries as well as to ASEAN member countries.

BRVT Province in the southern part of Vietnam is approximately 100 kilometers eastern south to Ho Chi Minh City as the largest economically developed city in Vietnam. By using Ho Chi Minh-Long Thanh Expressway opened in 2014, BRVT Province is accessible to Ho Chi Minh City in approximately one hour.

In the region of BRVT Province where industrial zones form accumulations, there is Cai Mep-Thi-Vai Port within the district, the sole international container terminal of Vietnam where gigantic container ships with the depth of 14m and 160,000 TEU can operate. Cai Mep-Thi-Vai Port is located on the main international container route, where the direct services have operated to European and US countries as well as to other ASEAN countries via the said route. Furthermore, BRVT Province has easy access to Tansonnhat International Airport located in Ho Chi Minh City and Long Thanh International Airport being planned to be constructed.

Being located at the Pacific costal entrance of the southern economic corridor, BRVT Province is also accessible to Cambodia, Thailand and Myanmar.

In addition to this point, BRVT Province is rich in natural resources and has an approximately 93% of crude oil reserves of Vietnam, and a 16% of gas reserves of Vietnam. For this reason, in BRVT Province along with natural gas being supplied to the industrial zones through pipelines, a 17.5% of the power output of Vietnam has been generated by thermal power generation for which natural gas is used as heat source. Furthermore, BRVT Province is rich in water resources, supplying 180,000m³/day from the water filtration plant that takes in waters of Da Den Lake in the northern east of BRVT Province.

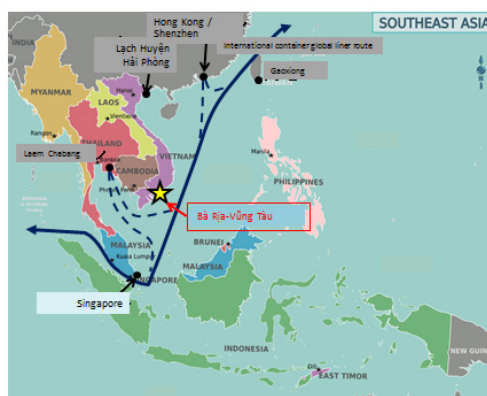


Figure 2.1.1 Location of BRVT Province

1.1.2 Industrial Structure of BRVT Province

Looking at GDP of the whole Vietnam and BRVT Province GRDP composition ratio by industry in 2016, in the industrial structure of the whole Vietnam, the ratio of the manufacturing industry as a secondary industry is the largest accounting for 16.2%, followed by the agricultural, forestry and fishing industry as a primary industry at the approximately equivalent level accounting for 15.30%. Besides, the ratio becomes higher in the order of wholesale/retail business as 9.4%, mining industry as 7.6%, construction industry as 6.2%, financial business as 5.7% and real estate industry as 5.1%. Other than the industry types in primary industries and secondary industries, the ones in tertiary industries also account for a certain percentage.

In the industrial structure of BRVT Province, as the province is rich in natural resources such as petroleum and natural gas, mining industry attains approximately 60% of the whole industries, accounting for 60.7%, followed by manufacturing industry accounting for 14.7%. That means that the industrial structure of BRVT Province has been focusing on secondary industries. On the other hand, the ratio of the agricultural, forestry and fishing industry as a primary industry in BRVT Province is low accounting for 2.9%, which differs much from the ratio of the whole Vietnam accounting for 15.3%. The ratio of service industries (tertiary industries) such as wholesale/retail business, financial business and real estate industry etc. is lower compared to the one of the whole Vietnam. Despite the low ratio in service industries, BRVT Province has some of the most popular beach resorts in Vietnam and has one of the most flourishing tourist industry in the southern part of Vietnam. There are a lot of hotels and restaurants in the province and thus tourist industry has been playing an important role in the industries of BRVT Province.

BRVT Province has the industrial structure which is particularly emphasized on mining industry. For the future, it is predicted that the mining industries will shrink in a medium and long term due to depletion of petroleum etc. In order to achieve the growth/development of BRVT Province, it is necessary to convert the industrial structure which is particularly emphasized on mining industry and develop new key industries in non-mining industrial fields.

Table 2.1.1 GDP of Vietnam and GRDP Composition Ratio of BRVT Province (2016)

	Composition Ratio	
	Vietnam	BRVT
TOTAL	100.0%	100.0%
Agriculture, forestry and fishing	15.3%	2.9%
Mining and quarrying	7.6%	60.7%
Manufacturing	16.2%	14.7%
Electricity, gas, steam and air conditioning supply	4.1%	4.2%
Water supply, sewerage, waste management and remediation activities	0.6%	0.2%
Construction	6.2%	1.2%
Wholesale and retail trade; repair of motor vehicles and motorcycles	9.4%	2.8%
Transportation and storage	2.9%	1.6%
Accommodation and food service activities	3.7%	0.7%
Information and communication	1.1%	-
Financial, banking and insurance activities	5.7%	0.7%
Real estate activities	5.1%	1.3%
Professional, scientific and technical activities	1.4%	0.2%
Administrative and support service activities	0.4%	0.5%
Activities of Communist Party, socio-political organizations; public administration and defense; compulsory security	2.7%	0.5%
Education and training	2.5%	0.6%
Human health and social work activities	1.2%	0.1%
Arts, entertainment and recreation	0.7%	0.3%
Other service activities	1.6%	0.1%
Activities of households as employers; undifferentiated goods and services producing activities of households for own use	0.1%	0.0%
Products taxes less subsidies on production	11.5%	6.6%

(Note) Preliminary figures

(Source) National Bureau of Statistics of Vietnam, BRVT Provincial Bureau of Statistics

1.2 Automobile Industry

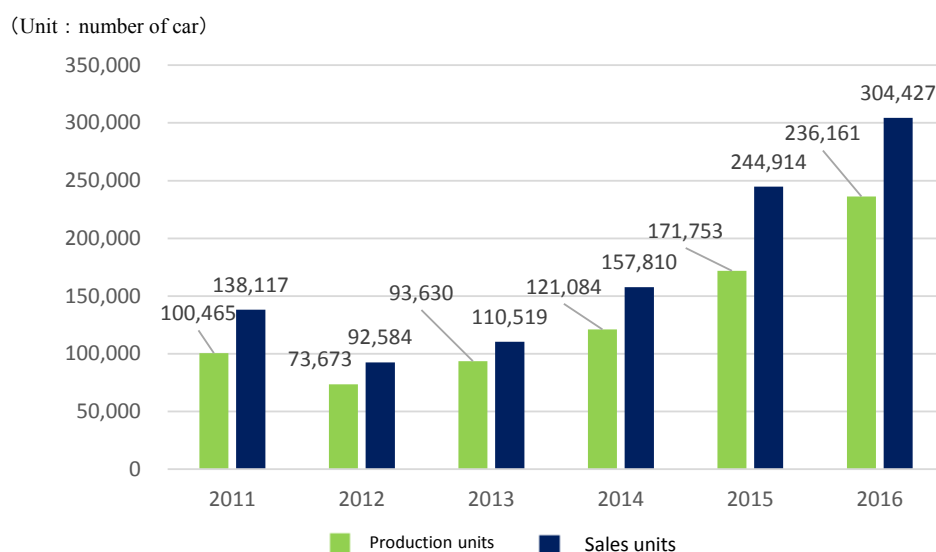
1.2.1 Current Condition

From 1991 and later when participation of foreign-owned companies in Vietnam was allowed, leading automakers such as Toyota Motor Corporation, Honda Motor Company, Ford Motor Company and Mazda Motor Corp. etc. started businesses in Vietnam one after another. As of 2017, 17 automakers and motor vehicle assembly makers have been manufacturing the products in Vietnam. In recent years, due to economic growth and firm expanding domestic demand, numbers of passenger vehicle purchases tend to increase. Per capita GDP in Vietnam exceeds approximately 2,000 USD as of 2016. As it is expected that Per capita GDP in Vietnam will exceed approximately 3,000 USD as the index of motorization around 2020, further expansion of demand for automobiles is anticipated.

On the other hand, looking at the production scale, the automobile production scale is much smaller compared to the neighboring ASEAN member countries. While the automobile production number of the neighboring ASEAN member countries are found as 192,000 for Thailand, 107,000 for Indonesia and 630,000 for Malaysia, the one for Vietnam is only 140,000, which is more than 10 times smaller compared to the ones for Thailand and Indonesia.

Looking at trends in the number of automobile production and automobile purchases in Vietnam from 2011 to 2016, the number of automobile production has not kept up with the expanding domestic market (the number of automobile purchases). From 2012 and later, although the number of

automobile production shows the increase, as the number of automobile purchases has been expanding further, which means that the number of imported cars has been increasing due to the discrepancy between demand and supply in automobiles. This is partly because the prices of imported cars were reduced due to gradual reduction of high tariff imposed on import of completed cars within ASEAN area by Vietnam. In 2018, as this tariff will be completely eliminated, and the tariff rate will be 0% and this will force domestic automobiles of Vietnam into harsh competition with imported automobiles, enhancement of automobile production capacities within Vietnam is strongly demanded.



(Source) FOURIN “ASEAN Automobile Industry 2017”(June, 2017)

Figure 2.1.2 Trends in Number of Automobile Production and Automobile Purchases in Vietnam

1.2.2 Expected Future Image (Target)

In Vietnam, 17 automakers and motor vehicle assembly makers have been manufacturing the products. These companies are concentrated in the northern part of Vietnam, and thus no automaker nor motor vehicle assembly maker is in the southern part of Vietnam. While the number of automobile purchases in the southern part of Vietnam accounts for approximately 43% of the one in the whole Vietnam¹, the demand for automobiles has been covered by transport from the northern part or import from other countries under existing conditions.

In “Development Strategies for Automobile Industry in Vietnam up to 2025 and Vision to 2035 : Decision by Prime Minister 1168/QD-TTg” established by Government of Vietnam in 2014, it is stated that automobile industry is ranked as an important one, its competitiveness should be boosted in order to meet the domestic demand, export automobiles and become supplier of components/accessories in automobile production network in the world. As a concrete target, the

¹ Japan External Trade Organization, Overseas Research Division, Overseas survey Planning Section “Trends in Number of Automobile Production and Automobile Purchases of Major Countries in 2016” (Jul. 2017)

automobile production of approximately 228,000 (approximately 114,000 passenger vehicles of these) in 2020, approximately 466,000 (approximately 237,000 passenger vehicles of these) in 2025 and 1,531,000 (approximately 853,000 of these) has been stated.

In this target, it is desirable that BRVT Province should become the automobile production base of the southern part of Vietnam by attracting automakers and motor vehicle assembly makers, based on the advantages that BRVT Province is adjacent to Ho Chi Minh City as the largest City of Vietnam, has Cai Mep-Thi-Vai Port as an international port and is adjacent to Long Thanh International Airport. According to the demand trends etc. of automobiles of the southern part of Vietnam, in BRVT Province, producing 200,000 compact cars will be set as a target in the first place.

Additionally, in automobile industry, in the area where automakers and motor vehicle assembly makers are located, automotive parts manufacturers as their supporting industry tend to be located. Development of supporting industry such as components/accessories etc. is stated as a target, in which it is aimed to achieve more than 65% local procurement ratio (price basis) by 2035 in the aforementioned master plan as well. Accordingly, BRVT Province should attract automotive parts manufacturers as the supporting industry along with attracting automakers and motor vehicle assembly makers, accumulate automobile industries and bring automobile production to completion within the area to a certain degree. At present, from the standpoint of risk aversion such as natural disasters or terrorism etc., in automobile industry, the global tendency of increasing local procurement ratio is recognized. Triggered by attraction of automakers and motor vehicle assembly makers to BRVT Province, entrance of motor vehicle assembly makers can also be expected.

It is expected that industrial accumulation will finally promote not only to meet the domestic demand for automobiles but also to support a part of automobile production supply chain in ASEAN by importing completed automobiles and components to ASEAN member countries. At the same time, it is considered that automobile industries will be advanced further for electric automobiles etc.

1.3 Food Processing Industry

1.3.1 Current Condition

From the viewpoint to grasp the market size of food industry, per capita GDP as an indicator of population and affluence will be confirmed.

It is expected that the population of the whole Vietnam will increase from approximately 92,000,000 people in 2015 to 100,000,000 people in 2015 (9.3% increase from 2015) and to 150,000,000 people in 2035 (15.1% increase from 2015).

Looking at the population of the southern economic area to which BRVT Province belongs, it is expected that the increase of its population will be from approximately 1,700,000 people in 2015 to approximately 1,900,000 people in 2025 (13.5% increase from 2015), and to approximately 2,000,000 people (21.8% increase from 2015). This means that it is predicted that the population of the southern economic area will increase more rapidly compared to that of the whole Vietnam.

Table 2.1.2 Population Prediction in the Entire Vietnam and in Southern Economic Area

(Unit: Thousands)

	2015	2025	2035
The whole Vietnam	91,583	100,129	105,388
The whole southern economic area	16,606	18,851	20,225
Ho Chi Minh	8,248	9,333	9,975
BRVT	1,076	1,207	1,260
Long Thanh	2,906	3,207	3,457
Binh Duong	1,947	2,458	2,777
Vinh Phuc	944	1,048	1,105
Long An	1,485	1,598	1,651

(Source) Ministry of Planning and Investment General Statistics Office “Population projections for Vietnam 2009-2049” (Feb. 2011)

According to IMF data, Per capita GDP of the whole Vietnam from 2010 to 2015 has significantly increased from approximately 1,297 USD to approximately 2,088 USD (36.7% increase from 2015). Additionally, Per capita GDP of Ho Chi Minh City, which belongs to the southern economic area and is proud of the largest scale population in Vietnam, is 5,318 USD, twice as large as that of the whole Vietnam. It is expected that the market scale of the food industries around BRVT Province will expand centering on Ho Chi Minh City which has the largest market scale level as well as that of per capita GDP.

Furthermore, with improvement of income levels due to increase in per capita GDP mentioned above, it is assumed that ownership rate of durable consumer products related to procurement/consumption of food such as automobiles refrigerators and micro waves will be increased accordingly. It is considered that these durable consumer products will effect changes in consuming activities as the lifestyle from only purchasing daily necessities for the day to preserving food by bulk purchase. Because of this, the need for process food is expected to grow in Vietnam.

According to National Bureau of Statistics of Vietnam, the amount of consumption for food in Vietnam has been expanding from 360 trillion dong per annum in 2010 to 520 trillion dong in 2015, approximately 1.5 times higher in five years (average annual growth rate of 7.6%). According to the estimation of demand outlook of the amount of consumption for food assuming that the aforementioned average annual growth rate will remain, the amount of consumption for food in Vietnam will be 1,082 trillion dong in 2025 (approximately as twice as that of 2015) and 2,250 dong in 2035 (approximately as four times as that of 2015).

For the future, due to increase in population, increase in income levels and changes in logistics patterns etc., it is expected that the amount of consumption for food will increase further and the food industries of Vietnam have extremely high potential.

1.3.2 Expected Future Image (Target)

Regarding direction for adding of high value to agricultural, forestry and fishing industry related to food processing industry, in “Social and Economic Development Strategies from 2011 to 2020” and “Master Plan for Agricultural, Forestry and Fishing Industry”, it is stated that adding of high value and higher yield/higher quality/higher efficiency will be aimed by using advanced technology for both agriculture and fishery industry. Furthermore, in Master Plan for Agricultural, Forestry and Fishing Industry, advancement of development for agricultural, forestry and fishing products is included as the point of the plan in close cooperation with food processing industry. It can be said that the policy of BRVT Province that aims at adding of high value to agricultural, forestry and fishing industry/food processing industry complies with that of Vietnam.

GRDP of food processing industry of BRVT Province in 2016 is 1.6 million USD, accounting for only approximately 1.3% of GRDP of the whole Vietnam. Additionally, there are only 10 companies of food processing industry that operate in the industrial zones within BRVT Province. Based on the market potential, both GRDP and the number of companies have much room for expansion.

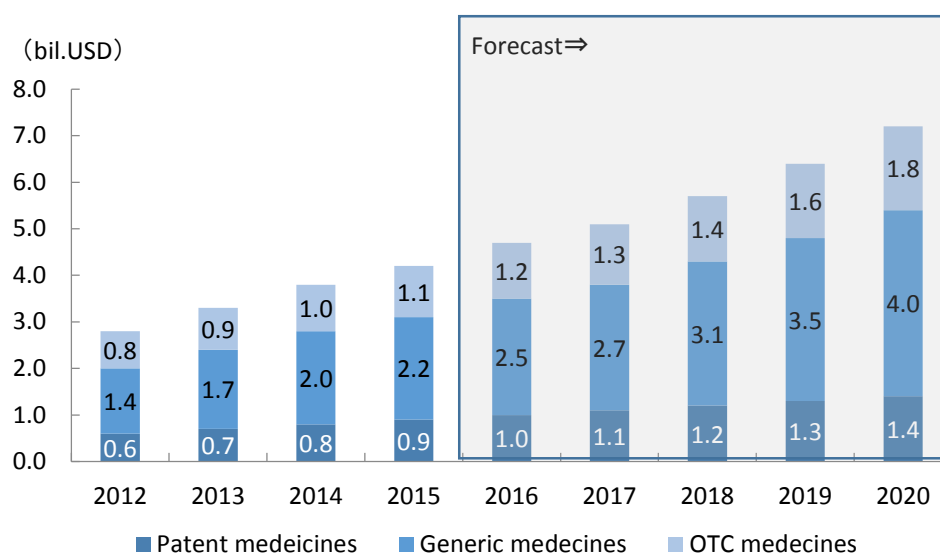
From viewpoint of aiming at adding high value to food processing industry by utilizing superiority of BRVT Province, it is considered to be effective for BRVT Province to focus on ①production of processed fishery products by utilizing abundant fishery catch and ②cultivation/processing etc. of functional vegetables (high-value added vegetables cultivated in plant factories).

Although BRVT Province has potential in both of the above mentioned fields, in order to produce the products with higher added value, it is necessary for fishery field to increase the fishery catch with high freshness suitable for fishery product processing and for agriculture field to introduce plant factories etc. and the technologies related to agricultural high-tech industry. In addition, for distribution of processed food with high value, temperature management in distribution route is essential. It is necessary for BRVT Province to maintain and manage logistics infrastructure in keeping temperature and freshness of products in a proper state.

1.4 Pharmaceutical Industry

1.4.1 Current Condition

In Vietnam, due to recent high economic growth and a robust expansion of domestic demand, the pharmaceutical market has been rapidly expanding. The sales amount of pharmaceutical products of Vietnam in 2015 is 4,200 million USD and it is estimated that the amount will be increased up to 7,200 million USD by 2020.



(Source) BMI Research “Vietnam Pharmaceuticals & Healthcare Report” Created (October 2016)

Figure 2.1.3 Trends in Pharmaceutical Market Size (Sales Amount) of Vietnam

Next, the preliminary calculation will be performed for long term outlook for the future of pharmaceutical market in Vietnam. At this point, when the preliminary calculation of the sales amount of pharmaceutical products is performed according to the fact that the annual average growth rate of the sales amount of pharmaceutical industry in Vietnam from 2015 to 2021 is 10.6%², assuming that the aforementioned average annual growth rate will remain, the prediction value results in approximately 30000 million USD. Thus, by grasping the pharmaceutical market with high degree of expectation for growth and positively promoting attraction of pharmaceutical companies, it can be expected that BRVT Province will enhance its GDP growth.

1.4.2 Expected Future Image (Target)

In Vietnam, “National Development Strategy for Pharmaceutical Industry up to 2020 and Vision to 2030” was approved in 2014. The development policy specified here and the target up to 2020 are as follows:

(a) Development policy

- Constructing the basic of pharmaceutical industry, putting effort into production and development investment for generic pharmaceutical products with high quality/reasonable prices and gradually converting from imported products to domestic ones. Setting specialization and modernization as the policy, developing the pharmaceutical industry that can compete with other countries and standardized logistics/supply system of pharmaceutical products.

² The values of BMI Research “Vietnam Pharmaceuticals & Healthcare Report” (October 2017) are used.

(b) Target up to 2020

- Producing 20% of domestic production material. Producing 80% of the total consumption amount of pharmaceutical products per annum domestically, 30% of which shall be crude medicines.
- Clearing Good Practice in 100% of sales facilities for pharmaceutical products and 50% of inspection facilities.
- 25,000 pharmacists per 10,000 people, among which clinical pharmacists shall account for 30%.

Considering that participation in the pharmaceutical market of Vietnam by foreign-owned companies has been advanced, it is important to grasp the movements of the above-mentioned advancement and incorporate such movements into industrial development of Vietnam.

On the other hand, as the relationship etc. with BRVT Province in the development of the pharmaceutical industry has not been clearly indicated, it is important to discuss with the central government about promotion of pharmaceutical industry of Vietnam and to place the role of BRVT Province in the development strategy of Vietnam. On that occasion, it is considered to be effective to set electricity and water abundant in BRVT Province as the basis to place in the national strategies. According to hearing with Japanese companies, it is also confirmed that rich and stable electricity supply and procurement of water will be essential as the requirements for their entrance.

Furthermore, in the development strategy of pharmaceutical industry in Vietnam, “Construction of 5 pharmaceutical products logistics centers in the mountain area in the northern part, in north central, in south central/Thai Nguyen Province, in east south and Mekong Delta” is stated. Based on this, it could be considered to place BRVT Province as the pharmaceutical logistics center and its related hub with the advantages as logistics hub of BRVT Province. Thus it is desirable to proceed adjustments with the central government regarding this point.

1.5 Measures Implemented by BRVT Province

Regarding attraction of high-added value industries, as new industries will be attracted, smooth communication among relevant departments within BRVT Province and functions to lead such relevant departments are required.

In this regard, in BRVT Province, “BRVT Province Working Team for Reconstructing Economic Structure of BRVT Province” exists. This existing framework will be utilized to be newly replaced as “Steering Committee for Strengthening Industries of BRVT Province (temporary)”. The said committee will unitarily summarize the measures for industry/environment/logistics respectively and also add the functions to monitor the status of investigation for each measure. Additionally, “Working Groups for Industries to Be attracted”, “Conference for Model Industrial Zone (Environmental-friendly Industrial Zones)”, “Investment Committee for Development Incentive Program of BRVT Province” will be established as subcommittees under the said committee.

Strengthening Industries of BRVT Province, the personnel with the level equivalent to Chairman of National Committee will be appointed and he/she will have the authority to review the progress while receiving instructions by setting the target to be achieved for each subcommittee.

As for attraction of Japanese companies, Japan Desk of BRVT Province has been playing a central part in BRVT Province. While referencing the functions of IPA (One-Stop Investment Promotion Agency) that exists in other provinces in Vietnam, it is important to strengthen the function of Japan Desk of BRVT Province such as adding the unified authority regarding attraction of investment etc.

By including these, the measures implemented by BRVT Province and Vietnam central government are as follows:

Table 2.1.3 9 Measures for Enhancing Industrial Structure of BRVT Province

Items	Summary
Actions made by BRVT Province	<p>① Strengthening of “Steering Committee for Strengthening Industries of BRVT Province (temporary)”</p> <ul style="list-style-type: none"> Strengthening the functions to unitarily summarize the measures for industry/environment/logistics respectively by utilizing the existing committees of BRVT Province. The following ②, ③ and ④ will be established under the committee. <p>② Strengthening of working groups for industries to be attracted (temporary)</p> <ul style="list-style-type: none"> Analyzing/investigating of necessary measures etc. and implementing adjustments with central government etc. by utilizing the existing working teams and classifying for each industry subject to attraction. <p>③ Establishing model industrial zones (environmentally-friendly industrial zones) conference.</p> <ul style="list-style-type: none"> Establishing the conference to investigate construction of the system and operation methods etc. of model industrial zones. <p>④ Creating “Program for Development Incentive Program of BRVT Province (temporary)”</p> <ul style="list-style-type: none"> In addition to the existing preferential treatment system, implementing adjustments with the central government regarding establishment of the incentive program according to contribution degree to industrial development and environmental measures <p>⑤ Flexible operation of environmental regulation</p> <ul style="list-style-type: none"> Toward promotion of primary material industries of BRVT Province, subject to implementation of environmental measures, approving the business of regulated industries under Decision No.2214. <p>⑥ Enhancement of the functions of Japan Desk</p> <ul style="list-style-type: none"> Confirming the contents of the existing activities and strengthening the required structure. Close cooperation with Japan Chamber of Commerce and Industry.
Actions made by central government	<p>⑦ Budgetary measures for creating “Program for Development Incentive Program of BRVT Province (temporary)”</p> <ul style="list-style-type: none"> Investigating the contents of the said program with BRVT Province and implementing necessary budgetary measures <p>⑧ Utilizing/strengthening “Regional Cooperation Council (temporary)” with 5 provinces of the southern economic area.</p> <ul style="list-style-type: none"> Promoting organic connection of the industries of the southern economic area, subject to utilization of cooperation council. <p>⑨ Infrastructure development toward improvement of access of the southern economic area.</p> <ul style="list-style-type: none"> Abstracting/investigating the infrastructure required to construct the supply chain of the whole southern economic area/implementing budgetary measures.

2. Strategy 2: Develop Material Industries(Oil Refinery, Steel, Textile etc.) as the Supply Hub

2.1 Petrochemical Industry

2.1.1 Current Condition

Petrochemical industry is the one to produce chemical products by using petroleum and natural gas as raw materials and converting them into valuables by chemical process. Specifically, it is the industry to produce automobile components, home electric appliances, dairy products, clothing products, pharmaceutical products and cosmetics.

In BRVT Province, construction of Long Son Petrochemical Complex has been planned as the business to construct large-scale ethylene plants on 464 ha of land of Long Son Island near Long Son Petroleum Industrial Zones. PETROVIETNAM (PVN) obtained permission in 2008 and has been proceeding the plan under joint management with foreign companies. Long Son Petrochemical Complex is supposed to produce 950,000 ton per annum of ethylene and 400,000 ton per annum of propylene.

2.1.2 Expected Future Image (Target)

As the economic area of major areas in the southern part of Vietnam, considering Ho Chi Minh City, Binh Duong Province, Dong Nai Province, Long An Province and BRVT Province, 5 city and provinces as the southern economic area, the following characteristics can be found. First, in Binh Duong Province and Dong Nai Province, component processing and chemical products of automobiles and electronic devices are accumulated. Furthermore, in Ho Chi Minh City and Long An Province including markets, food process industries aiming at domestic demand other than component processing has participated. 4 provinces/city excluding BRVT Province are in the situations that industrial accumulation has been proceeding centering on component processing industry etc. On the other hand, while little entrance in component processing industry etc. can be found, entrance in heavy industries has been proceeding centering on petro chemistry and steel, whose characteristics greatly differ from those of other neighboring provinces.

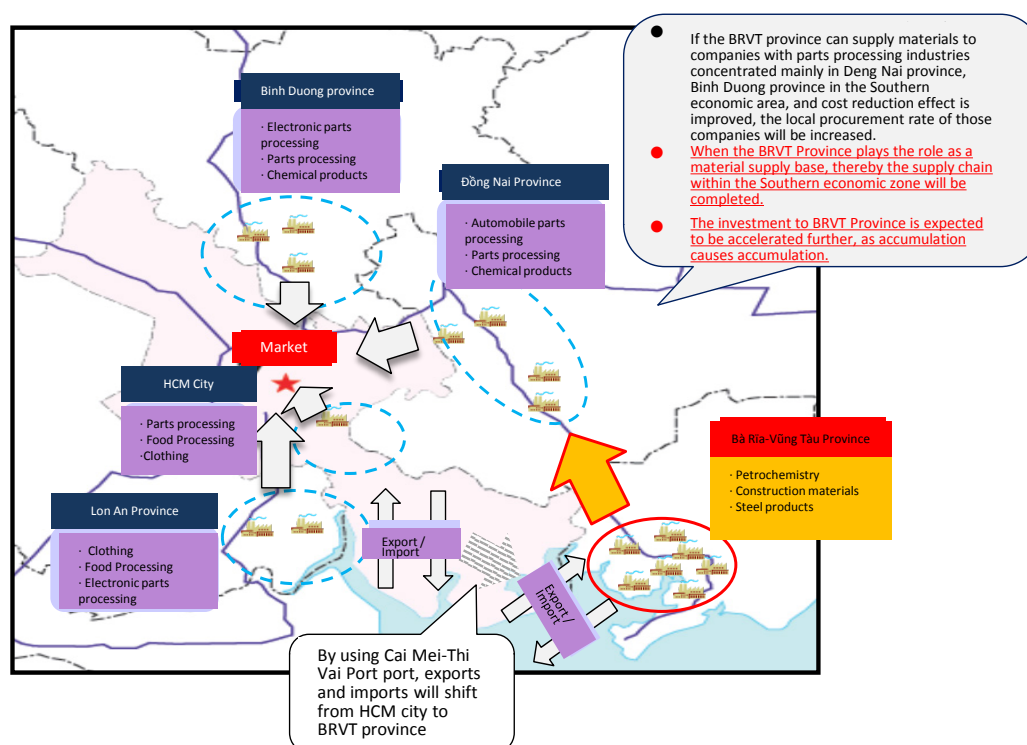


Figure 2.2.1 Condition of Industrial Accumulation in Southern Economic Area (Future Vision)

The companies that have entered into the southern economic area mainly export raw materials and components and export the products or sell to the domestic markets after production/processing within each industrial zone. As a result, the local procurement ratio of the companies in the southern economic area is low and formation of consistent supply chain from upstream and downstream is limited to some parts of industries such as building materials etc.

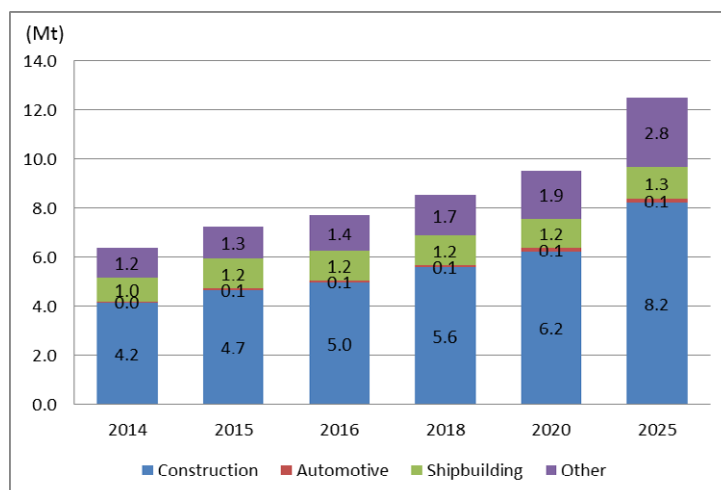
Under these conditions, in the future, when petrochemical materials are produced from Long Son Petrochemical Complex in BRVT Province, such petrochemical materials can be supplied to the regions where chemical products or light industries such as automobile components/electronic components etc. have been accumulated and cost reduction by local procurement can be expected, the supply chain of petrochemical industry within the southern economic area will be completed. Consequently, BRVT Province will be able to contribute to industrial development of the southern economic area along with being incorporated into the economic activities of the southern economic area.

2.2 Steel Industry (Special Steel)

2.2.1 Current Condition

It is predicted that steel demand of the whole Vietnam will expand toward 2025. By industry, the demand from construction industry is the largest, which is considered to drive the growth of steel demand in the whole Vietnam. Furthermore, it is predicted that the demand from other manufacturing

industries excluding automaker and shipbuilding industry will increase steadily. Thus, it is considered that the demand in the whole manufacturing industries as well as that in construction industry will increase³.



(Note) Predictive value in 2016 and later

(Source) POSCO Research Institute, "Asian Steel Market Outlook: Next ten years" *Asian Steel Watch* (2016).

Figure 2.2.2 Demand Prediction of Steel by Industry in Vietnam

In BRVT Province, scrap dissolution/building material manufacturing by electric furnace and product processing using coil are mainly operated. Specifically, bar steel, shape steel and flat steel for building materials where ordinary steel is used are produced. At present, 6 electric furnace makers and factories of metalworking industry are located.

While the produced steel is mainly for building materials, some metalworking industries are also producing the products for manufacturing industries. However, manufacturing of hot coils in compliance with electric furnace steelmaking law has not been carried out. The companies that produce the products for manufacturers process imported hot coils

2.2.2 Expected Future Image (Target)

As it is generally difficult for the ordinary steel produce in BRVT Province to raise added value and the transportation cost to distant places cannot be caused, it is the products of local production for local consumption. On the other hand, unlike the ordinary steel with low added value due to mass production, as many kinds in small quantities are produced for special steel, the supply subject to long distance transport is possible. Additionally, its usage mainly focuses on automobile industries and industrial machine etc., and its products are the high-added-value ones.

According to hearing with Japanese companies, depending on the demand in Vietnam and within ASEAN area in the future, there were some Japanese companies that showed interest in the entrance as rolled steel industries of special steel. Additionally, in the southern economic area, some Japanese

³ POSCO Research Institute "Asian Steel Market Outlook: Next ten years", *Asian Steel Watch*, 2016.

downstream companies that process special steel have already entered. Although there is the demand for local procurement of special steel, they also regard dependence on import of the raw materials and burden of the procurement cost as issues.

In BRVT Province, ordinary steel has been already produced, and metal processing has been implemented in the surrounding provinces. Under the situations where production of steel materials are possible to a certain degree, in the future, if the local procurement of special steel as the upstream industry material becomes possible, it will lead to facilitation of automobile industry promotion stated in “Strategy for Creating High Added-Value Industry”.

2.3 Textile Industry

2.3.1 Current Condition

Textile industry is one of the core industries in Vietnam. The characteristics of textile industry of Vietnam are that downstream fields (sewing, clothing production etc.) are developed more, compared to upstream fields (raw materials/raw yarn/textile) and midstream fields (spinning, cloth processing, dyeing). While the companies and their production capabilities in the downstream fields show growth, the upstream fields/midstream fields have not been cultivated and the raw materials in the upstream fields/midstream fields have been imported from abroad. In the upstream fields/midstream fields, the local procurement rate is lower compared to those of the surrounding countries. So Vietnam has the structure with high dependence on imports, where the import amount overwhelmingly higher than the export amount in the upstream fields/midstream fields.

Supported by development of textile industry of Vietnam and further expansion of export by participating in TPP whose negotiations have been proceeded since 2010, Minister of Commerce and Industry of Vietnam has drawn up “Master Plan Related to Textile Industry of Vietnam” in 2014. In the above-mentioned master plan, the following development strategies for textile industry are set forth: 1) escaping from outsourcing/ quality improvement/diversification of export products, 2) industrial development that can respond to export and domestic market, 3) growing supporting industry and strengthening high value added products, 4) proper environmental measures and effective industrial development by zoning 5) human resources development, 6) mobilizing domestic and foreign investment for development of textile industry. Additionally, in the said master plan, the detailed numeric targets up to 2030 has also been set forth. Among these numeric targets, the local procurement rate was set forth as raised from 55% in 2015, to 65% in 2020 and to 70% in 2030⁴.

In BRVT Province, little growth in textile industry has been found. Confirming the composition ratio of output in mining and manufacturing industries by industry in the southern economic area, in the provinces close to consumption areas and urban area such as Dong Nai Province and Ho Chi Minh City, sewing industries and apparel manufacturers occupy high share. However, in BRVT

⁴ Ministry of Economy, Trade and Industry, “Businesses of Exploration of Emerging Markets etc. in 2016 Survey Report for Support Projects of Industrial Policies/Institution Building of Partner Countries (Vietnam: Construction Support for Consistent Systems of Textile Industry)” (March 2016)

Province, the above-mention ratio is significantly lower compared to those of the surrounding provinces. In BRVT Province, the number of foreign-owned companies of textile industry is very small. Only a few Taiwanese companies of the industries related to spinning and apparel have entered BRVT Province.

Table 2.2.1 Composition Ratio of Output in Mining and Manufacturing Industries by Industry
(2015, Unit : %)

	BRVT Province	Ho Chi Minh City	Binh Duong Province	Dong Nai Province	Long An Province
Textile Industry	0.9%	3.9%	3.2%	10.0%	6.1%
Sewing Products	0.5%	7.7%	4.1%	2.0%	2.4%

(Source) Created by Survey Team from Statistical Year book 2015 of Each Province

2.3.2 Expected Future Image (Target)

Textile Industry of Vietnam has higher export competitiveness compared to that of other countries. If it can acquire the advantages of preferential tariffs by conclusion of TPP and EU-Vietnam Free Trade Agreement (EVFTA), further expansion of the export to EU countries can be expected, other than enhancement of importance of Vietnam as the export base of textures within TPP. In addition, as the import amount of textures (final goods) of surrounding ASEAN member countries other than Vietnam has been growing significantly as well, it is considered that further increase in the export amount can be expected by grasping demand expansion in ASEAN markets.

BRVT Province is required to aim at attracting the upstream fields and midstream fields of textile industries (spinning, textile products, dyeing) and adding high values to textile industry of Vietnam.

2.4 Measures Implemented by BRVT Province

In promoting for enhancement of primary material industries/strategies to make BRVT Province as supply hub, in addition to 9 measures for enhancing industrial structure of BRVT Province implemented by Strategy for Creating High Added-Value Industry, it is effective to promote the following measures: ①establishing the promotion council with the project implementing bodies, ② development of infrastructure to form supply chain, and ③human resources development. The detailed contents are mentioned below:

Table 2.2.2 3 individual measures for BRVT Province

Items	Summary
Establishment of promotion council with individual project implementing bodies	<ul style="list-style-type: none"> ○ Petrochemistry <ul style="list-style-type: none"> • Securing support by the central government by joint councils with Siam Cement Group (SCG), PetroVietnam (PV) ○ Common to each primary material industry <ul style="list-style-type: none"> • Attracting to model industrial zones (environmental-friendly industrial zones) that focus on environmental technologies/measures for load and attraction of supporting industries

Development of infrastructure within the province	<input type="radio"/> Common to each primary material industry <input checked="" type="radio"/> Steady development of infrastructure within the province essential for access to supply chain within the area
Promotion of human resources development	<input type="radio"/> Common to each primary material industry <input checked="" type="radio"/> Further enhancement of development of skilled human resources in local universities and vocational schools, such as Petro Vietnam University, Petro Vietnam Manpower College, BRVT University etc.

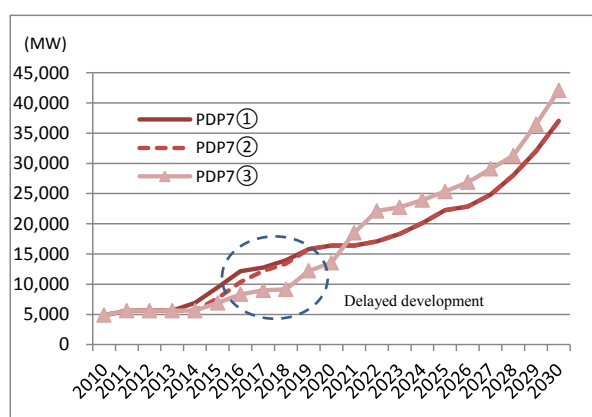
3. Strategy 3: Diversify Power Supply(SPP, Renewable Energy etc.)

3.1 Current Condition and Problems of Industrial Zones within BRVT Province

The electricity penetration rate of Vietnam has reached 97.6% (2015) in the whole Vietnam⁵. Looking at power supply structure, in total power generation amount, hydraulic power generation, coal fired power generation and natural gas thermal power generation account for approximately one third of the total power generation respectively. Additionally, in electric generation capacity, hydraulic power generation accounts for nearly 40%. While the operation rate of hydraulic power generation rises in the season with a large amount of rainfall, in the period when the operation rate declines due to a small amount of rainfall, the power generation has been adjusted by raising the operation rate of coal fired power generation and natural gas thermal power generation.

In Vietnam, as the development project for electricity sector, National Power Development Plan (National Power Development Plan : PDP) has been established. In July 2011, after the establishment of the 7th PDP (hereinafter referred as to “PDP7”), it has been revised twice. At present, the 3rd version published in March 2016 is the latest project. In the revisions made twice to PDP7, the delay in the scheduled operation year could be found in many power generation plants in the whole Vietnam. By region, in the southern part where BRVT Province is located, in 2021, it is scheduled to exceed the originally planned power generation capacity of PDP7.

⁵ JETRO Hanoi Office “Vietnam Electric Power Survey 2016” (March 2016). However, in the northern part of Vietnam, especially in the mountain area, the penetration rate remains lower level, approximately from 70% to 80% level.



(Note) PDP7①～③ indicates the electric power development project at each time period. ①:Version of January 21, 2011 (1208/QD-TTg), ②:Version of December 11, 2013 (2414/QD-TTg), ③:Version of March 18, 2016 (428/QD-TTg).

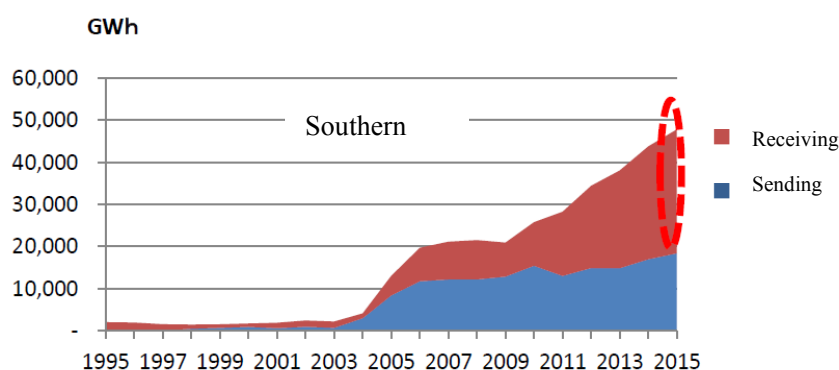
(Source) “National Power Development Plan”

Figure 2.3.1 Trends in Electric Power Development Projects (Electrical Power Plant Capacity) in Vietnam (Southern Vietnam)

Looking at outlook for supply and demand by region, in the southern part of Vietnam, it is expected that the electricity power capacity will continue to slightly exceed the electricity power demand until around 2018. Looking at the situations of electricity power transmission and reception in the southern part of Vietnam, the amount of electricity power reception has been increasing rapidly in recent years while, in the meantime, the amount of electricity power transmission in the northern and middle part has been increasing rapidly. It is considered that Vietnam is under the situations where the northern part/middle part accommodate the southern part with electric power .

In PDP7, it is expected that the electricity power generation will exceed the originally planned power generation capacity of PDP7 in 2021. However, in the case where the development of electricity does not proceed as scheduled, a power shortage is likely to be caused in the southern part. Accordingly, in PDP7, it is necessary for the power plants scheduled to operate by around 2020 to be steadily developed.

Additionally, according to the hearing with Japanese companies, as occurrence of instantaneous service interruption and change in the schedule of the planned outage just before implementation have been confirmed, there is still room for improvement in stability of electricity power supply.



(Source) JETRO Hanoi Office: “Vietnamese Power Survey 2016”(March 2017)

Figure 2.3.2 Condition of Power Transmission and Reception in Southern Vietnam

3.2 Establishment of the System Contributing to Stabilization of Electricity Supply (Introduction of SPP System)

In promoting development of electricity power, it is effective to vitalize the participation by private business operators. In vitalizing participation in electricity power business by private business operators, while clarifying the purchase guarantee of a certain amount of electricity by Electricity of Vietnam (EVN), it is considered to be effective to promote electricity power development for reducing environmental load such as promotion of cogeneration and renewable energy etc. as well as the effectiveness of system design where electricity power wholesalers can flexibly choose the destination to sell electricity power according to the demand for electricity power by factories etc. In these points, Small Power Producers System (Small Power Producers : SPP) introduced by Thailand can be used as reference.

SPP system was implemented by Thailand Government as the actions to organize the system to utilize the vitality of the private sectors to electricity power business against the situations of shortage of electricity power supply capability, the program created in 1992, aiming at setting the following: ①increasing energy utilization efficiency by utilizing the secondary products (heat utilization) of conventional electricity power such as coal/petroleum/natural gas thermal power and renewable energy through encouragement to small businesses, ②aiming at reduction of petroleum import/usage.

The mechanism of SPP is as follows. Specifically, business operators submit the projects for the announcement of Electric Generating Authority of Thailand (EGAT). The business operator that meet certain standards such as securing 45% of generating efficiency in the case of conventional electricity power such as petroleum/natural gas thermal power etc. will be approved as SPP business. The selling power conditions such as prices etc. will be proposed by EGAT at the time of announcement, which will be evenly applied to the businesses that receive approval and differs from the competitive bid. When SPP business operators receives application of this program, EGAT will guarantee the purchase up to 90MW and they can sell the remaining electricity and heat (steam/cooling water) to the customers such as the business operators of industrial zones etc. by

themselves. As the electricity power generation method, either utilization of renewable energy or effective utilization of energy (cogeneration) is set forth.

SPP system of Thailand has brought the advantages both for electric power consumers and electric power generation business operators.

Specifically, first of all, it has enabled the electric power consumers to purchase electricity directly not from EGAT but from the private electricity power generation business operators. The purchasers of SPP are mainly the companies that are located adjacent to power stations, fully equipped with exclusive power-transmission line independent from the center grid. If SPP that generates electricity by conventional resources (natural gas, coal, petroleum) is fully equipped with electricity generation units by using the latest technologies, it can improve the stability/quality of electricity supply both for power generation and power distribution.

Petrochemical industries and steel industries that will become new basic industries for BRVT Province are the equipment industries whose production process is composed of a large-scale facilities, where instantaneous service interruption will cause huge damage and financial loss on production facilities. Based on these points, the electricity power supply that is more stable than that at the standard level is required. It is effective to further strengthen the stability of electricity power supply through introduction of SPP system in order to enhance reliability of electricity power supply in BRVT Province for the companies that entered BRVT Province and to advance attraction of new companies.

Next, electricity power companies also have the advantages as follows in order to secure feasibility of business : ①it is possible for EVN to guarantee the purchase of a part of electricity generated and sell the remaining electricity to the consumers such as industrial zones etc., ②it is also possible to sell the steam generated at the time of generating electricity to the consumers. If the investment by private electricity power companies are promoted by introduction of SPP system, even if the electricity power development scheduled in PDP7 is delayed, it will lead to reduction of development burden of electricity power plant by EVN as well as it will never ruin attractiveness of BRVT Province at the standpoint of supplying electricity.

Based on these, we will propose implementation of pilot business of SPP system in BRVT Province. As for SPP system, in Japan-Vietnam join initiative, the Japanese government also propose its introduction as an effective method to introduce private capital to electricity power fields and also as an auxiliary means to solve electricity power shortage as well.

Table 2.3.1 Characteristics of SPP System

	Summary
Electricity Power generation mode	○Thermal power generation (natural gas etc.) plus cogeneration, electricity power generation by renewable energy
Electricity power purchase	○Purchase guarantee of a part of electricity power by Vietnam Electricity
Flexible system design	○It is possible to sell electricity power and steam directly to the neighboring factories as well.
Advantages of SPP	○The companies that enter BRVT Province can secure high quality electricity power from SPP

	<p>through electricity power generation technologies with high reliability and power transmission line independent from central grid</p> <p>○Effect of reducing fuel consumption of 20,000kl per annum by supplying steam to 10 factories (example of Kawasaki City)</p>
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Table 2.3.2 Support Measures Related to Introduction of SPP System

Items	Summary
Actions made by BRVT Province	○BRVT Province promotes to develop national policy/system by counseling with the central government along with cooperation with the companies that are interested in SPP
Actions made by the central government	○Approval of SPP pilot business 【MOIT、EVN】 ○Long term/stable supply of natural gas 【PetroVietnam】
Supporting measures by JICA (proposal)	○F/S support of pilot business (PPP infrastructure business) ○Yen loans to support PPP (VGF, EBF, PPP credit enhancement standby/utilization of overseas loans and investments)

3.3 Introduction of Diversification of Electric Power/Clean Energy

In PDP7, renewable energy is emphasized, setting targeted electricity power composition ratio in 2030, as 2.1% for wind power, 2.1% for biomass power and 3.3% for solar light. In BRVT Province, as mining of petroleum and natural gas is operated off the coast, the province have advantages to obtain such energy at lower prices. However, from the viewpoint of a drain on such resources in the future, correspondence to electricity power demand that will be expected to increase further and stable supply of energy (risk management), the measures toward diversification of electricity power are required and it is especially necessary to consider introduction of these kinds of renewable energy.

At present, in Vietnam, Feed-in-tariff (FIT) is applied for renewable energy such as solar light, wind power, biomass energy and waste power generation. Especially, after establishing FIT, large-scale investments for solar power generation have been announced one after another in the whole Vietnam, while the investments for wind power generation are few as FIT unit cost is lower and its sufficient business profitability cannot be expected.

Regarding the possibility for participation in renewable energy businesses by Japanese companies, according to JETRO, while Japanese companies in Vietnam are keenly interested in such business, most of them still see how things are going as the purchase prices by FIT system are relatively low.

Based on these situations, we propose to implement pilot business for renewable energy in BRVT Province.

In the case where renewable energy is utilized as commercial electricity power for accumulating industries in BRVT Province, it is considered that there is relatively high potential for electricity power potential and such renewable energy will be limited to solar light and wind power with FIT system. In order to utilize as commercial electricity power, as it is necessary to utilize economies of scale, it is considered to attract mega solar power plants or wind farms to the districts with economic difficulties near the industrial zones with little electricity transmission loss.

Additionally, as the prices of solar panel have been decreasing in recent years, it is also considered that it is worth investigating feasibility to spread the use for the generators' own consumption to mainly supplement electricity power consumed in daytime for the factories by installing solar panels on the roof of the factories or vacant ground. In addition to FIT system, in the case of utilizing BRVT Environment Protection Fund (BEPF), it is required to conduct a survey about profitability. Furthermore, utilization of ESCO businesses of solar power systems that have already been commercialized is expected.

On the other hand, as solar power and wind power are unstable energy recourses subject to natural conditions, strategic installment based on sunshine conditions and weather prediction, accumulation of know-how for stable supply in the case of mixed usage with other electricity power and enhancement of electricity transmission and transformation facilities etc. are required. Thus, in the case of installation of large-scale mega solar systems or wind farms, cooperation with EVN is also essential.

Table 2.3.3 Support Measures Related to Introduction of Renewable Energy

Items	Summary
Actions made by BRVT Province	<ul style="list-style-type: none"> ○ Implementation of pilot business for solar power generation within industrial zones in cooperation with management companies of industrial zones and BRVT Environment Protection Fund ○ Implementation of survey for feasibility of mega solar systems and wind farms in cooperation with private business operators ○ Provision of land of the area with economic difficulties for development of energy farms
Actions made by the central government	<ul style="list-style-type: none"> ○ Application of privileges for businesses in the area with economic difficulties ○ Raising FIT (Feed-in Tariff) prices of renewable energy and enhancement of other supplemental systems
Supporting measures by JICA (proposal)	<ul style="list-style-type: none"> ○ Technological cooperation regarding know-hows for stable provision by mixing electricity power derived from renewable energy with other electricity power ○ Yen loans to support PPP (VGF, EBF, PPP credit enhancement standby) Utilization of overseas loans and investments)

Chapter 3 Target 2 To Become the Most Advanced Green Growth Province in Southern Economic Zone in Vietnam


1. Strategy 1: Introduce Advanced Clean Technology

1.1 Introduction of Clean Technology

Currently in Vietnam, a consciousness for industry accumulation concerning an environment has been increasing focus and awareness because of significant appearance of the pollution problems. Introduction of technologies for preventing the environmental pollution problems associating with enticement/development of the high value-added industry/material industry will be promoted to reduce the environmental burdens on industrial development aimed by the “Target 1 Toughening of Industrial Structure”. Further, the “Green Growth” promoted by the Vietnam government will be promoted in Ba Ria Vung Tau Province (BRVT) corresponding to aggressively introducing the technologies of energy-saving and recycling.

Table 3.1.1 Clean Technology to be introduced (examples)

Item	Summary
Environmental measure/Antipollution measure	<div><div>○Automobile industry</div><div><div>• Effluent processing regarding as effluent of property (organic/inorganic)</div><div>• Reduction of VOC emission amount by aqueous coating material and renewal of painting system</div></div><div>○Food processing</div><div><div>• Reduction of disposal amount discharged from equipment by process improvement and strengthening maintenance</div><div>• Effluent treatment including blood and water</div></div><div>○Petro-chemistry industry</div><div><div>• Set VOC recovery unit on naphtha cracking unit</div><div>• Effluent treatment depend on oil-containing amount</div></div><div><div>Oil-containing amount</div><div><div></div><div>Upper</div></div><div><div>Non oil-containing effluent</div><div>Normal effluent treatment</div></div><div><div>Medium</div><div>Oil separator for oil/water</div></div><div><div>Oil-containing effluent</div><div>Final effluent treatment after separating oil and water</div></div></div><div>○Steel industry</div><div><div>• Set dioxin removal unit</div><div>• Collecting and disposing of electric furnace dusts</div></div></div>
Energy/Recycling measures	<div><div>○Energy-saving measure</div><div><div>• Co-generation system</div><div>• reuse of waste heat by boiler and electric furnace</div></div><div>○Recycling measure</div><div><div>• Commercialization of electric furnace slags (resources for road)</div><div>• Recovery/reuse of zinc from electric furnace dusts</div><div>• Recycling of plastics</div></div></div>

	<p>Reused materials</p>  <p>Commercialization for plastic sleeves and work clothes</p> 
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1.2 Support Measures toward Introduction Promotion

Any company will be apt to be inactive to introduce the clean technologies because it takes long time. Implement of assistance with a low hurdle on costs the government will be desirable to encourage companies to introduce the clean technologies. As the concrete financial assistance will be; ①the financial assistance by the Ba Ria-Vung Tau Environment protection Fund (BEPF); ② application of BRVT Development Incentive Program; ③suggesting promotion to use the assistance by unified information of the financial assistance provided by Country/Province.

1.2.1 Ba Ria- Vung Tau Environment Protection Fund

The system to support any foreign and local companies in BRVT Province to introduce the technologies mentioned in the “Clean Technology to be introduced (Example)” is set, and it can help their expenses for facilities/renewals partly as subsidies (or, loan , lease). Specifically, it will be reorganized to the fund to assist the Green Growth based on the existing BEPF, through the assistance of yen-loan, overseas investment and loan, technical cooperation, so on by JICA, and it will be expanded its figure/functions.

1.2.2 Incentive Program for Development of BRVT Province

The “BRVT Province Development Incentive Program (provisional)” suggested in the “Target 1 Strategy 1 Creating Strategy of High-Value Added Industry (automobile/food process/drug)” will be one of the financial assistance.

Specifically, introduction of the Clean Technology will be promoted by ex-post reduction tax for the companies which have introduced the Clean Technology. At the moment, it will be concerned to be effective to modify a ratio of the reduction tax corresponding to effectiveness on the environmental measures by the introduced technologies.

1.2.3 Integration of Information Related to Available Financial Support Measures

While many financial assistance have already been prepared in the investment and environment protection laws in Vietnam, at least for the foreign companies, it is not easy to find any applicable assistance and prepare the applications. Among spreading information of the assistance, in addition, it is limited to be able to obtain information English written.

Therefore, it is concerned to be effect to fix a situation for any foreign company to access to information.

Table 3.1.2 Support Measures toward Introduction of Clean Technology

Item	Summary
Actions by BRVT Province	<ul style="list-style-type: none"> ○Financial assistance by BRVT Province Environmental Protection Law (Target 2 Strategy 2) ○Application of BRVT Development Incentive Program (Target 1 Strategy 1) ○Promotion to use assistance with integration of information regarding financial assistance provided by Country/Province
Actions by Central Government	<ul style="list-style-type: none"> ○Financial assistance to BRVT Province Environment Protection Fund (Target 2 Strategy 2)
Assistance by JICA(Draft)	<ul style="list-style-type: none"> ○Yen-loan/overseas investment and loan to BRVT Province Environment Protection Fund and technical cooperation on operation and management, and so on

1.3 Environment-Friendly Industrial Development in Southern Economic Area

While proceeding environment-friendly industrial development in southern economic area, leading the development in the whole southern economic area by BRVT Province, as an advanced Province, which will be a supplying base of the material industry relatively having higher environmental load will be desirable.

“Coordination Mechanism on State Management of Water Resources; Mineral Resources and Environmental Protection” has been structured as a cooperated framework of the whole southern economic area. This coordination mechanism is composed of one city and six provinces in Dong Nai river valley within BRVT Province, and has established by the initiative of Ho Chi Minh City. By reviewing the regulations and strengthening of monitoring with coordinating among cities and provinces in Dong Nai river valley, improving the environment of Dong Nai river and its surround areas is aimed. It is effective to use this coordination form and to facilitate introduction of the clean technology with expanding its action.

For leading the environment-friendly industrial development with using the coordination mechanism in Dong Nai river valley, the following actions in BRVT Province will be concerned to be desirable;

- (a) Share in the southern economic area of outcome of the clean technology introduced in BRVT Province
- (b) Promotion of information exchange and coordination with inviting main companies of the high-value added material industry



Figure 3.1.1 Targeted Area for Coordinated Mechanism related Water/Mineral Resources Management and Environment Protection

2. Strategy 2: Strengthen BRVT Environment Protection Fund (BEPF)

2.1 Current Condition of BRVT Environment Protection Fund (BEPF)

The Vietnam Environment Protection Fund (VEPF) based on the Prime Minister's decision (Decision No. 82/2002/QĐ-TTg) regarding its establishment, organization and management, has been established in 2002, as the national financial assistance in the environmental field, because of a weak financial foundation in the central government and the related Provinces. On the other hand, The environment protection fund as “Financial organization to be established in central and local to support the environment protection activities” has been defined and encouraged in each Province by the Environment Protection Law amended in 2005. Based on this, the Ba Ria Vung Tau Environment Protection Fund (BEPF) has been established at BRVT Province in 2005.

The establishment of BEPF started by the fund of 5 billion VND as a capital which was provided to support, and has been working for assistance for loans to the related environmental projects and the environmental public awareness activities and so on. The fund has grown to approximately 125 billion VND at October, 2017, by loan interests of the environmental projects, a part of penalty money of the environmental breaches, a part of public waste disposal charges and incomes from the applicable deposits for development (only for dredging on land).

Priority of BEPF loans will be subject to mainly the effluent treatment facilities of SME. However, as most of SMEs could be difficult to meet the security requirement for the loan conditions specified by BEPF, many unable cases to loan even for a priority of BEPF loan and a project having high possibility to realize would be concerned.

Also, by the reason of limited fund scale, unable to loan for a large scale project will be concerned. Currently the national controlled VEPF will be introduced to a large scale project.

In case of new construction or renovation of a large scale facility like effluent treatment in an industry zone, a scheme of loan with low rate interest or subsidies must be necessary but there is a

difficulty to receive a scheme of loan with low rate interest from like World Bank and Asian Development Bank. And, a company's incentive to implement the environmental measures by itself is limited in BRVT Province. Therefore, expanding and strengthening BEPF to use as tools of incentive to promote the environmental measures will be concerned to be effective. The human resources development like as staff training for appropriate management of fund in BEPF has been carried out, but not only increment of staffs, capacity building of know-how (verification of adequacy on application works, operation of fund, loan evaluation, risk management, etc.) to operate fund stably would be necessary.

2.2 Enhancement of BEPF

Along with expanding the existing fund scale in BEPF, by enhancing the functions, implementation of the verification project will be suggested as an aim of developing an effective incentive to promote the wide environmental measures of the industrial accumulation in BRVT Province.

As concrete use of the incentive on introduction and promotion of the clean technology of "Target 2 Strategy 1: Introduce advanced clean technology" and spread of the environment-friendly industrial zones of "Target 2 Strategy 3: Establish Environment-Friendly Industrial Zone", preferentially use of BEPF by the industrial zones which aggressively promoting the environment-friendly and by the occupied companies will be estimated.

Aims to be achieved the verification project are expansion of the BEPF fund scale, enhancement of the functions and improvement of the fund management capacity.

For expansion and enhancement of BEPF, first at all, implementation of researching the JICA detailed planning formulation will be determined to consider the appropriate policies for expansion/enhancement along with understanding the picture/issues of BEPF. The researching the JICA detailed planning formulation will be implemented with closely coordinating with BEPF and will be estimated as follows; ①the picture/issues of BEPF, ②policy coordination methods as the incentives (coordination between "Target 2 Strategy 1 Introduction and Strategy of Clean Technology" and "Target 2 Strategy 3 Spread Strategy of Environment-Friendly Industrial Zone", ③potential subsidies/loan needs, ④simulation of capital increase, ⑤expanding resource support methods by JICA (yen-loan, overseas investment and loan), ⑥consideration of possibility for sustainable financial resources by individual Province, ⑦expanding supply methods to SME, ⑧ BEPF ability development needs.

Based on the results of researching detailed planning formulation, the specifications of JICA technical cooperation will be decided. According to these results, creating the concrete plans of expanding/enhancing fund will be estimated. The plans (draft) will be estimated to obtain an acceptance by the People's Committee (PC) after accepted by the Management Committee in BEPF.

Based on the expanding/enhancing plans, capital increase to the fund by JICA, consideration of possibility for sustainable financial resources by individual Province, consideration of expanding supply methods to company, enhancement of operating system and improvement of operating ability

will be implemented. For example, on capital increase to the fund by JICA, corresponding to the clarified necessary scale of capital increase on the expanding/enhancing plan, possibility of the yen-loan to be loaned to the Vietnam government by JICA, or direct investment to BEPF by JICA or overseas investment and loan will be decided through discussion between the Vietnam government and the BRVT Province PC.

Also, along with expanding/enhancing the fund, not only recruiting human resources, improving ability of the staffs regarding the fund operations including newly added functions (scheme of lease, etc.) will be necessary. In case of capital increase by either of yen-loan by JICA or overseas investment and loan, not only the evaluation process in BEPF, adding the evaluation processes by the related Vietnam central governmental ministries and agencies, and by JICA will be estimated. Therefore, the following fields of improvements of operation ability will be performed for the enhancement of operating system and improvement of operating ability;

- Ability of adequacy verification on project
- Ability of operating fund
- Ability of loan evaluation
- Ability of risk management

Table 3.2.1 Outlines of Enhancement of BEPF (Proposal)

	Contents
Scale	➤ ○○VND (adjustment needed)
Financial resources	<ul style="list-style-type: none"> ➤ Yen-loan/overseas investment and loan by JICA ○○yen ➤ Province's individual financial resources (example: penalty money of environmental breach, landfill charge of public/industrial waste, charge to use petro-chemical fuel (oil, natural gas, etc.)
Target project for support (loan)	<ul style="list-style-type: none"> ➤ Introduction/renewal of facility for environmental measure (environment monitoring, effluent treatment, exhaust treatment, waste disposal, etc.) ➤ Introduction/renewal of facility for energy-saving, recycling ➤ Improvement of environmental response ability ➤ Development of environmental technology
Target company for support (loan)	<ul style="list-style-type: none"> ➤ Model industrial zone (Target 2 Strategy 3), control company or occupied company to be implemented environmental measures ➤ Local SME

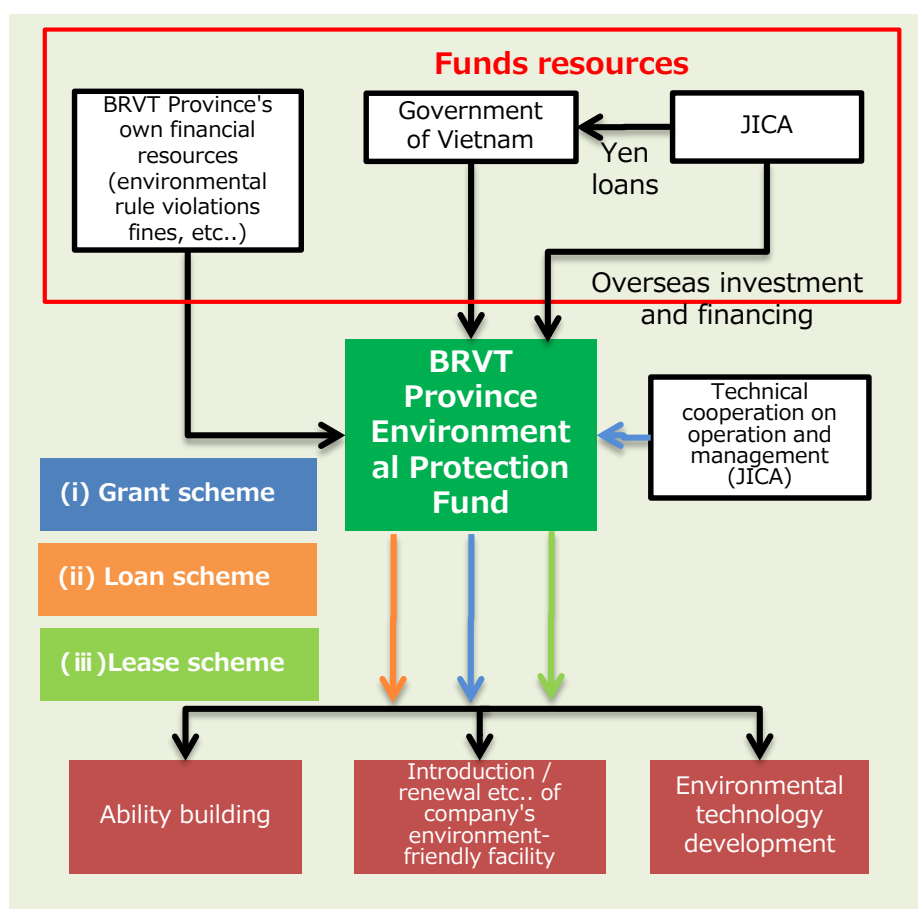


Figure 3.2.1 Improvement Image of BEPF

3. Strategy 3: Establish Environment-friendly Industrial Zone

3.1 Current Condition and Problems of Industrial Zones within BRVT Province

15 industrial zones as the industrial accumulations were built in BRVT Province, and 10 of which are currently under operation. By the reason of occupying many factories which having high environmental load including heavy-chemical industry in these industrial zones, appropriately controlling their effluent/exhaust, waste will be important to promote the environmental security by BRVT Province.

In the industrial zones of Vietnam, the occupied companies will perform a primary effluent treatment by themselves, then after must dispose at the integrated effluent treatment facility up to less a standard level to drain to public water. At the moment, the Vietnam National Technical Standards (QCVN 40:2011/BTNMT) regarding the industrial effluent will be applied, and corresponding to a water environment to be released the following two ways are specified;

Standard A: Value of contaminated materials in industrial effluent to be released in water which can be used for daily life water.

Standard B: Value of contaminated materials in industrial effluent to be released in water which cannot be used for daily life water.

Generally the Standard B is applying to the industrial zones in BRVT Province where located in a lower valley of the coast, but in only case of newly building in the industrial zone, the Standard A will be applied. Among the industrial zones under operation now, the special industrial zone Phu My 3 which was applied the Standard A is only one. However, by the accident of mass fish-kill in Ha Tinh Province in 2016, a social awareness against the environmental problems have risen and companies have been required more higher level of the environmental measures, and government must become to be responsible for its security.

With the circumstances, all of the industrial zones may be required water releasing by the Standard A in future. If BRVT province aiming the advanced Province of the Green Growth, introducing the improved promotion of water releasing by the Standard at the all industrial zones prior to any other Provinces must be important. Although some industrial zones and their occupied companies applied by the Standard B now have problems of aging effluent treatment facilities and lack of controlling capacity, the companies having no incentive to upgrade their facilities by themselves will be concerned, because investment and controlling for their facilities will be a part of non-profitable load.

On the other hand, the Department of Natural Resources Environment (DONRE) as a position of securing water releasing from the industrial accumulations, does not have efficient system to be able response to identifying an inappropriate water releasing and change of a eater quality immediately, because two ways of information resources of the periodic witness inspections (upper limit 2 times in a year) based on the Environmental Impact Assessment (EIA) of the notification (Circular No. 27/2015/TT-BTNMT) regarding the environmental impact assessment and the environment protection plan, and companies' arbitrary reports have been mainly used for the environmental security. Due to advanced development of heavy chemical industry like petro-chemicals and steels in BRVT Province, there are many high industrial processes, but insufficiency of ability of governmental staffs to inspect and evaluate certainly and inspection systems will be concerned.

For developing BRVT Province to be the Green Growth advanced Province in the southern economic area, with consideration of the picture and the issues in BRVT Province, finding any procedure and implementing to spread the environment-friendly industrial zone will be important.

3.2 Actions for Spread of Environment-Friendly Industrial Zones

As part of realizing plans of the strategy to introduce the Clean Technology, by specifying an industrial zone as a model to proceed the environmental measures, by establishing an appropriate environmental control/coordination system of governmental organizations/industrial zones/occupied companies, and by applying these actions through the industrial zones in turn, spread of the environment-friendly industrial zone will be aimed. And, a priority of support by the environment protection fund of BRVT Province to relevant industrial zones and occupied companies will be estimated.

As the concrete actions to spread, the effluent treatment facilities and the control abilities of all of industrial zones should be upgraded up to a level to be able to apply the Standard A, prior to any other Provinces, to reverse all industrial zones to the environment-friendly them. The comprehensive actions of multi-visual approaches including coordination between Provinces and industrial zones, not only improvements of software and hardware, will be necessary to realize, therefore, the following verification projects must be suggested;

【Verification project 1】 Upgrading facilities with environment responsiveness of conventional industrial zones.

【Verification project 2】 Improvement of self-management capabilities of new industrial zones.

【Verification project 3】 Improvement of on-site inspection capacity by the Province authority.

3.2.1 Upgrading Facilities with Environment Responsiveness of Conventional Industrial Zones

Due to a number of problems of aging of effluent treatment facilities and inappropriate management capabilities in the conventional industrial zones and the occupied companies, any procedures to upgrade the effluent treatment facilities by the verification should be considered and experimented.

Specifically, any necessary innovating works and expenses to upgrade the facility capabilities of the integrated effluent treatment facilities of the industrial zones and the effluent facilities of the occupied companies will be clarified with precisely researching situations of the facilities. And, with researching intentions and conditions to upgrade the effluent treatment facilities, corresponding to an environmental pollution risk of the handling materials and a level of aging of the facilities, renewal priority of the facilities will be decided.

Renewals of the effluent treatment facilities which specified by the renewal priority will be prepared to be able to applied the loan or subsidy of BEPF (Target 2 Strategy “), then will be renewed in turn by supports. The verification, mainly by industrial zone management committee (BIZA), having cooperation with the industrial zone management committee and the occupied companies, closely coordinating with PC and DONRE, will be implemented.

3.2.2 Improvement of Self-Management Capabilities of New Industrial Zones

The new industrial zones (Phu My 3 Special Industrial Park) with environment responsiveness which have been applied the Standard A on the effluent treatment facilities, establishing individually their environment management system with coordination the industrial management company and the occupied companies, will try to improve their management capabilities.

Specifically, the picture/issues will be figured out by researching the present management system and controlling methods of the effluent treatment. And, through the project, an appropriate environment self-security system, contact system, sharing method of the environmental data and so on, specifying and setting the “pollution prevention staff” (tentative called) respectively in both the industrial zone management company and the occupied company, will be clarified. Also, an

appropriate coordination system among the related governmental authorities of Province (PC, BIZA, DONRE, BEPF) for environmental security of the industrial zones will be clarified. The guidelines of environmental self-management for the new industrial zones will be created with base of the knowledges established through the verification project.

The verification project, by mainly DONRE, having cooperation with the management company of the Phu My 3 Special Industrial Park and occupied companies, with closely coordinating with PC and BIZA, will be implemented.

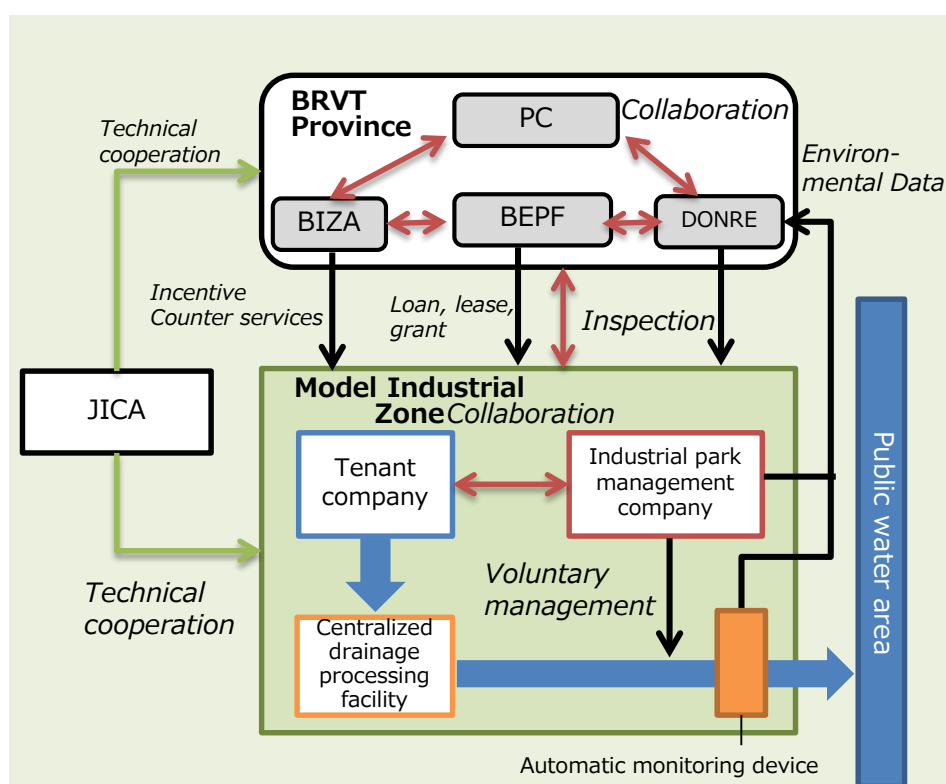


Figure 3.3.1 Implementation Image for improving Self-Management Capacities of New Industrial Zones

3.2.3 Improvement of On-Site Inspection by the Province Authority

There are many the high level and complex industrial processes with accumulating the heavy chemical industries (petro-chemicals, steels, etc.) in BRVT Province. The verification project will be implemented for an appropriate management of water releasing, exhaust, waste and so on, along with equipping a process flow chart of production processes and a on-site inspection manual in the typical industries under operation in BRVT Province, the system to improve inspection capacities of the inspectors and to be able to update and create individually by Province, will be established. By these, capability and accuracy of the on-site inspections by Province will be improved.

The verification project, by mainly DONRE and actions to implement in the industrial zones, coupling with the environment impact assessment (EIA), closely coordinating with BIZA which having the rights of EIA in the industrial zone, will be implemented

Chapter 4 Target 3 Promoting BRVT Province as International Logistics Hub

1. Strategy 1: Strengthen Logistics Infrastructure(Construct the Network of Express way, Bridge, Railway)

Through proceeding the economic integration in the Mekong basin by ASEAN Economic Community (AEC), BRVT Province to be positioned domestic and international the gate-way which integrating the southern edge of south-north axis of Nanoi city, Da-nang city and Ho Chi Minh city in the country, and the east edge of international supply chain which focusing the international transport route in Myanmar, Thailand and Cambodia of the southern economic corridor, will be necessary.

Along with proceeding development of the Cai Mep-Thi Vai bay which is able to effort a maximum geographical merit of which connected closely with a key water way in the Pacific, as the international logistics hub port, at same time, development of constructing roads to access to the port and the port surround, will be necessary.

The consolidation of the Phuoc An bridge, Bien Hoa-Vung Tau expressway and Bien Hoa-Vung Tau railway will be instructed as follows.

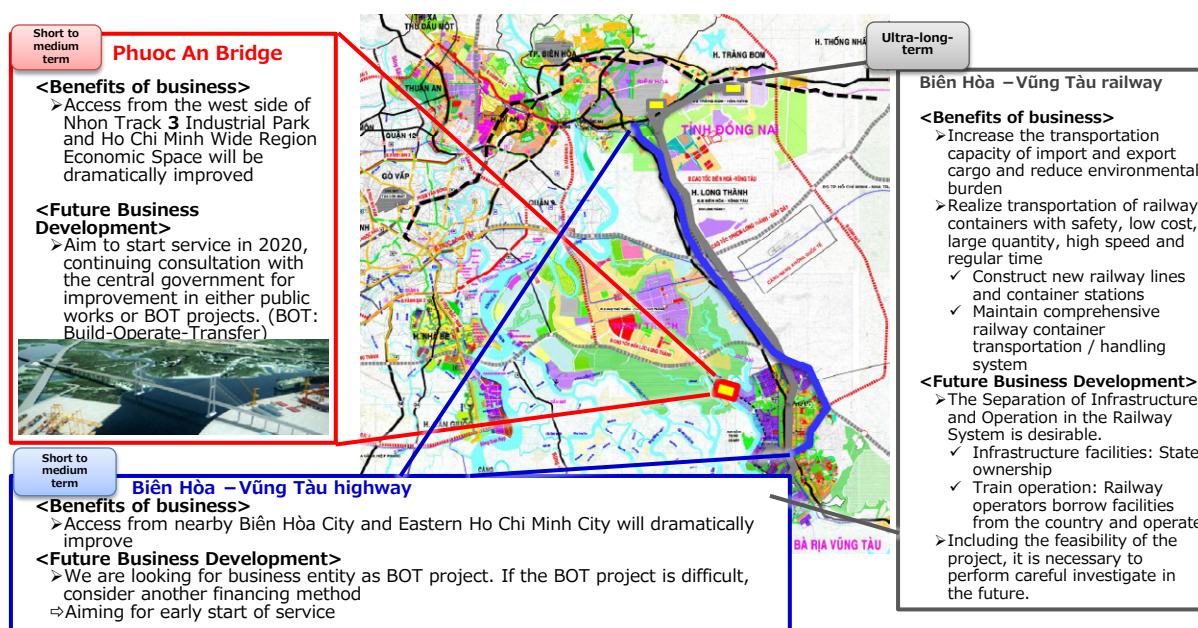


Figure 4.1.1 Position Diagram for development of Expressways/Bridges/Railway Networks

1.1 Phuoc An Bridge

The Phuoc An bridge is located in the north edge of the Cai mep-Thi Vai port road, and is able to be shorter access to the Ben Luc-Long Thanh expressway for the port related cars due to crossing the Thi Vai river. Direct connection with the Ben Luc-Long Thanh expressway and the Nhon Trach industrial zone, through Dong Nai Province with crossing the river, makes the access to the Nhon

Trach industrial zone and the west side (Long An Province and other) of Ho Chi Minh wide-range economic area to be significantly improved.

Commencement of placing in service with taking the private financial BOT rule has been aimed by 2020, but any project body was not decided, other financial application has been considering. At the hearing to DOT of BRVT Province in September, 2017, intention of working for the central government to settle as an official requirement for considering, as one of choices, procurement of the ODA finance in Japan was confirmed, but after that, intention of continuous works for recruiting any BOT operator with cooperation with the central government to aim an earlier start was confirmed.

The Phuoc An bridge has been planned to open in 2020 by the master plan, therefor, commencement must be done within remaining two years. Upon the FS by METI regarding the PHuoc An bridge needs three years and a half to be completed. With considering approximately one year for the detailed designing, four years and a half in all must be needed, materially it is difficult to be achieved unless a quite rapid implementation. Due to reviewing the master plan and shortening any delay period, deciding an organization (the central government, donors, etc.) and immediate starting the project must be required.

1.2 Bien Hoa-Vung Tau Expressway

The Bien Hoa-Vung Tau expressway is located in the east edge of the Ho Chi Minh wide-range economic area, moving down through south-north, and means an arterial road of the traffic networks in the area. This is through down to south from Bien Hoa city, capital in Dong Nai Province, crossing the existing Ho Chi Minh-Long Thanh-Dau Giay expressway, and goes to south in the west side of the Long Thanh international airport under planning and crosses the Ben Luc-Long Thanh expressway under construction. This interval is planned to construct in parallel to the national road No. 51.

After crossed the Ben Luc-Long Thanh expressway, it goes toward the east side separating from the national road No. 51, then crosses the 4th beltway under planning. At this junction, the expressway is divided, and one goes to south and passes Ba Ria City toward Vung Tau city, another is toward the national road No.51 as a feeder. This feeder is connected directly with the access road of the Ci Mep-Thi Vai port with consideration of improved access for the port related cars.

According to the results of the existing “Information collection/confirmation research regarding the present conditions of roads/bridges in southern area in Vietnam” (in August, 2016), BOT is aiming with leading of PMU85 under MOT. The expanding plan on the schedule is four lane on one side way in a medium section between the Ho Chi Minh-Long Thanh-Dau Giay expressway and the Ben Luc-Long Thanh expressway, and three lanes on one side of other ways.

Open the way in 2020 has planned by the master plan, any operator on this project has been undecided. Due to deciding an operator of this project immediately to commence the application within approximately remaining two years, starting the construction without any delay must be necessary, but actually the deadline will be coming soon. And, an issue of the traffic infrastructure consolidation should be, in many cases, whether a land expropriation can be implemented. This

project is on step of no project body and incompleteness of a land expropriation. Completing a land expropriation without any delay as much as possible, will be the key to achieve the project.

1.3 Bien Hoa-Vung Tau Railway

According to the master plan shown the train networks in BRVT Province, the railways start from Bien Hoa city, capital of Dong Nai Province, as same as the expressways, and terminated to Vung Tau city, and approximately all railways were planned in parallel to the national road No. 51. The planned year to consolidate is 2020.

However, it is incompleteness of the project and difficult situation to achieve the project at this moment. Also, by hearing to DOT of BRVT Province, railways have lower priority than roadways to consolidate. Therefore, some annual reviews of the projects will be necessary.

Table 4.1.1 Actions by BRVT Province toward Promoting BRVT Province as Main Artery

Item	Summary
Phuoc An bridge 【 Province basis project】	• Aiming to commence the application in 2020 with discussion of consolidating whether by the central government or by BOT operation.
Bien Hoa-Vung tau expressway 【 Country basis project】	• Aiming to start the project earlier by recruiting any operator of the project cooperating with the central government. • Proceeding a BOT project, as necessary, requiring any other finance including the yen-loan to the central government.
Bien Hoa-Vung Tau railway 【 Country basis project】	• Accumulating the issues in BRVT Province, and evaluating necessity/feasibility of the project through discussion with the central government. (By the fact of extension of 70km and investment of over 1 billion dollars, some careful consideration and evaluation for financial matter, land expropriation, project operational body, etc. must be necessary.)

2. Strategy 2: Strengthen the Functions of Cai Mep – Thi Vai Seaport

2.1 Current Condition and Problems of Role-sharing of Port in Southern Vietnam

The seaports in Vietnam, corresponding to the “Master Plan on Development of Seaport System through 2020, Orientations toward 20130” released in December, 2009, were organized by six groups. This master plan showed the development aims as like the “Construction of the comprehensive seaport system to aim the national industrialization and modernization, using the advantages of Vietnam at a maximum basis with coordination in neighbor countries where having the developed maritime traffic systems”. Cai Mep-Thi Thi Vai port belongs to the Group 5 including Ho Chi Minh port and Dong Nai port.

In Southern Vietnam, moderation of port congestion by cargo concentration at Ho Chi Minh (Cat Lai port) and traffic jam surround the port must be necessary. Corresponding to the hearings of the Japanese logistics companies and the local logistics companies in past related researches, the habitat

separation of which the cargos bound for Asian areas at cat Lai port, and the long distance cargos by a large ship bound for North America and Europe, has been confirmed. Readdressing of trucks from Ho Chi Minh city to Cai Mep-Thi Vai port must be necessary because of no truck terminals around Cai Mep-Thi Vai port would be concerned. Also avoidance of competition by the same functions of self-development and operations by each port operator in the southern ports will be necessary.

<Current status / Issues>

- Freight Concentration to Cat Lai Port (Ho Chi Minh City)
 - ⇒ Requires to reduce traffic congestion around the harbor
- Independent operation of harbors by each operator
 - ⇒ Requires to avoid conflict between the ports in the southern region of the same function

(Example) Number of Asian ocean routes

Cat Lai Port	55
Cai Mei-Thi Vai Port	4

Role sharing based on performance and specifications of each port in the southern region is important

Figure 4.2.1 Current Condition/Problems of Role-sharing of Ports in Southern Vietnam

2.2 Clarifying Functions of Cai Mep-Thi Vai Port and Enhancing Port Functions

Toward the resolution of these issues, the functions of Cai Mep-Thi Vai port will be clarified by the role-sharing in Southern Vietnam, and in addition, the port functions will be enhanced to promote the diversified cargos upon industrial development in there.

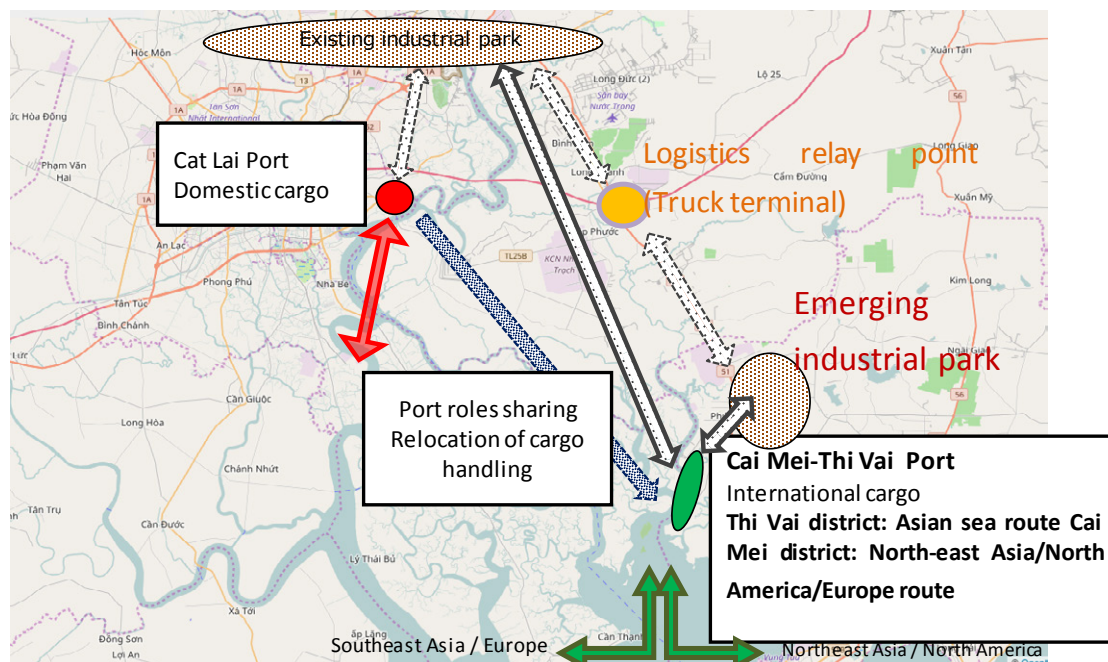


Figure 4.2.2 Image for Enhancing Functions of Caymepcirby (Cai Mep-Vung Vai) Port

First of all, BRVT Province will establish the liaison meeting, and will proceed the discussions among related cities, Provinces and port related companies in the southern ports, and will proceed to

organize a role-sharing with coordinating the properties/specifications of each southern port. Through these, the functions of Cai Mep-Vung Vai port will be clarified by the role-sharing of the area ports in Southern Vietnam.

Then, the “Cai Mep Thi Vai Port Management Board (Vietnamese: Ban Quản lý cụm cảng CM-TV)” will be established in PC of BRVT Province. This organization, is defined by the amended Maritime Law, and is established by the central government, will promote the plans of land and water areas in the port, investments of constructions, and port infrastructure and expansion of logistics facilities in the back-ground. BRVT Province will require establishment of the CM-TV Port Management Board to the central government (MOT), under adjustment by this organization, will implement infrastructure building/simplifying of the procedures for the diversified cargos upon industrial development in Southern Vietnam, and will try to enhance the port functions. Also, the logistics transfer facilities (ICD, truck terminal, etc.), to promote the role-sharing of Cai Mep-Thi Vai port and Cat Lai port, will be proceeded to build up.

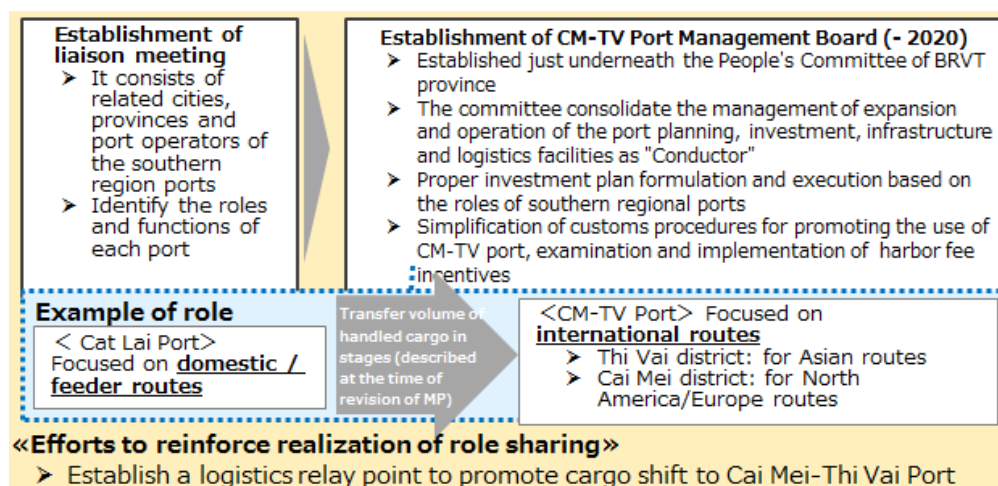


Figure 4.2.3 Measures for implementing Role-sharing

By promoting the Target 1 Toughening of Industrial Structure toward 2035, the cargos handling at Cai Mep-Thi Vai port will be diversified. For the fact, the followings will be implemented as strengthening the functions of Cai Mep-Thi Vai port;

- Introduction of mega gantry crane in Cai Mep area
- Introduction of low lift gantry crane exclusive use for cargo handling at barge
- Equipment of Ro/Ro terminal for exporting automobiles
- Expansion of port facilities for freezing /cold storage cargo
- Consolidation of port facilities for increasing imported raw material of electric furnace

Table 4.2.1 Actions by BRVT Province toward Promoting BRVT Province as Main Artery

Summary
<ul style="list-style-type: none"> • Establishment of the liaison meeting to clarify the role-sharing among the ports coordinating with Ho Chi Minh city and Dong Nai city • Requirement of consolidating CM-TV Port Management Board to the central government (MOT, etc.) – targeting in 2020
<ul style="list-style-type: none"> • Land acquisition, facility construction for building truck terminal (in some cases, implementation of private basis and private/public cooperation)
<ul style="list-style-type: none"> • Under adjustment of CM-TV Port Management Board, implementation of consolidating infrastructure/simplifying procedures toward enhancement of port functions ✓ Equipment of mega gantry crane/gantry crane for cargo handling at barge, deepening channel ✓ Equipment of Ro/Ro terminal, building warehouse for freezing/cold storage cargo, building warehouse for increasing imported raw material of electric furnace

3. Strategy 3: Establish Cai Mep Ha Logistics Center

3.1 Cai Mep Ha Logistics Park Project

Cai Mep-Vung Vai port, located in Southern Vietnam, with improving AEC and equipping infrastructure of international land transportation, has a geographical superiority as gateway in east side of the Mekong basin. BRVT Province is planning the Cai Mep Ha Logistics Park Project with sheer size of the site 800ha in Cai Mep Ha behind Cai Mep-Thi Vai port.

Presently penetration of the logistics companies is not growth in background of Cai Mep-Thi Vai port because of few cargos, BRVT Province will aim to consolidate the international logistics base in future with inviting the distributive processing companies and logistics companies. Since competition of the planning ideas for developing the logistics park was completed at the time in October, 2017, after now some external consultants will create the master plan including port development. This master plan moves toward achievement after acceptance by People's Committee in BRVT Province.

Outlines of the plan will be as follows.

- Place : Cai Mep Ha area around Thi Vai river
- Developing dimensions : approximately 800ha (port area 105.55ha within)
- Road 991B access to national road No. 51
- Planning construction of container deposit, warehouses, TTZ (Free Trade Zone) and commercial area at site
- Planned on detailed master plan of Port Group 5 as handling cargo quantity : 1.2 million tons, targeted vessel : 80,000DWT to 160,000DWT, pier extension : 1,200m (4 berths)

3.2 Development Proposal of Logistics Related Facilities (Basic Concept)

The Cai Mep Ha Logistics Park Project is promoted at Cai Mep Ha in background of Cai Mep-Thi Vai port, and the international logistics base is consolidated with inviting the distributive processing companies and the logistics companies.

Through the Cai Mep Ha Logistics Park development proposal (Basic concept), strengthening connection of the hardware (road, railway, inland transportation by water, etc.) and software (computerization, bonded measures, etc.) will be aimed. And, the specified functions, focusing invitation of the heavy chemical industries and the crude oil/petroleum products stock facilities to use a large scale of site, with concerning the “Strengthening the material industries/strategy of supply hub (Target 1 Strategy 2) will be considered. According to coordination with industrial enticement, possibility of ICD for the occupied companies in the Phu My 3 Special Industrial Park, and the developing proposals will be proceed to consider with confirming trends and intentions of the occupied companies. And, on the views of developing the oil storage stations, in case of starting operation of the Long Son refinery in future, the crude oil storages should be necessary to deal with risk of supply disruptions of necessary imported crude oil for the refinery, possibility to be needed some additional oil storages as supplement of the existing national oil storage station (Cu Lao Tao) in Province will be concerned.

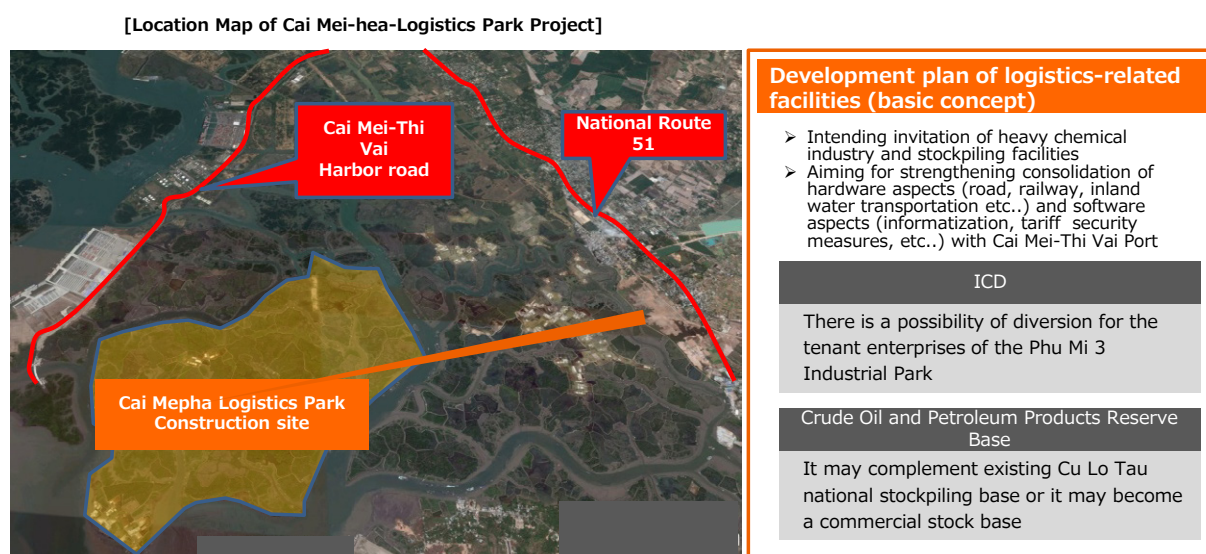


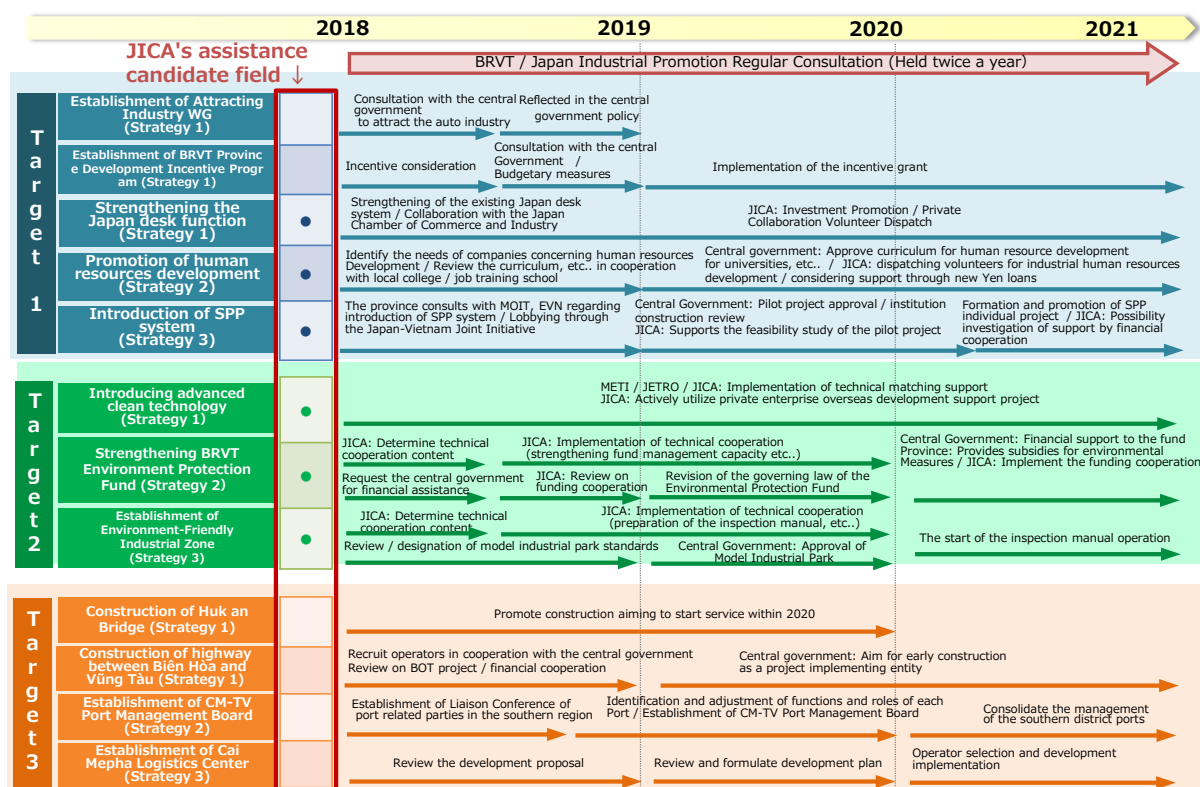
Figure 4.3.1 Position Diagram and Development Proposal of Cai Mep Ha Logistics Park

Chapter 5 Action Plan

Toward toughening the industrial structure, promoting the environmental measures and creating the logistics network which supporting the toughening industrial structure, Target and Strategy per each of three fields of Industry, Environment and Logistics have been considered on Chapter 2 through Chapter 4. This chapter instructs the roadmap and the action plans for execution of these nine strategies.

1. Roadmap

On implementing each Strategy of Target 1 to 3, in the short term necessary actions and timeframes must be as follows; commencing the specified works in 2018 and promoting the actions for three years until 2021 would be estimated.



(Source) Survey team

Figure 5.1.1 Proposal of Roadmap

2. Action Plan (Outline)

The summarized action plans (proposal) to be necessary for implementation of each strategy per on BRVT province, the central government and the related organizations in Japan will be as follows;

Table 5.2.1 Actions Required (Proposal)

		Actions by BRVT Province	Actions by the Central Government	Actions by Japan side	
Target 1	Strategy 1	Use/strengthening of restructuring working team (WT) of economic structure	<ul style="list-style-type: none">➢ Consolidating “Invitation industries working group (tentative)” on each targeted invitation industry, and implementing analysis/consideration of policies and adjustment with the central government【DPI focus】➢ Consolidating the environment-friendly industrial zone committee, and considering system/operation 【DPI, DONRE, BIZA】➢ Establishing the “BRVT Province development incentive program” corresponding to contribution to industrial development and environmental measures 【DOIT focus】	<ul style="list-style-type: none">➢ Budget measure for establishment of the “BRVT Province development incentive program”【MOF, MOIT】	<ul style="list-style-type: none">➢ Confirmation/follow-up by the restructuring working team of economic structure and the industrial development regular consultation (twice in a year).【Japanese Embassy, JICA, JETRO, intellectuals (National Graduate Institute for Policy Studies), experts (investment environment advisers), other related persons of Japan side】(#) hereinafter, “BRVT/Japan Industrial Development Regular Consultation”
		Use/strengthening of local coordination consultation	<ul style="list-style-type: none">➢ Leading consultation in Southern KEGR 【DPI】	<ul style="list-style-type: none">➢ Supporting activation of Southern KEGR 【MPI】	<ul style="list-style-type: none">➢ “BRVT/Japan Industrial Development Regular Consultation”
		Strengthening functions of Japan desks	<ul style="list-style-type: none">➢ Confirming activities of existing Japan desks, strengthening necessary systems and close cooperation with the Japan Chamber of Commerce and Industry. 【DPI】	—	<ul style="list-style-type: none">➢ Closely cooperating between the Japan Chamber of Commerce and Industry and the Japan desks. 【Japan Chamber of Commerce and Industry】➢ Considering dispatch of volunteers in the fields of investment promotion/private cooperation. 【JICA】
	Strategy 2	Promoting consultation with individual project body	<ul style="list-style-type: none">➢ Consolidating the petro-chemical industry promotion consultation with SCG/PVN (use/strengthening the	—	<ul style="list-style-type: none">➢ “BRVT/Japan Industrial Development Regular Consultation”

Strategy 3		restructuring WT of economic structure, and requiring necessary support to the central government. 【DOIT】		
	Promoting human resources cultivation	<ul style="list-style-type: none"> ➢ Further cultivating necessary skilled human resources for industrial development cooperating with local universities, industrial training schools. (use/strengthening the structuring WT of economic structure) DOIT, DONRE, DOET】 	<ul style="list-style-type: none"> ➢ Approving human resources cultivation to national universities 【MOET】 	<ul style="list-style-type: none"> ➢ Use of Japanese language volunteers dispatching to BRVT University. Newly considering dispatch of Japanese language volunteers and volunteers in the field of industrial human resources cultivation regarding quality control, productivity improvement, processing technology improvement, etc. 【JICA】 ➢ Use of results of grassroots technical projects. (Supporting SMEs human resources cultivation project) 【JICA】 ➢ Considering support through the strengthening project of industrial training functions (new yen-loan, accepted previous F/S.in Vietnam government) 【JICA】
	Introduction of SPP system	<ul style="list-style-type: none"> ➢ The Province will encourage policies and development of institutions, cooperation with companies and consulting with the central government. 【DOIT】 	<ul style="list-style-type: none"> ➢ Acceptance of the SPP pilot project. 【MOIT, EVN】 	<ul style="list-style-type: none"> ➢ Works for the central government through cooperation between Japan and Vietnam 【Japanese Embassy, JICA, JETRO, experts (investment environment advisers, Japan Chamber of Commerce and Industry, others in Japan side)】 ➢ Considering, as necessary, support by yen-loan/overseas investment and loan. 【JICA】 ➢ Considering indirect support by new technical projects 【JICA】
	Renewable energy	<ul style="list-style-type: none"> ➢ Supplying land in area of poverty to equip energy farm. 【DOIT, DPI】 	<ul style="list-style-type: none"> ➢ Applying preferential treatment to projects in area of poverty. 【MOIT】 	

Target 2	Strategy 1	Introduction of Clean Technology	<ul style="list-style-type: none"> ➢ Financial support by BEPF [DONRE, DOF] ➢ Applying BRVT development incentive program. [DOIT, DONRE] 	<ul style="list-style-type: none"> ➢ Financial support to BEPF [MONRE, MOF] 	<ul style="list-style-type: none"> ➢ Implementing technical matching cooperating with Chubu Bureau of Economy, Trade and Industry, Kyushu Bureau of Economy, Trade and Industry, JETRO, domestic organizations of JICA, etc. [Bureau of Economy, Trade and Industry, JETRO, JICA] ➢ Considering , as necessary, support by yen-loan/overseas investment and loan. [JICA] ➢ Encouraging aggressive use of the private overseas development support project by Japanese companies. [JICA] ➢ Considering fund operation support by new technical projects. [JICA]
	Strategy 2	Expansion of functions of BRVT Province Environment Protection Fund	<ul style="list-style-type: none"> ➢ Function strengthening of BEPF (consideration of individual financial resources) [DONRE, DOF] ➢ Requiring technical cooperation to the central government by JICA. [DPI, DOIT, DONRE] 	—	<ul style="list-style-type: none"> ➢ Considering, as necessary, support by yen-loan (TSL)/overseas investment and loan [JICA] ➢ Considering fund operation support by new technical projects. [JICA]
	Strategy 3	Establishing environment-friendly industrial zones	<ul style="list-style-type: none"> ➢ Considering/specifying the standards of environment-friendly industrial zone [BIZA, DONRE, DPI] ➢ Based on implementation of environment measures, accelerating approval of projects for limited business to invite on the Decision No. 2214, and considering on-site inspections. [DONRE, DPI] 	<ul style="list-style-type: none"> ➢ Approving the environment-friendly industrial zones [MPI] 	<ul style="list-style-type: none"> ➢ Supporting warranty standards, development of institutions, creating inspection manual, improvement of on-site inspection capabilities, etc. by new technical projects. [JICA]
Target 3	Strategy 1	Maintenance of Phuoc An bridge	<ul style="list-style-type: none"> ➢ Continuously discussing with the central government whether public project or BOT project, and aiming application of commencement in 2020. [DOT] 	—	—

		Maintenance of Bien Hoa-Vung Tau expressway	<ul style="list-style-type: none"> ➤ Recruiting operator to implement cooperating with the central government, and aiming earlier start. 【DOT】 ➤ Requiring other finance including yen-loan to the central government. 【DOT】 	<ul style="list-style-type: none"> ➤ Aiming earlier start. 【MOT】 ➤ Considering ODA. 【MPI】 	➤ “BRVT/Japan Industrial Development Regular Consultation”
	Strategy 2	Strengthening of functions of Cai Mep-Thi Vai port	<ul style="list-style-type: none"> ➤ Consolidating liaison meeting with the related Provinces and cities, and organizing role-sharing among the ports. 【DOT】 ➤ Requiring consolidation of the CM-TV Port Management Board to the central government. 【DOT】 	<ul style="list-style-type: none"> ➤ Consolidating the CM-TV Port Management Board. 【MOT】 	➤ “BRVT/Japan Industrial Development Regular Consultation”
	Strategy 3	Development Cai Mep Ha area	<ul style="list-style-type: none"> ➤ Considering the development plans of logistics related facilities. 【DOT】 	—	➤ Considering necessary supports corresponding to formulating progress of the development plan of BRVT Province. 【JICA】

(Origin) Investigation team

Appendix

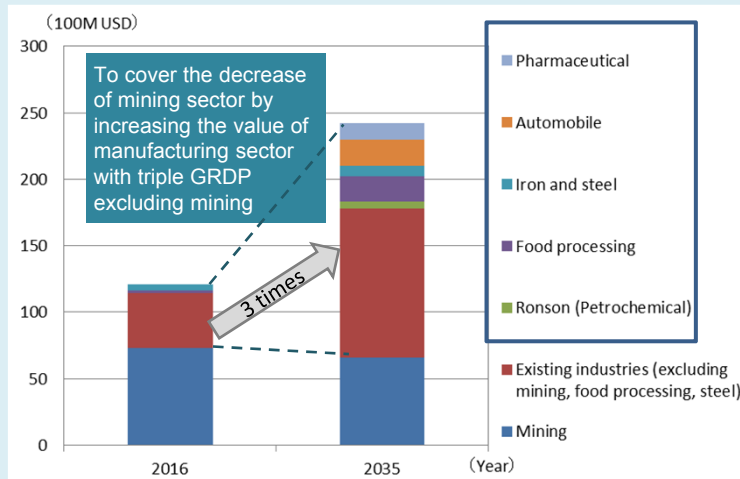
BRVT Province: Environment-Friendly Industrial Development (Overall Strategy)

Target 1: To build resilient industrial structure by increasing the GRDP (triple increase of GRDP excluding mining)

Industrial restructure by identifying the new key industries (economic growth rate of 7% excluding oil and gas)

- | | |
|-------------------|---|
| Strategy 1 | Create high-value added industries (automobile, food processing, pharmacy..) |
| Strategy 2 | Develop material industries (oil refinery, steel, textile etc.) as the supply hub. |
| Strategy 3 | Diversify power supply (SPP, renewable energy etc.) |

<Chart 1: Target GRDP of BRVT (by industry) (2016-2035)>



Target 2: To become the most advanced Green Growth Province in Southern Economic Zone in Vietnam by leading environment-friendly economic development

Act the key role in connecting provinces/city in the South; leading role in regional environment-friendly economic.

- | | |
|-------------------|---|
| Strategy 1 | Introduce advanced clean technology |
| Strategy 2 | Strengthen BRVT Environment Protection Fund |
| Strategy 3 | Establish Green Model Industrial Zone |

Target 3: To become an international logistics hub as a new “South Entrance” of the country

Become new “South Entrance” with the role as an international logistics hub

- | | |
|-------------------|--|
| Strategy 1 | Strengthen logistics infrastructure (construct the network of express way, bridge, railway) |
| Strategy 2 | Strengthen the functions of Cai Mep – Thi Vai Seaport |
| Strategy 3 | Establish Cai Mep Ha Logistics Center |

To build resilient industrial structure and environment protection

Establish the logistics network as the foundation for building resilient industrial structure

No.1 Green Growth Province in Vietnam and International Logistics Hub

To become Green Growth model of the Southern Economic Zone; to become ASEAN's international logistics hub

Target 1: To build resilient industrial structure (triple increase of GRDP excluding mining)

(1) Strategy 1: Create high-value added industries (automobile, food processing, pharmacy)

- Just by maintaining the current situation, it is expected that the mining occupying 50% of the GRDP of BRVT will shrink over the medium to long term. It is essential to aim for economic growth by promoting conversion and diversification of industrial structure and high added value of industries.
- Automobile, food processing, and pharmaceutical industry should be strengthened as high-value added industry.

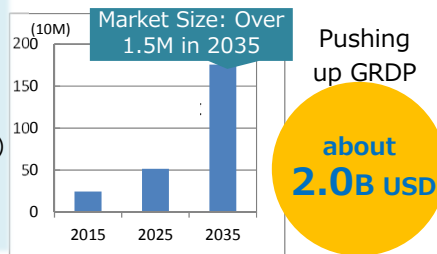
Creating about 5.1B USD of GRDP with high-value added industries

[Automobile Industry]

<Figure 2 : Vehicle Sales Volume in Vietnam>

[Focus Area]

- Completed vehicles for domestic market (producing 200,000 compact cars per year)
- Automotive parts for domestic and foreign markets (Thailand / Indonesia)
- In the future, the advancement of the automobile industry with constant accumulation (EV etc.)

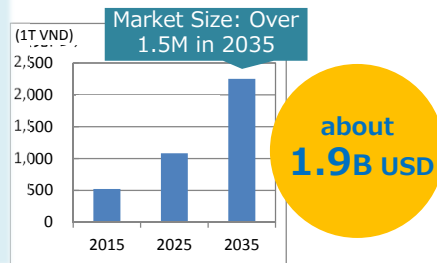


[Food Processing Industry]

<Figure 3 : Consumption of Food in Vietnam>

[Focus Area]

- Raise the existing food processing + High added value of food processing (Examples)
 - Strengthening exports utilizing logistics bases (airports / harbors)
 - Vitalization of agriculture, forestry and fishery industry by high-value added of agricultural products, utilization of FRP ships



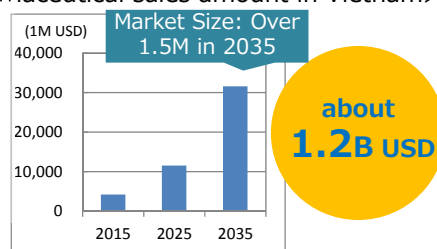
[Pharmaceutical Industry]

<Figure 4 : Pharmaceutical sales amount in Vietnam>

- Vietnam aiming to realize all people's insurance, the potential of the pharmaceutical market is large

[Focus Area]

- OTC drugs and generic drugs in view of consumption trends in Vietnam



Current policy framework

Utilize existing policy framework of BRVT

BRVT Working Team for Reconstructing Economic Structure

Preferential treatment at Phu My 3 Special Industrial Park

Southern KEGR (Key Economic Growth Region)

9 Measures for Enhancing Industrial Structure of BRVT

6 actions by BRVT

- ① Strengthening of "Steering Committee for Strengthening Industries of BRVT Province"**
Strengthening the functions to unitarily summarize the measures for industry/environment/logistics respectively by utilizing the existing committees of BRVT Province. The following ②, ③ and ④ will be established under the committee.
- ② Strengthening of Working Groups for Industries to Be attracted**
Analyzing/investigating of necessary measures etc. and implementing adjustments with central government etc. by utilizing the existing working teams and classifying for each industry subject to attraction.
- ③ Establishing model industrial parks (environmentally-friendly industrial parks) conference.**
Establishing the conference to investigate construction of the system and operation methods etc. of model industrial parks.
- ④ Creating "Program for Development Incentive Program of BRVT"**
In addition to the existing preferential treatment system, implementing adjustments with the central government regarding establishment of the incentive program according to contribution degree to industrial development and environmental measures
- ⑤ Flexible operation of environmental regulation**
Toward promotion of primary material industries of BRVT Province, subject to implementation of environmental measures, approving the business of regulated industries under Decision No.2214.
- ⑥ Enhancement of the functions of Japan Desk**
Confirming the contents of the existing activities and strengthening the required structure. Close cooperation with Japan Chamber of Commerce and Industry.

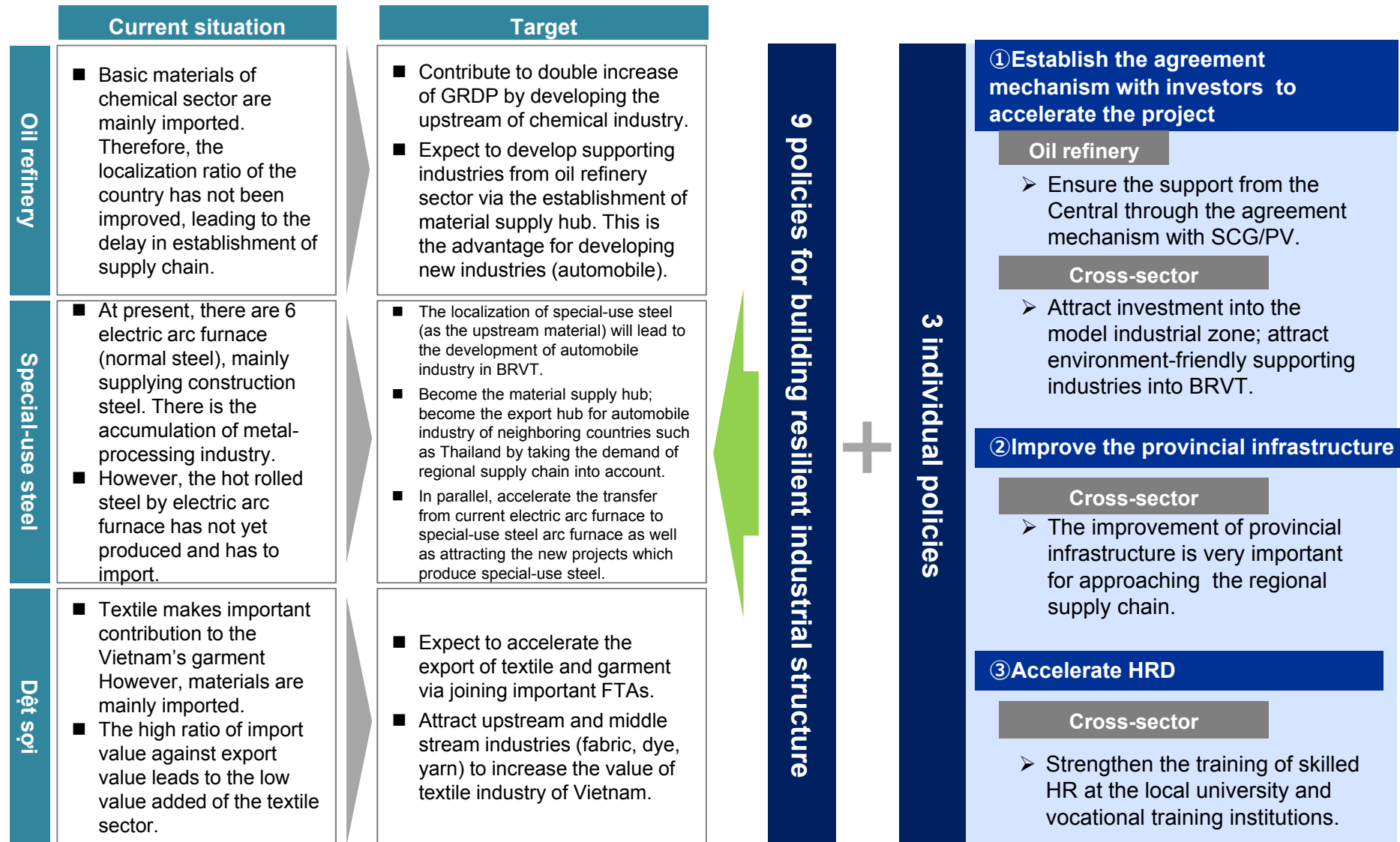
3 actions by the central government

- ⑦ Budgetary measures for creating "Program for Development Incentive Program of BRVT Province"**
Investigating the contents of the said program with BRVT Province and implementing necessary budgetary measures
- ⑧ Utilizing/strengthening "Regional Cooperation Council with 5 provinces of the southern economic area"**
Promoting organical connection of the industries of the southern economic area, subject to utilization of cooperation council.
- ⑨ Infrastructure development toward improvement of access of the southern economic area.**
Abstracting/investigating the infrastructure required to construct the supply chain of the whole southern economic area/implementing budgetary measures.

Target 1: To build resilient industrial structure (triple increase of GRDP excluding mining)

(2) Strategy 2: Develop material industries (oil refinery, steel, textile etc.) and become their supply hub

- Focus on attracting private sector in material industries (oil refinery, special-use steel, textile) which are strengths of BRVT.



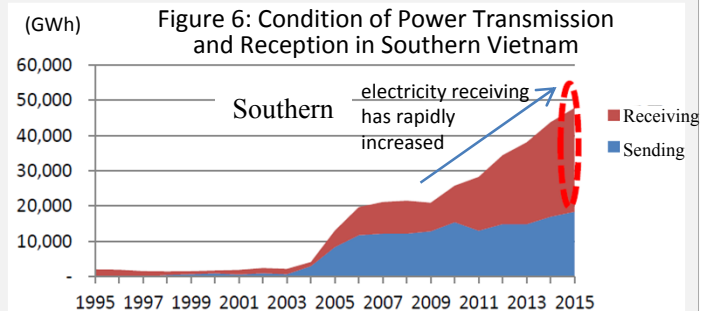
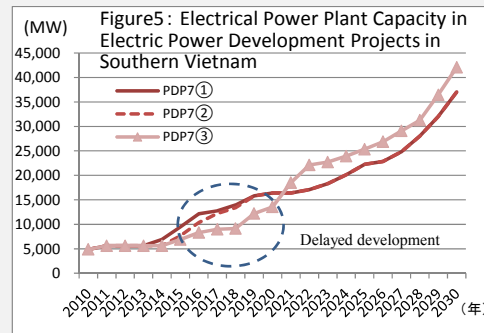
Target 1: To build resilient industrial structure (triple increase of GRDP excluding mining)

(3) Strategy 3: Diversify power supply (SPP, renewable energy etc.)

- Strengthen power supply development as industrial infrastructure for promoting Strategy1 and 2.
- In addition to ensuring stabilization and quality improvement of electricity supply, diversify power supply and actively promote introduction of clean energy.

Challenges in power supply development in BRVT/Southern KEGR

- Abundant power is one of the attractions of BRVT
- However, the National Power Development Plan (PDP 7) lags behind the scheduled operation at many power plants
- In recent years, electricity receiving from the northern and central Vietnam has also increased
- It is also urgent to improve the occurrence of instantaneous blackouts



Stabilization and quality improvement of electricity supply

Diversify power supply and actively promote introduction of clean energy

Introduction of SPP system

- Introducing Thailand's Small Power Producer (SPP) System to BRVT

Electricity Power generation mode

Thermal power generation (natural gas etc.) plus cogeneration, electricity power generation by renewable energy

Electricity power purchase

Purchase guarantee of a part of electricity power by Vietnam Electricity

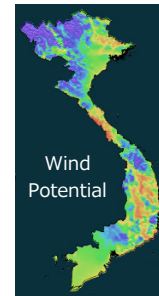
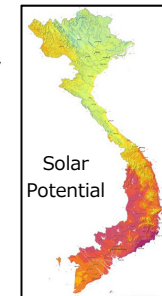
Flexible system design

It is possible to sell electricity power and steam directly to the neighboring factories as well.

- Advantages of SPP
 - The companies that enter BRVT can secure high quality electricity power from SPP through electricity power generation technologies with high reliability and power transmission line independent from central grid
 - Effect of reducing fuel consumption of 20,000kl per annum by supplying steam to 10 factories (example of Kawasaki City)

Renewable Energy

- Actively utilize renewable energy for diversification of power supply
- Promote the development of energy farms for profitable renewable energy (such as solar and wind power generation) where Vietnam government subsidies are applied



Actions by the central government	<ul style="list-style-type: none"> ➢ Approval of SPP pilot business (MOIT, EVN) ➢ Long term/stable supply of natural gas (PetroVietnam)
Actions by BRVT	<ul style="list-style-type: none"> ➢ BRVT promotes to develop national policy/ system by counseling with the central government along with cooperation with the companies that are interested in SPP
Actions by JICA (proposal)	<ul style="list-style-type: none"> ➢ F/S support of pilot business (PPP infrastructure business) ➢ Yen loans to support PPP (VGF, EBF, PPP credit enhancement standby/utilization of overseas loans and investments)

Actions by the central government	<ul style="list-style-type: none"> ➢ Raising FIT (Feed-in Tariff) prices of renewable energy and enhancement of other supplemental systems
Actions by BRVT	<ul style="list-style-type: none"> ➢ Provision of land of the area with economic difficulties for development of energy farms
Actions by JICA (proposal)	<ul style="list-style-type: none"> ➢ Technological cooperation regarding know-hows for stable provision by mixing electricity power derived from renewable energy with other electricity power ➢ Yen loans to support PPP (VGF, EBF, PPP credit enhancement standby) Utilization of overseas loans and investments)

Target 2: To become the most advanced Green Growth Province in Southern Economic Zone in Vietnam by leading environment-friendly economic development

(1) Strategy 1: Introduce advanced clean technology

- Introducing environment-friendly pollution control technology to reduce the environmental burden associated with industrial development, promoting development of high-value added industries and material industries.
- In addition, introducing technologies such as energy saving and recycling, promoting green growth as well as pollution prevention.

Clean Technology to be introduced (examples)

Environmental measures and pollution countermeasures in high-value added industries (automobile and food processing)

【Automobile industry】

- Effluent processing regarding as effluent of property (organic/inorganic)
- Reduction of VOC emission amount by aqueous coating material and renewal of painting system

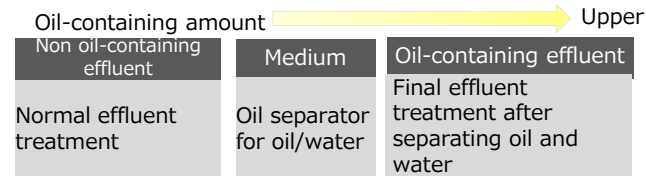
【Food Processing】

- Reduction of disposal amount discharged from equipment by process improvement and strengthening maintenance
- Effluent treatment including blood and water

Environmental measures and pollution countermeasures in material industries (petrochemical and steel)

【Petro-chemistry industry】

- Set VOC recovery unit on naphtha cracking unit
- Effluent treatment depend on oil-containing amount



【Steel industry】

- Set dioxin removal unit
 - Collecting and disposing of electric furnace dusts
- | | |
|--|--|
| Electric furnace manufacturers introduce highly efficient dust collection system | Electric furnace dust processor (to be attracted) treatment the dust |
|--|--|

Energy conservation and recycling measures

【Energy-saving measure】

- Co-generation system
- Reuse of waste heat by boiler and electric furnace



【Recycling measure】

- Commercialization of electric furnace slags (resources for road)
- Recovery/reuse of zinc from electric furnace dusts
- Recycling of plastics

Reused materials



Commercialization for plastic sleeves and work clothes



Support Measures toward Introduction of Clean Technology

Actions by the central government	<ul style="list-style-type: none"> Financial assistance to BRVT Environment Protection Fund (Target 2 Strategy 2)
Actions by BRVT	<ul style="list-style-type: none"> Financial assistance by BRVT Environmental Protection Law (Target 2 Strategy 2) Application of BRVT Development Incentive Program (Target 1 Strategy 1) Promotion to use assistance with integration of information regarding financial assistance provided by Country/Province
Actions by JICA (proposal)	<ul style="list-style-type: none"> Yen-loan/overseas investment and loan to BRVT Province Environment Protection Fund and technical cooperation on operation and management, etc.

BRVT leads environment-friendly industrial development in the Southern economic area

- Utilizing inter-provincial coordination mechanism * in the Dong Nai River basin
 - Sharing results of clean technology introduced in BRVT
 - Leading the environment-friendly industrial development in the Southern economic zone
- ※ Target areas: BRVT, Ho Chi Minh City, Dong Nai, Binh Duong, Tin Ninh, Rong An, Thienzan



Target 2: To become the most advanced Green Growth Province in Southern Economic Zone in Vietnam by leading environment-friendly economic development

(2) Strategy 2: Strengthen BRVT Environment Protection Fund

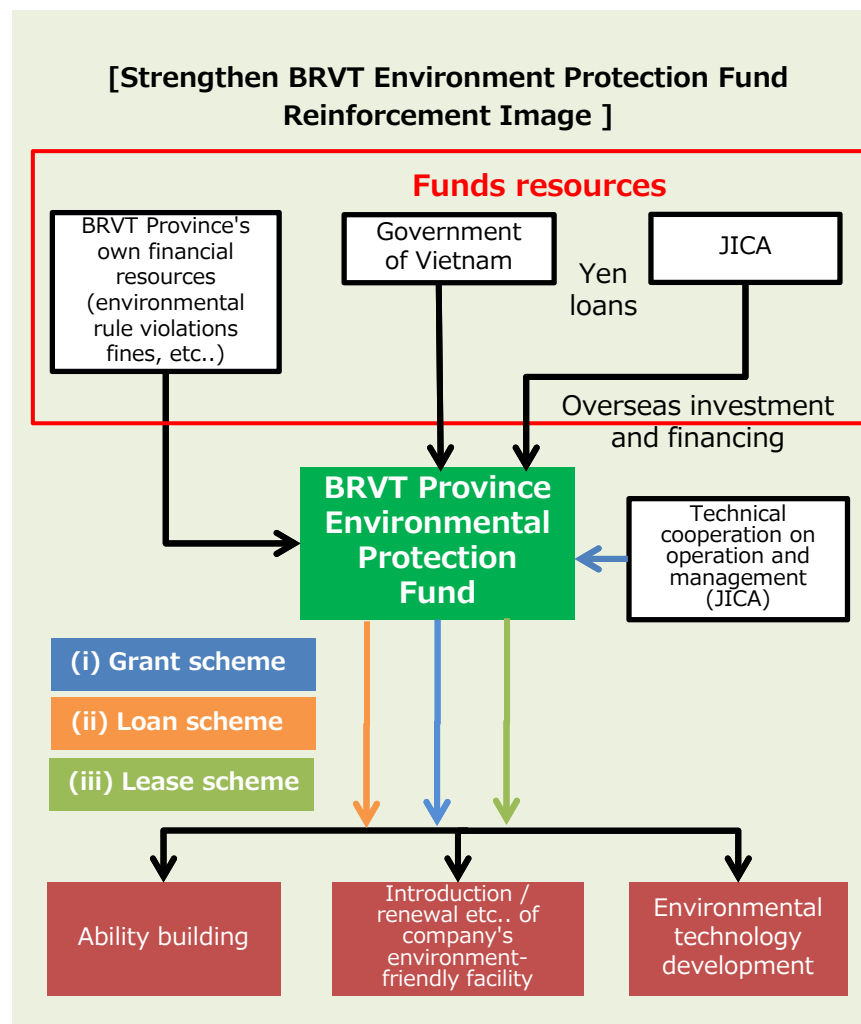
- As a measure to realize the clean technology introduction strategy (Strategy 1), provide financial and technical assistance in promoting appropriate environmental measures for the foreign capital enterprises and local SMEs in the BRVT.
- Specifically, based on the BRVT Province's Environmental Protection Fund (BEPF), and through JICA's support for ODA loans, overseas investment and loans, technical cooperation, etc. it will be reorganized into a fund that supports green growth and its scale and functions will be expanded.

Enhancement of BEPF

- It will assist the companies that take environmental measures such as introduction and renewal of environmentally friendly facilities by providing grants. In the future, loan will be considered also.
- It will set up BRVT province's own financial resources to make a sustainable and continuous fund.
- It is envisioned that the BRVT to implement the operational management of the fund, after performing a capacity building assistance through JICA's technical cooperation project.
- Technical cooperation projects by JICA (Draft)
 - ✓ Basic survey (current situation, needs, fund resource, etc.)
 - ✓ Capacity building related to the fund operation management (verification know-how on validity of introducing environmental facilities, loan screening expertise, loan scheme building technology)
 - ✓ Formulation of operation plan, etc.

[Outlines of Enhancement of BEPF (Proposal)]

Scale	〇〇VND (adjustment needed)
Financial resources	<ul style="list-style-type: none"> ➢ Yen-loan/overseas investment and loan by JICA 〇〇yen ➢ Province's individual financial resources (example: penalty money of environmental breach, landfill charge of public/industrial waste, charge to use petro-chemical fuel (oil, natural gas, etc.))
Target project for support (loan)	<ul style="list-style-type: none"> ➢ Introduction/renewal of facility for environmental measure (environment monitoring, effluent treatment, exhaust treatment, waste disposal, etc.) ➢ Introduction/renewal of facility for energy-saving, recycling ➢ Improvement of environmental response ability ➢ Development of environmental technology
Target company for support (loan)	<ul style="list-style-type: none"> ➢ Model industrial park, control company or occupied company to be implemented environmental measures ➢ Local SME



Target 2: To become the most advanced Green Growth Province in Southern Economic Zone in Vietnam by leading environment-friendly economic development

(3) Strategy 3: Establish Green Model Industrial Zone

- As part of the implementation of the clean technology introduction strategy (Strategy 1), BRVT designate industrial parks which is a model to promote environmental measures, and establish appropriate environmental management and collaboration system of administrative organizations, industrial parks and tenant companies. Then, BRVT province will aim to spread the environment-friendly industrial parks by developing the results to other industrial parks.
- For the industrial parks and tenant companies, it is assumed that support from the BRVT Province's Environmental Protection Fund is provided on a priority basis. Possibility of designation to Eco Industrial Park will be considered as well.

Image of environment-friendly industrial parks (IP)

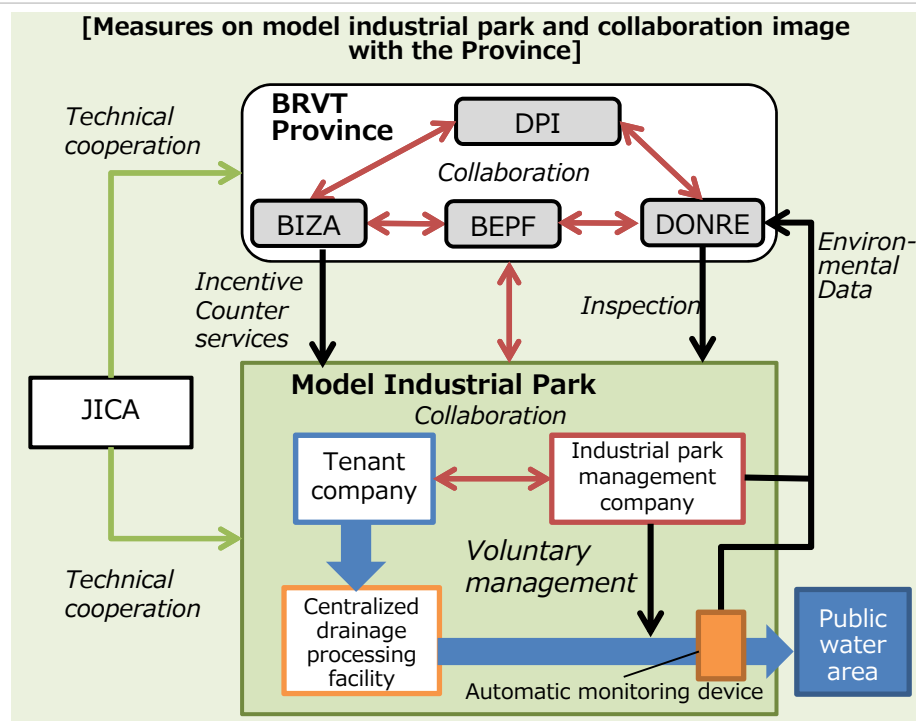
Construction of model of environment-friendly industrial parks suitable for BRVT

- Model industrial park (candidate plan)
 - ✓Phu My 3 Special Industrial Park (automobile, heavy industry / energy, machinery etc.)
 - ✓Dabak Industrial Park (supporting industries, logistics services, etc.)
 - ✓Cai Mep Industrial Park (petrochemical, food processing etc)
 - ✓Phu My 2 Industrial Park (machining, food processing etc)

Horizontal development of established models to other industrial parks

Overview of the model of environment-friendly IP

- Regarding the model industrial park, BRVT considers the following matters by utilizing JICA technical cooperation project etc.,
 - ①Improve voluntary management capacity by industrial parks and tenant companies
 - ②Construct process flow and inspection manual for each advanced industrial process (petrochemical, steel etc.), improve provincial inspection ability
 - ③Establish appropriate collaboration system of related organizations (provincial departments, IP management companies, tenant companies)
 - ④Grant incentives for IPs and tenant enterprises that satisfy the requirements (BRVT development incentive program, BRVT Environmental Protection Fund, approval of restricted / prohibited industries, etc.)



Measures of BRVT to establish the model

- Support of the BRVT Environmental Protection Fund provided for environmental measures taken by IPs and tenant companies.
- On the premise of implementing environmental measures, review will be conducted to prompting business approval of the restricted industries by the Decision No. 2214, on-site inspection in cooperation with IPs, etc.
- Application of BRVT development incentive program (Goal 1 Strategy 1)

Target 3: To become an international logistics hub as a new “South Entrance” of the country
(1) Strategy 1 : Strengthen logistics infrastructure (construct the network of express way, bridge, railway)

- Implementing transportation infrastructure development at appropriate timing, in response to sophistication and diversification of industries and increase in logistics due to increase in production activity (GRDP) centering on industrial area in BRVT.

Short to medium term

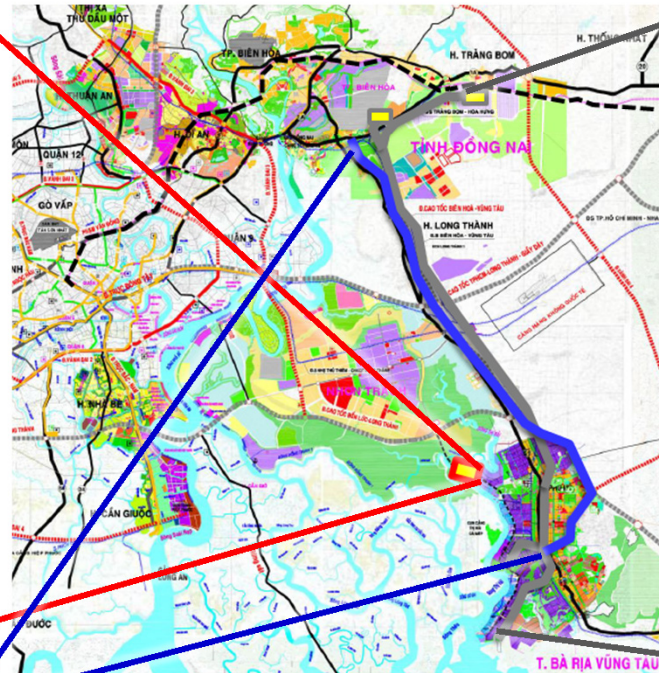
Phuoc An Bridge

<Benefits of business>

- Access from the west side of Nhon Trach 3 Industrial Park and Ho Chi Minh Wide Region Economic Space will be dramatically improved

<Future Business Development>

- Aim to start service in 2020, continuing consultation with the central government for improvement in either public works or BOT projects. (BOT: Build-Operate-Transfer)



Biên Hòa – Vũng Tàu railway

Ultra-long-term

<Benefits of business>

- Increase the transportation capacity of import and export cargo and reduce environmental burden
- Realize transportation of railway containers with safety, low cost, large quantity, high speed and regular time
 - ✓ Construct new railway lines and container stations
 - ✓ Maintain comprehensive railway container transportation / handling system

<Future Business Development>

- The Separation of Infrastructure and Operation in the Railway System is desirable.
 - ✓ Infrastructure facilities: State ownership
 - ✓ Train operation: Railway operators borrow facilities from the country and operate
- Including the feasibility of the project, it is necessary to perform careful investigate in the future.

Short to medium term

Biên Hòa – Vũng Tàu highway

<Benefits of business>

- Access from nearby Biên Hòa City and Eastern Ho Chi Minh City will dramatically improve

<Future Business Development>

- We are looking for business entity as BOT project. If the BOT project is difficult, consider another financing method
- ⇒ Aiming for early start of service

Actions by BRVT

Phuoc An bridge (Province basis project)

- Aiming to commence the application in 2020 with discussion of consolidating whether by the central government or by BOT operation.

Biên Hoa-Vung tau expressway (Country basis project)

- Aiming to start the project earlier by recruiting any operator of the project cooperating with the central government.
- Proceeding a BOT project, as necessary, requiring any other finance including the yen-loan to the central government.

Biên Hoa-Vung Tau railway (Country basis project)

- Accumulating the issues in BRVT, and evaluating necessity/feasibility of the project through discussion with the central government. (By the fact of extension of 70km and investment of over 1 billion dollars, some careful consideration and evaluation for financial matter, land expropriation, project operational body, etc. must be necessary.)

Target 3: To become an international logistics hub as a new “South Entrance” of the country

(2) Strategy2 : Strengthen the functions of Cai Mep – Thi Vai Seaport

- Clarify the function of Cai Mei-Thi Vai Port by sharing the roles of Vietnamese southern region harbors
- Implementation of port function enhancement to respond to cargo diversified with industrial development in Vietnamese southern region

Clarify the function of Cai Mei-Thi Vai (CM-TV) Port by sharing the roles of southern region harbors

<Current status / Issues>

- Freight Concentration to Cat Lai Port (Ho Chi Minh City)
 - ⇒ Requires to reduce traffic congestion around the harbor
- Independent operation of harbors by each operator
 - ⇒ Requires to avoid conflict between the ports in the southern region of the same function

(Example) Number of Asian ocean routes

Cat Lai Port	55
Cai Mei-Thi Vai Port	4

Role sharing based on performance and specifications of each port in the southern region is important

Measures to realize role sharing

Establishment of liaison meeting

- It consists of related cities, provinces and port operators of the southern region ports
- Identify the roles and functions of each port

Establishment of CM-TV Port Management Board (- 2020)

- Established just underneath the People's Committee of BRVT province
- The committee consolidate the management of expansion and operation of the port planning, investment, infrastructure and logistics facilities as "Conductor"
- Proper investment plan formulation and execution based on the roles of southern regional ports
- Simplification of customs procedures for promoting the use of CM-TV port, examination and implementation of harbor fee incentives

Example of role

< Cat Lai Port >
Focused on domestic / feeder routes

Transfer volume of handled cargo in stages (described at the time of revision of MP)

<CM-TV Port> Focused on international routes

- Thi Vai district: for Asian routes
- Cai Mei district: for North America/Europe routes

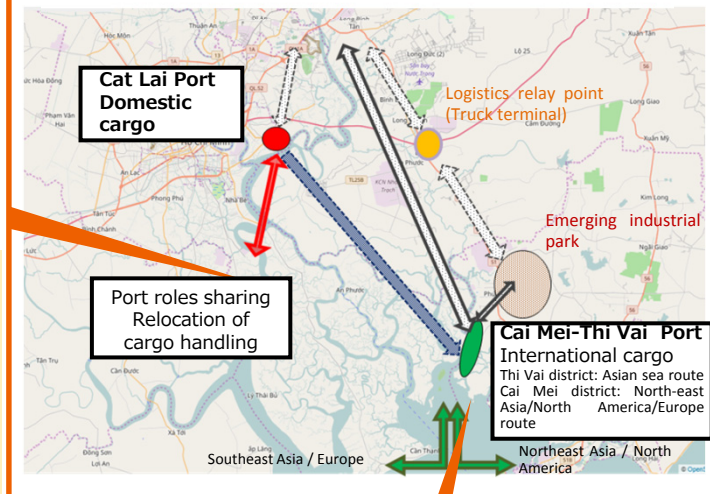
«Efforts to reinforce realization of role sharing»

- Establish a logistics relay point to promote cargo shift to Cai Mei-Thi Vai Port

Actions by BRVT

- In cooperation with Ho Chi Minh City, Đồng Nai Province etc., a liaison meeting was established to clarify role sharing among ports
- **Requested the central government (MOT etc.) to set up the CM-TV Port Management Board - targeted in 2020**
- Planning to acquire the site for the installation of the truck terminal and to construct the facility (in some cases joint implementation with the private business entity in public and private style)
- Implementation of infrastructure improvement and procedure simplification etc.. for strengthening port functions under adjustment of CM-TV Port Management Board
 - ✓ Installation of mega gantry crane and gantry crane for cargo handling, as well depth increase construction of the sea routes
 - ✓ Construction of Ro / Ro terminals, warehouses for frozen and refrigerated cargoes, and warehouses corresponding to increased imports of electric furnace raw materials, etc..

[Enhanced image of Cai Mei-Thi Vai Port]



Strengthening of port functions to cope with diversifying cargo

Strengthening industrial structure until 2035

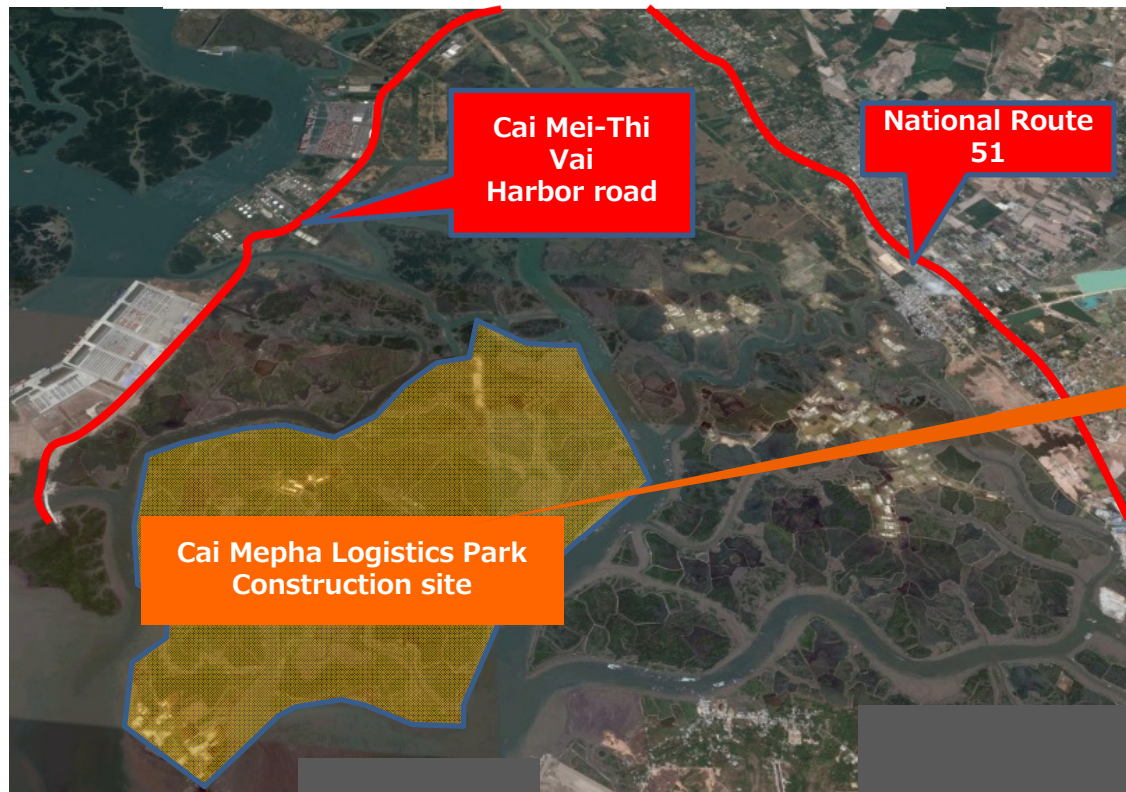
- Introduction of mega gantry crane in Cai Mei district
- Introduction of low head lifting gantry crane dedicated for barge handling
- Develop a Ro / Ro terminal corresponding to the automobile exports
- Upgrading and expanding of port facilities corresponding to frozen / refrigerated cargo
- Port facility development corresponding to increased import of electric furnace raw materials

Diversifying cargo

Target 3: To become an international logistics hub as a new “South Entrance” of the country (3) Strategy3 : Establish Cai Mep Ha Logistics Center

- Promote the development of logistics bases by developing logistics facilities such as ICD at Cai Mep Ha Logistics Park destination in order to make Cai Mep Ha - the hinterland of Cai Mep – Thi Vai sea port - the logistics base.

[Location Map of Cai Mei-hea-Logistics Park Project]



Development plan of logistics-related facilities (basic concept)

- Intending invitation of heavy chemical industry and stockpiling facilities
- Aiming for strengthening consolidation of hardware aspects (road, railway, inland water transportation etc..) and software aspects (informatization, tariff security measures, etc..) with Cai Mei-Thi Vai Port

ICD

There is a possibility of diversion for the tenant enterprises of the Phu Mi 3 Industrial Park

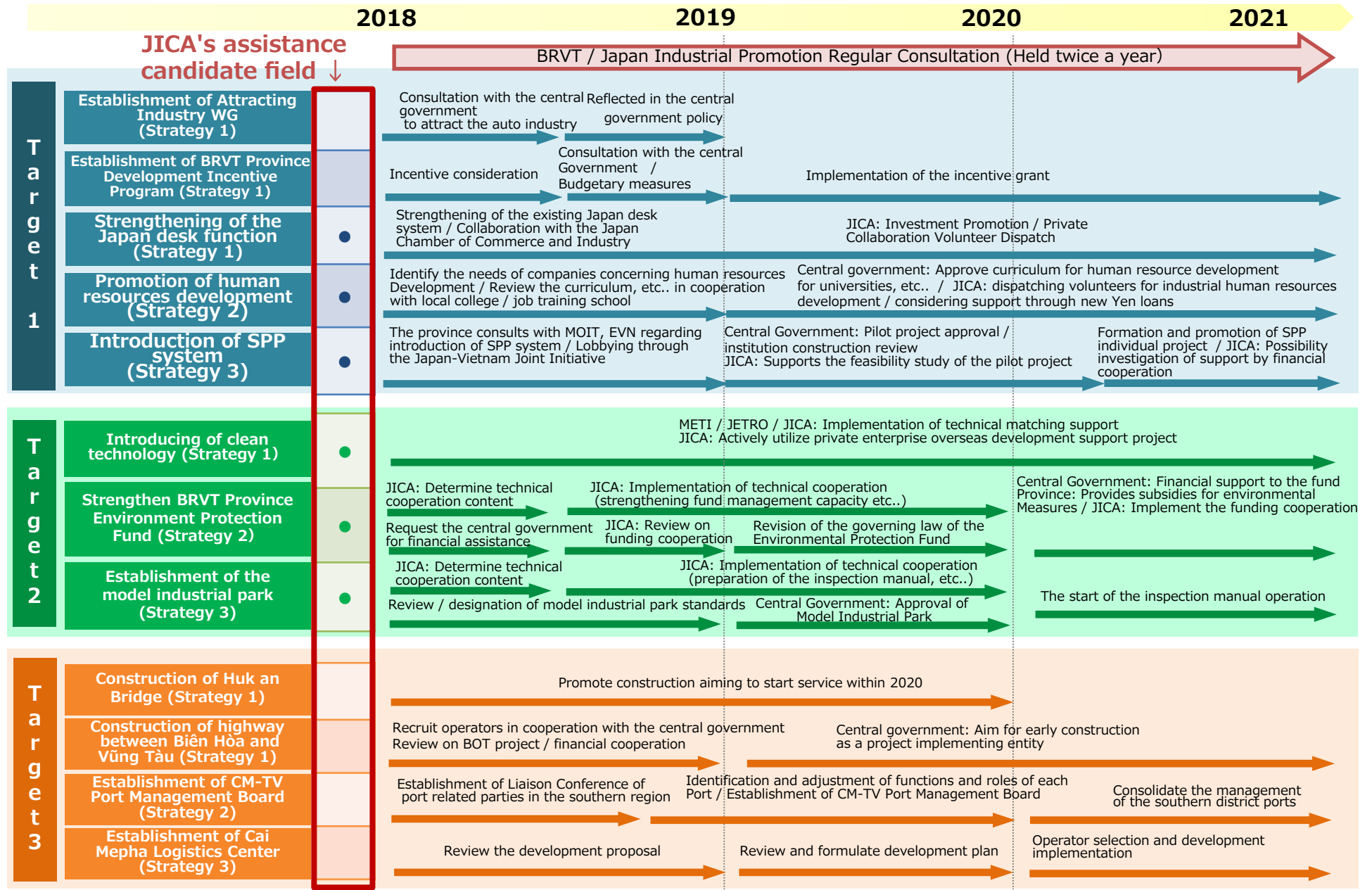
Crude Oil and Petroleum Products Reserve Base

It may complement existing Cu Lo Tau national stockpiling base or it may become a commercial stock base

Actions by BRVT

- Considering a development proposal of Cai Mep Ha Logistics Park
- Formulating the development plan of Cai Mep Ha Logistics Park and implementing the development based on it

Roadmap (draft)



Actions Required (Proposal) (Target 1)

		Actions by BRVT Province	Actions by the Central Government	Actions by Japan side	
Target ⇄	Strategy ⇄	Use/strengthening of restructuring working team (WT) of economic structure	➢ Consolidating “Invitation industries working group (tentative)” on each targeted invitation industry, and implementing analysis/consideration of policies and adjustment with the central government 【DPI focus】 ➢ Consolidating the environment-friendly industrial park committee, and considering system/operation 【DPI, DONRE, BIZA】 ➢ Establishing the “BRVT Province development incentive program” corresponding to contribution to industrial development and environmental measures 【DOIT focus】	➢ Budget measure for establishment of the “BRVT Province development incentive program” 【MOF, MOIT】	➢ Confirmation/follow-up by the restructuring working team of economic structure and the industrial development regular consultation (twice in a year). 【Japanese Embassy, JICA, JETRO, intellectuals (National Graduate Institute for Policy Studies), experts (investment environment advisers), other related persons of Japan side】 (#) hereinafter, “BRVT/Japan Industrial Development Regular Consultation”
		Use/strengthening of local coordination consultation	➢ Leading consultation in Southern KEGR 【DPI】	➢ Supporting activation of Southern KEGR 【MPI】	➢ “BRVT/Japan Industrial Development Regular Consultation”
		Strengthening functions of Japan desks	➢ Confirming activities of existing Japan desks, strengthening necessary systems and close cooperation with the Japan Chamber of Commerce and Industry. 【DPI】	—	➢ Closely cooperating between the Japan Chamber of Commerce and Industry and the Japan desks. 【Japan Chamber of Commerce and Industry】 ➢ Considering dispatch of volunteers in the fields of investment promotion/private cooperation. 【JICA】
	Strategy ⇄	Promoting consultation with individual project body	➢ Consolidating the petro-chemical industry promotion consultation with SCG/PVN (use/strengthening the restructuring WT of economic structure, and requiring necessary support to the central government. 【DOIT】	—	➢ “BRVT/Japan Industrial Development Regular Consultation”
		Promoting human resources cultivation	➢ Further cultivating necessary skilled human resources for industrial development cooperating with local universities, industrial training schools. (use/strengthening the structuring WT of economic structure) 【DOIT, DONRE, DOET】	➢ Approving human resources cultivation to national universities 【MOET】	➢ Use of Japanese language volunteers dispatching to BRVT University. Newly considering dispatch of Japanese language volunteers and volunteers in the field of industrial human resources cultivation regarding quality control, productivity improvement, processing technology improvement, etc. 【JICA】 ➢ Use of results of grassroots technical projects. (Supporting SMEs human resources cultivation project) 【JICA】 ➢ Considering support through the strengthening project of industrial training functions (new yen-loan, accepted previous F/S.in Viet Nam government) 【JICA】
	Strategy ⇄	Introduction of SPP system	➢ The Province will encourage policies and development of institutions, cooperation with companies and consulting with the central government. 【DOIT】	➢ Acceptance of the SPP pilot project. 【MOIT, EVN】	➢ Works for the central government through cooperation between Japan and Viet Nam 【Japanese Embassy, JICA, JETRO, experts (investment environment advisers, Japan Chamber of Commerce and Industry, others in Japan side)】 ➢ Considering, as necessary, support by yen-loan/overseas investment and loan. 【JICA】 ➢ Considering indirect support by new technical projects 【JICA】

Actions Required (Proposal) (Target 2・3)

		Actions by BRVT Province	Actions by the Central Government	Actions by Japan side
Target 2	Strategy 1	Introduction of Clean Technology <ul style="list-style-type: none"> ➢ Financial support by BEPF [DONRE, DOF] ➢ Applying BRVT development incentive program. [DOIT, DONRE] 	<ul style="list-style-type: none"> ➢ Financial support to BEPF [MONRE, MOF] 	<ul style="list-style-type: none"> ➢ Implementing technical matching cooperating with Chubu Bureau of Economy, Trade and Industry, Kyushu Bureau of Economy, Trade and Industry, JETRO, domestic organizations of JICA, etc. [Bureau of Economy, Trade and Industry, JETRO, JICA] ➢ Considering, as necessary, support by yen-loan/overseas investment and loan. [JICA] ➢ Encouraging aggressive use of the private overseas development support project by Japanese companies. [JICA] ➢ Considering fund operation support by new technical projects. [JICA]
	Strategy 2	Expansion of functions of BRVT Province Environment Protection Fund <ul style="list-style-type: none"> ➢ Function strengthening of BEPF (consideration of individual financial resources) [DONRE, DOF] ➢ Requiring technical cooperation to the central government by JICA. [DPI, DOIT, DONRE] 	—	<ul style="list-style-type: none"> ➢ Considering, as necessary, support by yen-loan (TSL)/overseas investment and loan [JICA] ➢ Considering fund operation support by new technical projects. [JICA]
	Strategy 3	Establishing environment-friendly industrial parks <ul style="list-style-type: none"> ➢ Considering/specifying the standards of environment-friendly industrial park [BIZA, DONRE, DPI] ➢ Based on implementation of environment measures, accelerating approval of projects for limited business to invite on the Decision No. 2214, and considering on-site inspections. [DONRE, DPI] 	<ul style="list-style-type: none"> ➢ Approving the environment-friendly industrial parks [MPI] 	<ul style="list-style-type: none"> ➢ Supporting warranty standards, development of institutions, creating inspection manual, improvement of on-site inspection capabilities, etc. by new technical projects. [JICA]
Target 3	Strategy 1	Maintenance of Phuoc An bridge <ul style="list-style-type: none"> ➢ Continuously discussing with the central government whether public project or BOT project, and aiming application of commencement in 2020. [DOT] 	—	—
	Strategy 1	Maintenance of Bien Hoa-Vung Tau expressway <ul style="list-style-type: none"> ➢ Recruiting operator to implement cooperating with the central government, and aiming earlier start. [DOT] ➢ Requiring other finance including yen-loan to the central government. [DOT] 	<ul style="list-style-type: none"> ➢ Aiming earlier start. [MOT] ➢ Considering ODA. [MPI] 	<ul style="list-style-type: none"> ➢ “BRVT/Japan Industrial Development Regular Consultation”
	Strategy 2	Strengthening of functions of Cai Mep-Thi Vai port <ul style="list-style-type: none"> ➢ Consolidating liaison meeting with the related Provinces and cities, and organizing role-sharing among the ports. [DOT] ➢ Requiring consolidation of the CM-TV Port Management Board to the central government. [DOT] 	<ul style="list-style-type: none"> ➢ Consolidating the CM-TV Port Management Board. [MOT] 	<ul style="list-style-type: none"> ➢ “BRVT/Japan Industrial Development Regular Consultation”
	Strategy 3	Development Cai Mep Ha area <ul style="list-style-type: none"> ➢ Considering the development plans of logistics related facilities. [DOT] 	—	<ul style="list-style-type: none"> ➢ Considering necessary supports corresponding to formulating progress of the development plan of BRVT Province. [JICA]