



**ANNUAL ECONOMIC REPORT
MEKONG DELTA 2020**

Enhancing Competitiveness
for Sustainable Development

Head of the Steering Committee

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ANNUAL ECONOMIC REPORT MEKONG DELTA 2020

Enhancing Competitiveness for Sustainable Development

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A MESSAGE BY THE CHAIRMAN OF VIETNAM CHAMBER OF COMMERCE AND INDUSTRY

On your hand is the Annual Mekong Delta Economic Report 2020 themed "**Competitiveness Enhancement for Sustainable Development**". As the first and most complete economic report on an economic region in the country, it is conducted by the Vietnam Chamber of Commerce and Industry (VCCI) in collaboration with the Fulbright School of Public Policy and Management (Fulbright University Vietnam). This publication aims at assessing the 10-year development period of the Mekong Delta and envisaging its development prospects in the upcoming stage framed by the new development context of Vietnamese economy and the XIII National Congress of the Vietnamese Communist Party.

Over the years, the strategic role and position of the Mekong Delta in the socio-economic development of the country have been affirmed by Government's resolutions and the Prime Minister's decisions, including Decision 245/QD-TT by the Prime Minister in 2014 approving the master plan on socio-economic development of the key economic region of the Mekong Delta (including Can Tho City and provinces of Ca Mau, An Giang, and Kien Giang) to 2020, with a vision to 2030. The Decision highlighted that the Mekong Delta's key economic region provides the main production source of food, aqua products and fruits, making a significant contribution to the country's agri-aqua product exports as well as food security. Issued in 2017, Government's Resolution 120/NQ-CP on the sustainable development of the Mekong Delta with climate change adaptation reaffirmed the role and position of the Mekong Delta in its contribution to the total production of the country, namely 50% of rice production, 65% of aquatic products, 70% of fruits, 95% of rice exports, and 60% of fish exports.

Although the role and economic share of the Mekong Delta in the national economic development are significant, the implementation of many resolutions of the Party and the National Assembly as well as Government's policies has not lived up to the reality of the Mekong Delta development. The delay in the implementation of resolutions and policies is an obstacle to the region's socio-economic development. This, coupled with climate change - the biggest impact on the region, has driven the region's economy into the most difficult and challenging period in its history, also a national challenge.

The Party and State have paid special attention to this challenge through new resolutions and plans for the period up to 2030, with a vision to 2045. In 2018, the Prime Minister issued Decision 68/QD-TT, approving the revision of the Mekong Delta construction planning to 2030 with a vision to 2050. Most recently, The Prime Minister's Decision 1163/QD-TT dated July 31, 2020 has approved the planning tasks of the Mekong Delta for the period 2021-2030, with a vision to 2050. The planning of the Mekong Delta region, according to Decision 1163/QD-TT, has clarified the important position and role of the Mekong Delta, aiming at identifying development directions and ensuring the integration of the whole region to reach a relatively high development level by the national standard by 2045, as targeted in Government's Resolution 120/NQ-CP in 2017.

As a national representative of the business community, Vietnam Chamber of Commerce and Industry always involves in creating and improving the business environment and sustainable development through policy consultation and recommendations, placing business at the center of economic reform and development. Currently, most localities have determined that the improvement of the business environment and enterprise growth are the driver of local economic development. Government's Resolution 35/NQ-CP on business support and development to 2020, issued in mid-2016, underscores the views, directions, principles, and measures adopted by the Government for business support and development. It has shown a consistent focus on building and improving economic institutions and creating a favorable business-investment climate for businesses to develop and become a drive force of the regional economy. It is essential to build an economic structure that is both effective and nature-adaptive in response to climate change for the sustainable development of the Mekong Delta.

I highly appreciate the initiative and efforts by Vietnam Chamber of Commerce and Industry, Can Tho Branch, and the authors in the Editorial Board for the completion of this Report. This will be important database and information to advise the Party and the Government for orientation and policymaking on the Mekong Delta investment and development. It is also a useful tool for local leaders to formulate and administer socio-economic development policies of their provinces or cities. Also, the Report is a significant reference for domestic and foreign investors to distill information on investment and market expansion for their business development strategies in the Mekong Delta. I expect this Report to be an annual publication and important voice for the economic and business development of the Mekong Delta going forward.

Chairman of Vietnam Chamber of Commerce and Industry
Head of the Steering Committee for the Report



Dr. Vu Tien Loc

PREFACE

The Annual Mekong Delta Economic Report (hereinafter referred to as the Report) was conducted for the first time by a group of Vietnam's leading economists and policy experts under the leadership and coordination of Vietnam Chamber of Commerce and Industry (VCCI) and intellectual leadership of the Fulbright School of Public Policy and Management (FSPPM), Fulbright University Vietnam. This is the first research report on an economic region in the country, and the Mekong Delta was selected as a typical case of cohesion and consistency to develop an institution of economic region in the future.

Over the past decade, the Mekong Delta has been facing major external challenges from climate change such as saltwater, drought, erosion, inundation, and increasing environmental pollution as well as internal problems, including the decline in growth quality, low business competitiveness, unstable economic structure, inadequate quality of human resources, low labor productivity, and growing migration. All these issues place direct impacts on the socio-economic development that the Mekong Delta is and will be confronting. Meanwhile, the common wisdom on the Mekong Delta is always associated with such phrases as richness, advantageous resources, favorable nature and abundant labor, though the regional development over the past two decades has shown that it is not the case. Furthermore, despite investment in infrastructure, there are still too many points of congestion, especially in transportation connectivity. Lack of well-aligned planning and poor logistics also lead to cost increase in all stages of the production value chain, reducing the competitiveness of businesses and regional economy.

As regards social development, the quality of education has not kept pace with other regions, which is indicated by a high dropout rate and low education level. The Southwestern provinces' advantages such as the terrain, soil and moderate climate are no longer in place due to impacts by natural disasters and people. Other strengths previously built through efforts in reform and improvements of local economic governance are now eroding compared to other economic regions. The above challenges and limitations are driving the Delta into a conundrum that needs an in-depth and comprehensive study to address.

Expecting a new stage of development for the current regional economy, VCCI and FSPPM collaborated to conduct the Mekong Delta Economic Report. After a year's planning, the Editorial Board was formed and the theme of "**Competitiveness Enhancement for Sustainable Development**" was selected to be the focal point and driver for the Mekong Delta economic development in the coming years. It is unacceptable that an economic region with great potentials and contributions like the Mekong Delta is as fragmented and short of development motivation as ever. Leading economic experts in institution building, policies, economics, planning, environment and transportation were invited to jointly undertake the research report with full heartfelt energy. The Report summarizes the regional achievements of the past decade, highlights limitations in the development process, and outlines the opportunities and challenges that are and will be facing the Mekong Delta.

The Report was completed and launched at a very meaningful timing of the country: the 13th National Party Congress. The event is a milestone for the nation to enter an important development stage with numerous effective global trade agreements and many unprecedented opportunities and challenges faced by the economy in its development. That said, the report is both a valuable source of information for local authorities to utilize in its management and an important document to provide consultation for the Party, the National Assembly, and the Government in their directions, strategies, and sustainable development policies for this special economic region.

In the future, this Report will be conducted annually to continue researching, analyzing and evaluating major opportunities and challenges affecting the regional economy. This will provide insights for regulators, researchers, and the business community to adapt their action programs and bolster the Mekong Delta for the stable and sustainable development.

We hope this Report to be a useful document for those interested in the Southwestern economic region.

Vietnam Chamber of Commerce and Industry
Can Tho Branch
Director



M.Sc. Nguyen Phuong Lam

Fulbright University Vietnam
Fulbright School of Public Policy and Management
Dean



Dr. Vu Thanh Tu Anh

ACKNOWLEDGEMENT

This Report is the product of the continuous collaborative efforts between VCCI and FSPPM in more than a year of implementation. The Report is completed under the steering direction of Dr. Vu Tien Loc, Chairman of VCCI and Vice Chairman of the Prime Minister's Advisory Council for Administrative Procedure Reform, and its compilation and contents are guided by Mr. Nguyen Phuong Lam, M.Sc., Director of VCCI, Can Tho Branch. Economic data are collected and synthesized by VCCI Can Tho Branch's Department of Economic Consulting and Information, and compiled by the authors.

The research team is led by Dr. Vu Thanh Tu Anh, Fulbright School of Public Policy and Management, a member of the Prime Minister's Economic Advisory Group, in charge of developing topics and contents, shaping research methods, and presenting research outcome. The Editorial Board include Nguyen Xuan Thanh, Le Viet Phu, Huynh The Du, Hoang Van Thang, Tran Huong Giang, Vu Sy Cuong, Ngo Viet Nam Son, Le Anh Tuan, Luong Minh Huan, Le Duy Binh, Nguyen Phu Son, Tu Minh Thien, Ho Thi Thu Hoa, and Phan Dinh Hue as the experts, and Vo Thi Thu Huong as the coordinating secretary who has worked with the members for over a year.

The research outcome received profound criticism from Mrs. Pham Chi Lan, Senior Economist, former member of the Prime Minister's Research Board of and Dr. Nguyen Dinh Cung, former Director of Central Institute for Economic Management, and member of the Prime Minister's Research Board. In addition to scientific feedback, the Report also gain valuable comments from Prof. Dr. Vo Tong Xuan, People's Teacher, Rector of South Can Tho University; Mr. Phan Chanh Duong, Specialist, Lecturer of Practice at the Fulbright School of Public Policy and Management; Dr. Nguyen Van Sanh, former Director of Mekong Delta Development Institute, Can Tho University; Mr. Dau Anh Tuan, M.A., Head of VCCI Legal Department; Mr. Ho Quoc Luc, Chairman of Sao Ta Food Company; Ms. Truong Thi Le Khanh, Chairwoman of Vinh Hoan Corporation; Mr. Vo Quoc Thang, CEO of Dong Tam Company; Mr. Truong Tan Loc, Marketing Director of Saigon Newport Corporation, and Mr. Phan Xuan Anh, Director of Mekong Riverside Tien Giang. These are precious academic and practical critiques and comments that help best complete the Report.

Especially, the Compilation Board has received support, from the idea to the research implementation, of agencies in the Mekong Delta provinces and cities. The Editorial Board would like to express gratitude to the leaders of the People's Committees of the provinces, in which the research team received enthusiastic comments and assessment by Mr. Le Minh Hoan, Deputy Minister of Agriculture and Rural Development, former Secretary of the Dong Thap Provincial Party Committee; Mr. Le Tien Chau, Secretary of Provincial Party Committee and Chairman of People's Committee of Hau Giang province; Mr. Tran Viet Truong, Chairman of Can Tho City People's Committee; Mr. Truong Quang Hoai Nam, Deputy Head of External Relations Commission of the Party Central Committee, former Vice Chairman of Can Tho City People's Committee; Mr. Pham Thien Nghia, Chairman of People's Committee of Dong Thap province; Mr. Truong Thanh Tung, Deputy Director of the Voice of Vietnam in the Mekong Delta; and the heads of domestic and international agencies for their consultation and support. We acknowledge and appreciate the valuable and responsible contribution.

During the phase of report implementation, we have received the assistance of agencies, individuals, and international organizations in providing information, data, suggestions, exchanges, and sharing of experiences in various domains of expertise. The research team would like to thank Mr. Vo Tan Thanh, Vice President of VCCI, Director of VCCI, Ho Chi Minh City Branch; Mr. Le Van Nung, Deputy Party Secretary of An Giang province; Assoc. Prof. Dr. Nguyen Thanh Phuong, President of Can Tho University Council, Prof. Dr. Ha Thanh Toan, Rector of Can Tho University, Mr. Tran Quoc Ha, Director of the State Bank, Can Tho Branch, and VCCI Legal Department for their interests and support. We are sincerely grateful to the assistance of the Consul General of the United States, the Consul General of Singapore, and the Consul General of Cambodia to Ho Chi Minh City; the British Embassy and the Asia Foundation in Hanoi; Japan External Trade Organization (JETRO) in Ho Chi Minh City; European Chamber of Commerce (EuroCham), American Chamber of Commerce (Amcham) in Vietnam for their interests in and support for the research idea. Our thanks also go to the International Development & Investment Corporation (IDI), Vinh Hoan Joint Stock Company, Representative Office of Saigon New Port in the Southwest region, Can Tho Maritime Port Administration, Minh Phu Fisheries Joint Stock Company - Hau Giang, Sao Ta Food Joint Stock Company, Soc Trang Fisheries Joint Stock Company, Department of Planning and Investment of Soc Trang Province, Management Board of Can Tho Industrial and Export Processing Zone that have warmly welcomed and supported the team members in their field trips.

We would like to thank Artist Xuan Vinh for sketching the "struggling" picture following ideas from the Editorial Board to depict the Mekong Delta in the past with the desire to reach out to the large ocean, as the front cover for this important economic Report.

Once again, our sincere thanks are conveyed to the invaluable support and contribution by the experts, leaders, agencies, organizations, and businesses for the successful completion of this Annual Mekong Delta Economic Report 2020 that serves the research, policy consultation, economic management, and the needs for socio-economic information of the Mekong Delta.

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LIST OF ABBREVIATIONS

AFTA	ASEAN Free Trade Area
ARD	Agriculture and Rural Development
ASC	Aquaculture Stewardship Council
ASEAN	Association of Southeast Asian Nations
BMP	Best Manufacturing Practice
BOP	Balance of Payment
BOT	Build-Operate-Transfer
CPI	Consumer Price Index
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
ESCO	Energy Service Companies
EU	European Union
EVFTA	EU-Vietnam Free Trade Agreement

EVN	Vietnam Electricity
FDI	Foreign Directed Investment
FIT	Fit-In-Tariff
FTA	Free Trade Agreement
GDP	Gross Domestic Product
Global GAP	Global Good Agricultural Practice
GRDP	Gross Regional Domestic Product
GSO	General Statistics Office of Vietnam
HACCP	Hazard Analysis and Critical Control Points
HCMC	Ho Chi Minh city
HSBC	The Hongkong and Shanghai Banking Corporation
ICD	Inland Container Depot

ICT	Information Communications and Technology
IMF	International Monetary Fund
IT	Information Technology
M&A	Merger and Acquisition
MOIT	Ministry of Industry and Trade
MT	Metric Ton
OECD	Organization for Economic Cooperation and Development
PCI	Provincial Competitiveness Index
PHC	Packing House Code
PPA	Power Purchase Agreement
PUC	Product Unit Code
SIPAS	Satisfaction Index of Public Administration Services

TEU	Twenty-foot Equivalent Unit
TIN	Treat Inspection Number
UNCTAD	United Nations Conference on Trade and Development
UNWTO	World Tourism Organization
USAID	United States Agency for International Development
USD	United States Dollars
VASEP	Vietnam Association of Seafood Exporters and Producers
VCCI	Vietnam Chamber of Commerce and Industry
VFA	Vietnam Food Association
VLA	Vietnam Logistics Business Association
VLI	Vietnam Logistic International Corporation
WB	World Bank

EXECUTIVE SUMMARY

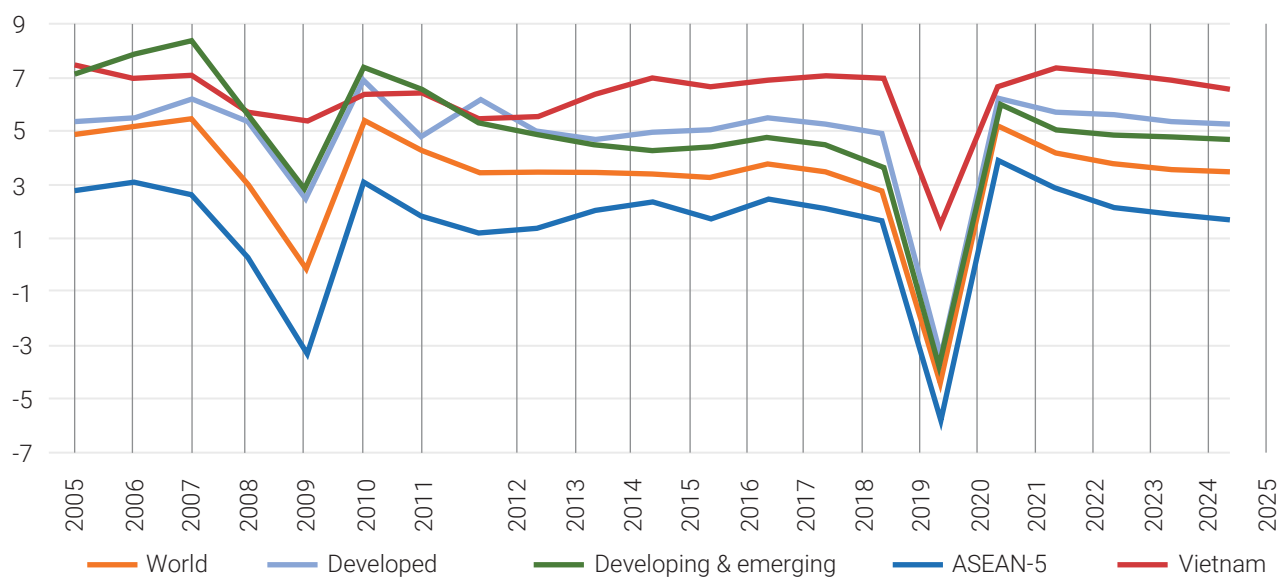
Global and domestic economic context

Before the Covid-19 pandemic, the world economic growth had slowed down and became a "new normal". This will be exacerbated by the Covid-19 pandemic with an even more serious impact than the 2008-2009 global financial crisis. Not only will the world economy slow down, but also get more uncertain. International organizations such as the World Bank (WB) or the International Monetary Fund (IMF) forecast that the global economy will recover in a V-shape by 2021 before returning to a pre-Covid-19 state.

In line with this context, several emerging trends are directly impacting the Vietnamese economy, including the Mekong River Delta (Mekong Delta).

■ Global foreign direct investment (FDI) inflows continued to decline from 2015 to 2019. According to UNCTAD's forecast, global FDI will be shrunk by up to 40% in 2020, then another 5 - 10% by 2021, due to the COVID-19 crisis and only get recover in 2022. Yet, even then the recovery will be slow, while uncertainty remains high. FDI inflows to Asian developing countries, including Vietnam, in 2019 have decreased by 5% compared to 2018 and are forecast by UNCTAD to decline by 30-45% in 2020 due to the breakdown of the supply chain, the need to diversify production locations to limit risks, and the nationalist movement. This implies that the level of competition to attract FDI among developing countries will get more intense, especially for capital- and labor-intensive economies like Vietnam.

Figure 0.1. GDP growth – the world and nation groups (2005 – 2025)



Source: IMF, World Economic Outlook, October 2020

■ The decline in and movement of investment flows across borders and the US-China trade war lead to a drop in global production and trade. Optimistically, the development of science and technology associated with digital revolution, artificial intelligence (AI), Big Data is the driver of the world's economic recovery and development. The industrial revolution 4.0 and the development of the digital economy may open countless opportunities for late-coming countries to catch up with developed nations yet concurrently carry the risk of falling further behind. Either scenario depends on these countries' preparation and accumulation of scientific and technological capacities.

■ Rising protectionism coupled with increasingly stricter demands of international consumers pose many non-tariff barriers to developing countries' exports. In the short term, these barriers will undoubtedly limit the export of all nations. But in the medium to long term, they will become a screening mechanism for the most capable exporters, and thus lay positive impacts on promoting the quality and standards of exports of developing countries, including Vietnam.

Domestically, by the Covid-19 pandemic the economic growth had sustained a relatively high rate of 6.8% on average between 2016 and 2019. The macroeconomy was stable with low inflation, growing domestic consumption, slight decline in credit reliance, surplus in balance of payments, and decline in both public debt and budget deficit.

The demand-pulled growth drivers of the Vietnamese economy are consumption, investment, and exports (especially FDI). On the supply side, the driving forces come from manufacturing (also reliant on FDI) and services.

Thanks to its political stability and high economic growth, Vietnam will continue to serve as an attractive destination for international capital flows. The ability to absorb these capital flows, however, efficiently depends on the quality of infrastructure, human resources, and institutional reform - the three fundamental bottlenecks of the Vietnamese economy.

Table 0.1. Comparative macro-economic indicators 2011-15 & 2016-19

Macroeconomic indicators	2011 - 15	2016 -19
GDP growth	5.9%	6.8%
State budget overspending/GDP	5.4%	3.5%
Credit growth	12.9%	16.0%
Inflation	6.7%	3.9%
VND/USD depreciation rate	8.3%	2.6%
Trade of goods deficit/GDP	-1.5%	2.2%
Current account deficit /GDP	2.9%	1.7%
Debt	2016	2019
Public debt/GDP	63.7%	55%
Government debt/GDP	52.7%	48%
Foreign debt /GDP	49.0%	47.1%
Productivity	2011 -15	2016-19
Productivity growth rate	4.3%	5.8%
TFP share in GDP	37.1%	47.3%
ICOR	6.3	6.1

The Vietnamese economy was severely affected by the COVID-19 pandemic and the global economic crisis. As regards the Mekong Delta, due to underdeveloped industrial activities, high share of agriculture, and tourism mainly serving domestic tourists, the impact of the Covid-19 pandemic on the Mekong Delta economy is considered milder than other industrial, commercial, and tourist centers of the country. The regional growth in the first 6 months of 2020 reached 2.08%, higher than that of the national average (1.81%) yet the lowest for many years. The number of newly established enterprises decreased by 2.9% y-o-y, while the production and export of several key products such as pangasius, shrimp and fruits declined by -39.0%, -14.5% and 21.0% respectively due to a temporary supply chain interruption in the early stages of the pandemic outbreak in China.

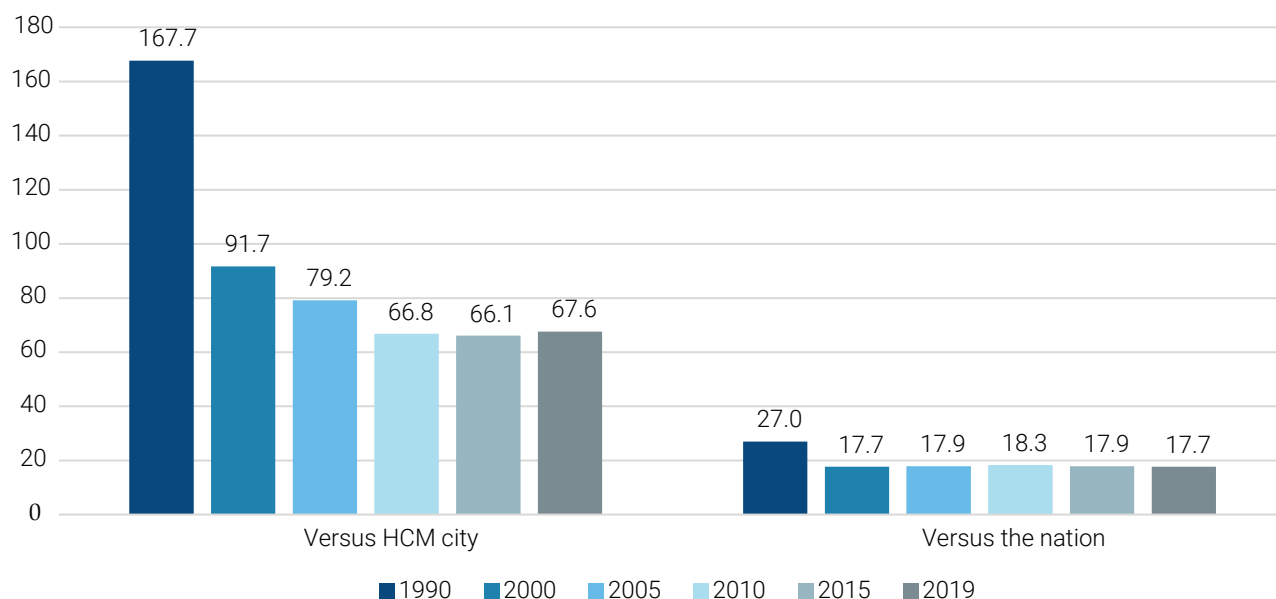
In the context of a complicated and possibly prolonged pandemic, however, the Mekong Delta will likely face certain adverse consequences stemming from its unique role and internal structure. First, the suspension of rice export can occur any time to protect national food security. This policy will significantly affect the purchase price of agricultural products and livelihoods of the people in the Mekong Delta. Second, the supply chain and export of goods will continue to be interrupted or even frozen when the pandemic grows out of control. At the same time, the logistics cost, already deemed high, will increase due to the expenses for pandemic prevention and safety. Third, despite the recently growing remittance flow into the Mekong Delta thanks to labor export and marriage with foreigners, it will likely decline because of the prolonged COVID-19 that incurs the expatriate income reduction and the risk of exported workers' job loss. Fourth, the wave of repatriation of the Mekong Delta people working in the Southeast or abroad may become a burden to the region. Fifth, amid the uncontrolled pandemic, prolonged drought, and more serious saline intrusion, the frequency of extreme weather is getting denser, which exacerbates the unstable socio-economic environment and the growing economic and psychological burden on regional businesses, people and governments. Sixth, the over-reliance on the Chinese market, combined with COVID-19 troubles, drought and saltwater intrusion, could become a pressure on transforming the regional structure and model of agricultural production.

10 years' economic development of the Mekong Delta 2009 – 2019: A review

After over three decades of Doi Moi (rennovation), the Mekong Delta has yet brought prosperity to most of its people, despite successful hunger eradication and poverty reduction. This is evident by its significantly slowing development rate, its residents' living standards lower than the national average, and its increasingly falling behind in most dimensions of socio-economic development.

The economic role of the Mekong Delta is decreasing compared to other regions of the country (Figure 0.2). The Mekong Delta share to gross domestic product (GDP) has declined sharply over the past three decades. The GDP of Ho Chi Minh City in 1990 was only 2/3 of that of the Mekong Delta. Two decades later, this rate was completely reversed and remains until today. This also implies, despite its advantageous adjacency to Ho Chi Minh City as well as the dynamic and emerging Southeastern key economic region, that the Mekong Delta seems to benefit insignificantly from this connection and even falls behind further and further. One important reason for the lower GDP growth of the Mekong Delta than HCMC and the Southeast is the fact that the Delta is mandated to protect national food security, so it must focus on agriculture and rice production, and thus slowly transition to higher-productivity industries.

Figure 0.2 . GDP share of the Mekong Delta vs. Ho Chi Minh City's and the country's (%)



Note: Constant price of 1989 for 1990, constant price of 1994 for 2000-2010, constant price of 2010 for the remaining years.

Source: Statistical Yearbook of Vietnam, Ho Chi Minh City and the Mekong Delta provinces

The disparity in living standards and lack of economic opportunities are two important reasons for the migration of the Delta residents to Ho Chi Minh City and the Southeast. As a result, compared to other regions, the Mekong Delta has the lowest immigration yet the highest migration rate and is therefore the only region with a population growth rate of 0.0% between 2009 and 2019 (Table 0.2).

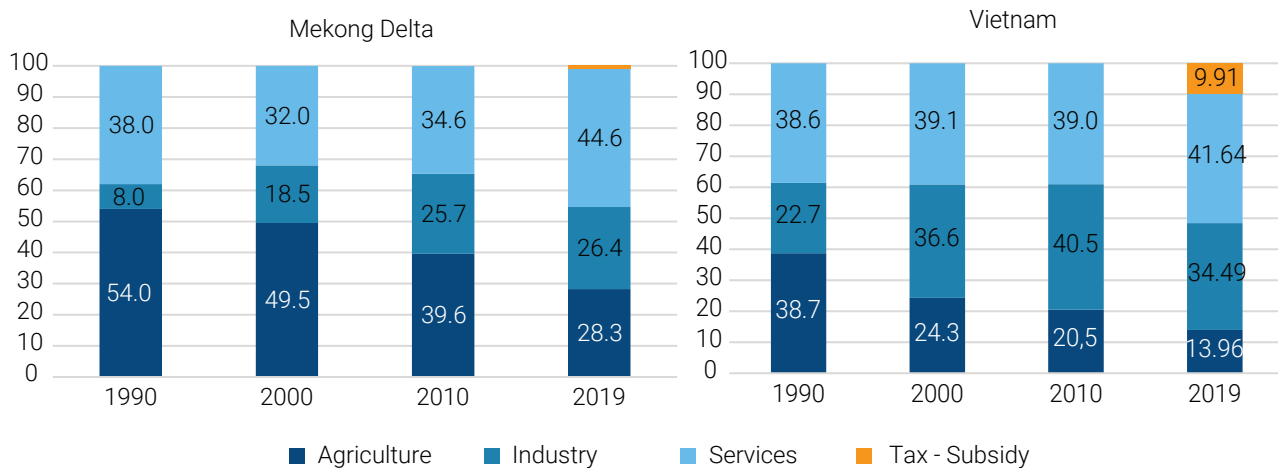
Table 0.2. Population shift and regional migration (2009 – 2019)

Region	2009		2019		2009 - 2019			
	Population (million)	Share	Population (million)	Share	Population growth	Immigration (%)	Emigration (%)	Net Immigration (%)
Northern Highland and Mountainous	11.1	12.9%	12.5	13.0%	1.2%	5.2	23.1	-19.6
Red River Delta	19.6	22.8%	22.5	23.4%	1.4%	16.6	9.1	9.7
Northern Central and Central Coast	18.8	21.9%	20.2	21.0%	0.7%	4.9	29.6	-25.2
Central Highland	5.1	6.0%	5.8	6.1%	1.4%	11.1	23.2	-13.5
Southeast	14.1	16.4%	17.8	18.5%	2.4%	80.3	7.5	70.7
Mekong Delta	17.2	20.0%	17.3	18.0%	0.0%	4.9	44.8	-38.9
Country	85.9	100.0%	96.2	100.0%	1.1%	22.2	22.2	0.0

Source: Calculated from the 2009 and 2019 Censuses

The 2010-2019 decade witnessed a strong economic structural transformation in the Mekong Delta. The share of agriculture sector has decreased from 39.6% in 2010 to only 28.3% in 2019, much faster than the rate of structural transformation in the previous two decades. Likewise, the shares of industry-construction and service are also changing drastically, approaching closer to the national economic structure. Room for structural transformation, however, is not infinite. With inherent natural features, it is impossible and inadvisable to require the Mekong Delta to reach the same economic structure as the whole nation.

Figure 0.3. GDP structure of the Mekong Delta 1990 – 2019 (%)



Source: Data compiled from Nedeco (1993), Can Tho Statistical Office (2010), Ho Chi Minh City Institute for Development Studies (2011), Statistical Yearbook of the Mekong Delta and Vietnam.

The Mekong Delta’s strong rate of economic restructuring is also reflected in data of its labor structure. By 2010, 62.2% of workers in the Mekong Delta were still in the agricultural sector (versus 48.7% for the country). However, by 2019 this rate fell to only 43.3% thanks to the robust labor structure transition from agriculture to industry and services. As noted, obviously, the transition from agriculture to others is not infinite, so it is undesirable to expect the rate of labor transition in the past decade to accelerate in the next one.

An outstanding achievement of the Mekong Delta over the past two decades has been the poverty reduction. The poverty rate, according to the Government’s poverty line, of the Mekong Delta has decreased from a very high level of 36.9% in 1998 to only 12.6% in 2010 and 5.2% in 2016, and it continued declining in the 2016-2019 period. Additionally, it is always lower than the national average (Table 0.3). Poverty reduction outcomes demonstrate that the growth benefits are widely shared and that the poor have also benefited from the region’s overall economic development.

However, most of the poverty in the Mekong Delta (as well as the whole country in general) was reduced in the six years between 1998 and 2004. On the one hand, this suggests that the easy part of poverty reduction is almost over, and thus the poverty reduction outcome will be more and more humble. On the other hand, poverty reduction will be, from now on, more fragile and reversible under the impacts of domestic and international economic, environmental, and pandemic risks. The achievement of poverty reduction for the Mekong Delta and the whole country can only be sustained if the economic growth rate is kept high and stable. This, in turn, depends on investment in infrastructure as well as the development of education, training, health, and technology (especially information and biology) to increase productivity and added value in existing jobs and improve access to new job opportunities, thereby raising labor productivity and generating higher and more stable income for employees.

Table 0.3. Urban, rural and regional household poverty rate (%)

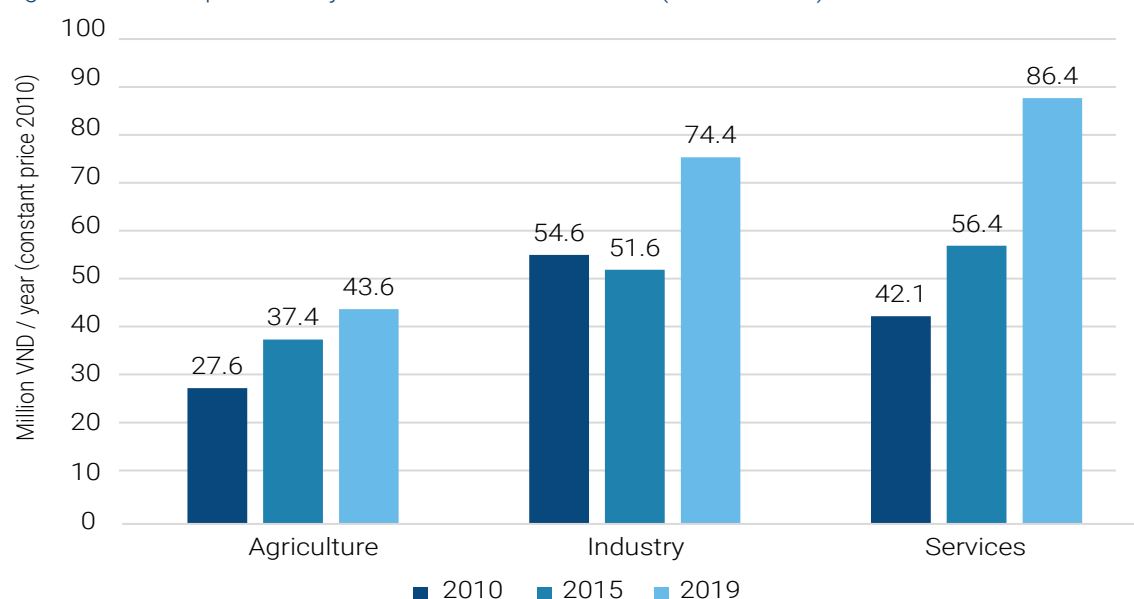
	Government poverty standard						Multi-dimensional poverty standard		
	1998	2004	2010	2012	2014	2016	2016	2017	2018
Overall national poverty rate	37.4	18.1	14.2	11.1	8.4	5.8	9.2	7.9	6.8
Region									
Red River Delta	30.7	12.7	8.3	6.0	4.0	2.4	3.1	2.6	1.9
Northern Highland and Mountains	64.5	29.4	29.4	23.8	18.4	13.8	23	21	18.4
Northern Central and Central Coastal	42.5	25.3	20.4	16.1	11.8	8.0	11.6	10.2	8.7
Central Highland	52.4	29.2	22.2	17.8	13.8	9.1	18.5	17.1	13.9
Southeast	7.6	4.6	2.3	1.3	1.0	0.6	1.0	0.9	0.6
Mekong Delta	36.9	15.3	12.6	10.1	7.9	5.2	8.6	7.4	5.8

(*) The Government's poverty line for the 2011-2015 period is calculated based on the average household income per capita per month, updated by the consumer price index, as follows: it was 400,000 VND for rural areas and 500,000 VND for urban areas in 2010; similarly, 570,000 VND and 710,000 VND in 2013; 605,000 VND and 750,000 VND in 2014; 615,000 VND and 760,000 VND in 2015; and 630,000 VND and 780,000 VND in 2016.

Source: Statistical Yearbooks

Labor productivity - measured by the average GRDP produced by a worker over a year - of the three economic sectors in the Mekong Delta is shown in Figure 0.4. Until 2010, the labor productivity of industry sector was significantly higher than that of service sector, which was, in turn, much higher than that of agriculture sector. However, the relation of productivity among the three zones has changed rapidly since 2010 due to aftershocks of domestic macroeconomic instability and the global financial crisis. In the 2010 – 2019 time-window, the labor productivity of the agriculture-forestry-fisheries and service sectors increased rapidly, with an average of 5.2% and 8.3% respectively. Notably, the labor productivity growth rate of industry-construction sector in the same period was only 3.5% per year - much lower than the agriculture-forestry-fisheries sector which inherently has little room for productivity increase. By 2015 the labor productivity of service sector had surpassed that of industry sector by approximately 10%; and by 2019 the labor productivity of service sector has affirmed its supremacy to the other two zones by 16% higher than industry sector and almost doubled that of agriculture sector.

Figure 0.4. Labor productivity of three economic sectors (2010 – 2019)

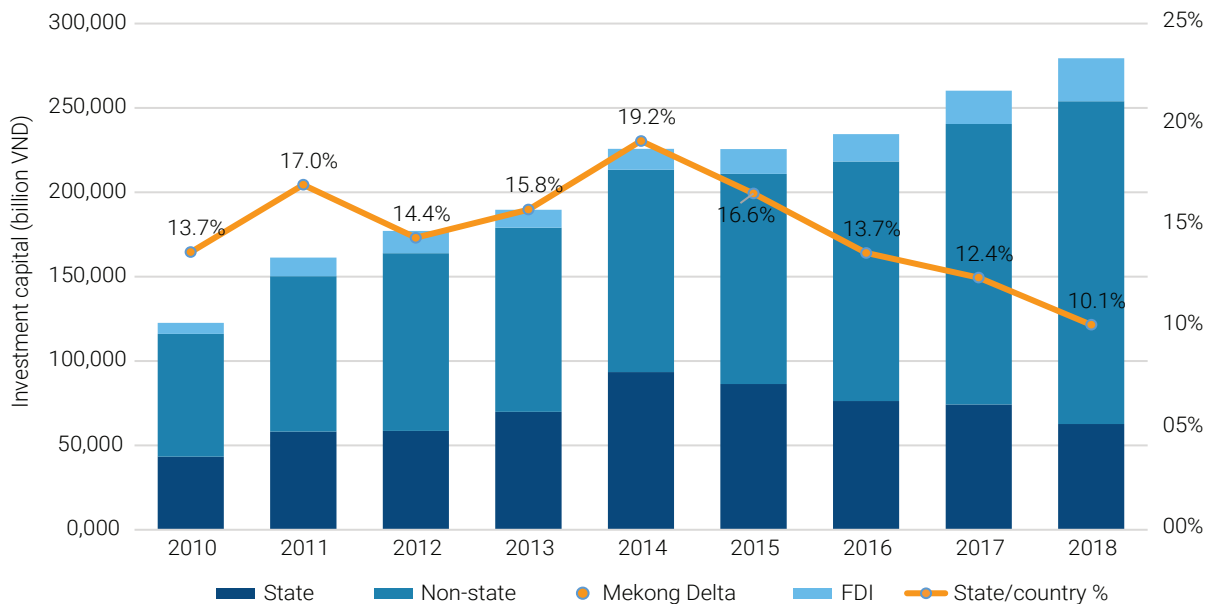


Source: Calculated from Mekong Data socio-economic data

There are three direct causes of the worrisome situation of the industrial productivity growth in the Mekong Delta. First, industrial productivity is dependent on investment, yet the most important source of investment in Vietnam comes from FDI, an inherent weakness of the Mekong Delta. Second, the most significant industrial production in the Mekong Delta is seafood processing, but the growth rate of this industry is both small and subject to the fluctuation risk of not only of climate and nature but also the 2008 global financial crisis. The Covid-19 pandemic may exacerbate this situation, constraining the industrial development of the Mekong Delta at least in the medium term. Third, the remaining industrial production of the Mekong Delta is generally quite stagnant; if there is any growth, it mostly comes from labor-intensive manufacturing and processing operation with low value. More broadly, the Mekong Delta's industry and its socio-economy in general are hindered by a serious bottleneck in infrastructure, especially the transport system connecting to the Southeastern region.

While the processing and manufacturing industry and infrastructure are two important bottlenecks for the growth of the Mekong Delta, the proportion of the region's total investment to the whole country has been declining, especially since 2015. Moreover, investment sources from the state sector are increasingly narrowed both in absolute size and relative proportion (41.4% in 2014 down to 22.4% in 2018).

Figure 0.5. Total investment in Mekong Delta (2010 – 2018)



Source: Authors' compilation and calculation from GSO and provincial Statistical Yearbook

The Mekong Delta has not really proved attractive to FDI. The region's FDI accounts for only 5.6% of national projects and 8.4% of registered capital, mainly due to disadvantages of geography and transport connectivity. Long An and Tien Giang are the region's most attractive destination for FDI thanks to the highways connecting Ho Chi Minh City. Kien Giang attracts FDI better than the remaining provinces thanks to tourism in Phu Quoc, while Tra Vinh's FDI is reliant on the Duyen Hai thermal power plant complex.

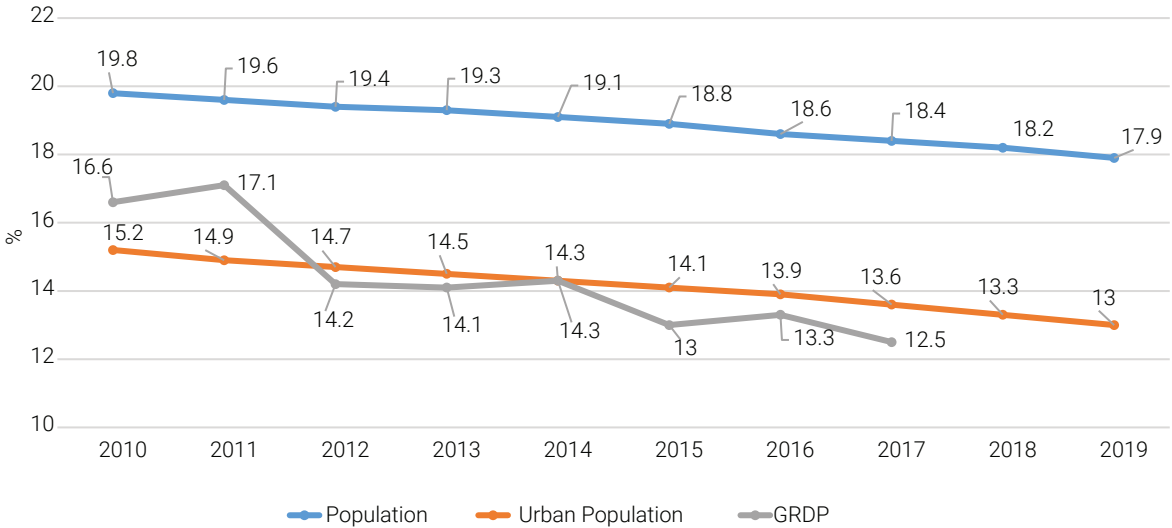
Overall, the most important investment need in the Mekong Delta is the development of transport infrastructure (bridges, highways, and inter-provincial roads), support for reforming the model of agricultural production towards industry and adaptation to climate change, and processing of agri-aqua products. In recent years, the critical bridges in the Mekong Delta have been significant, but many other important ones have yet to be built. Many irrigation and saltwater-preventing projects, albeit successful in intensive cultivation and rice yield increase, have basically failed to add value or transform agricultural structure, yet even harmed the economic and environmental sustainability in the future.

While the remaining investment needs have not attracted adequate attention, due to both objective factors (regional attractiveness and limited central budget) and subjective ones (unclear regional development strategy and competition across localities due to similar characteristics), many investments are trade-offs between the economy and the environment.

Alongside with and closely integrated to industries are urban development and business growth. Urbanization generates a concentration of resources with a large scale and high density, integrating economic activities, reducing costs of transporting goods and people, facilitating industrial activities and services, promoting innovation and creativity, thereby diversifying and enhancing economic productivity.

The Mekong Delta is currently located in “low-lying land” in terms of urbanization in Vietnam which is, in turn, a low-urbanized area compared to major regional economies. According to the Census of Population and Housing, the population of the Mekong Delta was 17.3 million as of April 1, 2019, almost unchanged from 17.2 million 10 years ago. The net number of migrants out of the Mekong Delta in the past decade is nearly 1.1 million people, which is larger than the population of several regional provinces and equivalent to the natural population growth of the whole region. While the Mekong Delta accounts for nearly 18% of the country's population, the region's urban population increased only 403,000 people between 2009 and 2019, approximately 5.3% of the country's urban population growth. The urbanization rate of the whole region in 10 years increased slightly from 22.8% to 25.1%, while that of the country increased from 29.6% to 34.4%. As a result, the urban population gap between the Mekong Delta and the country is widening (Figure 0.6).

Figure 0.6. National share of Mekong Delta's population, urban population and GRDP



Source: Compiled from official statistics

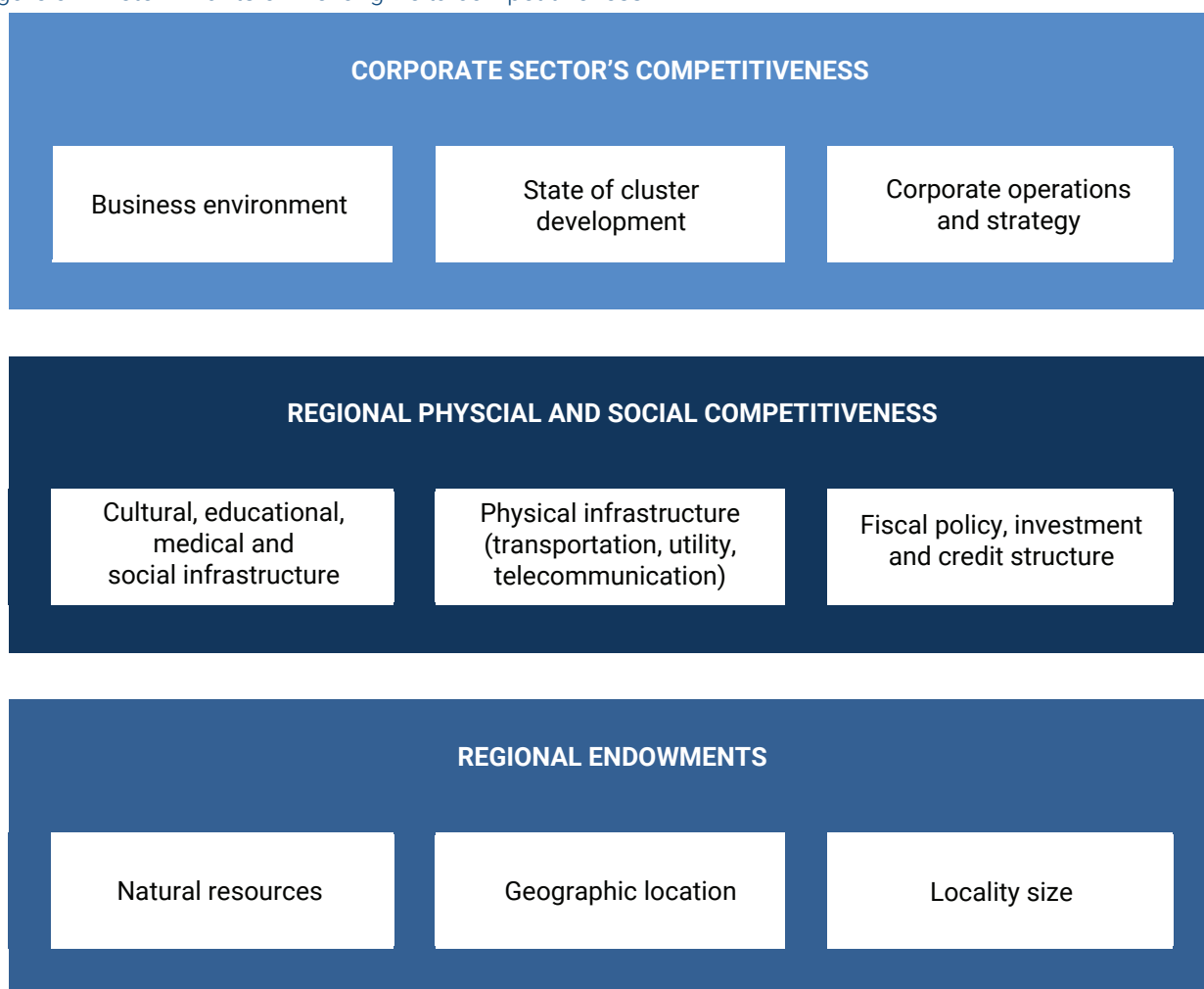
Looking forward, it would be very difficult for the Mekong Delta, unless with revolutionary breakthroughs, to reach a higher growth rate of the overall population and urban population in the next 10 years. In fact, the annual population of the region has decreased by 0.3% per year in the last two years and the urban population has only increased by about 0.6% per year. If the current migration trend continues, which is very likely, the population of the whole region will be less than 17 million people and its urbanization rate will hardly reach 30% by 2030.

To mitigate the challenges to and disadvantages of the Mekong Delta as well as respond to climate change, it is essential to redistribute population, gradually eliminate residents' practice of living along the transportation routes and concentrate the population on townships, towns, and cities to improve the provision efficiency of essential infrastructure and social services. To implement this strategy, it is necessary to make a methodical and consistent socio-economic and environmental plan, while the Central government needs to devote sufficient resources to build transport infrastructure connecting to the Ho Chi Minh City region.

Assessment of Mekong Delta competitiveness

In this Annual Mekong Delta Economic Report (Report), competitiveness is measured by productivity. Therefore, the key question to answer is: What are the determinants of productivity and the rate of productivity growth? Using the analytical framework by Michael Porter, the Report analyzes three groups of determinants of the Mekong Delta competitiveness, including (i) Local endowments (ii) Local competitiveness; and (iii) Corporate competitiveness (Figure 0.7).

Figure 0.7. Determinants of Mekong Delta competitiveness



Source: Adapted by the Fulbright School from Michael Porter (1990, 1998, 2008).

Regional endowments

Located at the southern end of the country, the Mekong Delta is a delta region with very young geological age, formed approximately 7,000 – 9,000 years ago due to the continuous accretion of currents and sediments of the Mekong River basin and the sea level decline more than 4,000 or 5,000 years ago. This quite yet continuous accretion has created a fertile Mekong Delta with a total natural area of 40,572 km², accounting for 12.3% of the country's land area. The Mekong Delta's maritime exclusive economic zone spans approximately 360,000 sq km, nine times larger than its land area. With a vast and fertile plain area, a dense river system, two fronts bordering the sea and a coast more than 732 km long, the Mekong Delta is endowed with advantageous agri-aqua production across the areas of fresh water, brackish water, and saltwater. Thanks to the friendly and favorable nature, agricultural cultivation needs little effort, requiring no invention, improvement, or application of complex techniques from farmers.

Farming practices based mainly on existing advantages and the mindset of improving productivity through overexploiting natural resources are resulting in ecological imbalance as a manifestation of a resource curse in the Mekong Delta. In fact, the region's endowed advantages are gradually being eroded by external factors as well as internal agricultural and fisheries policies and habits. The prolonged movement of intensive three-crop rice cultivation caused a decline in quality of agricultural land and soil degradation in the ring dike for not receiving alluvium, leading to a maximized abuse of chemical fertilizers and pesticides.

Currently, water resources in the Mekong Delta continue facing five frequent challenges, including two issues of water quantity (inundation and drought) and three of water quality (depletion of sediment, salinity, and water pollution). This hardship is getting worse due to the simultaneous impacts of many factors: climate change, sea level rise, transboundary water issues such as projects of upstream hydroelectricity reservoirs, increasing deforestation, change in land use, urbanization, narrowing natural wetlands, risk of water transfer, and extraction in the dry season and water pollution from increasing industrial and agricultural activities along both river sides.

Going forward, climate change, sea level rise and impacts on transboundary water resources will remain huge challenges that threaten the sustainable socio-economic development of the Mekong Delta agriculture. The Government is aware that these risks are not only local but also challenging to the South and the whole country, so there must be timely, proper strategies and policies. For rice production, it is necessary to adjust the crop calendar in time and speed up research to find new rice varieties that can better tolerate drought and salinity. Measures need to be realized in the principle of "no regrets", including construction works such as salinity prevention, freshwater preservation, groundwater extraction, dredging, strengthening systems of canals to increase efficiency of water use, and building and exploiting renewable energy sources (wind, solar, biomass, flows) for production and living. Regional and provincial development planning and schemes ought to follow the "nature-adaptive" and "people-accepted" guidelines of Resolution 120. The most important yet often overlooked factor in the strategy of water protection in general and in the Mekong Delta river basin is to involve the community as the true owners of this precious resource.

The economic size of the Mekong Delta is also an important endowed factor that determines the attractiveness to investors seeking local markets. In this respect, the Mekong Delta is facing a relative disadvantage, particularly compared to the Southeast, as the Delta's population size, expenditure level, and population concentration are all falling further and further behind. For example, the income of the Mekong Delta population is equal to about only 60% of that of Ho Chi Minh City, and only 86%, the consumer market size. In this context, unless the infrastructure for the Mekong Delta is rapidly developed, its human resource quality improved, and its unsustainable agricultural and fisheries production practices changed, its lack of attractiveness and hence its economy falling behind is inevitable.

Regional social and physical competitiveness

Infrastructure: Transport is one of the most important, if not the most, factors in the development dynamics of underdeveloped localities. In the Mekong Delta, the weakness of the transport system for intra-region as well as for connecting to Ho Chi Minh City and the Southeastern region is an important bottleneck for its development.

As at the time of this Report publication, the whole Mekong Delta has only 45km of highway, accounting for about 3% of the nation's highway length. The common primary road in the region has only two car lanes and one motorbike lane for each side with a median divider, while some major roads have only one car lane and one motorbike lane on each side with no divider. Some major roads along the river are also affected by landslides. The capacity to transport goods from the production and farming areas to the factories and major roads is also limited and still heavily reliant on inland waterway transportation.

Although the region's primary transportation axis of highway is already in the pipeline, it has yet been completed or invested. The Trung Luong-My Thuan highway is still in progress yet its completion date cannot be determined. The My Thuan-Can Tho highway has not started yet. Also, the Can Tho-Ca Mau highway - only in the feasibility study phase - is expected to be completed in the 2021 – 2025 period, yet nothing is certain. Meanwhile, the horizontal axis from Soc Trang-Can Tho-Chau Doc continues to be planned in the next phases, but the ability to raise capital is unclear and the starting time yet determined.

In the context of limited investment resources and the constrained ability to call for private participation due to current PPP mechanisms as well as the failures of implemented PPP projects, what can be done immediately is to upgrade existing national roads. However, even this solution is also facing challenges because of the huge need of investment in road improvement which can only be covered for about 35% by the road maintenance fund. Meanwhile, new investment resources continue to be dispersed in coastal and belt roads with very low demand and volume of cargo as well as lack of connectivity to major roads. This situation partly reflects the limited resources for investment in transport infrastructure, and indicates the lack of linkage in the proposal as well as the selection of investment priorities among provinces in the region. As the ability to call for PPP is infeasible, the concentration of resources for two arterial highways should be considered as a top priority by all provinces in the region in the 2021 - 2025 timeframe.

The Mekong Delta has always been mentioned as a potential area for utilizing waterway transport. At present, inland waterway transport, however, is only used for gathering and collecting goods on a very limited scale. Compared to road, waterways have an advantage in transporting large tonnage due to lower unit costs, but incur cost of loading and unloading at each port and higher transit time, so it is not suitable for frozen agri-aqua products. As a result, 70-75% of the Mekong Delta's exports are currently being transported to the port clusters in Ho Chi Minh City and Cai Mep - Thi Vai, while the port clusters in the Mekong Delta are underused. For imports, transportation demand mainly serves several specific projects in the region such as thermal power (coal) or electricity (gas turbines) which do not have stable and long-term growth potential.

Recently, the deep-water port project of the whole region has been considered again. However, the two biggest questions are where the investment comes from and how will the financial, economic, and social feasibility of this project look like? Let us take the Tran De deep-water port project as an example. According to experts, the current usage of cargo terminal is only about 10-15% of the designed capacity of Tran De port because not all goods in the region will choose the connection via Soc Trang to the Tran De port, particularly from the western and northwestern provinces. Meanwhile, the viability of new sources of goods in the region is not high, especially given that the investment environment in the Mekong Delta is significantly affected by future sea level rise. Transportation connected with Tran De port has not been invested and well aligned either. The demand for investment resources is large in the context of a limited budget and small chance to mobilize private investment due to the very low financial feasibility of the project. Besides, the spillover impact of investment in Tran De port on economic or urban-residential development is not crystal-clear compared to road transportation development. Therefore, if regional localities do not clearly identify the priority between the completion of the arterial transportation axis and the development of deep-water ports for the whole region, the expectation for a complete, diversified and well-connected transportation system for the Mekong Delta will still be just on the paper as in previous periods.

With respect to air transportation, Can Tho International Airport is the hub of the whole region, but the utilized capacity is only about 25%. The utilized capacity of Ca Mau or Rach Gia airport (Kien Giang) is not better either. Phu Quoc International Airport (Kien Giang) has the highest utilized capacity in the region, but mainly serves the travel of tourists to Phu Quoc, so its impacts do not spread to the whole region. In fact, nationwide, apart from the profitable Tan Son Nhat, Noi Bai, and Da Nang airports, most of other airports are compensated for their annual loss. In this context, the proposal to invest in new airports in the Mekong Delta is both unreasonable and impossible. Investing and upgrading ground transport infrastructure to ensure smooth connection between the economic centers of the Mekong Delta and the Southeast region plays a much more important and practical role.

Human capital: Human capital is a highly decisive resource for competitiveness. Physical strength, mentality and personality are the three main components of the quality of the workforce in each locality. On that basis, social culture, education and health are the input factors that affect the human resource characteristics of the Mekong Delta.

With regards to culture, the Mekong Delta is a multicultural land, a convergence place, and shared residence of many communities, both indigenous people and immigrants to "conquer wild land and set up the hamlet". This creates an extremely rich resource for tourism, but at the same time limits the possibility of cooperation between different communities. In addition, the characteristic of "villagers come first, the government follows", along with religious activities and festivals taking place throughout the year, makes residents' working style undisciplined and unprofessional. Thus, the diversified and rich traditional cultural values inherited from history and religion that were once the pride of the Mekong Delta people are partly hindering the industrialization and modernization of the regional economy of the region. Favorable nature also demotivates human resources from changing and developing themselves to adapt to the new requirements and contexts.

With regards to general education, the Mekong Delta has long been considered the "low-lying area" of education and training across the nation with a high drop-out rate, limited infrastructure, and the proportion of local budget spending on education lower than the national average. Notably, although the primary school attendance rate in the Mekong Delta is the highest in the country, it started to decline sharply from the junior high school to the senior high school, making the school attendance rate of the Mekong Delta the lowest nationwide. Within the Mekong Delta, areas that have advantages in economic development and potential career opportunities have higher attendance rates. Therefore, to increase the school attendance rate (and reduce the dropout rate), it needs to develop the economy, create more jobs, and livelihood opportunities rather than to increase subsidy or advocacy.

With regards to higher education, although there are many large local universities in the Mekong Delta, especially the ones in Can Tho city with a reputation of training qualified human resources, a large proportion of high-quality human resources tend to migrate to the Southeast, again due to lack of job opportunities. Regarding vocational training, the system of professional intermediate and vocational training is generally not linked to the business sector and out-of-date compared to production and business practices. Therefore, it does not help supply skilled technical labor or contribute positively to the development of local unique industries. As a result, the Mekong Delta has the lowest proportion of trained workers in the country (13.3%), even lower than the Central Highlands and Northern Midlands and Mountains.

With regards to healthcare, most of the provinces in the Mekong Delta have a very low number of patient beds and doctors per 10,000 people compared to the country, with some even less than half the national average. However, the Mekong Delta has great advantages with Can Tho city and proximity to Ho Chi Minh city as the two major cities with the most advanced healthcare systems in the country. With this advantage, if the health systems are connected between localities and Can Tho city and Ho Chi Minh city, the less

developed provinces in the short term only need to focus on screening, basic disease treatment, and channeling patients. A higher level of medical examination and treatment can be carried out in cities with strong health infrastructure.

In summary, both the quantity and quality of human resources in the Mekong Delta are quite limited apart from the brain drain. To overcome this obstacle, it is necessary to improve the input factors, in which the most important element is to design policies to create motivation for school. Concurrently, the localities need to develop the economy to create more job opportunities; thereby encouraging people pursue their studies and develop themselves while promoting a professional education system. More ambitiously, taking advantage of its culture of openness and welcoming new things and less social barriers, the Mekong Delta should find a way to build an innovative ecosystem to attract talents for their start-ups and development.

Fiscal, investment, and credit policy

In the past 10 years, the amount of state budget expenditure for the Mekong Delta has increased in both absolute and relative terms. If the central and local budgets are included, the growth rate of expenditures of the region is still lower than that of the whole country. Regarding the expenditure structure, the total expenditure for state budget balance in the Mekong Delta also increased slightly from 12.4% in 2010 to estimated 14.2% in 2020. This change shows the Government's attention to the development of the Mekong Delta, especially after Resolution 120/NQ-CP in 2017. The increase in state budget balance expenditure has not yet met the demand for regional development. The report by the Ministry of Planning and Investment (in 2019) shows that the proportion of investment in the Mekong Delta in the two periods of 2011 - 2015 and 2016 - 2020 only accounts for about 18% of the country. In the period of 2021-2025, the region's investment capital need is up to VND 45,000 billion, but the state budget can only cover about half of these.

The proportion of investment spending by the local state budget from the total state budget balance expenditure is, thus, not low. Due to the small absolute size of investment spending and scattered expenditures, however, it is unable to focus resources on key inter-regional infrastructure projects. Besides, due to its natural, economic, and social conditions, it is difficult for the Mekong Delta to attract domestic and foreign investment. Moreover, because of limited revenue, it is difficult to mobilize off-state-budget financial resources through local government debt. Resolution 120/NQ-CP mentioned the establishment of a Sustainable Development Fund for the Mekong Delta region. To date this fund has not yet been established, and policies related to mobilizing non-budget resources for the Mekong Delta provinces are still limited.

The development of the Mekong Delta is an urgent requirement to better utilize resources and better respond to challenges in the coming period for this region. The financial and budgetary solutions in the next period should: (i) add the National Target Program on the Development of the Mekong Delta against Climate Change to Allocation of development investment under balance, in replacement of Decision No.40/2015/QD-TTg for the 2021 – 2025 period; (ii) allow increase in revenue assigned to the locality to be allocated to investment spending for the implementation of important tasks, with priority given to infrastructure, education and training, healthcare, agriculture, rural areas, and responses to climate change; (iii) propose to the National Assembly to allow the extension of loan limits in accordance with the State Budget Law for the Mekong Delta provinces to expand the financial room for development investment, especially in infrastructure; (iv) propose the development of the allocation of state budget for operational expenditure estimates for the 2021-2025 period to replace Decision No. 46/2016/QD-TTg, taking into account the characteristics of the Mekong Delta with appropriate criteria; (v) (With development investment spending, the National Assembly and the Government should also) consider issuing policies to allow sharing of the financial and budget burden among provinces in the Mekong Delta and between Ho Chi Minh city and the Mekong Delta provinces upon developing inter-regional and inter-provincial infrastructure;

(vi) accelerate the construction of the Mekong Delta Development Fund, especially the issuance of municipal or separate government bonds for transport infrastructure development and response to climate change in the Mekong.

Regarding bank credit, credit activities in the Mekong Delta are not commensurate with the economic position of the region. The balance of deposits and credit in 2019 of the Mekong Delta only accounts for 5.4% and 8.2% of the nation, respectively, while the region contributes about 18% to the GDP of the economy. Accumulated to 2019, the total mobilized resources in the region are only equivalent to 86% of the credit need, much lower than the national level of 129%. At first glance, this figure implies that the regional capital needs outweigh the savings, but a closer look reveals that there is no shortage of loans for businesses and citizens. The real problem lies in the fact that businesses and people do not have effective business plans or safe mortgaged assets.

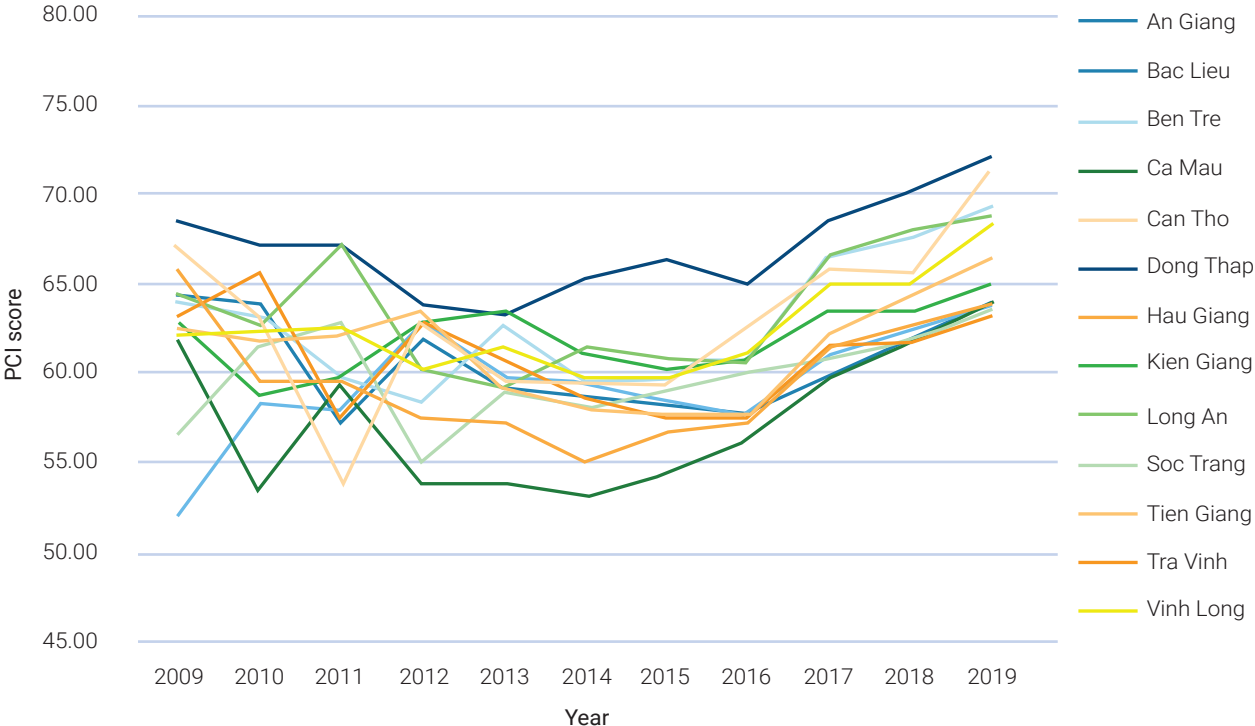
Agriculture-based loans in the Mekong Delta tend to be concentrated in a few leading firms with stable output markets and sources of input materials. For small businesses, credit capital depends on capital turnover and advanced payment from export contracts. As a result, business performance is reduced due to an advanced cost of up to 10% of the contract value, high risk of loss, or contract termination in case of unexpected price drops.

Regarding farming households, most of the credit need depends on the credit models of traders or food-material suppliers, and therefore depends on the results of the farming crop which is inherently risky. The risk is relatively high because it depends on weather conditions, diseases, and market fluctuations. These loans have flexible terms, higher amounts, and hence higher interest costs.

The business environment and firm development

The Provincial Competitiveness Index (PCI) of all provinces in the Mekong Delta has increased remarkably over the past five years (Figure 0.8).

Figure 0.8. The 2009-2019 PCI of Mekong Delta provinces



Source: Compiled from PCI annual surveys by VCCI-USAID

Even some provinces like Long An, Dong Thap, Ben Tre, and Vinh Long have risen to the top of the country. Similarly, the Mekong Delta also holds 4 places in the top 10 provinces of the country for the PAR Index, namely Dong Thap, Can Tho, Long An, and An Giang. Compared to the nation, the average PAR Index score of the Mekong Delta in 2018 reached 76.81 points, just behind the Red River Delta and the Southeast.

Although the CPI and PAR Index look good, the business development in the Mekong Delta is not optimistic. In the 2013 – 2019 period, the growth rate of new businesses in the Mekong Delta was 4.4% per year, less than half of the national average (10.2% per year). As a result, the proportion of newly established enterprises in the Mekong Delta is increasingly low, with a decrease from 9.4% in 2013 to only 6.8% in 2019 and only above two extremely difficult regions, the Northern Midlands and Mountains and Central Highlands. Additionally, the Mekong Delta has the highest growth rate of number of closed firms in the country - up to 17.6% / year in the 2014-2019 period, second only to the Northern Central and Mountains (23.7% / year) and much higher than the average level of the economy (14.2% / year).

It is surprising that the business structure of the Mekong Delta by industry is basically the same as that of the country. Specifically, the five industries that account for the largest proportion of businesses are still wholesale and retail, automobile, motorcycle, and motorcycle repair (42.52%); manufacturing and processing (16.37%); construction (15.29%), professional activities, science and technology (5.91%); and warehousing (3.69%). Together, these five industries account for 83.78% of all businesses in the Mekong Delta.

Another surprise is that, in contrast to the national trend, the average size of employees in the Mekong Delta has increased from 29 to 32 employees in 2009-2014 before reducing to 27 employees in the 2010-2018 period. As a result, if the average labor size of enterprises in the Mekong Delta was always lower than the national average before 2013, it has been higher since 2014.

Although the average capital sources of enterprises in the Mekong Delta tend to increase in nominal value, they are always much lower than the national average. Out of 18 economic sectors, the average capital size of Mekong Delta enterprises is smaller than the national average in 14 industries, especially finance, banking and insurance (3,711 billion VND for national average compared to only 236 billion VND for the Mekong Delta), producing and distributing electricity, gas, hot water, steam and air-conditioning (753 billion VND vs. 116 billion VND), mining (305 billion VND vs. 78 billion VND), and real estate (271 billion VND vs. 171 billion VND). Four industries in which businesses in the Mekong Delta have a higher capital scale than the national average are accommodation and catering services (26 billion VND vs. 42 billion VND), processing and manufacturing (82 billion VND vs. 97 billion VND), health and social assistance (40 billion VND vs. 46 billion VND), and education and training (11 billion VND vs. 12 billion VND).

Regarding the structure of economic sectors, non-state enterprises accounted for 97.82% in the Mekong Delta as of December 31, 2018, while FDI enterprises made up 1.79% and state-owned enterprises, only 0.39%. These rates on the national scale are 97.23%, 2.34%, and 0.33%, respectively. Thus, we can clearly see the limitations of the Mekong Delta in attracting FDI projects compared to the general level of the country.

Competitiveness of major clusters in the Mekong Delta

Rice cluster

According to the Vietnam Food Association (VFA), Vietnam's rice export volume in the 2009-2019 period increased by nearly 5%, while the export value rose by 24%. This is a good sign of an important improvement in the quality of exported rice. In the long term, along with the changes in the demographic structure and global living standards, the guideline to limit the quantity and increase the quality of rice for export will become an important strategy for sustainable development of the rice industry of Vietnam in general and the Mekong Delta in particular.

The rice cluster in the Mekong Delta has a competitive advantage thanks to natural conditions such as soil and suitable water sources; experienced workforce; dense and wide distribution system of agricultural materials. Especially the Mekong Delta has recently bred many world-recognized, branded and high-quality aromatic rice lines. The opportunity to develop robust rice products also comes from the trend of deepening international economic integration. In addition, the competitiveness of the sector has always been enriched by supporting policies from the State, as well as from foreign technical assistance programs/projects.

Apart from the above-mentioned competitive advantages, the rice cluster also faces disadvantages such as impacts of climate change; depletion of irrigation water resources; labor scarcity in rural areas; unequal mechanization among regional provinces and lack of alignment between stages in the supply chain; inconsistent rice quality; incomplete and disconnected regional transport infrastructure; fierce competitors for world rice exports; increasing self-sufficiency of major rice importing countries; while the strategy of developing value-added rice products has yet been developed. Finally, the cluster competitiveness is constrained by the linkage capacity of actors in the supply chain. Such lack of linkage capacity also makes farmers buy agricultural materials through agents and accept substantial loans, which leads to an increase in intermediary costs, and thus less net added value (profit) of the whole rice value chain.

Aquatic products (catfish and shrimp) cluster

The aquaculture industry formed and developed in the Mekong Delta is associated with favorable natural conditions, but the shaping and development of the seafood processing industry is attached to the needs and development of the export market. This partly explains the fluctuations of the seafood processing and export industry in the past period due to enormous impact from the volatility of world's export market, especially on export prices.

In addition to its outstanding strengths in suitable soil conditions and water resources, the Mekong Delta also has the advantage of a highly experienced and qualified workforce in the fisheries sector that meets business and competition needs. However, the shortage and aging of the workforce in farming areas will be a major hindrance to the industry in the long term.

As for farming, the industry's largest challenge is to ensure a stable and plentiful supply of disease-free and highly viable fish seed. The current dependence on seed supply outside the region is also an important limitation. In addition, the impact of climate change and saline intrusion can limit the growth rate of clusters.

The output market of the cluster in the past 10 years has grown and diversified, but the problem is how to deal with the increasingly fierce competition in the international market. It requires close coordination of actors in the supply chain, in the cluster, and from relevant ministries to solve this problem. The achievements of the cluster should be also attributed to the promoting role of the Government, the Ministry of Agriculture and Rural Development (MARD), the Ministry of Industry and Trade (MOIT), and especially VASEP. However, the role of these central agencies has not been fully optimized, especially in overcoming the difficulties and challenges of the industry as mentioned above.

The current and future competitiveness of the cluster is mostly constrained by three important factors. First, there is the weakness in building vertical links between actors in the chain, as well as horizontal linkage between members in the same group (between farming households in cooperative economic organizations; among seafood export enterprises). Second, the transport infrastructure and logistics system in the region have not been properly invested and aligned, raising the cost, product price, and transportation time significantly. Third, there is a limitation in research and development of value-added products as well as building Mekong Delta's own brand.

Fruit and vegetable cluster

The Mekong Delta has an outstanding advantage in fruit and vegetable cultivation thanks to favorable climatic and soil conditions. The change of cultivation from only rice to vegetables and fruits is an inevitable trend to improve farmers' income. However, at present, the fruit and vegetable industry are still in its formative stage and faces many challenges. At the national level, policies on agricultural economic development for fruits and vegetables are incomplete and ineffective. At the regional level, each province still pursues its own policy and the construction planning of the cultivated areas has not been considered comprehensively for a holistic development. On the market side, the industry is over-reliant on the Chinese market, while it is basically not meeting the requirements of food hygiene and safety and traceability of advanced countries. Also, the impacts of climate change and the Covid-19 force the Mekong Delta to re-evaluate the position and capacity of the industry, thereby seeking to improve its competitiveness toward higher standards.

As for production, the weaknesses and difficulties of the cluster come from five major sources. First, human resources are of limited qualification and professionalism. In addition, farming practices are outdated with rudimentary farming techniques and low ability to absorb new internationally qualified processes. In addition, short-term mindset chasing immediate interests makes farmers choose agricultural practices that abuse chemicals and are likely led by traders rather than associating with cooperatives or large processing and trading enterprises. Second, the Mekong Delta is a "low-lying area" in terms of transport infrastructure, a factor considered the lifeblood of economic activities. The fruit and vegetable industry in the Mekong Delta are affected by the weakness of the regional transport infrastructure, due to the product characteristics that require freshness and must be delivered quickly and safely. Third, specific policies for the development of the fruit and vegetable industry across the country and the region have not been clearly formed, thus not creating a thrust for cultivation, processing, and trade. Food security policies that inhibit land conversion also create barriers to the expansion of fruit and vegetable cultivation. In addition, the linkage between provinces has not been guided and supported by national and regional policies, making it difficult for the Mekong Delta fruit and vegetable brand to grow. Fourth, due to historic traits, the areas for growing vegetables and fruits are fragmented, small and difficult to create large, safe, and homogeneous produce. Fifth, seed quality, stability, and uniformity are also an important disadvantage that needs to be overcome.

Tourism cluster

In the past, tourism was considered as a type of entertainment service for the rich and therefore relatively "luxurious". Today, tourism becomes an increasingly essential service, meeting the needs of recreation, entertainment, and learning to improve personal values and help regenerate energy for many people. This change comes from the income of the people as well as the increasing size of the middle class.

There is huge potential in the Mekong Delta's tourism thanks to available factors such as endowed natural resources, rich culture, mild climate, and favorable geographical location. However, all those advantages are difficult to work because they are constrained by three main bottlenecks. First, the weak human resources are a constraint for regional tourism to promote internal resources. Tourism is an industry where the human factor is present at all stages of the product chain and is highly decisive to service quality. Poor literacy and quality of the workforce are hindering the building a tourism value chain sophisticated in the smallest detail. Second, poor transport infrastructure causes the loss of regional tourism's competitive advantages. The difficult and time-consuming transportation makes it hard for the Mekong Delta to be the favorite destination. Waterway transport is the strength associated with river culture that can link sightseeing places and form unique cruise tours on yachts, but it is not able to develop due to varied limitations on berths. Third, the role of departments and agencies has not yet brought into play the promotion effect, coupled with the lack of effective support policies, making the linkage between localities in the region mainly in formality rather than specific values. Particularly, tourism activities of the provinces in the region are only on a small scale, low value, and gradually eroded.

The Mekong Delta is currently a granary of rice, fruit and seafood in Vietnam. Still, there is a need for a vision of an agro-rural tourism hub for the next 10 years. At that time, the Nine-Dragon Land will be referred to as a place with a unique economic value chain: a fresh environment - clean production - safe food – and country holiday. Tourism development will turn farmers from muddy farming to sell agri-products, into farmers of rice, garden, and shrimp ponds to sell tourism services and beyond, offering experiences to domestic and foreign tourists.

Energy cluster

The Mekong Delta has great potential and special favorable conditions to develop a cluster of renewable energy sectors. In order to make the most of the region's potentials and advantages, however, the Mekong Delta needs to overcome many barriers from policy to business and technology. Policy challenges that focus on power purchase agreement (PPA) that do not guarantee investors' interests would make it difficult or impossible for renewable power projects to get loans from foreign financial institutions. One of the shortcomings is the provisions related to capacity reduction, exchange rate risks, force majeure conditions, dispute resolution, lack of clarity or delay in the project approval process, land acquisition, and allegations related of licensing agency's harassment. Regarding financial barriers, the electricity purchase price for some sources such as wind power, especially offshore wind power, is still quite low compared to the investment rate as well as the adopted price in the world. Also, investors must pay for the construction fee of transmission lines to medium-voltage transformer stations. As for the group of technical factors, the domestic equipment manufacturing market is still quite small, and there is a lack of qualified human resources in system management, construction, and maintenance of equipment, especially for wind power technology. In addition, Vietnam does not have the adequate infrastructure to develop smart grids, while its lack of or poor data quality also raise costs to and prolongs the investment process. In order to develop energy industry clusters, a serious investment strategy is required for the related and supporting industries.

Furthermore, the renewable energy sector should be part of the economic development strategy. With each policy, there are beneficiaries and disadvantages when the transition is made from conventional centralized power systems to distributed energy systems with renewable energy penetration in high level. More clear evidence is needed for the impact on job creation, income distribution, and government's fiscal policy as well as socioeconomic and environmental impacts in scenarios of energy development. The private sector will play an important part in the energy structure through investment in solar and wind energy, energy storage, and the implementation of energy efficiency initiatives. There should be large firms investing in the LNG sector, the construction of transmission grids, and the provision of energy services. Electricity prices are an important component of energy sector reform. Upon converting the energy structure, therefore, it is necessary to clarify what the total cost of the entire system is, how much it will cost end users, and whether or not to maintain a broad cross-subsidy system as currently applied.

Logistics cluster

As the largest granary of rice and aquatic products in the country, the Mekong Delta contributes 40% of the value of agricultural production, over 54% of rice production, 90% of rice exports, 65% of seafood production, and 70% of fruit production. The Mekong Delta's potential to export agri-aqua products creates opportunities and urgent need for the development of the logistics service industry to cater to the said products of the whole region with major logistics services such as transportation, warehousing, storage of goods, and value-added services such as cold storage, irradiation, and heat steaming of fruit to ensure the quality of exports as well as distribution for domestic consumption.

The logistics cluster is facing three main challenges. First is limited investment in cold chain technology. In this context, it is necessary to encourage a model of cooperation between logistics service providers and manufacturers to enhance connectivity and sharing quality logistics infrastructure resources, contributing to improving the value chain of agri-aqua products and distribution of domestic consumption of the Mekong Delta. Second, seaport and river port infrastructure, while playing an important role in domestic and international connectivity for agri-aqua products, is small in scale, limited in quality, and costly (including opportunity cost of time). Third, lack of connectivity in logistics infrastructure - including intra-regional, external, international, and multi-modal connectivity - is also an important factor in increasing logistics costs and reducing regional competitiveness. Fourth, there are few full-fledged logistics service providers, most of which are small retail logistics services. Logistics centers are quite small (less than 10 hectares), and have not yet developed to a scale serving an industry or economic region. The services provided by logistics centers are still limited with poor connectivity. Fifth, the Mekong Delta has not had a comprehensive planning of raw materials, which serves as the basis for large-scale specialization. The distribution system of goods in the Mekong Delta is still spontaneous with weak links inside and outside the distribution system, poor and outdated facilities of traditional market network, and constrained transportation. All those factors increase logistics costs, reducing the competitiveness of goods from the Mekong Delta.

CONCLUSIONS AND POLICY RECOMMENDATIONS

Over its history of formation and development has the Mekong Delta never been undergoing larger challenges. The first group of challenges involves land, water, and the environment: sea level rise, decline in both water quantity and quality due to the dense network of over 140 upstream hydropower dams and, more seriously, the inadequate policies and cultivation practices eroding the Delta's vitality.

The second group of challenges comes from demographics as well as labor quantity and quality. The population of the Mekong Delta remained unchanged from 2009 to 2019. The primary cause of this phenomenon is that the Mekong Delta has the highest net migration rate in the country, as much as minus 39.9%, mainly due to lack of jobs and economic opportunities. In fact, since 2017 up to now, for the first time in its history of formation and development, the Mekong Delta has recorded an absolute decline in population. The inevitable consequence of this situation is that labor shortage is becoming more and more popular, at the same time the aging of the population becomes more and more serious. Not only the lack of labor, but the quality of human resources in the Mekong Delta has long been viewed as a low-lying area of the country, which has not been overcome yet.

The third group of challenges derives from economic development. While popular major drivers of economic growth of the Mekong Delta - such as rice and seafood - appear to reach the tipping point, new growth drivers are still weak or yet even in viable shape. This is the primary reason why the Mekong Delta provinces have been concerned with the problem of structural transformation and growth model reform yet found a satisfactory solution. This challenge turns more pressing when the Mekong Delta is lagging farther behind the Southeast and even feels "abandoned" in the development course of the country.

The fourth group of challenges is about science and technology. These are "shocks" for not only the Mekong Delta but also Vietnam and even the world. After a long evolution, new technologies - including the IoT and Big Data, the optimization of manufacturing industries by AI, or gene editing not only for plants but also for humans - have got mature and will fundamentally change the way we live, work, produce, and interact with each other. As a technological "low-lying area" relying mainly on traditional agricultural production and outdated technology, the Mekong Delta will face numerous challenges from these shocks. If well leveraged, these new technologies will open enormous opportunities. Otherwise, the Mekong Delta will lag farther and farther behind the country and the world.

There exist opportunities in dangers; not all "challenges" are detrimental. On the contrary, they force the Mekong Delta provinces to thoroughly re-examine their development goals, re-assess the existing growth drivers, review their strengths and resources, and then rethink the development model.

The Mekong Delta needs to build not only another model of economic growth but, above all, a new development model. Over the past three decades, the old economic model has relied on agri-production rather than agri-economy, quantity above quality, fragmentation in preference to land aggregation and piecemeal production instead of supply chain. Despite succeeding in hunger eradication and poverty reduction, the Mekong Delta has yet brought prosperity to most of its residents, evident by the significantly slow growth rate, the lower standard of living than the national average, and the falling behind in most dimensions of socio-economic development.

The new development model of the Mekong Delta should not only focus on economic growth but, above all, create a comprehensive economic, social, cultural, educational, environmental development, which must be sustainable. Fortunately, this guideline is completely in line with Resolution 120 of the government on the "Sustainable Development of the Mekong Delta in Adaptation to Climate Change". However, the right resolution is only the first step. More importantly, the Mekong Delta must together put forward strategies, policies, and regional master plans to set a conducive environmental, economic, social, infrastructural, and regionally coordinated context to put this development model into practice. Accordingly, these general conclusions and recommendations, thus, are deemed as a thorough review as follows:

- 1** The Mekong Delta's competitive advantages mainly come from its endowed natural conditions (land, water, and ecosystems) and past heritage (cultural and religious resources). However, these resources are over-exploited to an unsustainable extent, exposed to large external risks, gradually degraded over the years, or hindered by policies from leveraging their diverse power.
- 2** The future of the Mekong Delta development depends on both its capacity to nurture these resources for successive generations and the efforts of finding and building new development drivers for the region. These two factors, in turn, require new mindset and approaches to the development of the Mekong Delta, because only in that way can it break away from the current orbit and shift to a new development model for itself wholly as well as each regional province.
- 3** A new development model should not be dreamy or idealistic but very practical. It should be built upon the current context and must provide solutions to burning economic, social, and environmental problems in the Mekong Delta. More broadly, the new development model must also be integrated to the country's economic and institutional contexts and aligned with global trends to take advantage of new opportunities from the diversion of FDI inflows and the outstanding development of information technology and biotechnology that meet the increasing demands of consumers across the world.
- 4** As a lagging region with a relatively low starting point, limited resources, and heavily dependence on the central government, the Mekong Delta must build its development model in the next decade upon its outstanding existing strengths. Instead of following the traditional path, however, the Mekong Delta provinces need to create the conducive environment and conditions for people, businesses, and government to work together to find new solutions and pathways for its developmental problems, thereby contributing to the development of the region as a whole.

5 Although traditional agriculture is currently the main source of employment for most farmers, thus contributing to poverty reduction and social stability, but it is not likely, in the long run, the foundation for regional economic development and social stability. Therefore, the Mekong Delta must fundamentally transform its agriculture, in which the key task is to develop a modern agri-economy in replacement of traditional agri-production. Details may include:

- Integrate agricultural activities to the market to stabilize the output
- Industrialize and apply technology to agriculture to increase productivity and quality
- Develop agricultural services to enhance specialization and improve efficiency
- Adapt agriculture to the environment and climate for sustainable development

6 The intensive agricultural systems, especially the three-crop rice farming, should be replaced by more efficient and environmentally friendly farming systems to develop an environmentally and economically sustainable agriculture. Agriculture should prioritize quality above quantity and compete by high value instead of low price. Agricultural organization and policies need to be driven by cluster and value chain rather than fragmentation and localization.

7 Apart from the agricultural structure of quality and value as discussed in point [6], the Mekong Delta needs to change the priority, in the long term, from rice – aquatic products – fruit to aquatic products – fruit – rice. To achieve this goal, it is a prerequisite to shift the mindset about the Delta resources, not only treasuring fresh water (for rice and fruit), but also appreciating saltwater and brackish water as valuable resources for both inland and coastal aquaculture development.

8 In the short or even medium term, tourism will be unable to become a key sector or the foundation for regional provinces' economic development. However, tourism is very important for improving residents' jobs and income as well as the image of the Mekong Delta. Instead of adopting tourism in the old path, the Mekong Delta and its provinces need to seek new tourism development models to meet the growing needs of a relatively young population and the increasingly sophisticated demands of the fast-growing middle class in Vietnam.

9 In the coming decade, the Mekong Delta will face many opportunities and choices in industrial development due to the connected infrastructure development, the spillover impact of industrial activities in the Southeast, and the regional land and cost advantages. However, as analyzed in the Report, the Mekong Delta industries should organically connect to and become a foundation platform for the region's agricultural economic development. This implies that the Mekong Delta provinces shall balance the light industry, processing industry, and renewable energy industry, on the one hand, with agricultural processing to improve added value and stabilize output for agriculture, on the other. It should be noted that the Mekong Delta shall minimize polluting industries to develop high-quality agriculture and tourism.

10 For traditional industries (including rice, aquatic products, fruit and tourism) and potential industries (like renewable energy or logistics), an approach of cluster and value chain should be adopted towards eventual performance indicators such as job creation, workers' income and local budget contributions. In this effort, enterprises and business associations play a key role not only in organizing production but more importantly in branding, developing value chains, and securing output markets. The local government plays an assisting role particularly in facilitating the business environment and institutions to support the connectivity between farmers and enterprises, and among actors in the clusters to cooperate for mutual development.

11 Just like the whole country, the Mekong Delta is confronting three important bottlenecks in its development process. The first and most important one impeding the economic development of the entire Mekong Delta as well as all provinces is poor infrastructure (in terms of quantity, quality, and connectivity), especially the transportation infrastructure. Instead of individual campaigning by each province for its own airport or deep-water port, therefore, all 13 provinces and cities of the Mekong Delta shall work in uniform, cooperating and proposing to the Central government to build a system of transportation infrastructure that is qualified, integrated, and concerted to intra-connect themselves and inter-connect with the Southeast. The development of the highway axis connecting Ho Chi Minh City to Ca Mau shall become the top strategic priority of the entire region in the coming years.

12 The poor infrastructure of the Mekong Delta comes from inadequate investment for a long time; however, this is not necessarily due to the lack of central investment as a prevailing belief. The fact of the matter is that the Central government has spent substantial investment in huge projects such as the irrigation megaprojects that transfer fresh water from Hau River to Quan Lo-Phung Hiep, the flood-preventing dyke system, the sluice system against saline intrusion, and recently many coal-fired power plants. Had these investments been calculated more thoroughly with priority given to the region's critical transport infrastructure such as highways, inter-provincial roads, important bridges, or road network connecting the production areas to the national highway, the Mekong Delta would have had a completed road system effectively connecting Ho Chi Minh city and the Southeast. The transportation infrastructure bottleneck is, thus, not merely due to the shortage of funding but mainly because of prioritizing the said resource on other targets rather than the transportation infrastructure system.

13 The second development bottleneck in the Mekong Delta is human resources. The quality of human resources is the decisive factor for the long-term living standards and development of individuals, provinces, and the whole nation. As a low-lying region in the country with regards to education and training, the new development model of the Mekong Delta must address this important bottleneck by formulating policies to motivate schooling, overcoming families' short-term mindset and pursuit of immediate benefits that force their children drop out early of primary or secondary schools. After all, this motivation mainly depends on the ability to create job opportunities so that local people can see the benefits of knowledge and skills, thereby having a strong incentive to pursue learning and skill development. This would, thus, create demand pressure on the educational and training system to link itself to businesses and the labor market.

14 Mechanisms and policies are the third bottleneck hindering the development of the Mekong Delta. This Report has analyzed and made various suggestions on mechanisms and policies for the Mekong Delta development, hereby only summarizing three recommendations on land, water, and regional coordination mechanisms. Land policies shall be redesigned to create a more flexible land market, increasing the mobility of agricultural land within the sectors and goals of agricultural production. Therefore, agricultural land can be best utilized thanks to the economies of scale, selection of suitable products, and applying advanced farming practices. Apart from that, all water sources – including fresh water, saltwater, brackish water, groundwater, and surface water – should be considered valuable resources to have appropriate policies of management, usage, and protection. It should be added that only by protecting land and water resources can the Mekong Delta preserve its own living space, thereby developing its community and conserving its traditional culture and religions.

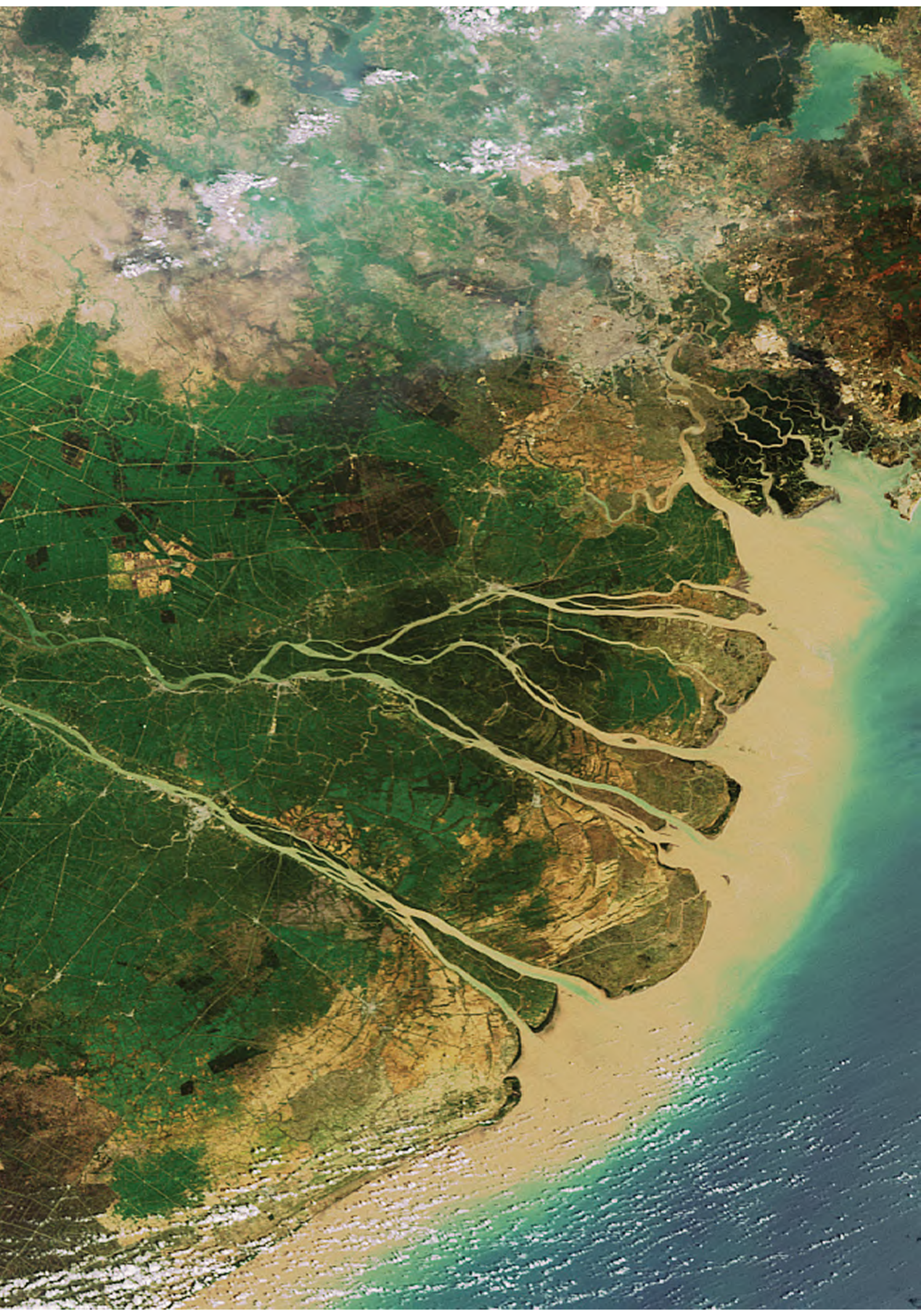
15 An indispensable pillar of the Mekong Delta's new development model is an effective and efficient regional mechanism of cooperation and coordination in replacement of current formal and ineffective practices. A key message of the Report is that the Mekong Delta biggest challenges - including poor transport infrastructure, economic and educational drawbacks, polluted water, climate change and sea level rise, and risks from upstream dams – are ones of the whole region, not of any individual locality. Therefore, it is essential to build a truly efficient and effective regional coordination mechanism to address the common challenges of the region as a whole.

The Mekong Delta is facing the critical threshold of the old development model. If this model - including government policies and practices of people and businesses - does not change, the Mekong will inevitably lag further behind and its disintegration is just an issue of timing. On the contrary, should there be sufficient courage and wisdom to shift to a new development model, current challenges will become a great opportunity for the Mekong Delta to strengthen its competitiveness and develop sustainably, thereby opening a bright future for over 17 million people and generations of their descendants as well.

An aerial satellite photograph of a landscape. The top half shows a river winding through a green, vegetated area. Below the river, there are large, irregularly shaped fields, some of which are yellowish-brown, suggesting agricultural land. The bottom left corner shows a coastline with a dark blue sea. The bottom right corner shows a dense, green forested area.

CHAPTER I

GLOBAL AND VIETNAMESE ECONOMIC LANDSCAPE





1.1

GLOBAL AND DOMESTIC ECONOMY: AN OVERVIEW

Economic growth in the world has been slowing down and now becoming a new normal trend. Declining trends in cross-border investment flows and trade in goods, the US-China trade war, the public debt crisis and the European political crisis, security tensions in the Korean Peninsula, and the Middle East, etc. are the main reasons. Meanwhile, the rapid development of science and technology is expected to be a new factor for the driving force of global growth yet not a small challenge for the countries which cannot keep up with the general trend.

In Vietnam, before the Covid-19 pandemic, the economic growth remained relatively high and stable, with low inflation, growing domestic consumption demand, slight decrease in credit dependence, surplus balance of payments, and shrinking public debt and budget deficit. The average growth is, however, lower than that in the period before the global financial crisis. Credit-led growth is still high amid high investment demand for infrastructure yet limited budget and declining participation of the private sector in infrastructure development.

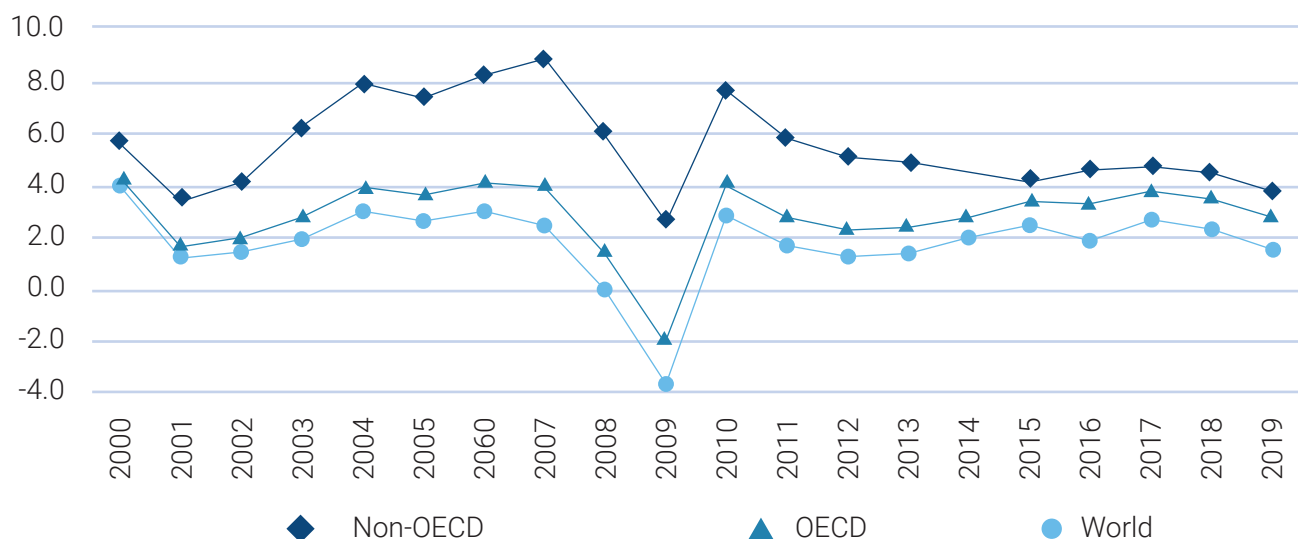
Major international trends

Since the 2008-2009 crisis, the decline in the global

economy has not been a temporary but lasting phenomenon and become a new normal trend.

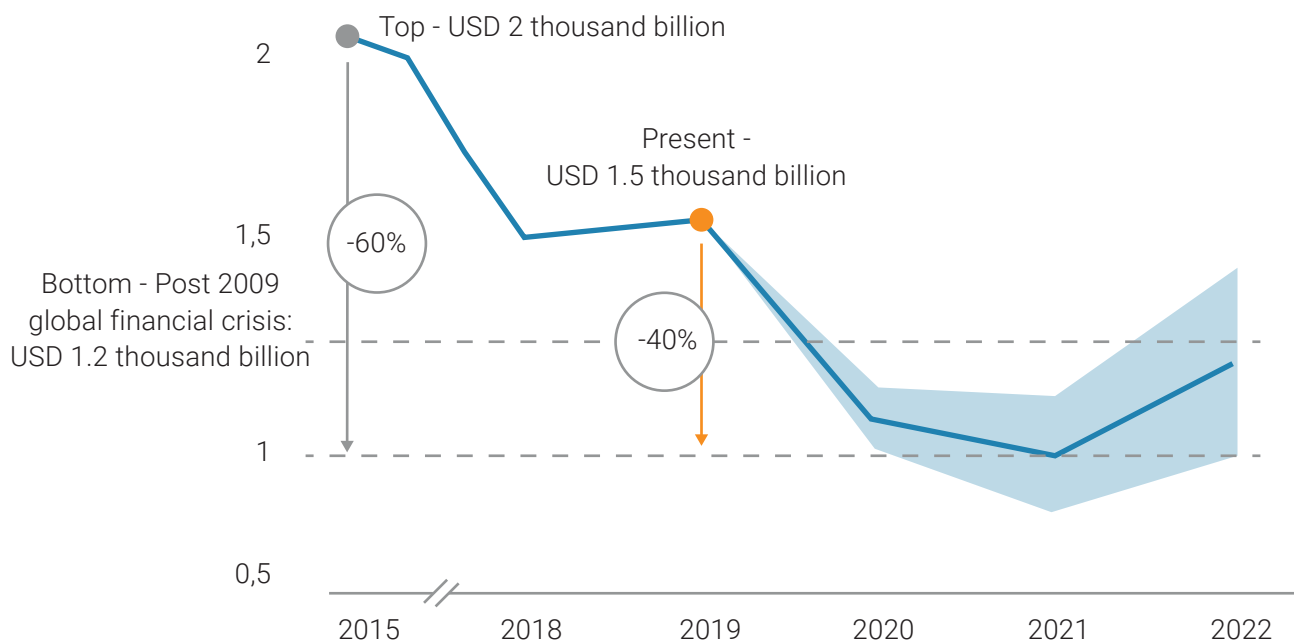
The decline in cross-border investment flows since 2015 has been one of the important factors, leading to an increasingly fierce competition between developing countries or emerging economies in attracting FDI, especially in the capital- and labor-intensive economies like Vietnam. In the past, the sharp decline in global FDI was mainly caused by wars (World War I and World War II), or economic and financial crisis (the 1929-1932 Great Depression, the 1997–1999 Asian financial crisis, the 2007-2008 global financial crisis, the European public debt crisis in 2010). As a rule, FDI inflows are recovered after the crisis. However, the decline in global FDI inflows since 2015 is due to the development of artificial intelligence (AI), digital economy, automation, or the decline in the outward investments of powerful countries, and the number of international M&A deals, or tensions between major countries. Obviously, these are changing strategic or long-term factors. Therefore, Vietnam needs a strategy to selectively attract FDI and encourage the integration of FDI into the domestic economy.

Figure 1.1 The new normal trend in the global economic growth



Source: Economist Intelligence Unit

Figure 1.2 The decline trend of the global FDI flows



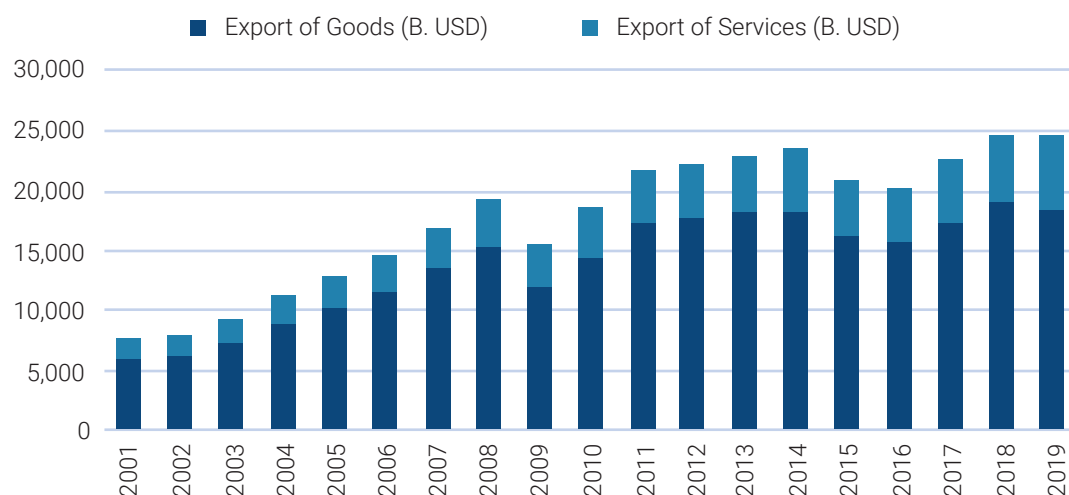
Source: UNCTAD (2019), World Investment Report

The drop and movement of the cross-border investment flows and the US-China trade war have led to a decline in global production and trade. However, it should be noted that the decline mainly comes from goods trade while service exports tend to increase.

respectively. Therefore, the decline in demand for goods of the U.S. and China in the 2014 – 2016 period explains why the global trade shrank after the gradual recovery from the 2008 - 2009 crisis. For Vietnam, the markets of the U.S. and China account for about 40% of the nation's export turnover in 2018.

The role of the U.S. and China in the global flows of trade in goods is very clear, with global share of merchandise imports at 15.5% and 11.5% in 2018,

Figure 1.3 Global export of goods and services



Source: World Bank and International Trade Statistics

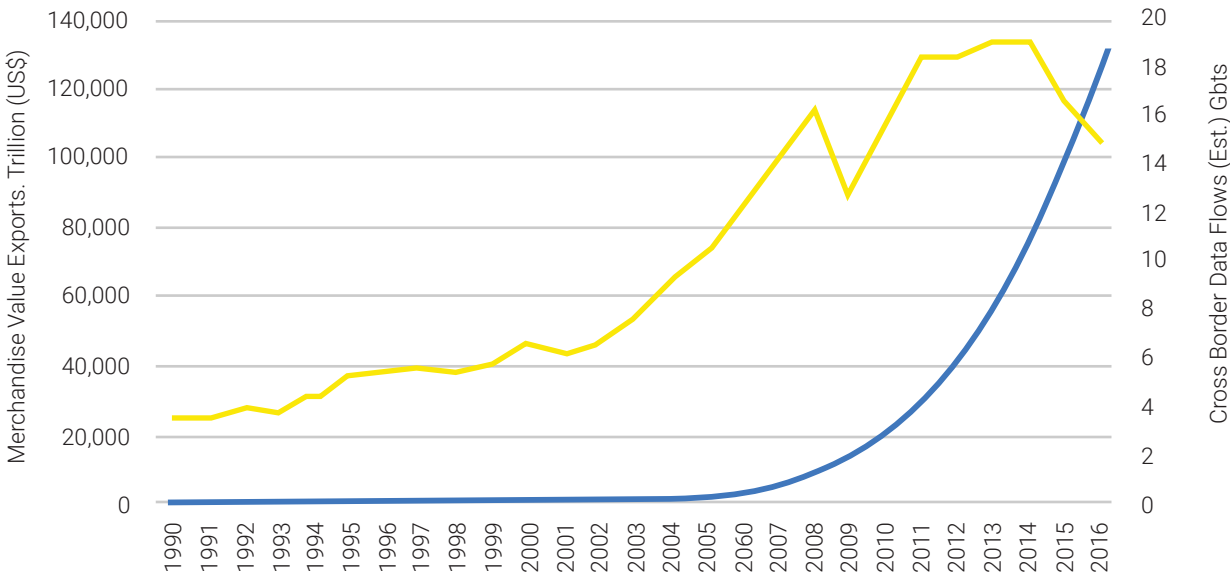
Therefore, a trade war, or likely a technological and economic war between the U.S. and China will be very risky for import and export activities of Vietnam; especially the pressure on exchange rate and the risk of routing products from China to Vietnam. In addition, the public debt and political crisis in Europe partly affected its consumer demand and imports, and thus significantly affected Vietnam's exports in the past period.

Meanwhile, the security tension in the Korean Peninsula, Middle East, and elsewhere can lead to the risk of disrupting the global production chains. In that

scenario, Vietnam and other Asian developing countries - the world's outsourcing factories - will be the economies most vulnerable to the impact.

On the contrary, the development of science and technology with the digital revolution, AI, and Big Data is the only positive driving force for the recovery and development of the global economy. The figure below shows that while global trade tends to decline, cross-border data flows have grown steadily, especially in the post-crisis period of 2008-2009.

Figure 1.4 Global trade and cross-border data flows



Source: Victor Mulas (2017), *Startup innovation ecosystems as new sources of growth and jobs*.

The Industrial Revolution 4.0 and the development of the digital economy can open opportunities for latecomers to catch up with developed countries if they can build and accumulate a sufficiently strong technological foundation, but they will concurrently be the challenge of being left further behind for small countries with underdeveloped science and technology.

Domestic macroeconomic landscape

The overview indicates that the economic growth trend of Vietnam in general and the Mekong Delta is also influenced by that of the world's economic growth when the average economic growth rate after the 2008-2009 crisis is lower than the previous period.

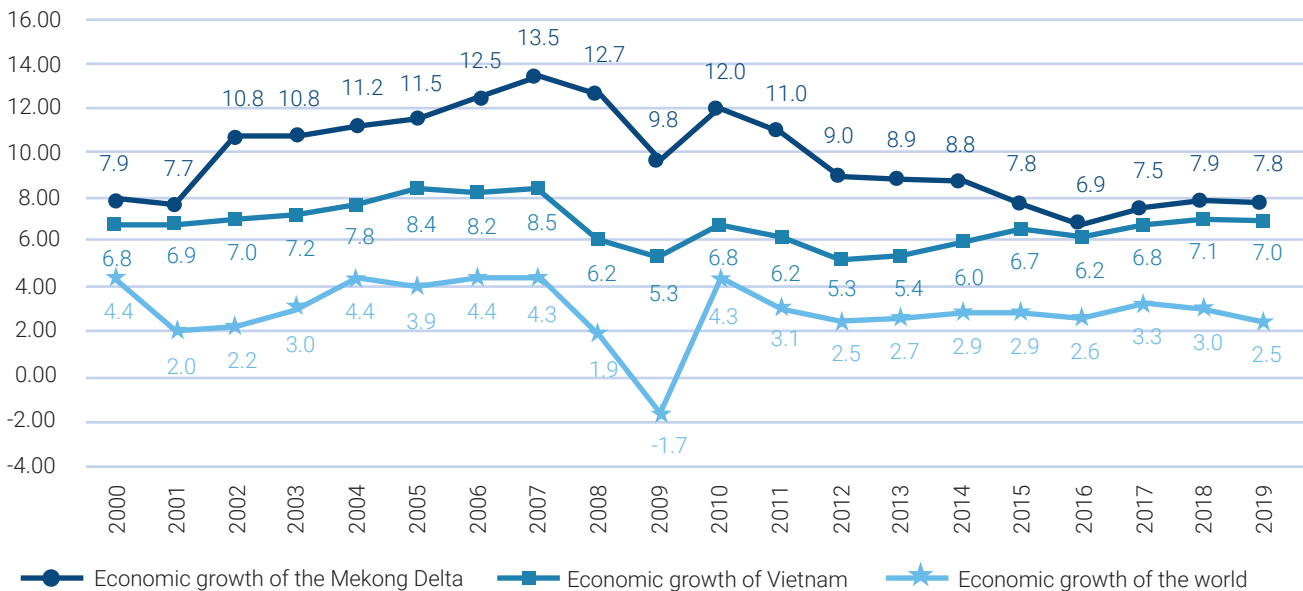
While the world economy shows signs of continued decline and maintains a low growth rate of less than 3%, Vietnam's economic growth remains relatively high, about 6-7%. Obviously, with sustained political stability and high economic growth, Vietnam will be an attractive destination for international capital flows. Meanwhile, although the economic growth in the Mekong Delta is always higher than the national level, the gap has narrowed down considerably, espe-

cially since 2015, indicating the ceiling of the regional growth drivers.

A positive point is that Vietnam has maintained high growth rates in the context of controlled inflation and significantly lower dependence on credit than those in the pre-crisis period.

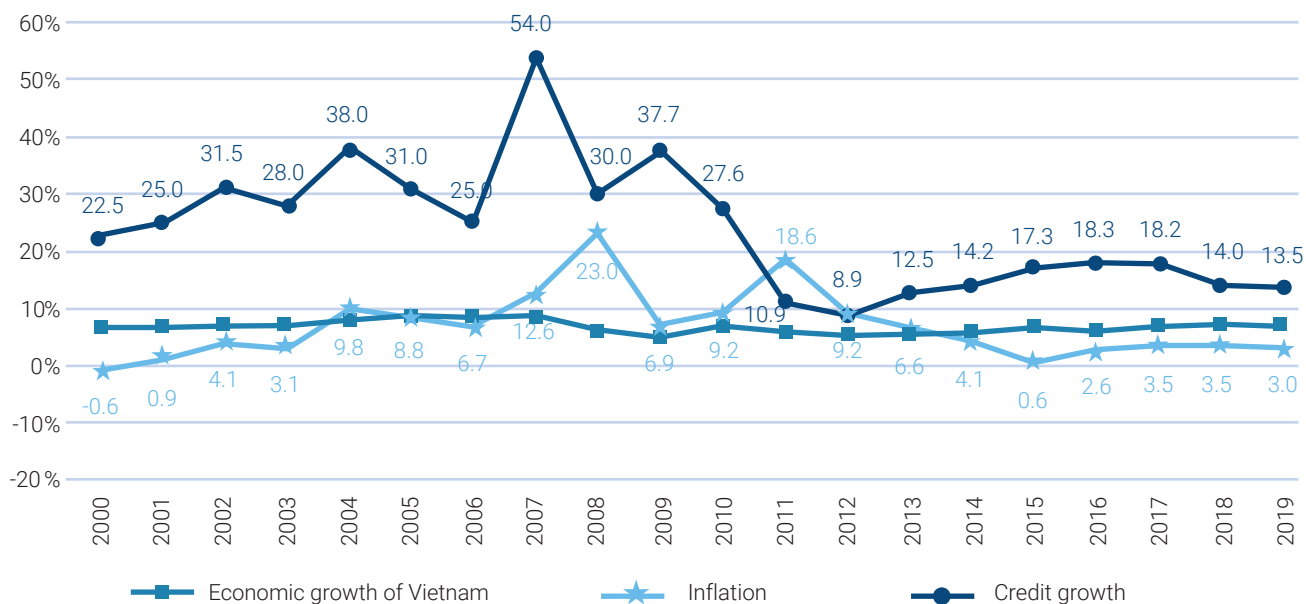
On the other hand, the surplus in the balance of payments (BoP) of Vietnam since 2012 has come mainly from: (i) Financial and capital balance, driven mainly by FDI inflows, (ii) Surplus current account balance derived from the rise of exports following FDI inflows; and (iii) The increasing inflow of remittances to Vietnam. The above advantages have helped increase the foreign exchange reserves, thereby enhancing Vietnam's position and its room in stabilizing the Vietnamese currency's value.

Figure 1.5 Growth of Vietnam and the Mekong Delta in correlation with the world



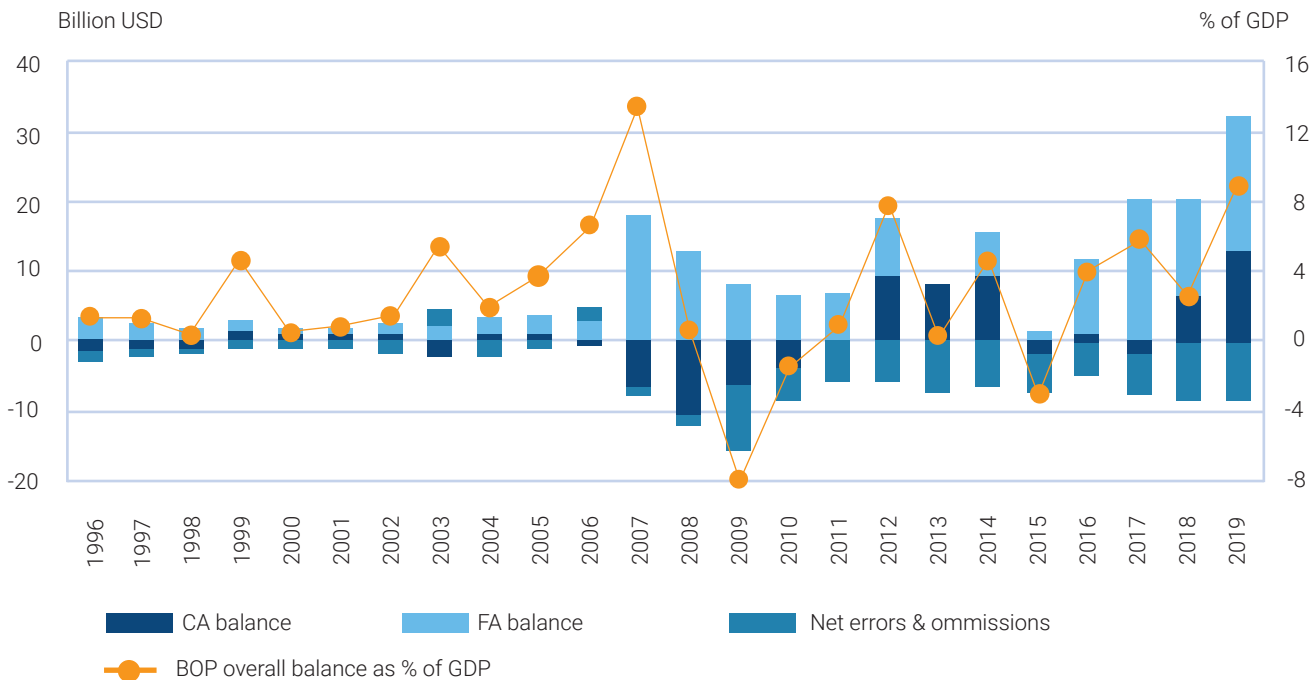
Source: World Bank, GSO and the Statistical Yearbook of Mekong Delta provinces

Figure 1.6 Growth trends of GDP, credit, and inflation in Vietnam



Source: GSO and The State Bank of Vietnam

Figure 1.7 Bullish signs from BoP of Vietnam



Source: CEIC, IMF, HSBC¹

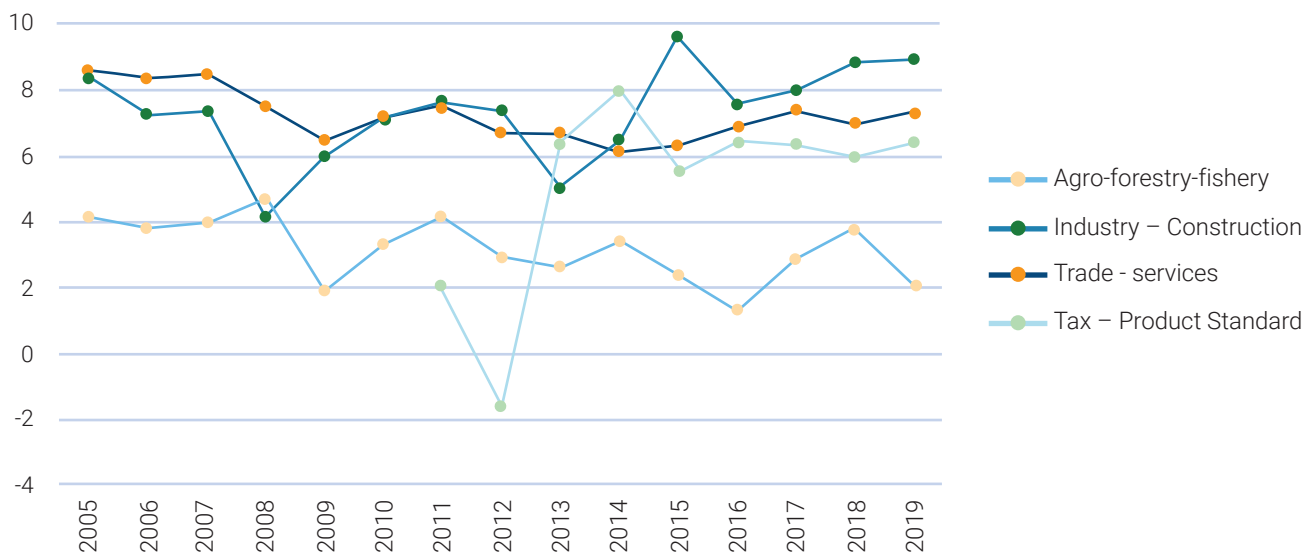
¹ From Thu Ky (2020), *International balance of payment: The fulcrum of VND stability*, accessed at <https://thoibaonganhang.vn/can-can-thanh-toan-quoc-te-diem-tua-cho-su-on-dinh-cua-vnd-102137.html>



The growth dynamics in each region shows that Vietnam's economic growth in the 2009 - 2019 period depends mainly on the industry-construction sector, but this sector accounts for a small share in the Mekong Delta economic structure (26.3% in 2018). Meanwhile, agriculture, as the foundation and

advantage of the Mekong Delta, always maintains a low growth rate, only about 3-4%. This explains why the economic growth of the Mekong Delta is increasingly declining to the national one.

Figure 1.8 Vietnamese economic growth rate by sectors (%)



Source: GSO

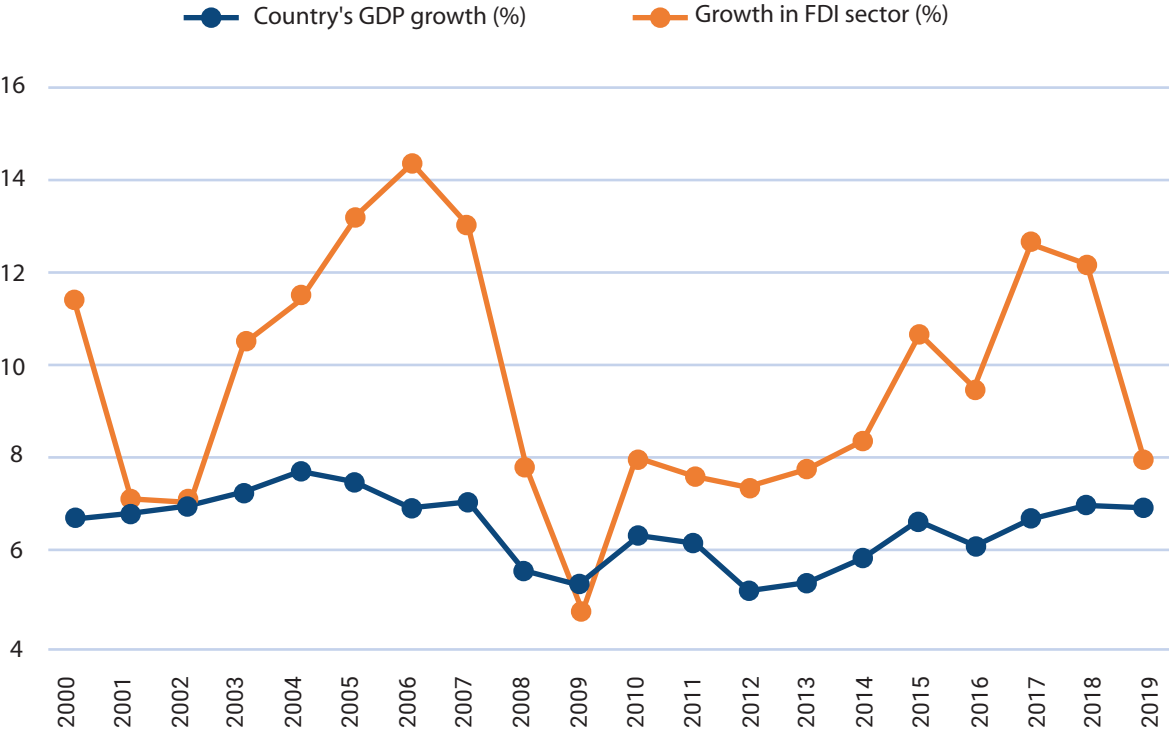


By economic sectors, FDI is the main driver of the development and growth of Vietnam's economy after the 2008-2009 crisis. FDI has the highest average GDP growth rate, reaching 9.3% per year in the 2010 - 2019 period, compared to 4.6% per year of the public sector and 6.6% of the private economic sector.

The FDI sector only accounts for about 20% of GDP and contributes 23% of the total investment capital, but comprises over 70% of the country's export

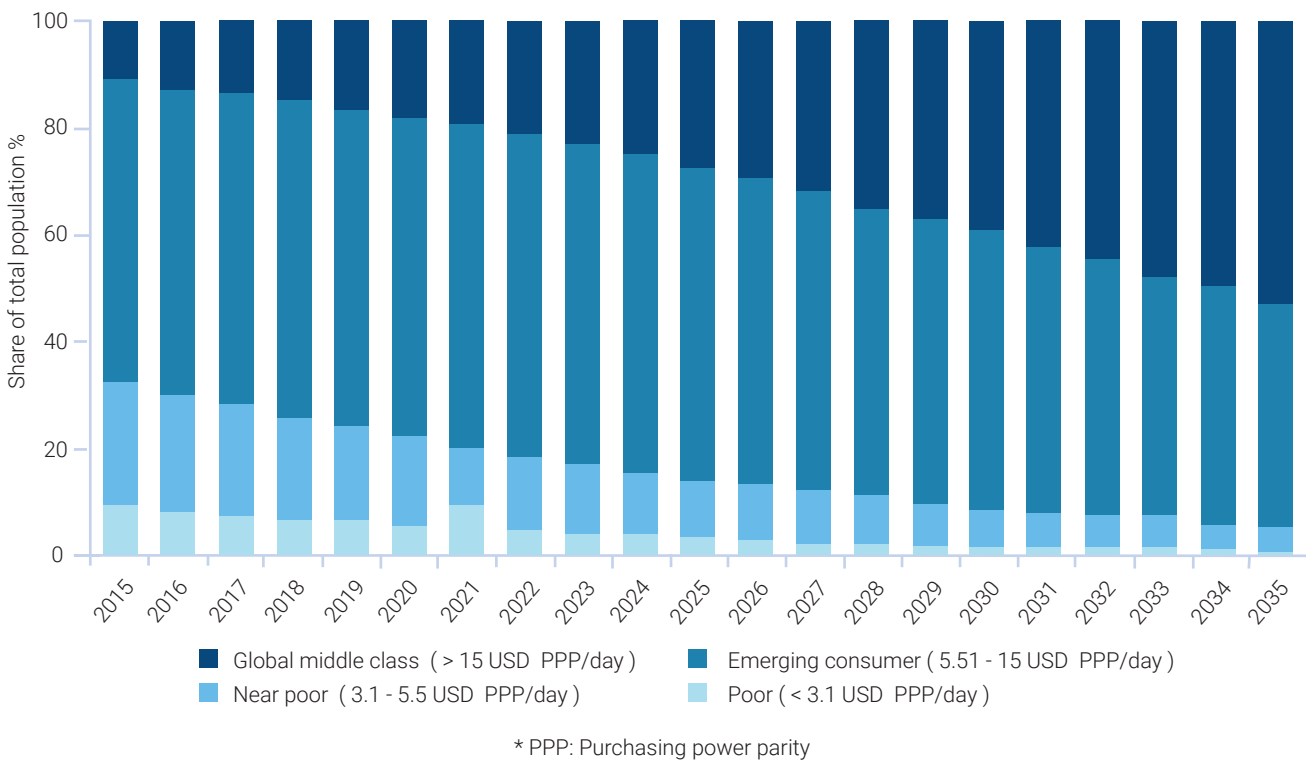
turnover. Although the FDI sector only accounts for less than 3% of the total number of national businesses, it contributes over 30% of the total number of employees, about 20% of capital, nearly 30% of net revenue and over 40% of profit before tax in business sector, yet only about 13% of total State budget revenue each year. These conflicting results show that the value that FDI brings to the Vietnamese economy comes mainly from creating jobs for unskilled workers.

Figure 1.9 FDI role in Vietnamese economic development



Source: GSO

Figure 1.10 Development of the middle-class in Vietnam



Source: Ministry of Planning & Investment and World Bank

From consumers' perspective, domestic market demand continues to maintain a high growth rate (6.6% per year), but mainly from consumption by the residential sector (accounting for 91.5% of total end-consumption). From a demand perspective, consumption from retail activities still plays an important role (accounting for 76%) while the accommodation, food, and services – tourism accounts for only 12% each group. On the other hand, if we continue to maintain the same stable growth as previously, the consumption of the household sector will play a very important role. According to estimates by MPI and WB, more than 50% of Vietnam's population will be in the "global middle class" by 2035. At that time, the demand for consuming high-quality products, services, and tourism will increase significantly.

From an investment perspective, although the investment-to-GDP ratio could not remain as high as before the 2008-2009 crisis, it has constantly maintained at a very high rate of 1/3 of GDP, contributing

significantly to Vietnam's high growth rate recently. However, investment efficiency is a chronic problem, reflected in a stable ICOR above 6.0, much higher than the pre-global financial crisis.

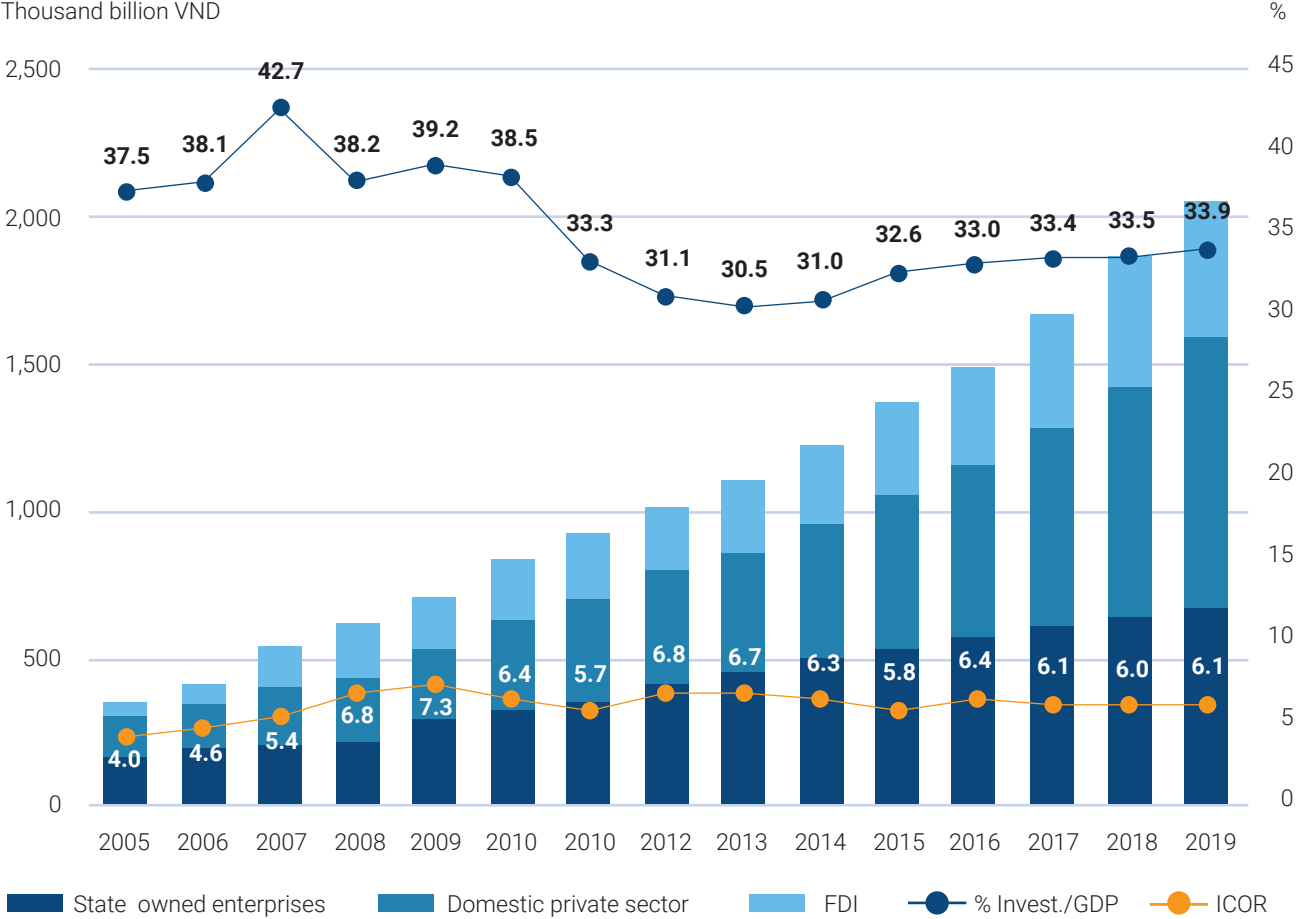
The total investment capital increased by 10.5% on average in the 2010 – 2019 period, and the main driver came from the private sector and FDI with an average growth rate of 15.6% and 10.1% respectively for the 2015-2019 period, compared to 5.1% of the State sector in the same period. This shifting trend is consistent with the orientation of equitization and divestment of State capital and regarding the private sector as the engine of economic growth, so it is necessary to sustain this impetus. However, issues in public investment law enforcement and public private partnership may limit private sector participation, making the expectation of private investment in infrastructure development in the Mekong Delta less promising.

For the State sector, the ability to improve resources for development investments by the State budget is not high because the current budget revenue is only enough for recurrent expenditure and debt repayment. Meanwhile, Vietnam's borrowing capacity has not been as viable as previously since it entered the group of middle-income countries.

It is the problems of limited budget resources and

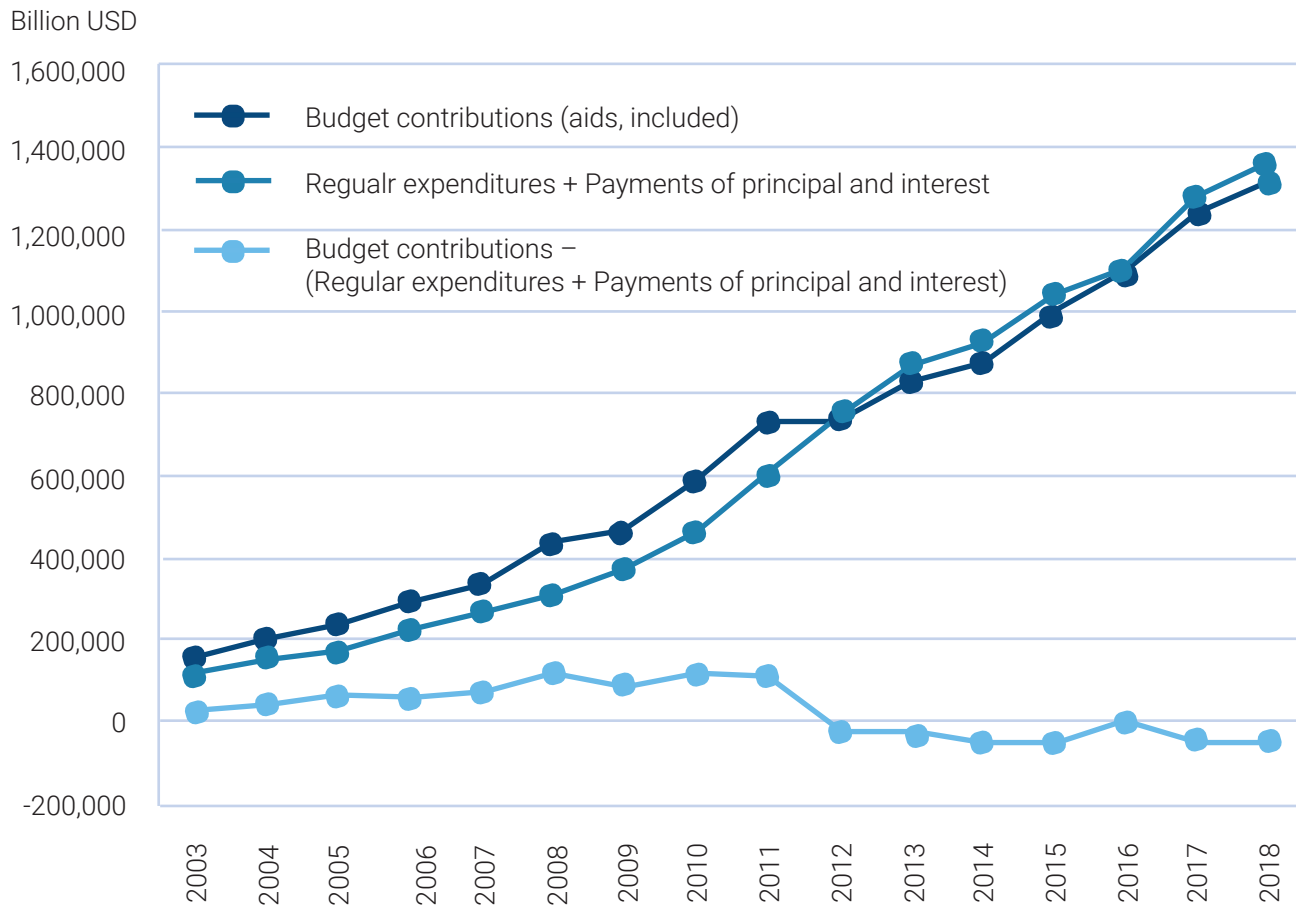
policies attracting the private sector's participation to investment in infrastructure and services that lead to the decrease in the investment rate of infrastructure from 12% of GDP in 2007 to only 6% in 2018. As a result, Vietnam's infrastructure is often overloaded, congested, underqualified, and misaligned in land clearance and disbursement of investment capital. In which, the Mekong Delta is one of the least invested regions.

Figure 1.11 Total investment capital by economic sectors and investment efficiency



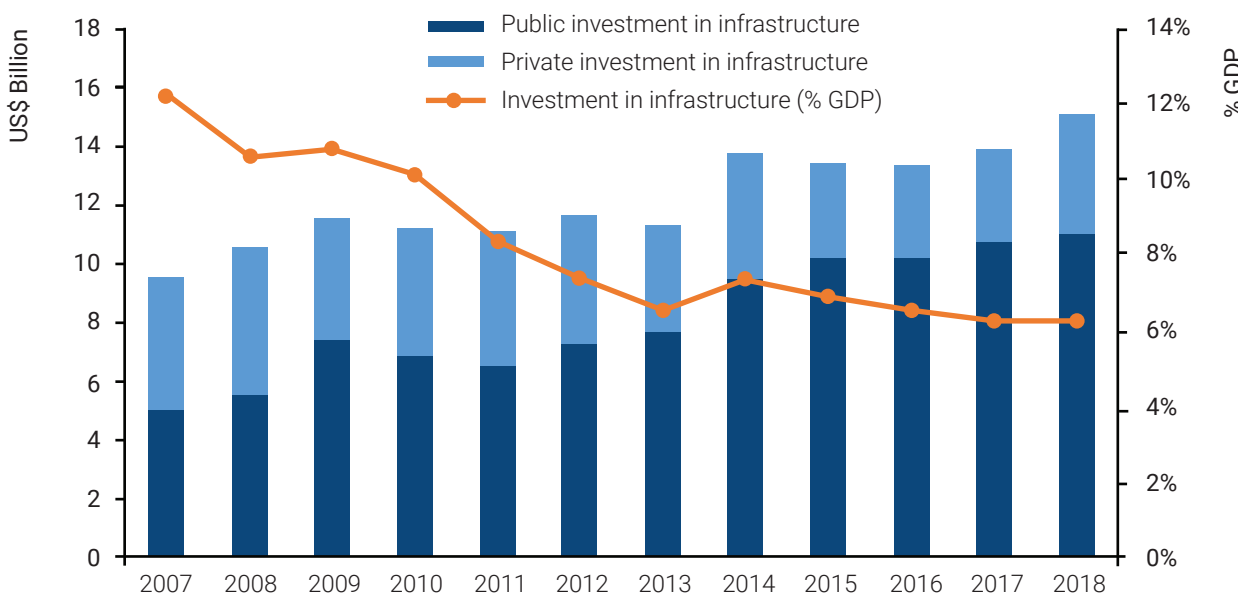
Source: GSO

Figure 1.12 Budget revenue, expenditures, and debt payments over the years

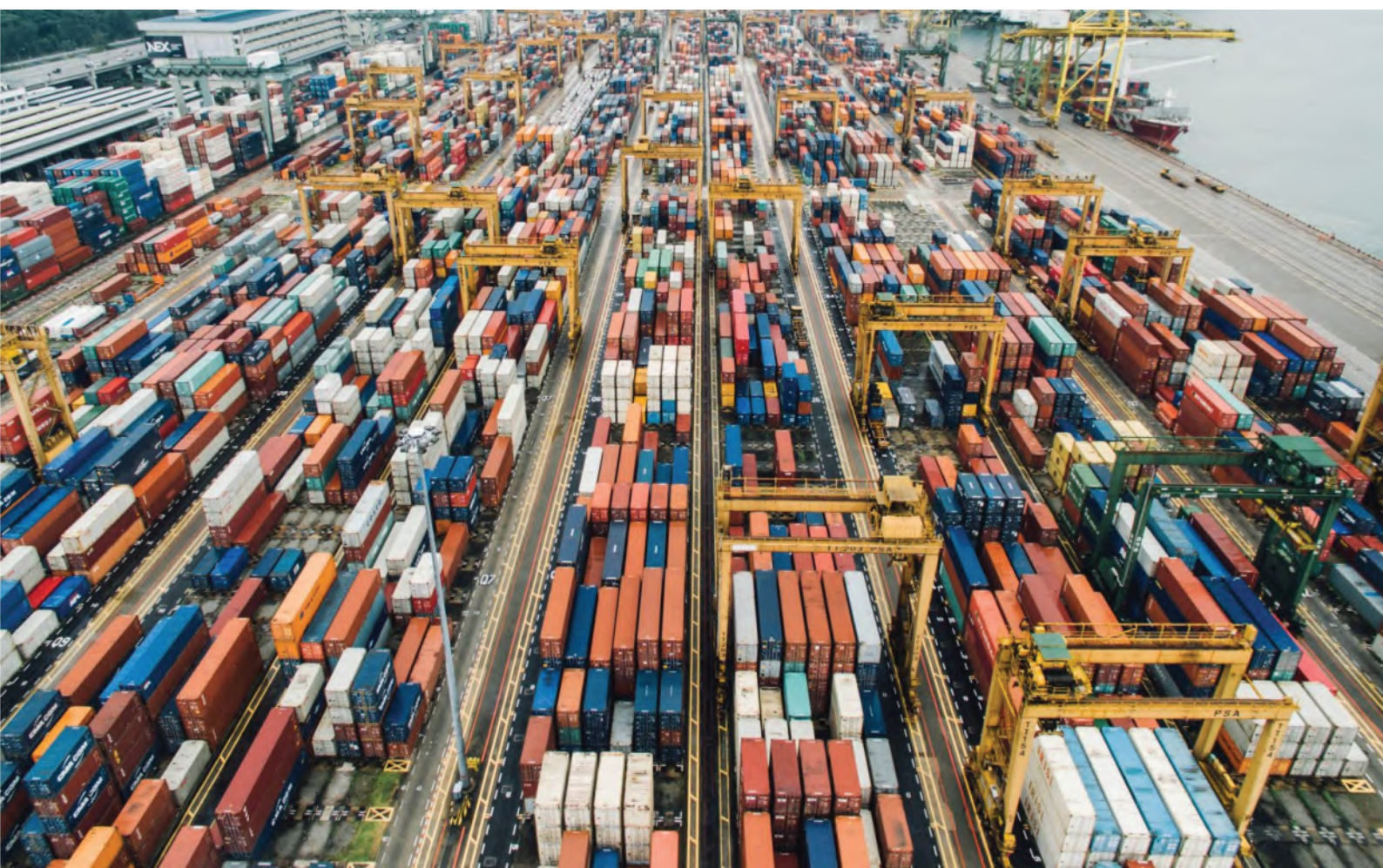


Source: Calculation from State budget settlement by Ministry of Finance

Figure 1.13 Investment in Vietnam’s infrastructure over the years



Source: Calculation from data of GSO

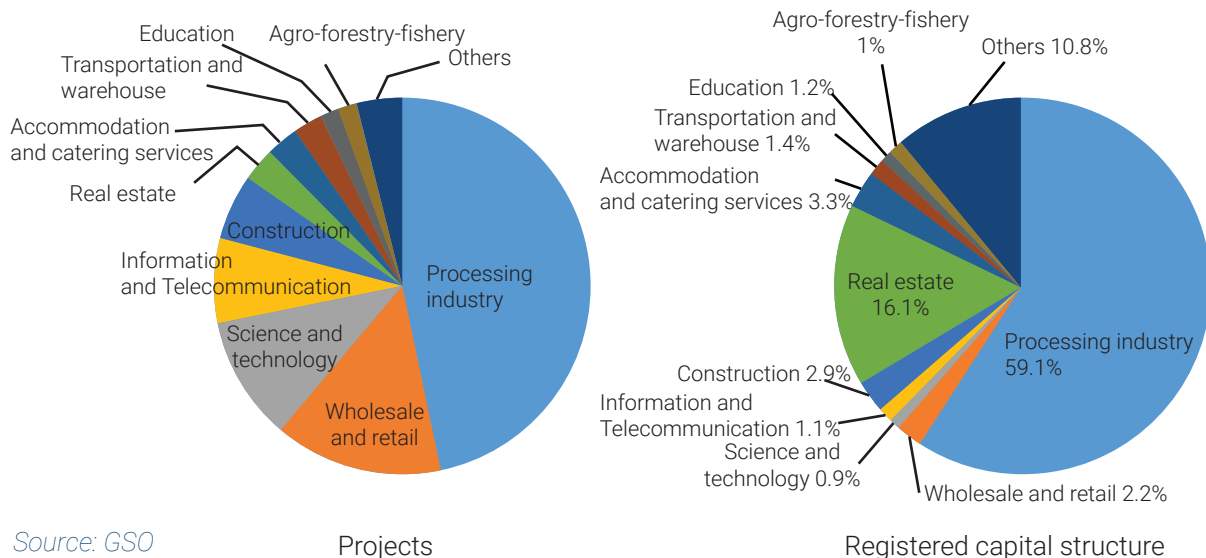


For the domestic private sector, investment resources mainly come from the residential sector with a fragmented scale and low investment efficiency. The private economic sector tends to grow faster, especially since 2016, but this resource is limited.

With regards to the FDI sector, Vietnam has always been one of the most attractive destinations. In the period 2010 - 2019, the whole country had a total of 21,732 registered FDI projects in Vietnam with an average capital size of USD 12 million per project, that is, about USD 2.2 billion were registered a month,

with the average implemented capital percentage of 55.2%. Regarding the investment sectors, the processing and manufacturing, wholesale and retail, telecommunication, and real estate industries are the key FDI attracting areas in Vietnam. Agriculture is a strength of the Mekong Delta, but its attractiveness to FDI is very limited. Even in the processing of agricultural products, the leading brands are mainly domestic enterprises; FDI enterprises often join the segment of food and fertilizer production, accounting for a high share of the agricultural value chain.

Figure 1.14 Structure of FDI in Vietnam (accumulation, valid until December 31, 2019)



Source: GSO

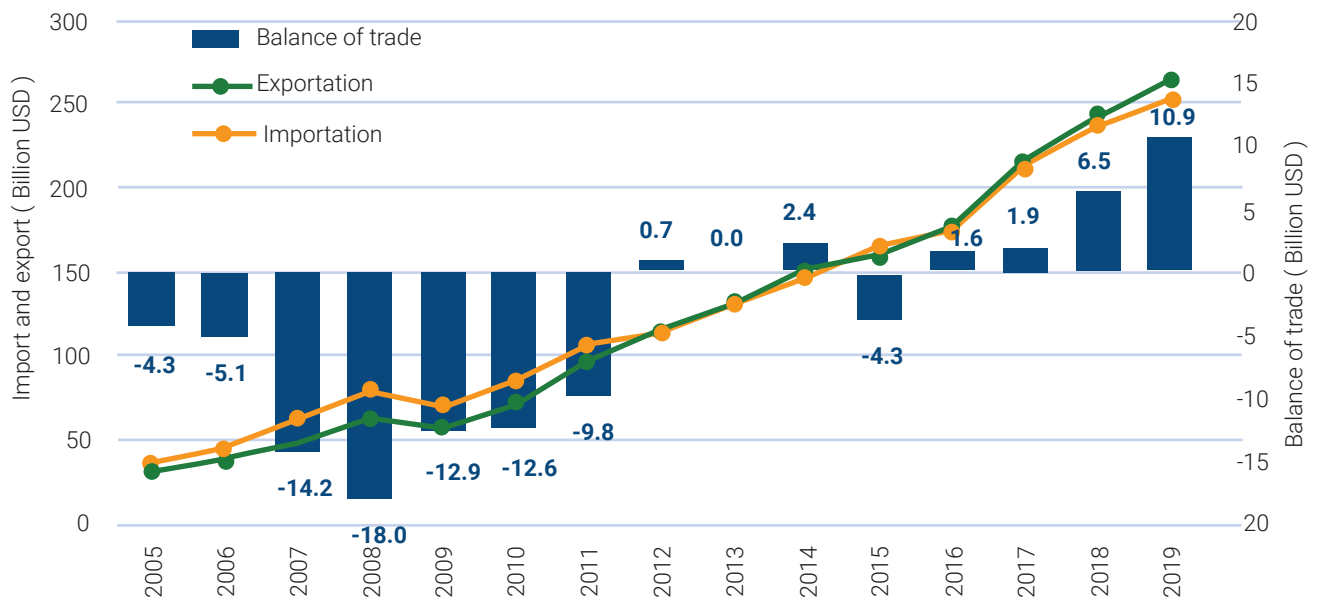
Projects

Registered capital structure

From import-export aspects, the trade balance of Vietnam has changed since the 2008-2009 crisis with a recent growing surplus, still the level of surplus is limited. Vietnam's trade growth in the past mainly came from the FDI inflows, and especially the presence of Samsung Corporation. Notably, the

export and import primarily derive from the manufacturing and processing industries, because they support the production of FDI. However, the added value by the domestic economic sector is not high, mostly labor income, VAT, and import tax.

Figure 1.15 Vietnam's balane of trade over the years



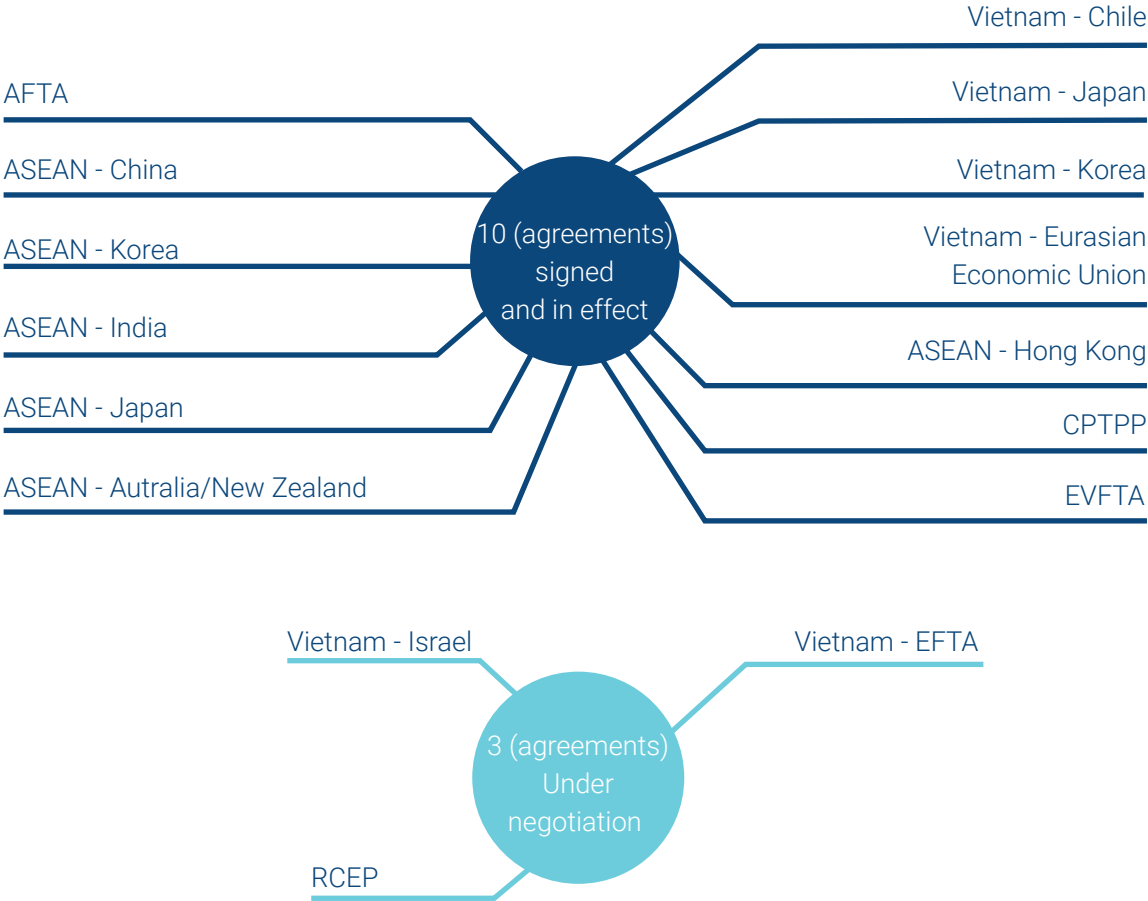
Source: GSO



Market expansion for exports has, so far, been an important salvation for the sustainable growth – at least in the short to medium term. Vietnam has been fully integrated with little room left for market expansion as its ratio of trade over GDP has exceeded 200%. Therefore, if we do not quickly have a specific strategy to approach, absorb, and spread the value from external capital flows in the short term, the risk of the economy lagging in the medium and long term is totally possible.

On the one hand, the process of intensive and extensive integration has opened the import and export markets and increased employment opportunities. On the other hand, this also raises the exposure to and limits Vietnam's defenses against global shocks. This is even more detrimental when the wave of globalization and free trade is increasing in the U.S and the EU with a significant shift in the global trade value chain.

Figure 1.16 Vietnam’s current international integration



Source: Synthesized from authors



1.2

ECONOMIC IMPACT OF THE COVID-19 PANDEMIC

The Covid-19 pandemic is a great shock to the global economy and Vietnam, and its negative effects can be long-lasting. Also, this is the time for countries to reposition their foundation, competitiveness, and dependence on the world economy, thereby recalibrating their competitive strategies and international cooperation accordingly.

Covid-19 impact on the global economy

The Covid-19 pandemic came unexpectedly and without preparation by most countries. The uncontrolled and widespread COVID-19 crisis has led to economic crisis, which in turn leads to financial and debt crisis.

port activities, cross-border investment, and tourism. Vietnamese exports to these countries account for 57%, so they will be significantly affected by the pandemic in the future.

The risk of the global economy recession in 2020 and the following years is clear for the following reasons:

Firstly, the COVID-19 pandemic occurred when the global economy was vulnerable and the risk of economic cycle was repeated. Global growth in 2019 was only 2.9%, the lowest since the 2008-2009 crisis. As a result, most of the major economies have both low and volatile growth. Data in Q4 of 2019 showed the U.S. growth of only 2.1%, China growth of 6.0% (lowest in 27 years), Japan's decrease in industrial

Table 1.1 Top 10 economies and COVID-19 pandemic ravages

Country	GDP	Processing – manufacturing	Exports	Exports of processing – manufacturing	Cases of COVID-19	Deaths by COVID-19	% exports of Vietnam
US	24%	16%	8%	8%	1,725,275	100,572	19.5%
China	16%	29%	13%	18%	82,993	4,634	17.0%
Japan	6%	8%	4%	5%	16,557	846	7.7%
Germany	5%	6%	8%	10%	181,288	8,498	2.8%
UK	3%	2%	2%	3%	265,227	37,048	2.4%
France	3%	2%	3%	4%	182,722	28,530	1.5%
India	3%	3%	2%	2%	151,876	4,346	2.7%
Italy	2%	2%	3%	3%	230,555	32,955	1.2%
Brazil	2%	1%	1%	1%	394,507	24,593	0.8%
Canada	2%	0%	2%	2%	86,647	6,639	1.2%
Global %	66%	69%	46%	56%	58.2%	76.4%	56.9%

Source: Calculated and synthesized by authors

Covid-19 has had the most direct and heavy impact on the group of 10 largest economies (comprising up to 66% of GDP, 69% of processing and manufacturing output, 46% of total exports turnover, or 56% of global manufacturing and processing exports). Based on the statistical data as of October 25, 2020, these countries account for 59% number of infective cases and 56.1% of deaths worldwide caused by Covid-19. When these economies are in trouble, they will affect the global economy, especially import-ex-

output to 6.3%, the negative growth of both Germany and France, -3.5% and -2.6% respectively, in December 2019. In addition, the U.S., Japan, the U.K and many G20 countries are facing heavy budget deficits amid a very high debt level. At the same time, interest rates in the most important economies in the G20 are very low, even zero in many EU countries and negative in Japan. Consequently, the governments have little room to intervene in fiscal and monetary policy to stimulate their economies.



Secondly, the scope of COVID-19 infection has spread globally. One quarter after the COVID-19 breakout, the pandemic has spread across 188 countries and territories, with its epicenter moving from firstly China to Korea and then Japan. When the situation in China became stabilized, the pandemic moved to Italy, Europe, and America. The shifting of the pandemic epicenter has continuously plunged the global economy into a partial "lock down" with uncertainty.

Thirdly, the connectivity and interaction among globalized economies are huge. Global supply chains currently account for about 75% of the world's trade growth, in which the countries most impacted by the epidemic also play the most important role. When the COVID-19 crisis hits, countries must partially or fully shut down their economies. The movement of people, investment capital flow (direct and indirect), and circulation of raw materials for production and goods are broken, thus causing great shocks to the aggregate supply. Similarly, a sharp decline in aggregate demand (especially input imports and tourism) has severely affected many countries – especially the highly open economies like Vietnam.

Fourthly, it is necessary to obtain collaboration

among countries for global solutions to overcome and constrain the impacts of COVID-19. Unfortunately, the world is now in conflict, increasingly separated, and forecasted to become a "new Cold War", in which the conflict of core strategic interests between the U.S, China and Russia plays an important role. In Europe, the U.K already exited the EU and exacerbated its division. Within each country, the disagreements among parties are also causing deep divisions in the U.S, the U.K, France, and many other countries. Additionally, the oil price war between Russia and Saudi Arabia and the risk of escalating military conflict in Syria continues to worsen the division.

In short, the world economy will decline sharply in 2020 and continue to face difficulties in the coming years. In January 2020, the IMF was still optimistic to predict that the global economy in 2020 will recover slightly, with a growth rate of 3.3%. But this organization lowered estimated global growth to -3.3% in April 2020 and -4.4% in October 2020. The level and duration of the crisis will depend on: (i) the evolution of the pandemic; (ii) the global coordinated response and each country's response effectiveness; (iii) the disruption of global supply; (iv) a global level decline; and (v) the financial difficulty of businesses and governments.

Vietnamese economy amid the pandemic – disadvantages and advantages

It is important to identify the disadvantages and advantages of the Vietnamese economy to effectively cope with the world's economic decline caused by the COVID-19. The disadvantages of the Vietnamese economy are as below:

(i) Because its economic structure is heavily dependent on external demand and the export capacity of the FDI sector, Vietnam is very vulnerable to the global crisis (about over 50% of Vietnam's current GDP structure is heavily exposed to the COVID-19 pandemic and economic crisis);

(ii) Vietnam is among the countries with the largest trade openness in the world (about 200% of GDP), of which all the most important export markets of Vietnam are heavily affected by the COVID-19. Therefore, Vietnam's exports will be affected by lower demand for exports while the supply side cannot produce due to the shortage of imported inputs and lack of demand;

(iii) Vietnam is one of the countries with the highest rate of FDI per capita in the world. When COVID-19 breaks out, FDI inflows have slowed down. Many existing FDI projects will decrease the capacity or even shutdown, thereby affecting job creation; industrial production, export, tax payment, and sharply declining the GDP of the FDI sector;

(iv) Tourism and related services (hotels, restaurants, transportation, etc.), which have been rapidly growing and accounting for an increasing share in the economy (about 10% of GDP), are the most directly impacted sectors by the pandemic, especially for international tourists, in the context of tourism at the peak season (summer vacation) and the second wave of Covid-19 outbreaks in Da Nang and other tourist centers in Central provinces of the country;

(v) Saline intrusion and drought in the Mekong Delta increase the risk of the economy, as experiences from previous economic and financial crises show that the agricultural sector plays a very important role in reducing the economic shock from other sectors.



In the current hardship, Vietnam's economy also has certain following advantages:

(i) the economic growth recently has been relatively good with lower public debt, stable exchange rate, and low inflation. These are very important macro foundations when the country deals with the global economic crisis;

(ii) public debt ratio has dropped to only 56.1% and government bond yields are relatively low, which help create the advantages needed for fiscal policy intervention - the most suitable policy to cope with the economic crisis;

(iii) the interest rate of Vietnam is still high, so the monetary policy has the possibility to cut interest rates. However, that policy only plays a supporting role for businesses in the short term because this is an economic, not financial, crisis.

In summary, Vietnam is severely affected by the COVID-19 pandemic and the global economic crisis. Without the efficient and timely support of the Government, several economic sectors and many businesses may go bankrupt, leading to serious consequences for growth and job creation, and even an economic and financial crisis in the near term.

COVID-19 impact on the economic development of the Mekong Delta

With underdeveloped industrial activities, agriculture as an essential commodity, and tourism mainly from domestic tourists, the impact of the Covid-19 pandemic on the Mekong Delta economy is considered less serious than other centers of industry, trade, and tourism of the country. The growth rate of the Mekong Delta in the first 6 months of 2020 reached 2.08%, higher than the national average (1.81%) yet the lowest in many years. The number of newly established enterprises decreased by 2.9% over the same period in 2019 while production and export of key products such as pangasius, shrimp, and fruit

decreased by -39.0%, -14.5%, and 21.0% respectively due to a temporary interruption in the supply chain during the early period of the pandemic outbreak in China.

As the pandemic is still complicated and can be prolonged, some of the following impacts need to be considered and prepared for action:

- With the role of ensuring national food security, the suspension of exporting rice and some essential agri-products can happen at any time. This policy will significantly affect the purchase price of agri-products and livelihoods of the people in the Mekong Delta, especially when agricultural production is in the primary crop.

- The supply chain and export of goods will be interrupted or even frozen when the pandemic turns complicated. At the same time, the logistics costs, already considered high compared to the value of the region's exports, will increase due to the costs related to safety and pandemic prevention.

- The flow of remittances into the Mekong Delta has tended to increase recently due to labor export and marriage with foreigners. The prolonged COVID-19 pandemic will reduce the income of the Vietnamese overseas and the risk of job loss for employees abroad, thereby reducing remittances sent to the Mekong Delta.

- The wave of repatriation of the Mekong Delta people working in the Southeastern provinces of Vietnam, or those participating in labor export due to the prolonged impact of the COVID-19 pandemic may be a burden on the region's economy.

- Amid the uncontrolled pandemic, the prolonged drought, increasingly serious salinity intrusion, and growing frequency of adverse weather that make the socio-economic environment unstable, the psychological and economic burden on businesses, people, and authorities in the region is growing.

In the current hardship, the Mekong Delta economy can expect that the EVFTA taking effect from August 1 with about 85% of tariff reductions, will open up significant opportunities for agricultural and fishery products of the Mekong Delta. In the context of low demand for goods, this is the right time for agricultural production and processing sector to reposition the market, product standards, quality, and effective competition strategy. In addition, as agri-products

being an essential commodity, the impact on agricultural processing and export will be positive if the international maritime activities or cross-border trade are still maintained. Moreover, the over-reliance on the Chinese market, the challenges from the COVID-19 pandemic, the drought and saltwater intrusion are clearly unsustainable, and thus able to become the pressure for the transition of agricultural production models in the region.





CHAPTER II

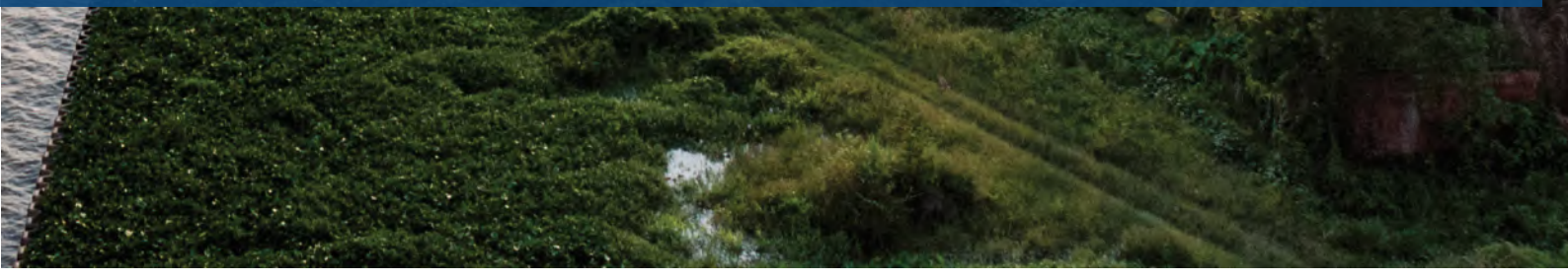
A DECADE'S
ECONOMIC DEVELOPMENT
OF THE MEKONG DELTA,
2009-2019: A REVIEW





2.1

COMPARATIVE ECONOMIC PERFORMANCE OF THE MEKONG DELTA



This section presents the economic achievements of the Mekong Delta region in relation to the national average and other economic regions in the 2001 – 2019 period. The comparison is made for three groups of indicators. The first group includes indicators for level of economic development as well as the distribution of the benefits of economic development to different groups of people, especially the poor. The second group is indicators of labor productivity as well as the origin of productivity changes over time. The final group is the income distribution and poverty reduction outcomes in the region.

Indicators for the economic development level

GDP

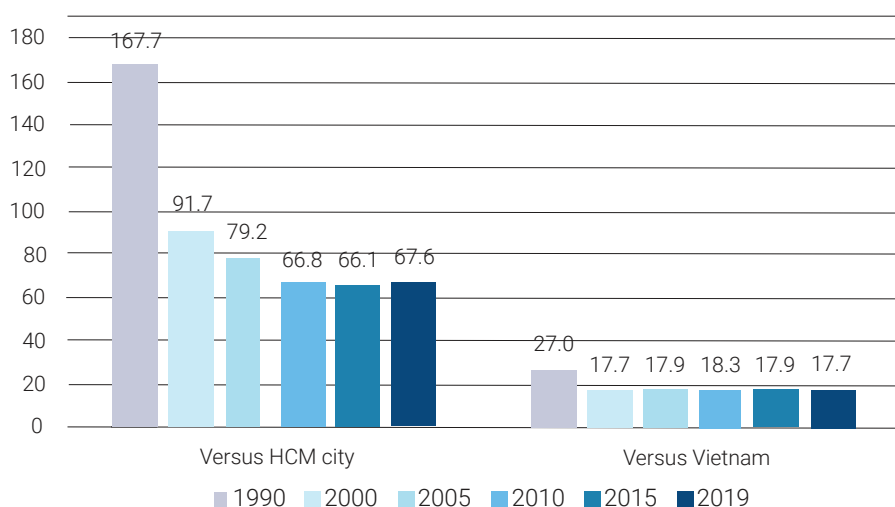
The Mekong Delta's contribution to the GDP of the country over the past three decades has declined sharply. Although in the past 20 years, the Mekong Delta has maintained a share of around 18% of the total national GDP, it only equals to two-thirds of the proportion of 27% in 1990. Thus, the economic role of the Mekong Delta is gradually decreasing compared to other regions in the country.

Figure 2.1 demonstrates a contrasting picture of GDPs between the Mekong Delta region and Ho Chi

Minh City. In 1990, the GDP of Ho Chi Minh City was only 2/3 of the Mekong Delta. Twenty years later, this ratio was completely reversed and maintained until today; the GDP of the Mekong Delta is now only 2/3 of HCMC. This also implies that, despite having the advantage of being next to Ho Chi Minh City and the dynamic and developed Southeast key economic region, the Mekong Delta does not seem to benefit significantly from this connection but left further and further behind. One important reason for the lower GDP growth of the Mekong Delta than HCMC's and the Southeast's is that the Mekong is mandated to ensure food security for the whole country, so it must focus on agriculture and rice production, and hence a slow shift to higher productivity industries.

The share of GDP decreased sharply while the population growth rate was equivalent to the average of the country, making the GRDP per capita in the Mekong Delta drop quite rapidly. Specifically, the average GRDP of the Mekong Delta was 22% higher than that of the whole country in 1990, but it has declined to 20% lower than the GDP per capita of the country. Compared to Ho Chi Minh City, the average GDP of the Mekong Delta was about half of that of Ho Chi Minh City in 1990, yet this rate was only approximately one third by 2010 and has remained relatively stable till now (Figure 2.1).

Figure 2.1 GDP rate of the Mekong Delta vs HCMC's and the whole country's



Note: Fixed price 1989 for 1990, fixed price 1994 for the period 2000-2010, fixed price 2010 for the remaining years.

Source: Statistical Yearbooks of Vietnam, Ho Chi Minh City and Mekong Delta provinces.

The difference in living standards and lack of economic opportunities are two important reasons urging the migration of people from the Mekong Delta to Ho Chi Minh City and the Southeastern provinces. This, on the one hand, increases the scarcity of human resources (especially skilled workers and qualified managers), already limited in the Mekong Delta, and on the other hand creates continuous and increasing pressure on the demand of infrastructure and public services in Ho Chi Minh City.

Economic structure and restructuring

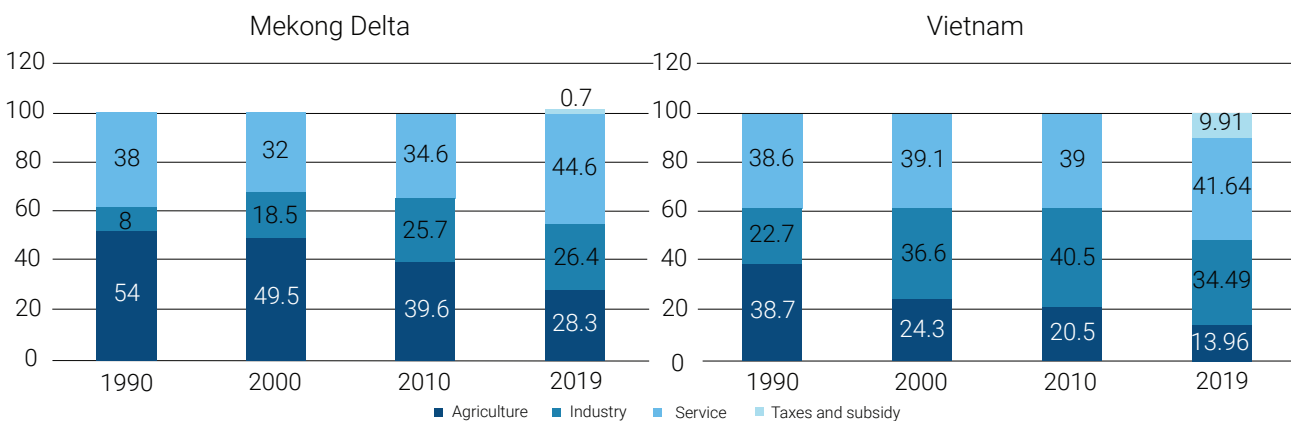
Data from Figure 2.2 show that in the period 1990-2010, the GDP structure of the Mekong Delta shifted very slowly compared to the whole country. For example, while the proportion of agriculture sector of the whole country decreased rapidly from 38.7% in 1990 to 24.3% in 2000 and only to 20.6% in 2010, these rates in the Mekong Delta were 54.0%, 49.5%, and 45.5%, respectively. In service sector, although with an equal starting point, during the period 1990 - 2010, the restructuring trajectory in the Mekong Delta (down from 38% to 31.6%) is completely opposite to the general trend of the country (up from 38.6% to 41.7%). In the Mekong Delta, industry sector has the fastest movement speed. However, even in this zone, the shift occurs mainly in the first 10 years (up from 8% to 18.5%), while in the second 10 years, the transition is very modest (up from 18.5% to 22.9%).

The reason for the slow economic restructure in the

Mekong Delta in the two decades, from 1990 to 2010, especially in the early Doi Moi (Reform) era, was that agriculture, light industry, and exports were the three economic pillars of Vietnam. As noted above, with its outstanding advantages in agriculture compared to the whole country, it is reasonable for the Mekong Delta to focus on agricultural development, ensuring food security in the period when the country lacks food. Industrial development and exports of light industrial products of Vietnam in this period relied heavily on the FDI sector, and the choice of FDI to invest in the Southeast provinces of Vietnam is also reasonable. However, when the country has overcome the food shortage time, the Government needs to adjust strategies and policies so that the Mekong Delta has the best economic structure to promote its competitive advantage. This also implies that, even in the development of industry and services, the Mekong Delta needs to select suitable industries and products to supplement and enhance, not to decrease or lose, the advantages of the region.

In contrast to the 1990-2010 period, the economic structure of the Mekong Delta has strongly shifted in the past decade. The proportion of agriculture sector has decreased from 39.6% in 2010 to only 28.3% in 2019 - a huge change, much higher than the rate of structural transformation in the previous two decades. Likewise, the industry - construction and service sectors are also changing drastically, converging closer and closer to the national economic structure. However, it should be noted that the space for structural transformation is not infinite.

Figure 2.2 GDP structure of the Mekong Delta, 1990 – 2019 (%)



Source: For the Mekong Delta, the data in 1990 is from Nedeco (1993), the 2000 data is calculated from the Statistics Department of Can Tho City (2010), the 2010 data is from the Ho Chi Minh city Institute for Development Studies (2011), 2019 data compiled from the Statistical Yearbook of the Mekong Delta provinces. For the whole country, figures are calculated from the Statistical Yearbook of Vietnam.

With inherent natural features, it is impossible for the Mekong Delta to have the same economic structure as the whole country. This means that although the structural transformation will continue in the next decade, the agricultural structure of the Mekong Delta will always be higher than the national average, and the industrial share will always be significantly lower than that of the whole country.

The strong economic restructuring of the Mekong Delta is also reflected in data on the labor structure of the region. By 2010, 62.2% of labor force in the Mekong Delta was still in the agricultural sector (compared to 48.7% of the country). The consequence is that the proportion of the population working in the remaining sectors (industry, construction, and services) is much lower than that of the whole country (Table 2.1). However, by 2019, thanks to the strong labor restructure from agriculture to industry -

construction and service, the difference in the labor structure between the whole country and the Mekong Delta has decreased significantly. Of course, as discussed above, the transition from agriculture to the rest is not infinite, so it is not expected that the rate of labor transition of the past decade will be accelerated in the next one.

Another perspective on the state of economic restructure of the Mekong Delta is to examine the origin of the GRDP growth of the entire region. The first way to achieve this goal is to look at the contribution of each sector to GRDP growth. Statistics show that, agriculture sector, though still accounting for 34.5% of the total GRDP of the Mekong Delta in 2010 - 2019, contributed 22% to the GRDP growth of the region (Figure 3). The reason for this modest share of agriculture is that the productivity of this zone is much lower than that of the other two.

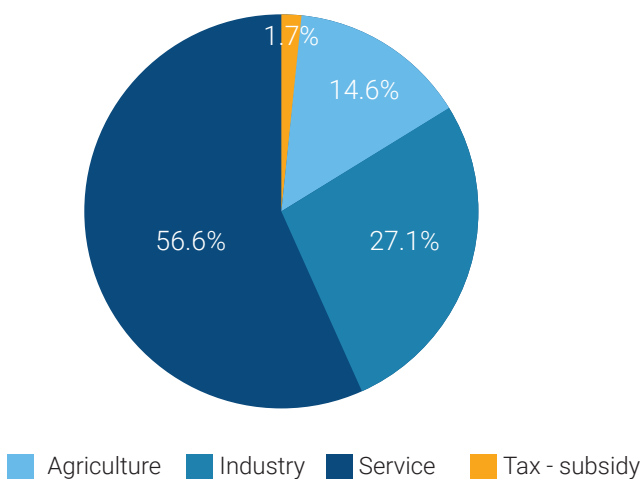
Table 2.1 Proportion of labor force in line with economic activities in the Mekong Delta in the 2010 and 2019 period (%)

	Agriculture		Industry		Service	
	2010	2019	2010	2019	2010	2019
Long An	42.0	30.8	31.0	38.5	27.0	30.7
Tien Giang	62.6	43.1	12.9	29.0	24.5	27.9
Ben Tre	64.0	51.5	20	20.2	16.1	28.3
Tra Vinh	54.4	46.5	18.2	22.0	27.4	28.0
Vinh Long	58.3	41.9	15.7	24.2	26.0	31.6
Dong Thap	70.5	39.1	9.8	22.0	19.6	36.2
An Giang	58.2	33.4	11.5	20.5	30.3	45.0
Kien Giang	65.8	45.3	10.5	16.2	23.8	35.2
Can Tho	42.1	28.5	21.1	21.7	36.9	45.7
Hau Giang	67.2	59.5	10.5	13.9	22.3	23.3
Soc Trang	64.2	46.0	10.6	19.3	25.2	31.9
Bac Lieu	65.0	46.8	8.8	20.5	26.2	32.7
Ca Mau	72.4	50.4	6.2	19.7	21.4	29.9
Mekong Delta	62.2	43.3	12.2	22.1	25.6	32.8
Vietnam	48.7	34.5	21.7	30.1	29.6	35.4

Source: Synthesized from Statistical Yearbooks of the Mekong Delta provinces and General Statistics Office (GSO).

Data from Figure 2.3 also shows that in 2010-2019, the contribution of the services sector to the region's GRDP growth reached 56.6% - higher than the contribution of the other two combined. What is even more interesting is that in the previous decade (2000 - 2010), the contribution of service to the GRDP growth of the region was only 40% but it has currently reached 56.6%. This shows that the productivity in the commercial and service sectors of the Mekong Delta in the past decade significantly outperformed the industrial and agricultural sectors.

Figure 2.3 Contributions of three sectors to Mekong Delta GRDP growth (2010 – 2019)

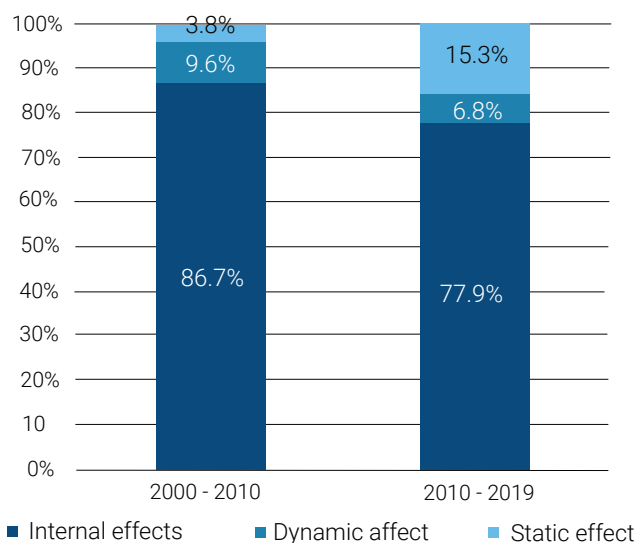


Source: Calculation from the socio-economic data of the Mekong Delta

A second way of looking at the origins of GRDP growth in the Mekong Delta is to look at intra-industrial, static, and dynamic effects contributing to growth (known as "structural shift analysis"). Here, the intra-industrial effect is perceived as the improvement in the internal productivity of each economic sector (agriculture, industry, and service); The static effect is the movement from a low-productivity sector to a more productive one (for example, the movement of labor from agriculture to industry and service) and the dynamic effect is the move from a sector with a low rate of productivity growth to an area with a higher rate of productivity growth.

The data from Figure 2.4 shows that the GRDP growth of the Mekong Delta in both 2000 - 2010 and 2010 - 2019 is primarily due to intra-industrial effects, which in turn are mainly owing to the increased internal productivity in each economic sector. However, the importance of the intra-industrial productivity boosting effect is showing signs of diminishing. It is worth noting that the relative role of dynamic and static effects has undergone an important change. Between 2000 and 2010, the dynamic effects accounted for approximately 10% and more important than the static effect (only 3.8%). In the 2010 – 2019 period, the static effect accounted for 15.3 %, far outstripping the dynamic effect (only 6.8%). This is in line with the above analysis of the acceleration of economic restructuring of the Mekong Delta from agriculture to industry and especially to service in the past 10 years.

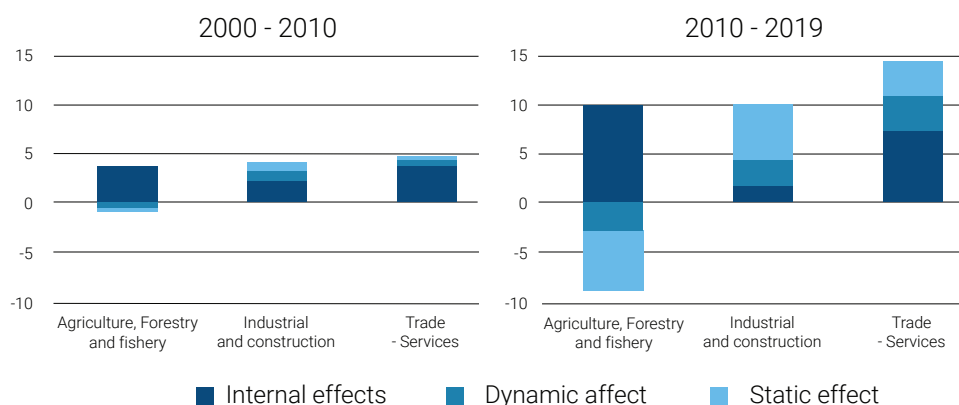
Figure 2.4 Proportional origin of GDP growth in the Mekong Delta (2000 – 2010 and 2010 – 2019)



Source: Calculation from the socio-economic data of the Mekong Delta

Figure 2.5 provides a more detailed view for each economic sector. The highlight in this chart is the role of the intra-industrial productivity growth effects in the agricultural sector and the service sector. In contrast, in the industry-construction sector, the most important role lies in the static effect, and the role of intra-industry and dynamic effects is similar.

Figure 2.5 Proportional origin of Mekong Delta GDP growth for each sector (2000 - 2010)



Source: Calculated from socio-economic data of the Mekong delta

Income distribution and poverty elimination results in the Mekong Delta

Economic success of a locality is not only measured by the size of its prosperity (measured by total GDP and GDP growth rate) but also by the benefits shared equally to social classes, especially to the lower classes of society - the most vulnerable. This report uses the Gini² coefficients to measure the inequality in income distribution (Table 2.2) and uses the poverty rate to reflect efforts to improve living standards for the poorest of the regions (Table 2.3).

In general, high economic growth rate are often accompanied by an increase in income inequality, but data on income inequality in the Mekong Delta do not follow this pattern. If the data of the Household Living Standards Survey (Table 2.2) is reliable, the GRDP growth rate of the Mekong Delta in the period of 2010 - 2019 is not low. However, the Gini indicator of the Mekong is always fluctuating around 0.4, suggesting that the income inequality of the region is almost unchanged during this period. In addition, the Gini indicator of the Mekong Delta is always lower than the national average and only slightly higher than the North Central and Central Coast.

Table 2.2 Gini coefficients of the Mekong Delta and other regions of Vietnam (2010 – 2018)

	2010	2012	2014	2016	2018
The whole nation	0.433	0.424	0.43	0.431	0.424
Urban area	0.402	0.385	0.397	0.391	0.372
Rural area	0.395	0.399	0.398	0.408	0.407
6 economic regions					
Red River Delta	0.408	0.393	0.407	0.401	0.392
Northern Midlands and Mountains	0.406	0.411	0.416	0.433	0.443
North Central & Central Coast	0.385	0.384	0.385	0.393	0.383
Central Highlands	0.408	0.397	0.408	0.439	0.440
Southeast	0.414	0.390	0.397	0.387	0.373
Mekong Delta	0.398	0.403	0.395	0.405	0.399

Source: Household Living Standards Survey 2010 - 2018.

² The Gini coefficient takes a value in the range [0, 1] and is proportional to the level of income inequality, means that, the closer the Gini coefficient is, the higher the level of inequality and vice versa.

Table 2.3 Poverty proportions by urban and rural areas, and regions (%)

	Poverty line by Government						Multi-dimensional poverty line		
	1998	2004	2010	2012	2014	2016	2016	2017	2018
National Poverty proportion	37.4	18.1	14.2	11.1	8.4	5.8	9.2	7.9	6.8
Poverty proportion by regions									
Red River Delta	30.7	12.7	8.3	6.0	4.0	2.4	3.1	2.6	1.9
Northern Midlands and Mountains	64.5	29.4	29.4	23.8	18.4	13.8	23	21	18.4
North Central & Central Coast	42.5	25.3	20.4	16.1	11.8	8.0	11.6	10.2	8.7
Central Highlands	52.4	29.2	22.2	17.8	13.8	9.1	18.5	17.1	13.9
Southeast	7.6	4.6	2.3	1.3	1.0	0.6	1.0	0.9	0.6
Mekong Delta	36.9	15.3	12.6	10.1	7.9	5.2	8.6	7.4	5.8

(*) The Government's poverty line for the 2011-2015 period is calculated based on the average household income per capita per month, updated by the consumer price index, as follows: it was 400,000 VND for rural areas and 500,000 VND for urban areas in 2010; similarly, 570,000 VND and 710,000 VND in 2013; 605,000 VND and 750,000 VND in 2014; 615,000 VND and 760,000 VND in 2015; and 630,000 VND and 780,000 VND in 2016.

Source: Statistical Yearbook

Table 2.3 shows the results of poverty reduction by each region and the whole country. According to the data, the poverty reduction record of the Mekong Delta over the past two decades was impressive. The poverty rate of the Mekong Delta according to the government poverty line has decreased from a very high level of 36.9% in 1998 to only 12.6% in 2010 and 5.2% in 2016, and this rate continued to decrease in 2016-2019. The poverty rate of the Mekong Delta has also been lower than the national average. Thus, the poverty rate of the Mekong has been only higher than the Southeast and the Red River Delta and much lower than the other three regions.

However, most of the efforts for poverty reduction in the Mekong Delta (as well as the whole country) was done in the period 1998-2004. Though decreased, the poverty reduction rate was much slower in subsequent periods. This also indicates that the easy tasks in poverty reduction are almost over, and from now on, they will be more challenging by the effects of domestic and foreign economic and environmental risks - as evidenced by increased poverty during the global financial crisis and more recently during the Covid-19 pandemic. This means that the poverty reduction, for the Mekong Delta as well as the whole

country, can only be implemented if the economic growth rate is kept high and stable. As analyzed in Section II below on labor, employment, and living standards of the population, sustainable poverty reduction also depends on investment in education, training, health, information, and technology development to increase productivity and added value in existing jobs and access new job opportunities and better jobs, thereby creating higher and more stable incomes for workers.

Productivity of the Mekong Delta

Productivity is the most accurate measure of an economy's competitiveness. Theoretically, using the growth accounting method, it is possible to determine the contribution rate of the inputs (such as capital and labor) and the total factor productivity (TFP) to GRDP growth. Unfortunately, the growth accounting method for the Mekong Delta is not feasible since the data is both incomplete and unreliable. Moreover, this Report only focuses on examining the level and sources of labor productivity growth in the Mekong Delta.

Labor productivity of the three economic sectors in the Mekong Delta is shown in Figure 2.6 in which the productivity is measured by the average GRDP generated by a worker over a one-year period. The chart shows that, until 2010 the labor productivity of industry sector was much higher than that of service sector, and in turn the labor productivity of service sector was much higher than that of agriculture sector. This is because not only the industry - construction sector had a higher productivity by 2010, but the rate of productivity growth was also higher than that of the commercial, service and agricultural sectors.³ Likewise, the service sectors are both more productive and have a much higher rate of productivity growth than the agricultural sector.

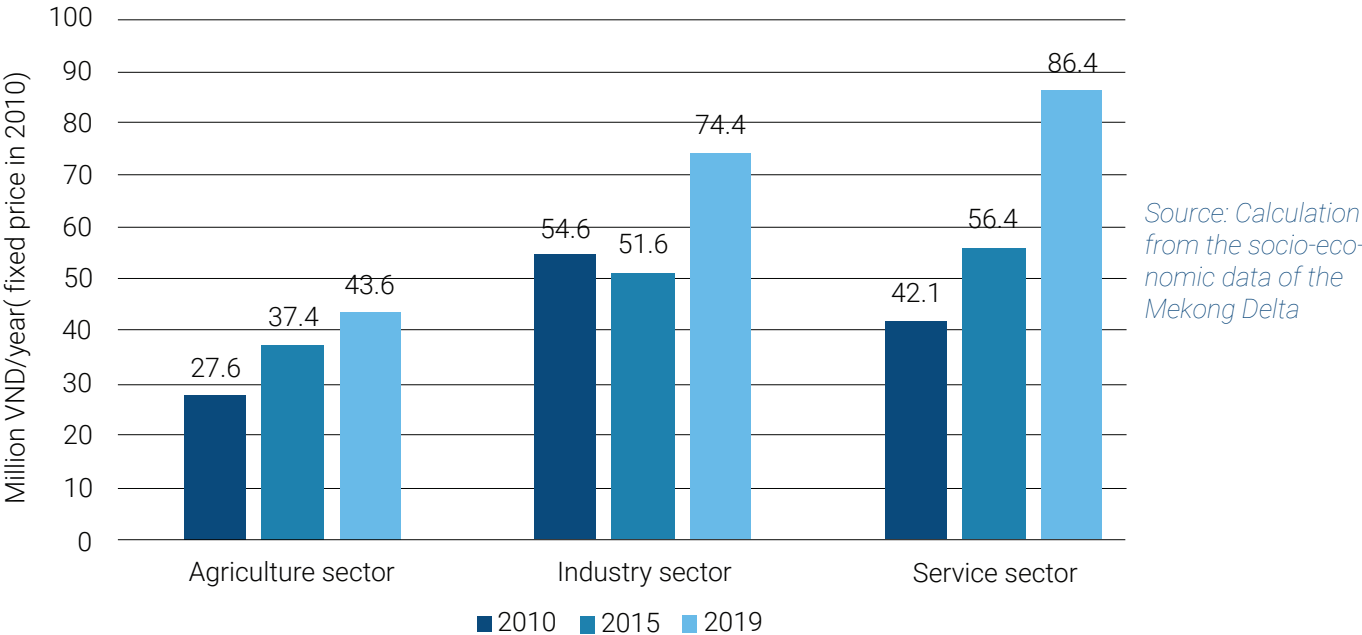
However, the productivity correlations between the three zones have changed rapidly since 2010 due to aftershocks of domestic macroeconomic instability and the world financial crisis. By 2015, labor productivity in service sector has surpassed that of industry sector by nearly 10%; and by 2019, the labor productivity of service sector has confirmed its superior position compared to the other two regions - 16% higher than industry sector and nearly double that of agriculture sector.

A closer look at the productivity of the Mekong Delta provinces reveals that the labor productivity of the agriculture-forestry-fishery and service sectors has

increased rapidly, with an average of 5.2 % and 8.3%, respectively in the period 2010 - 2019. Notably, if official statistics are correct, the labor productivity growth rate of the industry - construction sector from 2010 to 2019 was only 3.5% per year - much lower than the agriculture-forestry-fishery sector which does not have the possibility to increase productivity.

There are many causes of worries for the industrial productivity growth in the Mekong Delta. They will be discussed in detail in the remaining parts of this Report, yet, in short, there are three primary direct causes. The first reason is that the industrial productivity is dependent on investment, and the most important source of investment in Vietnam is the FDI sector, an inherent weakness of the Mekong Delta, especially compared to the Southeast (see the Section 2.III). The second reason comes from the production structure and industrial export of the Mekong Delta. So far, the most important industrial production in the Mekong Delta has been the seafood processing, but the growth rate of this industry is limited and subject to risk of fluctuations from not only the climate and nature but also the global financial crisis of 2008, as well as the recent Covid-19 pandemic. The third reason is that the remaining industrial production activities of the Mekong Delta have not increased generally. The growth, if any, mainly resulted from labor-intensive manufacturing and processing industries which create low value.

Figure 2.6 Labor productivity of three economic sectors (2010 – 2019)



³ The productivity growth rate of each sector is represented by the slope of the labor productivity line.



2.2

POPULATION, LABOR, EMPLOYMENT, LIVING STANDARDS

Population and its fluctuations

By April 1, 2019, the population of 13 the Mekong Delta region was 17.3 million (accounting for 18.0% of the country's population); the most populous province in the region is An Giang (1.9 million people) and the least is Hau Giang (733 thousand people). The average population density is 423 people per sq km, higher than the national average (290 people per sq km) but much lower than the economic centers of the country (e.g., Ho Chi Minh City – 4,363 people per sq km) or Hanoi – 2,398 people per sq km). The majority of the population lives in rural areas (the Mekong Delta's urban population is 21.7% in 2008 and 25.1% in 2019). The urbanization rate is lower than the national average (the country's urban population was 29.0% in 2008 and 34.4% in 2019).⁴

The difference of population fluctuations among regions in the period 2009-2019 shows that the Mekong Delta and the Northern & Coastal Central are the two regions with a decreasing proportion of the population while the Southeast has the largest accumulation of population.

In particular, the Mekong Delta is the only region having an average annual population growth rate of 0.0% in the past 10 years while the overall national rate is 1.1% and even the Northern & Coastal Central also has an average population growth rate of 0.7% per year. This result is influenced by three important factors. First, the region's natural population growth between 2008 and 2018 was the lowest in the country (8.2%, equivalent to 1.41 million people), mainly due to the lowest ever annual crude birth rate, yet the highest ever crude death rate, significantly higher than in the Southeast. Second, the immigration rate is also the lowest nationwide. Third, the migration rate of the region is the highest nationwide (Table 2.4).

More warning is indicated upon reviewing population fluctuations over the years. Although natural population growth and immigration are the lowest in the country, they tend to decrease sharply. Although migration decreased gradually in the period 2014 - 2017, it started to increase sharply again in 2018.

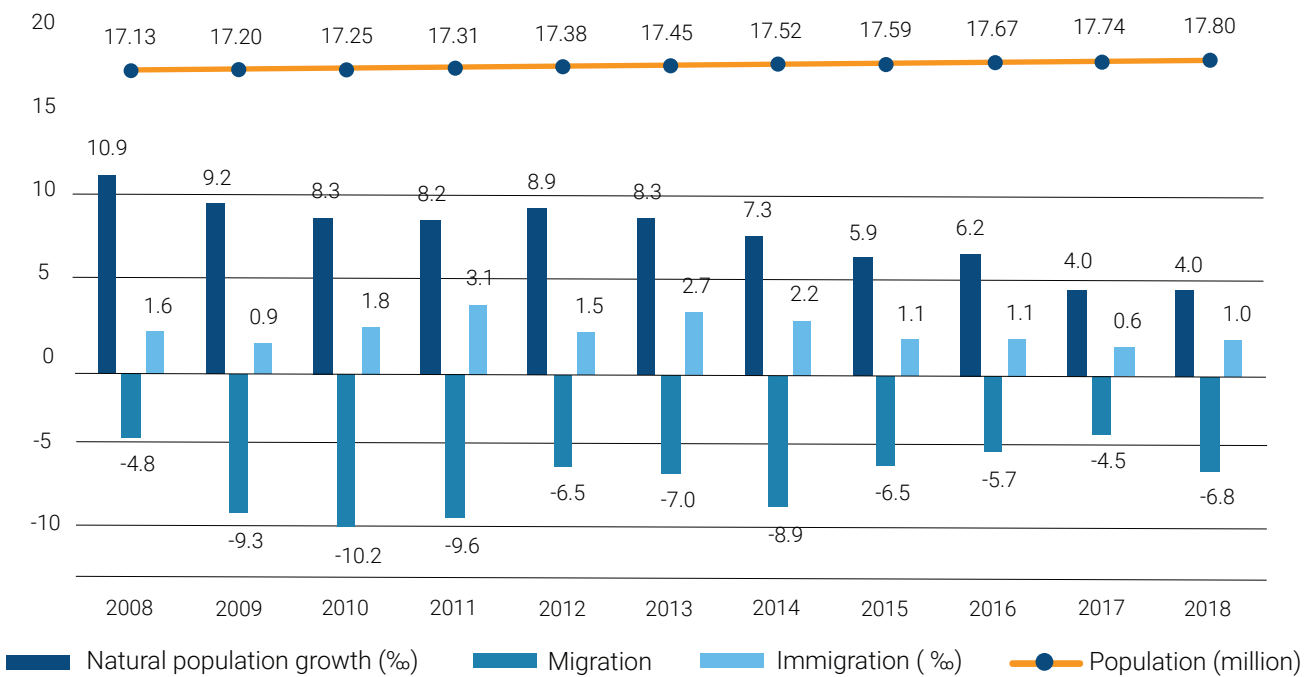
Figure 2.4 Population fluctuations among regions over the years

Region	2009		2019		2009 - 2019			
	Population (millions)	Proportion	Population (millions)	Proportion	Population Increase	Immigration (%)	Migration (%)	Net immigration (%)
Northern Midlands and Mountains	11.1	12.9%	12.5	13.0%	1.2%	5.2	23.1	-19.6
Red River Delta	19.6	22.8%	22.5	23.4%	1.4%	16.6	9.1	9.7
Northern & Coastal Central	18.8	21.9%	20.2	21.0%	0.7%	4.9	29.6	-25.2
Central Highlands	5.1	6.0%	5.8	6.1%	1.4%	11.1	23.2	-13.5
Southeast	14.1	16.4%	17.8	18.5%	2.4%	80.3	7.5	70.7
Mekong Delta	17.2	20.0%	17.3	18.0%	0.0%	4.9	44.8	-38.9
Vietnam	85.9	100.0%	96.2	100.0%	1.1%	22.2	22.2	0.0

Source: Author's calculations based on the 2009-2019 Censuses

⁴ Calculation from data of GSO and Statistical Yearbook of the Mekong Delta provinces

Figure 2.7 Migration, immigration, and natural population growth in the Mekong Delta over the years



Source: GSO

These results hypothesize that the living conditions, employment and livelihoods of people in the Mekong Delta are increasingly difficult, and the tendency of people leaving the Mekong Delta for a better livelihood is inevitable. This trend will continue due to the negatively increasing impacts from climate change, drought, upstream hydropower plant construction on the production, quality of life,

and environment in the Mekong Delta. Ramifications will be more serious given that the livelihoods of the Mekong Delta people are mainly associated with natural conditions and concentrated in the areas along Tien River, Hau Rivers and sea gates, which have been directly and heavily influenced by climate change.⁵



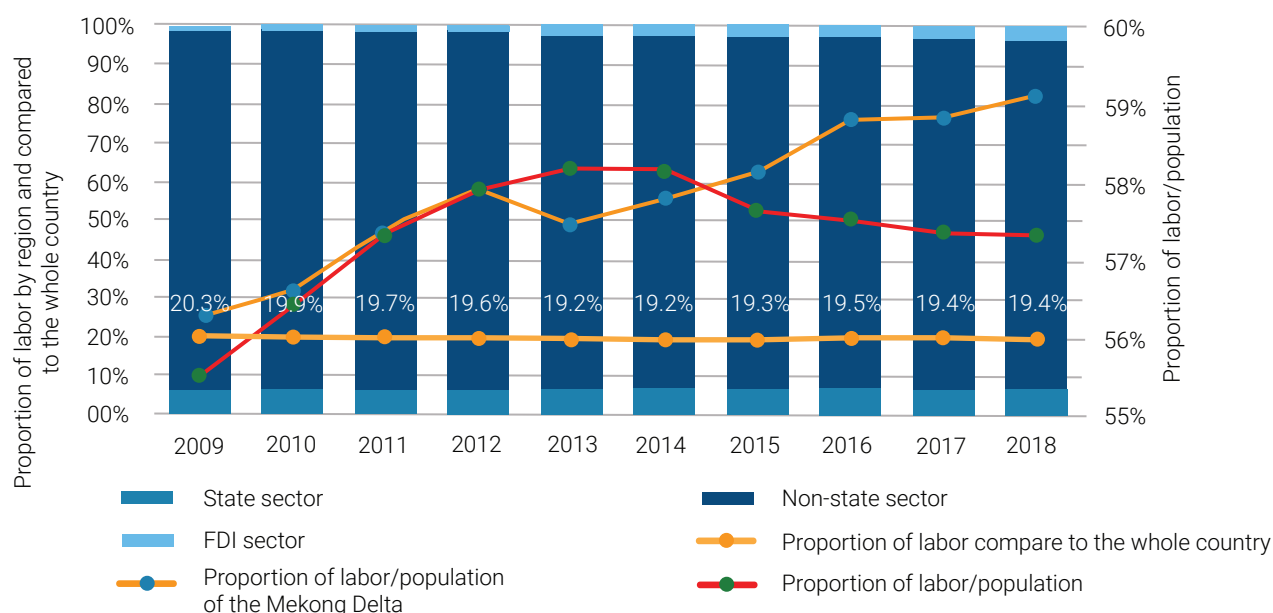
⁵ Pham Van Bua (2010). Learn about population characteristics and people's psychology of the people in the Mekong River Delta to effectively implement the strategy of national solidarity. *Can Tho University Journal of Science* (13): 11-19

Labor – Employment

By end of 2018, the entire Mekong Delta region had about 10.5 million workers in the economy, accounting for 59.1% of the population of the whole region and 19.4% of the nation's workforce, slightly lower than that in 2009. The average growth rate of the labor force in the 2009-2018 period was only 0.9% per year, lower than the national average of 1.4% in the same period. The gap in labor growth between the region and the whole country has narrowed as the Mekong Delta is still in the peak of the golden demographic period while the country is already on the other side of the slope of the population cycle.

concentrated on rural areas associated with agricultural production. The percentage of the labor force working in enterprises was only 11.1% by end of 2017, much lower than the national rate of 27%.⁶ Second, although the FDI sector only creates about 3.7% of jobs in the region, most of them are in the official sector and tend to improve compared to 10 years ago (in 2009 FDI labor force only accounts for 1.4%). Currently, the role of FDI in job creation in the Mekong Delta is much less significant than in the country. However, the recent rapid rise of provinces located at the gateway of the region such as Long An and Tien Giang or localities with an FDI breakthrough due to transportation connections such as Ben Tre

Figure 2.8 Labor structure change in each economic sector in the Mekong Delta



Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

Therefore, if there are no new solutions or incentives to limit the current high migration, the advantage of the abundant labor supply in the region will quickly disappear. More seriously, current migration rates are often concentrated on the skilled and under-35 workforce, leaving behind the aging, low-skilled, and inflexible workforce which will be a burden on the Mekong Delta in the medium to long term.

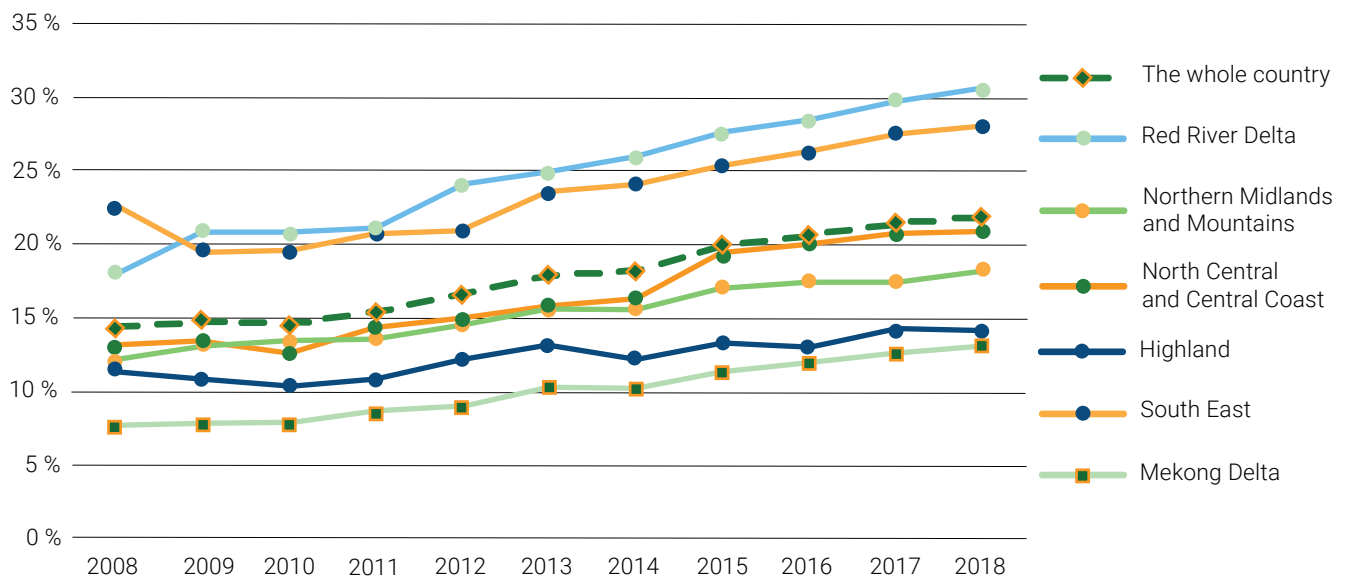
A review on the region's workforce dynamics gives away two important issues that attention shall be paid to. First, the non-state economic sector plays an important role in creating jobs for people in the Mekong Delta, over 90% on average, compared to 85% nationwide. However, most of the workforce is

(Rach Mieu Bridge) and Tra Vinh (Co Chien Bridge) shows that the role of transportation and the geographical attraction of FDI in the region is relatively large. The earlier Trung Luong - My Thuan expressway is completed, the more opportunities opened up for the Mekong Delta. On the contrary, the impact of climate change creates many risks and is a barrier to attracting investment.

Regarding the workforce qualification, the Mekong Delta has the lowest proportion of trained workers in the country, though this trend is gradually improving. This result shows that not only the number of jobs created but the quality of jobs as well as the need for skilled labor in the region are limited.

⁶ Excluding the public servants and state employees due to the unavailable information resources. However the difference between localities in this labor force is not big.

Figure 2.9 Comparative trained labor force among areas and regions in the country



Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

The demand for labor from business remains low. The enterprise density in the Mekong Delta was only 5.7 enterprises per 1,000 people of working age in 2018, while the national average was 14.7 enterprises. The underemployment rate of the working-age labor force in the Mekong Delta at the end of 2018 was 2.8%, doubling the national average. For the labor supply, the people's motivation and pressure

to thrive are not high because for a long time they mainly relied on the exploitation of natural resources. Training programs at the colleges and universities are incompatible with the needs and have not yet matched with the demands of businesses, while the quality and employability of vocational training programs are not high, mostly training under 3 months (over 90%).⁷



⁷ Hoang Chi Dung – Chi Quoc (2018). It's necessary to have strong policies to develop human resources. Tuoi tre Online, at: <https://tuoitre.vn/can-chinh-sach-manh-de-phat-trien-nguon-nhan-luc-20180115230745068.htm>

Living standards

Given the above employment situation, it is not surprising that the living standards of the Mekong Delta people have been in the lowest group and especially left far behind the Southeast. This explains why people from the Mekong Delta often migrate to the Southeast to seek new jobs and better opportunities.

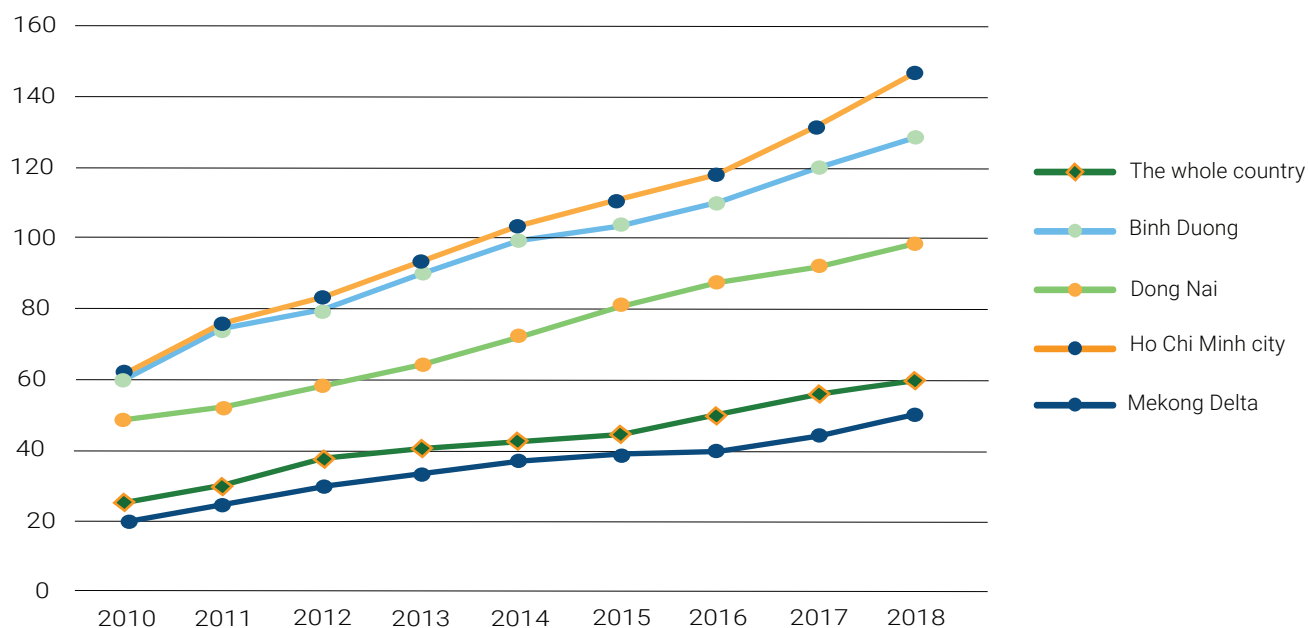
GRDP per capita of the Mekong Delta is about 80% of the national level and only approximately one third of that of Ho Chi Minh City and Binh Duong Province, or a quarter of that of Dong Nai Province.

More seriously, the trend disparities are increasing and showing the less developed picture of the Mekong Delta than the general level of the country. (Figure 2-10).

The analysis results of income per capita indicate a similar trend. The gap between the rich and the poor in the Mekong Delta is the widest in the country and the trend is increasing according to the general trend of the country. Meanwhile, the gap between the rich and the poor in the Southeast is narrower and more stable. Again, this shows that the working and living environment in the Southeast is a remarkable attractiveness for the workforce in the Mekong Delta.



Figure 2.10 Comparative GRDP per capita of the Mekong Delta (2010 – 2018) (Million VND/person/year)



Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

Table 2.5 Comparative income per-capita & the rich and poor gap in the Mekong Delta

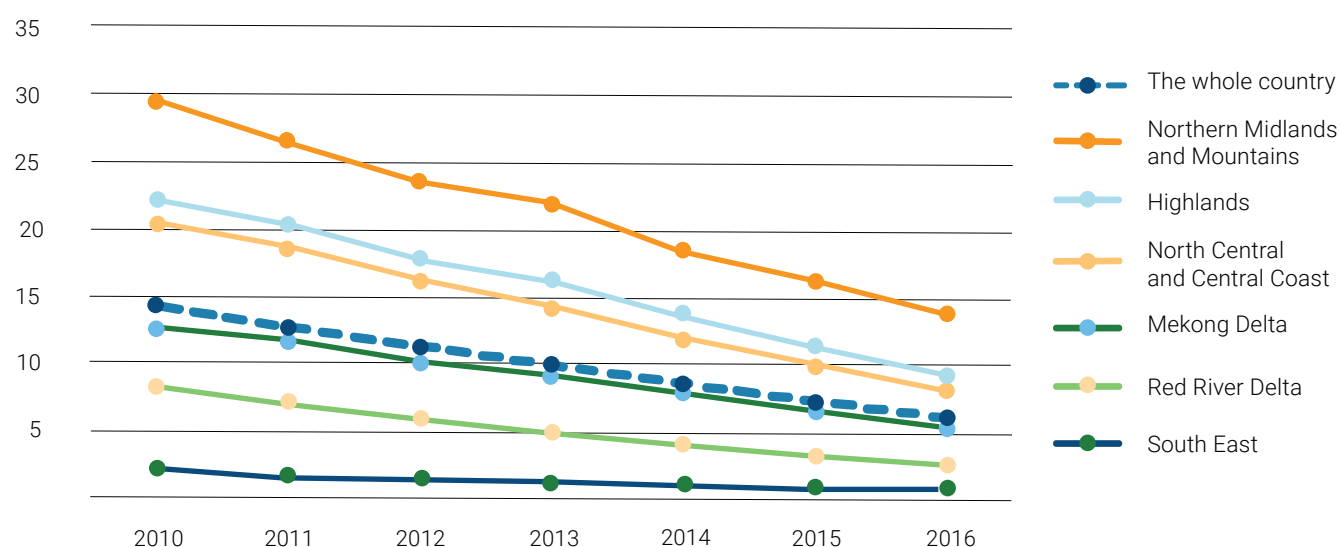
Income (1,000 VND/month)	2010	2012	2014	2016	2018
Whole country	1,387	2,000	2,637	3,098	3,876
The Southeast	2,304	3,173	4,125	4,662	5,709
Binh Duong	2,698	3,568	3,769	5,005	6,823
Dong Nai	1,763	2,577	3,504	4,328	5,299
Ho Chi Minh City	2,737	3,653	4,840	5,109	6,177
Mekong Delta	1,247	1,797	2,327	2,778	3,588
Income Difference Group 5 Group 1	2010	2012	2014	2016	2018
Whole country	9.2	9.3	9.7	9.8	10.0
The Southeast	7.7	7.0	7.1	6.8	7.1
Binh Duong	7.2	6.9	7.0	7.1	7.4
Dong Nai	6.6	6.1	6.1	6.2	6.5
Ho Chi Minh City	6.7	6.5	6.5	6.6	6.9
Mekong Delta	7.4	7.7	7.4	7.8	8.2

Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

On the other hand, the achievements of poverty reduction in the Mekong Delta have been remarkable over the past 10 years. As analyzed in Section 1.1.3 and Table 2.2, the Gini coefficient of the Mekong Delta fluctuated steadily around 0.4, indicating that the income inequality of the Mekong

Delta during this period was almost unchanged. However, the speed and trend are only equivalent to the national level. By 2018, the poverty rate in the Mekong Delta is 5.2% according to the poverty line of the Government and 5.8% according to the multi-dimensional poverty line.

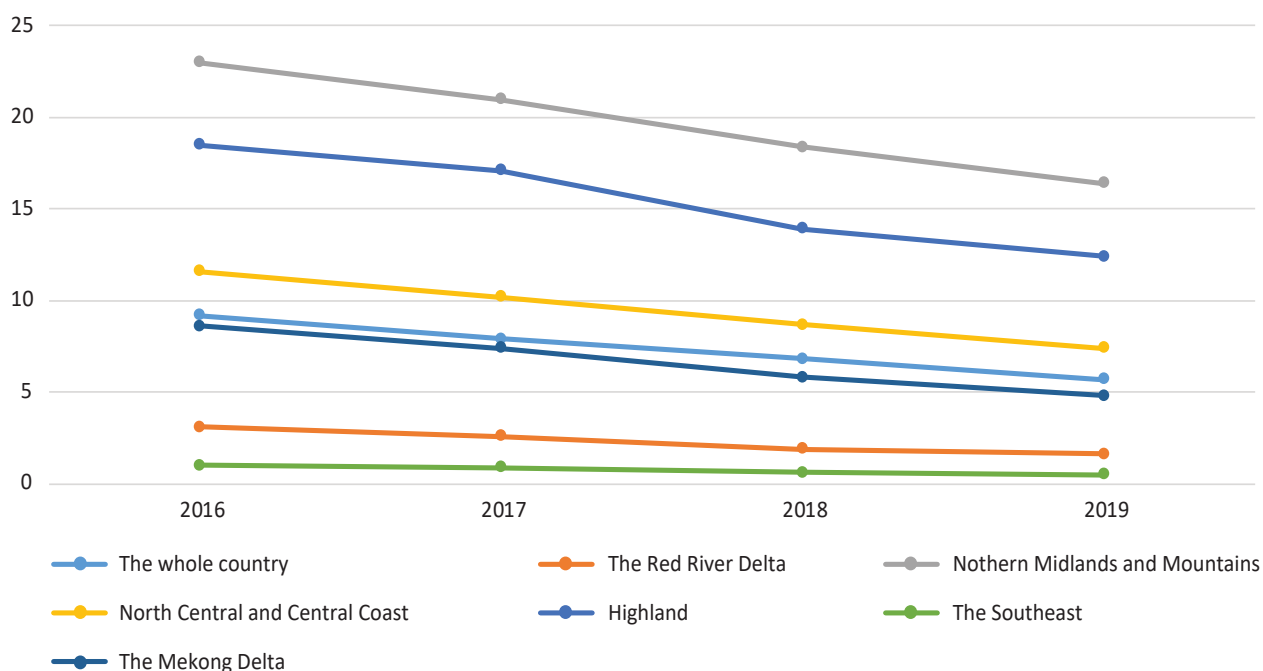
Figure 2.11 Changes in poverty rates in the country's regions (2010 – 2016)



(*) The Government's poverty line for the 2011-2015 period is calculated based on the average household income per capita per month, updated by the consumer price index, as follows: it was 400,000 VND for rural areas and 500,000 VND for urban areas in 2010; similarly, 570,000 VND and 710,000 VND in 2013; 605,000 VND and 750,000 VND in 2014; 615,000 VND and 760,000 VND in 2015; and 630,000 VND and 780,000 VND in 2016

Source: GSO

Figure 2.12 Changes in poverty rates in the country's regions (2010 – 2016)



(*) Multi-dimensional poverty line applied in the 2016 – 2020 period: Decision No. 59/2015/QĐ-TTg issued multi-dimensional poverty line approach for the 2016 – 2020 period.

Source: GSO

The main causes of poverty in the region are mainly due to the high dependence on economic activities associated with natural conditions and low productivity, increasing climate change impact, lack of connection with the richer and more dynamic Southeast, shortage of land and capital, and underdeveloped infrastructure. The rate of low-quality

houses is 26.4% compared to the national average of 9.2%. Certain groups of people, especially ethnic minorities (comprising about 8% of the region's population, mainly Khmer and partly Cham and Chinese), are not motivated for better living and having limited access to non-agricultural economic activities in rural areas.⁸

In summary, the analysis of population changes, labor, employment, and living standards of people in the Mekong Delta demonstrates that the flow of people continuing to migrate to other provinces is very high if there are no positive changes in the structural and economic motivation as well as job opportunities in the Mekong Delta. The traditional livelihood and production conditions of the people in the Delta have been declining due to the long-term exploitation of natural resources; other reasons come from the negative impact of climate change and the building of hydroelectric plants at the upstream of the Mekong River. The migration of people from the region is inevitable, especially in the

context of a labor surplus in the regional economy that focuses mainly on agriculture. The splitting of workers from the agricultural sector can be a factor that helps accelerate the transition of traditional production patterns and increase production scale. If the Mekong Delta can take advantage of the industry spillovers from Ho Chi Minh City or opportunities to attract investments, especially the FDI, to industrialize the traditional agriculture, infrastructure development of Trung Luong - My Thuan expressway as well as many other transportation projects, these will help create more positive change for the region in the next period.

⁸ Central steering committee for population and houses census (2019). Implementation conducted and preliminary findings on 2019 population and houses census. GSO Publisher.



2.3

INVESTMENT



Total investment

Mekong Delta economy is neither developed as expected, nor compatible with its potentials. The traditional strengths have been almost fully exploited and are showing signs of decline. In this context, the role of investment - both inner and outer - in the Mekong Delta is of utmost importance. However, investments for the Mekong Delta in the past 10 years have been very low and not commensurate with the demand of the region's socio-economic development.

The total investment capital in the province by end of 2018 reached nearly 280 trillion VND (an average of 21.5 trillion VND per locality), with an average growth rate of 10.9% per year at current prices. However, the proportion of investment capital compared to the whole country has been declining, especially since 2015 (about 15-18% on average). In the context that investments from non-state sectors are increasingly expanding (53.1% in 2014 to 68.5% in 2018), resources from the public sector constantly declined (41.4 % in 2014 to 22.4% in 2018). Investments by the FDI in the Mekong Delta have also shown positive changes, but their role is still very limited and unstable (accounting for only 9.1% of the total investment capital in 2018).

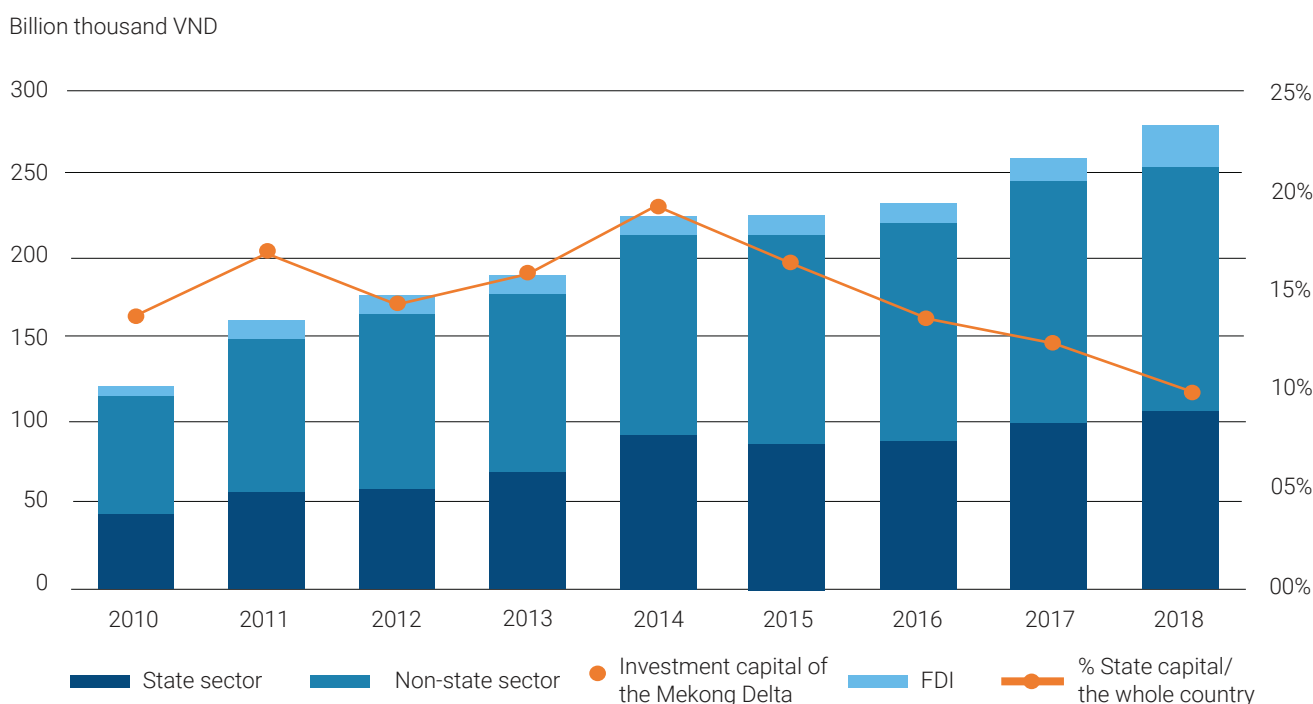
280 thousand billion VND

Total social investment capital of the Mekong Delta by the end of 2018

Data from the Ministry of Transport are compared with data from statistical yearbooks of all provinces in the Mekong Delta

Although investment resources for the Mekong Delta in the past 10 years have not been as expected, the key projects from the State budget have created many positive changes for the Mekong Delta. Typically, several of key bridges have been built such as My Thuan Bridge (2000), Rach Mieu Bridge (2009), Can Tho Bridge (2010), Ham Luong Bridge (2010), Co Chien Bridge (2015), My Loi Bridge (2015), Cao Lanh Bridge (2018), and Vam Cong Bridge (2019). Some other important projects under investment such as Ho Chi Minh City - Trung Luong Expressway (2010) or Trung Luong - My Thuan Expressway are also expected to open new development opportunities for the whole region.

Figure 2.13 Total investment capital in the Mekong Delta (2010 – 2018)



Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

Investment demand for the Mekong Delta, especially for transport infrastructure, is still huge. So far, the key transportation network of the region has not been completed yet. Seven key regional expressway projects being proposed (Can Tho - Ca Mau, Chon Thanh - Duc Hoa, Duc Hoa - My An, My An - Cao Lanh, An HUU - Cao Lanh, Chau Doc - Can Tho - Soc Trang, and Ha Tien - Rach Gia - Bac Lieu) have a capital demand of up to 55,000 billion VND, and already 37,500 billion VND just in the period 2021 - 2025, equivalent to the total investment capital from the State in the Mekong Delta in 2014 - 2018.⁹ These investments need to solve the problem of landslide, and lack of fresh water is also enormous. Therefore, if the legal procedures are not soon completed to call for participation from the private sector in the PPP method, the above-said projects are likely to be delayed, even just on the paper. More difficult, the private sector participation in infrastructure investment projects is affected by information about the negative effects of climate change on the Mekong Delta.



In addition to the non-state investments, capital from the people still plays a key role, but positive signs are coming from the investment capital from private non-state enterprises.

With FDI inflows, the Mekong Delta is not attractive to investors (accounting for only 5.6% of projects and 8.4% of registered capital), mainly due to the disadvan-

tage of geography and transportation connectivity. Long An and Tien Giang are the provinces most likely to attract FDI in the region thanks to their borders with Ho Chi Minh City and are becoming one of the industrial satellites of HCMC. Meanwhile, Kien Giang attracts FDI better than other provinces thanks to its tourism activities in Phu Quoc Island. For Tra Vinh Province, the actual ability to attract FDI mainly comes from the Duyen Hai thermal power plant complex.

Figure 2.14 Investment capital structure by economic sectors (%)

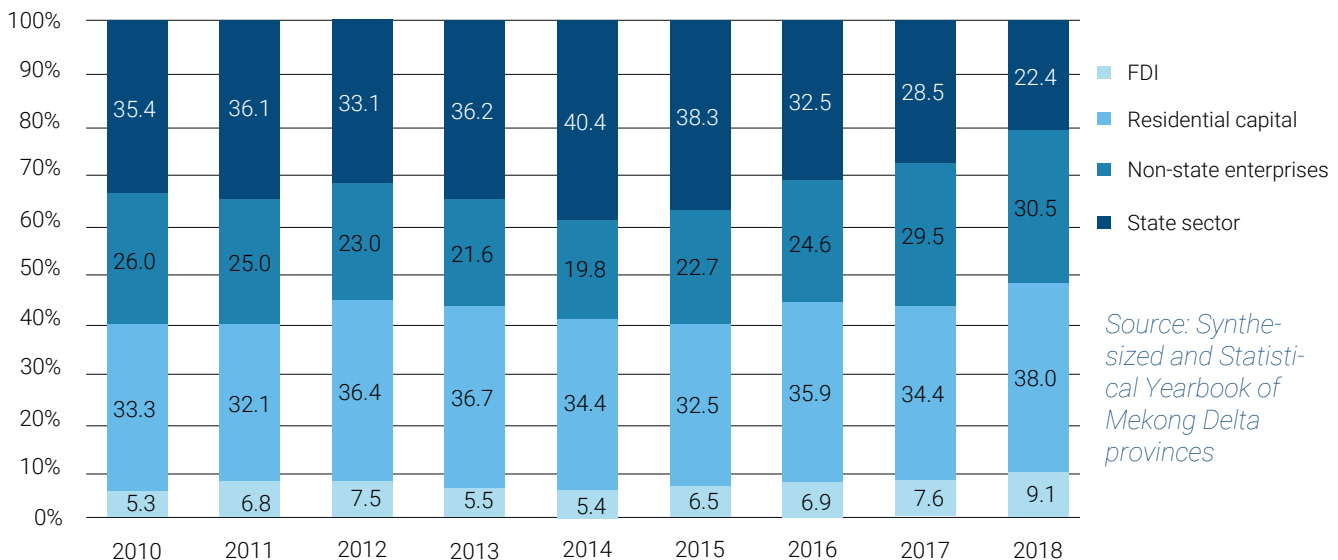


Table 2.6 FDI capital in the Mekong Delta in correlation to the whole country

Region, province, city	Projects	% projects	Registered capital accumulated to 2017 (Million USD)	% Registered capital	Average Scale (Million USD per project)
WHOLE COUNTRY	27,454	100.0	340,849.9	100.0	12.4
Red River Delta	8,948	32.6	99,042.0	29.1	11.1
<i>Hanoi</i>	5,110	18.6	33,134.7	9.7	6.5
Northern Midlands and Mountains	916	3.3	16,177.6	4.7	17.7
North Central & Central Coast	1,722	6.3	56,808.2	16.7	33.0
Central Highlands	144	0.5	909.1	0.3	6.3
Southeast	14,139	51.5	143,682.5	42.2	10.2
<i>Ho Chi Minh City</i>	8,123	29.6	45,194.3	9.3	5.6
Mekong Delta	1,535	5.6	21,461.8	8.4	14.0
<i>Long An</i>	1,042	3.8	7,396.4	13.3	7.1
<i>Kien Giang</i>	51	0.2	4,724.5	6.3	92.6
<i>Tra Vinh</i>	39	0.1	3,231.2	2.2	82.9
<i>Tien Giang</i>	114	0,4	2,192.0	0,6	19,2

Source: General Statistical Office

Compatibility between investments and key bottlenecks in the Mekong Delta

Investment destinations over the past 10 years demonstrate that the largest inflows of investment are concentrated in the manufacturing-processing industry. However, the industry's growth rate was only average compared to other industries, and it was not an advantageous industry compared to the whole country. Specifically, investment in the processing industry is mainly concentrated in the provinces of Long An and Tien Giang (in the key economic region of the South). For the other provinces in the region, the processing industry mainly focuses on the agro-fisheries processing industry, but its growth capacity has been saturated in terms of area, output, and export turnover. In particular, the price of the export market fluctuates sharply, the technical trade barriers are increasingly tightened, and the possibility to innovate

and upgrade the industry is not compatible. The export market share is mainly transferred from bankrupt to existing enterprises.

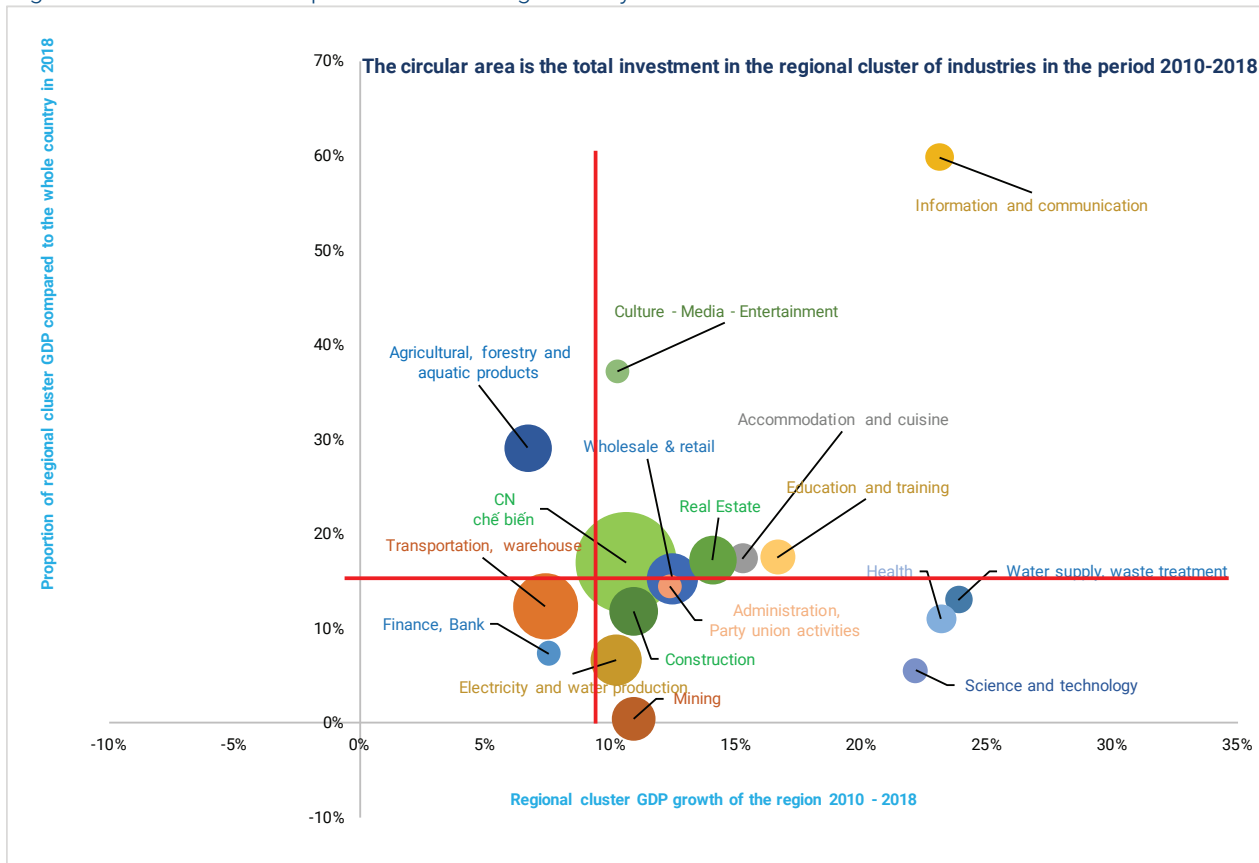
Although agriculture, forestry and fisheries are the key sectors of the Mekong Delta, capital investments in those industries are very limited. This is because the growth rates of those industries have reached saturation point as they mainly rely on the exploitation of natural resources which have been declining. While the application of science and technology in agricultural production is very limited despite being encouraged substantially. The main reason is due to lack of the compatibility between the requirements of "agriculture 4.0" and the managerial level and skills of the workers, and especially due to lack of motivation to innovate the agricultural production model in the context of cheap and redundant labor force.

⁹ Comparative data from MOT and Statistical Yearbook of the Mekong Delta provinces.

Demands to transport agricultural products from production areas to industrial zones or clusters or to Ho Chi Minh City for export explain why the capital invested in the transportation and warehousing industry in the Mekong Delta ranked the second, only after the processing industry. However, this sector does not have much capacity for development (growth rate is below average, and the share is also small compared

main shortcomings include: (i) conflict between salt water sources for shrimp farming and fresh water sources for rice and crop production, leading to the incident that people have broken saline prevention sluices in the provinces of Bac Lieu and Ca Mau; (ii) hydrological, ecosystems, and tidal connections have disappeared; there is no longer phenomenon of high water or low water, leading to pollution caused by

Figure 2.15 Investment capital in the Mekong Delta by economic sector

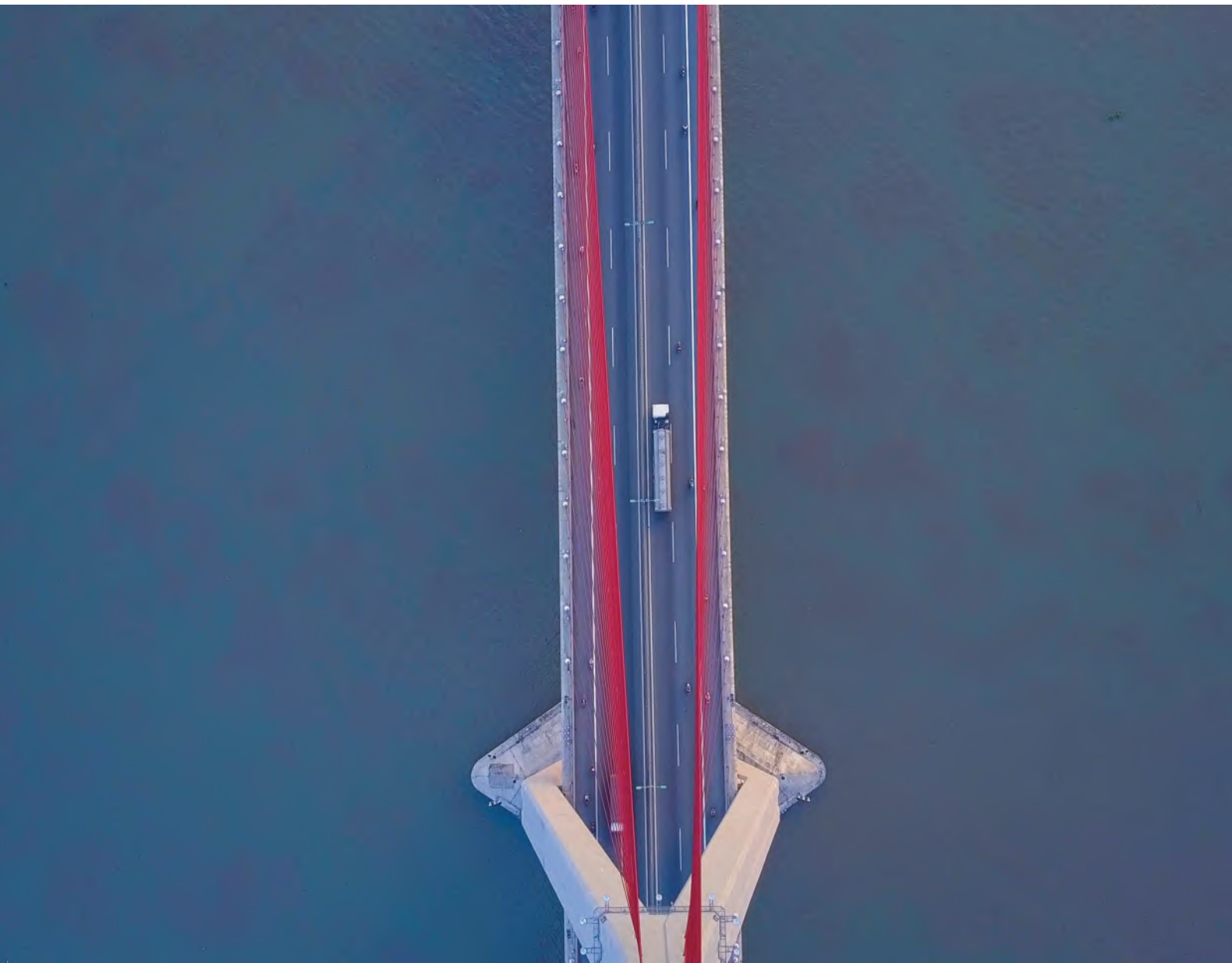


Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

to the whole country) because the transport infrastructure in the Mekong Delta is still limited and the transport demand has also reached the climax as production capacity has been maximized due to lack of new growth drivers.

In addition, the irrigation works and projects to prevent salinity and keep fresh water for agricultural production and flood drainage are key projects being called for investment in the Mekong Delta in the past period. However, shortcomings from these investment activities according to research by Le Anh Tuan et al. (2018) have shown a clear picture of the efficiency and compatibility of the above investment activities. The

waste and pesticide accumulation; (iii) aquatic resources are changed or decreased; (iv) degraded soil quality because the saltwater covers outside and stored inside the sewer; (v) tides from the sea cannot access the inland fields, deteriorating the flora and fauna; (vi) water transportation is affected due to lack of water circulation and quick growth of water hyacinth. Consequently, people's livelihoods change, resulting in the people's migration. The economic efficiency of the works is not guaranteed. The increase in agricultural output does not consider the cost of irrigation investments and the negative externalities caused by these projects.



In summary, an overview on investments in the Mekong Delta over the past 10 years shows that what's most needed is investment in developing the transport infrastructure (bridges, highways, and inter-provincial roads), innovating the model of agricultural production towards industrialization and adaptation to climate change, and processing agri-aqua products. Major bridges have positive implications, but the investment in infrastructure is still huge. Although the irrigation and saline prevention works are successful to increase rice yields, they basically fail to increase the value or transform the agricultural structure, and even badly affect the economic sustainability and future environment. While the remaining investment needs have not attracted adequate attention, both objective factors (attractiveness of the region and limited central budget resources) and subjective factors (regional development strategy for Mekong Delta is not really clear and competition among localities exist due to similar characteristics), many investment activities are trade-offs between the economy and the environment.



2.4 | IMPORT EXPORT

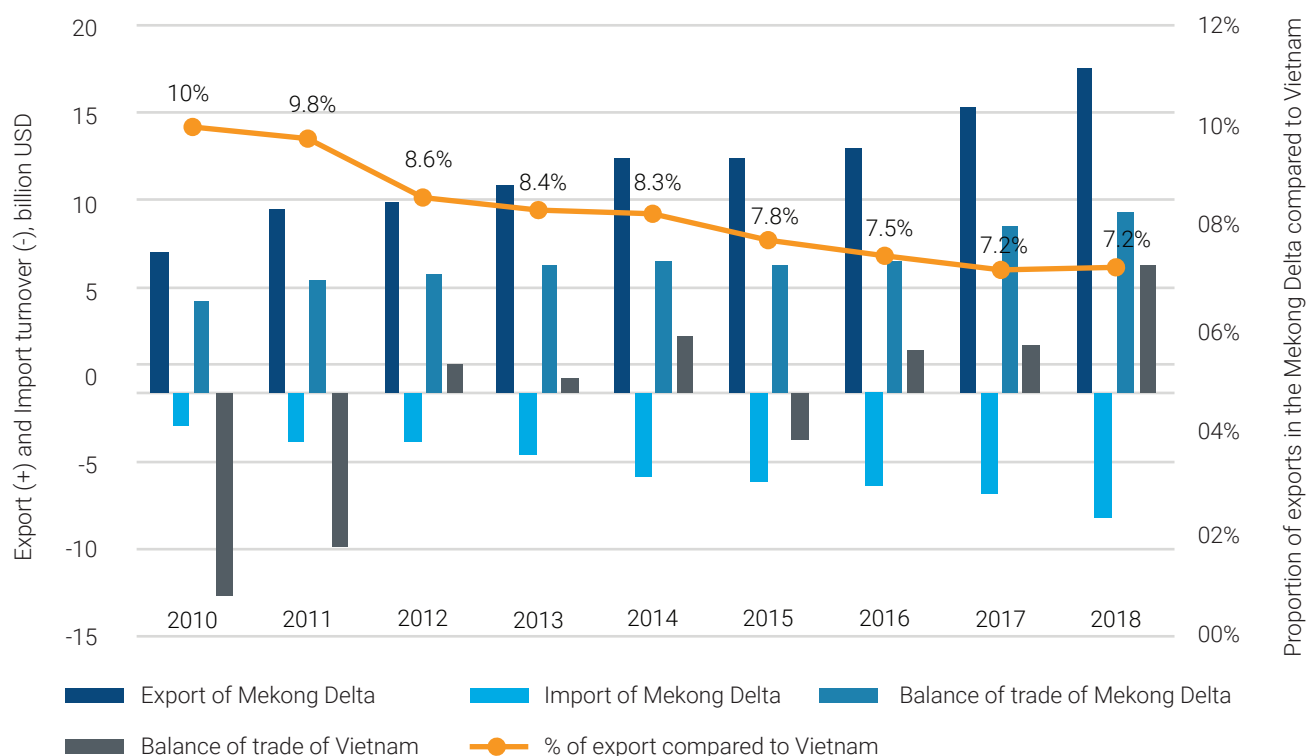
Current situation

Data of import and export turnover of the Mekong Delta shows that both exports and imports of the Mekong Delta tend to increase and have been in surplus. However, the export share of the Mekong Delta compared to the whole country is decreasing gradually.

Exports of the whole Mekong Delta region had grown at an average rate of 11.8% per year in the period 2010 - 2018, significantly lower than the national average of 16.4% per year. This is due to the low value of traditional agricultural products (especially rice and seafood); in addition, the exports has been gradually reached the saturation in turnover and declining

in production, mainly because of effects of climate change and a part of cultivated aares converted to fisheries in such coastal provinces as Tien Giang, Ben Tre, Soc Trang, Bac Lieu, Ca Mau, and Kien Giang. With provinces heavily dependent on crop production such as An Giang, Ca Mau, Kien Giang, Tra Vinh, and Vinh Long, export turnover tends to decrease due to the limited agricultural processing industry. The increase in export turnover of other provinces mainly depends on the concentrated processing industry in Long An and Tien Giang or is due to new FDI investment in some labor-intensive industries (to attract the idle labor from the agricultural sector) such as textile and footwear. Details of the proportion and growth trend of exports and key export products of the Mekong Delta are presented in Table 2.7.

Figure 2.16 Import-export turnover and trade balance of the Mekong Delta



Source: Author's synthesis and calculations from data of GSO and Statistical Yearbook of provinces

Table 2.7 Export growth and some key export products of the Mekong Delta

Province, City	Proportion of exports in 2018 in the Mekong Delta	Trend of Exports	Products exported with increasing turnover	Products exported with decreasing turnover
An Giang	4.8%	Decreasing (2013)*	Textiles	Rice, Fishery
Ca Mau	6.4%	Decreasing (2014)	Fishery, nitrogenous fertilizer	Rice
Kien Giang	3.6%	Decreasing (2013)	Fishery	Rice
Tra Vinh	2.5%	Decreasing (2015)	Fishery, coconut	Rice
Vinh Long	2.6%	Decreasing (2012)	Textiles, footwear	Rice
Bac Lieu	3.4%	Increasing	Fishery	Rice
Ben Tre	5.5%	Increasing	Fishery	Rice, coconut products
Can Tho	11.7%	Increasing	Fishery, handicrafts	Rice
Dong Thap	6.7%	Increasing	Garment	Rice
Hau Giang	4.3%	Increasing	Fishery	Rice
Long An	28.9%	Increasing	Rice, Textiles, Footwear	Fabric
Soc Trang	4.4%	Increasing	Fishery	Rice
Tien Giang	15.2%	Increasing	Fishery, garment	Rice

* Numbers in brackets refer to the year when provinces or cities achieving the highest export turnover in the period 2010 - 2018.

Source: Synthesized from Statistical Yearbook of provinces



Imports in the Mekong Delta are not outstanding, equivalent to about 45% of export turnover. Imported goods mainly related to inputs for agricultural production, agricultural product processing and processing industries such as pesticides, animal feed, fertilizers, chemicals, machinery - equipment - tools, raw fabrics, and raw materials for footwear. This shows that the development of production and processing activities in the Mekong Delta still depends on imports of important inputs, and the dependence has been increasing as indicated by the changes in output or import turnover over the years.

Export markets for key products

Due to the limitation of input information, the calculation of export structure by product of the region cannot be implemented.¹⁰ However, upon reviewing the key export products of each province we can

identify the key export products of the region, including rice, fishery, and fruits. For textile and footwear, these are emerging products due to the shifting of the global textile and dyeing chain from China to countries with lower production costs and the acceptance of environmental risks, and because the scale is still very small compared to the textile cluster in the Southeast, it is not analyzed fully in this Report.

The following section presents an overview of export markets for the key products of the region based on the export data from the whole country in the context of general trends in global markets and competitors. It is reasonable to use national data to consider market development opportunities for the region's key export products because regional exports are specific and may be somewhat representative of the whole country.



¹⁰ Not feasible due to the currency heterogeneity, some provinces utilize units of output. In order to calculate the structure of key products, it is necessary to submit a request form to the customs departments of 13 provinces (data are available, but all 13 provinces must be the same). This is a common challenge when calculating at the regional level.

Markets for rice and competitors

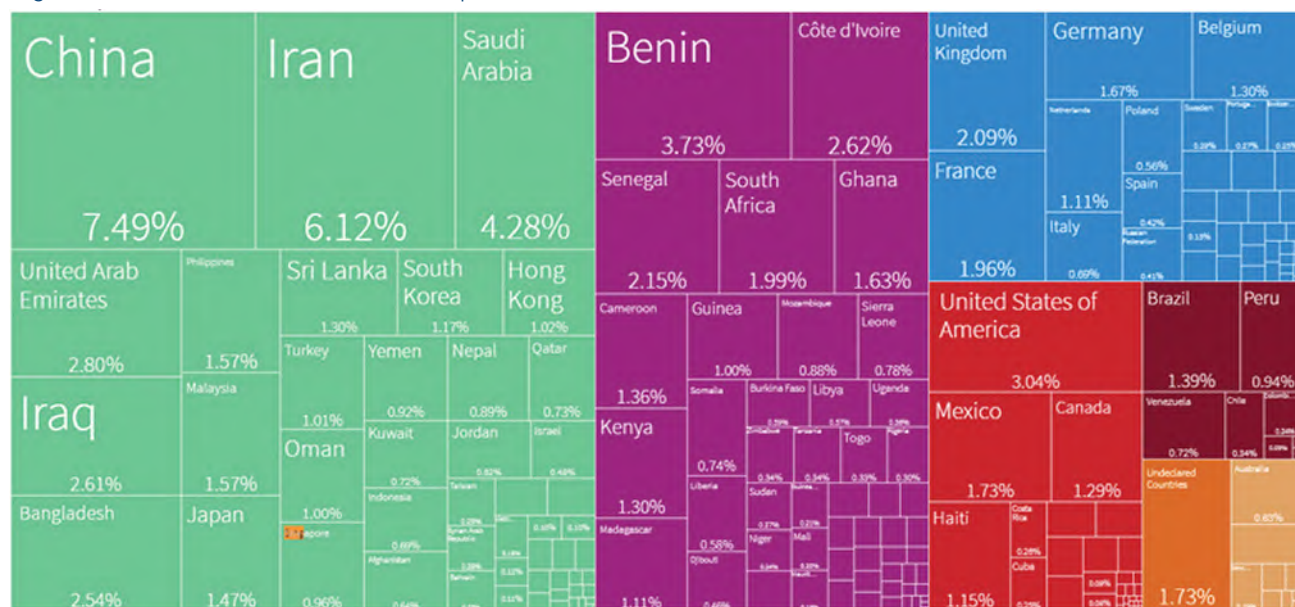
Rice is an essential food consumed every day, so the need to import rice is associated with densely populated markets or places with inappropriate weather and soil conditions or developed countries where rice is not a priority for production. The information of global rice import shows that China, the Gulf countries, and African countries are the largest rice import markets in the world.

The current rice export market of Vietnam shows that the opportunity to diversify and expand the market is still huge. In addition to China which is the largest market and the main market that Vietnam is concentrating on exploiting (Vietnam meets 52.8% of China's rice import demand, equivalent to 37.6% of export

turnover of Vietnamese rice), other major potential markets include groups of Gulf countries and African countries. However, these are the markets that are being fiercely competitive by India and Thailand due to their favorable geographical positions compared to Vietnam in market access.

The global rice market seems to be saturated while the aggregated share of rice exports of India, Thailand, and Vietnam have accounted for about 55-60% of the world demand. Therefore, the change in market share is mainly the substitution among these three countries. In the past decade, though always maintaining its third position, Vietnam's rice export market share tended to decrease, from 15% (2010) to 10% (2017).

Figure 2.17 World's markets for rice export in 2018



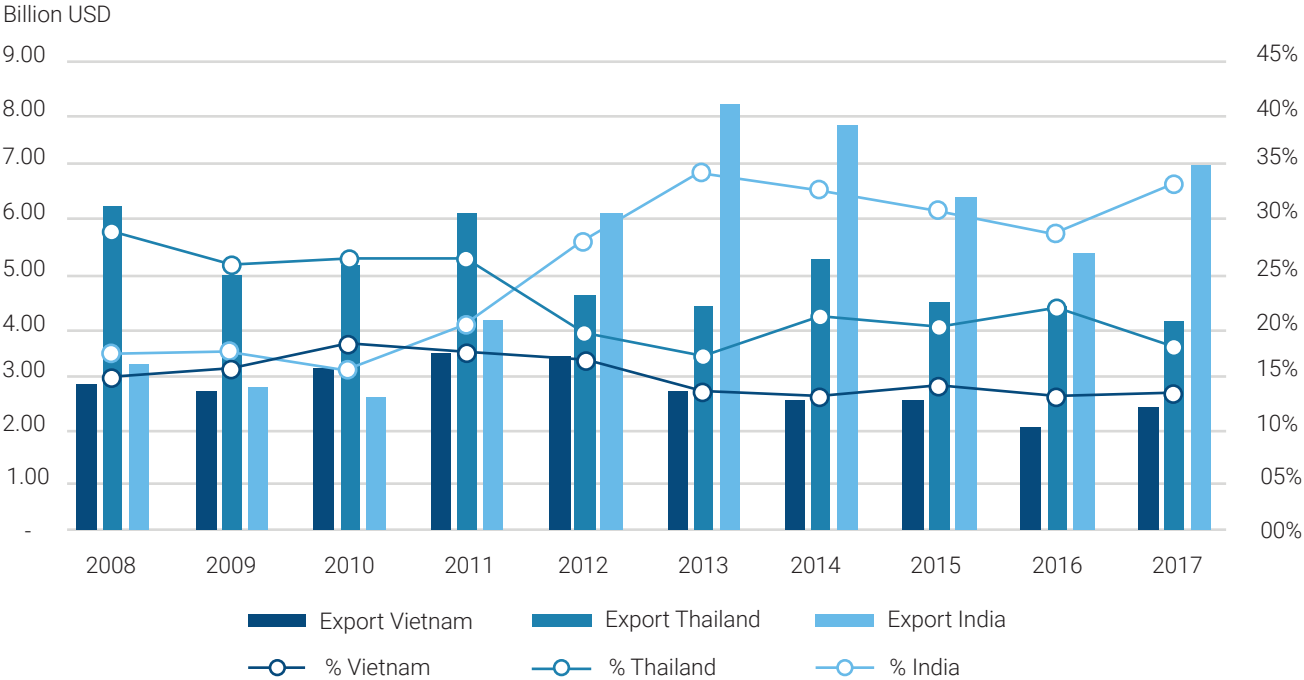
Source: Atlas of Economy Complexity, Harvard University (2020)



Rice import from China - Vietnam's largest market - shows the fierce competition between Thailand and Vietnam. In 2008, Thailand accounted for 94.7% market share of China's rice import, while Vietnam made up only 1.73%. In 2013, the share was completely reversed; Vietnam accounted for 63.5% of China's rice import market share, while Thailand only comprised 19.8%. However, the trend continued to change by the end of 2017, Vietnam only accounted for 52.9% and Thailand for 30.3%. The constant and fast changing of the Chinese market force the Vietnamese rice production to be at risk, especially in terms of prices, because buyers have many different

options. This implies that, if there is no diversification of the market, the problem of good crop - bad price and vice versa is inevitable. The lessons experienced by India are clear, the strategy to diversify export markets has partly explained the strong growth in India's rice exports from 2010 to present. Specifically, India's rice exports in 2010 depended over 70% on Saudi Arabia, the United Arab Emirates, Iran, and Kuwait, but by 2017, this rate was only about 30%. The African market is the most developed market of India, notably 55 million USD (2.2% of export turnover) in 2010 to 1.86 billion USD (26.7% of export turnover) in 2018.

Figure 2.18 Rice export (billion USD) and global market share (%) by some leading countries (2017)



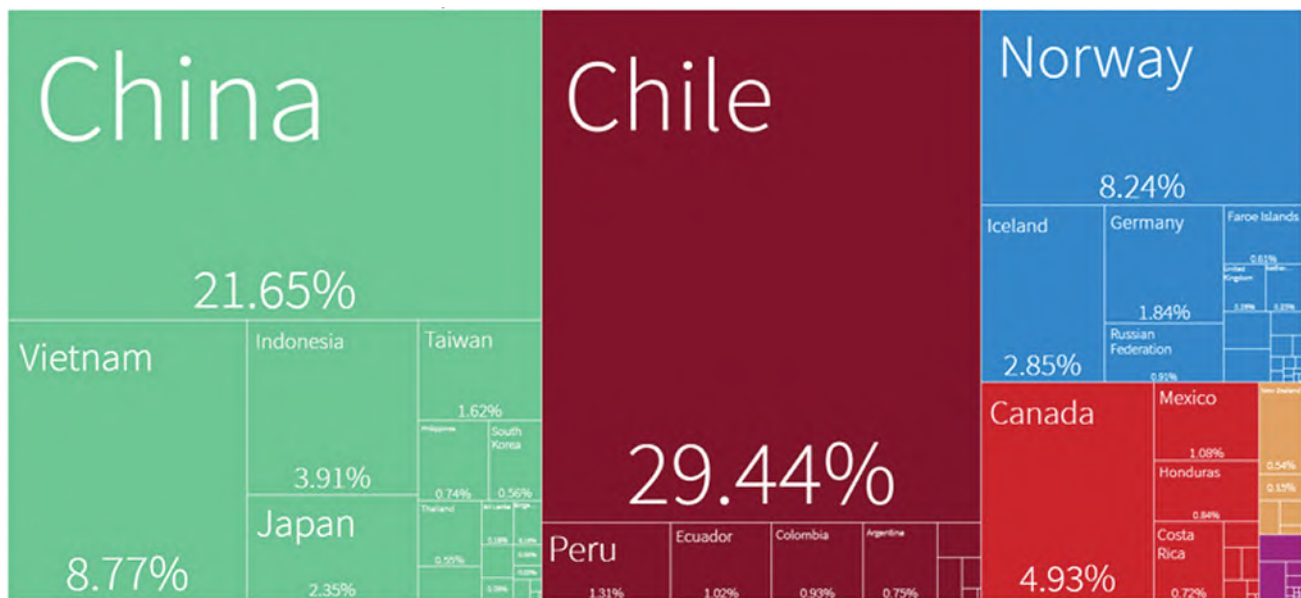
Source: From Atlas of Economy Complexity, Harvard University (2020)

Export markets for fish fillet

Catfish fillets (mainly pangasius) are a typical export product of the seafood processing industry in the Mekong Delta. Just like rice, this product depends on a number of large markets. The total export turnover of pangasius in 2019 reached about two billion USD, of which the largest market is China with 663 mmillio USD, accounting for 33% of the total turnover. Other prominent export markets include the United States (14.4%), Mexico (4.6%), and Thailand (3.7%). Thus, China has become the most important pangasius importer of Vietnam, far exceeding all other countries.

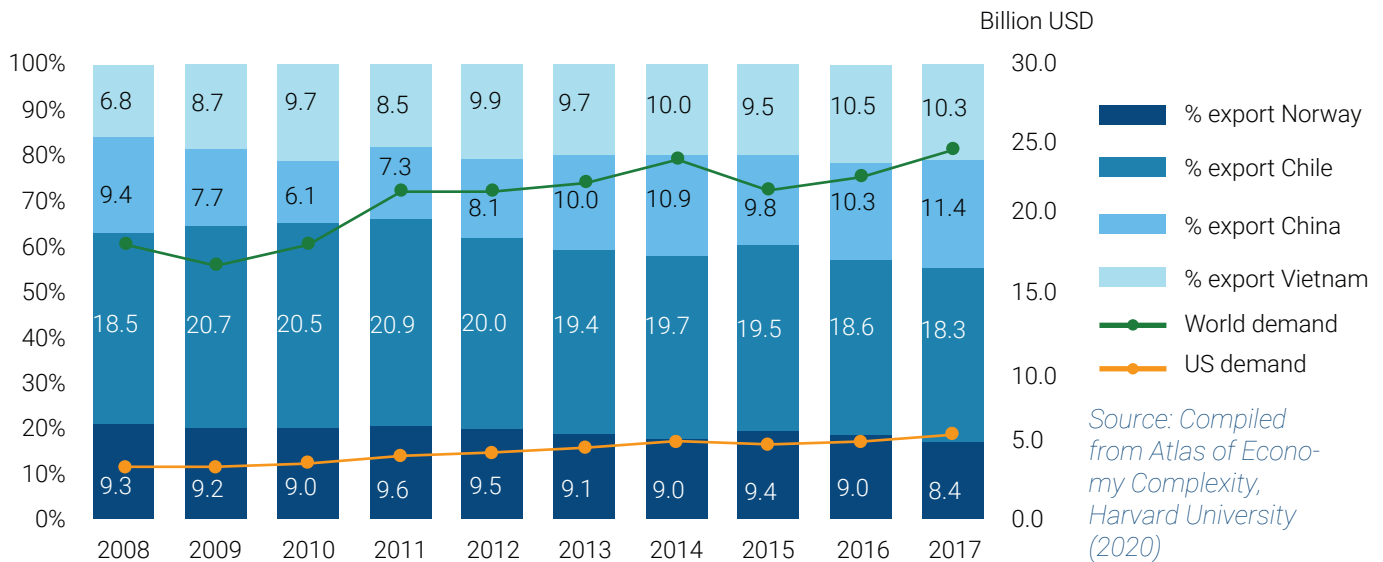
In the 2015-2019 period, pangasius export turnover increased by 28%, mainly due to the strong growth of two potential markets, China (up 310%) and ASEAN (up 44%). These two markets compensated for the significant decline in the EU market (down 35%) and the U.S. market (down 8.8%). Other markets also fell sharply after 5 years (Brazil decreased by 21% and Mexico declined by 3.6%). Considering the 5-year average growth of all markets, China also had the most optimistic growth (44%), ASEAN increased by 9%, and the U.S. grew by 3%.

Figure 2.19 Fish fillet imported into the U.S. market in 2017



Source: Atlas of Economy Complexity, Harvard University (2020)

Figure 2.20 Global market for fish fillets (billion USD) and leading export countries's market shares (%)



Source: Compiled from Atlas of Economy Complexity, Harvard University (2020)



Apart from competition with other important pangasius exporters such as China, Thailand, Indonesia, or Bangladesh, Vietnam's pangasius fillet competes with Chinese tilapia and Russian and American pollock. Beside Vietnam, Chile, China and Norway are the leading fish fillet exporters in the world, accounting for nearly 50% of the global turnover and nearly 70% of the U.S. import demand for fish fillets (Import demand for fish fillets in the U.S. accounts for 23% of the global demand).

Growth in the global demand shows that the fish fillet market in the world is gradually saturated. The growth in exports of countries mainly comes from competition for market share among the leading countries. Among those, Chile and Norway are increasingly dominating the world market share.

In the U.S. market alone, China's role is increasingly declining and is mainly replaced by Chile and Norway. After the 2008 crisis, Vietnam somewhat increased its market share in the U.S market until 2016 (from

3.4% to 9.7%) but has declined since 2017 (only 8.8%). Although Vietnam's market share in the U.S increased rapidly from 2008 to 2016, Vietnam's global market share has not increased. In fact, the fish fillet export market of Vietnam has only shifted from Europe and Asia to the North American market. Specifically, export turnover in 2017 in Europe and Asia was only 36.2% and 45.8%, respectively, compared to the turnover in 2008.

Clearly, the loss of traditional markets is unfortunate to Vietnam. However, the domestic production capacity is somewhat maximized because the cultivated area has been exploited to the maximum and is increasingly affected by pollution and saline intrusion. Statistical data shows that the area of pangasius farming of the whole region in the 2014 – 2018 period increased only 2.8% and its output increased by 3.1%, equivalent to the growth rate of the country's export turnover (because 95% of pangasius output is for export).

Crustacean export

Crustacean such as shrimps, crabs, etc. are also the export strengths of the Mekong Delta. However, the export trend of this group is moving in reverse compared to fish fillets.

Table 2.8 Vietnam’s crustacean export and its global markets

Unit: million USD	2008 – 2017 growth	2008	2017
Global markets	5.46%	15,800	25,500
Export of Vietnam, to:	4.08%	1,270	1,820
Asia	5.14%	576	904
Europe	10.92%	190	483
North America	-2.19%	448	367
The U.S.	-3.46%	390	284
Japan	1.42%	377	428

Source: Compiled from Atlas of Economy Complexity, Harvard University (2020)

Specifically, the growth of Vietnam's exports of crustaceans (4.08%) was lower than the growth of the global market (5.46%). The main market in Europe had the strongest growth. The Asian market maintained the average growth rate while the North American market declined (mainly from the U.S. market) and the Japanese market grew slowly. The decline in major markets is due to increasingly competitive export prices (huge supply) or trade barriers and protection of domestic production in major markets and partly due to the appreciation of the USD vs. VND.

The global market size of crustaceans indicates that

Table 2.9 Crustacean import growth in the world

Unit: million USD	2008 – 2017 Growth	2008	2017
The globe	5.4%	16,200	25,900
Asia	10.3%	4,320	10,400
Europe	1.3%	6,330	7,140
The U.S.	4.7%	4,690	7,080
Japan	-0.1%	2,220	2,200
China	18.1%	425,0	1,900
Vietnam	53.0%	74	3,400

Source: Compiled from Atlas of Economy Complexity, Harvard University (2020)

Vietnam is a fast-growing country that needs to import rapidly and differs from other major markets. In 2008, Vietnam imported only 74 million USD, then in 2014, this figure was 3.4 billion USD, nearly doubled the export turnover.

Details of export and import items in this group show that Vietnam is importing mainly raw shrimp from Ecuador and India (over 90%). Apparently, the domestic supply of raw shrimp does not meet the export demand. For the farming activities, the possibility of expansion is no longer available when the growth of shrimp farming area in the Mekong Delta from 2014 to 2018 was only 0.5% per year on average. The increase output depends on the innovation of production methods and technological application, and this will be an inevitable trend if the Mekong Delta expects to develop this sector. In fact, the increase of the region's farming productivity in recent years thanks to the availability of new technology shrimp farming projects of FDI; still, the growth rate is only 3.9% per year.



Fruit export markets and competitors

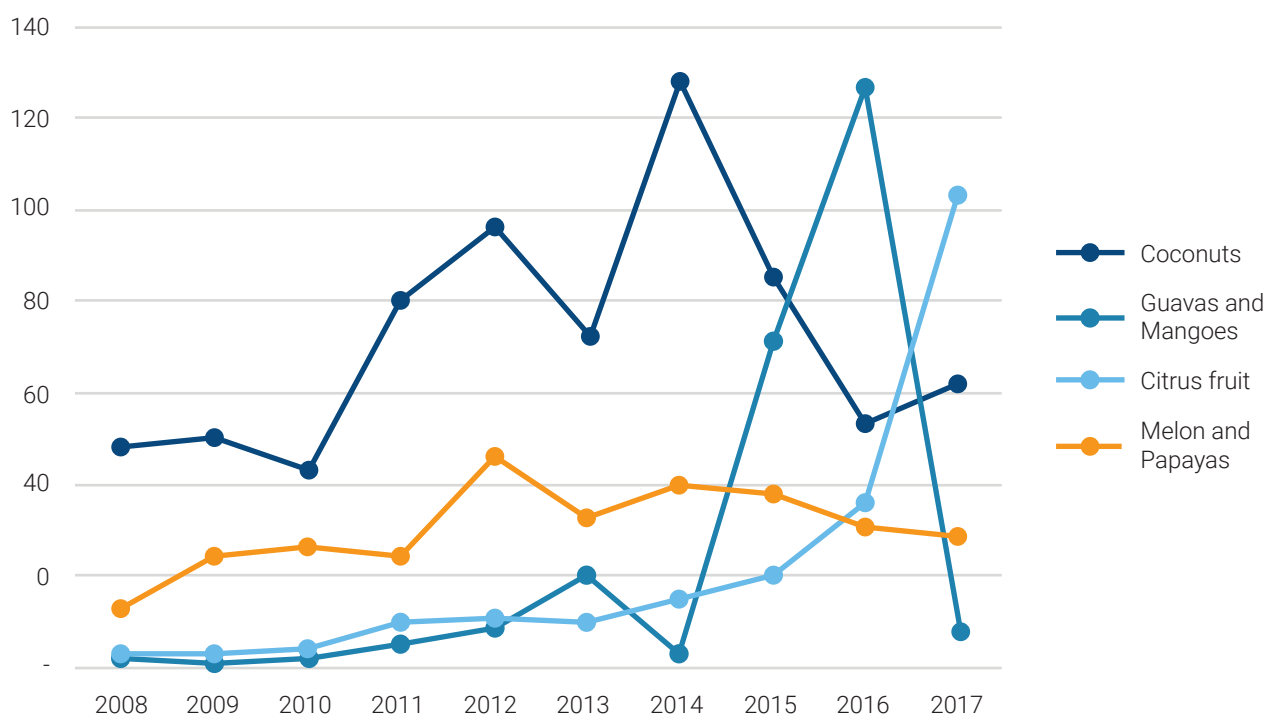
The overview of Vietnam's main fruit exports, mostly originating from the Mekong Delta, demonstrates that: (i) coconuts, guavas, and mangoes have fluctuated very erratically and mainly due to the erratic influences from the Chinese market; (ii) melon and papayas have dominated the Chinese market but are already saturated and have fallen; (iii) citrus fruits have been maintained and growing rapidly but, since 2016, been impacted mainly by China. However, Vietnam ranked only 4th in terms of export market share to China (10%), followed South Africa (24.8%), Australia (20.3%), and Egypt (14.7%).

Coconut: Vietnam exported 62 million USD in 2017, accounting for 4.4% of the global market share of 1.4 billion USD in 2017. The average global market growth was 10.1% in the period 2008-2017, with the leading exporters of Indonesia (28.8%), the Philippines (22.6%), and Thailand (9.37%). Vietnam's key export

markets are China (23.4%), Egypt (9.43%), and recently Thailand (14.6%).

Guava and mango: The national export turnover reached 7.5 million USD, accounting for only 0.25% of the global 3.0 billion USD market in 2017. The global market growth was 9.6% in the period of 2008 - 2017 with the leading exporters of Thailand (17.0%), Mexico (13.8%), Brazil (10.8%), the Netherlands (10.4%), and Peru (9.8%). Vietnam's key export markets are very volatile; for instance, early in the period 2008 – 2017, they are Japan, France, Canada, recently South Korea, and the UAE. The rise of the Chinese market since 2012 has completely changed the export market structure for these products. However, the fluctuations in the Chinese import demand make domestic farmers and exporters feel uncertain. For example, in 2016, exports to China reached 121 million USD, accounting for 95%, but in 2017, China imported only 75,000 USD from Vietnam, accounting for 1%.

Figure 2.21 Export turnover of Mekong Delta typical fruits (million USD)



Source: Compiled from Atlas of Economy Complexity, Harvard University (2020)



Citrus fruit: The global market capacity was up to 14.1 billion USD in 2017. However, the average growth rate of the global market was only 2.8% per year in the period of 2008 - 2017, with the leading suppliers of Spain (25.0%), South Africa (11.3%), China (7.21%), and the United States (7.1%). In 2017, Vietnam exported 103 million USD of citrus fruits. The rapid growth came mainly from the unusual rise of the Chinese market from 2016 to 2017. The fluctuation in Chinese purchases could cause the disturbances in the fruits structure of Vietnam in general and the Mekong Delta in particular, especially for perennial fruit plants, which will be very risky if, after the transformation, the Chinese market does not continue to import. Therefore, the assessment of real consumption demand in the Chinese market (where products after imported into China are consumed, what are they used for, who is the final consumer and so on) is essential not only for fruit, but also for other products in general.

Melon and papaya: Despite the global market capacity is 3.8 billion USD, the growth rate is only 3.1% per year during the period 2008 - 2017. Major exporters are Spain (20.1%), Mexico (12.8%), and Brazil (10.1%). Vietnam exported 28.5 million USD of melon and papayas of which 97.8% exported to the Chinese market. China has been the traditional and absolute market for these products, started rising since 1997 (accounting for 71.5% of Vietnam's total export turnover). However, this market has also maximized and started to decline after peaking in 2012 with 45 million USD (accounting for 98.9% of total exports of Vietnam). Vietnam is also an absolute exporter to the Chinese market (accounting for 74.2% of China's import demand), but is being competed by the suppliers from Myanmar (accounting for 23.8 % market share in China by end of 2017).

Regional infrastructure for export

Because the region's typical export products are agricultural products, the commodities are mainly transported through seaports, export volume, demand, and services are relatively high. Therefore, transportation and logistics infrastructure systems in the Mekong Delta play an important role in the region's export activities. Export goods of the region are mainly transported to Ho Chi Minh City or Ba Ria-Vung Tau in order to be exported through seaports of Cat Lai and Cai Mep - Thi Vai due to the limited capacity and scale of those in the region.

Also, transportation separation resulted from the river networks partly affects the shipment services, thereby further hiking transport costs due to the geographical distance that requires small trucks for transport. The building of the key bridges in recent years has partly reduced the impact of logistics costs. However, the misalignment and difficulties in transportation connecting to the provinces, regions of production and processing in the Mekong Delta significantly reduced the added value of agri-aqua products. In addition, agricultural products have a low product value per unit, the burden of logistics costs is thus higher than that of industrial goods.

Table 2.10 Transport demand of goods through seaports of the Mekong Delta relative to the whole country's

No.	Region	Vessel	Volume (Million Tons)				Vessel call
	Seaport	No. of ships	Total	Import	Export	Domestic	(1,000 TEU)
1	The Northern area	8,518	73,543	32,835	21,007	19,701	2,773
2	The Central area	1,627	29,828	3,878	14,819	10,890	525
3	The Southern area, <i>in which:</i>	355	168,376	74,430	55,585	25,973	8,668
	Ho Chi Minh City and Dong Nai	89	107,628	45,978	32,559	16,704	6,156
	Ba Ria Vung Tau	6	54,295	27,838	22,314	4,141	2,439
4	The Mekong Delta, <i>in which:</i>	0	6,454	614	711	5,128	74
	Can Tho	9,166	1,924	142	94	1,688	13
	Total	10,500	278,201	111,757	92,122	61,693	12,039

Source: VPA





2.5

**CONSUMER
MARKET IN THE
MEKONG DELTA**



Market size

Consumption is an important component in economic growth and development: this factor indirectly reflects incomes and living standards of the inhabitants; this is attractive to investors and businesses who have advantages of exploiting the market in place. Thus, size, expenditure, and concentration of the population are important factors measuring the attractiveness of the domestic market.

According to the 2019 Census, the population in the Mekong Delta was 17.3 million people, approximately equivalent to the Southeast's. However, the population density of the Mekong Delta is only 423 people per sq km while it is 757 people per sq km in the Southeast and 4,363 people per sq km in Ho Chi Minh City. This unintentionally limits the attractiveness of the consumer market in the Mekong Delta. The above impact is even more evident with provinces located far away, because of the stretching feature of Vietnam's geography, from Ho Chi Minh City, the largest economic driver. In addition, inter-provincial transportation

17.3 million people

The size of the population in the Mekong Delta is based on our data Census 2019

connection among provinces in the region is an obstacle. Can Tho city can be considered as the central market of the region, but the population density is less than a quarter of Ho Chi Minh City's and the expressway connecting Ho Chi Minh City - Can Tho city has yet to be completed.

Dwelling of the people in the region's provinces is mainly concentrated in rural and agricultural areas, which is also a disadvantage because the market size is more fragmented. Consumption in rural areas is lower than that in urban areas. In addition, the regional population's consumption may come from self-sufficiency thanks to the available natural resources or basic agricultural products.

Table 2.11 Total retail sales & goods and services consumption (thousand billion VND)

Region, province, city	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2008 – 18 growth
WHOLE COUNTRY	1,007	1,238	1,677	2,080	2,369	2,615	2,916	3,223	3,546	3,957	4,417	15.9%
Red River Delta	237	283	364	445	513	585	645	724	802	876	974	15.2%
Ha Noi	133	157	197	228	268	308	336	376	413	430	470	13.4%
Northern Midlands and Mountains	51	62	79	100	114	129	145	161	178	200	223	16.0%
North Central and Central Coast	157	195	247	307	356	409	465	522	576	641	717	16.4%
Central Highlands	40	53	69	86	103	120	137	149	159	180	197	17.2%
The Southeast	337	420	616	778	863	892	979	1,071	1,171	1,313	1,470	15.9%
Ho Chi Minh City	232	291	449	561	606	614	664	711	779	872	971	15.4%
The Mekong Delta	186	225	303	364	419	479	545	596	661	746	836	16.2%
Long An	12	14	18	24	29	34	40	48	55	64	74	20.4%
Tien Giang	15	18	24	28	33	38	43	46	52	58	64	15.2%
Ben Tre	11	13	16	19	21	23	26	28	30	35	40	13.8%
Tra Vinh	7	8	9	11	13	15	16	18	20	23	26	14.5%
Vinh Long	11	14	18	21	24	30	32	34	37	40	45	14.7%
Dong Thap	17	22	29	40	47	49	55	60	66	75	84	17.4%
An Giang	28	32	51	47	52	59	65	74	86	100	111	14.6%
Kien Giang	20	23	31	38	42	48	53	63	71	81	90	16.5%
Can Tho	21	27	33	39	46	53	60	65	70	79	88	15.7%
Hau Giang	7	9	13	17	18	24	26	28	30	34	36	17.9%
Soc Trang	12	16	23	29	35	38	43	47	55	62	69	18.7%
Bac Lieu	9	12	14	20	25	28	42	37	40	43	49	18.0%
Ca Mau	15	19	24	30	35	40	44	47	49	52	60	14.6%

Source: GSO

The income and living standards of the population in the Mekong Delta are also lower than the national average and only about 60% of the living standard of the residents in Ho Chi Minh City. As a result, demand for goods of the whole Mekong Delta is only equivalent to 86% of just the market in Ho Chi Minh City.

Consumption growth of the Mekong Delta is not significantly higher than the national average, despite of the low starting point due to the small market size. In fact, the total retail sales and per capita consumption of dwellers in the region was only 46.9 million VND per year, equivalent to the national average (46.7 million VND per year) but only equivalent to 41.5% of the average in Ho Chi Minh City. Can Tho is still the urban center of the region with the highest retail and consumption in the region, averaging at 68.7 million VND per year (equivalent to 61% of Ho Chi Minh City's).

Main imported goods of the region as mentioned in the previous section also shows that most of the inputs are for production, and the demand for

consumption is very low.

In short, the consumer market in the Mekong Delta is currently not very attractive to investors. The attractiveness of the domestic market is only from new urban areas, but products and supplies come from the industrial center of Ho Chi Minh City and other provinces in the Southern Key Economic Region.

Commercial infrastructure for domestic consumer market

Analysis of commercial infrastructure for the Delta's consumer market once again demonstrates that the attractiveness of the domestic consumer market is low due to fragmentation. Although the consumer market size is only 86% of that of Ho Chi Minh City, the number of markets in the Mekong Delta is seven times higher than that of Ho Chi Minh City, reflecting the dispersion and fragmentation in the traditional markets.

Table 2.12 Service infrastructure for consumer markets

Region, province, city	Market		Supermarket		Shopping center	
	2009	2018	2009	2018	2009	2018
WHOLE COUNTRY	8,495	8,475	451	1,009	85	210
Red River Delta	1,745	1,861	37	298	26	52
Northern Midlands and Mountains	1,393	1,413	98	101	6	28
North Central and Central Coast	2,475	2,381	14	236	16	41
Central Highlands	352	385	123	30	1	6
The Southeast	763	760	17	250	31	61
Ho Chi Minh City	249	238	87	204	21	45
The Mekong Delta	1,767	1,675	41	94	5	22

Source: GSO



The trend of urbanization and the rise of the middle class gradually shift shopping behaviors from traditional markets to convenient stores, supermarkets, or shopping centers. This is a positive change because the goods in supermarkets and shopping centers usually have better quality control and management. However, the condition to attract investment lies in the concentration of population, especially in urban areas (typically Ho Chi Minh City). And this is the

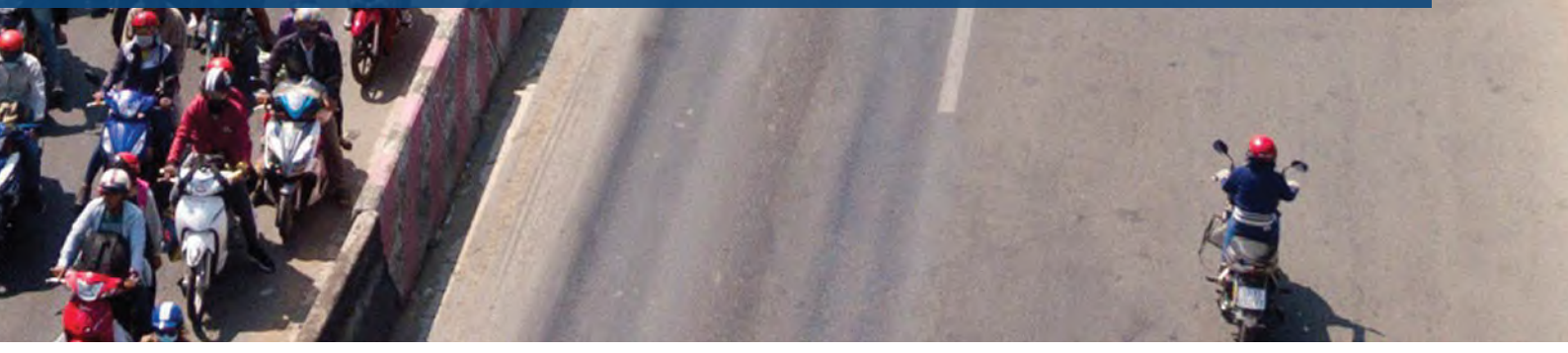
factor that the Mekong Delta is underestimated as mentioned above.

Due to the disadvantages as mentioned above, the presence of leading retail investors (Co-opmart, BigC, Metro, Lotte Mart, Aeon Mall, and so on) or fast food chains (Circle K, KFC, Lotteria, Jollibee, etc.) in the Mekong Delta is very limited. Most of them are concentrated in major urban centers of each locality.



2.6

URBANIZATION AND MIGRATION IN THE MEKONG DELTA



The Mekong Delta is the main granary of rice and fisheries and was once the most prosperous land in Vietnam. The fertile land and diversified nature have created the reputation of the land of white rice and pure water. Over the past two decades, fish, shrimp, and rice of the Mekong Delta have been exported to five continents. However, while traditional agricultural production maximize its capacity, the region's growth increasingly attached to industrialization and urbanization faces disadvantages.

Compared with the whole country, the population and economy of the Mekong Delta is rapidly shrinking (see section 2.1). Also, the Mekong is facing multi-challenges in terms of migration and urbanization. In the past three years, the population of the Mekong Delta has been in absolute decline. If there

are no fundamental changes in the development model and foundation, the position and role of the Delta will be further "deepened" both literally and figuratively over the next few decades. Climate change and sea level rising will cause increasing inundation, and the decreasing economic opportunities will accelerate the migration process.

This background raises a number of important questions. First, how do migration and urbanization impact the economy of the Mekong Delta? Second, what are the factors that affect the migration and urbanization in the Mekong Delta? Third, what are the trends in migration and urbanization in the Mekong Delta in the next decade? Fourth, how should we develop urban areas in the Mekong Delta and turn them into a new growth engine for the region?



Urbanization and economic development

Practice and studies have shown that there is a close relationship between urbanization and economic development. Countries, with a high level of economic development, as shown simply by GDP per capita, also have a high rate of urbanization or more densely populated urban areas. Figure 2.23 shows a positive correlation between the urbanization rate and GDP per capita in Vietnam. Urbanization creates a conglomeration of economic activities, and cities can increase productivity and promote economic innovation and diversification across the country. The most fundamental feature of the economic advantage of agglomeration is the reduction in the transport cost of goods and people. Many of these benefits increase in size; small towns and cities cannot have the same benefits as large ones. International evidence shows that the elasticity of the income per capita by city population is between 3% and 8%. (Rosenthal & Strange, 2004). For every doubling of the size of a city, productivity increases by an average of five percent (World Bank & Government of Vietnam, 2016).

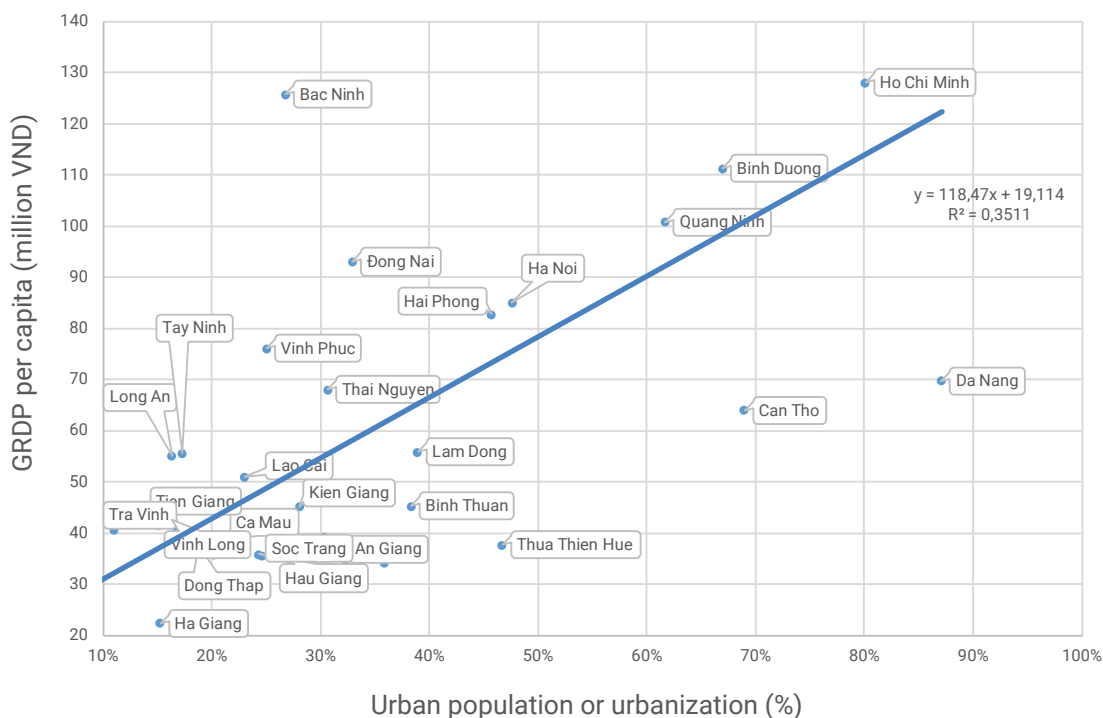
There is a close correlation between urbanization and industrialization. Activities of industry, processing,

manufacturing, and services are typically conducted in urban areas. Economic activities are often clustered together at very large densities. Studies by Edward Glaeser (2010), the leading urban economist at Harvard University, as well as many other researchers clearly show the concentration of cities' activities and their positive impacts. A city or economic area will continue to be expanded and developed when there is a competitive advantage to be able to export goods and services to other regions. On the contrary, a city or economic region will perish when their advantages are lost and unable to produce competitive goods. There are many signs indicating that the Mekong Delta is following the second trend.

Migration and urbanization in the Mekong Delta in the 2009-2019 period

Compared with countries having successful economic growth and development during the take-off period such as Korea and China, Vietnam's urbanization rate is low. The Mekong Delta is also a "valley" of migration and urbanization in Vietnam. According to the Census of Population and Housing, the population of the Mekong Delta by April 1, 2019 was 17.273 million people, and approximately 17.197 million ten years previously.

Figure 2.22 Correlation between urbanization rate and GDP per capita in 2017



Source: Graphed by the author from the official statistical data

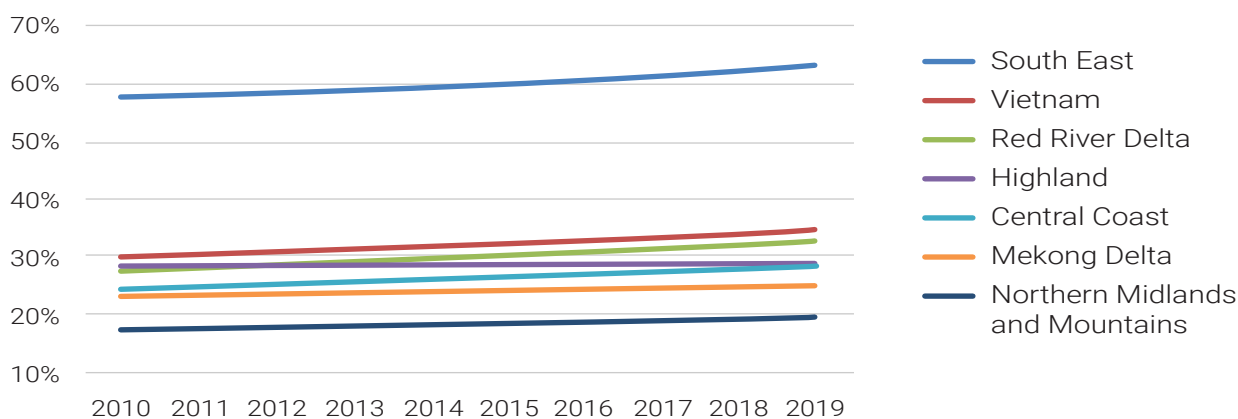
The number of net migrants in the past decade is equivalent to the natural population growth of the region. The estimated number is nearly 1.1 million people and roughly equivalent to the population of one province in the region.

Between 2009 and 2019, the urban population of the region increased only 0.98% per year and the average population growth was 0.05% per year, very modest compared to 2.62% and 1.14% on average of the country. In ten years, the urban population of the Mekong Delta increased only 403,000 people, accounting for 5.3% of the increase in urban population of the country, while the total population accounted for nearly 18% of Vietnam's population. The rate of urbanization of the whole region in a

in the period 2011-2017" by GSO in 2011, these four localities accounted for 4.92% of Vietnam's GDP, and by 2017, it was only 4.69%. Among the provinces in the Delta, Long An scored the best. However, according to the zoning plan being submitted, Long An will belong to the Southeast. As such, the state and role of the Mekong Delta will further decline.

Currently, the economic activities in which the Mekong Delta has advantages are certain main agri-products based on natural advantages, namely rice and fisheries (shrimp and catfish). In theory, it is possible to increase the value of the rice value chain. However, in practicality, it is very challenging to industrialize the rice value chain in the Mekong Delta (increasing value added in processing stages). Clus-

Figure 2.23 Proportion of urban population in total population (2010-2019)



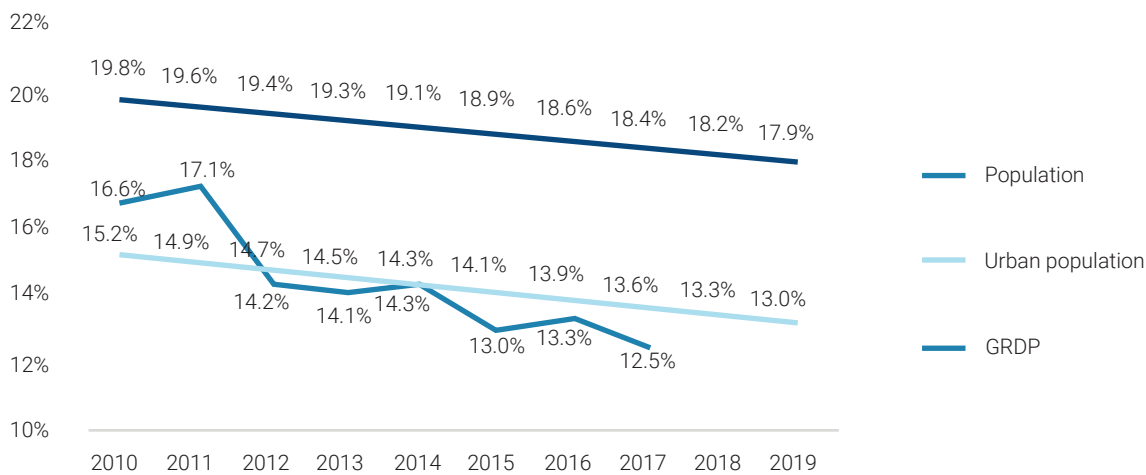
Source: Results from 2019 population and houses census

decade only increased from 22.8% to 25.1%, compared with 29.6% to 34.4% of the whole country. Figure 2.23 shows that the urban population gap of the Mekong Delta is widening compared to the whole country.

The Mekong Delta's urban area is not developed, it thus has not created much economic value associated with employment, leading to the huge migration. Figure 2.23 shows that the proportion of population, urban population, and GRDP of the Mekong in comparison with the whole country is decreasing very rapidly. Even the four provinces in the Mekong Delta Key Economic Region, namely An Giang, Ca Mau, Can Tho, and Kien Giang, see a decrease compared to the whole country. According to the analysis in the "The Growth of the Key Economic Regions

ter of the food processing industry needs the supporting sectors (processing) and consumption. For this factor, Ho Chi Minh City or the Southern Key Economic Region has much more advantages. Unlike shrimp and fish, rice is not a fresh commodity that can be transported and stored easily. Therefore, building production facilities at the source for products with rice as the inputs is not an advantage. Because all kinds of aqua-products are fresh, however, it is necessary to build factories at the source. However, most of these products are mainly fish fillets and frozen shrimp, which are simple in terms of processing. The processing at the downstream stages that create high added value, requires other supporting facilities. Just like the rice cluster that enjoys its advantages, so does Ho Chi Minh City.

Figure 2.24 Proportion of population, urban population, and GRDP of the Mekong Delta in comparison with the country



Source: Graphed by the author from the official statistical data

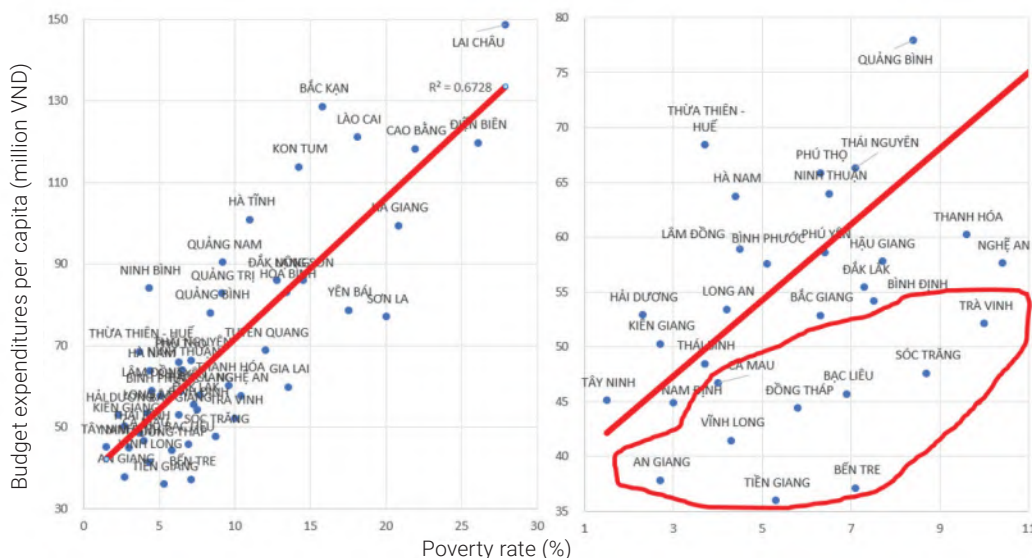
Factors affecting migration and urbanization

There are two groups of factors that influence the migration and urbanization in the Mekong Delta, including: objective ones with little policy impact and subjective ones with more feasible policy impact. Its proximity to the Southeast and its geography of low-lying land have exposed the Delta to the impacts by climate change and sea level rise, which are the objective causeway-land. Low land in the estuary area is advantageous for agricultural development but disadvantageous in industrial development due to the inconvenience of building factories and production facilities. Also, the leisure lifestyle of the inhabitants in the fertile river region, which has the tendency not to follow certain principles or labor disciplines,

is another cause making the development of industries more difficult. Although customs and culture are created by human beings, they change very slowly over time.

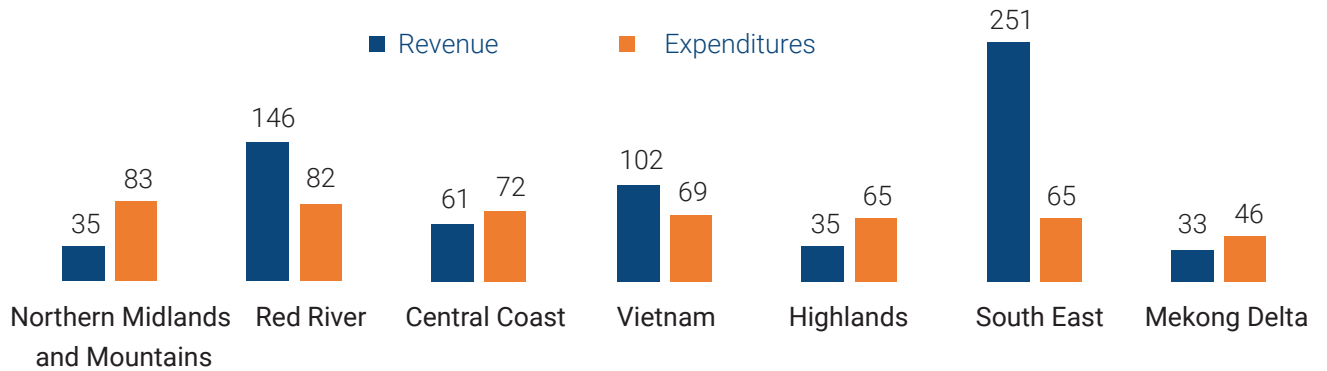
Insufficient resources and improper investment, especially in the infrastructure connecting Ho Chi Minh City, are the huge subjective causes preventing the localities from the urbanization in particular and hindering the Mekong from the development in general. The Delta is currently at a disadvantage in terms of the allocation of national resources, especially budget and infrastructure investments. Figure 2.25 shows that the budget expenditure of the Mekong Delta provinces between 2004 and 2016 were massively low compared to other localities having the same poverty rates.

Figure 2.25 Budget expenditure per capita from 2004 to 2016 and poverty rate in 2016 of localities in deficit



Source: Graphed by the author from GSO and MOF

Figure 2.26 Total budget revenue and expenditures per capita over the period 2004 - 2016 (million VND)



Source: Graphed by the author from data of MOF

Compilation of average budget revenues and expenditures of different regions of the country shows that the average budget revenue per capita of the Mekong Delta in the period 2004-2016 was roughly equal to the Northern mountainous region, but its budget expenditure was just a little more than half of the latter (Figure 2.27). In addition, infrastructure development is the key point of congestion in the Mekong Delta. Per 1,000 kilometers of built expressways, the area with 18% of the national population accounts for only about 50 kilometers or 5% of the whole country's.

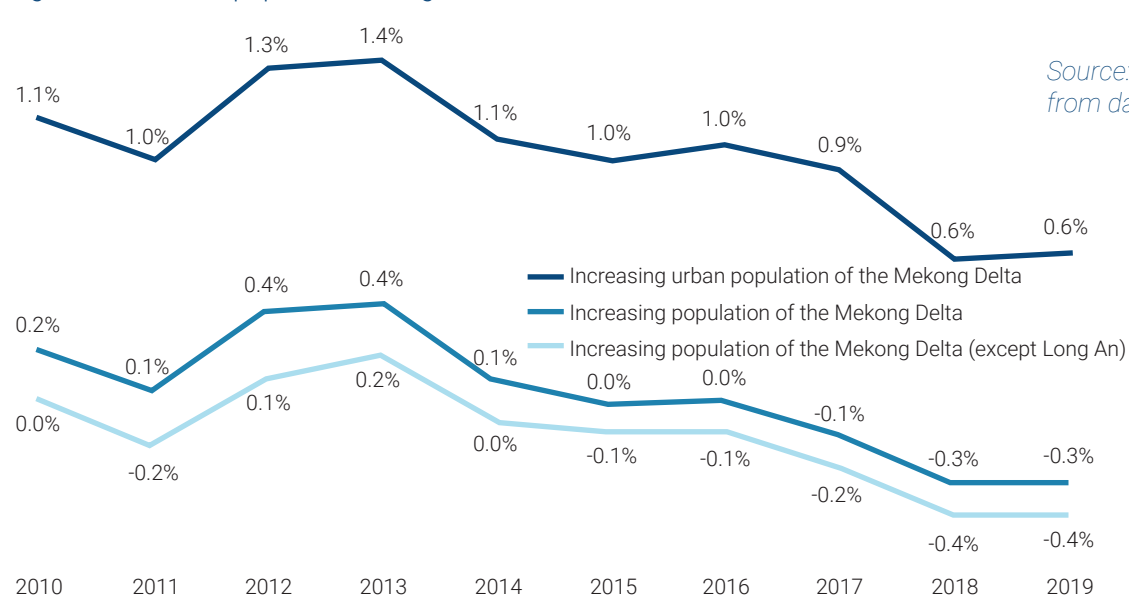
Due to the abovementioned subjective and objective factors, it is very likely that the Mekong Delta will not go through the industrial production state as the Southeast or its industrial exports will be limited. In fact, non-agricultural investments in the manufacturing and processing sector of the Mekong Delta, especially in provinces like Long An or Tien Giang, depend

much on the spillover from Ho Chi Minh City and the Southeast region. The speed and scale of this effect, in turn, depend heavily on the infrastructure system, and the most important of which is transport infrastructure and freight ports.

Trends of migration and urbanization in the 2020 – 2030 period

By April 1, 2019, the Mekong Delta had 17.3 million people, of which 25.1% live in urban areas. According to the Census data, between 2009 and 2019 the Mekong Delta had the lowest rate of urban population growth in the country (only 1.01% compared to 2.64% of the whole country). During this period, the Mekong Delta was also the region with the lowest rate of rural population growth (-0.26%); in fact, the rural population decreased while the national population growth was 0.43%.

Figure 2.27 Annual population change, 2010 – 2019



Source: Calculation from data of GSO

Given the current context, if there are no breakthrough solutions, it is very difficult for the Mekong Delta to have a higher growth rate of the population in general and urban population in particular in the next ten years, compared to the past decade. In reality, the population of the region has decreased by 0.3% per year in the last two years and the urban population has only increased by about 0.6% per year (if Long An is excluded from the calculation, the rate of decline is above 0.4% per year). If the population continues to decrease absolutely (which is very likely), by 2030 the population of the whole region will be less than 17 million people, equivalent to the population of one province that migrate out of the Mekong Delta. By 2030, the rate of urban population or urbanization will be very difficult to reach 30%.

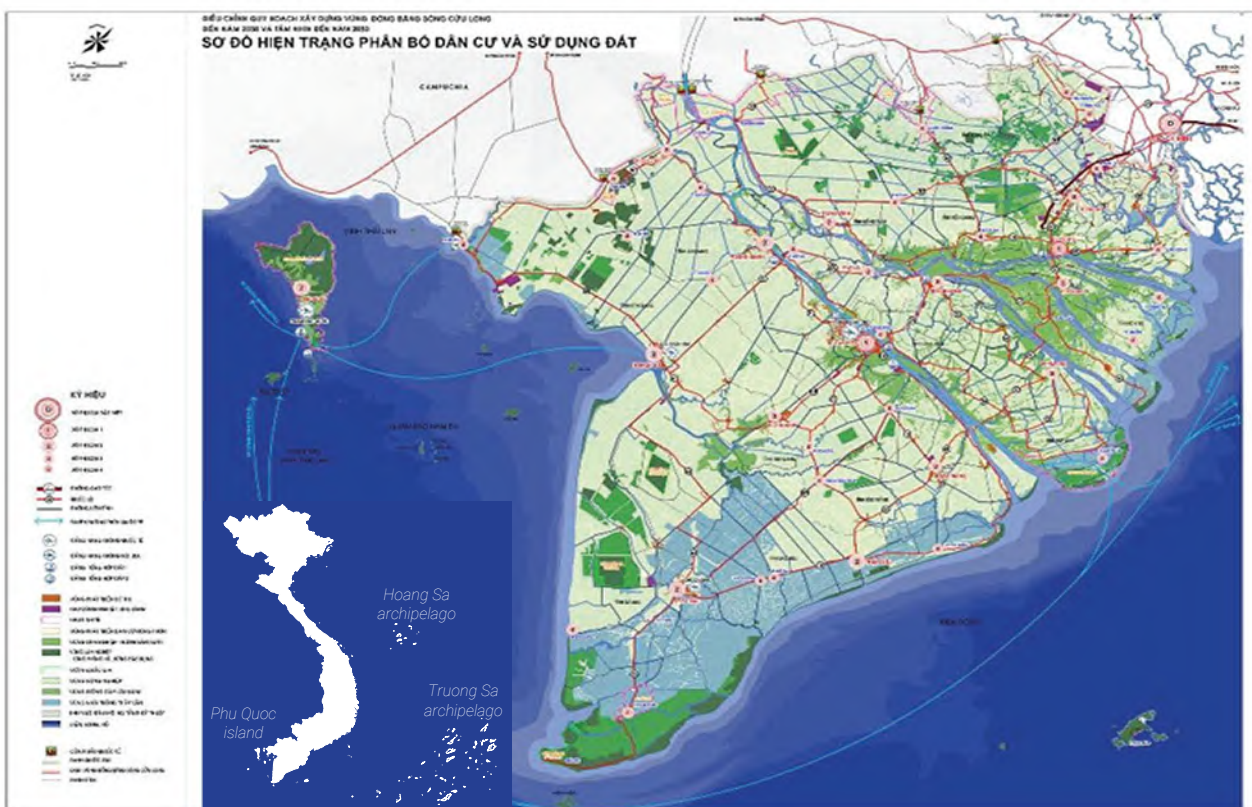
Together with economic development, cities in the Mekong Delta have been spread widely, in which a large part of urban areas have developed without the local authorities' management. This places a negative

impact on urbanization and on the construction of the living and working space for people in a sustainable manner. The local government should pay attention to the following effects:

First, the increase in density and additional construction in the stabilized urban areas have created the urgent demand on upgrading the compatible infrastructure, which should have been done before the approval of those add-ons. Not only does this create a passivity in infrastructure development, but it also increases the budget burden for the localities.

Second, uncontrolledly spontaneous urbanization in the low-land areas worsens efforts in safety and prevention of urban flooding in the wake of climate change and sea level rise. This is also one of the main reasons why the Mekong Delta is classified as a high-risk area of climate change and sea level rise in the world.

Figure 2.28 Current population distribution and land use in the Mekong Delta



Source: Adjustment of construction planning of Mekong Delta region to 2030 and vision to 2050 by Southern Institute for Spatial Planning of Vietnam, Ministry of Construction

In order to solve the problems of the Mekong in front of climate change impacts and challenges to the socio-economic development, the government issued Resolution No. 120/NQ-CP dated November 17, 2017 on the sustainable development of the Delta for adaptation to climate change, proposing five groups of overall solutions, including solutions to build a Master Plan for sustainable development of the Mekong Delta:

- Organizing territorial space to form ecological sub-regions (flood plain, freshwater, brackish water, salt water, etc.) for the economic, agricultural, and infrastructure development; developing urban systems and rural areas in accordance with the characteristics of the natural ecological system, the specific conditions of the region, and each ecological sub-region; reserving specific areas for flood drainage; and restricting building concentrated population areas which are close to river banks and canals that have high risk of erosion and landslide.

- Building a master plan for the sustainable development of Mekong Delta adaptive to climate change, which is suitable to the region's conditions, on the basis of integrating the construction planning of sectors, localities, and key products. The new planning should shift from "living with floods" to "active living with inundation, brackish water, and saltwater" on the basis of integrated water resources planning in river basins and water resources use in an economical, effective, and sustainable way.

- Having a reasonable economic structure for agricultural production with three focuses on fisheries – fruits – rice in accordance with ecological sub-regions, in which fisheries (in fresh water, brackish water, and salt water) are the key products; developing green industries with little emissions and no harm to natural ecosystems; developing renewable energy in line with forest and coastal protection; building tourism services based on potentials and advantages of natural, ecological, cultural, and human features with high economic efficiency; and setting up orchard tours, river tours, and ecotours which are associated with nature reserves.

- Completing coordination mechanism for the regional and ecological sub-region development to enhance efficiency, in essence, toward narrowing down points of contact and using smart management of water resources and climate change adaptation as the focal points; ensuring regional cooperation based on the principle of harmonizing the interests of stakeholders, in alignment with natural conditions of land, water, ecosystems, culture, and people; and emphasizing on regional linkages in terms of infrastructure and product chains with the Southern Key Economic region, Ho Chi Minh City, and the Mekong sub-region.

- Issuing mechanisms and policies that could make breakthroughs to attract capital from non- State budget sources, especially from the private capital sources.



Policy guidelines for urban planning and development

■ With respect to urban development and migration, the analysis in this section shows that the Mekong Delta is experiencing a huge migration along with slow urbanization. The reason being is that competition and productivity growth of the region are low having little opportunities for economic development and job creation, hence leading to the migration of people from the region. This is partly due to its geographic proximity to Ho Chi Minh City, where job creation and economic activities are much better while the Mekong Delta has been strongly affected by climate change and sea level rise. This objective reason is very difficult to change in the next few decades (while the disadvantageous trend is increasing). On the other hand, the subjective cause is that the Mekong Delta has not invested enough resources to build the infrastructure connecting Ho Chi Minh City, intra infrastructure, and necessary investments to boost productivity in the region.

In order to mitigate the challenges and disadvantages of the Mekong Delta as well as to cope with the reality, the following policy issues should be considered. First, in the next decade, the Mekong Delta's ability to reverse the increasing migration and slow urbanization is very low. Therefore, designed policies should follow this trend rather than subjective expectation. Second, to cope with the impacts of climate change, concentrated population in cities will be more effective than scattered population because at that time the infrastructure construction and solution implementation will be easier, feasible, and more efficient. Although there are not many opportunities for economic development, the Mekong Delta thus should have policies to promote and encourage people to live in urban areas to have a better life for themselves, their families, and the society. Third, the central government should allocate enough resources to build transport infrastructure connecting Ho Chi Minh city. However, it should be noted that once the transport infrastructure improved, it will most likely be contrary to the general expectation. The trend of migration to Ho Chi Minh city will increase and the region's ability to attract investment will be more difficult than that at present because the transportation of raw materials becomes easier and more convenient.

■ With respect to planning, in the context of central agencies having to start outlining the national sector plans and 63 provinces across the country have to adjust the provincial plans under the provisions of the law on planning approved by the National Assembly in 2017 and effective from January 1, 2019, most agencies from central to local levels are facing many huge difficulties and challenges from outlining to formulating policies and solutions to implement the plans, allocating resources to implement the plans, and evaluating and adjusting the plans. Also, the law on planning and construction of 2017 opens up new opportunities for planning where there are many innovations close to scientific thinking and practical demands. This indicates a multidimensional relationship in a multidisciplinary mindset. This is an advanced trend in construction planning of today's world.

In implementation of Resolution No. 120/NQ-CP, the Ministry of Planning and Investment is currently planning construction of the Mekong Delta for the period 2021 - 2030, with a vision to 2050. This is also one of the first national project for the region, which is organized in accordance with the multi-disciplinary approach of the 2017 Law on Planning 2017 coming into effect from January 1, 2019.



In addition to the adjustment and supplementation of the Mekong Delta region plan approved in 2018, special attention should be paid to the following strategic issues in the master plan for the Mekong Delta region for the period 2021 - 2030, with a vision to 2050:

- Suggesting more complete and feasible solutions for urban planning and infrastructure development (guidelines, codes, detailed standards on urban, infrastructure, and construction), e.g., response to effects of climate change with short-term and long-term scenarios for sea water rise, instead of just providing warning and general orientation; and pointing out specific solutions to renovate high-risk urban areas, as well as controlling the development of new neighborhoods in such areas.

- Suggesting more concrete and feasible solutions for urban planning and infrastructure development to cope with bad and unpredictable impacts at the downstream of the Mekong River, including river flow change, drought due to lack of water, saltwater intrusion, and so on. In addition, planning experts need to cooperate with experts of other disciplines (the environment, economy, society, finance, engineering, and so on) to build freshwater reservoirs for the region, transforming the organizational planning structure of urban and rural functional space to fit new economic activity models, which would trans-

form many regions in the Mekong Delta while the living and working needs of the people are still guaranteed during the economic structural shift.

- Suggesting more specific and feasible solutions in terms of regional cooperation among localities, urban planning, and infrastructure development in a unified strategy, bringing the highest mutual benefits to provinces in the Mekong Delta; developing investment projects, programs, and plans with a market economy's mind, taking advantage of support from central and local budgets in difficult conditions, coupled with having open policy mechanisms to create stimulating forces to mobilize financial resources from domestic and foreign partners.

- Giving priority to enhance the regional transport network system, especially the axes connecting the region in the North-South and East-West directions, including the axis connecting Ho Chi Minh City - Can Tho - Ca Mau and (or additionally) the axis of Soc Trang - Can Tho - Chau Doc.

- Studying programs to protect coastal areas against the risk of erosion and projects for sea encroachment areas and urban development with diversified marine economic models.

- Developing the urban identity of the Mekong Delta region with an emphasis on quality instead of quantity, i.e., reorganizing urban areas toward concentration on good quality of life, less risk of flooding and environmental pollution among others, rather than a rapid spreading across the region; and at the same time, encouraging the development of agricultural urban areas, associated with restructuring of the agricultural sector toward increasing added value and sustainable development, establishing strong and productive agricultural groups with large scale, high productivity, application of advanced science and technology to production, and creating products reflecting specific characteristics of the region.



An aerial photograph of a rural landscape. The foreground is dominated by a large, circular area of green vegetation, possibly a wetland or a large garden, with a dirt road curving around its edge. In the middle ground, a long, narrow concrete structure, likely a dam or a bridge, is under construction, extending from the right side towards the center. The background consists of vast, green agricultural fields, some with small structures or ponds scattered throughout. The overall scene depicts a developing rural area.

CHAPTER III

COMPETITIVENESS OF THE MEKONG DELTA



Part 3 uses the analytical framework for competitiveness of Prof. Michael Porter adapted by the Fulbright School of Public Policy and Management to fit the Report's goals and objectives (Figure 1).¹¹ In this analytical framework, the productivity of using resources, including capital, labor, land, and others plays a central role because it is, on the one hand, the most accurate and uniquely meaningful measure of competitiveness and, on the other hand, the decisive factor for the prosperity of the locality.¹²

With the central role of productivity in the analytical framework of competitiveness, a key question to answer is:

What are the factors that determine productivity and its growth rate?

In this Report, by Michael Porter's analytical framework, there are three groups of factors that determine the competitiveness of the Mekong Delta, including

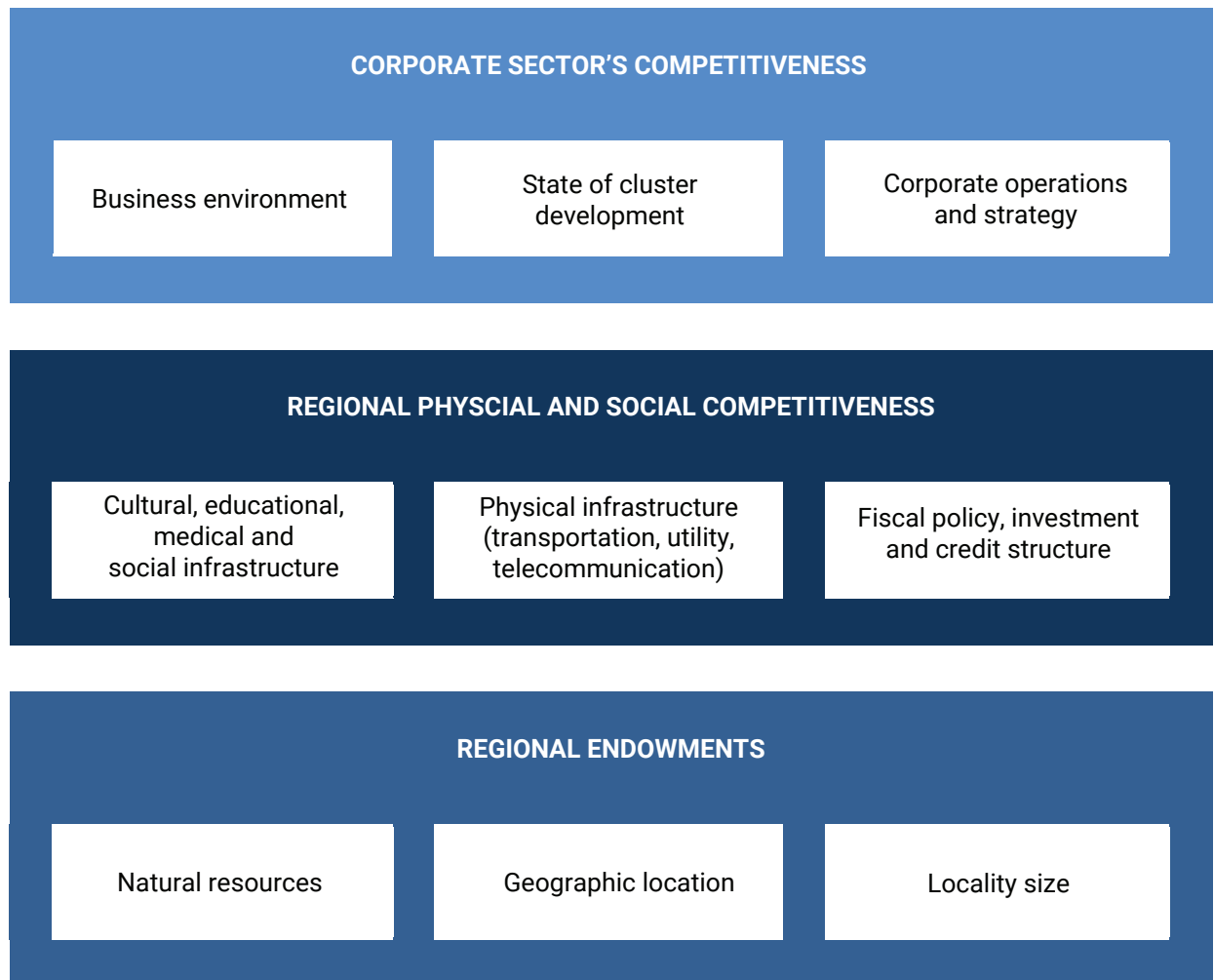
- The region's endowments;
- Competitiveness at the local level;
- Competitiveness at the business level.

The analytical framework of Michael Porter is detailed in Appendix 1, and the specific contents will be analyzed in this Part.

¹¹ Summary of this analytical framework is provided in Appendix 1.

¹² A locality here refers to an economic unit, may be a province, a city, a region (like the Mekong Delta), a country, or even an economic region (such as ASEAN or EU).

Figure 3.1 Factors affecting competitiveness in the Mekong Delta



Source: Adapted by the Fulbright School from Michael Porter (1990, 1998, 2008).



3.1

NATURAL CONDITIONS AND ENVIRONMENTAL CHALLENGES IN THE MEKONG DELTA

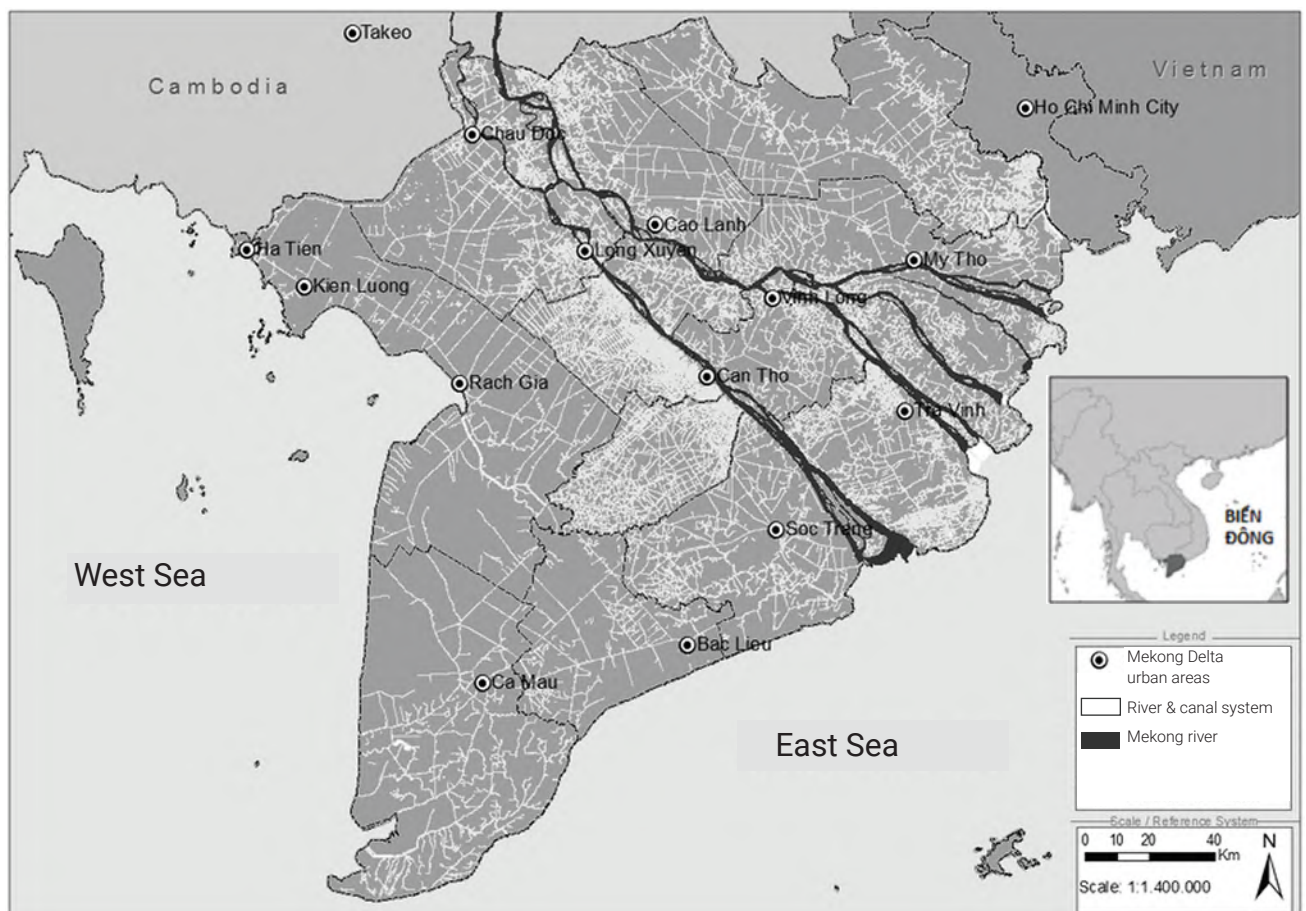
Natural geographic data

Located in the southernmost of the country, the Mekong Delta is considered a very young geological age delta, formed from about 7,000 - 9,000 years in the past due to the continuous accretion of the river flow and sediment source in the Mekong River and the receding sea process in the past of more than 4,000 – 5,000 years ago (Tsukawaki et al, 2005; Hori and Saito, 2007; Tamura et al, 2009). More than a century ago, due to the alluvial of about 160 million tons per year from the Mekong River mainly during the flood season (Lui et al, 2013; Loisel et al, 2014; Wild et al, 2015), the delta has been improved and expanded rapidly (Le Anh Tuan, 2015). During more than 4,000 years of history, the delta moved to the East Sea with an average speed of about 15 m/year (Phung Van Phach, 2010). However,

the Mekong Delta officially had the presence of residents and formed a political and social mechanism only about 300-400 years ago.

The Mekong Delta currently has a total natural area, including the area of coastal islands, of 40,572 sq km (GSO, 2013), accounting for 12.25% of the country's land area. It covers an area of nine times larger than the land area, approximately 360,000 sq km, with two sides bordering the East Sea and Gulf of Thailand, with a coastal length of more than 732 km (Figure 1). The land area in the Mekong Delta currently used for agricultural production is more than 2.5 million ha (accounting for about 64% of the total natural area), mainly used for wet rice cultivation and aquaculture from fresh water, brackish water, and saltwater areas.

Figure 3.2 Mekong Delta map with major rivers and canal systems



Source: Benedikter (2014)

The Mekong River is Southeast Asia's largest international river, ranking 12th in length in the world (Lui et al, 2009). The Mekong River comes from the Tibetan Plateau at an altitude of about 5,000 meters above sea level; the river flows from north to south through 6 countries: China, Burma, Thailand, Laos, Cambodia, and finally to the Mekong Delta before entering into the sea. With a catchment area of 795,000 sq km, located in the Asian monsoon region, receiving a considerable amount of rain, the amount of water that reaches the Mekong Delta is up to 475 billion cubic meters of water annually (MRC, 2010). Due to the relatively high rainfall (from 1,600 – 2,200 mm/year) and the large flow of the Mekong River (with an average flow of 15,000 m³/s), the Mekong Delta receives a huge amount of ground fresh water, approximately 450 to 475 billion m³/year, accounting for more than half of the total surface water of Vietnam, which is 830 - 840 billion m³/year.

inundated for 2-4 months. The flood season, a natural phenomenon that indicates the rising water level on the river, causes flooding for weeks and overflows fields; starting in July, the water level on the river increases gradually from August to September, peaks in October and gradually declines in November. On average, in the rainy season, the highest flow rate on the Mekong River is 39,000 m³/second, causing flooding from 1.2 to 1.9 million ha (Le Anh Tuan, 2010).

In contrast, during the dry season that lasts from December to early May, rainfall is almost negligible and the amount of water flowing from the Mekong River into the Delta is very low. Especially at the peak of the dry season, March - April every year, the average discharge for many years is only about 1,500 – 1,700 m³/s. The historical data of depleted discharge in the Mekong Delta is 1,200 m³/s, occurring on April 17, 1960. Low flow in the dry season makes saltwater



With its low and flat terrain, abundant water resources and bordering the sea in two sides, the Mekong Delta is recognized as the largest wetland in Vietnam (Tuan and Guido, 2007). The climate conditions of the Mekong Delta, if compared with the whole country, are relatively temperate with few natural disasters. However, heavy rain and big flows are mainly concentrated in the rainy season, creating an annual flooding phenomenon; nearly 50% of the delta area is thus

intrusion quite seriously while groundwater resources have been significantly reduced. It is estimated that at the peak from mid to late April, about 45-50% of the Mekong Delta land area is saline. The difference in groundwater level in rainy and dry seasons can be up to 12 - 15m. This is a big challenge for the water supply for domestic and production purposes of the people in the coastal delta.

According to An (2002), in addition to the natural river system, canal density in the Mekong Delta accounts for 9% of the entire area, giving the Mekong the densest irrigation system in Vietnam. It is estimated that the total length of canals in the Delta is approximately 8,000 km now, of which more than 50% are main canals with widths of 8-40 meters and canal bottom elevations from - 2.0 meters to - 4.0 meters below mean sea water level. Major cities in the delta have ports and river terminals to accommodate the exchange of passengers and goods. Water and land resources promote economic development for both urban and rural areas in the Mekong Delta.

According to GSO (2019), the population of the Mekong Delta is 17.3 million people, with an average density of 438 people/sq km. The total GDP of the whole Mekong Delta in 2018 was VND 818,523 million, distributed by provinces as shown in Table 1, averaging about 46 million VND a person per year. GDP in the Mekong Delta contributes about 14.76% to the national GDP in 2018 (VND 5,542.3 trillion) while the per-capita income in the Mekong Delta is only 78.17% of the national average estimated at 58.5 million VND in 2018.

Table 3.1 Population and total income in the Mekong Delta by province, 2018

No.	Name of Provinces and cities	Population (person)			GDP	GDP/person
		2010	2015	2018	Million VND	Million VND
1	An Giang	2,148,299	2,158,320	2,164,151	80,064	37.0
2	Bac Lieu	873,293	889,109	897,020	39,198	43.7
3	Ben Tre	1,256,618	1,263,710	1,268,204	43,885	34.6
4	Ca Mau	1,214,221	1,218,821	1,229,632	52,108	42.4
5	Can Tho	1,199,817	1,251,809	1,282,274	87,234	68.0
6	Dong Thap	1,669,622	1,684,261	1,693,313	72,872	43.0
7	Hau Giang	761,711	770,352	776,663	28,537	36.7
8	Kien Giang	1,712,120	1,762,281	1,810,454	87,357	48.3
9	Long An	1,442,828	1,484,655	1,503,126	103,179	68.6
10	Soc Trang	1,295,601	1,310,703	1,315,944	48,445	36.8
11	Tien Giang	1,677,986	1,728,679	1,763,927	82,682	46.9
12	Tra Vinh	1,013,100	1,034,600	1,049,809	45,846	43.7
13	Vinh Long	1,026,521	1,045,037	1,051,823	47,114	44.8
	Total/ average	17,291,737	17,602,337	17,806,340	818,523	45.7

Source: GSO (2018)

Changes in natural conditions over the last three decades

Before the 1970s and 1980s, the Mekong Delta's land was primarily used for rice cultivation of two crops: Summer-Autumn crop (in the rainy season lasting from April to July) and Winter-Spring crop (normally in the dry season, from December to February). The rest of the year is days in overflowing and flooding (from August to November) or deeply salty intrusion (March, April). To increase crops and rice yields, localities often have to build completely closed dykes to cultivate Autumn-Winter crops (from August to November). If rice cultivation done in the Spring-Summer crop, the amount of water pumped for irrigation must be very large because this is the time of severe drought and saline intrusion in the Delta.

Cultivation of the third rice crop has been around since mid-1980s in areas with relatively active irrigation and ring dike systems in An Giang and Dong Thap provinces (Chu Thai Hoanh et al, 2014), for a short-term (105 - 110 days) or extremely short-days by use of special rice varieties (such as OMCS, with planting time falling between 95 - 105 days). There are even places like Long An or Tien Giang that have done seven crops in three years, or O Mon, eight crops in three years. Gradually, many provinces and MARD have encouraged an expanded solution to rapidly increase rice production in order to turn Vietnam into a strong rice exporter in the world.

In the 2009 – 2010 crop, areas for three-rice crop in the Mekong Delta reached 3.8 million ha. Figures from the GSO show rice production in the Mekong Delta increases impressively from 4 million tons in 1975 to 20.7 million tons in 2010. However, the increase slowed down between 2010 and 2017, only about 2%. In the 2017 – 2018 crop, the output decreased due to the policy prescribing a gradual reduction of rice cultivation area (Table 3.2).

In fact, after more than 10 years, the longer the three-rice crop cultivated areas are, the lower the quality of land resources and the bigger decrease in rice yield are, all are due to the absence of sediment in the dike areas while the cost of fertilizing and spraying

Table 3.2 Total cultivated area of rice in the Mekong Delta (Unit: million ha)

Crop	2010	2017	2018
Spring Summer rice crop (February - May)	1.56	1.57	1.57
Summer-Autumn rice crop (May - August)	2.00	2.42	2.33
Autumn-Winter rice crop (November - February)	0.37	0.18	0.19
Total of the year	3.94	4.18	4.10

Source: GSO, 2019

pesticides increased. Rice was produced a lot but the price decreased while all related services such as labor, oil, electricity, and other market-related services continuously increased. As a result, the economic efficiency of rice production is declining.

The implications are even more extensive across the Delta if the rural environmental factors are taken into consideration; the damage to infrastructure resulting from extensive flooding and erosion leads to a much larger economic loss. A study tracking ring dike cultivation for three rice crops over 15 years in An Giang province (Gernado and Tonneijck, 2017) found that profits from rice cultivation only increased in the first five years; from the 5th year to the 15th year, profits decreased, lower than the two-rice crop area. This study ignores the costs associated with the environmental degradation and social problems (Table 3.3).

Table 3.3 Cost-benefit analysis of 3- rice crop area in An Giang (USD/ha.year)

Rice cultivation System of An Giang	2 rice-crop	3 rice-crop (5 years)	3 rice-crop (15 years)
Rice sales (+)	2,600	3,900	3,450
Fertilizer fees (-)	360	800	1,200
Pesticide fee (-)	350	625	730
Water pump fee (-)	100	180	180
Profits earned (+/-)	1,790	2,295	1,340

Source: Gernado and Tonneijck, 2017



Water resources in the Mekong also continue to face five frequent challenges now and in the future, of which two involve water quantity (flooding and drought) and three, water quality (reducing sediment, salty intrusion, and water pollution). This predicament tends to increase due to the simultaneous impact of many factors: climate change, sea level rise, and trans-boundary water issues such as upstream hydroelectricity and reservoir development and operation, increasing deforestation, land use change, urbanization, narrowed natural wetlands, risk of water transfer and extraction in the dry season, and water pollution from growing industrial and agricultural activities along both sides of the river.

Factors that degrade water resources of the Mekong Delta can be categorized into two groups: (i) from human activities and (ii) from natural fluctuations. The human factors, under increasing pressures such as population, economic development, and excessive exploitation of natural resources, are considered as the major and critical ones causing the environmental pollution and water resource degradation.

Natural factors attributed to deterioration of the quality of land and water resources include prolonged drought; saltwater intrusion from the sea; alum appeared on the cultivated surface due to low groundwater level, drought, and excessive sand exploitation (Guillaume et al. 2014); riverside erosion; seawater

intrusion caused by sea level rise; natural disasters and other impacts due to climate change (Tuan and Suppakorn, 201; Richard and Tran, 2014).

Due to the massive development of hydroelectric dams in China, and later in Laos, the sediment flow to the Delta has declined markedly (Lu and Siew, 2005; Piman, and Manish, 2017). Previously, every year the Mekong River carried to the delta about 160 million tons of alluvium (Piman and Manish, 2017), but now it has decreased by about 50%, 80 million tons/year, estimated from just the upper corridor part of the Mekong River in China (Apisom et al, 2018). According to estimates by MONRE (2015), the economic loss due to the reduction of sediment is about USD 450 million/year.

There are multi-signs of natural ground subsidence, especially in Ca Mau peninsula, exacerbating inundation and saline intrusion. The latest scientific report has warned that the average natural ground elevation in the Delta is only about 0.8 m above the sea level (Minderhoud et al., 2018). Pollutants from humans and the nature are not separated, but added to alleviate the quality of the rural environment. These are extremely difficult and sensitive issues for people living and production in downstream areas as well as the existence of very sensitive wetland ecosystems of the Delta.

Challenges related to future development

Climate change, sea level rise, and the impacts on transboundary water resources are and will be large hurdles threatening Vietnam's socio-economic development, making agriculture in the Mekong Delta unsustainable. Macro leaders need to be early aware of these risks and must have reasonable countermeasures against these. For rice production, it is necessary to adjust the crop calendar in time and speed up research to find new rice varieties that can better tolerate drought and salinity. In rice cultivation, water-saving irrigation will be a solution to help farmers reduce production costs and accommodate water depletion. In addition, structural measures should include salinity prevention, freshwater and groundwater extraction, dredging and reinforcing canal systems to increase water efficiency, building and exploiting renewable energy sources (wind, sun, biomass, river flows) for production and daily life. Moreover, there

should be effort on raising awareness in communities and managers, and on training about integrating climate change to local development plans. The localities should coordinate with scientists to find adaptive measures suitable for the community. Strengthening scientific cooperation with domestic and foreign organizations is also needed to promote sharing of information and knowledge to respond most appropriately to climate change. Solutions for food production in the Mekong Delta are not only significant for national food security but also assured for the world's food supply, saving lives of many people in other poor countries.

Water security includes the ability to have the required quantity of water, clean and safe, and the supply of water at the desired time. Water security is the primary foundation for food security, which is the basis of social security, from which the development of a new region and country is basically sustained.



The most important thing in the strategy to protect water resources in general and river basins in particular is to have the community's participation as true owners of this precious resource. Residents living in the basin, through representatives of their authentic civil society organizations, must have rights to use and criticize uses of water from the river for the purpose of protecting the river. No government agency or any scientific organization can restore the purity of rivers without the conscious actions of its own dwellers. Projects of river water exploitation and discharge into water sources must be transparent in terms of information on possible negative impacts at the onset of implementation. These projects shall consult the community, related organizations, and even individuals as a legal process, a natural part of the institutional democratization, and at the same time, the owners and governmental authorities shall also be responsible for these projects.

Current agricultural response models in the Mekong Delta are initially spontaneous and invented by farmers to adapt to the changing weather, water sources, and other factors related to market, labor, capital investment, and volatile natural and ecological conditions. Most are coping in nature and only suitable for short to medium term goals. Scientists and non-governmental organizations have then provided more technically and systematically radical support for longer adaptation. Any global transformation brings different risks and opportunities for interest groups in the community. However, impacts of climate change seem to bring more disadvantages to society than advantages do. Therefore, the mitigation and adaptation must be studied and proposed accordingly.

The Global Water Partnership (2004) has defined: "Integrated water management is a process that fosters joint development and management of water, land, and related resources, in order to maximize the economic benefits and social well-being in a fair manner without compromising the sustainability of



essential ecosystems". Integrated water resource management includes risk management, combining land and water management, forecasting, monitoring, and contingency planning to mitigate serious economic consequences. Strengthening integrated river basin management based on land and water resources in the basin needs to be approached as a whole. Although the Law on water resources and other legal documents affirm the role of water governance of the government, the participation of different stakeholders and the mechanism for people to monitor and use water resources are still unclear. The acts of damaging the water source need to remain sanctioned by legal tools and courts. Restoration, planting, and protection of watershed forests and river banks need to be promoted and managed more closely.

With respect to poor and resource-constrained countries, adaptation is more focused than mitigation, though the two are complementary. Adapting to climate change requires a long process. Developing action plans to adapt to climate change is both an urgent task and a long-term and strategic one for the sustainable socio-economic development and environment. Climate change and sea level rise in the Mekong Delta are serious problems that policy makers, planners, natural scientists, social scientists, traders, local officials, and people must be aware. Scenarios and impact cases need to be further analyzed for more convincing and scientific data. Based on the results of the analysis in terms of data, it is necessary to have advocates to support information sharing and find ways for mitigation and adaptation. Each locality and sector should develop action plans to respond to climate change. Also, it is necessary to implement adaptive practices for the entire society. In

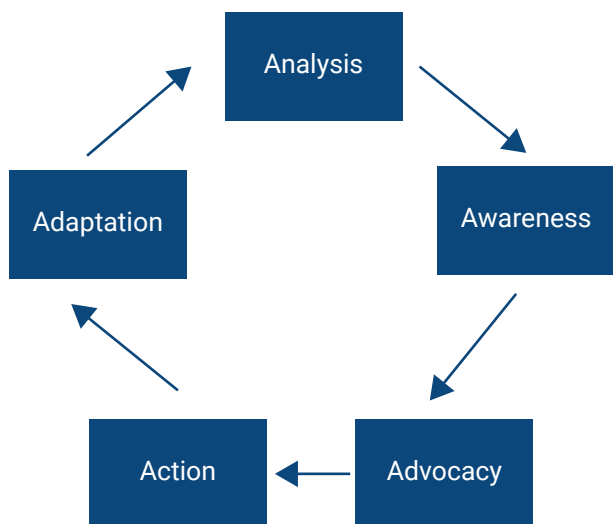
doing so, we will continue to collect evidence and data from reality to cycle through. These steps can be visualized through a cycle, temporarily named the 5A approach (Figure 2): Analysis - Awareness - Advocacy - Action - Adaptation.

Responses - including mitigation and adaptation - to climate change and unusual weather events is nothing new in human history. In the process of settlement, farming, and livelihoods, each community has created a variety of ways to limit the harmful effects of natural disasters and sought to take advantage of the possible advantages of changing weather to suit their geographical - human - economic conditions.

With respect to poor and resource-limited countries, adaptation is more focused than minimization, although the two are complementary. However, when the climate change is taking place faster than in the past and in the current context - the population is highly increasing and many socio-economic activities are increasingly diversified and complicated - the negative impacts of climate change and sea level rise will create many new challenges.

Responding to climate change is becoming more urgent than ever. Like many countries around the world, Vietnam has announced the National Target Program to respond to climate change since 2009. Currently, the provinces have established steering committees to implement the "National Target Program to Respond to Climate Change", pursuant to Decision No. 158/2008/QD-TTg dated December 2, 2008 of the Prime Minister. Some localities have carried out activities to raise awareness of the community about climate change.

Figure 3.3 Five-step practice to climate change adaptation



Source: Le Anh Tuan, 2009

In practice, people in the Mekong Delta have some of their own coping strategies that are spontaneous or selected by situation to minimize impacts and adapt to climate change. This is an extension of the concept of "living with floods" on a larger scale for the whole Delta rather than confined to space exclusively in flood-affected areas. The concept of "living with climate change" is not yet an official slogan from the government level, but has been mentioned somewhere by the people and the media.

Many provinces have been developing action plans to respond to climate change, at the same time taking steps to integrate climate change response factors and disaster prevention into the socio-economic development plan of their localities. Many governmental and non-governmental organizations had activities that focus on specific projects related to responding to

climate change, from the provincial to the community level. On November 17, 2018, the Prime Minister issued Resolution No. 120/NQ - CP on Sustainable Development of the Mekong Delta in Adaptation to Climate Change. This resolution was come into place in the context that the Mekong River Delta is facing major challenges in terms of the environment, natural resources, as well as socio-economic changes. On March 26, 2018, MPI issued Decision No. 337 laying out an implementation plan for Resolution No. 120, i.e., building the "Master plan for sustainable development of the Mekong Delta to adapt to climate change up to 2030, with a vision to 2050". This is the legal and technical basis for the provinces to develop strategies and action plans to develop the Mekong Delta's economy and society in response to climate change and sea level rise.





3.2

INFRASTRUCTURE

Transportation infrastructure

Transportation is one of the critical, if not the most critical, factors in the development dynamics of localities, especially underdeveloped economic regions. Types of transportation systems and proper time (or speed) that help connect or are compatible with transport needs of passengers and freight, all matter.

In the Mekong Delta, the role of transportation in connection with Ho Chi Minh City and overseas has been considered one of the most important weaknesses of the region. Issues related to this topic are constantly being updated through national agendas, regional forums, and in the press. The summary below shows that the demand and importance of transportation for the Mekong Delta are very urgent.

In general, investment demand in the region is huge for all types of basic transport infrastructure such as roads, waterways, aviation, and even railway. However,

in the context of limited budget resources and low priority for transport infrastructure investment in the Mekong Delta, results achieved for the transport infrastructure development of the Mekong in the 2009-2019 period is very modest. Some important achievements include the inauguration of the Ho Chi Minh City - Trung Luong expressway and replacement of ferry crossing by bridge pass to help improve transportation connectivity throughout the region. However, many key projects are still under planning or facing many problems in construction such as Trung Luong - My Thuan - Can Tho expressway, Can Tho - Ca Mau expressway, Chau Doc - Soc Trang expressway, and regional deep-water ports, etc. As a result, the single and overloaded route, namely National Highway 1A, remains a fundamental bottleneck for the development of the whole region. Construction planning of waterway transport is still unclear and expectation to develop airway and railway transport is not really feasible either.



Table 3.4 Development needs of transport infrastructure in the Mekong Delta

Time	Prioritized projects/works
2005 - 2009	Road: <ul style="list-style-type: none"> • Upgrading and expanding National Highway 1A, Highway 80 (Dong Thap - Kien Giang) • Can Tho Bridge (2008) • South of Hau River - Highway 91 - Soc Trang - Bac Lieu - Ca Mau Waterway: <ul style="list-style-type: none"> • Dredging the HCMC - Kien Luong, HCMC - Ca Mau route Airline: <ul style="list-style-type: none"> • Upgrading and expanding Can Tho airport
2010	Road: <ul style="list-style-type: none"> • Inauguration of Trung Luong Expressway • Ham Luong Bridge
Feb 11, 2012 Decision No. 11/2012/QD-TTg on Approval of Transportation Construction Planning of Mekong Delta to 2030	Road: <ul style="list-style-type: none"> • My Thuan - Can Tho Expressway • Upgrading National highways 91, 61, 63 • Invest in route N1 (Hong Ngu - Chau Doc - Tinh Bien) • Southern coastal corridor • Investing in Vam Cong, Nam Can and Long Binh bridges Waterway: <ul style="list-style-type: none"> • Upgrading and expanding ports of Can Tho, An Giang, Kien Giang and Ca Mau • Investing in Quan Chanh Bo canal, Cua Lon river channel Airline: <ul style="list-style-type: none"> • Ca Mau, Rach Gia (Kien Giang), Duong To (Phu Quoc) airports Railway: <ul style="list-style-type: none"> • Studying the My Tho - Can Tho route connecting to the HCMC - My Tho route
May 26, 2012	Road: <ul style="list-style-type: none"> • Overload National Highway 1A - a unique route connecting to Trung Luong gateway • Proposing to invest in Dong Thap Muoi - Long Xuyen Quadrangle street Waterway: <ul style="list-style-type: none"> • HCMC - Ca Mau route with a maximum of 10,000 tons • Quan Chanh Bo canal is constructed slowly • HCMC - Can Tho route (risk of congestion on Cho Gao river)
Feb 24, 2014	Road: <ul style="list-style-type: none"> • Completion of upgrading, investing in National Highway 1, Highway 91, the southern coastal corridor, Ho Chi Minh road • Deploying Vam Cong, Nam Can, Long Binh bridges • Consider Chau Doc - Can Tho - Soc Trang expressway Airline: <ul style="list-style-type: none"> • Operate international airports in Can Tho, Phu Quoc
May 25, 2015	Road: <ul style="list-style-type: none"> • Inauguration of Co Chien Bridge (Ben Tre - Tra Vinh), My Loi Bridge (Vam Co River) • Investing and renovating Highway 53 (Vinh Long - Tra Vinh), Highway 30 (Tien Giang - Dong Thap)

Time	Prioritized projects/works
Aug 13, 2016	Road: <ul style="list-style-type: none"> • Investing in Cai Lay bypass • Constructing Trung Luong - My Thuan expressway • Proposed HCMC - Can Tho - Ca Mau expressway, coastal corridor • Capital of Road 79% - waterway 13% Airline: <ul style="list-style-type: none"> • Upgrading Ca Mau airport Railway: <ul style="list-style-type: none"> • Found capital sources for HCMC - My Tho - Can Tho route
Aug 16, 2016	Completed the WB5 project <ul style="list-style-type: none"> • Upgrading Highways 53-54-55-91 and provincial roads • Improvement of waterway corridor (Dong Thap Muoi - Long Xuyen pentagon) • Construction of Rach Chanh boat lock
July 8, 2017	Road: <ul style="list-style-type: none"> • Construction of Cao Lanh bridge • HCMC highway project (Nam Can - Dat Mui) • Upgrading and expanding the bridge on National Highway 1A (Tien Giang), the route connecting Rach Mieu - Co Chien Capital: 67,336 billion VND for 27 important projects in the period of 2017 - 2020 <ul style="list-style-type: none"> • Ho Chi Minh road and N1 road
Oct. 4, 2017	Airline: <ul style="list-style-type: none"> • Calling for investment in An Giang airport (3,417 billion VND in the period of 2016-2020)
Jan 15, 2018 Decision No. 68/QD-TTg on adjustment of planning for the Mekong Delta region	Road: <ul style="list-style-type: none"> • Completing and building a new expressway: HCMC - Trung Luong - Can Tho - Ca Mau; Ha Tien - Rach Gia - Bach Lieu; Chau Doc - Can Tho - Soc Trang • Upgrading highways
Feb 25, 2018	Road: <ul style="list-style-type: none"> • Proposed to accelerate the expressway Trung Luong - My Thuan - Can Tho • Opened international ship routes to port cluster No. 6 • Inauguration of Cao Lanh bridge
May 19, 2019	Road: <ul style="list-style-type: none"> • Inauguration of Vam Cong Bridge • Operating cruise ship Tran De - Con Dao port • The idea of high-speed railway HCMC - Can Tho (4.5 billion USD)
June 18, 2019	Capital: 95,000 billion for 32 key projects in the period of 2021-2025 <ul style="list-style-type: none"> • Completion of HCMC - Trung Luong - Can Tho expressway • Can Tho - Ca Mau Expressway Feasibility Study • Tran De deep-water port, Dai Ngai bridge

Source: Compiled by authors

Ground transportation

Ho Chi Minh City - Trung Luong expressway and a number of bridges in place of ferry crossings have helped shorten connecting time between the Mekong Delta and Ho Chi Minh City. However, the gateways connecting to Trung Luong are still unique because of the overloaded capacity of National Highway 1A. Projects to upgrade this route, started in the pre-crisis period of 2008, have been continued over time. However, this task not only falls short of the increasing transportation demand in the region but also impacts transportation flow and people's daily life due to its implementation in a fragmented and prolonged manner.

At gateways to Ho Chi Minh City, the slow implementation and completion of ring roads and regulations restricting high-load vehicles entering the inner-city lead to a situation where goods transport tends to get stuck at a same time, raising the risk of traffic jams which could, if severe, damage cargoes.

The primary road axis in the region has only two-automobile lanes and one motorbike lane for each side with a median strip; some main roads even have only one car lane and one motorcycle lane for each side and no median strip. Some major roads along the river are also affected by landslides. The capacity of the main transport axis is also limited, transportation of goods from the production and farming areas to the factories and processing facilities still heavily depends on inland waterway.





Although the arterial expressway transportation axis of the region has been included in the planning, it has not been completed or invested yet. The vertical axis of Ho Chi Minh City - Can Tho - Ca Mau has been connected to Trung Luong since 2010, but the Trung Luong - My Thuan route is still under construction with the specific completion date cannot be determined. At the same time, the Can Tho - Ca Mau route is only in the feasibility study phase. Meanwhile, the horizontal axis connecting Soc Trang - Can Tho - Chau Doc continues to be planned in the next phases with unclear financial capabilities and undetermined commencement time. These results are not surprising in the context of budget constraints; problems in site clearance, completion volume, and disbursement schedule; weather-impacted construction conditions; and issues related to location of BOT toll plazas.

Given limited investment resources and participation of the private sector constrained by the current PPP

mechanism as well as inadequacies in implemented PPP projects, investment in upgrading existing highways is a temporary solution over the years. Even this solution is also facing difficulties because the need for investment in national highway renovation is very large compared to the road maintenance fund each year (only meeting about 35% of the investment needs). Meanwhile, new investment resources continue to be dispersed in coastal and ring roads which are very low in transportation demand and cargo volume and have misaligned connectivity with the main axes. This contrast reflects the limited resources for investment in transport infrastructure and the incoherence in proposals and priority choices among provinces in the region. Once problems in calling for PPP have not been resolved, concentrating resources on the two arterial regional highways (vertical and horizontal) is an appropriate choice that regional provinces should aim for in the 2021 – 2025 period.

Waterways

Quan Chanh Bo canal is an outstanding project that was completed and put into operation in 2009. However, the limitations and failures in the investment and operation strategy of Quan Chanh Bo canal in the past time (the annual sedimentation resulting in unexpected performance and the relatively large yet inefficient annual dredging budget) shows that the choice of investment in waterways in the Mekong Delta has many shortcomings and lack of priority in exploiting and using the limited capital investment.

The Mekong Delta has always been mentioned as a potential area to exploit water transport. However, up to now, inland waterway transportation only plays a role in gathering and collecting goods on a very limited scale. According to the assessment of maritime transport management experts in the region as well as logistics enterprises, about 70-75% of the Mekong Delta's cargo demand is being transported to port clusters in Ho Chi Minh City and Cai Mep – Thi Vai while the port clusters in the Mekong Delta are not fully exploited on par with their capacity.

The first reason that inhibits the development of waterway transportation is that although there are many limitations, the road transport system of the Mekong Delta is more synchronous and effective, thereby shortening travel time, reducing costs and improving safety much better than before.

The second most important reason lies in the system of mechanisms and policies related to waterway transportation management. Specifically, compliance with administrative procedures to be able to build boats, to be audited, and to register them is complicated, expensive, and time consuming. Boat operation is increasingly tightened by many regulations on safety, insurance, radio communications, and inspection for licensing. Regulations on qualifications, training, and licenses of boat drivers are becoming increasingly complex and so on. According to the assessment of maritime transport management experts in the region as well as logistics enterprises, about 70-75% of the Mekong Delta's cargo demand is being transported to port clusters in Ho Chi Minh City and Cai Mep – Thi Vai

while the port clusters in the Mekong Delta are operating in moderation and have not yet fully exploited on par with their capacity.

The third lies in the fact that waterways have advantages over roads in transport of large tonnage, but not all goods in the region are suitable for transport by waterways. Waterways have the advantage of unit cost per ton of cargo but incurs loading and unloading costs at each terminal, and transport time is many times higher than that of road transport, they are thus not suitable for agri-aqua products that need frozen preservation. On the import side, transportation demand mainly serves some specific projects in the region such as thermal power (coal) and electricity (gas turbine). Obviously, the possibilities for growth from these commodities are limited.

The fourth is the issue that the logistics infrastructure for direct international shipping is inadequate due to the lack of deep-water port infrastructure for cargo collection vessels (feeder ships). The existing port clusters depend on the navigability of ships through the Quan Chanh Bo canal, Dinh An port, and Tran De port. The need for and frequency of feeder vessels to operate, even with guaranteed navigability, also questions the viability of sea transport.



The deep-water port of the whole region is not a new question, but recently it has been raised again. However, the most important question is the feasibility of this project if invested for construction. According to experts, the current exploiting cargo terminal is only about 10-15% of the designed capacity of Tran De port because not all goods in the region will choose to connect via Soc Trang to Tran De port, especially in the western and northwestern provinces. Meanwhile, the viability of new sources of goods in the region is also not high, especially as the investment climate in the Mekong Delta is significantly affected by the sea level rise in the future. Transportation connecting to Tran De port has not been invested and synchronized. The demand for investment resources is large in the context of a limited budget. The ability to mobilize private investment resources is not much even when there are some investors who are considered to be

interested because the financial viability of the project is very low. The role of Tran De port in association with the interests of existing port clusters is also of concern.

The spillover effects of investment in Tran De port on economic development (attracting investment in processing and manufacturing industries) or residential-urban development are not quite clear in comparison with the development of road transportation. Therefore, if the localities in the region do not clearly define the priority between the improvement of the arterial highway axis and the road network connecting the provinces in the region with the development of waterways, the expectation of a complete, diversified, and connected transport facilities for the Mekong Delta continues to be just plans as before.



Air transportation

Can Tho International Airport is considered as the center of air transportation connection of the whole region, but its operating capacity is only about 25%. The performance of Ca Mau or Rach Gia airport (Kien Giang) is not better either. Meanwhile, Phu Quoc International Airport (Kien Giang) is characterized by its location in the island district and mainly serves travel needs of tourists in Phu Quoc, it is thus not impactful to the economy of the region.

As for airline operations, the advantage of scale economy to reduce fixed costs per unit of passenger is very important. Therefore, the current low capacity will certainly create a financial burden on the aviation industry. In fact, apart from Tan Son Nhat, Noi Bai and

Da Nang airports that are profitable, most other airports in the country are currently being compensated for the annual losses.¹³ In terms of regional spillovers of airports in the Mekong Delta, these airports mainly serve technical experts (international visitors) or business travelers (domestic tourists). With the need to commute to Ho Chi Minh City, road transport is a priority choice because of its affordable cost and a dense network of passenger transport service providers that covers major locations and centers.

Obviously, in such a context, proposals to invest in new airports in the region are not appropriate given current resources and actual needs. Investing and upgrading road transportation infrastructure to ensure convenient connection among the region's economic centers, play a more important and practical role.



¹³ Thanh Binh (2019). How are 16 airports being compensated for their losses?: <https://www.baogiaothong.vn/16-cang-hang-khong-dang-phai-bu-lo-nhu-the-nao-d418320.html>



Railway transportation

The idea of a railway route of Saigon - My Tho or Saigon - Can Tho and even Saigon - Ca Mau has also begun to be proposed recently with the goal of meeting the transportation needs of people in the Mekong Delta to Ho Chi Minh City to reduce the road overload.

In the context of current limited resources, concentrating too many options (expressway, railway, waterway, and airway) at the same time is not feasible and can lead to fragmentation. The flexibility and convenience in the existing interconnected transport network is more suitable for road transportation. Additionally, railway transportation requires investment on a stable

foundation, it is then not really suitable for the geological characteristics of the Mekong Delta; if deployed, it can significantly increase the investment rate of the project and create more burden on investment resources. The consultant's preliminary estimate shows that the total investment for 140 km starting from Tan Kien station (Ho Chi Minh City) to Can Tho station in addition to about 34 km from An Binh station (Binh Duong), Tan Kien (TP. HCM) to Hiep Phuoc port, is about 4.5 billion USD.¹⁴

In summary, the idea of railway transportation can be considered from a theoretical point of view, but the appropriate and preferred option in the current context of the Mekong Delta is the expressways.

¹⁴ Dong Ha (2019). Nearly 4,500 million USD to build HCMC - Can Tho railway. Legal Newspaper: <https://plo.vn/do-thi/giao-thong/gan-4500-trieu-usd-lam-duong-sat-tphcm-can-tho-829003.html>

Electric power infrastructure

Decision No. 8054/QĐ-BCT in 2012 approving the Electricity Development Plan for the Mekong Delta region to 2020, with vision to 2025, forecasts that the demand and investment in the region's grid infrastructure for the economic development are about 7.7% in the period 2011 - 2015 and 8.6% in the period 2016 - 2020. In practice, the economic growth in the Mekong River Delta averaged 9.1% in the 2011-2015 period and 7.5% in the 2016 - 2019 period, showing that the power supply in the area will be guaranteed when investment projects are implemented as expected.

The risk of power shortage in the region is not of a concern as the Mekong Delta currently has power centers that not only serve the regional demand but also support the loads for HCMC and the Southeast. Power centers covering the areas comprise Duyen Hai Thermal Power (Tra Vinh), O Mon Thermal and Gas Power (Can Tho), Long Phu Thermal Power (Soc Trang), Song Hau Thermal Power (Hau Giang), Kien Luong Thermal Power (Kien Giang), and Electricity and Gas (Ca Mau). Besides, there are potentials for wind power development in coastal provinces such as Tra Vinh, Soc Trang, Bac Lieu, and Ca Mau, or potentials for developing solar power (An Giang, Tra Vinh).

The biggest challenge is the electricity distribution and transmission network, especially to meet the needs of the aquaculture sector. Saltwater encroachment and shifting of production models from rice to shrimp in coastal provinces have put considerable pressure on the electricity transmission and distribution networks serving the aquaculture sector in the Mekong Delta by a number of reasons: (i) as many as 10 out of 13 provinces in the region are developing industrial and semi-industrial shrimp farming models with high demand for electricity (12 billion kWh in 2017 and forecasted to increase by 30% by 2020) that must run

non-stop (20-24 hours per day) and require stability of power supply; (ii) the rapid, spontaneous, and unplanned development of the farming area leads to the inability to meet the power demand, many households thus use residential electricity for shrimp farming; (iii) outdated and rudimentary technology is still in use leads to high demand for electricity and unsafe usage; and (iv) electricity shortages often occur in the dry season.¹⁵



¹⁵ Nguyen Anh Tuan and Hoang Duong Minh (2018). *Electricity for fisheries development in the Mekong Delta*. Vietnam's Energy Magazine: <http://nangluongvietnam.vn/news/vn/dien-luc-viet-nam/di-en-cho-phat-trien-thuy-san-o-dbscl-hien-trang-va-giai-phap-ky-1.html>

¹⁶ Business forum (2020). *Industrial zones – clusters in the Mekong Delta in "misalignment" (III issue): Unmatched competition*: <https://enternews.vn/khu-cum-cong-nghiep-dbscl-vo-tran-ky-iii-canh-tranh-khong-ngang-suc-147386.html>



Industrial zone infrastructure

Development of industrial zone infrastructure is aimed at taking advantage of the accumulation of enterprises and shared common infrastructure. In the Mekong Delta, the industrial zone growth is not only part of the industrial development of the country but also the expectation toward increasing added value for agri and aqua products. However, in the 2010 – 2019 period, the number of industrial parks in the pipeline increased to 29, but the industrial parks that additionally invested in infrastructure was only 3. This exacerbates the abandonment of industrial zones in the Mekong Delta (from 42% in 2010 to 56% at present). The only positive sign is that industrial zones with invested infrastructure have a minimum occupancy rate of about 70%. The limited possibility of developing industrial zones in the Mekong Delta can be explained by factors such as:

First, the only advantage for industrial development in the Mekong Delta comes from the source of agricultural inputs, but the disadvantage of the Mekong Delta is the transport infrastructure connecting with domestic and international consumer markets. The difference in the development of industrial zones in Long An compared to the rest of the Mekong Delta region is the clearest evidence of the role of transport connectivity and proximity to consumer markets. Long An has up to 16 industrial parks in operation (accounting for one third of the total number of regional industrial parks that have invested in infrastructure), with an average occupancy rate of 85.2%.

Second, most of the area is relatively low-lying, affected by inundation and tides (coastal areas), and is inundated during the flooding seasons.

Third, many IPs are mislocated due to the expectation of border advantage with Cambodia, resulting in inability to attract investment, even when the basic

infrastructure has been shaped as in the case of Xuan To Industrial Park in An Giang.

Fourth, policy on land price issued by the regional localities sometimes affects investors' decisions. For example, the land rental in Hung Phu Industrial Park (Can Tho City) is up to 100 USD/m²/year. Yet, the rental in Tan Phu Thanh Industrial Park and Binh Minh Industrial Park (Hau Giang), which are not much different in terms of location, is only 1/3 and 1/2 of that in Hung Phu Industrial Park along with many other incentives because Hau Giang is a particularly difficult area.¹⁶

Finally, because it is located next to Ho Chi Minh City, the economic and industrial center of the country with abundant human resources from all across the country, attractiveness of the industrial development in the Delta is significantly affected and heavily dependent on the spillover effect from the Southeast.

With the above situation, the industrial development in the Mekong Delta needs a clear navigation associated with typical agricultural products of the region, thereby shaping appropriate calling for investment strategies and compatible infrastructure.

Table 3.5 Development of infrastructure of industrial zones - clusters in the Mekong Delta

Targets	2010	2019 - 2020
Number of planned industrial zones	74	103
Number of industrial zones having infrastructure invested	43	46
Area of planned industrial zone (ha)	23,901	26,129
Rate of occupancy/investedd infrastructure (%)	39.7%	70 - 100%

Source: Compiled by authors from the Management Board of industrial zones/economic zones of the provinces in the region

Telecommunication and information technology infrastructure

With the rapid development of telecommunications and information technology, services related to information exchange and Internet access have basically been provided to all cities and provinces nationwide. Therefore, the ability to exploit and apply benefits from the telecommunications and information technology plays a more important role.

technology application is limited and needs to be improved.

Meanwhile, a more detailed look at the low-ranking group shows that technical infrastructure, human resources, and IT application are low. This is a limitation that need change, but first and foremost, it shall be started from change in perception on the role of science and technology for the local economic development.

Table 3.6 Readiness for IT development and application in the Mekong Delta (2009-2019)

Provinces/ cities	2009				2019			
	ICT- Index	Technical Infrastructure	Human Resource Infrastructure	IT application	ICT- Index	Technical Infrastructure	Human Resource Infrastructure	IT application
Can Tho	14	22	12	29	5	16	5	32
Long An	18	19	31	19	6	22	34	10
Tien Giang	43	58	25	42	10	10	23	4
Dong Thap	7	17	7	2	12	11	19	7
An Giang	31	50	18	20	29	3	57	16
Tra Vinh	21	16	49	18	34	27	41	39
Vinh Long	30	39	52	25	36	38	32	27
Kien Giang	46	38	54	51	45	25	38	30
Ca Mau	57	60	55	59	50	58	49	43
Bac Lieu	49	51	34	21	52	52	58	52
Ben tre	45	23	43	41	53	50	48	60
Hau Giang	37	56	41	47	53	47	41	53
Soc Trang	45	35	44	36	59	49	62	50

Source: ICT-Index 2009 – 2019

Analysis and ranking of the IT readiness index of provinces in the Mekong Delta shows that the readiness of provinces in the region is rather low in 2009. Compared to 2019, players with high-readiness at the onset tend to improve more and more whereas the group with low readiness is prone to increasingly lag behind. Tien Giang, which has the strongest rise from the 43th rank in 2009 to Top 10 provinces with the highest readiness level, was an exception. This result comes from the difference in investment in technical infrastructure systems (improving from the 58th to 10th place during this period).

Also, findings noted a positive change in the provinces of Can Tho, Long An, and Dong Thap with well-invested technical infrastructure and ensured human resources; in which Can Tho is a locality with good infrastructure but the exploitation level of information



Orientation of Mekong Delta infrastructure construction planning

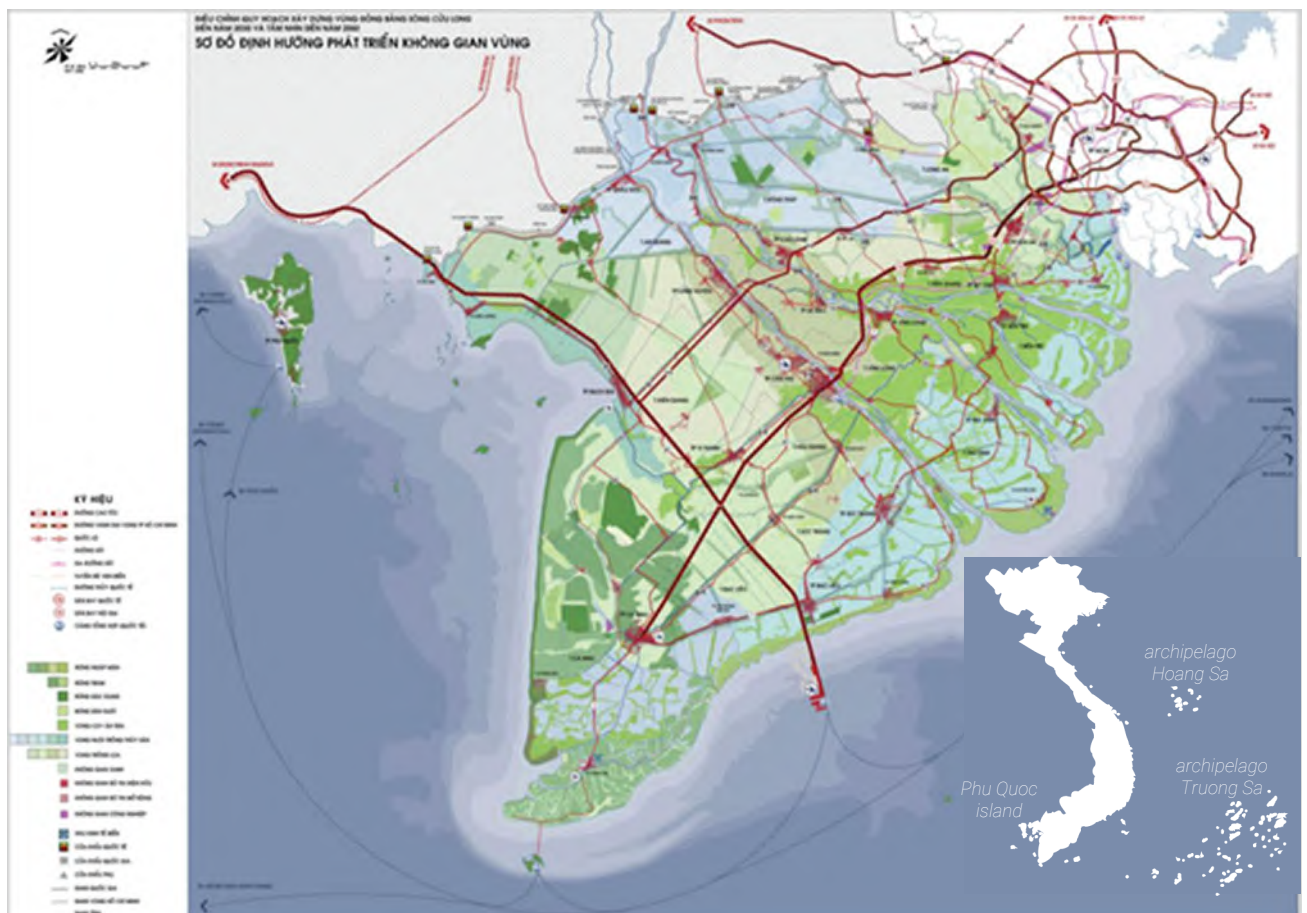
In 2018, the Prime Minister approved the adjustment of the Mekong Delta construction plan to 2030 with a vision to 2050 under Decision No. 68/QĐ-TTĐ (Mekong Delta Planning 2018) laying out the long-term orientations on urban planning and infrastructure as follows:

Population: The Mekong Delta is expected to reach a population of around 18-19 million by 2030 (of which urban population is about 6.5 - 7.5 million), corresponding to the urbanization rate of 35% - 40% with the average growth rate of 2.4% - 3.3%/year.

Organizational structure in the region: The Mekong Delta is divided into three sub-regions, based on

natural conditions, impacts of climate change, and development potentials. Accordingly, there are different orientations on schemes for sustainable development that suit: (1) the deeply submerged sub-region (including a part of provinces of Long An, Dong Thap, An Giang, and Tien Giang, Dong Thap Muoi, and a part of Long Xuyen Quadrangle); (2) the shallow flooded sub-region in the middle of the Delta (including Can Tho city, Vinh Long province and parts of the provinces of An Giang, Kien Giang, Soc Trang, Hau Giang, Dong Thap, Ben Tre, Tien Giang, and Long An); and (3) the coastal sub-region which is affected by saline intrusion (including Ca Mau, Bac Lieu, Tra Vinh provinces and parts of the provinces of Kien Giang, Soc Trang, Hau Giang, Ben Tre, Tien Giang, and Long An).

Figure 3.4 Diagram of spatial development guidelines of the Mekong Delta



Source: Revision of construction planning of the Mekong Delta by 2030, with a vision to 2050, Southern institute of construction planning, MOC

Ground transport infrastructure: The Mekong Delta has major transport axes that connect urban centers, economic centers, international border gates, and key infrastructure hubs in the region, including:

The main axes in the Northeast-Southwest direction include: Highway 1, Ho Chi Minh road - N2, East Sea coastal road; (2) Northwest-Southeast main axes, including the Ha Tien - Rach Gia - Bac Lieu expressway and the axis along Hau River passing Chau Doc - Can Tho - Soc Trang; (3) Expressways being completed and newly built: Ho Chi Minh City - Trung Luong - Can Tho - Ca Mau; Ha Tien - Rach Gia - Bac Lieu and Chau Doc - Can Tho - Soc Trang.

Waterway infrastructure: including routes of Ho Chi Minh City - Ca Mau (via Xa No canal), Ho Chi Minh City - Ca Mau (coastal line), and Ho Chi Minh City - Kien Luong. Ha Tien, Ca Mau - Rach Gia - Ha Tien and six horizontal axes connecting Cambodia and the East Sea through the following rivers: Tien River, Hau River, Ham Luong, Co Chien, Vam Co Tay, Vam Co Dong. Also, the Mekong Delta has type I-national general ports (including Can Tho port, Hon Khoai, Ca Mau port, and Bac Lieu port expected to be built after 2030) and type-II general ports (built at Tien river, Hau river, Ca Mau peninsula, and the west coast).

Airway and railway transport infrastructure: there are international airports (Can Tho, Phu Quoc) and domestic airports (Ca Mau, Rach Gia). There is also a plan to build and develop railway lines of Ho Chi Minh City - Can Tho - Ca Mau.

Water supply infrastructure: water sources supplied for the Mekong Delta are mainly from the surface water of Tien and Hau rivers. Use of groundwater as a supply source must be limited, except for areas having difficulties in tapping into surface water sources and far from the regional water supply network.

Power supply infrastructure: new building or upgrading the regional electricity networks to connect with the national grid to ensure the supply of electricity. In addition to the existing plants (in Tra Noc, O Mon, Ca Mau, and Bac Lieu wind power) there are new power plants in the pipeline (in Long An, An Giang, Ben Tre,

Duyen Hai, Hau Giang, Long Phu, Soc Trang, Tra Vinh, Kien Giang, Ca Mau, and Bac Lieu).

Wastewater treatment infrastructure: All urban centers of tier V or higher, industrial parks, and industrial clusters in the upstream areas of Tien and Hau rivers, from saline margins or higher, must build wastewater treatment zones according to current standards for domestic and industrial wastewater before being discharged into rivers. Garbage landfills and waste treatment complexes located in the upstream areas of Hau and Tien rivers (from the salty edge upward) must build leachate treatment areas up to current standards.

A look back at the implementation of the Mekong Delta construction and infrastructure schemes toward sustainable development in the period before 2019 offers us some comments as follows:

- With regards to the environment, the Mekong Delta is heavily influenced by tides and seasonal saline intrusion every year that cover an area of up to 1.3 million hectares. Many existing areas are already below the high tides of the East Sea, leading to a very deep penetration of saltwater into coastal areas and cities along the Mekong tributaries. During the historic saline drought in the 2015-2016 dry season, most of the estuaries in the Mekong Delta were intruded by saltwater from 50 km to 70 km. The MONRE reports that from 2010 up to now, the entire Mekong Delta landslides have been complicated, increasing both in scope and extent with over 550 points of erosion in a total length of over 800 km.

- With regards to the urban development, the rate of urbanization has increased and the quality of life in cities of the region is gradually improving. There are 169 urban centers in the whole region, including two urban centers of tier I, nine cities of grade II, eight urban areas of tier III, 26 urban areas of tier IV, and 124 of tier V, of which five were upgraded and three were newly established compared to 2017. The urbanization rate of the whole region reached over 27.2%, an increase of 0.7% compared to 2017, but much lower than the 38.4% of the whole country. The urban upgrading program in six provinces/cities of the



Mekong Delta funded by the WB for the period 2012-2019 with total funding of nearly USD 300 million has been implemented by about 93%. However, the spontaneous development in the areas affected by climate change and sea level rise is a worrying problem.

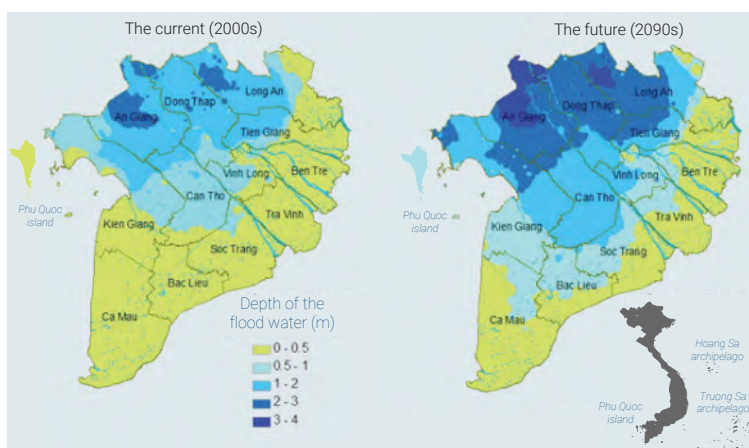
■ With regards to the development of transport infrastructure, according to the MOT, many transport infrastructure projects are deployed for the Mekong Delta, with the total investment capital in the 2011-2015 period, accounting for 12.26% of the total realized investment capital of the whole country. In the 2016-2020 period, the total investment capital accounts for 15.15% of the total realized investment capital of the whole country. This investment rate is still low; this should thus be considered to increase in the coming time to better match the future development potential and contribute to the national revenue. In general, although the infrastructure inter-connecting the region has been improved, it lacks alignment and efficiency due to difficulties in terms of resources. Therefore, the transport infrastructure has not met requirements of the socio-economic development as well as exploitation potentials of the agriculture and fisheries in the region. Investments in transportation has not yet received much support and consensus. Railway and waterway transport have not been given adequate attention. Limitations in transport infrastructure lead to logistics cost hike in the region, reducing the competitiveness of the urban economy.

■ With regards to the development of the water supply, the average rate of urban residents having access to clean water in the

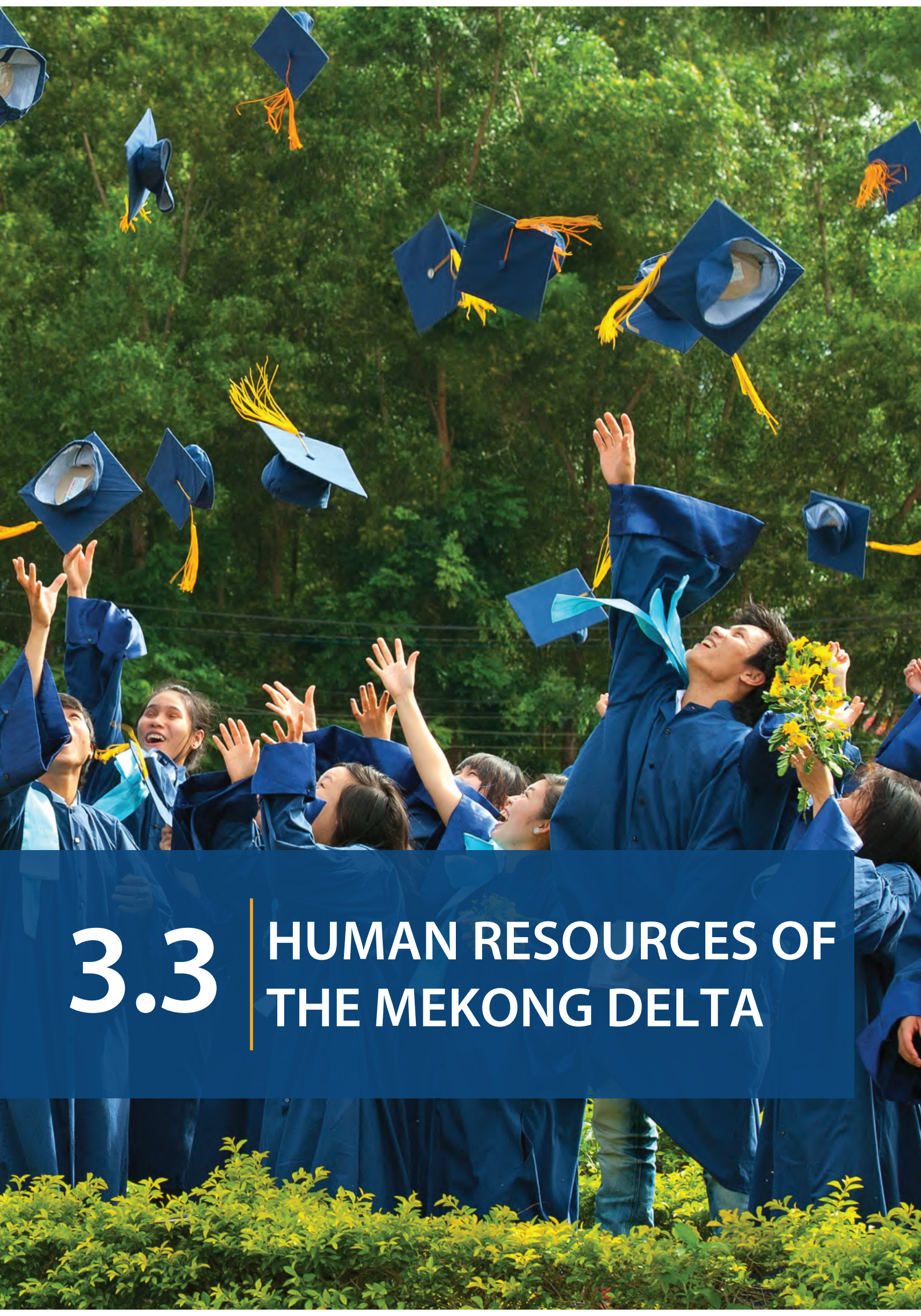
whole region is about 89.6%, higher than the national average (about 86%), an increase of 1% compared to 2017. However, given the unusual developments in the Lower Mekong River due to the impact of hydropower development and other unsustainable developments, it is necessary to prepare contingency plans for the protection and development of water resources, serving the livelihood and other economic activities in the region.

■ With regards to wastewater and waste treatment, a number of localities in the region have received and are implementing ODA projects to meet the requirements of wastewater treatment; in which the total amount of domestic wastewater in the whole region is about 1 million m³ per day. The whole region currently has about 10 concentrated solid waste treatment plants in operation, with a total designed capacity to handle about 30% of generated solid waste. The rest is landfilled.

Figure 3.5 Depths of the flood waters at the most extended flood-peak water surface with two scenarios of the “current” (2000s) and the “future” (2090s)



Source: Vietnam institute of meteorology, hydrology, and climate change.



3.3

HUMAN RESOURCES OF THE MEKONG DELTA

Assessment of human resources quality

Human resources are of an important factor that is highly decisive to the competitiveness of an organization, an area, or a country. Physical strength, mentality, and personality are the three main factors that make up the quality of the workforce in each locality. On that basis, social culture, education, and health are the input factors that affect human resource characteristics of an area like the Mekong Delta.

Culture

Cultural influence on human resources is endogenous because it exists in a human being right from birth with inherited genes, living habits, and traditions from previous generations. Culture imprints attitudes and thoughts of human resources. Of course, through a process of development and adaptation, some cultures may become obsolete and faded away while others continue to be changed, maintained, and gradually uniformed in the community.

The Mekong Delta is part of the Mekong river basin, with flat topography and fertile alluvium. Compared to other cultivated regions in the country, the agricultural land bank here is the largest and provides the highest rice yields; it is thus called the "granary".

Vietnam has two major Deltas, the Red River and the Mekong. The Red River Delta has a longer history of intensive farming and follows a water treatment method that applies a ring dyke system, causing the soil locked within to degenerate. Meanwhile, the Mekong Delta inherits natural conditions that could be leveraged for water use, i.e., when water from the Mekong River rises in the flooding season, it carries an abundance of products. Climatic characteristics and rainfall here bring advantages to farming practices; the dense river and canal networks are specifically favorable for both farming activities and agri-trade.

The above-mentioned pluses have had a great impact on the regional human resources. The labor characteristics associated with pure traditional agriculture in Vietnam do not require highly qualified workforce. Due to the favorable nature, agricultural cultivation does not require farmers to apply many techniques, and the industrialization and modernization of agriculture are also very modest in scale. Owning a lot of agricultural land is one of the main reasons that young human resources are more inclined to work in the crop and livestock industry.

Farming practices that rely heavily on regional endowments, coupled with the mindset of improving productivity by way of over-exploitation of natural resources are leading to the ecological imbalance as a manifestation of the curse on resources here.



Historically, the Mekong Delta is officially part of Vietnam associated with the fact that Nguyen Huu Canh took the order of Lord Nguyen to take a business trip to the South. However, this stretch of land was shaped earlier and witnessed movements of many ethnic groups with diversified cultures who came to "reclaim and build villages".¹⁷ The Mekong Delta was once known as the land where "villages come first, the government follows". Multi-cultural characteristics combined with the history of spontaneous formation leave behind different effects among groups of people, making human resources difficult to coordinate and labor activities fragmented, small, and unable to meet the need of specialization.

Multi-ethnicity and multi-culturalism in the southwestern region that form multiple religions is another feature of the Mekong Delta. Religions here, though thriving in quantity, mainly exist through worship activities and festivals which take place throughout the year. This affects the working style of human resources, reducing discipline and professionalism at the workplaces.

Accordingly, rich and diverse traditional cultural values left by its historical traits and religions, which have been the pride of the Mekong Delta people are going against the development of modern industries. Also, natural endowments make the locals not to be motivated enough to change and develop themselves to adapt to the new requirements and contexts.

Education

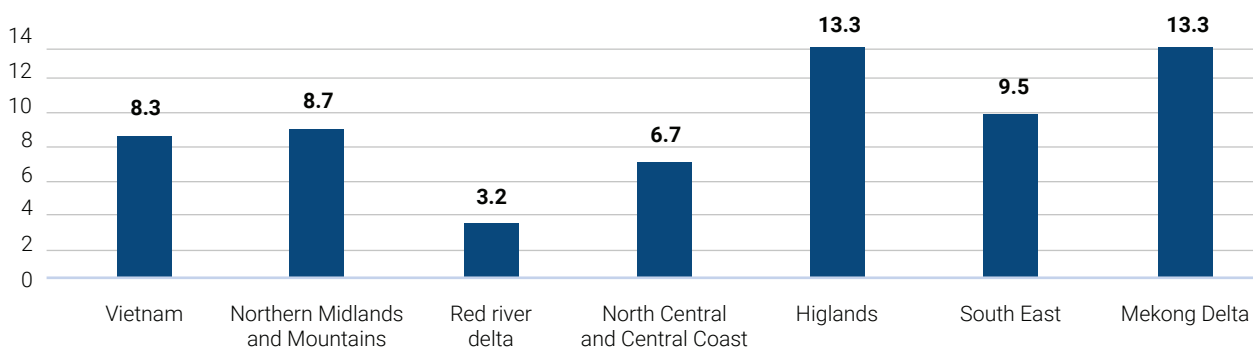
Education has a direct influence on the mentality of the human resources in the region. A good education can create not only a positive external effect on the direct beneficiaries but also a ripple effect on the community, thereby improving the quality of human resources on a large scale over time. General education is not only the first foundation for learning habits and adaptation to the environment, but also an enhancement of the discipline, living attitude, and creativity. Higher education and vocational training provide professional knowledge, effective working skills, continued improvement of thinking, and creative ability in the working environment. The education system from high school to higher education has inheritance and mutual support to train human resources to meet the needs of the labor market.

General education

The Mekong Delta has long been considered the "low-lying area" of education and training across the country with a high drop-out rate, limited infrastructure, and the proportion of the local budget spendings on education lower than the average of the country. This is the assessment by the MOET concerning the education of the region.¹⁸

According to the GSO survey findings in 2019, the Mekong Delta has the highest proportion of the population in the general school age who are not currently attending school (13.3%), much higher than the national average (8.3%), while this rate is the lowest in the Red River Delta (3.2%) - the second most developed agricultural region.

Figure 3.6 Proportion of the population of high school age currently not attending school by region, 2019 (%)



Source: GSO, Census of Population and Housing 2019



Assessment of this fact across all levels shows that the primary school attendance rate of the Mekong Delta is the highest compared to the whole country. This rate has, however, started to decline sharply from the lower secondary level and continues at the upper secondary level, resulting in the Mekong Delta having the lowest school attendance rate in the country. Even though the Central Highlands is a region with a high dropout rate similar to that in the Mekong Delta, the attendance rate at the secondary and high school levels is higher than that in the Mekong Delta.

The above-mentioned facts demonstrates that the labor quality in the Mekong Delta is very low. Policies aimed at reducing dropout rates in the region are called for and applied quite a few showing the high determination of the central and local governments. The solutions often revolve around increasing budget spendings on education and advocacy to aid those who have been or are in danger of dropping out of school to get back to schools. Over time, these, however, have not brought in the expected effects; ideas have gradually run into dead ends, lacking creativity and having no focus on people's motives to solve the problems.

Table 3.7 Proportion of attending school at the right age by education level and socio-economic region in 2019 (%)

	Overall rate of attending school			Rate of attending school at the right age		
	Primary school	Secondary school	High school	Primary school	Secondary school	High school
The whole nation	101.0	92.8	72.3	98.0	89.2	68.3
Northern Midlands and Mountains	100.5	93.4	68.4	98.1	90.2	65.1
Red river delta	101.1	97.4	87.0	98.8	94.9	83.7
North Central and Central Coast	100.7	95.2	77.1	98.4	92.4	73.8
Central Highland	100.7	86.9	60.7	96.8	82.8	56.4
South East	101.1	92.4	70.1	97.7	87.5	64.2
Mekong River Delta	101.4	86.8	59.6	97.1	82.4	55.3

Source: GSO, Census of Population and Housing 2019

¹⁷ According to "the old and present South" (many authors), when Nguyen Huu Canh entered the Southern economic system, "the land has expanded by a thousand miles; the population has a surplus of four thousand households" on the basis of spontaneous Vietnamese people coming to "reclaim and build villages".

¹⁸ Le Nguyen (2019). "Low-lying areas" of education in the Mekong Delta lack more than 16,700 preschool and high school teachers. Health and Life Newspaper: <https://suckhoedoisong.vn/vung-trung-giao-duc-o-db-scl-dang-thieu-hon-16700-giao-vien-mam-non-pho-thong-n158016.html>

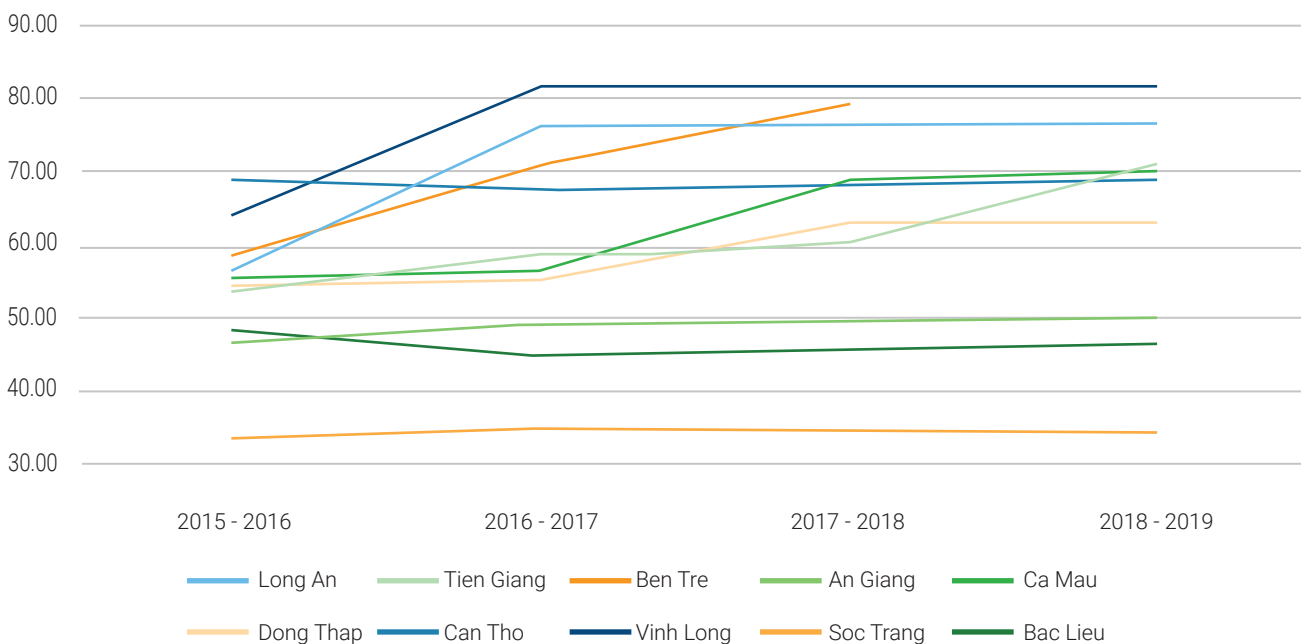


The high school attendance rates in the Mekong Delta provinces over the years reveal that the localities with economic advantages and more likelihood to create job opportunities will have higher rate of education enrollment. For example, the provinces, such as Long An, Ben Tre, Vinh Long, which are geographically located near the Southeast region, namely Ho Chi Minh City, have the highest rates of high school attendance in the Mekong Delta. Particularly Tien Giang, a locality reaping economic benefits from the Ho Chi Minh City-Trung Luong expressway which helps shorten the distance with the Southeast, has the fastest growing rate of high school enroll-

ment, leading this group in the region. Also, Can Tho, the largest city with the most dynamic economy in the region, which benefits from its own airport, has a high rate of high school attendance.

Provinces with the lowest high school enrollment rates have few advantages in the economic development and employment opportunities such as Soc Trang, Bac Lieu, An Giang, and Tra Vinh. This fact demonstrates that the motivation of human resources to join the education system for personal development is very important.

Figure 3.7 Attendance rate of high schools in the Mekong Delta over the years (%)



Source: Graphed by the author from Statistical Yearbook of the provinces.

Higher Education - College, Intermediate, and Vocational Training

Higher and college education help provide high quality human resources whereas professional intermediate training system and vocational training help train skilled technical workers, contributing to the development of the local economic sectors. The assessment of the proportion of trained employed workers shows that missions of universities, colleges and vocational schools in the Mekong Delta are not highly effective when compared to other regions.

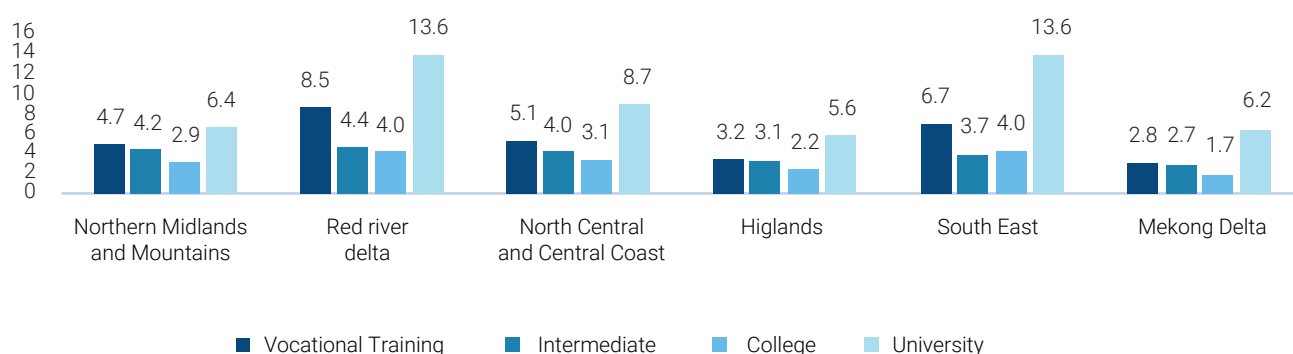
The Mekong Delta has the lowest proportion of trained workers in the country (13.3%) while the Red River Delta has the highest rate (30.5%). In particular, the highest proportion of employed workers with university training is shared between the Red River Delta and the Southeast (13.6%), which is explainable as these two regions have the two largest cities with the most dynamic economies in the country - Hanoi and Ho Chi Minh.

While effectiveness of the specialized education system is affected by the quality of training by universities, colleges, or vocational training, the market demand is also an important factor that helps moti-

vate teaching and learning practices. The Mekong Delta has formed a lot of major universities in localities, especially universities in Can Tho city that have the prestige in training qualitative human resources and contribute many valuable researches to the development of the region. However, the majority of high-quality human resources with skilled trainings, which are in shortages in the Delta, has the likelihood to migrate to the Southeast where job opportunities and promotions are higher. This tendency is reflected in the proportion of the net migration of residents in the region.

If we take a look back at the educational infrastructure of the Mekong, from low to high levels, there is a phenomenon called "out of steam", i.e., the higher the educational levels are, the lesser their effectiveness is. Two major problems can be drawn from the Mekong Delta educational system: the phenomenon of the very high dropout rate at the middle-high and senior-high school levels partly contributes to the large portion of human resources with low qualifications from the region and higher education and vocational training play a less effective role in the regional economy. Lack of motivation for development is one of the root causes that lead to these phenomena.

Figure 3.8 Proportion of trained workers being employed in 2018 (%)



Source: Graphed by the author from data of GSO and 2018 Labor force survey report

Health

Health infrastructure is developed to ensure people’s health care, thus improving workers’ health. In addition to that, health is one of the prerequisites to help promote job opportunities and attract a quality workforce from other regions.

Most provinces in the Mekong Delta have a very low number of hospital beds and doctors per 10,000 people compared to the whole country, and some provinces have even half of the national average. However, healthcare of this region has a great advantage, which is being adjacent to Ho Chi Minh City, a big city with the most developed healthcare system in the country. Can Tho city also has a much more developed medical facility than the national average and has a higher number of doctors per 10,000 people than Ho Chi Minh City. With these features, if connectivity among the healthcare systems in the region is possible, provinces that have not developed immediate medical infrastructure can just play the role of effective screening, basic disease treatment, and patient transfer. A higher level of medical examination and treatment can be performed in cities with strong healthcare infrastructure.

However, if connectivity of the health system between localities is not well-done, especially due

to the problem of transportation facilitation to move patients among localities, it is evident that healthcare is a weakness in the development of human resources in the Mekong Delta.

Table 3.8 Healthcare infrastructure in the Mekong Delta compared with the whole country, 2018

	Bed/10,000 people	Doctor/ 10,000 people
COUNTRY	31.3	9.0
HCMC	41.8	11.9
Mekong Delta	24.8	7.7
Can Tho	41.8	16.9
Dong Thap	24.5	9.3
Ca Mau	28.9	8.7
An Giang	19.9	7.8
Bac Lieu	23.0	7.1
Ben tre	27.8	7.0
Kien Giang	26.9	6.7
Vinh Long	20.8	6.6
Tra Vinh	20.5	6.6
Hau Giang	28.2	6.4
Long An	23.4	6.3
Tien Giang	16.1	5.3
Soc Trang	26.2	5.0

Source: GSO and Statistical Yearbook of the provinces



Identification of contexts and bottlenecks in human resources

The current human resource context of the Mekong Delta with strengths, weaknesses and opportunities and challenges is identified as follows:

Table 3.9 Identifying strengths, weaknesses, opportunities, and challenges of human resources in the Mekong Delta

<p style="text-align: center;">STRENGTH</p> <ul style="list-style-type: none"> • Abundant human resources. • Respond effectively to opportunities. 	<p style="text-align: center;">WEAKNESS</p> <ul style="list-style-type: none"> • Low quality of human resources. • The workforce is aging, and young workers tend to migrate to other areas. • Not enough motivation for growth.
<p style="text-align: center;">OPPORTUNITY</p> <ul style="list-style-type: none"> • The post-industrial era opens up opportunities for human resource development that do not depend on geography and qualifications. 	<p style="text-align: center;">CHALLENGE</p> <ul style="list-style-type: none"> • Living environment changes increasingly harsh • Poor ability to attract talent.

Strengths and weaknesses

According to the 2018 Labor force survey report by the GSO, the Mekong Delta is one of the three regions with the largest workforce, accounting for 20% of the country's, which is a huge advantage. However, in this report, the Mekong Delta has the highest under-employment rate in the working age. Obviously, the advantage of abundant human resources has not been exploited as expected.

The region's low quality of human resources makes it hard for the economy to utilize this workforce effectively because, as analyzed above, the input factors affecting the regional labor characteristics have many limitations, especially the weak educational system. However, the regional economy itself has not developed strongly enough, leading to the inability of the labor market to absorb all the labor force. The employment data in 2018 shows that the proportion of self-employed and family workers in the Mekong Delta accounts for 21% of the total number of employees nationwide and nearly 60% of the number of employees here. Obviously, the ability to create job opportunities in this area is very low, making it difficult to motivate human resources to develop.

The current situation in the Mekong Delta is the aging of the workforce and a high rate of young labor migration. This issue is also one of the consequences of the economic development that is not robust enough to create employment opportunities for human resources and causing erosion of the capacity of the working community in rural areas.

The correlation between the quality of human resources and the regional labor market is a difficult problem to solve. The underdeveloped economy and the labor market unable to absorb high quality human resources will not motivate young workers to pursue the self-development learning and the educational system to work effectively. Furthermore, even if the high-quality workforce is trained, this pool will also migrate to other regions with more opportunities. On the contrary, if the Mekong Delta does not have high-quality human resources available, it will not create a premise for the development of the region's economy to attract investment capital flows and large enterprises to arrive in the Mekong Delta.

The internal picture of the Mekong Delta's human resources is an endless downward spiral and in dire need of an external push.

Opportunities and challenges

Industrial Revolution 4.0 ushered us into the post-industrial era and the innovation- and knowledge-based economy is creating special opportunities for a number of localities unsuitable for the industrialization-related economy which mainly relies on geographical advantages and capital accumulation. The role of companies and large corporations with highly specialized activities is gradually being transferred to cities where talent pools are the core for their thrives. This could be a rare opportunity for regions like the Mekong Delta to find solutions to improve the competitiveness of their human resources.

The weak quality of internal human resources is the key weakness that makes it difficult for the region's economy to grow. However, to create an external push to help change the downward spiral of human resources and the economy as analyzed above, it is quite a challenging task in that whether the Mekong Delta can attract resources and talents from elsewhere to form the driving force for its development.

Although steering the Mekong Delta toward the goal of building a knowledge-based economy where the task of talent attraction and retention will be difficult and time-consuming, this is a second-to-none opportunity for the region given many difficulties and few solutions exist.

The Mekong Delta has some potentials that enable the policy building of an innovative ecosystem in order to create, attract and retain talents. First, one of the cultural characteristics of the South West region is the openness and ease to accept new things with few barriers. Therefore, the social framework will be a much more favorable condition compared to the central and northern regions in attracting talents to choose this place for their development. Second, a number of localities such as Can Tho, Vinh Long, and Ben Tre have certain infrastructure developments enough to pioneer in the construction planning of geographically specific areas to create living environments and activities suitable for talent pools. Third, adjacent to Ho Chi

Minh City, the country's biggest economic center and most influential in Southeast Asia is a great advantage. Ho Chi Minh City has the looks of a pioneering city in developing a creative knowledge-based economy and this is also a locality that tends to use a huge source of labor coming from the Mekong Delta; it thus will create an incentive for localities adjacent to Ho Chi Minh City in striving to build a contingent of talents, becoming effective knowledge satellites and spreading to farther places. Fourth, investments in the transportation system of the Mekong Delta, including the main highways, national highways, and connecting routes is being paid attention to and will create favorable conditions for higher connectivity among localities, which, in turn, increase mobility to meet travel needs and improve the quality of life in the region. Fifth, the explosion of information technology and the role of the sharing economy and social media are establishing a new game rule, where vulnerable regions like the Mekong Delta can position and define a new role for themselves.

By the time the knowledge-based economy opportunities are opened up, the Mekong Delta will face challenges resulting from the over-exploitation of natural resources and rushing into economic development despite ecological imbalance. The living environment in the Southwestern region is becoming much harsher than before when water resources are increasingly dry and salinity is increasing, alluvial resources in the soil and products are increasingly exhausted, and the environmental pollution is rising from industrialization and chemical abuse agriculture. All these negative impacts are making the Mekong Delta a less desirable place to live in and it is difficult to create ideal creative ecosystems for the region.

The post-industrial period is, thus, opening up valuable opportunities for the Mekong Delta to build an innovative ecosystem to attract talents and establish a knowledge-based economy. This is evidently a difficult and challenging strategy in the context that the Southwestern region is facing deteriorating ecological conditions and a harsher living environment.

Recommendations

From the assessment of the characteristics and context of the human resources development in the Mekong Delta, solutions to enhancing regional competitiveness will follow two main groups:

Improve the quality of human resources through improving inputs

The improvement of the quality of human resources in the region should be done by addressing two main weaknesses: reduction of dropout rates and enhancement of the role of qualified human resources. Specifically, what to do will include the following:

- Designing policies to motivate schooling. Local authorities should have incentives and sanctions that directly affect people's behavior, eliminating

their short-term thinking and pursuit of immediate benefits that make them drop out early from secondary and high schools.

- Creating job opportunities to enhance the role of qualified human resources, creating incentives for the workforce to pursue learning and self-development, and stimulating the development of the specialized education system. Specialized education should have linkages with enterprises and the labor market to meet the demand for human resources.

Policies to address the shortcomings of the educational system should have a direct impact on the main issues that reduce the quality of human resources. This way, it will save both money and time consumption while effectively ensuring that people will respond these policies in the short term.



Create an innovative ecosystem to attract and retain talents, building a knowledge economy as a push to develop human resources in the Mekong Delta

This is a group of solutions to help create external forces. Creating a creative ecosystem requires a lot of time and determination from the local leadership. On the basis of the existing advantages and challenges of the region and since this is an implementation strategy within a region, implementation should be approached in two directions, top-down and bottom-up.

■ Making top-down innovation ecosystems: this process should start with policies from national, regional, and local leaders, specifically:

- Attracting talents through innovative projects, special remunerations for individuals or groups who choose the Mekong Delta as a place to carry out innovative projects and to form startups.

- Universities should have a mission to create and nurture talented teams for the region through research programs, innovation ideations, and entrepreneurship

- High school programs should supplement an array of training courses on creative skills as well as innovative and adaptive thinkings to both make learning more enjoyable and meet the need to build human resources for a knowledge economy in the future.

- Building schemes for a creative ecosystem where there is a suitable living environment for creative jobs with high intellectual contents. This may be an area related to a natural environment and must be equipped with necessary facilities to ensure the working conditions of talented people such as the internet system, transportation, hospitals, schools, etc. Activities such as cafes and entertainment services to encourage the creativity also need to be designed in alignment with the whole construction plans in the region.



■ Creating a bottom-up creative ecosystem:

● In order to implement the bottom-up strategy, localities should create a free institution large enough for talent pools to set up an appropriate environment and playing rules for a creative ecosystem to develop a knowledge-based economy in the region. The leadership at the regional and local levels needs to interact, listen, and receive opinions from the talented a good coordination. Besides, these leaders should come up with policies to encourage and motivate this group to share positive thoughts to the community, especially the young people in the region.

● For a region with a low base in terms of human resources and not much experience in creating an innovative ecosystem like the Mekong Delta, building a bottom-up knowledge-based economy will be more important and efficient. Therefore, in all cases, considerations of how to be done must be taken; the priority given to the right to self-determination to create an innovative ecosystem should always be left to the talents.





3.4

POLICY FOR THE DEVELOPMENT OF THE MEKONG DELTA FROM THE FISCAL AND CREDIT PERSPECTIVE

Introduction

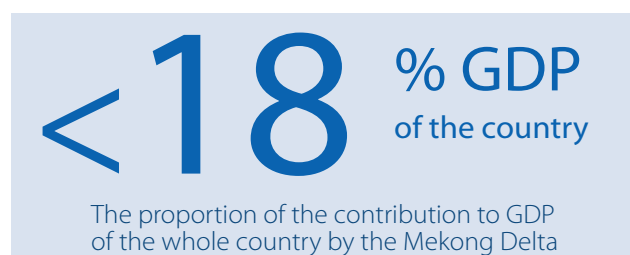
The Mekong Delta is a land that has advantages in the development of agriculture, food industry, tourism, and renewable energy and the largest agricultural production center of Vietnam. It contributes 50% of rice output, 65% of aquatic products, 70% of fruits, 95% of rice export, and 60% of fish export to the country and has a convenient position in trade with ASEAN countries and the Mekong sub-region. The Mekong Delta is the center of agricultural production in Vietnam. Currently, this region accounts for nearly one fifth of the country's population and has many conditions for development but contributes less than 18% to the country's GDP.¹⁹

Currently, the Mekong Delta faces a number of challenges in terms of the environment, threatening agricultural activities, regional stability in the South and food safety of the country, and the growth of industrial sectors. Localities are not run in synch; their feasibility is not high; there is lack of connectivity in the whole region, which is still not well-connected with Ho Chi Minh City, the Southern key economic region, and the Mekong sub-region. The mobilization and use of resources for development are limited. Although there has been a continuous shift of production structure away from agricultural activities, by 2019 there will still be nearly half of the workforce working in this area. This is also a region facing many risks of climate change, but the economic and technical infrastructure is still limited. Also, one of the major problems of this region today is the fact that the educational level of the people, the quality of education, and the health care are still lower than the requirements for development in addition to the trend that high-quality human resources are shifting to other localities.²⁰

This section discusses a number of issues related to fiscal and credit policies for regional development in general and for enterprises and production households in particular. Contents of this section, in addition to the introduction, will include four main parts. First is an overview of the budget situation of the Mekong Delta, followed by an analysis of issues related to fiscal policy for regional development, financial and budget policy recommendations, and finally, the state of credit provision and distribution.

¹⁹ Data of MPI (2018).

²⁰ Resolution 120/NQ-CP dated November 17, 2017 on sustainable development of the Mekong Delta.



Overview of the current state of the State budget in the Mekong Delta

Scale of the State budget in the Mekong Delta

Analysis of State budget expenditures data in recent years shows that the absolute and relative State budget expenditures for the Mekong Delta in the recent 10 years have increased. The region's 2020 total balanced State budget expenditure estimate increased by nearly 2.3 times of the 2010 settled expenditure, the highest increase compared to all other regions and also higher than the general increase rate of Vietnam's total State budget spending for localities (2020 saw an increase of only 1.94 times compared to 2010).

However, if the central and local budgets are combined, the growth rate of spendings in the Mekong Delta is still lower than that of total State budget expenditure in Vietnam (2.69 times in the period 2010-2020).

Regarding the structure of expenditure by region, the total balanced State budget expenditure in the Mekong Delta also increased slightly from 12.4% of the 2010 total State budget expenditure for the region to 14.2% of the total State budget expenditure for localities nationwide. This change shows Vietnam's interest in regional development, especially after the Government's resolution No. 120/NQ-CP in 2017. However, the increase in the balanced State budget expenditure has not met the needs for the regional development. MPI's report (2019) shows that the total investment for the Mekong Delta region in the 2011 – 2015 period is about 17-18% of the total investment capital for the whole country and about 18% in the 2016 - 2020 period. Between 2021 and 2025, the investment capital that the region needs will reach 45,000 billion VND (about 2 billion USD), but the national budget can only cover about half of these.

Table 3.10 Comparative total State budget balance expenditures between the Mekong Delta and other regions

No.	Targets	2020	Structure (%)	2015	Structure (%)	2010	Structure (%)
	Total number of local budgets	880,012,778	100	830,085,413	100	452,103,885	100
I	Northern mountain	126,313,234	14.4	131,367,129	15.8	65,220,900	14.4
II	Red River Delta	250,255,597	28.4	227,936,610	27.5	129,563,617	28.7
III	North Central and Central Coast	178,295,396	20.3	187,158,313	22.5	100,862,500	22.3
IV	Highlands	46,599,904	5.3	43,842,212	5.3	26,605,360	5.9
V	South East	153,894,809	17.5	130,500,884	15.7	73,908,897	16.3
VI	Mekong Delta	124,653,838	14.2	109,280,263	13.2	55,942,612	12.4
1	Long An	12,782,127	1.5	10,827,460	1.3	5,673,543	1.3
2	Tien Giang	11,917,187	1.4	8,440,447	1.0	4,648,584	1.0
3	Ben tre	8,278,971	0.9	6,045,598	0.7	3,382,269	0.7
4	Tra Vinh	8,335,385	0.9	7,706,188	0.9	3,498,871	0.8
5	Vinh Long	7,200,678	0.8	5,550,331	0.7	3,475,321	0.8
6	Can Tho	9,793,169	1.1	8,957,712	1.1	5,987,877	1.3
7	Hau Giang	5,429,132	0.6	5,727,191	0.7	3,145,776	0.7
8	Soc Trang	8,911,852	1.0	9,178,584	1.1	4,249,927	0.9
9	An Giang	12,373,166	1.4	11,118,859	1.3	5,420,467	1.2
10	Dong Thap	11,524,776	1.3	9,739,938	1.2	5,294,321	1.2
11	Kien Giang	13,801,539	1.6	12,637,011	1.5	4,760,052	1.1
12	Bac Lieu	5,832,998	0.7	5,206,150	0.6	2,700,680	0.6
13	Ca Mau	8,472,858	1.0	8,144,795	1.0	3,704,925	0.8

Source: MOF's public report on multi-year budget settlement; 2020 is the estimated.

One of the reasons for the limited size of State budget expenditure for the Mekong Delta provinces is that the size of State budget revenue from the region is quite low. In the whole region, except for Can Tho city where it can be financially autonomous and contribute to the central government revenue while all other provinces have to rely on the central budget supplements (Table 2.7). Although the total State budget revenue of the Mekong Delta increased at a relatively high rate in the period 2010-2020, this region only contributed about 6% to the national revenue, just higher than contributions by two other poor regions, the Central Highlands and the Northwest, which are quite far away from the Red River Delta (if excluding Hanoi, the Red River Delta localities will still contribute to the State revenue 2.5 times higher than the Mekong Delta provinces will according to the 2020 State budget estimates).

Due to the limited State budget revenue, most of the Mekong Delta provinces have limited ability to seek for debt financings from the local government. Even in the Mekong Delta, there is a large difference in State budget revenues, e.g., Long An's 2020 revenue estimate is nearly five times higher than that of Bac Lieu, Soc Trang, and three times higher than many other provinces in the region. It's the characteristic of the region's high share of agricultural production is the important reason for the limited State budget revenue.

A number of issues of budget finance in the Mekong Delta

First, on the allocation of the investment capital for development in the local budget balance. In the 2016-2020 period, investment capital is allocated in accordance with the Prime Minister's Decision No. 40/2015/QĐ-TTg dated September 14, 2015,

Table 3.11 Scale of State budget revenue in the Mekong Delta compared to other regions

No.	Targets	2020	Structure (%)	2015	Structure (%)	2010	Structure (%)	2020/2015	2015/2010
	Total state budget revenue	1,637,300,000	100	1,217,781,896	100	728,300,190	100	134.4	167.2
I	Northern mountains	63,868,000	3.9	60,098,651	4.9	30,471,078	4.2	106.3	197.2
II	Red River Delta	543,479,000	33.2	423,382,827	34.8	232,675,719	31.9	128.4	182.0
III	North Central and Central Coast	189,063,000	11.5	161,936,827	13.3	94,437,621	13.0	116.8	171.5
IV	Highlands	24,260,200	1.5	20,824,268	1.7	16,920,744	2.3	116.5	123.1
V	South East	612,861,000	37.4	478,737,930	39.3	311,252,418	42.7	128.0	153.8
VI	Mekong Delta	98,668,800	6.0	72,801,393	6.0	42,542,611	5.8	135.5	171.1
1	Long An	16,765,000	1.0	10,882,131	0.9	5,509,782	0.8	154.1	197.5
2	Tien Giang	11,055,000	0.7	5,923,460	0.5	3,558,304	0.5	186.6	166.5
3	Ben tre	4,835,000	0.3	2,378,010	0.2	1,636,268	0.2	203.3	145.3
4	Tra Vinh	4,800,000	0.3	3,490,487	0.3	1,592,486	0.2	137.5	219.2
5	Vinh Long	7,160,000	0.4	5,444,174	0.4	3,194,177	0.4	131.5	170.4
6	Can Tho	11,618,000	0.7	12,406,032	1.0	7,537,948	1.0	93.6	164.6
7	Hau Giang	3,641,000	0.2	2,730,011	0.2	1,685,039	0.2	133.4	162.0
8	Soc Trang	3,683,500	0.2	3,739,270	0.3	1,834,727	0.3	98.5	203.8
9	An Giang	6,648,000	0.4	5,183,714	0.4	3,708,605	0.5	128.2	139.8
10	Dong Thap	8,391,000	0.5	5,800,367	0.5	4,301,373	0.6	144.7	134.8
11	Kien Giang	11,540,000	0.7	7,735,824	0.6	3,351,043	0.5	149.2	230.8
12	Bac Lieu	3,320,300	0.2	2,583,798	0.2	1,413,670	0.2	128.5	182.8
13	Ca Mau	5,212,000	0.3	4,504,115	0.4	3,219,188	0.4	115.7	139.9

Source: MOF's public report on multi-year budget settlement, 2020 is the estimated.

prescribing that the education sector is permitted to spend on projects investing in building materials, equipment, and facilities for the educational and vocational training establishments, from preschools to universities and in technical infrastructure for university zones. Based on the principles, criteria, and norms for the allocation of the investment capital for development laid out in this Decision, as well as financial capacities and characteristics of each locality, the provincial People's Council will make decision on the principles, criteria, and allocation of the State budget for the investment capital for development to agencies and branches at all levels.

Regarding the principle of priority on allocation for localities, the Decision No. 40/2015/QDTTg states the general principle of "ensuring a reasonable correlation between the development of key economic regions and localities with a large proportion of central budget, with priority given to mountainous areas, border areas, islands, ethnic minority areas, and other difficult areas, to gradually narrow the gap in the economic development, incomes, and living standards of the population among regions in the country". Accordingly, capital allocations to localities comprise five criteria: population; development level; area; administrative units at district level; and other additional criteria.

Also, this Decision takes emphasis on the priority to allocate investment capital for the Mekong provinces in three target programs: sustainable development of the fisheries; power supply to the rural and mountainous areas and islands; and response to climate change and green growth. For the education and training sector, there are two programs, which are targeted for the mountainous areas, ethnic minorities, and disadvantaged areas and the vocational training, employment and labor safety; neither of these programs mentioned the prioritized allocations for the Mekong Delta provinces.

It can be inferred that the proportion of the State budget expenditure for localities over the total balanced State budget expenditure is quite high, but due to the sheer size of the investment expenditure, it is very difficult to carry out large inter-regional infrastructure construction projects.

Moreover, due to the fairly-performed budget financial planning and disbursement implementation, the rate of transfer budget spending is very high (see figure 3.12).

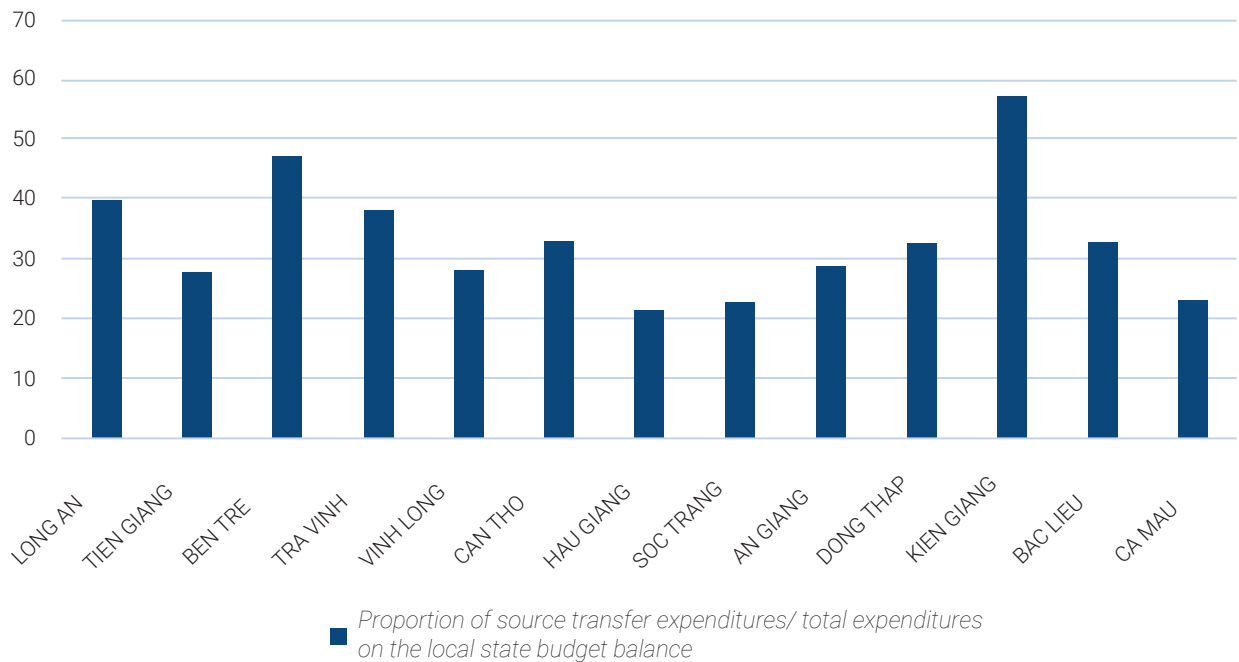
Two, on the percentage of State budget spendings on education and training. There exists only a regulation on the national rate of 20% without specific instructions for localities; as a result, the poorer a province is, the higher the percentage of budget spendings on education and training for that province is. However, every year the Ministry of Finance requires localities to save 10% of the recurrent expenditure, and the spending on education and training will thus be reduced in the context that most of the provinces in the Mekong Delta are poor provinces with high spending rate on the education and training.

Table 3.12 Structure of the State budget balance of provinces in the Mekong Delta in 2018 (million VND)

Targets	Total fixed expenditure	Regular expenditure	Structure (%)	Investment expenditure	Structure (%)
Mekong Delta	120,908,957	81,272,904	67.2	36,014,965	29.8
Long An	11,677,331	7,292,090	62.4	3,356,927	28.7
Tien Giang	10,040,491	6,810,687	67.8	3,228,659	32.2
Ben tre	7,179,475	5,317,314	74.1	1,800,944	25.1
Tra Vinh	7,853,563	5,465,975	69.6	2,386,588	30.4
Vinh Long	7,814,248	5,081,859	65.0	2,731,389	35.0
Can Tho	8,925,455	5,579,560	47.0	3,333,062	28.1
Hau Giang	8,864,542	3976001	44.9	2,959,481	33.4
Soc Trang	9,434,603	6,574,161	69.7	2,814,582	29.8
An Giang	12,508,880	9,119,296	72.9	3,388,414	27.1
Dong Thap	10,895,260	7,613,338	69.9	2,866,350	26.3
Kien Giang	11,337,745	8196384	72.3	3,140,321	27.7
Bac Lieu	5,861,399	4,005,506	68.3	1,734,420	29.6
Ca Mau	8,515,965	6,240,733	73.3	2,273,828	26.7

Source: 2018 State budget finalization of localities; Dong Thap's and Bac Lieu's are estimates for 2019.

Figure 3.9 Proportion of source transfer expenditures compared to total expenditures on the local state budget balance in 2018

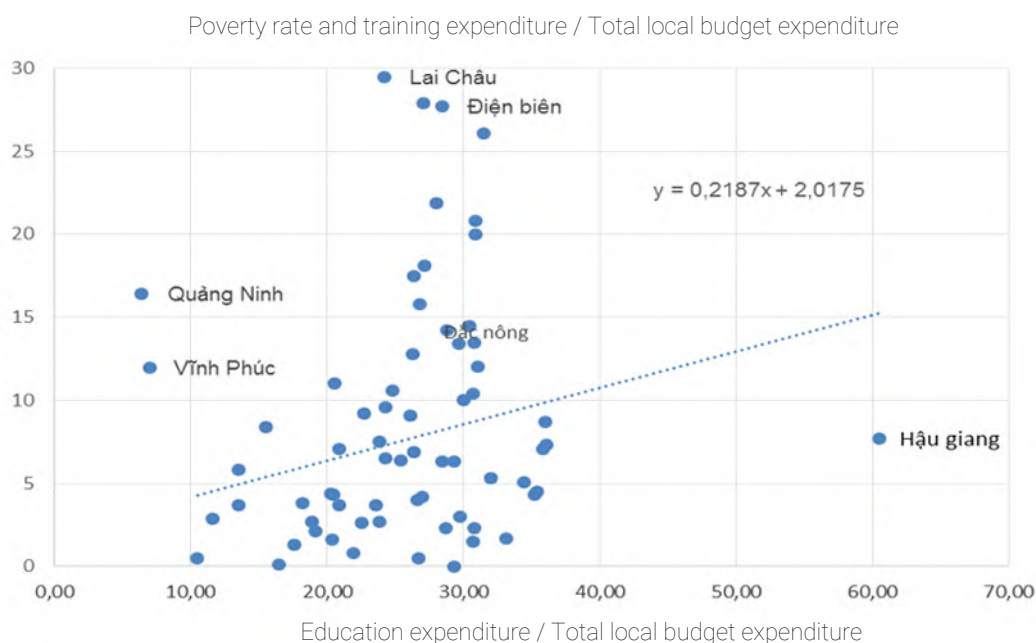


Source: State budget finalization of localities in 2018; Dong Thap's and Bac Lieu's were finalized as of 2017.

Comparing the local State budget for the education and training with the total State budget revenues in a certain province also shows an interesting observation. Some provinces in the Mekong Delta have the rate of spending on the education and training accounting for nearly 70% of the total local State budget revenue, especially 100% for province of Hau

Giang. Thus, during the budget stability period, if the State budget revenue does not reach the estimates or the expenditure on education and training increases sharply due to changes in policies, there is a risk that some localities cannot afford to spend on education and training as prescribed by regulations.

Figure 3.10 Ratio of local state budget expenditures on education and training/total local state budget expenditures and poverty rate



Source: Calculated from 2016 State treasury finalization data and 2016 Statistical Yearbook.

Table 3.13 Structure of local state budget revenue from land use fees and lottery revenue in the Mekong Delta

Provinces/ Cities	Total revenue of local state budget balance	Revenue of land use fees		Lottery revenue	
	(million VND)	(million VND)	Structure	(million VND)	Structure
Mekong Delta	76,721,859	5,797,853	7.6	15,595,246	20.3
Long An	12,855,000	690,000	5.4	1,200,000	9.3
Tien Giang	7,902,623	387,833	4.9	1,602,566	20.3
Ben tre	3,534,245	127,745	3.6	1,256,378	35.5
Tra Vinh	3,606,416	248,796	6.9	1,024,853	28.4
Vinh Long	5,213,946	551,748	10.6	1,305,900	25.0
Can Tho	8,634,189	744,434	8.6	1,263,084	14.6
Hau Giang	2,972,327	219,424	7.4	691,007	23.2
Soc Trang	3,019,086	208,033	6.9	943,903	31.3
An Giang	5,284,396	348,866	6.6	1,472,980	27.9
Dong Thap	7,007,000	450,000	6.4	1,380,000	19.7
Kien Giang	9,421,025	1,430,974	15.2	1,424,575	15.1
Bac Lieu	2,914,600	80,000	2.7	1,180,000	40.5
Ca Mau	4,357,005	310,000	7.1	850,000	19.5

Source: 2018 local budget finalizations; Dong Thap's and Bac Lieu's were estimates of 2019

Three, on the stability of the local budget revenue. According to the current state budget decentralization regulations, revenues from land-related sources (especially from land use fees) and lottery revenues are completely allocated to local budgets. Due to the characteristics of the Mekong Delta, these two sources of revenue differ significantly from other localities in other regions, especially the Red River Delta.

According to the 2015 State Budget Law, the lottery revenue is included in the local budget balance; the rate of revenue from this source in the Mekong Delta is very high (the average of the region is 20.3% while this proportion for the country is only 2.1% and for most

localities in the Red River Delta, only less than 5%).

On the contrary, due to land characteristics, the Mekong Delta provinces have very little public land and most of the agricultural land is held by farming households for a long time, so compensation for site clearance is quite high. In An Giang, it is about 18 billion VND per hectare in 2020.²¹ This is different from the Red River Delta where land is allocated after the collectivization and thus the ability to compensate and reclaim it for socio-economic development projects is more advantageous. Therefore, the revenue from land use fees of the Red River Delta provinces is much higher than that of the Mekong Delta provinces.



Four, on sharing financial and budget resources among localities. The total budget revenue of the entire Mekong Delta region in the 2016-2018 period reached more than 243.200 billion VND, a contribution 18% to the country's GDP; of which Can Tho city is the only locality in the region is permitted to regulate its Central revenue contribution. Low revenues which are used dispersedly lead to great difficulties for the development of inter-regional infrastructure projects. Although Ho Chi Minh City contributes huge State budget revenues, its economic activities actually take place in the Mekong Delta provinces. Currently, by tax regulations, enterprises that are based in Ho Chi Minh City must declare and pay taxes here, even though they have branches and factories in the Mekong Delta provinces. There is currently no mechanism to ensure the State budget regulation at the region level and also no policy in place to mobilize financial and budget resources for the development of the whole region. In addition to the infrastructure projects undertaken by

the Central budget, provinces in the Mekong Delta are currently facing difficulties in mobilizing and sharing financial responsibilities when developing inter-regional projects.

Five, on mobilizing non-State budget resources. Due to the characteristics of the region in terms of the nature, socio-economy, and infrastructure, the Mekong Delta is facing many difficulties in attracting flows of domestic and foreign investment capital. Moreover, due to limited revenue, it is also difficult to mobilize non-state budget financial resources through debt financings by the local authorities. The Resolution No. 120/NQ-CP mentioned the consideration of the establishment of a Sustainable Development Fund for the Mekong Delta. However, this fund has not yet been established and policies related to mobilizing non-budget resources for the Mekong provinces are still limited.



Credit and banking

Credit capital is the essential need for investment and business activities of enterprises, consumption, and for production needs of people.

In the Mekong Delta, credit activities have not really developed on par with the economic state of the region. The balance of deposits and credit in 2019 of the Mekong Delta only accounts for 5.4% and 8.2% of the national size, respectively while contributing nearly 20% to the GDP of the economy.

However, with the presence of 350 credit institution branches, 150 people's credit funds, and other private credit models, the capital needs and credit transactions in the area are still guaranteed. On average, between 2015 and 2018 credit growth of the region reached about 15%/year (equivalent to the average credit growth rate of the whole country in the same period).

Total mobilized resources, accumulated to 2019, in the region are only equivalent to 86% of the credit needs (while this rate of the whole country is 129%). At a quick glance, we can see that capital needs in the region are higher compared with resources saved, but in fact, there is no shortage of capital for enterprises

and the people. The problem is that these entities or individuals do not have effective business plans or safe assets.

The capital is mobilized mainly from the residential segment, with similar deposit terms of less than 12 months and from 12 months or above. The borrowers are primarily residents and the majority of their loan has short-term tenure while the demand and ability of enterprises to apply for capital loan is low and tend to decrease (See illustration of the results of credit activities in An Giang province over the years in Table 3.16).

Table 3.14 Scale of credit activity in the Mekong Delta compared to the whole country (trillion VND)

Year	2018	2019
Deposit outstanding balance		
The whole country	9,212	10,574
The Mekong Delta	498	572
Credit outstanding balance		
The whole country	7,211	8,195
The Mekong Delta	579	662

Source: GSO and Conference on Banking - Enterprise connection in the Mekong Delta in 2019.

Table 3.15 Outstanding deposit and credit in the Mekong Delta in 2019 (billion VND)

Provinces/Cities	Outstanding balance of deposit		Credit outstanding balance	
	2019	+/- compared to 2018	2019	+/- compared to 2018
Can Tho	81,292	12.12%	91,328	17.65%
Kien Giang	50,515	9.99%	80,254	16.96%
An Giang	54,218	17.97%	72,553	10.93%
Long An	68,350	13.05%	69,807	12.91%
Dong Thap	47,950	15.08%	65,096	14.29%
Tien Giang	69,447	15.09%	56,314	16.24%
Ca Mau	30,403	10.02%	42,929	3.62%
Soc Trang	31,457	17.69%	41,124	22.63%
Ben tre	39,386	18.89%	36,449	17.47%
Vinh Long	39,237	15.90%	28,516	14.79%
Bac Lieu	21,637	16.59%	27,128	14.39%
Tra Vinh	23,476	19.89%	26,767	13.17%
Hau Giang	14,386	18.97%	23,391	6.74%
Total	571,754	14.71%	661,656	14.28%

Source: Synthesized from reports to the State Bank and its local branches



Table 3.16 Results of credit activities in An Giang province over the years

<i>billion VND</i>	2010	2011	2012	2013	2014	2015	2016	2017	2018
Deposit outstanding balance	21,121	17,311	22,961	23,739	25,680	30,139	36,593	41,229	45,937
<i>Classified by source</i>									
Residence	54.8%	77.0%	78.9%	83.6%	87.4%	84.0%	86.1%	87.7%	82.0%
Enterprise	43.3%	19.5%	16.5%	14.1%	11.7%	13.8%	12.6%	10.3%	15.4%
Others	1.9%	3.6%	4.6%	2.4%	0.9%	2.2%	1.3%	2.0%	2.5%
<i>Classified by term</i>									
< 12 months	48.4%	48.1%	49.7%	49.0%	35.5%	51.1%	41.5%	51.0%	51.4%
> 12 months	51.6%	51.9%	50.3%	51.0%	64.5%	48.9%	58.5%	49.0%	48.6%
Deposit outstanding balance	30,555	33,042	36,076	41,844	45,853	51,590	56,276	60,789	65,406
<i>Classified by loan object</i>									
Residence	59.6%	57.3%	59.0%	60.6%	61.1%	62.1%	64.0%	67.7%	71.1%
Enterprise	40.4%	42.7%	41.0%	39.3%	38.7%	37.7%	35.7%	32.0%	28.8%
Others	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.3%	0.3%	0.1%
<i>Classified by term</i>									
Short-term	72.1%	76.9%	72.0%	71.3%	68.8%	68.3%	65.8%	67.2%	68.7%
Long-term	27.9%	23.1%	28.0%	28.7%	31.2%	31.7%	34.2%	32.8%	31.3%

Source: State Bank, An Giang branch.

Data on credit performance shows the following issues: (i) credit demand for residents is primarily for consumption use while for production activities, this demand mainly serves the working capital needs in each season (for seeds, food, and other production costs). However, the possibility of loan approvals from credit institutions is not high due to lack of collaterals; (ii) businesses' capital needs are mainly to finance their working capital to purchase input materials and cover for labor wages, and these have a very high turnover rate. Loans needed to invest in production is very limited. This demonstrates that risks in credit lendings at the localities are very high, borrowers' capability to repay debts mainly depends on outcomes

of certain production seasons and export orders. Enterprises' own financial resources or their development opportunities from investment or production expansion are very limited.

From the credit extension perspective, the outstanding loan balance in the agricultural and rural sector by end of 2019 are 365.2 billion VND, accounting for 55% of the total outstanding loans of the entire economy of the Mekong Delta. As for agri-business activities, their dependence is almost completely on the world market in the context of increasing market volatility, especially on prices, thus leading to an increasingly high level of risks in loan activities.

The fact is that loans for agricultural activities tend to be concentrated on a few leading firms having stable output markets and raw materials. For small enterprises, credit capital depends on capital turnover and advances from output export contracts. As a result, efficiency in business operations is reduced due to incurring an advance cost of up to about 10% of the contract value, and the risk of loss or contract termination is quite high given unexpected price drops.

As for farming households, the majority of credit needs depends on private credit models (provided by

collectors and food, feed or material suppliers) and depends on outcomes of certain crop seasons. Production can be significantly affected by diseases and extreme weather changes; while the output prices depend on fluctuations in export prices and can be manipulated by collectors or large firms in the industry because supply and demand are often incompatible with massive production when the previous crop price increased and vice versa. Private loans have flexible loan terms, higher loan amounts, but also higher interest costs.

Table 3.17 Comparison of formal and informal credit to shrimp farmers in Tra Vinh

Loans resources	Observed amount	Average loan amount	Proportion of loans (%)	Average interest rate (%)
1. Official credit (Credit Institutions and People's Credit Funds)	130	41.2	35.8	13.6%
2. Unofficial credit (Traders, food and materials agents)	144	72.3	62.8	38.3%

Source: Bui Van Trinh (2014), quoted in Duong Van (2019).²²



The linking model between enterprises, banks, farmers, and traders helps reduce risks but the level of application remains low due to low commitments by stakeholders when participating in the association.

In the context of high capital needs, credit sources for loans are available but cannot be disbursed; many supporting policies to remove difficulties have been implemented, such as rescheduling debt repayment terms, exemption or reduction of loan interests, continuing to provide new loans to customers to overcome difficulties in restoring production. However, efficiency in implementation is low because conditions to receive support are not guaranteed. In the first two quarters of 2019, credit institutions supported 250 enterprises in many different forms, but the outstanding amount of support loans were only 3,720 billion

VND, very low compared to 4,400 credited enterprises, and disbursed capital is more than 70,000 billion VND. Certain segments that are prioritized for lending such as high-tech agriculture, green agriculture, or renovation of offshore fishing boats, have the outstanding loans of the whole region of only 2,000 billion VND and 1,100 billion VND, respectively.²³

In summary, credit activities in the Mekong Delta are relatively small in scale compared to the economic state of the region. Capital needs for residents and enterprises are huge, mainly needs for their working capital in the short term or needs in case of their limited investment capital. There is no shortage of funds available for lending; the problem is lack of business plans, effective investments, and necessary collaterals.

²² Bui Van Trinh (2014). *Analysis of accessibility to formal credit: The case of shrimp farmers in Tra Vinh*. Journal of Science - Can Tho University. Quoted in Duong Van Lang (2019). *Characteristics of the private trader credit model in the shrimp farming sector in the Mekong Delta and policy implications*. MPP Master Thesis, Fulbright University Vietnam.

²³ Thach Binh (2019). *Nearly 71,300 billion VND credit line in use for connecting the Mekong Delta*. Banking Times: <https://thoibaonghanh.vn/gan-71300-ty-dong-tin-dung-ket-noi-dong-bang-song-cuu-long-91569.html>



Conclusion and recommendation

The development of the Mekong Delta is an urgent requirement to better exploit resources and better respond to challenges in the coming years of this region. In terms of policy solutions, there should be financial and budgetary ones. Some recommendations for consideration are in the following:

First, consider supplementing the National Target Program on the development of the Mekong Delta in prevention of climate change while performing balanced allocation of development investment capital in replacement of Decision No. 40/2015/QD-TTg for the 2021 - 2025 period. Currently, like other regions of the country, the Mekong Delta has only received targeted additional capital from the State budget under two national target programs - the Poverty Reduction Program and New Rural Program. However, the Mekong Delta is currently the region which is most vulnerable to climate change and sea level rise. Therefore, it is necessary to propose to the National Assembly to consider adding a separate national target program for this region.

Second, for the revenue from land use, currently in accordance with its documents, the Ministry of Finance only requires that investment priorities be given to build socio-economic infrastructure in general. It is possible to propose the rule of prioritizing investments in education from this source to provinces that still have difficulties in educational facilities.

Similarly, for the lottery revenue, the Mekong Delta could propose a minimum allocation of 60% of the lottery revenue for the education and training, vocational training, and health care as do the Northern and Central provinces and the Central Highlands. However, revenue from the regional provinces are not the same while infrastructure development for education and health in some provinces has been quite good; therefore, it is necessary to adjust regulations in a more malleable way for localities.

Third, at present, guidelines by the Ministry of Finance emphasize on the implementation of the estimates. If there is an increase in revenue compared to the estimate, the increase in revenue leaves the locality with the rights to proactively allocate the investment expenditure for important tasks, with priority given to education - training, vocational training, health care, agriculture and rural areas, and response to climate change.

For the Mekong Delta, the Government can guide the implementation of spending on education and training from this source in the period of 2021-2025 to help the region move out of the "low-lying land" in education and move toward the development of education and training at a higher level than that of the whole country as required by Resolution No. 120/NQ-CP.

Four, propose to the National Assembly to allow the expansion of the loan limit in accordance with the State Budget Law for the Mekong Delta provinces to expand the financial capabilities for the development investments. The outstanding loan balance (including domestic loans from local government bonds, re-lending from the Government, and other domestic loans as prescribed by law) of provincial budgets in the Mekong Delta increases by 5-10% of the current rate as prescribed in Article 7 of the 2015 State Budget Law. This additional loan allows investments in prioritized projects for the regional development, such as education, training, and response to climate change.

In the implementation process, based on the disbursement progress and borrowing capacity, priority is given to provinces in the Mekong Delta that are allowed to increase or decrease domestic loans and foreign loans to sub-lend to localities on the basis that they do not exceed the total loan estimates assigned by the competent authority during the budget stability period (e.g, 2021-2015).

Fifth, it is necessary to consider the special conditions of the Mekong Delta to make appropriate criteria when building the allocation of recurrent expenditure estimates of State budget for the 2021-2025 period to replace Decision No. 46/2016/QĐ-TTg.

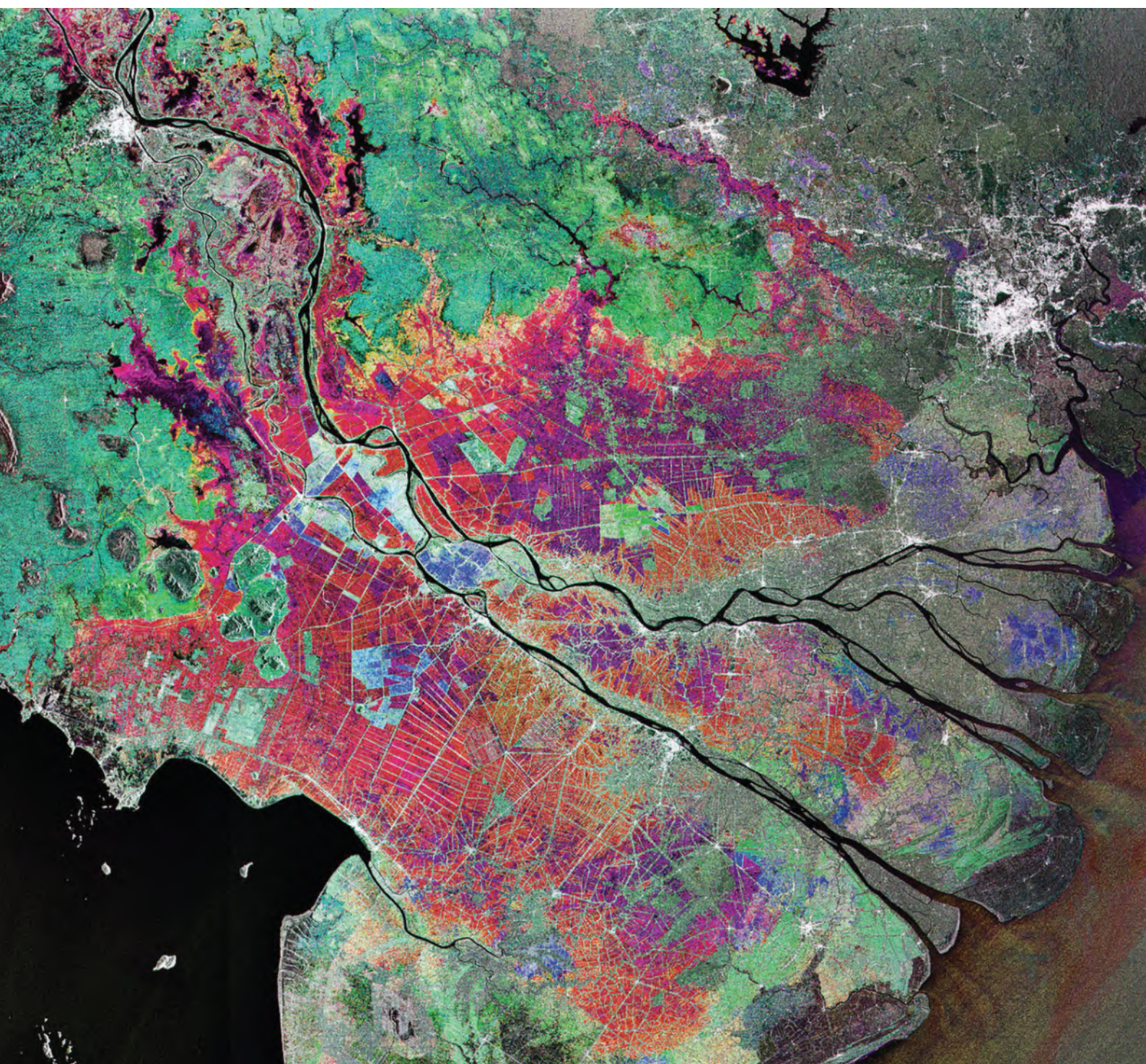
Along with spending on investments for development, the National Assembly and the Government should also consider issuing policies to allow sharing the financial and budget burdens among provinces in the Mekong Delta and between Ho Chi Minh City and the Mekong Delta provinces upon developing infrastructure projects having the inter-regional and inter-provincial nature.

Sixth, it is necessary to accelerate the construction of the Mekong Delta Development Fund in order to mobilize resources for the regional development, especially by issuing municipal bonds or separate government bonds for the targeted development of the Mekong Delta in line with response to climate change.

In the context of the limited State budget, it is necessary to continue seeking support from international organizations in mobilizing financial resources for the development of the Mekong Delta. In the short term, the Ministry of Planning and Investment should accelerate the coordination of the WB in Vietnam to act as a focal point and other international organizations to build a Development Policy Support loan package for the Mekong Delta (it is expected that this package will be about 1.05 billion USD in the period 2021-2023).

Seventh, it is necessary to accelerate the completion of detailed development plans in all areas of the region as a basis for mobilizing internal and external resources for the development. In the short term, in order to positively promote the role of public investment, measures should be taken to improve the public investment establishment and management capacity of the Mekong Delta provinces. The current overspending of capital transfers reflects certain limits in budget formulation and implementation by provinces in the region.





3.5

BUSINESS ENVIRONMENT IN THE MEKONG DELTA



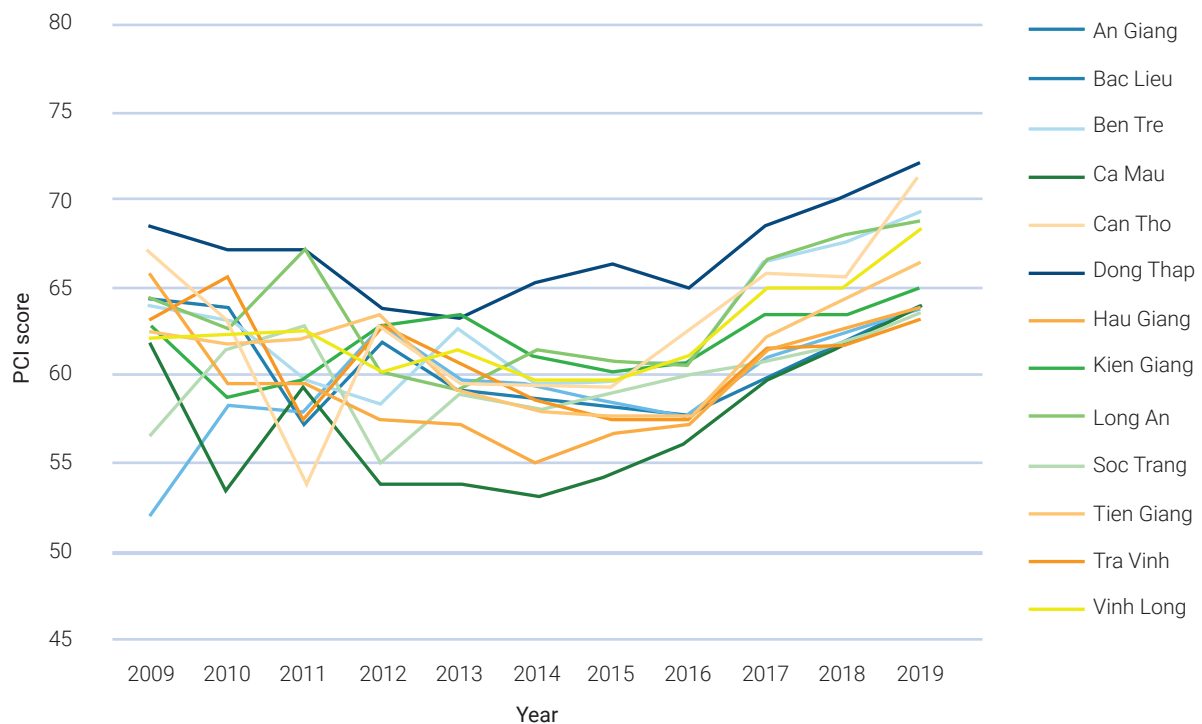
Overview of the business environment of the Mekong Delta

Current status of the environment via PCI

PCI is an index evaluating and ranking the local authorities governments and centrally governed cities of Vietnam based on the quality of economic governance and construction of a conducive business environment for the development of the private enterprises. This is a joint research project between the Vietnam Chamber of Commerce and Industry (VCCI) and the United States Agency for International Development (USAID). The PCI is an

important indicator measuring the business environment of the localities nationwide, laying a basis for investors to assess and choose business locations. The PCI index comprises 10 component indicators (with a scale of 100) to evaluate and rank localities on the quality of their provincial governance based on assessment and perception by the private enterprises (VCCI, 2020). These indicators consist of market entry, land access and stability in land use, transparency, time costs, informal costs, dynamism and pioneering of provincial leaders, fair competition, business support services, labor training, and legal institutions.

Figure 3.11 PCI of the Mekong Delta provinces for the period 2009-2019²⁴



Source: Compiled from findings of PCI survey by VCCI-USAID over the years

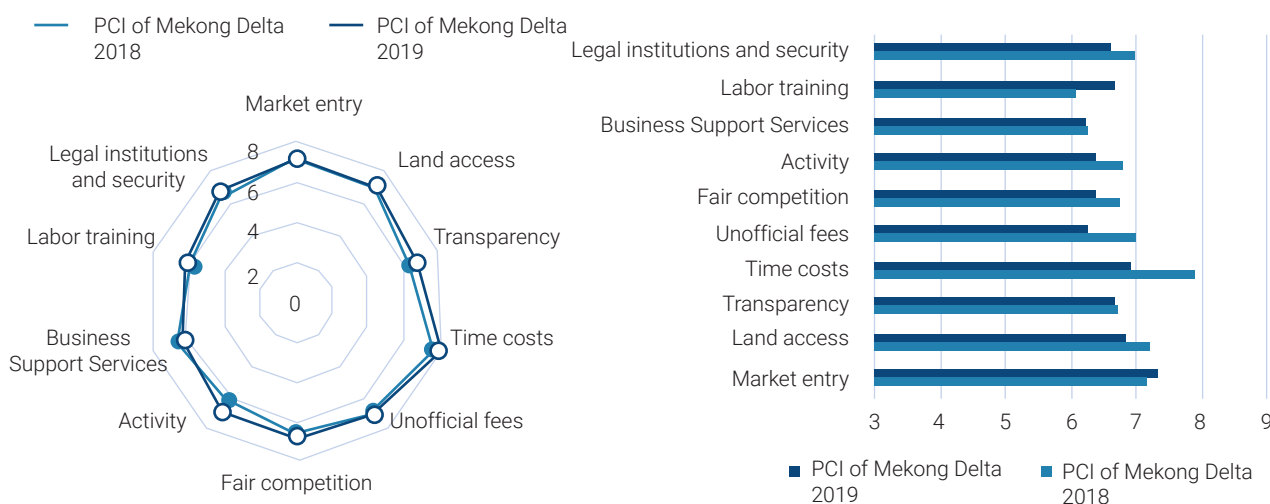
²⁴ In the 2009-2019 period, VCCI changed the methodology and some PCI assessment indicators in 2013 and 2017

The 2019 PCI of the Mekong Delta provinces is, overall, better than that of 2009. Some provinces such as Long An, Dong Thap, and Ben Tre have improved and risen to the top of the country's rankings. Others' PCI scores have decreased over the past 10 years, such as Tra Vinh, Hau Giang, Tien Giang, and Vinh Long (their 2018 scores were lower than those of their 2009). In 10 years between 2009 and 2018, other provinces such as Soc Trang, Bac Lieu, An Giang, and Can Tho had a significant increase in their PCI scores, demonstrating their efforts in improving the business environment of their respective provinces (Figure 3.5.1). Although in the 2009-2018 period, VCCI made adjustments to the methodology and component indicators in 2009, 2013, and 2017, but the overall trend of convergence points of the PCI for provinces is clearly shown. The increase/decrease amplitude of each year or the difference among provinces in the region has been gradually narrowed. In 2018 and 2019, four out of 13 provinces in the Mekong Delta (Dong Thap, Long An,

Ben Tre, and Vinh Long) enlisted in Top 10 of the country; notably, out of 63 provinces and cities nationwide, Dong Thap ranked second and Vinh Long ranked third in 2019.

According to VCCI, between 2017 and 2020, the methodology for PCI remains intact thanks to its cycle of revision every four year. In 2019, the average score of the component metrics improved compared to 2018 across eight of the ten PCI sub-indices, except the market entry and business support services index (Figure 3.12). According to the 2019 PCI,²⁵ eight out of the ten component indexes of the PCI of the Mekong provinces are higher than the national average, i.e., land access, business support, time cost, unofficial fees, dynamism, fair competition, legal institutions and security order, and transparency. Only two indicators - labor training and market entry - are weaker than the national average (Figure 3.12).

Figure 3.12 Average PCI component index of the Mekong Delta, 2018 and 2019



Source: Compiled from findings of PCI survey by VCCI-USAID over the years

²⁵ PCI 2019 is the latest PCI data up to May in 2020

Business environment of the Mekong Delta via other indicators

PAR Index is the Public Administration Reform Index of the ministries, ministerial-level agencies, the People's Committees of the province, and centrally-run cities, which is determined based on seven component indicators, including the steering and administration of the PAR; building and implementing legal documents; administrative reform; reform of administrative apparatus organization; building and improving the quality of the contingent of civil servants and public employees; financial mechanism reform for administrative agencies and non-business units; and administrative modernization. In 2018, the Mekong Delta has four provinces in Top 10 of the country - Dong Thap, Can Tho, Long An, and An Giang. The region has an average PAR Index score of 76.81 in 2018, just behind the Red River Delta, and the Southeast. Specifically, Dong Thap province has significantly improved the results of the PAR index in 2018, reaching 83.71/100 points, an increase of 1.80 points compared to 2017's, coming 3rd on the comprehensive rankings and achieving the best results among 13 provinces and cities in the Southwest. In 2018, Dong Thap was the pioneer to concretize the Party's policies on PAR. The province has issued a pilot scheme to assign tasks and public administrative services to the province's public postal service entity.

Tra Vinh province is in the group of five localities at the national bottom of the PAR Index ranking in 2018, ranking 61/63 and scoring 69.85%. The gap between the provinces with the highest and lowest scores in the Mekong Delta is quite large, reflecting the disparities in PAR among provinces in the same region. For example, Dong Thap is the leader in the component index "PAR Steering and Administration", and is also the only unit with a perfect score of 9/9 (100%). In the group of 10 leading units in the component index of "PAR steering and administration", along with Dong Thap, there are also three other provinces in the Southwest: Can Tho, reaching an index 88.89%; Soc Trang, 88.10%; and An Giang, 85.86%. However, in the group of 10 units at the bottom of the component index "PAR operation and administration" in 2018, there were also four localities in the Southwest region. The level of interest and effectiveness in direction and administration of the provinces and

cities in this region is not on par. That is the reason why the average value of this component index of the Southwestern region is only ranked 5th out of 6 economic regions of the country.

In addition to PAR Index, the SIPAS (Satisfaction Index of Public Administration Services) is also a remarkable index when evaluating a province's business environment based on the satisfaction of the people and organizations with respect to the services of State agencies. The PAR Index is also built on the SIPAS index and a number of other indicators; this is one of the indicators to assess the level of public administrative reform in the provinces with new surveys related to management leadership and the impact of reform on the socio-economic development. Eight out of 13 provinces and cities in the Mekong Delta are in the upper half of the list of the SIPAS indexes in 2018, namely Ca Mau, An Giang, Dong Thap, Bac Lieu, Ben Tre, Hau Giang, Soc Trang, and Tra Vinh. In general, according to the people and organizations, almost 100% of the surveyed performing public administrative service transactions via the OSS (One-Stop Shopping) received the results on time or earlier, without any trouble, harassment, or being prompted pay more other than fees or charges.



Summary basic issues related to business environment of the Mekong Delta

The Mekong Delta has a relatively favorable business environment, which is continuously improved, highly appreciated by the private business community, reflected in the region's average PCI score that has been consistently at the top of the country in recent years. Specifically, in the group of 10 provinces and cities with the best operating quality in the PCI surveys of 2017 and 2018 were four provinces of Dong Thap, Long An, Ben Tre, Vinh Long, and one city of Can Tho, and four more provinces in 2019. The Mekong Delta has always been the region with the highest average PCI score compared to other five regions in the country, continuously from 2014 to 2018. In 2019 the region ranked 2nd after the Red River Delta. On the other hand, the business environment of the Mekong Delta has been continuously improved, as shown in other indicators such as PAR-Index and SIPAS.

One point worth noting here is that there is a gap in the business environment among provinces within the region; some provinces are in the top of the country, such as Dong Thap, Vinh Long, and Ben Tre; others are in the bottom group of the whole country, such as Bac Lieu, Soc Trang, and Tra Vinh. As much as being highly appreciated for the overall business environment of the region, some of the PCI component indicators, e.g., labor training, market entry, legal institutions, dynamicism, and business support should be paid attention to in governing tasks by these provinces, especially by the bottom-tier provinces, such as Tra Vinh and Bac Lieu. The Mekong Delta also has a number of localities at the bottom-end of the country in terms of scores for the component indices, namely Kien Giang, Can Tho, and Dong Thap – of Market Entry index and Ca Mau, Soc Trang and Tra Vinh - of Labor training index. The common weakness of the region lies in the post-registration administrative procedures; this process is still difficult when more than 16% of enterprises are put in pending mode for over a month to have all other necessary documents before going into operation. In addition, the 2019 PCI survey shows that transparency and land access indices are sometimes a hinder to the business community. The labor training index of the region ranked at the bottom of the

chart where it had an average score of only 6.11 points, lower than the national average point of 6.68 points in addition to the factor that the region's labor source has not been able to meet the enterprises' needs.

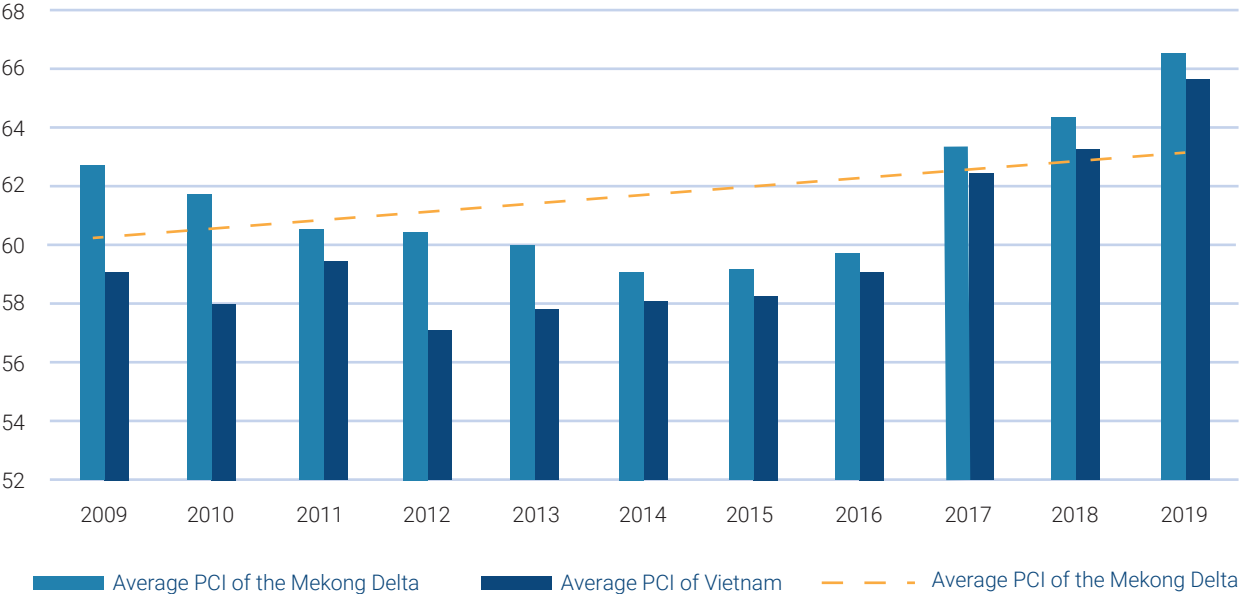
Perceptions by enterprises on the business environment of the Mekong Delta

Current perceptions by enterprises on the business environment of the region

The increasing trend of the PCI component indices over recent years shows that enterprises' perceptions on the business environment of the region have been improved significantly and appeared optimistic. Overall, the Mekong Delta has had an average PCI score higher than the national average, continuously from 2009 to present. The growth rate of PCI scores over the years in the Delta fluctuated erratically. From 2009 to 2015, the average PCI score of the whole region decreased gradually while that of the country increased and decreased. However, from 2014 to 2019, merging with the national upward trend, the average score of the PCI of the Mekong also increased strongly and steadily, and ranked first in the country (Figure 3.13). This shows the private sector's sentiments of the business environment are getting better and better after reasonable adjustments, demonstrating the region's pro-business attitude and its desire to attract investments into the Delta under the leadership of the local provinces.



Figure 3.13 Average PCI scores of the Mekong Delta in comparison with the whole country (2009 – 2019)



Source: Compiled from findings of PCI survey by VCCI-USAID over the years

Although market entry by enterprises still faces difficulties, issues related to the expertise of guiding civil servants and attitude and friendliness shown by officials at the business registration departments are currently recognized and evaluated better by enterprises in the Mekong Delta than those in previous years. Specifically, according to the PCI survey in 2019, more than 16% of enterprises answered that they were put in pending state for more than one month to complete the procedures for official business operations; among these, nearly 5.5% of them had to wait for more than three months. Out of the enterprises participating in the PCI survey in 2019, 39% registered their businesses via online portals or post offices and about 66% said the registration procedure was publicly listed. On average, more than 70% of enterprises in the survey assessed that the service staff showed good attitude and high expertise. However, the average number of days for business registration in the whole region is more than five days, still high compared to other economic regions of the country.

Regarding land access, enterprises in the Mekong Delta reviewed that the regional provinces had many improvements. In 2019, 51% of enterprises participating in the PCI survey reflected that they did not

encounter obstacles in accessing or expanding their business premises, an increase of more than 4% compared to 2018. Over the past two years, on average, 40% of enterprises said that they do not have difficulties in implementing administrative procedures related to land in the Mekong. Notably, the enterprise assessed that the risk of land acquisition decreases at a very low or low level (equivalent to 1.52 points in 2019, down from 1.59 points in 2018). However, the number of enterprises that do not have a land use right certificates due to concerns about cumbersome administrative procedures or corrupt officials increased sharply from 6.8% in 2018 to 10.02% in 2019.

Regarding transparency of the business environment, although there have been some improvement on access to and disclosure of planning documents, legislation, and tender information, the number of enterprises who believed that it is necessary to have connection to obtain provincial documents has decreased, but still at a high level (59% in 2019). Indicators related to the disclosure of information on the provinces' websites in 2018 have been improved in 2019. The overall transparency of the business environment in 2019 increased slightly compared to 2018 (up 9% in average score).

Regarding the cost of time that the enterprises have to spend on performing administrative procedures in the Mekong Delta in 2019, nearly 29% of enterprises of the Southwestern region, on average, spent more than 10% of their time on understanding and implementing legal regulations while nearly 67% of enterprises did not have to travel many times to complete administrative procedures – a significant improvement compared to 2018. The reason answered by more than 86% of enterprises was due to the friendly and efficient handling of the works by civil servants; more than 66% of enterprises thought that the paperworks were simple, fees and charges were transparent. Only a few enterprises in 2019 (about 5%) had to go through many inspections within a year, and 11.5% of enterprises said that inspection and testing creating opportunities for officials to harass enterprises were slightly lower than in 2018. The Mekong Delta's average time cost in 2019 is 7.92 points, the highest in the 2009-2019 period, higher than the national average. This shows that the enterprises in the Southwest region spent less time on procedures at State agencies than enterprises in other economic regions of the country; eight out of 13 provinces were among Top 10 in the nation that score the highest in terms of time cost.

The Mekong Delta has a marked improvement regarding informal fees that enterprises pay government officials for administrative procedures and for smooth business operations. In 2019, 24.36% of enterprises had to pay unofficial fees for inspectors. The number of enterprises having to use more than 10% of their revenue to pay for informal fees also decreased to 6.21%. In addition, more than 36% of enterprises also said that informal fees were a must to ensure winning bids; more than 53% of enterprises believed that informal fees helped them achieve the expected results. From 2014 to the present, the Mekong Delta's PCI score on unofficial costs has continuously improved and is higher than the national average. The Southwest has always been at the forefront of the country in efforts to reduce unnecessary expenses for enterprises.

The business environment of the Mekong Delta is evaluated more fairly by enterprises, with the PCI component index of Equal Competition in 2019 reaching 6.75, a slight increase of about 2% com-

pared to 2018. More than 30% of the private enterprises share the same reflection that State-owned enterprises were given priority by the provinces and caused them difficulties. There is a high proportion - more than 20% - of private enterprises stating that State enterprises have more advantages in accessing land, loans, in implementing administrative procedures, and in obtaining contracts from government agencies. Also, FDIs are considered by 30% of the private enterprises to be given more priority for the region's development; nearly 20% thought that FDIs have advantages in accessing land while 17% thought that FDIs have the privilege of exemption/reduction of corporate income tax, and 14.68% thought that FDIs have favorable conditions in implementing administrative procedures. Notably, about 61% of enterprises said that their business resources, including contracts, land, and some other factors, mainly fall into enterprises who have connection with public officials. The index of fair competition has been measured by VCCI since 2013; the average score on this component index of the Mekong Delta has continuously increased ever since and is higher than the national average.

Also, 2019 noted the resolution of the provincial leadership in the Mekong Delta in responses to enterprises. The dynamism of the Mekong Delta is well appreciated in how to solve problems for enterprises. Nearly 93% of enterprises in the PCI survey stated that they received feedback from the government after reporting the difficulties and 83.5% were satisfied with the resolution of the provinces. 84% of enterprises put it that the provinces have applied malleability in creating the favorable business environment for the private economy. Notably, the regional PCI average scores on the dynamics of leaders of the Mekong Delta provinces are always higher than the national PCI average score. This is also the result of the efforts and good will of the leaders in the localities to create a favorable environment for enterprises to do business. There are still some points to note such as 71% of enterprises stating that provincial leaders have good initiatives which have not been well implemented in departments/sectors; 54% claimed that the provincial leaders had appropriate policies which are not well-implemented at the district/town level.



Regarding support services for enterprises, the Mekong Delta provinces have had a positive support policy to solve difficulties for the private sector, though the PCI average score for this component in 2019 has decreased slightly compared to 2018. Support services for enterprises such as searching information, providing legal consulting services have markedly improved. Specifically, more than 60% of enterprises used to hire legal consulting; about 67% of enterprises used to have trade promotion services, and nearly 56% of enterprises used to rent services for market information. According to the enterprises, these support services are useful; the rate of enterprises continuing to use the service is high.

Labor training for enterprises in the Mekong Delta is still limited for many reasons, such as the low rate of trained workers to the total workforce (average 7.36% in 2018) or the rate of trained employees reaching 52.5%. Although the scores for labor training in the Mekong Delta have improved significantly since 2009, the regional average is still lower than the national average. This shows the fact that the labor force in the Mekong Delta provinces in the past years and the trained labor force in the region is still limited and at a low rate. Every year, enterprises have to spend about 6% of their total costs for labor training and about 5.32% of these costs for labor recruitment, according to findings of the PCI survey in 2019.

The legal system in the Mekong Delta provinces is highly appreciated by the enterprise community. Nearly 90% of enterprises believe that the legal system will ensure their property rights/contract

enforcement. However, the proportion of enterprises holding a belief that the legal system will help enterprises denounce corrupt officials or that provincial leaders will not cover corrupt officials was low, less than 50%, even though this rate in 2019 was higher than in 2018 and 2017. Public security and social order in the Mekong Delta are assessed by enterprises to be relatively stable and gradually improved; the rate of enterprises paying gangs protection fees is very low (in 2018, it is 1.27%). The average score of the regional legal institution index reached 6.96, the highest since 2015 and higher than the national average. A transparent and no-harassment legal system increasing the trust of local enterprises is a strength to attract investors.

As a whole, in the period 2009-2019, the business environment in the Mekong Delta had seen improvement in many aspects, such as legal institutions, labor training, business support, fair competition, and time costs. In addition to the PCI component indices, the region's technical and economic infrastructure has made certain improvement; the quality of internet, electricity and water infrastructure is also well-evaluated by the enterprises. However, transformation in transport infrastructure and logistics services in the region are still very modest; scores in the components of business support services and procedures for enterprises to enter the region's market in 2019 decreased compared to previous years; the labor training scores remain at the bottom compared to other regions in the country. These are the factors that the provinces and cities in the region should pay attention to for improvement.

Comparing enterprises' perceptions on the business environment

Compared with other economic regions in the country, the business perception of the Mekong Delta always ranks first among the six economic regions nationwide. This is reflected in the higher PCI average score of the Mekong Delta than the national average, indicating the superior quality of the economic governance.

Looking back at the PCI picture over the years, in 2016 the Southwestern region had only two representatives in Top 10, namely Dong Thap and Vinh Long; in 2017, the region showed a strong determination to reform and five out of 13 provinces were listed in Top 10, namely Dong Thap, Long An, Ben Tre, Vinh Long, and Can Tho. In 2018, although there was a slight decrease compared to 2017 when there were only four provinces in the list, the overall PCI average score of the Mekong Delta was still leading the country. In 2019, the Mekong Delta had two provinces in Top 5 of the country (Dong Thap ranked 2nd and Vinh Long came 3rd), four provinces in Top 10, and five provinces out of 20 provinces with the highest scores; the average score of the whole region increased by more than two points and ranked 2nd after the Red River Delta. This shows the satisfaction and confidence of the region's private businesses over the increasing quality in economic governance

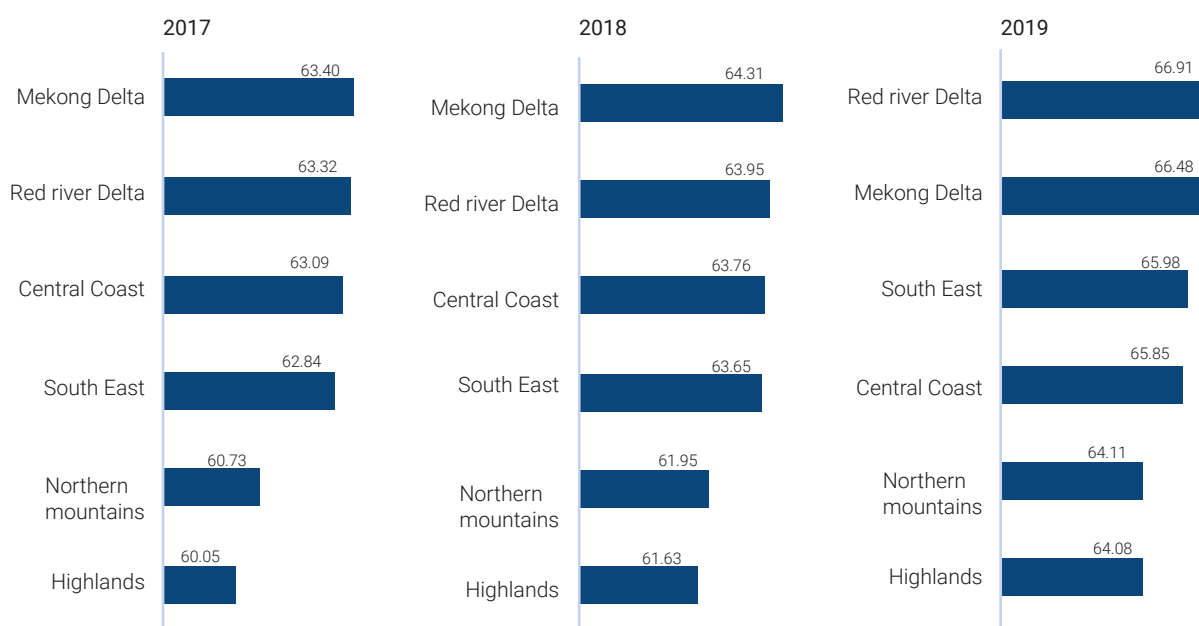
by the Mekong Delta provinces.

Many component indicators such as access to land, administrative procedures, informal fees, more equal business environment, and especially the pioneering dynamicism of the Mekong Delta's government were evaluated as better than other regions.

Figure 3.14 shows that the PCI average score of the Mekong in 2018 continues to lead the country (reaching 64.31 points), the highest among the six regions of the country - the Red River Delta (63.95 points), the Southeast (63.76 points), the Central Coast (63.65 points), the Northern Midlands and Mountains (61.95 ppoints, and the Central Highlands, the lowest (61.63 points). However, in 2019, the top position was gained by the Red River Delta with a large average point increase margin (up nearly 3 points). Although the average increase was high compared to 2018 (more than 2 points), the Mekong Delta ranked 2nd among the six economic regions of the country.

Table 3.18 shows the strengths of the Southwestern provinces compared to other economic regions in the country. Among the 10 component indices of the PCI, the Mekong Delta had six indicators with the highest average scores in the country in the period of 2009 - 2019. The Mekong Delta has the advantages on: (i) continued ease to access to land and stable land use, (ii) time costs to implement regulations and fast

Figure 3.14 Average score of the Mekong Delta compared with other economic regions



Source: Annual PCI survey by VCCI-USAID over the years

Table 3.18 Average scores of PCI and sub-indices by economic regions (2009 - 2019)

Economic regions	PCI score	Market entry	Land access	Transparency	Time cost	Unofficial fees	Fair competition	Dynamic features	Enterprise support services	Labor training	Legal institutions
Northern mountainous region	57.54	7.86	5.94	5.93	5.89	5.41	5.42	4.99	5.27	5.49	5.36
Red River Delta	60.31	7.86	5.98	5.96	6.47	5.89	5.06	5.06	5.56	6.24	5.34
North Central and Central Coast	60.52	8.17	6.28	6.22	6.53	5.76	4.99	5.11	5.52	5.87	5.53
Highlands	57.14	7.66	6.41	5.88	5.95	5.48	5.78	4.47	5.46	5.25	5.41
South East	61.21	7.81	6.41	6.10	6.71	6.18	5.38	5.31	5.62	5.96	5.41
Mekong Delta	61.60	8.12	6.99	6.10	7.25	6.82	6.04	5.87	5.13	5.21	5.97

Source: Compiled from the VCCI-USAID annual PCI survey

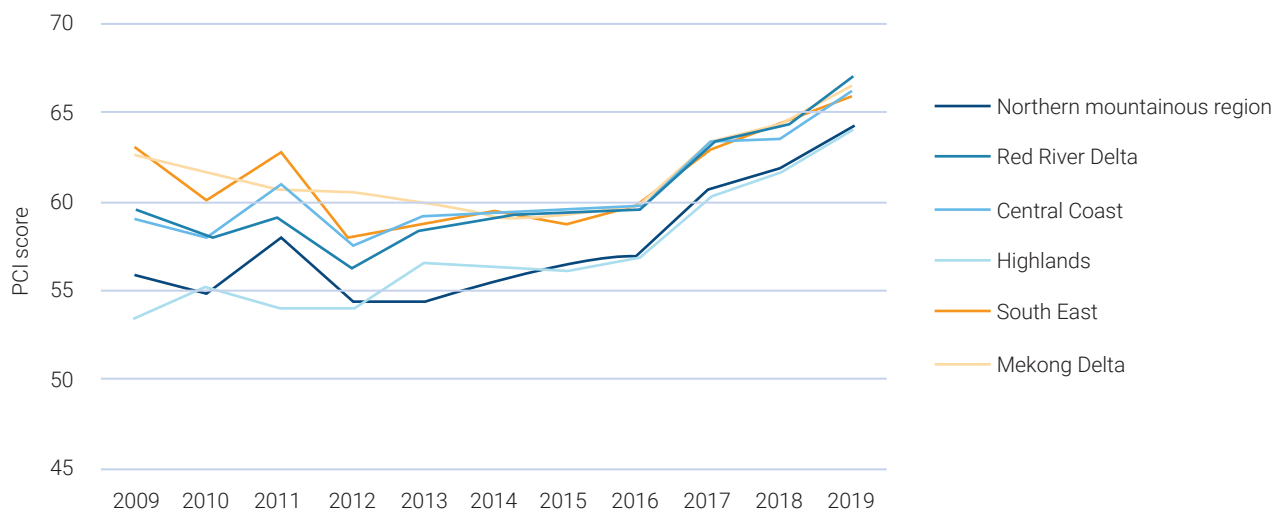
administrative procedures, (iii) low informal costs, (iv) moderate competitive environment, and (v) the dynamism and creativity by provincial leaders in implementing policies to the business community, which are currently the area getting much attention from the domestic and foreign investors. The most impressive change for the Mekong Delta in 2019 was the dynamism of the leaders and the transparency of information with an increase at a high margin compared to 2018. Informal cost was the most outstanding indicator the Mekong with five provinces at the top of in the country, six in Top 10, and 10 in Top 20. The “Time Cost” index is a regional feature as eight provinces in the region are among Top 10 in the country. Many enterprises in the Mekong Delta share the same sentiment that there was no difficulty in accessing information about fees and charges, time for enterprises to learn and implement the law consumed less than 10% of their time, and the public officials helping them implement administrative procedures in a friendly, open, and effectively manner.

In addition to certain strengths in the business environment, the Mekong Delta has a number of limitations on labor training and business support services compared to other economic regions. The shortcomings in labor training can result from many reasons, including objective reasons such as the low quality of labor in the region compared to large economic regions like the Red River Delta or the Southeast. However, the region’s authorities have made great efforts over the years to improve the

situation, as evidenced by the fact that the labor training index had steadily increased over the years from 4.67 in 2009 to 6.11 in 2019. Similarly, the limit on business support policies has been gradually improved by the Southwestern provinces over the years since 2009 along with the general upward trend of other economic regions in the country.

The general trend of the competitive environment shown via the PCI of localities gradually converges to the same point (Figure 3.15) under the strong influence of the Central government such as Resolution No. 19-2018/NQ-CP and Resolution No. 02/NQ-CP on national competitiveness improvement. Also, this is the driving force that motivates localities to adopt policies to improve the competitive environment for their provinces, especially those with low PCI scores in the country. Since the time when there were big differences in the business environment, reflected in the strong dispersion of the PCI component indices of economic regions in the early years of the implementation of the PCI, economic regions have improved their low scores, focusing more on removing institutional barriers and administrative procedures leading to narrowing the gap between regions. Figure 3.15 shows that there are two major groups, namely the leading one in the country, including the Red River Delta, Mekong Delta, Central Coast, and the Southeast and the opposite one, including the Central Highlands and Northern Midland and Mountainous region.

Figure 3.15 PCI trends of economic regions in the period 2009-2019



Source: Compiled from the VCCI-USAID annual PCI survey

The Mekong Delta is at an important stage when the business environment advantages are being caught up by the Red River Delta; that is, the Mekong Delta's PCI average score has been surpassed by the Red River Delta in 2019. However, to go into a more detailed look at some points in the business environment such as the cost of time for administrative procedures, land access, legal institutions, and informal costs, will show that these are still regional strong advantages. Focus on improving labor training restrictions and diversifying policies on business support services should be implemented in the coming years. Furthermore, the gap in the business environment of the region needs to be paid more attention to and the gap between the top and bottom provinces also needs to be narrowed.

Initiatives to improve the business environment of the Mekong Delta

The Mekong Delta has seen many new ways of doing business such as business cafe in Dong Thap, business meeting on the first day of the week in Can Tho, and business dialogue held most regularly in Soc Trang among others. Even An Giang province is planning an entrepreneur cafe at the district level. With the above results, the authorities of the Mekong Delta provinces are making efforts for a better

business environment.

In addition, Ben Tre has made many strong strides in improving the PCI scores, increasing from the 7th to 5th in 2017, and up to the 4th rank in 2018. Ben Tre has focused on the alignment of its directing and operating activities. Many solutions to improve the PCI associated with the effective implementation of the Co-Start-up and Business Development Program - one of the key programs in the 2015-2020 term of the locality. To create a forum to exchange and share difficulties with enterprises and investors, each year Ben Tre organizes four business dialogue forums. Every month, the province organizes "Business Cafe" and "Start-up Round Table". Therefore, most of the difficulties and problems of enterprises are removed and handled quickly.

In Dong Thap, for many years, the local government always considers enterprises as consultants, they do not come to the province asking for problem solvings. The leadership of Dong Thap realizes that when a business come to share difficulties with them is not a particular difficulty of that enterprise but a common one that other enterprises may also face. Provincial leaders publicize their phone numbers and emails for direct contacts by the people and enterprises - an effective solution to solve difficulties with enterprises.

In An Giang, because the land is fragmented and small despite large population, it is difficult to accumulate land for high-tech industrial development. State budget is limited. Also, it is difficult for industrial zones here to fill their occupancy, to expand or call for investment because most of them are far from big cities. Urban land price is high due to the large population, enterprises thus are afraid to enter this costly market. An Giang has, over the time, designed many solutions such as establishing a task group to support enterprises to access land and developing schemes to create a land bank phase by phase to call for investment. Currently, this province has developed a project on transferring or leasing ineffective agricultural land from farmers and then subleasing it to enterprises. Commitments to enterprises are also made by the local authorities that all difficulties must be resolved quickly and completely right at their meetings.

Challenges and requirements for continued improvement of the business environment in the Mekong Delta

The inherent strengths of the Mekong Delta have now decreased. The cost of entering the market index is no longer ranked as the top provinces; business support services are increasingly absent from the

group of top provinces in the country. The dynamism of leaders, which is a strength, is now only present in a few provinces that belong to the group of top provinces in the country. These are the indicators that previously led by many provinces in the Southwest, but now other localities across the country have improved faster on these. Also, the competitive environment in the Mekong Delta is quite different; there are many differences between provinces such as Dong Thap, Vinh Long, and Ben Tre which are the top provinces in the country on the PCI rankings and such provinces as Tra Vinh, Soc Trang, and Bac Lieu are in the group of localities at the bottom of the PCI rankings. A requirement for the region is to narrow the gap in the competitive environment among provinces, creating a homogeneous and closely linked team to support enterprises.

In addition, the Mekong Delta has other limitations such as the rate of asset theft at enterprises is quite high. The region has 17.3 million people (accounting for 20% of the population), but the number of operating enterprises currently accounts for only 8% of the total number of enterprises in the country; the total FDI capital flow in the Mekong Delta is currently at 21.5 billion USD, just above the Central Highlands and the Northern mountainous region. FDI flow in the region in 2018 is less than that of Ba Ria - Vung Tau (1.5 billion compared to 1.8 billion USD).



On top of that, the Mekong Delta is the largest economic and agricultural region in the country but its exports are lower than Dong Nai's. Compared with the whole country, this is a low-lying area in attracting foreign investments. The difficult problem of the region is how to rely on this investment capital for development.

The business environment of the Mekong Delta is about infrastructure and human resources. Due to unfavorable transportation, lack of alignment, and falling short of development needs, investments in the Mekong Delta is still limited. The logistics system is weak while needs to transport goods between the

region and other economic regions and among enterprises in the region are increasing. Traffic jams often occurred during holidays and Tet festivals. These limitations give hike to the cargo transport cost, affecting the economic development of the Mekong Delta. The labor force in the Mekong Delta is of low quality and mainly concentrated in agricultural and rural areas, which does not meet development requirements. Labor supply in the Mekong Delta has always faced shortages in skilled workers and laborers in certain service sectors (banking, finance, telecommunications, tourism, etc.) and new industries



The rate of trained workers is low while their skills, physical strength, and industrial working style are weak, resulting in low competitiveness. A large part of the workforce has not received training in industrial labor discipline. Most of the labor force comes from agricultural and rural areas, heavily bearing the productive style of small farmers, being undisciplined in terms of time and behavior. They are not equipped with teamwork knowledge and skills, unable to cooperate and take risks, and are afraid to come up with initiatives and share work experiences.

Requirements for the Mekong Delta in the coming time are to continue improving the infrastructure and transportation connecting the provinces in the region

and with other economic regions in the country, including roads, waterways and airways. Labor training programs and attracting workers back to the region to work should be the focus. The government should have policies to support enterprises in the field of labor training, solving enterprises' difficulties in terms of shortages of quality and seasonal laborers. Difficulties in administrative procedures, such as processes, post-registration are still difficult when more than 15% of enterprises are put in pending mode for more than a month to have all other necessary documents available. These challenges should be resolved completely and thoroughly, creating motivation for new enterprises to register, thus improving the investment environment in the region.





3.6

DEVELOPMENT OF ENTERPRISES IN THE MEKONG DELTA 2009 – 2019

Enterprises entering into the Mekong Delta market

In 2019, the total number of enterprises joining the market in the Mekong Delta is 12,343 entities (up 7.1%); of which 9,388 were newly established ones (up 1.3%) and 2,955 were returners (30.9%).

12,343

enterprises

Joining the market in the Mekong Delta in 2019

New business registration

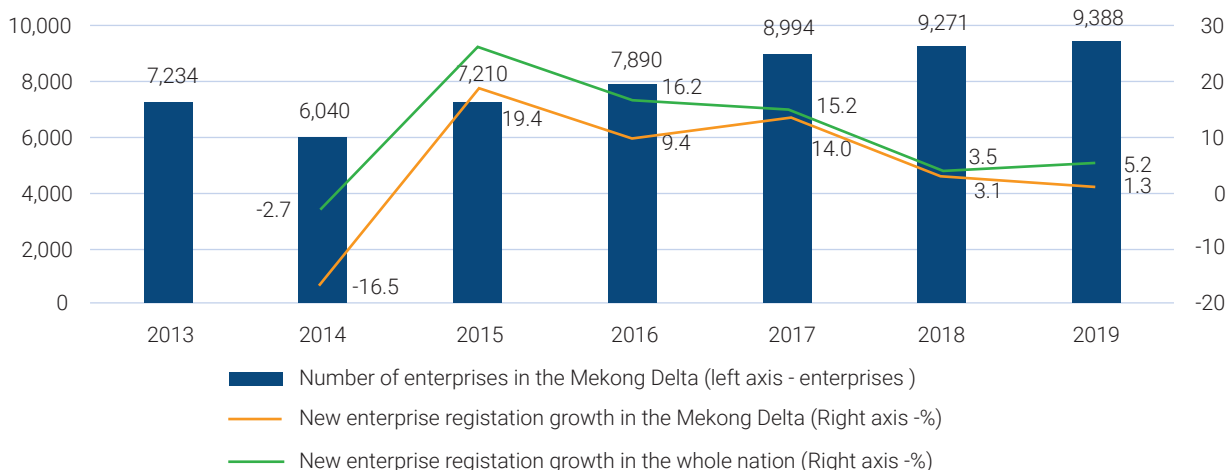
In 2019, the whole country had 138,139 newly established enterprises with registered capital of 1,730,173 billion VND, up by 5.2% in terms of number of enterprises and 17.1% in terms of registered capital. This was the fifth year in a row that the region saw the highest number of newly established enterprises and the highest registered capital in history. In 2019, the Southeast was the highest in terms of registered enterprises, reaching 58,673 enterprises and accounting for 42.5% of the total number of newly registered enterprises in the country, followed by the Red River Delta with 41,842 newly registered enterprises, accounting for 30.3%. Meanwhile, the Mekong Delta only had 9,388 newly registered enterprises, accounting for 6.8%, just higher than two regions - the Northern Midlands and Mountains (5,382 enterprises, accounting for 3.9%) and the Central Highlands (3,599 enterprises, accounting for 2.6%).

average growth rate in this period (10.2%/year). Due to the fact that the region's growth rate is lower than the national average, the proportion of newly established enterprises in the Mekong Delta in the country tends to decrease, from 9.4% in 2013 to 6.8% in 2019.

Among the six socio-economic regions, the Mekong Delta always ranks 4th in the number of newly established enterprises during the period 2013-2019, just above two regions, the Northern Midlands and Mountains and Central Highlands. Although the trend of growth in the number of newly established enterprises in the Mekong Delta is similar to other regions in the country, it is worth mentioning that the average growth rate in the period 2013-2019 was the lowest, only 4.44%/year, lower than the Central Highlands (4.95%/year). While the average growth rate of the number of newly established enterprises in other regions is usually about 10%/year. This widens the gap between in the number of newly established enterprises in the Mekong Delta and the largest number of established enterprises in the Southeast (from 1/4.4 times in 2013 to 1/6.3 times in 2019). This proves that the promotion of new enterprise establishment in the Mekong Delta is still as successful as other regions.

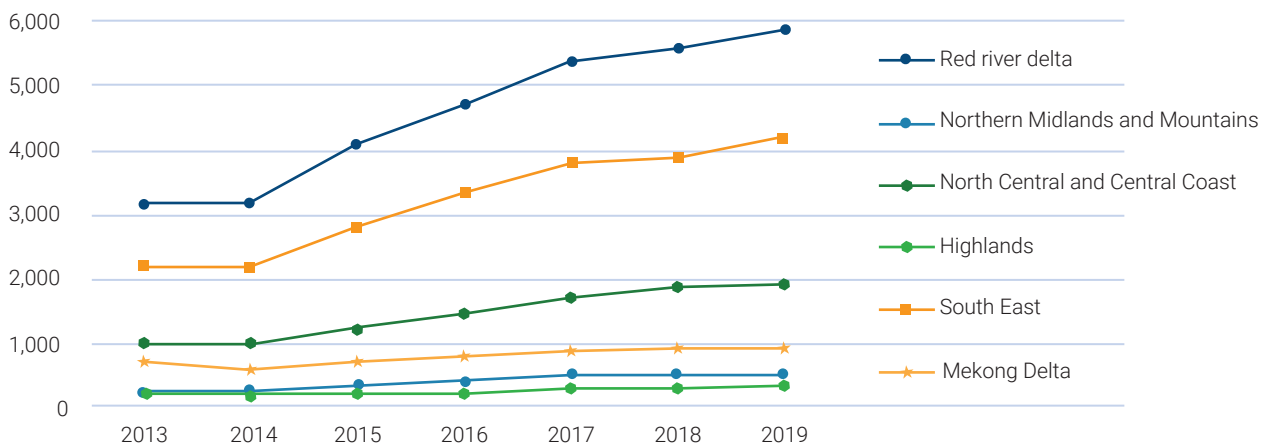
Between 2013 and 2019, the number of newly established enterprises in the Mekong Delta is increasing, from 7,234 enterprises in 2013 to 9,388 enterprises in 2019, an average growth rate of 4.4%/year, not even close to half of the country's

Figure 3.16 Number of newly established enterprises between 2013 and 2019 in the Mekong Delta (Enterprise)



Source: National business registration portal - MPI

Figure 3.17 Number of newly established enterprises between 2013 and 2019 in the regions (Enterprises)

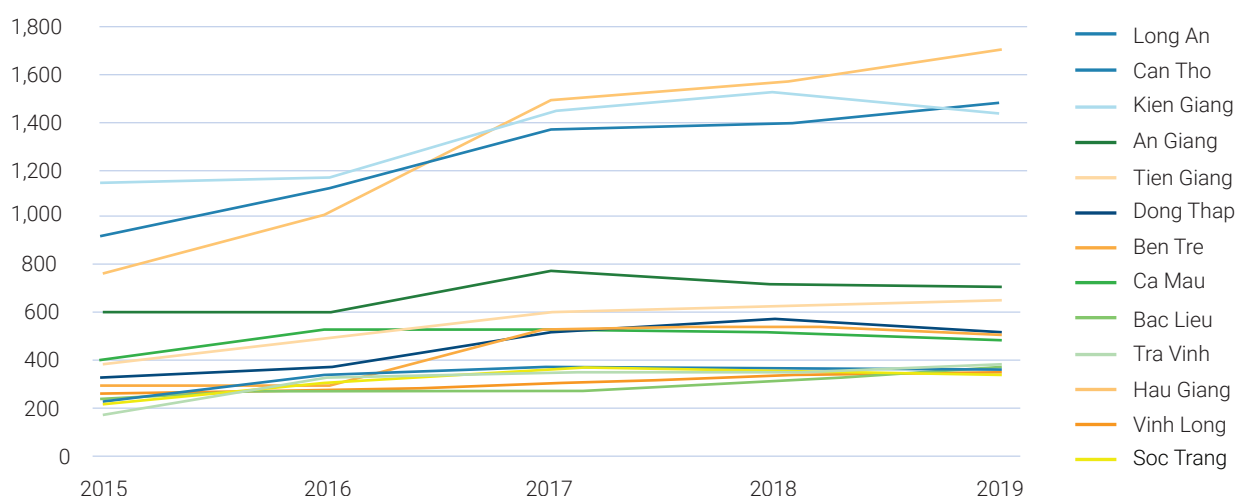


Source: National business registration portal - MPI

Following is a detailed picture of the region: in 2019, many enterprises were established in the Mekong Delta province of Long An – 1,713 enterprises, or 18.25% of the total number of newly established enterprises in the region. The province having the highest number of newly established enterprises was Can Tho (1,483 enterprises, accounting for 15.8%), followed by Kien Giang (1,447 enterprises, accounting for 15.41%). Only these three out of 13 provinces in the Mekong Delta had over 1,000 enterprises registered for establishment in 2019, accounting for nearly

half of all newly established enterprises in the region; the number of newly established enterprises in the remaining 10 provinces did not exceed 720. The five provinces with the lowest number of registered enterprises did not exceed 400, including Soc Trang (349 enterprises, accounting for 3.72%), Vinh Long (360 enterprises, accounting for 3.83%), and Hau Giang (366 enterprises, accounting for 3.90%), Tra Vinh (382 enterprises, accounting for 4.07%), and Bac Lieu (384 enterprises, accounting for 4.09%).

Figure 3.18 Number of newly established enterprises in the Mekong Delta provinces (Enterprises)



Source: National business registration portal - MPI

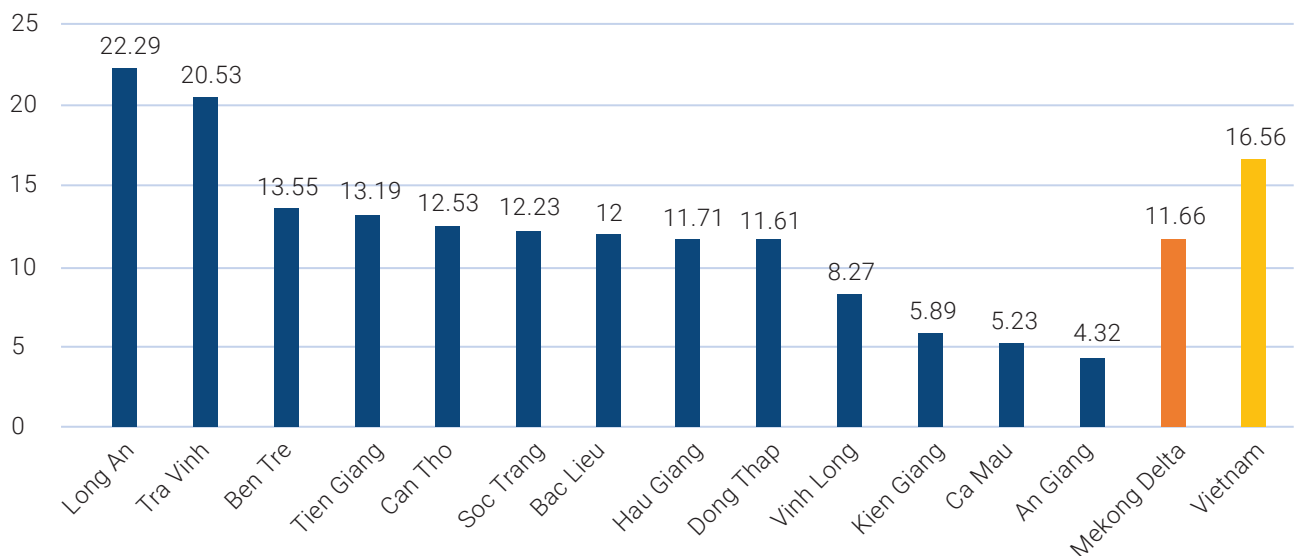


Between 2015 and 2019, Long An was also the province with the highest growth rate in the number of newly established enterprises, 22.29%/year, higher than the national average (16.56%/year) and nearly doubling the average level of the Mekong Delta. Due to such high growth, the number of newly established enterprises of Long An had doubled from 766 enterprises in 2015 (ranked 3rd) to 1,713 enterprises in 2019 (ranked 1st). Tra Vinh is the province with the second highest growth rate of new enterprises reaching 20.53%, an increase from 181 enterprises in 2015 to 382 enterprises in 2019, but the number of enterprises in the province is still low and ranked 10th/13 provinces in the Mekong Delta. These are also only two provinces with an average growth rate of new enterprises higher than the national average.

year), Ca Mau (5.23%/year), Kien Giang (5.89%/year), and Vinh Long (8.27%/year). Of these four provinces, except for the case of Vinh Long, which usually ranks last in the number of newly established enterprises, the low growth rate in the remaining three provinces indicates the problems in development of new enterprises. Kien Giang used to be at the top in terms of the number of newly established enterprises in 2015-2016, but gradually dropped to the 2nd position in 2017-2018 and the 3rd in 2019. Similarly, Ca Mau used to be in the 5th place in 2015. However, the number of newly established enterprises increased slowly in the years 2016-2017 and even decreased in the two years 2018-2019, it thus fell to the 8th position in 2019. Although An Giang still retains the 4th position in terms of the number of new enterprises, the gap between the province and Top 3 is increasingly wider.

Four provinces with the lowest growth rates, lower than the regional average, are An Giang (4.32%/-

Figure 3.19 Growth of newly established enterprises in the period 2015-2019 in the Mekong Delta (%)



Source: National business registration portal - MPI

Enterprises exiting from the Mekong Delta market

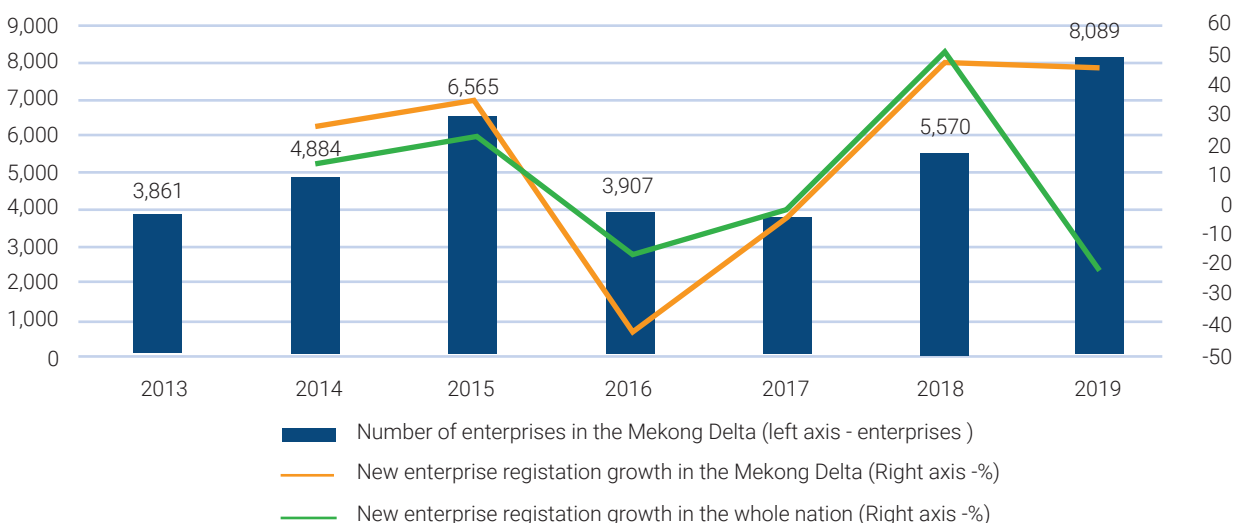
Enterprises that cease operations (either registered or unregistered) or are dissolved will indicate the number of enterprises withdrawing from the market each year.

Enterprises that stop operation

Between 2013 and 2019, the development of the number of inactive enterprises in the Mekong Delta was quite similar to that of the whole country; during this period, the number of inactive enterprises increased continuously in the period 2013-2015, decreased sharply in 2016-2017, and then increased again in 2018. The only difference was that in 2019 when the number of enterprises shut down in the Mekong Delta still increased sharply by 45.2%, that in the whole country decreased by 20.1%. This makes the proportion of the Mekong Delta in the number of inactive enterprises sharply increase to 11.2% compared to about 6% between 2016 and 2018.

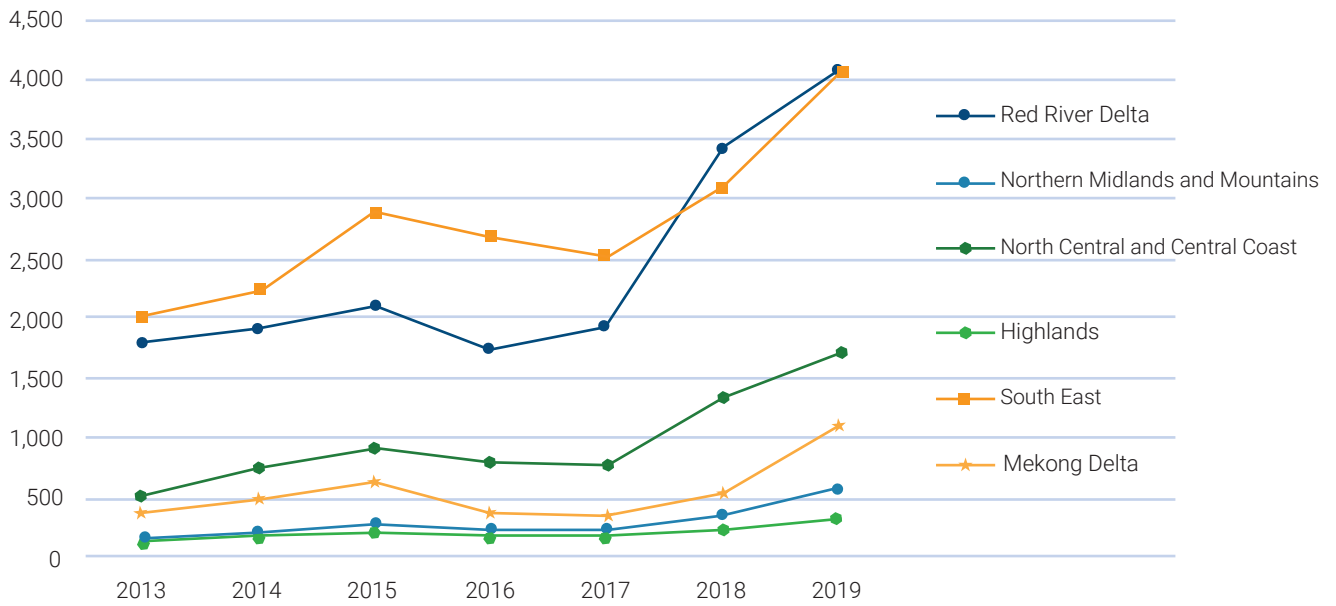
Among the six socio-economic regions, the Mekong Delta always ranks 4th in the number of inactive enterprises, between 2013 and 2019, over two regions: the Central Highlands and the Northern Midlands and Mountains. This is similar to the case of the number of registered enterprises, but the main difference is in the growth rate of the number of inactive enterprises. The growth rate of the number of inactive enterprises in the Mekong Delta is often at the top, leading to an average growth rate of 19.2% per year in the 2013-2019 period, the third highest, just behind those of the Northern Midlands and Mountains (24.3%/year), North Central, and Central Coast (20.9%/year). This has narrowed the relative gap in the number of inactive enterprises between the Mekong Delta and the Southeast which often has the highest number of inactive enterprises, from 1/4.6 times in 2013 to 1/3.7 times in 2019. This raises questions about the health of the enterprise community in the Mekong Delta and the effectiveness of policies to support enterprises when growth in the number of defunct enterprises is always higher than that of other regions.

Figure 3.20 Enterprises stopped operating in Mekong Delta (2013 - 2019)



Source: National business registration portal - MPI

Figure 3.21 Inactive enterprises across regions (2014 - 2019)



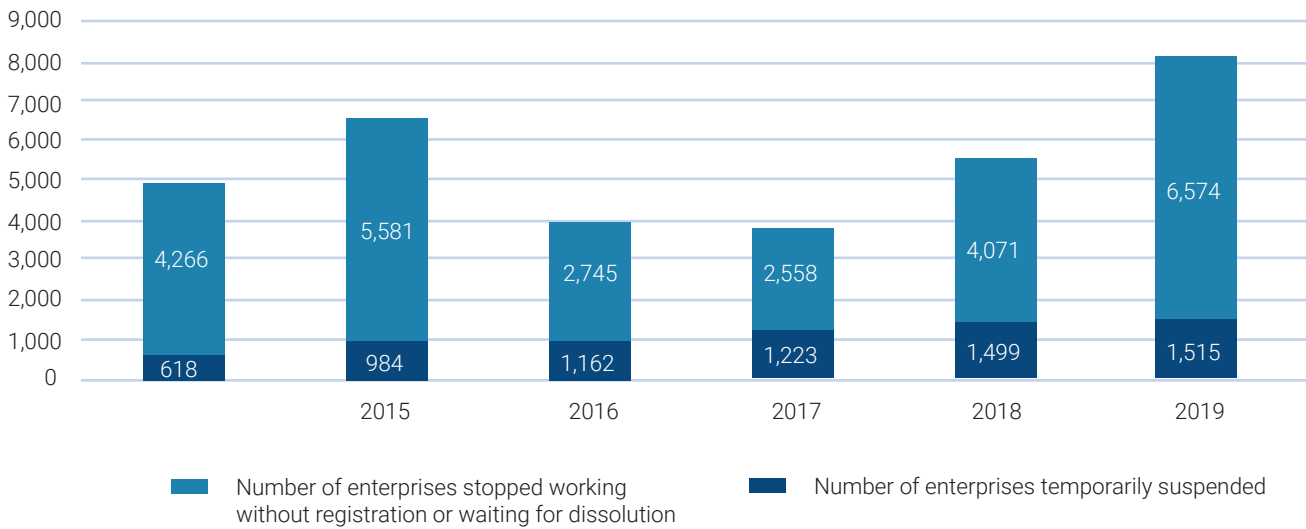
Source: National business registration portal - MPI

Among enterprises that were out of business, those informed in advance about their hold in operation for seasonal stop, discontinued investment in machinery, renovation of factories, or personal reasons, they will usually resume operations. Meanwhile, enterprises that stop operating without registering or waiting for dissolution will usually withdraw from the market.

This increase in the rate of enterprises that stop operating without registering will show the difficulties of enterprises in doing business. Overall, the percentage of enterprises that stop operating without registering take the majority of non-operating businesses in Vietnam in general and in the Mekong Delta in particular.



Figure 3.22 Classification of enterprises shut down between 2014 and 2019 in the Mekong Delta



Source: National business registration portal - MPI

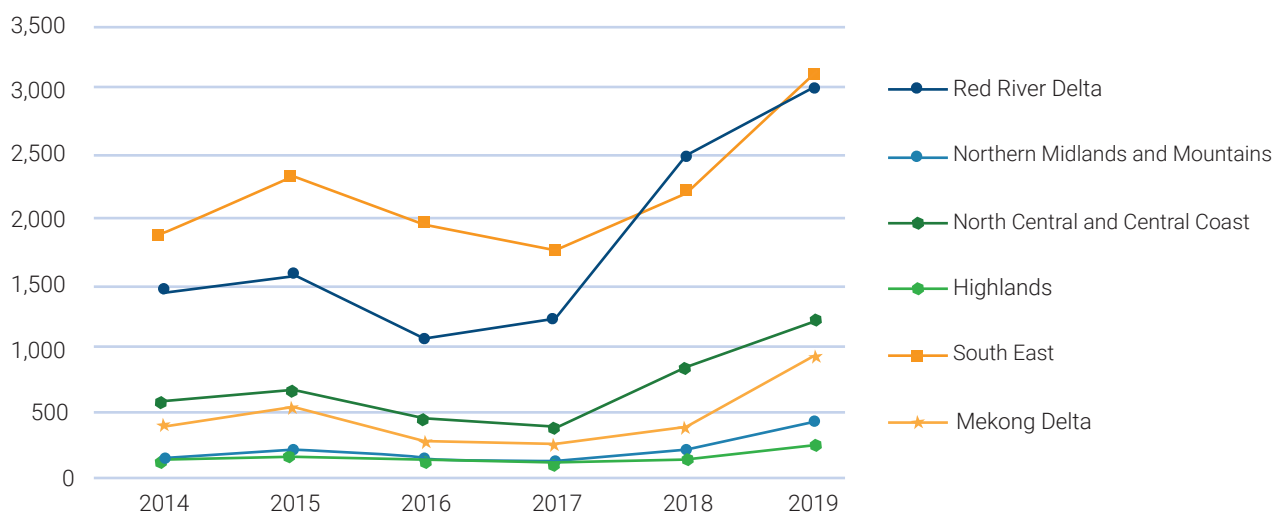
Between 2014 and 2019, the number of registered inactive enterprises had a tendency to increase yet at a low and quite stable rate. However, the number of enterprises that stop operating without registration or waiting for dissolution was large and unstable and increased in 2015, 2018, and 2019. Notably, in 2018 and 2019, the economy had many positive signs, including a high growth of over 7% and an exceeding of 9,000 new enterprises in the Mekong Delta, but the number of unregistered enterprises that stopped operating also increased, especially in 2019 with over 9,000 enterprises. This, on the one hand, affected the targeted development of the number of enterprises in the region, and on the other hand, showed the unsus-

tainability of enterprise development.

Compared to the growth rate of unregistered enterprises in the period 2014-2019, the Mekong Delta was the region with the second highest average growth rate of 17.6%/year, just behind the Northern Midlands and Mountains (with 23.7%/year) and much higher than the average level of the economy, 14.2%/year. Even in regions with a lot of enterprises such as the Southeast or the Red River Delta, these ratios were only at 10% -15%/year. This proves that the resilience of enterprises in the Mekong Delta was less than that of other regions.



Figure 3.23 Unregistered enterprises stopped operating across regions in the period of 2014 - 2019 (enterprises)



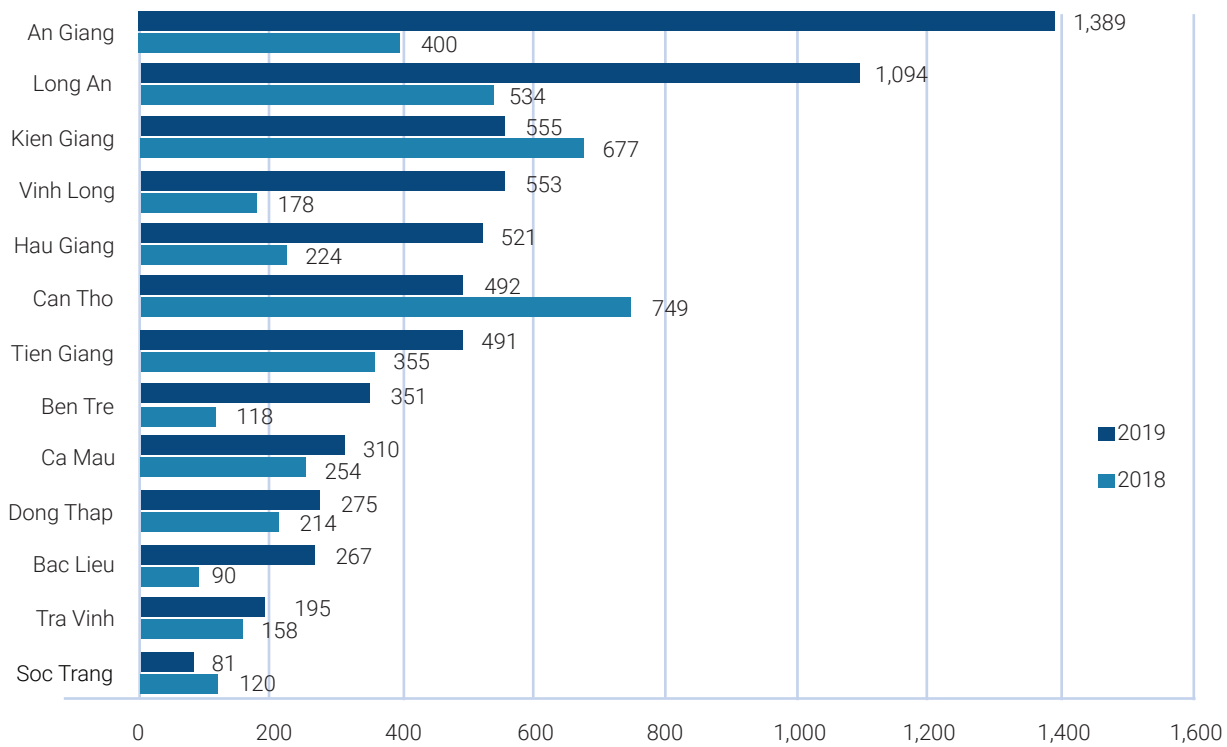
Source: National business registration portal - MPI

The number of enterprises that stopped operating without registering in the Mekong Delta in 2019 was high mainly due to the sudden surge in An Giang province (more than three times, from 400 enterprises to 1,389 enterprises), Long An (up two times from 534 enterprises to 1,094 enterprises). These two provinces alone accounted for 37.8% of the number of enterprises that stopped operating without registering in the Mekong Delta in 2019. In addition, a number of other provinces also experienced a sharp

increase in the number of enterprises that stopped operating without registering such as Vinh Long (from 178 enterprises to 553 enterprises), Hau Giang (from 224 to 521 enterprises), Ben Tre (from 118 enterprises to 351 enterprises), Bac Lieu (from 90 to 267 enterprises). Meanwhile, in Can Tho and Kien Giang, the highest provincial number of enterprises that stopped operating without registering in 2018 fell sharply in 2019.



Figure 3.24 Enterprises temporarily ceasing operations without registration in the Mekong Delta (2018-2019)



Source: National business registration portal - MPI

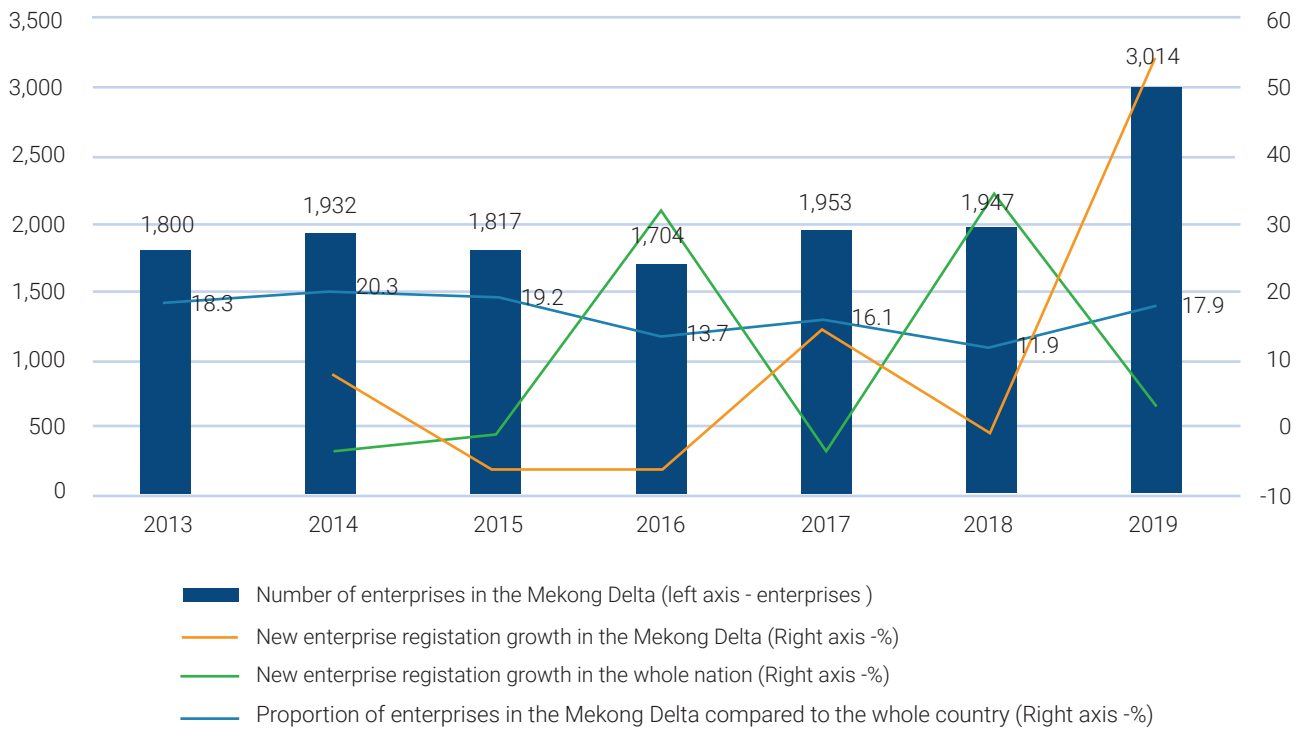
Dissolved enterprises

The number of enterprises completing dissolution procedures in 2019 of the whole country was 16,840 enterprises, a year-on-year increase of 3.2%. Regarding the dissolution of enterprises by region, the Southeast continued to be the region with the highest number of dissolved enterprises in the year with 6,385 enterprises accounting for 37.92%. The Red River Delta was the region with the second highest

number of dissolved enterprises, with 3,529 enterprises, accounting for 20.96%, followed by the Mekong Delta with 3,014 dissolved enterprises, accounting for 17.9%, above the North Central region and Central Coast with 2,541 enterprises, accounting for 15.09%. Thus, compared to 2018, the number of dissolved enterprises in the Mekong Delta region increased by 54.8%, the highest increase among the six socio-economic regions. The Central Highlands had the fewest dissolution of enterprises, with 516 enterprises, accounting for 3.06%.



Figure 3.25 Enterprises dissolved in the Mekong Delta, 2013-2019 (Enterprises)

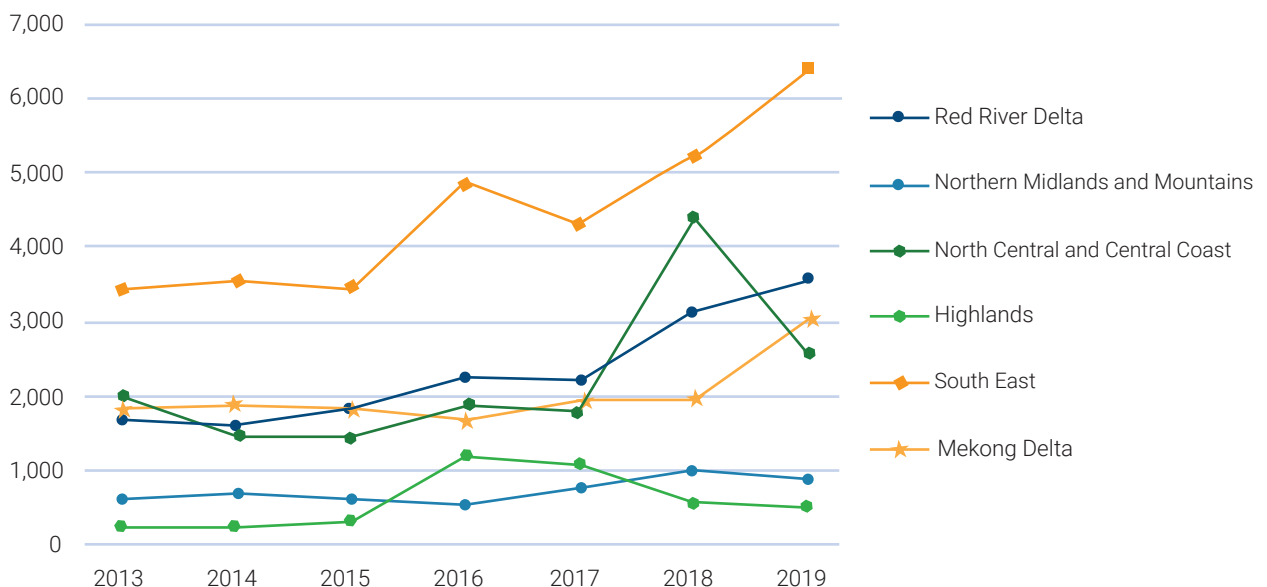


Source: National business registration portal - MPI

Considering the period 2013-2019, the number of dissolved enterprises in the Mekong Delta was quite stable between 2013 and 2018, often less than 2,000, that helps decrease that proportion of the Mekong Delta. However, in 2019 it increased sharply to over 3,000 enterprises, raising the proportion from 11.9% to 17.9%. Another point worth noting was that chang-

es in the number of dissolved enterprises in the Mekong Delta often went in the opposite direction of the national trend. Out of six regions, the Mekong Delta ranked fourth in the growth rate of the number of dissolved enterprises in the period 2013-2019, reaching 9%/year, lower than the national average of 9.4%/year.

Figure 3.26 Enterprises dissolved across regions in the period 2014-2019 (Enterprises)



Source: National business registration portal - MPI

The sudden increase in the number of dissolved enterprises in 2019 in the Mekong Delta came from a sudden increase in Ca Mau province. Although the province had the highest number of enterprises completing dissolution procedures in 2018 with 298 enterprises, this number increased by nearly 5 times, up to 1,439 enterprises in 2019, accounting for 47.7% of the total number of dissolved enterprises in the region. Compared to other provinces in the country, the number of dissolved enterprises in Ca Mau was only behind the two largest economic centers, Ho Chi Minh City (5,146 enterprises) and Hanoi (2,110 enterprises).

Enterprises in operation in the Mekong Delta

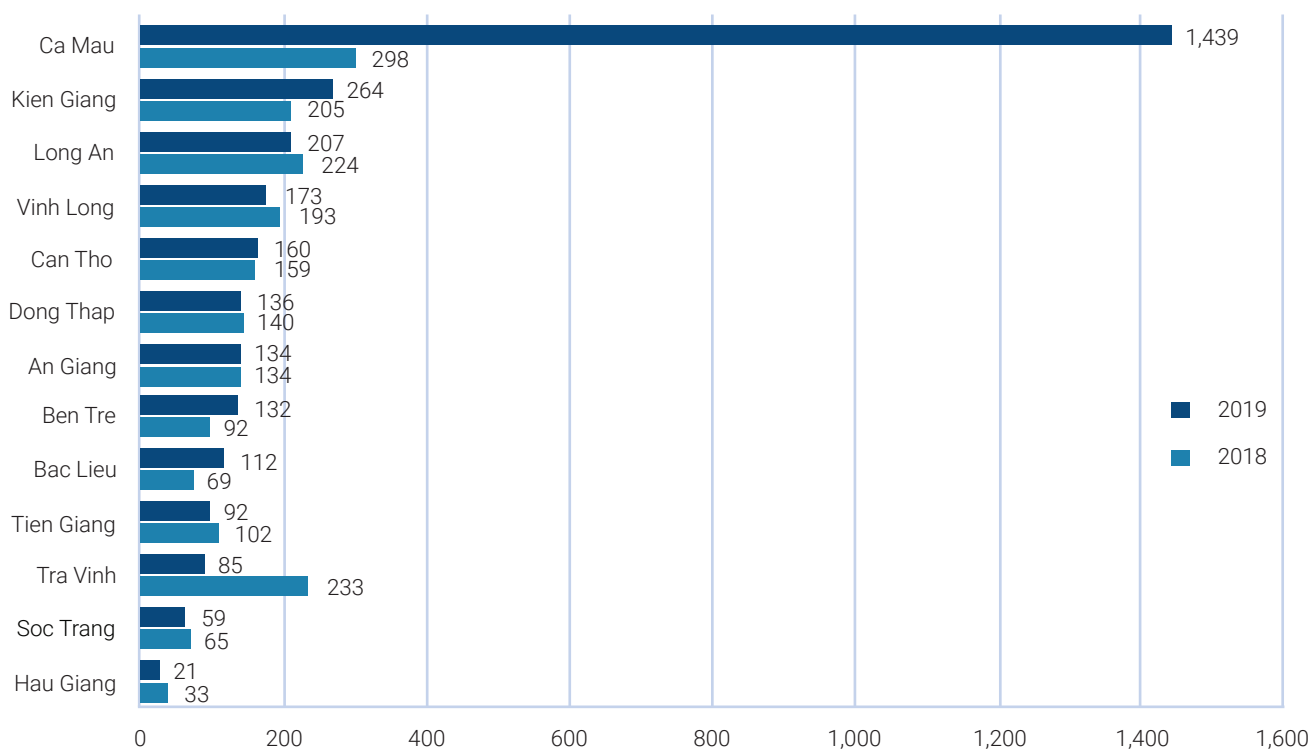
Enterprises in operation in the Mekong Delta in 2019

According to the 2020 White Paper of Vietnamese enterprises, the number of active enterprises in the Mekong Delta as of December 31, 2019 was 55,089, accounting for 7.26% of the total number of enterpris-

es operating in the country (758,610 enterprises), ranked 4th out of the six socio-economic regions. The region with the most active enterprises was the Southeast (312,821 enterprises, accounting for 41.24%), followed by the Red River Delta (238,386 enterprises, accounting for 31.42%), North Central and Central Coast. (100,725 enterprises, accounting for 13.28%). The two regions with the lowest number of enterprises were the Northern Midlands and Mountains (31,812 enterprises, accounting for 4.19%) and the Central Highlands (19,777 enterprises, accounting for 2.61%).

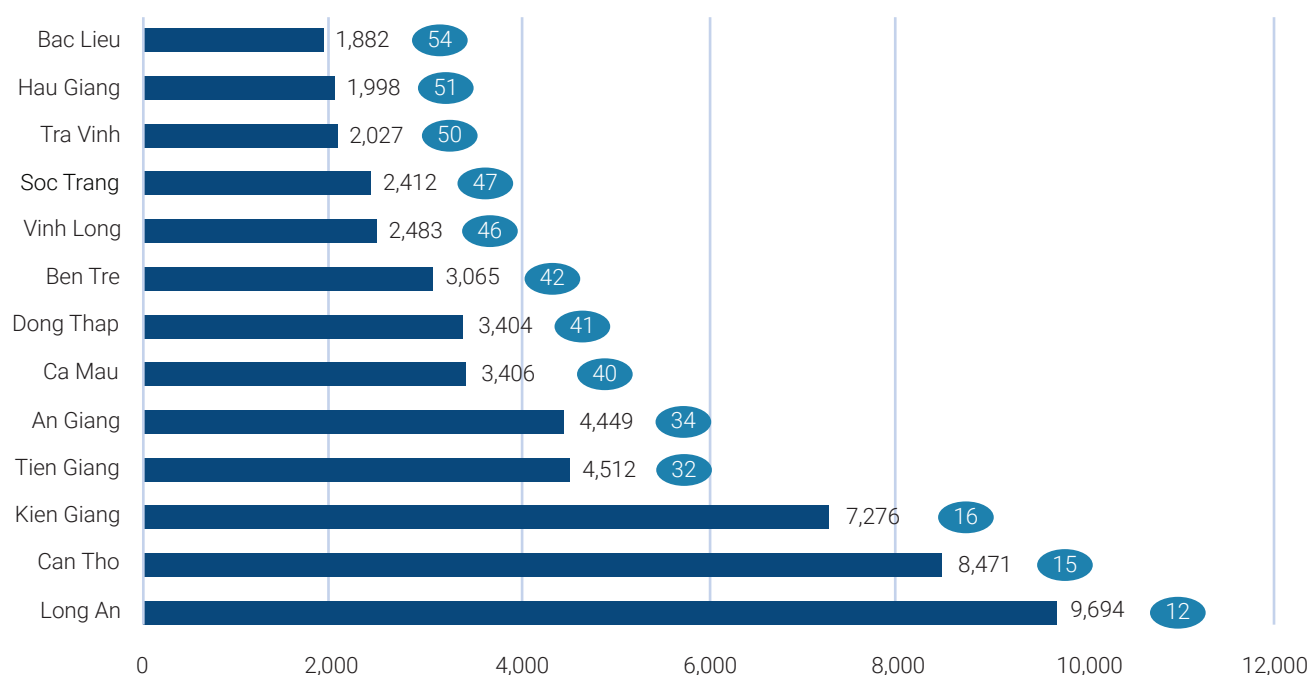
The Mekong Delta was the region with the lowest growth rate in the number of active enterprises among the 6 socio-economic regions in the 2017-2019 period, only 5.7%/year, behind the Northern Midlands and Mountains (6.5%/year) and far behind the Southeast, with the highest growth rate is 8.6%/year. Growth of the other three regions also reached over 7%/year while the national average was 7.6%/year. This shows that the development of active enterprises in the Mekong Delta is facing many obstacles.

Figure 3.27 Dissolved enterprises in the Mekong Delta (2018-2019) (Enterprises)



Source: National business registration portal – MPI

Figure 3.28 Active enterprises as of December 31, 2019 in the Mekong Delta (Enterprises)



Source: *White Book on Vietnamese enterprises 2020 – MPI*

Among 13 provinces in the Mekong Delta, the province with the most active enterprises was Long An with 9,694 enterprises, accounting for 17.6% of the total number of enterprises in the region, ranking 12th in the number of enterprises in the country. The next two provinces with a high number of enterprises, over 5,000, were Can Tho (8,471 enterprises, accounting for 15.38%, ranking 15/63), Kien Giang (7,276 enterprises, accounting for 13.21, ranking 16/63). These three provinces accounted for 46.18% of the total number of active enterprises in the Mekong Delta in 2019. The remaining ten provinces had the total number of active enterprises less than 5,000; of which, the lowest is Bac Lieu (1,882 enterprises, accounting for 3.42%, ranked 54/63), Hau Giang (1,998 enterprises, accounting for 3.63%, ranked 51/63). These were two provinces with less than 2,000 active enterprises as of December 31, 2019.

In terms of enterprise density per population, the Mekong Delta is a region with a very low enterprise density, only 3.2 enterprises/1,000 people, only higher than the Northern Midlands and Mountains (2.5 enterprises/1,000 people). This is even lower than the Central Highlands (3.4 enterprises/1,000 people) and much lower than the national average of 7.9 enterprises/1,000 people. The region with the highest density of enterprises is the Southeast (17.4

enterprises/1,000 people), followed by the Red River Delta (10.5 enterprises/1,000 people), the North and South Central Coast (5 enterprises/1,000 people). This shows that the level of enterprise development in the Mekong Delta is very low, it's thus necessary to embrace the entrepreneurship and their establishments in this region.

Similar to the number of active enterprises, Can Tho and Long An remain the two top provinces in terms of enterprise density. However, positions have changed as Can Tho has the highest enterprise density, reaching 6.9 enterprises/1,000 people, two times higher than the regional average, but still lower than the national average, followed by Long An with 5.7 enterprise/1,000 people. Kien Giang ranked 3rd in the region, with 4.2 enterprises/1,000 people. Only these three provinces have enterprise density higher than the regional average. Notably, there are four provinces with very low enterprise density, only about two enterprises/1,000 people, namely Soc Trang, Tra Vinh, Dong Thap, and Bac Lieu. Even An Giang rank 4th in the number of enterprises in the region, but in terms of the enterprise density, it has only 2.3 enterprises/1,000 people. This is also the overall situation of the Mekong Delta provinces in terms of the enterprise density, their ranks have dropped quite low, except for Can Tho City's.

Development of enterprises in the Mekong Delta in the 2009 - 2018 period

The state of development of enterprises in a region corresponds to the level of its economic development. From this perspective, it can be seen that that current situation in the Mekong Delta is lower than that of many other regions in the country. This can also be explained by the economic development differences between the Mekong Delta and these regions as analyzed in Part 2.

In order to have a more complete view of the enterprise development in the Mekong Delta, this Report analyzes the current situation of enterprise development in the period 2009-2018 based on the results of the GSO annual enterprise survey. These results will show the current status of development of active enterprises with business results in both quantity and quality collected by GSO through the annual survey.

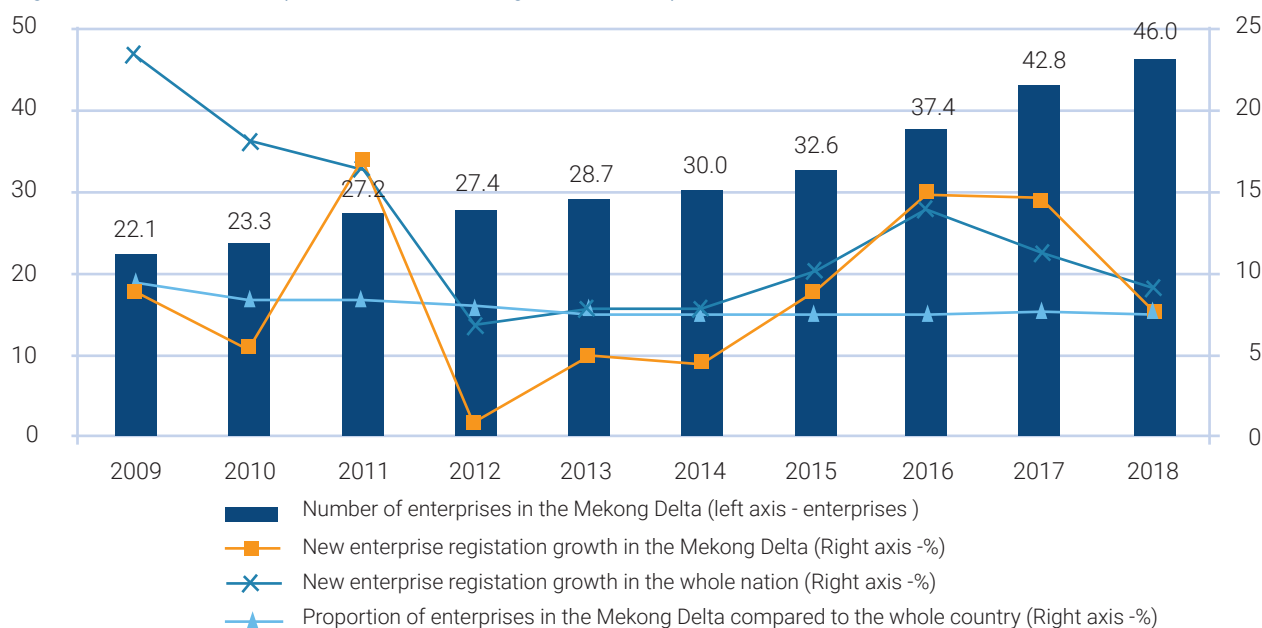
Increase of the number of active enterprises in the period 2009-2018

Active enterprises in the Mekong Delta have made progress between 2009 and 2018. From 22,140 active enterprises with business results in 2009, the number of enterprises in the Mekong Delta after 9 years was 45,967, 2.1 times higher than in 2009.

Average growth rate in the 2009 -2019 period reached 8.46%/year, lower than the national average growth rate in the same period of 11.12%/year. The proportion of enterprises in the Mekong Delta over the whole country in the period 2009-2018 tended to decrease gradually from 9.4% in 2009 to 7.5% in 2018. Notably, the growth rate of the number of enterprises in the Mekong Delta was not stable; after a sharp increase in 2011 (partly due to the stimulus package, post the 2008-2009 financial crisis), it fell sharply in the 2012-2014 period before being recovered between 2015 and 2017. Overall, if from 2009 to 2014, the growth in the number of enterprises in the Mekong Delta was often much lower than that of the whole country; in recent years, there has seen a similarity in such growth.

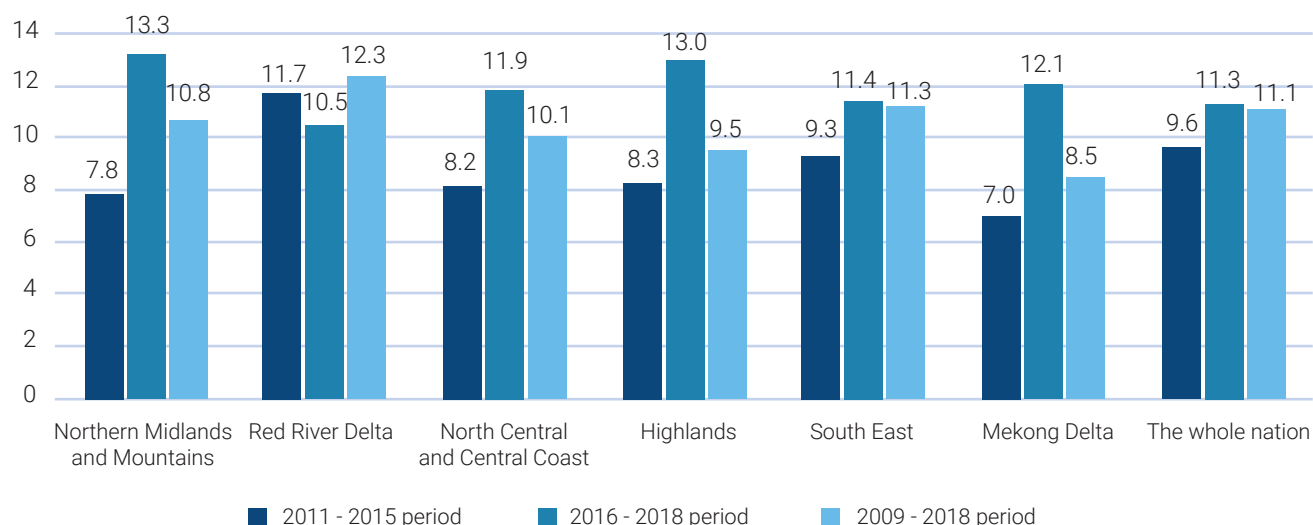
Among the six socio-economic regions, the Mekong Delta is the region with the lowest growth in the number of active enterprises having the lowest business results in the period 2009-2018, lower than both the Central Highlands and the Midlands and Mountains. However, if we look closely at each stage, we can see the reason why the growth rate of the number of enterprises in the Mekong Delta is lower than that of other regions from 2011 to 2015; and from 2016 to 2018, the growth rate of the number of active enterprises with business results has been greatly improved, 1.75 times higher than the period 2011-2015, ranked 3rd among the socio-economic regions.

Figure 3.29 Active enterprises in the Mekong Delta in the period 2009-2018



Source: Processed annual survey data of GSO

Figure 3.30 Average growth in number of active enterprises in the period 2009-2018 (%/year)

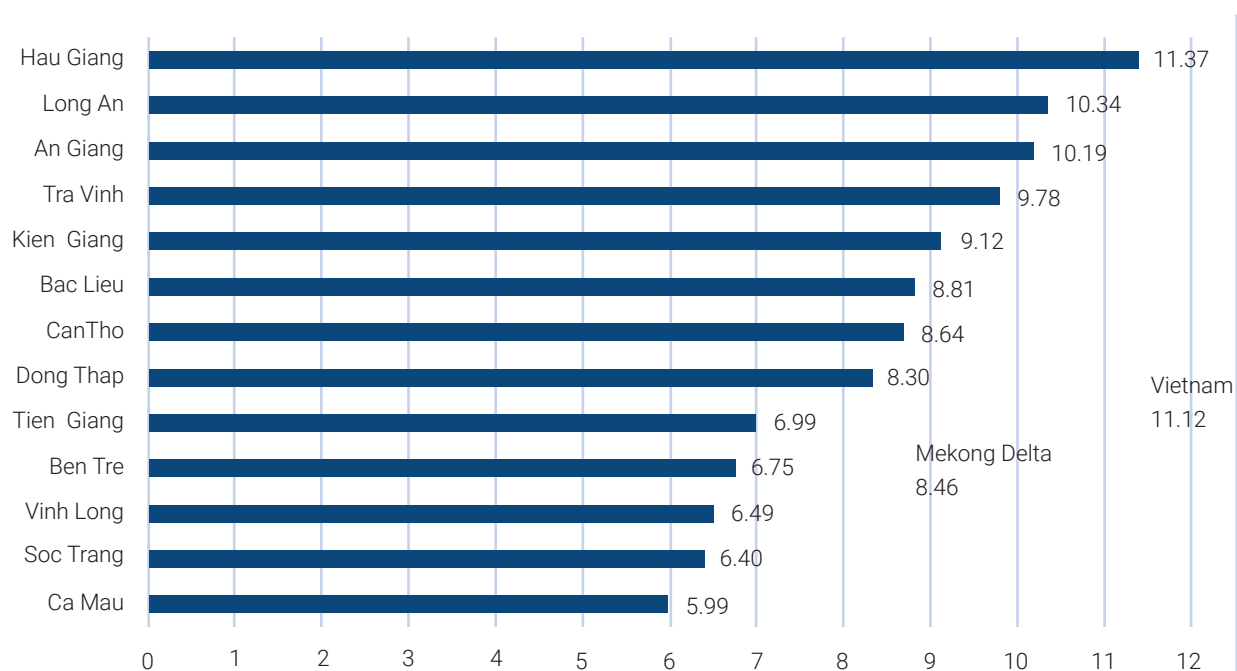


Source: Processed annual survey data of GSO

Among the provinces in the Mekong Delta, Hau Giang was the province with the highest growth rate of enterprises with an average growth rate of 11.37% per year in the 2009-2018 period. This was also a province with a higher growth rate than the national average. However, the total number of enterprises in Hau Giang was still low, less than 2,000 enterprises. Long An and An Giang were the two provinces with the second highest growth rate in the number of enterprises in the region, reaching

10.34%/year and 10.19%/year, respectively. There were seven provinces with higher growth rates in the number of enterprises than the regional average. On the contrary, Ca Mau was the province with the lowest average growth rate of the number of enterprises, only 5.99%/year. The other five provinces with an average growth rate of enterprises lower than the regional average were Soc Trang, Vinh Long, Ben Tre, Tien Giang, and Dong Thap.

Figure 3.31 Average growth rate of enterprises in the Mekong Delta (2009-2018) (%)



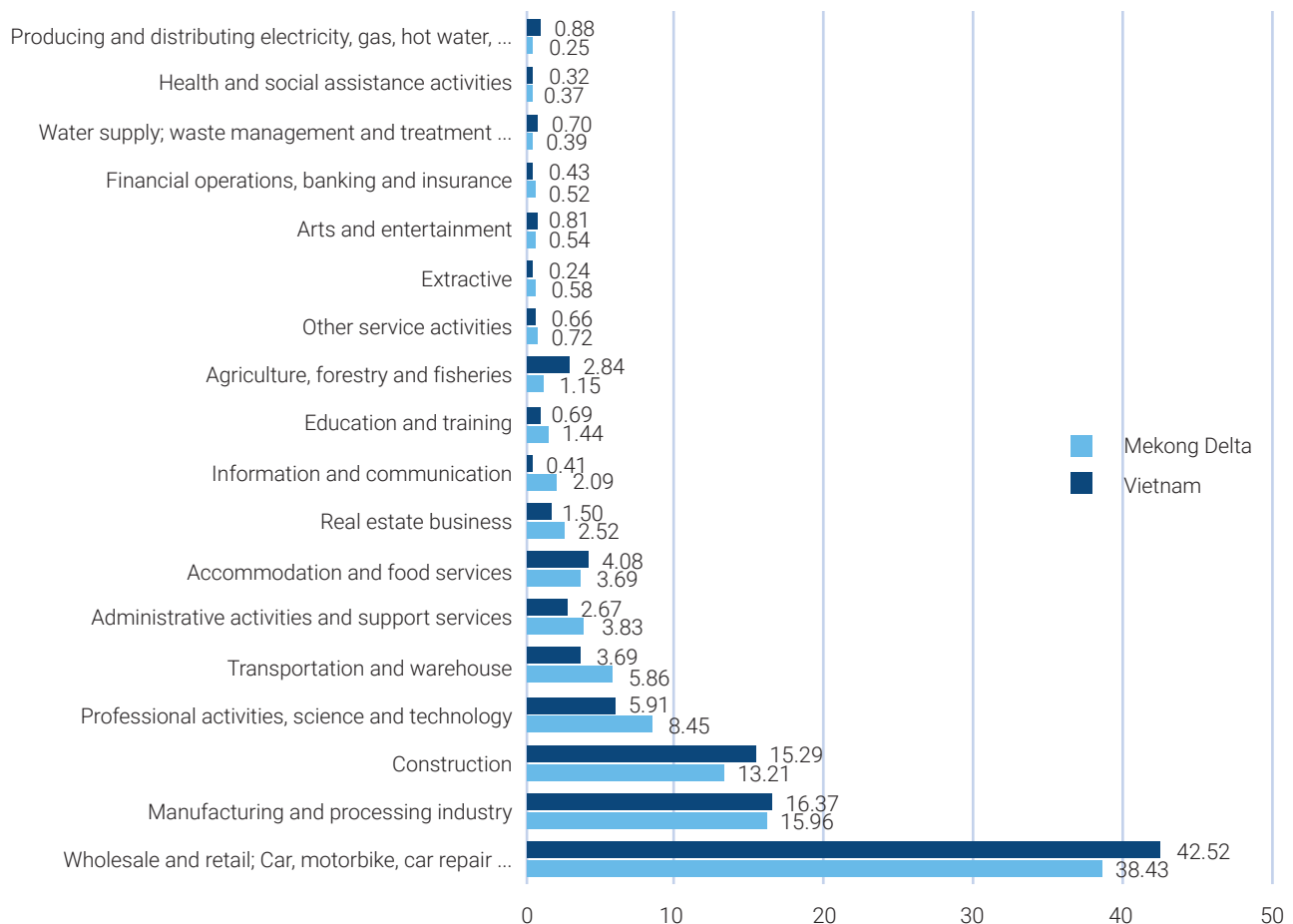
Source: Processed annual survey data of GSO

Development of business lines by enterprises in the 2009-2018 period

The structure of enterprises in the Mekong Delta is classified in line with the basic economic sectors as seen in the whole country where the industries that account for a high proportion of enterprises are the wholesale and retail; repair of automobiles, motorcycles, motorbikes and other motor vehicles (42.52%), manufacturing and processing industry (16.37%), construction (15.29%), professional activities, science and technology (5.91%), and warehousing (3.69%). The ranking of these top five industries in the Mekong Delta is quite similar to the general situation of the country. These industries account for 83.78% of all active enterprises in the Mekong Delta.

Certain differences in the structure of the economic sector in the Mekong Delta compared to the whole country can be pointed out by comparing the proportions of these industries, including the development trend of enterprises in the sectors of electricity production and distribution, gas, hot water, steam, and air conditioning (3.5 times higher than the whole country), agriculture, forestry and fisheries (2.5 times higher), supply of water; waste and wastewater management and treatment activities (1.8 times higher), arts, entertainment (1.5 times higher). On the contrary, there are industries where the Mekong Delta attracts much less enterprises than the national average such as information and communication (equal to 1/5 times of the whole country), mining (equal to 2/5 times), education and training (1/2 times), real estate business (equal to 3/5), transport and storage (equal to 3/6).

Figure 3.32 Distribution of enterprises by industries in the Mekong Delta in 2018 (%)



Source: Processed annual survey data of GSO

For the period 2009-2018, there was an impressive growth in the number of enterprises in the service sector in the Mekong Delta, especially administrative and supportive services (23.4%/year); arts, entertainment and entertainment (22%/year) and education and training (18.61%/year). The number of enterprises increased by 5-7 times during the period 2009-2018. This was also the general trend

seen in Vietnam during this period. Other sectors also had higher growth rates than the national average such as health and social assistance (17.4%/year), professional activities, science and technology (15.7%/year), real estate (13.3%/year) and transportation (12.7%/year). However, these were usually industries with a small proportion of enterprises in the region.

Table 3.19 Sector shift by enterprises in the Mekong Delta in the period 2009-2018

Industries	2009		2018		Average growth in the Mekong Delta (%/year)	Average growth in the whole country (%/year)
	Number (enterprise)	Proportion (%)	Number (enterprise)	Proportion (%)		
Agriculture, forestry and fisheries	942	4.25	1,303	2.83	3.67	12.28
Mining	77	0.35	112	0.24	4.25	5.32
Manufacturing and processing industry	4,027	18.19	7,523	16.37	7.19	9.45
Producing and distributing electricity, gas, hot water, steam and air-conditioning	407	1.84	400	0.87	-0.19	6.38
Water supply; activities of management and treatment of waste and wastewater	129	0.58	316	0.69	10.47	13.25
Construction	3,414	15.42	7,037	15.31	8.37	9.63
Wholesale and retail; Repair of automobiles, motorbikes, motorbikes and other motor vehicles	9,740	43.99	19,557	42.54	8.05	10.41
Transportation and warehouse	575	2.60	1,687	3.67	12.70	16.19
Accommodation and food services	890	4.02	1,872	4.07	8.61	10.99
Information and communication	399	1.80	172	0.37	-8.93	12.36
Financial operations, banking and insurance	85	0.38	198	0.43	9.85	12.66
Real estate business	228	1.03	699	1.52	13.26	15.77
Professional activities, science and technology	734	3.32	2,722	5.92	15.68	13.07
Administrative activities and support services	185	0.84	1,229	2.67	23.42	16.08
Education and training	68	0.31	316	0.69	18.61	19.48
Health and social assistance activities	35	0.16	148	0.32	17.38	14.52
Arts, entertainment and entertainment	63	0.28	376	0.82	21.96	16.97
Other service activities	141	0.64	301	0.65	8.79	13.61
All enterprises	22,139	100	45,967	100	8.46	11.12

Source: Processed annual survey data of GSO

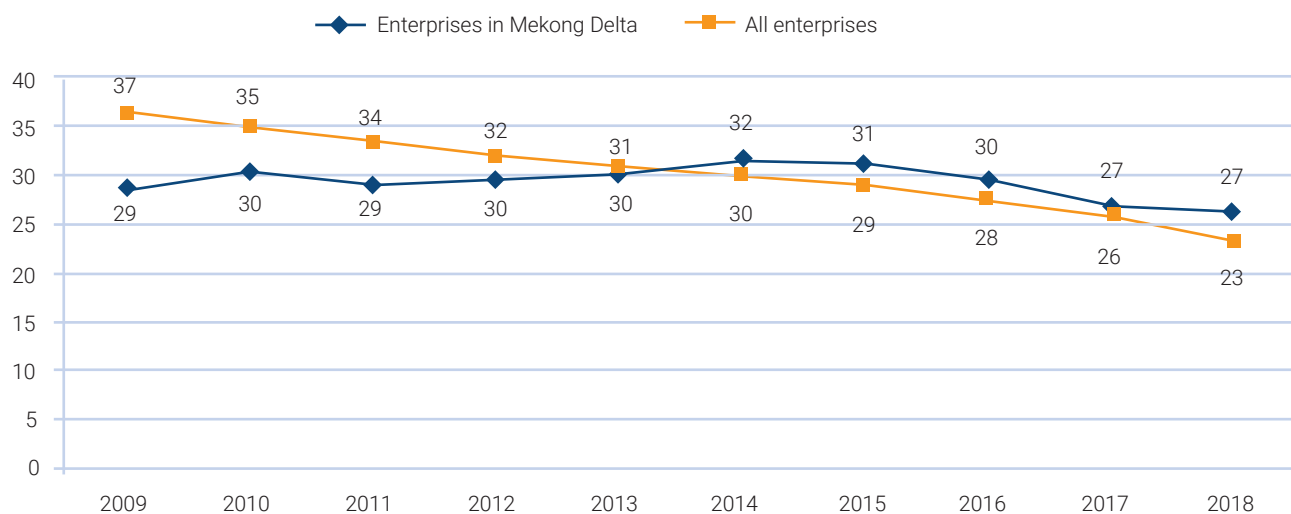
On the contrary, there were two industries with a decrease in the number of enterprises in the 2009-2018 period in the Mekong Delta: information and communications (-8.9%/year), production and distribution of electricity, gas, hot water, steam, and air conditioning (-0.2%/year). This was a big difference compared to the whole country when all industries had growth in the 2009-2018 period; of which the two industries above, respectively, had the growth rates of 12.4%/year and 6.4%/year. Two industries with low growth rates in the number of enterprises in the Mekong Delta were agriculture, forestry and fishery (3.7%/year) and mining (4.3%/year). If mining is not an advantage of the region, the fact that agriculture has only had the lowest growth rate compared to that of other industries demonstrates that this sector has not attracted investment from all enterprises but just business households and farmers. It is even more remarkable that the growth rate of agribusinesses in the Mekong Delta in the period 2009-2018 was less than one third of the national average. Most industries in the Mekong Delta have lower growth in the number of enterprises than the national average, except for five sectors: professional activities, science and technology; administrative activities and support services; education and training; health and social assistance; and arts, entertainment and recreation activities.

Development of enterprises' scale in the Mekong Delta, 2009-2018

Unlike the national declining trend, the average size of employees in the Mekong Delta had increased (from 29 to 32 in the 2009-2014 period) before decreasing in the period 2010-2018, down to 27 employees/enterprise. If in 2013 and earlier, the average labor size of enterprises in the Mekong Delta was always lower than the national average, that has been higher than the average labor force of the whole nation's economy since 2014.

If taking a detailed comparison among industries in 2018, the size of the labor force in the Mekong Delta enterprises was smaller than the general level of the whole country in 15 out of 18 industries, including a number of industries with huge differences such as finance, banking and insurance, production and distribution of electricity, gas, hot water, steam and air conditioning, and mining. The three industries in the Delta having the average size of the labor force higher than the whole country were manufacturing, health and social assistance and arts and entertainment.

Figure 3.33 Average size of labor force of Mekong Delta enterprises in the period 2009-2018



Source: Processed annual survey data of GSO

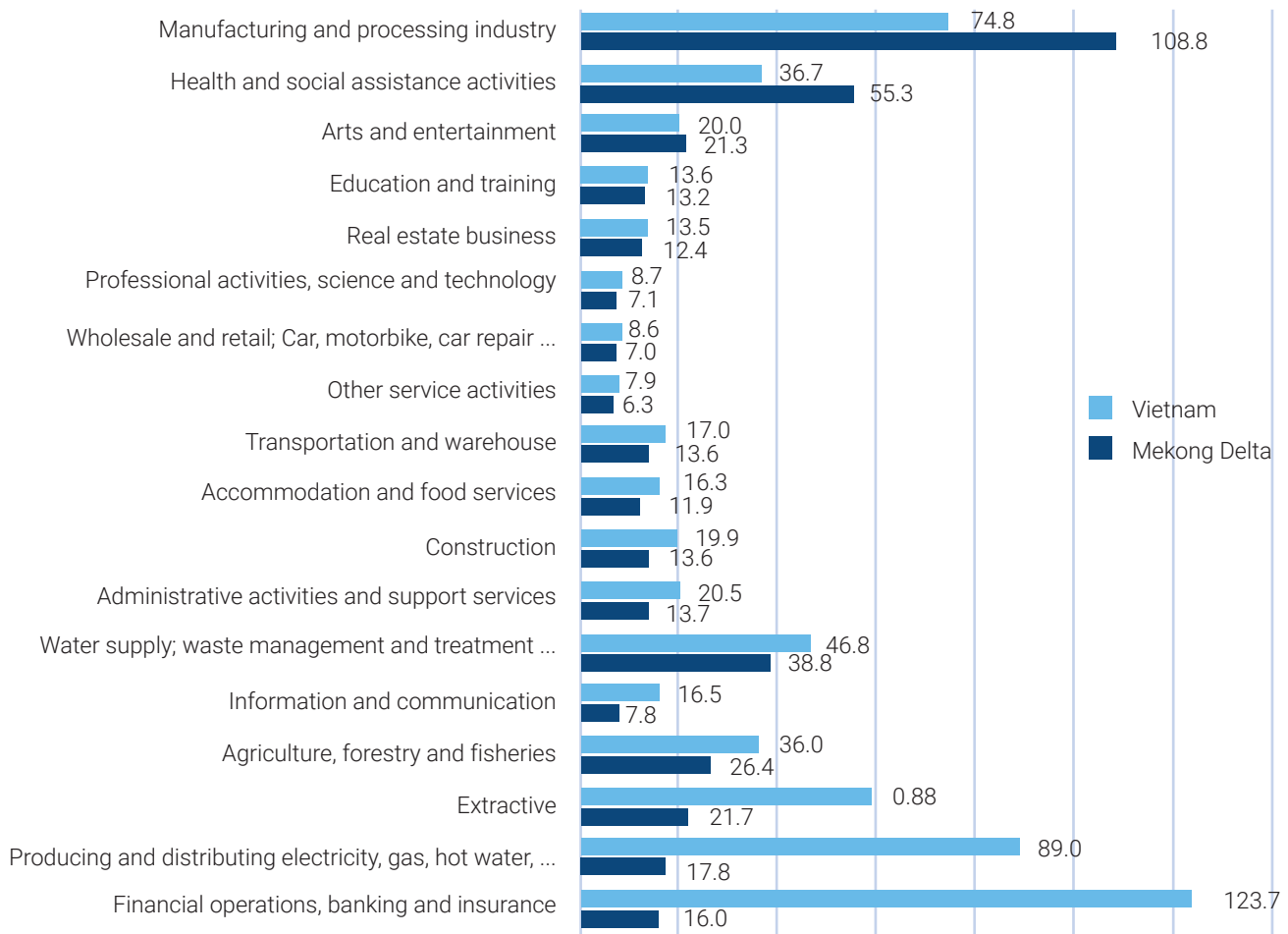
In terms of capital, the average capital source of businesses in the Mekong Delta tended to increase the same as the average of the country. However, enterprises in the Mekong Delta had a much lower average capital than the national average. Out of 18 economic sectors, enterprises in the Mekong Delta had an average capital size that was smaller than the national average in 14 industries, especially in finance, banking and insurance sectors (the whole country, 3,711 billion vs. the Mekong Delta, 236 billion VND), production and distribution of electricity, gas, hot water, steam and air conditioning (753 billion vs. 116 billion VND), mining (305 billion vs. 78 billion VND) and real estate (271 billion vs. 171

billion VND). Four industries in which businesses in the Mekong Delta have a higher capital scale than the national average are accommodation and food services (26 billion vs. 42 billion VND), manufacturing and processing (82 billion vs. 97 billion VND), health and social assistance (40 billion vs. 46 billion VND) and education and training (11 billion vs. 12 billion VND).

Overall, the size of enterprises in the Mekong Delta was often smaller than that of the whole country, except for enterprises in the manufacturing-processing industry and in health and social assistance activities.

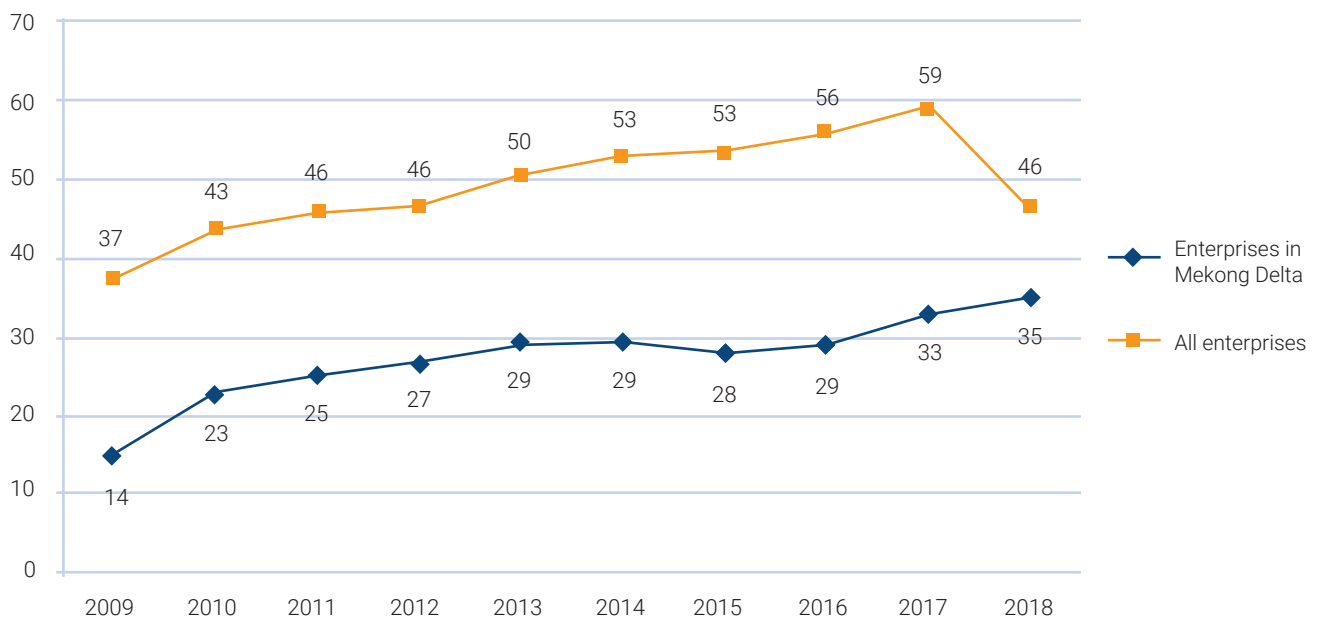


Figure 3.34 Average size of labor force of enterprises by industry in the Mekong Delta in 2018 (employee/business)



Source: Processed annual survey data of GSO

Figure 3.35 Average size of capital among enterprises in the Mekong Delta, 2007-2017 (billion VND)



Source: Processed annual survey data of GSO

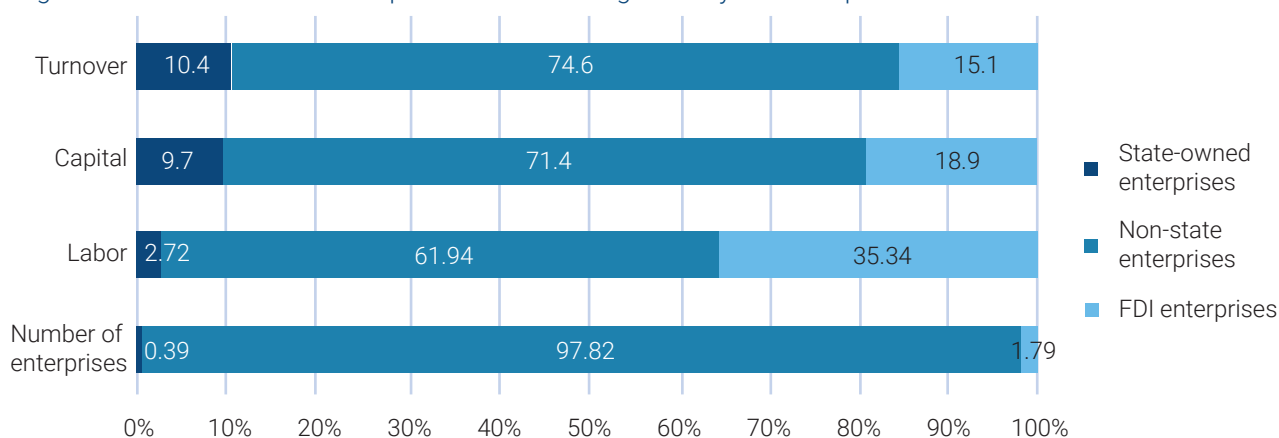
Enterprises allocation in form of ownership

As of December 31, 2018, non-state enterprises in the Mekong Delta, by majority, accounted for 97.82% while FDIs accounted for 1.79%; State-owned enterprises, only 0.39%. On the national scale, these rates were respectively 97.23%, 2.34%, and 0.33%. Thus, we can clearly see the limitations of the region in attracting FDI projects compared to the overall level of the country.

accounted for only 2.72% of the workforce compared to other enterprises.

Regarding capital sources, the share of State-owned enterprises accounted for 9.7%, much higher than the proportion of labor and much higher than that of the number of enterprises. This was also understandable when the State-owned enterprises were mainly groups and corporations of very large capital. Like SOEs, FDIs were the ones with large capital, the proportion of capital in this sector, thus, accounted for 18.9%. Meanwhile, although

Figure 3.36 Distribution of enterprises in the Mekong Delta by ownership in 2018



Source: Processed annual survey data of GSO

Regarding the number of employees, still, the non-state enterprises accounted for a large proportion of 61.94%. FDIs accounted for a higher proportion of 35.34% in terms of labor than their 1.79% of the number of enterprises. State-owned enterprises

accounting for 97.82% of the number of enterprises, non-state ones only accounted for 71.4% of the capital source. A similar situation of business turnover is also seen in the Mekong Delta enterprises.





CHAPTER IV

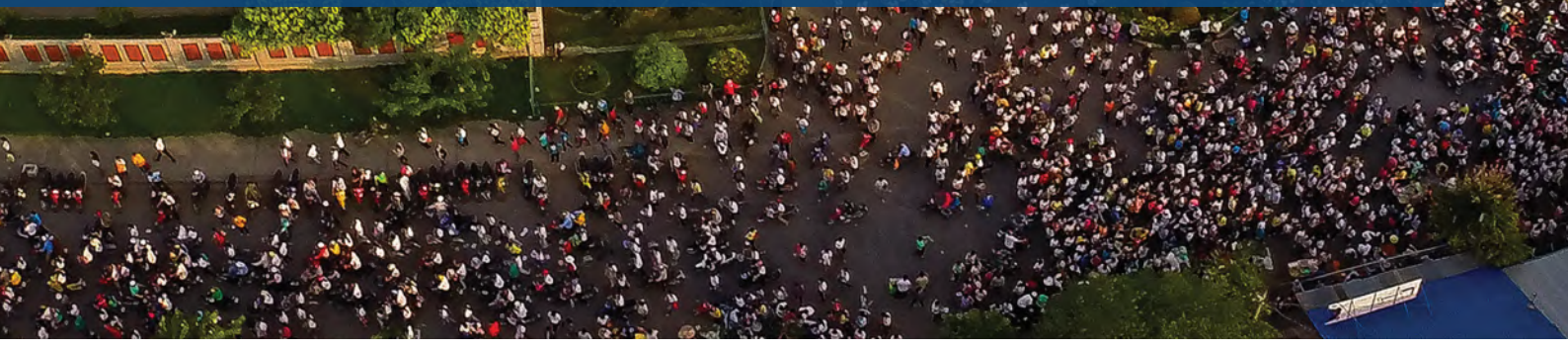
INDUSTRIAL CLUSTERS IN THE MEKONG DELTA





4.1

EXISTING INDUSTRIAL CLUSTERS IN THE MEKONG DELTA



Rice cluster

In the context of continuous challenges and difficulties frequently faced by the rice industry, such as oversupply, finished product price unstable, profit made from rice lower than some other crops leading to high demand of changing the type of crop, small farming area of each household causing difficulty to apply scientific and technical advances to cut down high input costs, saturated yield, and so on, analysis of rice cluster competitiveness will be a basis for formulating development strategies in the future.

Assessment of rice cluster through Diamond model

Input factors

■ Land and natural conditions

The Mekong Delta has natural features favorable for agriculture with large area of arable land which is naturally fertile thanks to the alluvial deposits by the Mekong River. However, the construction of flood prevention dykes and annual intensive farming (three crops of rice per year) have caused serious problems such as no much room left for developing the rice industry, degradation of soil quality, and depletion of soil nutrients due to erosion. For a long time, due to the pressure and encouragement of achieving high rice output, farmers have been abusing chemicals from misusing non-organic fertilizers leading to the obligatory use of crop protection agents (e.g., insecticides and pesticides). Other consequences that can be seen are soil being impoverished, nutrients in soil becoming more depleted, cost price of rice increasing sharply, and soil and water environment being highly polluted.

Scattered farming causes failure to apply mechanization and scientific and technological advances to the production and connect enterprises for business cooperation, thereby leading to increase of input costs. In some provinces/townships in the Mekong Delta, large rice fields have been built to initially resolve the state of fragmented rice fields and create favorable conditions for enhancing the

productivity and economic efficiency to rice farming households in the Mekong Delta (Nguyen Phu Son et al, 2017).

Recently, impacts of climate change are a major challenge for the rice cluster, affecting the cost price as well as quality of rice, and reducing the competitiveness of rice cluster (Nguyen Huu Dang et al., 2016).

■ Labor force

Although experiences of workers in the industry are very broad as this is a traditional industry of the region for years, like other agricultural clusters in the Mekong Delta, the rice sector faces challenges in the future caused by the scarcity of young workforce resulted from the fast growing urbanization that attracts a lot of rural workers (Huynh Truong Huy et al, 2016). In addition, the young workforce trained with high education and expertise is not willing to return to their hometown after graduation, due to low wages and limited opportunities for professional advancement.

Data on the migration of rice industry labor force shows that the income from the rice sector is lower than the average income in the labor market. In addition, as the farming sector, in general and the rice production, in particular, are seasonal in nature, the combination of rice production with other industries to create more work and thus additional source of income during leisure time, requires much attention in order to retain labors for the rice industry. However, from another perspective, the migration of surplus labor in the industry may become a pressure for improving the operations and changing to new production model. Most of the stages in rice production activities, indeed, are now mechanized from preparing and sowing the land until harvesting. This has led to more surplus of labor for rice cultivation, more spare time than before, making it easy for the situation "leisure is mother of vices" to incur and thus causing many evils for nothing to do in the rice fields.

■ Irrigation water

The increasing population and economic activities have caused water resources more and more

depleted as shown by the decrease in water index per capita. In addition, climate change leads to less and less average annual rainfall; the number of areas with less rainfall is lower than that of areas with increasing rainfall. At the same time, the increase of air temperature leads to higher evaporation rate. Low forestation coverage due to deforestation and fire, has led to the decreasing capacity of water storage and regulation. The rural industrialization and modernization have been increasingly accelerated while water resources are facing risk of pollution. The above factors lead to a depletion of water resources of the country, in general and the Mekong Delta, in particular while the demand for fresh water continues to increase, resulting in more and more severe water shortage (Dang Kieu Nhan et al., 2016). In the Mekong Delta, a number of locations with high terrain are often in short of water during the dry season and cultivation of water-saving type of rice is seen as a promising new farming method. Some localities, like An Giang province, have promoted the program "Save water" to help farming households economizing water for irrigation.

Recently, irrigation water resources in the Mekong Delta have also got affected by the drop of upstream water level with unpredictable variations due to upstream control policies, especially those of China that cause negative impacts to the rice farming in the region. The amount of alluvial in river water is also dropping as alluvial is deposited and retained by upstream hydropower dams before flowing downstream, especially during the flooding season.

■ Seeds and rice raw materials for rice processing

Rice varieties currently cultivated in the Mekong Delta are still selected to meet the requirements of productivity, aroma and plasticity, adaptation to climate change and disease, without conditions to create a distinctive rice brand for the region. Seed research has not been developed strongly, therefore rice varieties mainly depend on O Mon Rice Institute, Can Tho University and Loc Troi Group. There is a big difference in the prices of rice seeds and thus, in some localities farmers produce by themselves rice seeds of inconsistent quality, leading to low chance of exporting rice grown from those seeds and its selling price is also squeezed by traders at time of good harvest.

In the past 10 years, the Mekong Delta has successfully bred new variety of rice called ST Rice and especially ST25 Rice. In 2019, rice from this variety was honored and awarded as the most delicious rice type in the world. As reported by the Department of Science, Technology and Environment, in the 2006-2012 period, there were 50 rice varieties recognized by the Mekong Delta Rice Institute and put into production. Those varieties of rice have helped increasing the cultivation of rice in the region by over six hundred thousand hectares of rice field and the rice yield has increased by about three million tons every year (Vietnambiz, April 2019).

This is a worthy strength of the rice industry for having strengthened and built up the prestige of Vietnam's rice brand, thereby contributing to the higher competitiveness for Vietnam's rice industry, in general and the Mekong Delta, in particular. At the processing stage, a number of rice processing export enterprises have proactively and successfully built up areas specialized in growing rice used as raw material for processing; they have also facilitated the proactivity in trading rice in order to well control their market shares in both export and local markets.

■ Agriculture inputs

The distribution system of agricultural inputs such as fertilizers and pesticides (aka crop protection agent) covers almost all the cities, districts to villages in the Mekong Delta provinces, and thus facilitates farmers to select inputs used for rice cultivation. Materials for agriculture are imported from abroad, mainly from China, although there are local made products in the market. As an example, imported fertilizers have more stable quality and more competitive prices than local ones. The pending issue is that farmers still cannot buy inputs at good prices due to the lack of linkages among themselves and with other businesses. This is partly due to the fact that cooperatives still do not focus in providing services in line with the operating principle of a cooperative economic organization (Nguyen Phu Son et al., 2017).

Moreover, there is a fact that many farmers have been using excessively non-organic fertilizers and crop protection agents (pesticides, insecticides, etc.) as wrongly advised by individual vendors in the

countryside, with hundreds types of pesticides not tabulated in the list of products allowed for use by MARD. To move toward a quality and safe rice production, the use of organic and microbiological fertilizers must largely replace chemical fertilizers (NN4.0), and this cannot be done without appropriate policies as well as effective sanctions in case of violations.

■ Machinery for production and processing

Recently, in many localities of the region the supply of machinery has been developed to serve the agricultural production such as seeding machines, pesticide automated sprayers, harvesting machines, but it is difficult to broaden these supply services as they are still not suitable for small scale production of farming households. In order to speed up the application of technology to rice production activities, farmers need joint efforts in forming large rice field and putting the rice production in synch, which is also an important factor.

Although the number of export processing enterprises (EPE) in the Mekong Delta is large, most of them are not equipped with modern tools and technology used in the processing of rice for export. This disadvantage causes low quality rice and simultaneously increases processing costs due to low rice recovery rate. In the rice production, the application of advanced technology to increase the mechanization rate in agriculture has been relatively improved, but the mechanization is still not uniform between different production areas, and inconsistency still exists between sections of the supply chain. According to MARD,²⁶ the mechanization in the Mekong Delta is still limited in the spray of fertilizers and pesticides, which is considered as a very important step from the perspective of farmers' health and natural environment. In addition to the harvest, post-harvest preservation and preliminary drying and processing of rice are still not consistent. This issue also creates adverse impacts to the quality assurance of products.

■ Science and technology

To meet the requirements of both domestic and foreign markets, quality standard management for rice, in particular and agri-products, in general, increases more and more, leading to the need of agricultural production according to standard models. Having said that, the farmers' long-stand-

ing agricultural practices are great barriers, difficult to change. At present, the application of technology in production is limited only to the seed research and development. Technology applied in production management and traceability is mainly the playground of FDI or must be imported from other countries.

Although the rice processing technology for high value-added products derived from rice, including by-products such as: extracted pure oil from rice bran; extracted SiO₂ for producing Silica and Nano Silica from rice husk; various folk cakes from rice, etc. is available, but not many enterprises have invested in this technology to create value-added products to enhance the competitiveness of rice cluster in a sustainable way.

■ Transport infrastructure

The infrastructure serving the transport, preservation, processing, and storage of input and output products for the agricultural sector, in general and the rice industry, in particular, is still very limited. This is the cause of significant increase of rice distribution costs, thereby reducing the competitiveness of the industry.

Rice is mainly transported by waterway; cost of transport is cheaper this way than by road. However, due to the incomplete and misaligned development of river ports in the Mekong Delta, the loading and unloading costs are quite high and the transport time is also taken longer.

■ Capital inputs for production

The transformation of rice production to meet the market standards as well as enhance the competitiveness of the industry requires huge funding, in particular funds for investing in production equipment, applied science and technology. However, the access to credit resources for developing the rice industry is very limited due to the small scale production, low value of land used as collateral, lack of legal regulations on ownership of assets attached to agricultural land, and permanent risks of rice consumption market. At the present time, the popular solution of rice farming households, thus, is only to maintain the traditional rice cultivation method while trying to increase their earnings from other livelihood activities.

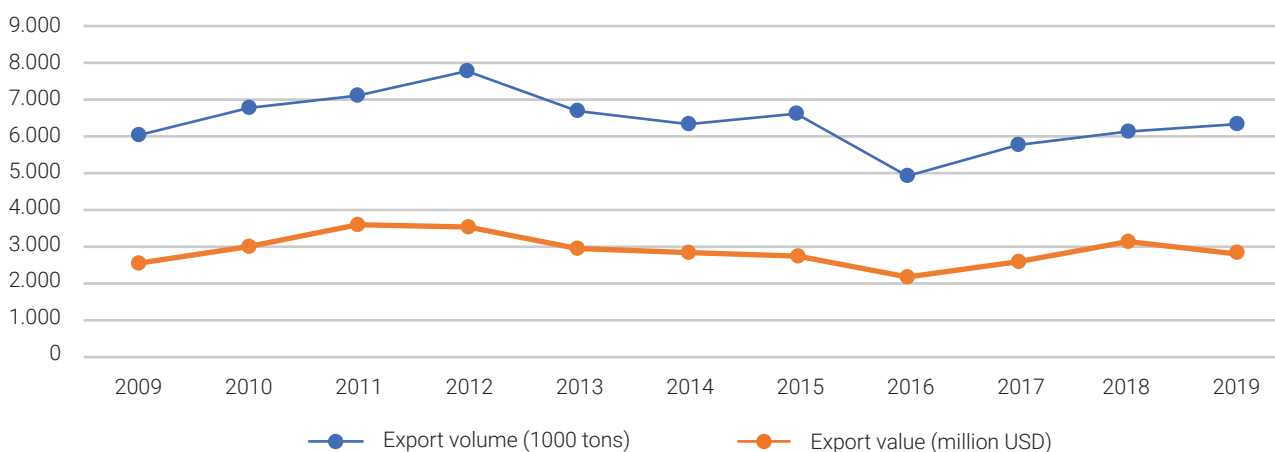
²⁶ *Mechanization of agriculture in the Mekong Delta*: <https://www.mard.gov.vn/Pages/co-gioi-hoa-nong-nghiep-vung-dong-bang-song-cuu-long-18588.aspx>

Demand conditions

According to statistics of VFA, Vietnam's rice export in the period 2009-2019 increased by nearly 5%, while EXV increased by 24%. Taking into account the average rate of annual increase during this period, the export volume increased by nearly 0.5% while the EXV increased by nearly 22% (Figure 4.1). This shows an important improvement in export rice price thanks to its higher quality and the change in the production and processing for export of high quality rice varieties. In the long run, along with the changes of demographic structure and global living standards and

In 2009, Vietnam rice export to Asia reached 3.21 million tons, 19.9% up compared to 2008 and totaling 53.8% of the total rice export turnover of the country (the Philippines continues to be the top importer of Vietnamese rice with 1.71 million tons, a slight increase of 0.9%; other countries' rice imports reached 1.5 million tons, up 52.6%). Next export markets for Vietnamese rice include Africa: 1.67 million tons, 41.7% up and American continent: 497 thousand tons, 9.2% down over the previous year. As reported by General Department of Customs, the average export price of rice in 2009 was 446 USD per ton.

Figure 4.1 Volume and export value of Vietnamese rice from 2009 to 2019²⁷

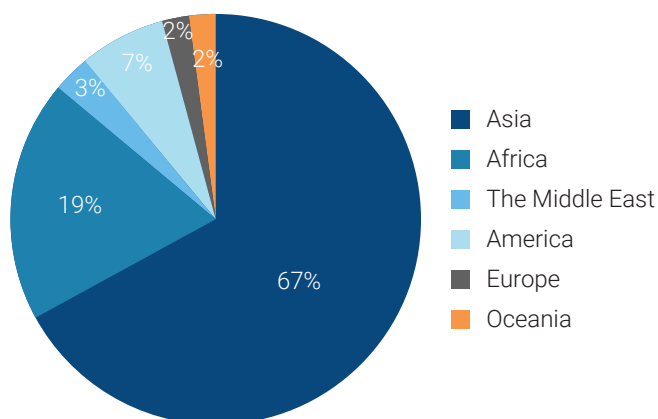


Nguồn: VFA (2020)

when the world demand for high quality rice increases and in contrary for low quality rice, the orientation of limiting the quantity and increasing the quality of rice for export will become a more important strategy for the sustainable development of Vietnam's rice industry, in general, and the Mekong Delta, in particular.

Also, according to VFA statistics, over the past twenty nine years (1989-2017) Asia has remained as the main export market of Vietnamese rice (totaling 66.7% of Vietnam's average rice export value) followed by Africa with 18.9% (Figure 4.2). With Asian countries as main markets for rice export, Vietnam faces great competitors, such as Thailand, India, Myanmar, and Pakistan.

Figure 4.2 Average proportion of rice exported across continents in the period 1989 - 2017 (%)



Source: VFA, 2018

²⁷ VFA, 2008 "Report on rice export volume and value 1989-2017"

²⁸ Vietnambiz, 2019. "Report on the rice market in 2019"

²⁹ "General Department of Customs, 2019 "Annual report on import and export of commodities in 2019"

In 2018, the rice export volume increased by 5.1% with export value increased by 16.3% compared to 2017. Rice export increases thanks to the change of rice export structure with shipments of fragrant, specialty and high-quality rice, which results into the rise of average export price from USD 452/ton in 2017 to USD 502/ton in 2018.²⁸ In 2019, Vietnam's rice industry achieved encouraging results with over 6.34 million tons of exported rice, worth USD 2.79 USD²⁹ (General Department of Customs, 2019). If compared with the volume of rice exported in 2018 of 6.1 million tons, the volume of rice exported in 2019 increased slightly by 3.9%, but the value was lower, down by 9.7% (USD 3.06 billion). This decrease was due to the drop of average export rice price to USD 445/ton. The comparison of data in the 2017-2019 period shows that Vietnam's rice export volume has increased thanks to the active replacement of variety to rice for export with the aim to penetrate in high-end market segment. However, the export performance is quite unstable due to the fierce competition in terms of price.

The Mekong Delta, in particular and Vietnam, in general, can increase its rice export, thanks to the policy of opening the rice industry to the world adopted by the Philippines. This policy removes the quota system and replaces it with import duties, and thus will increase the imported rice volume into the Philippines. In addition, the fact that China is limiting the import of Vietnamese agri-products through unoffi-

cial cross-border trade between China and Vietnam is a challenge for Vietnamese exporters of agri-products, in general and the rice industry in particular. However, in the long term, this is an opportunity to arouse all the factors involved in the Vietnamese rice value chain to enable them to focus on their production and trade in the direction of product quality and transparency in operations. In addition, the participation in new generation free trade agreements - both bilateral and multilateral - also creates more impetus for market expansion and increase of rice export quality for Vietnam, in general and the Mekong Delta, in particular.³⁰

In addition to the opportunities of export market as mentioned above, the rice cluster also faces challenges, such as requirements by importing countries in terms of higher quality standards and evidences on the origin of exported rice and increase by these countries in terms of their capacity of self-sufficiency and of diversity of their supply sources. Once again, these challenges exist in short and medium terms, but in the long run they actually offer Vietnam with opportunities to restructure its value chain and enhance the quality of exported rice. The Covid-19 pandemic in 2020 adversely affected Vietnam's export in general and rice export, in particular, but this effect will not be too great to overcome as rice is an essential food, especially in the context of declining income.



³⁰ As reported by the Import and Export Department (Ministry of Industry and Trade), from January 1, 2020, in addition to the allocation of 20,000 tons of rice to all WTO members (tariff quota for Vietnam), Korea will grant to Vietnam a special quota totaling 55,112 thousand tons of rice, including all types of rice that Vietnam can grow and export. This is another opportunity for Vietnam's rice export. More recently, the EVFTA which officially entered into force also creates a great opportunity for the export of high quality rice to the EU market.

Related and supporting industries

The roles of research institutes and universities are shown mainly in their high-quality breeding activities to meet the market demand, especially when over 80% of exported rice categories are fragrant, specialty, and high quality rice in recent years.

However, these roles have been promoted mainly by the Mekong Delta Research Institute and Can Tho University. A number of provinces have their own institutes and schools operating in their territories, but contributions of those establishments to the development of rice industry in such localities are quite modest.

Role of the State is reflected in the policy of developing rice as the national main commodity and active policies and programs implemented by both MARD and MOIT. At the same time, the food security strategy, together with the policy of strictly preserving 3.5 million hectares of land to produce 35-38 million tons of paddies, are critical challenges for the Mekong Delta, which is considered as the key region for realizing these policies.

MARD has issued Decision 1499/QD-BNN-CBTTNS 2018 stipulating the Regulation on the use of Vietnam rice national certification label. This contributes to the protection of Vietnamese rice brand, improvement of Vietnam rice cluster competitiveness, in general and the Mekong Delta, in particular. From 2006 till now, MARD has disbursed about 40 billion VND to implement the research and selection of rice varieties in the direction of adapting to climate change in the Mekong Delta, including ultra-short time, salinity resistant and drought resistant rice varieties rich in micronutrients.

At the beginning of January 2019, the Import-Export Department (MOIT) reported that after more than a year of implementing Decree 107/2018/ND-CP with

new reforms and reflection, MOIT has issued forty seven additional certificates of qualified rice exporter, increasing the number of qualified rice exporters to 182. Traders are exporting Vietnamese rice to over 150 countries and territories around the world (Vietnambiz, 2019).

In addition, many programs/projects both local and foreign were established in order to support the Mekong Delta rice industry and create opportunities for improving the competitiveness and efficiency for output products. Specifically: The Better Rice Initiative Asia (BRIA) project in Vietnam is expected to solve the market for rice; The VnSAT project has been implemented since 2016 in the rice producing regions in Vietnam, including eight provinces in the Mekong Delta, with the goal to apply sustainable farming methods, enhance the value chain for the rice industry, and increase the production efficiency and income for farmers; Decree No. 98/2018/ND-CP facilitating the linkages in rice production and consumption between rice producing cooperatives and rice processing enterprises; Decision 1898/QD-BNN-TT approving the "Project on restructuring the Vietnamese rice industry until 2020, with a vision to 2030". The goal is to improve the efficiency of rice production and trade as a basis to firmly ensure the national food security, jobs creation, and income increase for rice farmers, ecology and environment protection, sustainable development, and effective participation in the global market.

Although the State has issued many policies to support the rice cluster, the management and control of unofficial cross-border import and export activities with countries in the region are not strict enough. As a result, the cross-border export of rice on non-commercial basis to China and Thailand via Cambodia, and then to other countries is still going on. This indirectly reduces the reputation of Vietnamese rice brand, and thus adversely affects the competitiveness of the rice industry.



PHOTO VINH HIEN

Roles of associations: either direct or related, not available or available but limited, the association operations mainly relate to research activities and are in short of member units capable of assisting in consulting and connecting to output markets.

According to many enterprises in the industry, the competitiveness of rice industry faced many barriers resulted from the limitations of VFA. According to the assessment of the Vietnam Institute for Economic and Policy Research (VERP), VFA has not yet fulfilled its role in protecting its members, especially rice farmers. Small-sized enterprises under development have great potential to bring high value-added products to the industry, but are ineligible to become members of VFA. Currently, VFA only implements its functions as an association of exporting enterprises and mainly represents the interests of state-owned enterprises through the implementation of Government-to-Government contracts (G2G), and thus affecting the effectiveness of the market mechanism. In addition, VFA has not implemented any strategic orientation for market development and has not played the role of connecting the private sector. Although from the perspective of representing the

interests of State-owned enterprises, VFA also failed to help these state-owned enterprises narrowing the gap between their market development capacity and connectivity with the private sector. To sum up, generally VFA has failed to advance its role as a food association, in accordance with its functions and duties, as prescribed.

Role of credit institutions is still limited in terms of financing. They are available of capital for lending but concerned about potential credit risks, of which the volatility of output market is the most important factor. Agricultural insurance proved to be ineffective due to high value of insured assets, high risks from natural calamities, and dispute resolution for insurance incidents.

Cooperative model is not fully effective due to the weak business linkage between farmers and cooperatives or enterprises. Even the on-going models of sustainable rice cultivation under VnSAT project financed by the World Bank Group have a low participation rate of farmers and the compliance of farmers with production processes is not as high as expected.

Competition

On June 30, 2019, after nearly 10 years of pursuit, Vietnam signed a Free Trade Agreement with 28 European member countries (EVFTA). This opens opportunities for Vietnam's rice industry to expand its export market and at the same time, increase its competitive advantages over competitors such as Thailand, China, Indonesia, and Malaysia because these countries have no FTA inked with EU countries.

However, in the rice export market, price and quantity are entirely dependent upon importing partners, and there is no effective market prediction or effective defense mechanism. Increasing quality standards put pressure on transforming the production model, in a context of limited resources and low motive for transformation. The effectiveness of transformation has also not been tested and proved on a mass scale.

One of the disadvantages of the rice cluster is the quality of Vietnamese rice, which is not consistent due to the fact that household farmers as well as a number of export rice processing enterprises have no proper business mind and economic mindset toward big, modern, and transparent business activities. Specifically, a large part of household farmers still use commercial rice as seeds and a number of export rice processing enterprises still remain indifferent even they knew well about this situation. As a result of the said behaviors, the quality of Vietnamese rice becomes low in quality and heterogeneous. In addition, a number of enterprises and economic organizations collude with one another to gain short term profit. For high selling prices, they recommend household farmers to use seeds of well-known rice brand in the market irrespective of

soil and water conditions that are not suitable to the rice variety. This actual situation has happened with ST25 type of rice. The lack of strict enforcement of the law also contributes significantly to the damage caused to the Mekong Delta rice branding in the long run, leading to less competitiveness of Vietnam's rice cluster, especially for the current category of fragrant rice. One of other weaknesses lies in the horizontal link between actors in each group of factors is not deep, plus the vertical link between actors in the chain of value is still weak, and therefore it is difficult to improve for lower production and processing costs. In addition, the increasing costs lead to the drop of profits in the entire value chain as well as the competitiveness of the Mekong Delta rice cluster, in particular and of Vietnam, in general. Cambodia, Pakistan, and Myanmar are likely to become Vietnam's rice export competitors in China market.

Food security policy continues to affirm the role of rice cultivation, especially the regulations on restricting the conversion of rice field into another land use category, but policies on supporting the rice farming are still absent. In order to improve their livelihoods and reduce risks, farming households are much in need of replacing the cultivation of rice to other subsidiary crops. Besides, the shifting of labor force from the rice industry to other sectors for higher income is also taking place strongly.

Recently, the impacts of climate change have increased input costs due to the increasingly unfavorable factors of nature. Vietnam belongs to the group of countries most affected by climate change and this contributes to the reduction of the rice industry's competitiveness.

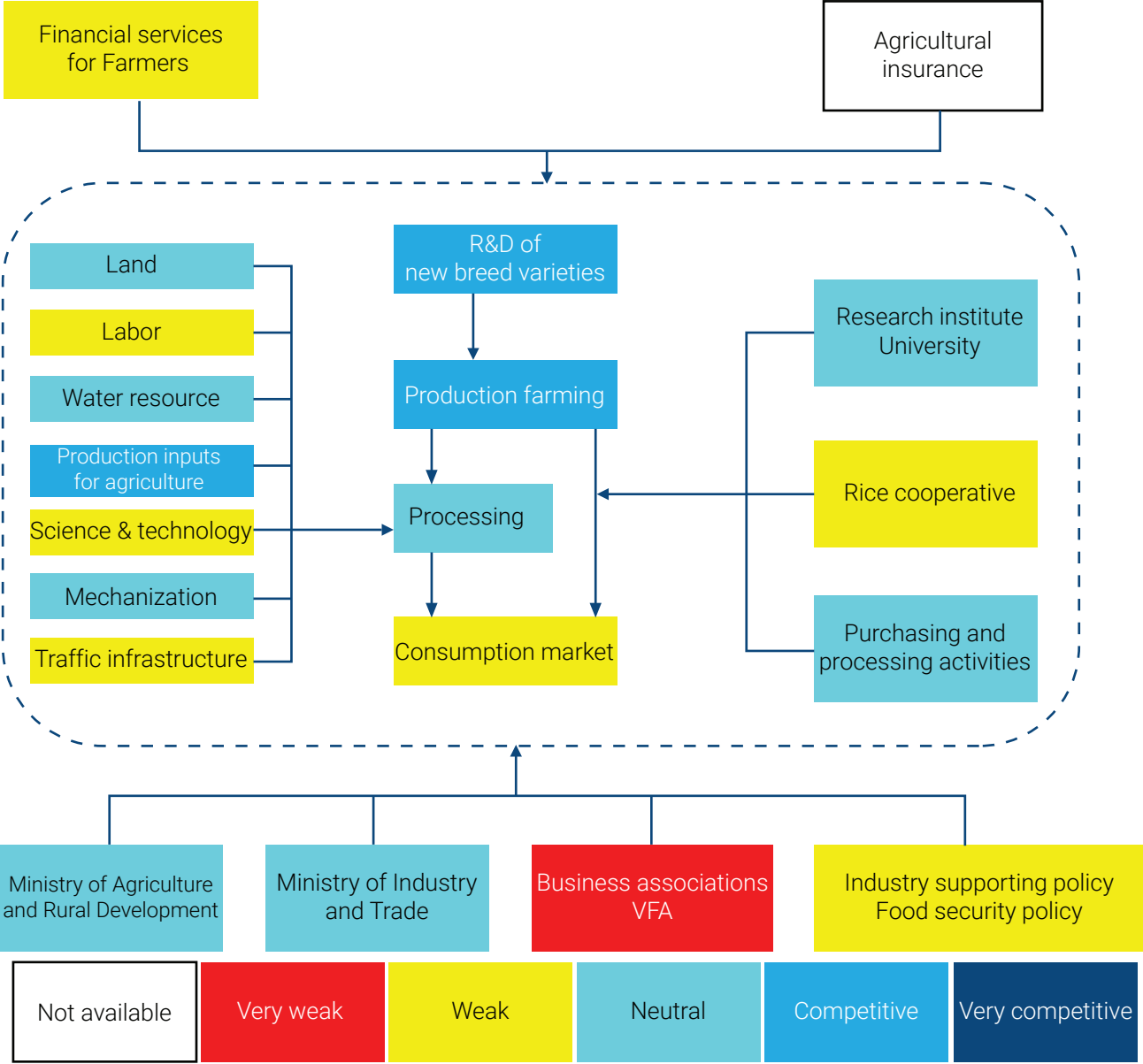


Assessment of rice cluster's competitiveness

The rice cluster in the Mekong Delta has a competitive advantage in terms of natural conditions such as land and soil conditions suitable for rice cultivation, experienced workforce in rice production, and broad distribution system for input agricultural inputs.

Especially in recent time, the Mekong Delta and the whole country have bred many fragrant rice lines of high quality that receive recognition worldwide. The constantly growing opportunity for developing rice products also comes from the broader and deeper integration in the international economy. In addition, the competitiveness of the cluster has always been fostered by the State with supporting policies as well as foreign programs/projects.

Figure 4.3 Diagram of rice cluster in the Mekong Delta



Apart from the above-mentioned competitive advantages, the rice industry also faces disadvantages such as impacts of climate change; depletion of irrigation water resources; labor scarcity in rural areas; unequal mechanization among regional provinces and lack of alignment between stages in the supply chain; inconsistent rice quality; incomplete and disconnected regional transport infrastructure; fierce competitors for world rice exports; and increasing self-sufficiency of major rice importing countries while the strategy of developing value-added rice products has yet been developed. Finally, the cluster competitiveness is constrained by the linkage capacity of actors in the supply chain. Such lack of linkage capacity also makes farmers buy agricultural inputs through agents and accept substantial loans, which leads to an increase in intermediary costs, and thus less net added value (profit) of the whole rice value chain.

Solutions and recommendations for improvement of competitiveness of rice cluster in the Mekong Delta

Solutions

From the above assessments, the following solutions are proposed to improve the competitiveness and contribute to the sustainable development of the rice cluster:

- Investing in building transportation and logistics systems for the Mekong Delta is the most practical way for contributing to the improvement of product quality, especially to reduce costs of distribution and thereby increase the competitiveness of the cluster;
- Develop brands for rice products, help the rice industry expanding its international market share

and thereby facilitate the increase of yield and export value;

- Developing a large rice field for mass production according to quality standards satisfactory to buyers' requirements, helping Vietnam maintaining and increasing its market share, hence the export value;
- Maintaining and improving products' quality enabling Vietnam's rice to penetrate in difficult markets with better export price, thereby increasing the export turnover for Vietnam's rice industry, in general and Mekong Delta, in particular;
- Developing the link in production and consumption of rice between economic cooperation organizations and export processing enterprises, ensuring stable export of rice in both quantity and quality, thereby maintaining and growing the export share of Vietnam in the world market;
- Investing in research and development of value-added products derived from rice for contributing to the rise of Vietnam's rice value, especially in times when the world rice market worsens due to competition and/or over supply;
- Investing in the application of advanced science and technology to the production and processing to improve the quality of products and to cut costs, enabling Vietnam's rice to strengthen its competitiveness in the market, thereby contributing to the increase of export and value;
- Developing a scheme on management of quality and product brands which enables the Vietnamese rice to participate in the global rice value chain to help Vietnam increase its share in the world rice market.



Policy recommendations

In order to realize the eight above mentioned solutions, the following policies are recommended:

- Changing the approach to food security mentality to accommodate the rice export with the change of the world demand for food, in the direction of focusing on quality instead of quantity, value instead of output. Redefining "food security" in broader way, thereby food security includes not only rice (and rice acreage) but also other cereals, grains, and food.
- There is a need for a policy allowing people to use rice farming land more flexibly based on a regional/national master plan. For example, farmers can use the land planned for farming two crops of rice to cultivate one rice crop plus one shrimp crop or one rice crop plus one crop of farm produce, and even farmers can decide two crops of farm produces in a year provided that they make the highest possible income in a production year;
- MARD is now a member of the Sustainable Rice Platform (SRP) program of the United Nations. SRP's mission is to promote the resource efficiency and sustainability of the rice sector through a coalition of research, production, policy making, trade, and consumption. These missions are fully compatible with Vietnam's rice industry development goals, so MARD should promote the implementation of this platform in Vietnam, in general and in the Mekong Delta, in particular.
- MOIT needs to support rice processing and exporting enterprises to proactively introduce Vietnam's rice products to foreign markets, especially penetrate deeply into retail systems in our rice import markets in America, Africa, and the Middle East.
- Ministry of Finance should have a circular detailing the content and detailed spending limits for localities to apply Decree 98/2018 / ND-CP of the Government on the development of linked production and consumption goods.
- Appropriate policies should be in place to encourage scientists and businesses to research and create new rice varieties with high-quality and adaptability to climate change, as well as value-added products. In parallel with this policy, there should be strict sanctions against organizations/individuals violating the copyrights/technology patterns for ensuring the quality of commercial seeds and rice.
- From the perspective of the local government, it is necessary to (i) give incentives to domestic and foreign investors for encouraging them to invest in infrastructure and logistics systems in the Mekong Delta; (ii) equip the agricultural workforce with knowledge and skills, especially on food hygiene and safety standards and traceability; (iii) complete land planning to enable large rice field models and joint cooperation between businesses and rice growers; (iv) and encourage universities colleges to develop researches and training the disciplines that directly serve the needs of the local economy.

Catfish cluster

Shaping and development of catfish cluster

The Mekong Delta has a natural land area of over four million hectares, of which over 80% are devoted to agriculture and aquaculture. The coastal length of the region is about 780km, with 22 large and small creeks, nearly eighty thousand hectares of tidal area, interlaced rivers and canals, thanks to abundant water resources. In addition, the Mekong Delta has a system of large rivers (Tien River, Hau River, Ong Doc River, Cai Lon River, etc.) with abundant water flow and tidal regime of East Sea and West Sea (Thailand Gulf) contributing to the disposal of waste through rivers and canals and the cleaning up of aquaculture environment to facilitate the development of the fisheries sector.

The catfish farming industry has been formed and developed in the Mekong Delta in association with favorable natural conditions, but the formation and

development of the catfish manufacturing industry is associated with the needs and development of the export market. This partly explains the fluctuations of the catfish manufacturing industry in the past period due to the great impact from the effects and volatility of world export markets, especially in terms of export prices.

As the downstream of the Mekong River and upstream of the Nine Dragon River (part of the Mekong River flowing across South Vietnam before emptying into the East Sea), the Tien River and Hau River have become the artery for the formation and development of the basa fish, as well as from the first half of the 20th century to the present time, the development of Tra fish. Wild fingerlings fish following the flood flows are caught in ponds to serve the demand of the local people as stocks. Later the model of basa fish farming in floating cages in Chau Doc and An Phu (An Giang province) was imported from Bien Ho (Tonle Sap lake in Cambodia) by Vietnamese fishermen returning home; and the first basa fish reached the world market in 1987, with Australia as the first export market.³¹

Figure 4.4 Location and quantity of ponds for smart pangasius farming in the Mekong Delta



Source: Vietnam Pangasius Association, <https://www.pangasiusmap.com/vi/ban-do>

³¹ Khoi Nguyen (2019). 40 years ups and downs of Vietnamese Tra fish and Basa fish, VnEconomy magazine, available at: cập tại: <https://vneconomy.vn/40-nam-thang-tram-cua-ca-tra-basa-viet-20190427152010536.htm>



Due to the increasing market demand for Basa fish while the wild basa fingerlings cannot meet the demand for stocks, the model of raising basa fish in floating cages became ineffective due to low farming density. In addition, regulations on the density of floating cages on rivers and limits of catching wild basa fingerlings were promulgated, together with the good adaptability of Tra fish, aka pangasius (a new type of fish having its appearance, structure, and meat texture that are not much different from basa fish's but gives a higher yield) to either pond or cage culture, have led to the rise of pangasius that gradually replaced Basa fish since the early 1990s.

Pangasius breeding activities at the Research Institute for Aquaculture 2 (RIA 2) or Asian catfish project by Center for International Cooperation in Agricultural Research and Development (CIRAD – France) have somewhat reduced the pressure on the fingerlings issue for the catfish culture industry in the Mekong Delta. This is followed by the expansion of the farming area along the Tien River, Hau River, and other distributaries where water can flow in and out regularly. Provinces of An Giang, Dong Thap, and Can Tho still remain the largest concentrated farming areas, accounting for about three

fourth of the region's total production.

The development of the catfish manufacturing industry has taken shape and grown since the early 2000s after Vietnam began the process of economic integration and opening up. The catfish farming, processing, and export industry in Vietnam has grown rapidly, making Vietnam the top catfish export country in the past 20 years, accounting for about half of the global export turnover and catfish products are now exported to more than 130 countries and territories, including key and demanding markets such as the US, EU, Brazil, Australia, Canada, and recently emerging markets such as China and Hong Kong.

Currently, there are about 100 pangasius processing factories in Vietnam mostly concentrated in the Mekong Delta. Compared to 291 factories in 2011, there has been a significant decrease, though the size of export processing enterprises has been increasing more, as a result of the natural elimination of loss-making and weak enterprises and the accumulated market share in the remaining businesses.

Table 4.1 Overview of catfish production and processing for export in the Mekong Delta

Indicator	2000	2005	2010	2015	2019	2000 – 2009 period	2010 – 2019 period
Area in hectares (ha)	2,123	4,913	5,420	5,623	6,600	12.3%	0.9%
Production output (thousand tons)	93	415	1,141	1,120	1,420	31.4%	2.7%
Average productivity (ton/ha)	44	84	211	199	215	17.1%	1.8%
Turnover (USD million)	3	328	1,428	1,565	2,003	97.0%	4.1%

Source: Compilation and calculations by authors from VASEP, VPA, SY of provinces, and the media

However, the catfish farming and manufacturing industry in the Mekong Delta has been facing many challenges. The fisheries sector is affected by climate change, specifically unseasonal rain, reduced temperature, and increased salinity in the farming environment. Also, the Mekong Delta faces a number of difficulties from soil erosion along the river banks of Hau River and Tien River due to changes in river flows, causing damage to aquatic works and housings, to the tendency of degradation of water quality due to the development of industries as well as the excessive development of the fisheries sector in recent years, and so on. Since the 2008 global economic crisis, the output growth rate and the exports of the industry have declined significantly and appear to have reached saturation. The major export products are still fish fillets, cuts or whole, without many products with high process-added-value.

The assessment of catfish farming and manufacturing cluster competitiveness using Michael Porter diamond model below will detail the advantages, limitations, challenges, and opportunities of the industry.

Input factors

Natural conditions

30% of the Mekong Delta area consists of alluvial

soil suitable for pangasius farming. This soil type seats on both Tien and Hau riverbanks in the provinces of Tien Giang, Dong Thap, An Giang, Can Tho, Ben Tre, and Vinh Long, etc. However, nearly half of the area consists of alum soil at different levels and is considered unsuitable for pangasius farming. This reflects that the natural space to develop pangasius farming in the Mekong Delta is low, although recently some localities in the mildly acidic land have improved the irrigation conditions and methods of farming pangasius like Dong Thap Muoi area. In terms of the tidal range which has critical effects on pangasius farming development, the provinces situated along the Tien and Hau rivers with a length of about 220 km are best suitable for pangasius farming.

The high salinity in water is inhibiting the development of pangasius farming area in the region. Facing the saltwater intrusion, areas with mild salinity (below the optimal threshold) or areas with high salinity in the dry season but plenty of fresh water during the flood season will have more advantages in pangasius farming compared to totally fresh water areas in upstream of Tien and Hau rivers. This advantage is shown by the fact that pangasius is less susceptible to diseases, as the salty water environment after a while is able to inhibit many types of pathogens that cause diseases to freshwater fish.



Raw catfish

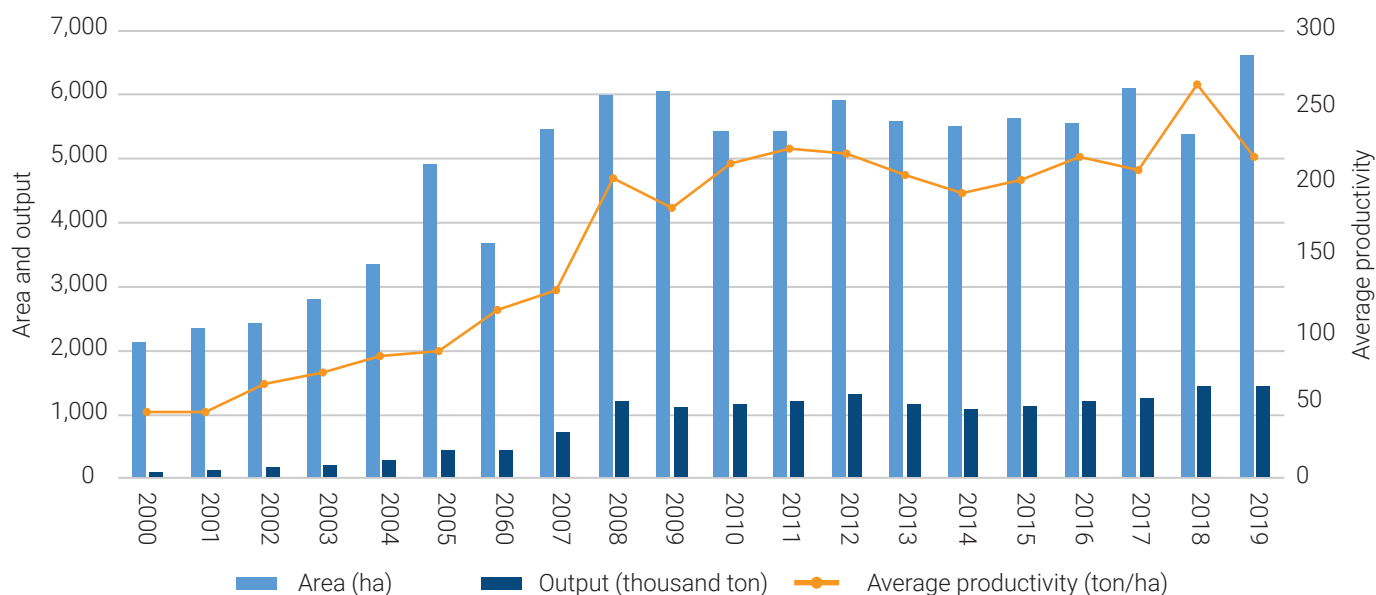
The problem with the aquaculture sector in the Mekong Delta lies not only in production output but also in the quality and farming methods that could be able to meet the increasing requirements for export. After the rapid growth in the early twenties, the production size and capacity of catfish farming areas in the Mekong Delta have gradually been limited since the 2008 - 2009 crisis. In the last 10 years, both the raw material area and output size have remained almost unchanged, although potentials for further expansion remain. Meanwhile, the quality of raw materials is inconsistent due to traditional farming methods. Production activities depend entirely on the export market where competition is becoming increasingly fierce, especially from new players such as India or more recently China.

As for fish farming stage, one of the biggest obstacles is the shortage of quality pangasius fingerlings (Le Thi Thanh Hieu, 2019). The system of high quality pangasius fingerlings production facilities has not met farmers' needs. However, in 2019, there are positive signs when there are about 90 fingerling production facilities, 2,638 pangasius hatcheries with more than 6,000 hectares of nursery which can produce and supply about 4 billion fingerlings. The project "Production of high quality pangasius

fingerlings" was implemented by RIA II from March 2016 to 31 December 2020 by the order of MARD with the aim at improving the growth rate, enhancing the survival rate at nursery stage and resistance to liver and kidney disease. Over three generations, the quality of pangasius bloodstocks has basically changed, such as the growth rate is 10.4% higher than the control group and 20.4% higher than the wild pangasius. The project has provided high quality pangasius bloodstocks, replacing overdue bloodstocks, poor reproductive power and low survival rate.³² This, however, is only the first step to improve the poor quality of fingerling sources, and basically the problem of shortage of high quality fingerlings is still a challenge.

As for aquafeed and aquaculture medicinal products, the region has a dense distribution system that creates favorable conditions for farmers. The problem is that the price of aquafeed for pangasius tends to increase over the past 10 years, affecting production costs. Meanwhile, the quality of cooperation in farming cooperation groups/cooperatives is not extensive enough to carry out the consolidated purchase order (to obtain best price for large quantity order of inputs, including aquafeed, etc.), and thus farmers have to accept high priced aquafeed. Small-size aquaculture households face high production costs and have restrictions in applying technical advances in pangasius farming.

Figure 4.5 Area, output, and production of pangasius farming in the Mekong Delta



Source: Compilation by the authors from VASEP, SY of the provinces, and the media

³² http://vasep.com.vn/Tin-Tuc/1018_56245/Ky-vong-ca-tra-giong.htm

In order to develop the input materials for pangasius processing activities, the Mekong Delta has a number of options that do not necessarily conflict with one another and can therefore be carried out simultaneously.

First, the relatively common option is to expand the farming area. However, experiences learnt from the outbreak in the early twenties show that uncontrolled expansion of production areas leads to risks of oversupply, environmental pollution, and widespread fish pandemic. In the context of oversupply, every time the world market has problems, abandoned ponds and bankruptcy are ubiquitous because the investment per unit of cultivated area is too high compared to the active financial capacity of farmers.

In addition, the impacts of climate change (increasing sea level rise and saline intrusion), as well as impacts from the construction of upstream hydroelectric dams have significantly affected the capacity of expanding and developing catfish farming

areas in the Mekong Delta.

With respect to sustainable development, the expansion of farming areas must be associated with the role and presence of enterprises for output consumption, to avoid the phenomenon of spontaneous expansion of farming areas, especially when the market has good signs. Criteria imposed to the conditions for a farming area and credit granted to farmers can be effective tools for developing a sustainable farming area. Meanwhile, the standardization of farming procedures to stabilize the productivity and increase the domestic value added in the feed price structure will help improve the added value from local raw material production.

Second, another option is to increase the productivity. With the current method of household farming, productivity is unlikely to increase significantly. Therefore, a practical way is to find ways to diversify the production in order to stabilize output markets and shift the production methods toward industrialization and modernization.³³



Regarding the output market, the fluctuations in supply and demand of pangasius fillet for export in the period 2010-2019, lead to a shortage of input materials for seafood export processing enterprises. To overcome these, enterprises have developed more links through aquaculture outsourcing contracts with farming households to create stable raw material areas. In addition, some enterprises

bought land by themselves to build raw material areas as a way to overcome this difficult situation. Also, in the context of unstable output markets of pangasius fillets for export, large enterprises have invested in equipments and new technology to process value-added products to compensate the decrease in export volume.

³³ Output price and aquacultural productivity are the two factors mostly affecting the efficiency of raw fish production. Assuming that, every hectare of pangasius culture achieves an average yield of 200 tons / crop, with an average investment cost of VND 5-6 billion/ha, the average profit can reach VND 0.5 -1.5 billion / ha / crop depending on the price of raw pangasius. If raw pangasius price increases by VND 1,000 / kg, equivalent to farmers' additional income of VND 200 million/ha/crop. Raw pangasius price has wide fluctuation from VND 17,000 – 35,000/kg, while the break-even price is about VND 25,000 – 30,000/kg. This shows that the direct impact of raw material prices, or the indirect effect of export markets on farming efficiency, is very large because of the impracticality of the defense measures via way of reducing the production costs while a large proportion of these costs depend on aquafeed sources (over 80% and most of the added value from aquafeed fall into the hands of FDI enterprises and imported materials for production). Meanwhile, if productivity drops by 1%, output revenue drops in average VND 50 million/ha/crop. The variation in pangasius culture productivity is also very large, some models can yield up to 300, or even 400 tons/ha/crop.



The model of cooperation between farmers and aquafeed supply enterprises, farmers and export processing enterprises and, in many cases, farmers and banks, has helped to partially alleviate the impacts and risks for farmers and stabilize the raw pangasius for processing activities. Still, this model faces certain limitations, for the purchasing price of raw pangasius depends entirely on passive orders from the export market, thus fixed price commitments are not realizable; while the floating price mechanism cannot be applied due to the lack of reference bases and low commitments in executing the agreements. Moreover, the export processing enterprises want to proactively manage the farming areas as they have investment capital, technology, and output market information, but they have difficulties in expanding the area of aquaculture. The method of contracting or outsourcing pangasius farming, coupled with support of technique, funding, food, and take-over commitment for the output is a common pattern today, but limited due to the small scale of farming household, lack of stability, and uniformity, and thereby leading the export processing enterprises to the inability to take the initiative in implementing the commitments for great value orders.

Given current state of the pangasius industry, the transformation of production into industrial, modern, and standardized farming models to meet the standards of fastidious import markets such as the US and EU is a sustainable trend, as it will be difficult for farmers to change their old practices by themselves when easy markets still persist. However, the change of traditional farming methods to new, modern, and industrial practices is still difficult due to varied reasons: (i) farming area of small size, more convenient with traditional practices in farming, plus farmer's limited skills and qualifications; (ii) need of large investment fund for each crop; (iii) presence of markets with demand easy to satisfy such as the Middle East, or more recently the China-Hong Kong market that has significantly alleviated the pressure and motivation to the transformation of traditional farming models. Until now, however, there is a positive sign as there have been a total of 5,368 pangasius ponds granted with identification codes on an area of about 4,692 hectares. As of early 2020, there are 303 VietGAP certificates issued to pangasius farms in 45 districts of ten provinces with a total area of 1,965 hectares. About 71% of Vietnam's 5,400 hectares of pangasius farming area have been certified as Global G.A.P or ASC.



Labor force

It is estimated that in 2019, the catfish industry created jobs for about 250,000 workers, out of which more than three third work on processing lines and the majority of workers in the industry are unskilled ones, receiving intensive training sessions conducted by enterprises themselves.

Unskilled workforce in the industry is always in short supply regardless of the fluctuations in the development of the catfish processing and export industry. The internal reason is that the working environment is relatively harsh, wet, low temperature, and long working day especially during peak season. Although there has been no study about the impacts of the working environment on workers' health in the long run, the high labor turnover is popular for the industry (average working time is about 3 - 5 years, with possible return after a certain time).

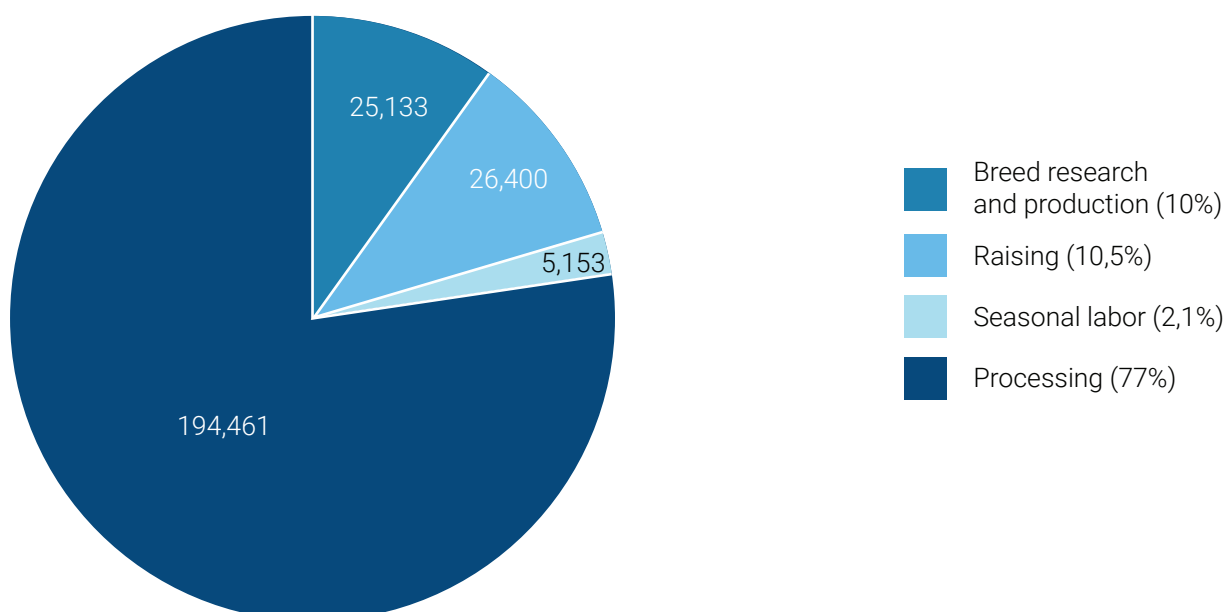
The external reason is fierce competition to attract unskilled workers between the industries. First, the textile-garment and footwear industries in the region have high demand for unskilled workers. Second, the outward migration of the labor force to the Southeast (average net outward migration rate of the whole region is 5.9 % in the 2010-2019 period, compared to 4.5% in the 2005-2009 period).

This trend will continue to increase in the coming period (net outward migration rate in 2019 even returned to the highest level in the post-crisis period of 2008) as agricultural production conditions are significantly affected by climate change. Third, the ratio of workforce over the population is starting to decrease (down from a peak of 58.4% in 2012 to 56.9% in 2019) as the golden population period is going to end.

As for workers' qualifications, the Mekong Delta is still a "low-lying land" and is very different from other developed regions of the country, despite of some improvement compared to the previous period. The proportion of trained workers increases from 7.9% in 2009 to 13.4% in 2019, still very low compared to the average 22% of the country and 28% of the Southeast y-o-y. This is a significant limitation for achieving the goal of applying technology in processing and production to increase the added value of products for export.

The most positive aspect of the labor force in the industry is their skills of processing fish fillet products. Most enterprises acknowledge that Vietnamese workers are more skillful than their direct competitors in India, Bangladesh, China, etc. The difference, however, is negligible because the production steps consist mainly of raw processing.

Figure 4.6 Labor structure of the Mekong Delta catfish industry in 2019



Source: Author's estimation based on the industry's compiled information and labor data in 2013 (published by VASEP)

Processing technology and equipment

Vietnam is the pioneer and leading country in processing and exporting pangasius. pangasius fillet is the main product for export; after processing, pangasius fillets are preserved mainly by low-cost quick freezing method, thus the quality of the product decreases significantly as the texture of the meat is destroyed, post-defrost. A more advanced preservation technology is the use of nitrogen gas (which helps increase storage time and maintain the quality and the product's color better after defrosting), but this technology is not applicable to Vietnam's pangasius industry due to its high storage cost.³⁴

Other catfish by-products can also be processed further to obtain more value-added products. pangasius and basa fish skin can be used to extract collagen and gelatin, but currently very few enterprises have invested in this business as it requires production lines and R&D research activities completely different from the simple requirements of

fish fillet processing. Some pioneering enterprises such as Vinh Hoan, which invested in this business from 2014 to 2019, started to make a profit with a margin of about 40%, much higher than that of fish fillets processing (15-20%). However, these products are only exported in the form of semi-finished products because it is not easy to obtain the approval and certification for medicinal and health products. Vietnamese enterprises thus turn to cooperate with foreign businesses holding trademarks and approved product quality standards. In addition, fish fat can be used as edible oil, but at present, the technology of local processing lines does not meet requirements on complete removal of fishy odor, and Vietnamese catfish and pangasius fish oil must be sent to China for final processing into finished products. Other by-products such as fish skin can be used to produce snacks; head, skin and bone can also be used as ingredients for the feed industry. Most of these by-products, however, are exported to China and have not received much attention in Vietnam due to limited processing technique and technology.



³⁴ Tuan Anh, 2019. Basa fish, not just a fillet. Integrated World Newspaper: <https://thegioihoinhap.vn/nong-nghiep-4-0/xuat-nhap-khau/ca-basa-dau-chi-la-phi-le/>

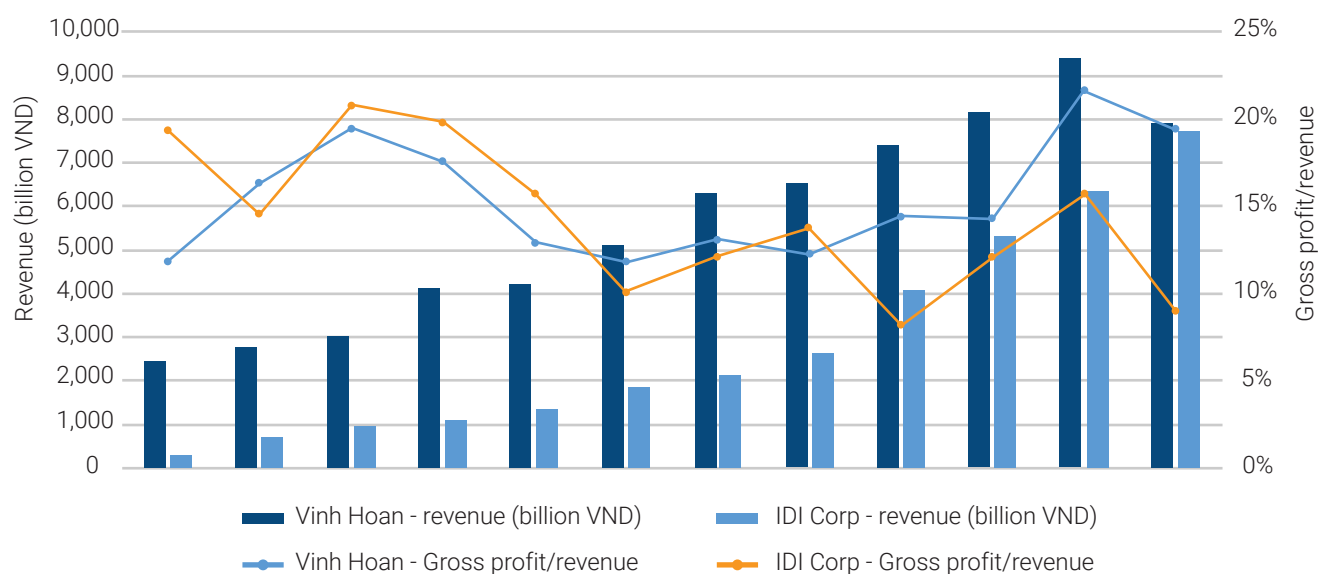
In terms of value added aspect, catfish export processing activities in the Mekong Delta contribute on average about 15% to sales revenue. Changes in revenue and gross profit margins from business activities of some leading companies in the industry show that revenue has increased continuously over the past 10 years, but the added value remains nearly unchanged. This means that processing is mainly unskilled labor intensive and other activities which may generate additional added value are almost nonexistent. The examples of Vinh Hoan and IDI Corp, two typical pangasius processing and exporting companies in the Mekong Delta, from 2015 up to now, can partly illustrate the difference in production strategy and business efficiency of these two enterprises with other export processing enterprises. Vinh Hoan started to invest in collagen research and production in 2014, and since then gains from this business has contributed about 20% to the total profit of Vinh Hoan. Meanwhile, IDI is emerging as one of leading companies in pangasius production and processing for export, but its main activity still focuses on the production and processing of fish fillets.

In fact, for pangasius processing enterprises, investing in R&D to diversify output products or make the most of by-products can help improve added value but it is also a risk-taking move. New products, if any, rely entirely on the export market while the investing enterprises do not have direct contact with the consuming market and thus very few opportunities for them to contact and evaluate the consumers' tastes. Meanwhile, the domestic market is still underdeveloped and therefore it is very difficult for enterprises to test and develop new products.

Capital - financial resources

Right after the rapid and hot growth during the period of time prior to the 2008 economic crisis, pangasius processing enterprises began to face the shortage of capital for buying raw materials and payment of salaries to employees.

Figure 4.7 Revenue and gross profit of Vinh Hoan and IDI Corp



Source: Compilation and calculations of the author based on Financial reports of enterprises

Difficulties in capital raising by enterprises came from the characteristics of enterprise formation in the industry development context. Capital of the business is only enough to meet the required investment in production facilities. Operational costs have a very high turnover rate because enterprises buy raw material on credit and uses short-term working capital to finance recurrent expenses. This pattern is maintained thanks to the rapid growth of the industry. But when the 2008 crisis hit, orders became scarce leading to selling price being cut down by enterprises for clearing inventories. This unfair competition has swept enterprises into a downward whirlpool.

The collapse of Binh An Fisheries Company in early 2011 (although the reason was not entirely due to the decline of the pangasius industry but mainly because of spreading investments, use of funds for wrong purposes, use of short-term loan for long-term investments, and investments in business other than fish production such as real estate. This example can be seen as a last drop of water causing spill and the bell alarming the capital shortage and subsequent insolvency of many enterprises and catfish processing facilities in the region). Banks tighten stricter control over loans while farmers restrict the sale of raw fish on credit to enterprises; outstanding bank loans also put a financial pressure on enterprises; profit accumulated from operating activities is insignificant compared to the need for capital following the sharp drop in export prices. As a result, catfish processing enterprises can only rely on early payment of export orders. This activity once again dragged enterprises into the downward whirlpool for a second time, as discount fees for early payments are relatively high (around 10% of the order value). In case of any delayed payment and/or rejected orders, the short-term financial pressures forced export processing enterprises to sell orders at a loss or resort to banks that accept high risk credit extension, i.e. higher loan interest rates must be accepted.

In 2012, VASEP call for bailout of the pangasius business sent to the Government is a token of the industry downturn. Despite issued solutions to support pangasius enterprises such as: banks encouraged to lend working capital, setting the ceiling of loan interest rates for priority areas, including pangasius, rescheduling the loans for a maximum 36-month repayment term, preferential interest rate applied to high-tech agricultural models, associated agricultural production for export, etc., but the significant decline in number of enterprises in the past period has shown the market invisible strength screening weak enterprises.³⁴

Reinforcing the proactive supply over the raw material through self-investment or association with farmers through the linkage model of processing enterprises– banks– feed distribution agencies– farmers, investing in diversification of products and export markets, studying the in-depth processing, all are appropriate solutions that have been implemented by such leading enterprises as Vinh Hoan, Nam Viet, IDI Corp, and so on, to help improve business operations and get out of the capital shortage whirl. These positive results also give shape to strategies for credit institutions. Typically, Vietinbank in its in-depth report on the fisheries industry in 2018 proposed guidelines for enterprises in the industry to obtain preferential bank loans, such as: (i) self-supply of raw materials, (ii) availability of a stable purchasing network (iii) processing facilities in proximity of raw material zones; (iv) advanced production technology; and (v) stable output market with traditional and reliable customers. In fact, credit fund is abundant while the problem is in the lack of enterprises with effective business plans and strategies. The capital flow, therefore, will continue to pour in leading enterprises while the solutions to encourage grant of preferential loans on a large scale will not be effective and even lead to potential risks of bad debts.

³⁴ Bich Diep. 2012. 30% of Tra fish enterprises could be bankrupt in 2012. Dan tri newspaper: <https://dantri.com.vn/kinh-doanh/30-doanh-nghiep-ca-tra-co-the-pha-san-trong-nam-2012-1339837343.htm>

Infrastructure

Irrigation for farming faces many shortcomings. Water used for aquaculture deprives from the irrigation system that serves agricultural production; this system exposes to pollution and pathogen contamination caused by chemicals, pesticides, and fertilizers disposed into the water source.

Some pangasius farms in the region fail to meet the hygienic condition for farming ponds. In addition, the irrigation system, low voltage electric pump station, waste treatment system, and the water supply and drainage system at concentrated production areas are not completely in line with the technical conditions required by VietGap standard for production. Meanwhile MARD in its master plan steers toward the direction that requires all aquacultural farms to comply with the standard (MARD, 2010).

Road transport that connects seaports and logistic services are other inputs that significantly affect the performance of the catfish manufacturing industry in the Mekong Delta. Transportation connecting the production and processing areas with export seaports in Ho Chi Minh City and the Southeast has been significantly improved thanks to the presence of new bridges on main routes, as well as the expressway HCMC- Trung Luong. As a result, ground transportation plays a key role in transport and export of the industry's output.

At the moment, some limits still exist and relate to the transport (finished products can get stuck in case of any traffic accident due to the relatively limited capacity of the transport system); most enterprises in the region resort to the customs and logistics in Ho Chi Minh City to shorten customs clearance time and export-related procedures. High logistic costs are also a matter of great concern shared by enterprises as one of the limitations of the cluster.



Demand conditions

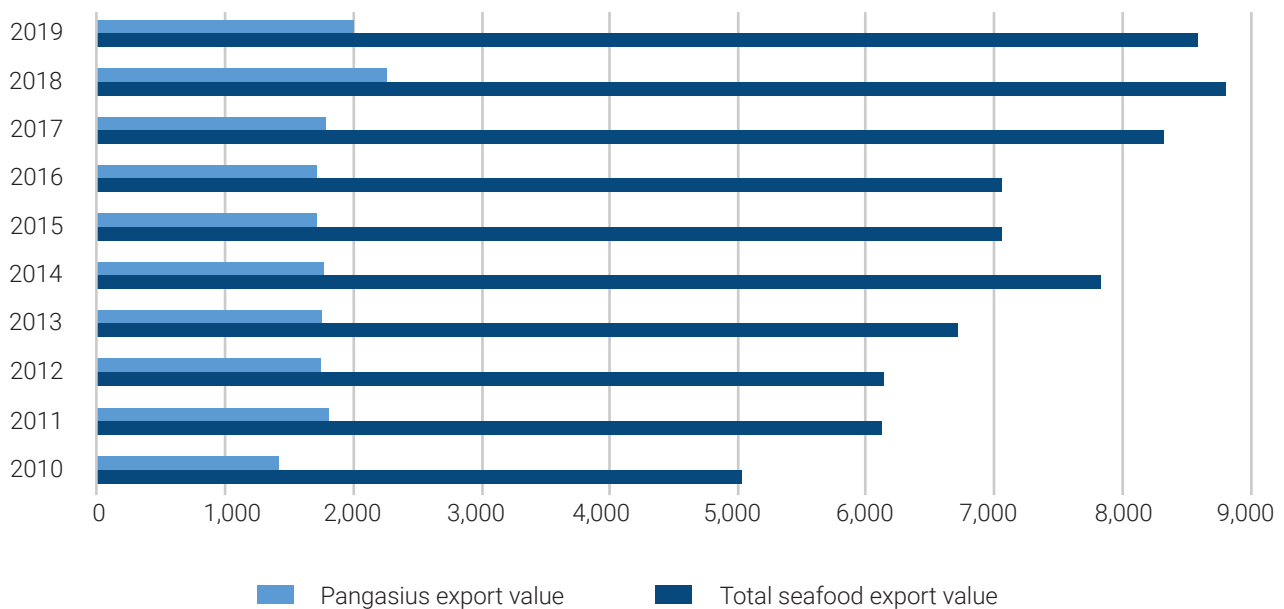
Due to differences in consumer tastes, 95% of the the pangasius production and manufacturing industry's output is reserved for export, though Vietnam in general and the Mekong Delta in particular taking the world leader role in the industry. The domestic market is nearly undeveloped and has just received some attention, recently.

Export market

With respect to export market, as reported by VASEP, pangasius export value (EXV) nationwide reached 1.427 billion USD³⁶ in 2010, accounting for 28.3% of the total EXV of the seafood industry. By 2019, this figure reached nearly USD 2.005 billion, accounting for 23.4% of the total seafood EXV (less than three billion USD target set in the Project of developing pangasius production and consumption until 2020). Thus, in the past ten years (2010-2019),

the export growth rate of pangasius industry has increased by 40.5% with the average growth rate of 3.8%/year. This amplifies the important role of pangasius in the fisheries sector (Figure 4.2). In general, EXV has increased, though not stable over the years, and the pangasius export rate over the total seafood EXV has the tendency to decrease in 10 years (down from 28.3% in 2010 to 23.4% in 2019). Vietnamese catfish products have been exported to 119 countries and territories; out of which frozen products (fillets/cut pieces) - HS Code 03, account for 99% of the export while other added value products represent for only 1%. Raw and processed pangasius products are essentially concentrated in the provinces of the Mekong Delta. Between 2010 and 2019, out of over 130 import markets of Vietnam pangasius, the top four largest importers, accounting for nearly 70% of the total Vietnam pangasius EXV, are China, the US, EU and ASEAN. China is the largest among the said top four (VASEP, 2019).

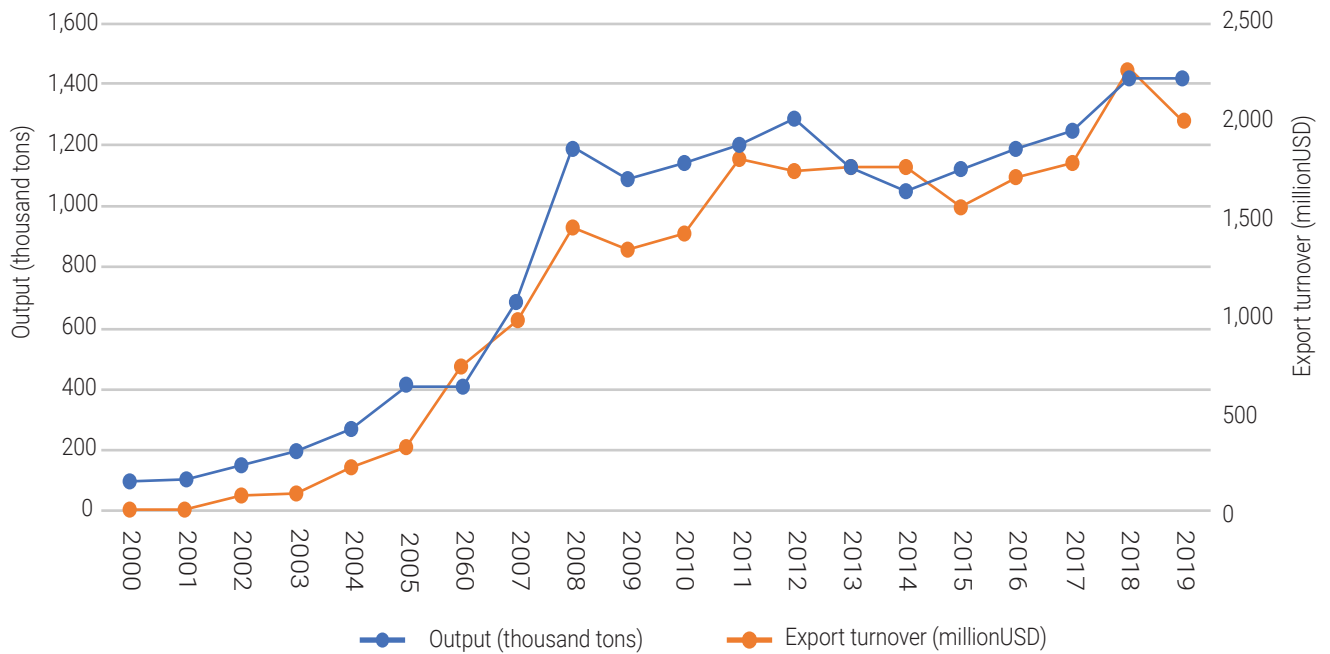
Figure 4.8 Proportion of pangasius in total EXV of Vietnam seafood in 2010-2019 (million USD)



Source: VASEP and MOIT

³⁶ VASEP, 2019. "Report on Vietnam pangasius sector, 2010-2019"

Figure 4.9 Correlation between the farming output and export turnover of catfish in the Mekong Delta

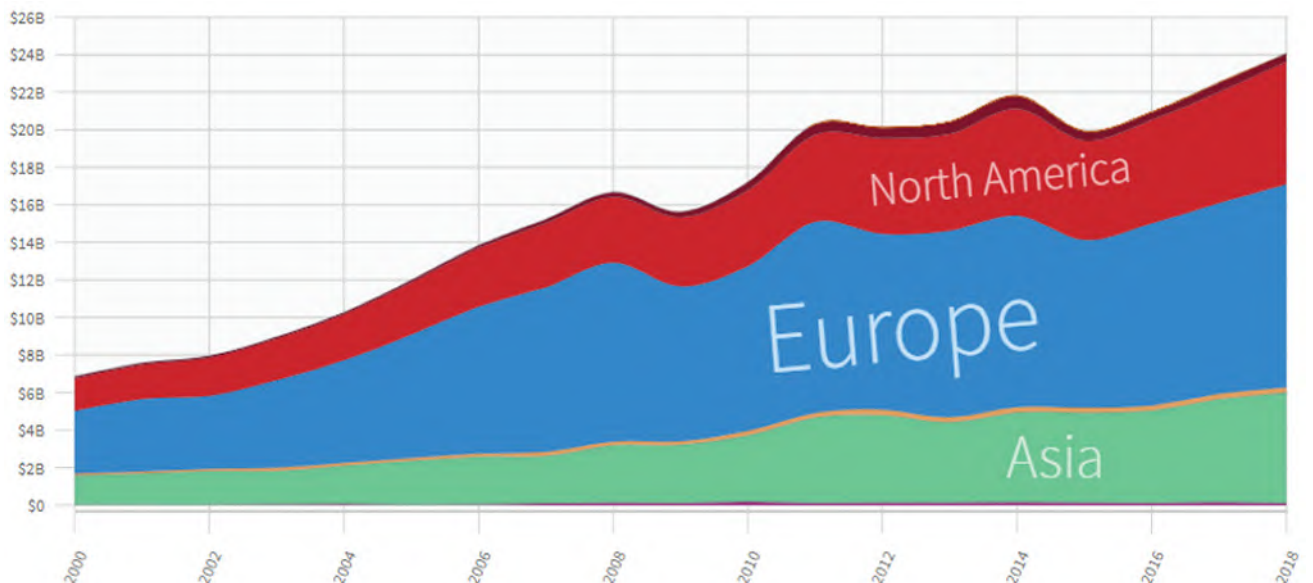


Source: Compilation from VASEP, SY of the provinces

In terms of export turnover, the trend of growth in the last 10 years has decreased significantly compared to the period prior to 2008; shocking impacts from international markets immediately affect farming and processing activities for export. Besides, the very close correlation between farming output and export turnover shows that the scale and operation of the sector are completely dependent on the world market demand.

Global market demand for fish fillets has maintained its steady trend growth over the past two decades. However, since 2008, the instability of the global import demand is more obvious than the previous period; this is due to impact on global economic growth in crisis periods. The EU, North America, and Asia are still the dominant markets.

Figure 4.10 Demand for imported fish fillets in the world over the years (billion USD)



Source: Atlas of Economic Complexity, Harvard University

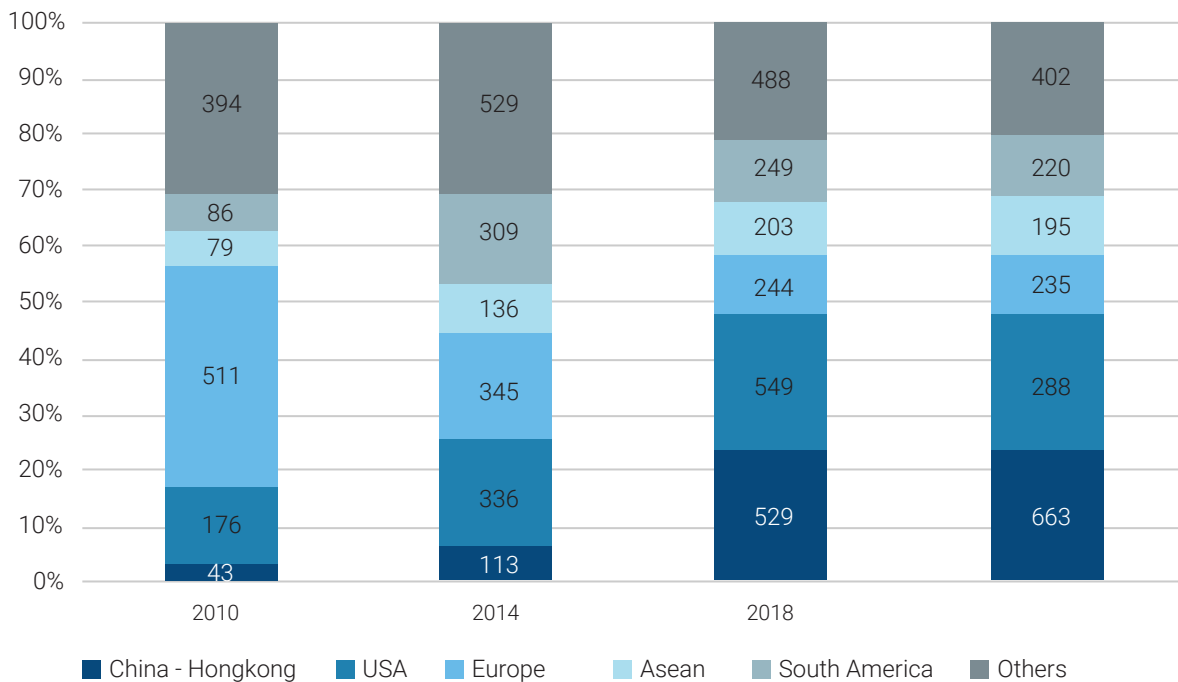
In the fish fillet market, catfish is affected and competes directly with tilapia (out of the farmed fish group, China and Indonesia are the leading countries), and the white meat fish caught by fishing (mainly led by such countries in temperate climate as Norway, Russia, Iceland, the USA, and Canada). FAO statistics for 2018 show that the global catfish production is 3.2 million tons, equal to 53% of the tilapia production and 43% of the white meat fish caught by fishing. In particular, tilapia is considered a formidable competitor due to the advantageous natural conditions and rapid growth.

As for the catfish group, though leading the global market, Vietnam's position is gradually decreasing due to fierce competition from India, Bangladesh, Indonesia, and China. In 2018, Vietnam's export volume of catfish was 1.36 million tons (accounting for 42.2% of global output); India, Bangladesh, Indonesia, and China accounted for 16.2% - 13.7% - 11.6% - 7.14%, respectively.

From market perspective, the most obvious movement in the past period is the strong rise of China as an import market and in contrary is the decline of the European market. The US market, after a period of rapid growth, also began to show unusual fluctuations.

Since 2010, Europe has been Vietnam's main export market, but the size of this market has decreased by about half after 10 years. The EVFTA was officially entered into force, helping pangasius products to enjoy import duty rate cut down from 5.5% to 0% in 3 years for frozen fillets and from 7% to 0% in 7 years for processed fish fillets; therefore, this market is expected to improve gradually in the coming time. However, the biggest issue with the European market is the assurance of food safety standards and origin of raw materials. If the above said criteria cannot be ensured, the benefits from import duty reduction and/or exemption will not be of much significance.

Figure 4.11 Vietnam's catfish export structured by main markets (2010-2019) (million USD)



Source: Compilation from VASEP Data



The U.S is a traditional and dominant market for Vietnamese catfish; apart from the impact of the global economic crisis in recent years, anti-dumping lawsuits from the US Department of Commerce (DOC) starting from 2003 up to now (15 times in total up to 2020) have significantly affected the catfish production and processing in Vietnam. Particularly in 2019, exports to the U.S market decreased by nearly half compared to 2018 due to the announcement of the 15th anti-dumping results prolonged until the end of 2019. As a result, for US import duty related to anti-dumping in recent time, most of large seafood export processing enterprises in Vietnam enjoyed the import duty rate equal to 0%; and the biggest difference comes from the adequate preparation of fully documented information about the origin of raw materials, production and processing processes as well as the willingness of leading enterprises to cooperate with the US DOC. However, the cancellation of the Vietnam Catfish Surveillance Program can help increase the demand for pangasius fillets in the US, and thus creating opportunities for Vietnam's pangasius farming and manufacturing industry.

The US and EU, where consumers are of high income, are markets of potentiality for making more profit with high-value products, such as the pre-cooked and instant products, which are very popular in these two markets. The gross profit margin of these products is 22-25%, compared to 12-16% of frozen fillets. Seafood export processing enterprises' investments in processing facilities and technology to produce value added products are steered in the right direction, that of satisfying the demands of export markets. Besides, the world population that will exceed 8.5 billion people by

2030 (VASEP, 2018) is a factor conducive to boost consumption of pangasius.

The opposition comes from the growth and a strong shift to the Chinese market. The problem is that the easy demand of the Chinese market will be a barrier to the industry's transition toward industrialization and standardization. The riskier issue is that the high demand from the Chinese market in the short term can be a potential risk to Vietnam's pangasius production and processing because China is starting to develop farming areas to self-serve their domestic market and new suppliers as mentioned before are also on the rise.

As forecasted by the General Department of Fisheries (2019), because the wild fishing industry will not grow to protect the biodiversity, the proportion of farmed fish in the total fish supply will increase from 47% in 2016 to 54% by 2030. In addition, if the US-China trade war continues being tense, Vietnam can surely increase its market share of pangasius exports to the US, as alternative to Chinese tilapia, which accounts for 40% of the total fish imported to the US.

Recently, the widespread of Covid-19 pandemic has adversely affected the fish and shrimp consumption behavior by consumers in the world, and therefore is also a considerable challenge for the seafood industry. In addition, the linkage among export processing enterprises is still limited, and the absence of linkage among farming areas reveals to be weaknesses of the industry and thereby hindering their capabilities to meet export demand (Le Thi Thanh Hieu, 2019).

Domestic market

In the domestic market, pangasius mainly serves local consumption or low-income people such as students, workers, office workers, and the like through popular dining places. Pangasius and Basa fish meat are not firm and especially with the current preservation and freezing technology, it has no specific taste, so it is very suitable for use as inputs for the processing sector. However, the Vietnamese people like fresh and raw products that are tasty and chewy. Besides, with the abundance of agri-aqua products, there are many other alternatives for the Vietnamese to choose apart from pangasius and catfish. Moreover, the pre-processed products from pangasius currently in the domestic market are not really diverse and the exploitation of the domestic market was only interested in, recently. The reason is that the world market has gone through many fluctuations and the consumption of the domestic market is increasing more, therefore it is forecasted that the domestic consumption of aqua products may reach one billion USD.³⁷ Whether the pangasius industry can leverage the domestic market for both market expansion and creation of a buffer zone for export business, however, will be another story in the coming time.

Competition

An analysis of the industry's development, inputs, and demand conditions in the catfish manufacturing industry has revealed some of the following outstanding competitive landscapes.

On the demand side: First, the development of the industry is driven entirely by the world import market. Second, Vietnam's role and position in the industry have been saturated and facing fierce competition by other recently emerging competitors. Third, Vietnam's export markets are moving in an unfavorable direction while its sustainable markets with high added value have not been kept steady, if not increasingly unstable. Meanwhile, China, the emerging export market to Vietnam has many potential risks and is a real barrier to the transition of the industry. On the opposite direction, the impact of EVFTA and anti-dumping lawsuits against Vietnamese pangasius products in the US market are the pressure for the industry's shift to the positive direction. The domestic market starts to get attention, but consumers' taste and the availability of other alternative products is another biggest barrier.



³⁷ Phuong Anh. 2020. Seafood "troubled" returning to the domestic market: Trust by the world, but hesitation by the local. Investment newspaper, online: <https://baodautu.vn/thuy-san-long-dong-tim-ve-thi-truong-noi-dia-the-gioi-tin-sao-dan-ta-e-de-d124277.html>

The disadvantage of price is a challenge for export processing enterprises because they have to reduce the ratio of tumbling for weight gain below 20%. The costs of inputs for the production of raw pangasius tend to increase, affecting the price of raw pangasius, hence reduction of the competitive advantage. However, this drawback is not the most serious challenge, which is, for pangasius export industry (as well as that of the seafood export industry in general), how to evaluate the balance of supply and demand in each period to come up with a suitable business strategy. Another challenge, which is getting more critical, is to meet the food hygiene and safety standards, to monitor fully the production steps, and to perform the corporate social responsibility.

As forecasted at the Global Aquaculture Alliance 2018 (GOAL 2018), Indian Tra fish production output will increase by 8%, up to 630,000 tons by 2020. Therefore, in the future, the Vietnamese Tra fish industry may have new competitors. Also, experts have said that in recent years, Tra fish farming has been gradually becoming an important part of Indian aquaculture. The main reason is that once the Indian people enjoyed Tra fish imported from Vietnam, the products are becoming more popular with them. Indian Tra fish are raised mainly in the Andhra Pradesh state (60% of 2018 production output), but farming is expanded to other northern states such as Bihar, Tripura, Uttar Pradesh, and West Bengal. The strong increase in output may encourage Indian producers to establish Tra fish export industry. Tra fish products are present in 218 traditional markets in this country, which can invite investment in Tra fish processing plants there.

According to Vietnam Directorate of Fisheries, by 2018, Vietnam's accounted for about 45% of total output of the world's pangasius. However, many neighboring countries have increased their production to serve their domestic consumption in the short term; among them, the most prominent country is Indonesia. Upon launching a product line dedicated uniquely to the Middle East, Indonesia has been promoting trade in that market. Right in 2019, Indonesia initially successfully exported the first shipment to Saudi Arabia, whose ban on importing Vietnamese seafood products helped contribute to Indonesia's initial success in this market.

A present time, in China, 20 pangasius processing factories are in operation with an estimated output of around 30,000 tons, and its pangasius farming and manufacturing industry is speeding up for serving, in the short term, the domestic consumption.

In general, countries currently farming large volume of pangasius such as India, Indonesia, Bangladesh, China, etc. are also competing fiercely with Vietnam's pangasius.

On the supply side: The increasingly unfavorable natural conditions, the need to own raw material zone by enterprises and limitations related to cooperation agreements with farming households or issue of self-expanding farming areas will be barriers to the development of raw material zones in the country. Moreover, pangasius products are under significant competition by the presence and development of tilapia in recent time.

Export processing enterprises in the region have been competing with each other for market share, mainly based on low price. Local competition consists of prices cut down to the bottom, product dumping, unfair competition between exporters, deterioration of product quality, and declination of brand reputation. Besides, the level of commitment between processing enterprises and farming households is not really strong and remains as the inherent limitation of the industry.

The three-level pangasius hatchery program lacks a monitoring tool, resulting in ineffective enforcement of contracts between farmers and enterprises, leading to contract violation when adverse conditions occur on one side. For example when price of stocks decreases, enterprises often prolong the contract execution time, which adversely affects farmers, or they cancel the contract to buy stocks at market price and vice versa. Consequently, the mutual confidence between parties in the cooperation is poor; most of business linkages have no substance but forms, and the goal of stabilizing the quality and price in the chain cannot be materialized.

Meanwhile, the horizontal link among enterprises does not exist, leading to low-efficiency use of facilities. In addition, the vertical link between enterprise

and farmers or farmers and suppliers have not been implemented in a sustainable way, resulting in failure to reduce additional costs, and thus, no competitive advantage has been created for the best of the industry.

Related and supporting industries

An association may play a role in: (i) collecting, providing, and sharing relevant information; (ii) acting as a bridge connecting enterprises in the industry with state agencies and other related organizations or connecting enterprises in the industry together; (iii) representing the voice of enterprises; (iv) implementing the policy advocacy for the benefits of the industry; (v) participating in other supporting activities related to research, training, industrial standardization, trade promotion or investment attraction.

As for the catfish manufacturing industry, in particular and the seafood industry, in general, VASEP is a typical association having a great role in the development of the industry from the early years of developing the catfish processing and exporting industry in Vietnam (VASEP was established in 1998). Over 20 years of formation and development, VASEP has been acting as a "bridge" connecting enterprises with state management authorities; providing information, participating in the development and promulgation of related policies, representing enterprises in solving difficulties and obstacles in export activities (trade dispute, removal of trade barrier, etc.). In addition, VASEP also performs its function of providing timely updated information on both domestic and foreign markets to state management agencies, scientists, fish farmers, and fishermen, in order to help developing practical policies and programs to regulate the supply-demand of aquatic products. However, enhancing the effectiveness of the above activities is something that VASEP can improve in the future, especially the system of providing full, systematic and timely information or issues related to production and processing standards; policy advocacy, trade promotion or investment attraction. As assessed by enterprises, VASEP has not done well the tasks of linking, unifying its members, and policy advocacy. VASEP also has relative limits in

regulating interests and resolving conflicts among members, so it has not strongly affirmed its role as the voice of association members in promoting the compliance with contracts and pursuing international litigation.

Beside VASEP, the Vietnam pangasius Association (VINAPA), established in 2013, basically covers the basic functions of an organization in charge of promoting the industry development. Although there is an overlap in functions and tasks with VASEP, but VINAPA resources and scope of activities are somewhat limited. As a result, the current role of VINAPA toward enterprises in the industry is reflected as relatively fuzzy in the role of information provider, state management, or support to the industry. In fact, with a grassroots-level role, VINAPA can focus on the role of a bridge and intermediary in collecting, receiving, and sharing information, at the same time, ensuring the function of supervising the execution of policies related to production and processing work and the compliance with the applicable norms and regulations.

The Vietnam Chamber of Commerce and Industry, Can Tho City Branch (VCCI Can Tho) also participates in a number of activities related to trade promotion, investment attraction, and listening to the voice of enterprises in the industry.

As for institutes, schools, and research organizations, their roles of participating in the industry are mainly limited to fingerlings production and aquaculture activities. Activities of processing products to increase the value of exported goods in the catfish industry in recent years have not witnessed any outstanding activities from institutes and schools, mainly because enterprises conduct investment and researches by themselves by cooperation with international enterprises and organizations.

As for state agencies, the catfish industry is identified as a key industry and is interested by both central and local state authorities via a variety of planning projects, value chain linkages, credit supporting activities, defenses for the interests of enterprises in international trade lawsuits, etc.

Effectiveness of the above activities, however, is quite negligible; restructuring and transformation of the industry have been mentioned but stalled at the expectation threshold with no further action in practice and lack of determination strong enough to make the transformation and development of the industry become more sustainable.

Catfish processing cluster competitiveness assessment

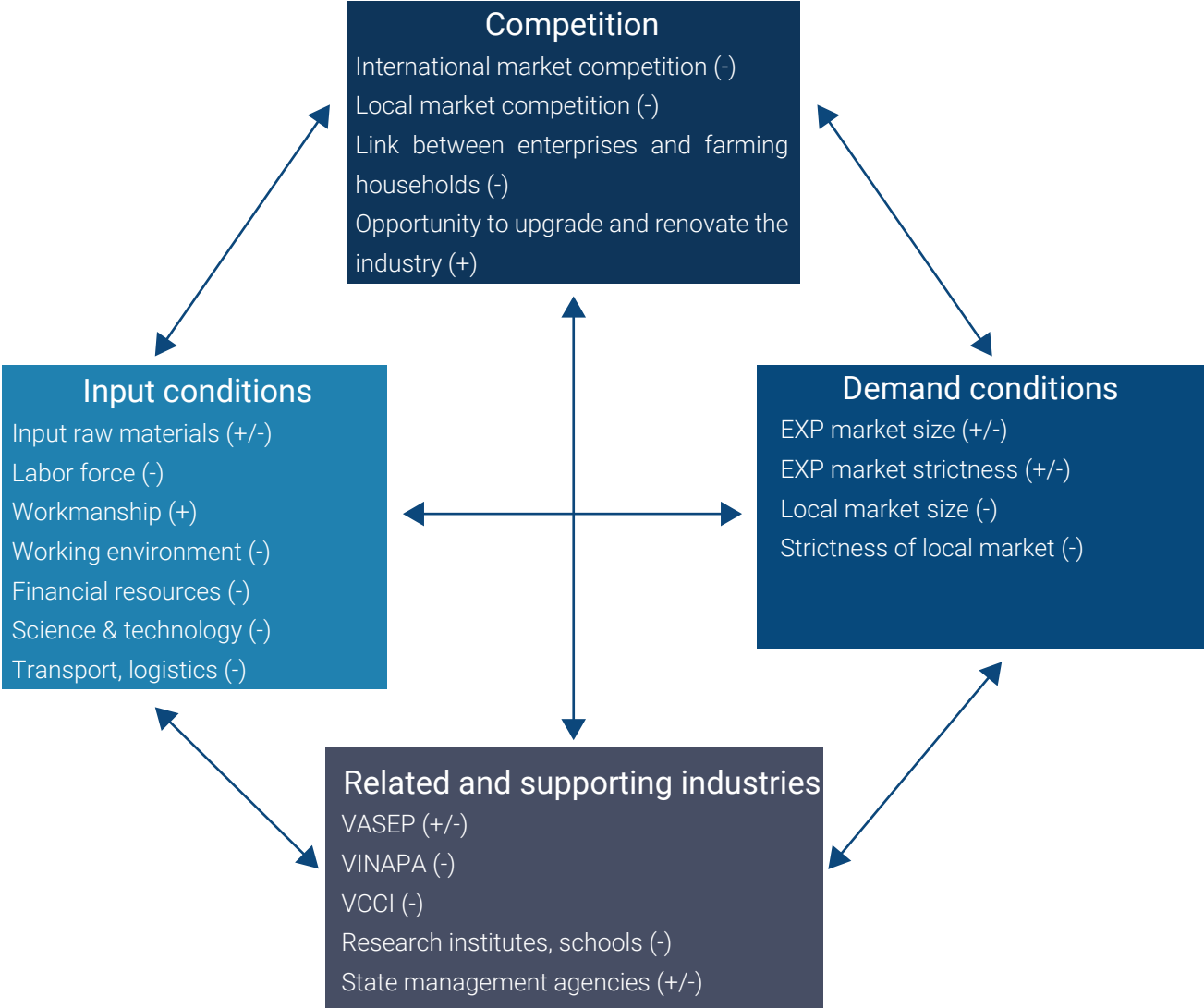
In general, the advantages and shortages, opportunities, and challenges of the catfish processing cluster can be summarized in the diamond model as follows:

In general, the strengths of the industry come from natural conditions (but exploited and used for a

long time and becomes increasingly unfavorable); pioneering in dominating the world market (but facing competition from new competitors); skilled (but unstable in quantity) workforce, and some opportunities derived from free trade agreements, and rooms available to upgrade the sector to a high value-added segment. Meanwhile, most of the remaining factors are in unfavorable conditions.

In such a context, the cluster needs to be restructured to suit the increasingly unfavorable natural conditions and meet the market highest standards, or focuses on research and development of in-depth processed or finished products is an inevitable choice for the sector in the next stages. The roadmap for its shifting and transformation needs to be clearer and more drastic during implementation and execution.

Figure 4.12 Mekong Delta catfish cluster competitiveness assessment



Source: Compiled assessments by authors

Shrimp cluster

The shaping of the cluster and its development

In the 1970s, the model of shrimp farming started to be tested and studied in North Vietnam with wild marine shrimp breeding; by mid-1980s of the last century, black tiger shrimps were successfully researched and produced in Central Vietnam, and subsequently, since 1997, have been strongly developed in the Mekong Delta thanks to its favorable natural conditions, especially in coastal provinces (Ca Mau, Bac Lieu, Soc Trang, and Kien Giang). By 2000, whiteleg shrimps were introduced in Vietnam and developed in Central Vietnam, and later on, since 2007, developed rapidly in the Mekong Delta thanks to smaller farming area and higher yield but lower commercial value (Tran Ngoc Hai et al., 2015).³⁹

With favorable natural conditions, the Mekong Delta has always been the largest shrimp farmer in the country during the last 20 years, though started later than other localities. By end of 2019, the Mekong Delta accounted for 88.1% of the total area of farming and 83.7% of the national shrimp output. However, the growth rate in the period 2010 - 2019 was equal only to about half of the growth rate in the previous period due to the impacts of drought and saltwater intrusion that have significantly

affected the farming areas in the region. An important trend of transformation in the last 10 years was the shift from extensive farming to intensive farming; and the model of whiteleg shrimp farming is increasingly developing (in 2008, the farming area of whiteleg shrimp was less than 1,000 hectares - accounting for 0.15% of the aquaculture area, but until now, it has reached 66,608 hectares - accounting for 10.7% of the whole farming area of the region).

As of 2019, the country has about 350 shrimp processing facilities, of which about 200 have been approved by the EU for periodic field inspection.⁴⁰ Beside the domestic market, enterprises have exported to more than 150 countries around the world with a turnover of USD 3.4 billion (1.6 times higher than that in 2010), an average growth of 5.3% per year, and Vietnam is always among the world's Top five shrimp exporting countries. However, the shrimp processing and exporting industry has faced many limitations and challenges: unstable raw materials with quality difficult to control; main product consists of raw materials or semi-processing, and thus the value added to the manufacturing industry remains low; the infrastructure serving the farming area remains limited; enterprises still face difficulties in satisfying the standards and overcome trade barriers; local market demand for shrimps increases more, but is partly supplied with imported shrimps as export processing enterprise mainly focus on exporting their outputs.



³⁹ Hai, T. N., Duc, P. M., Son, V. N., Minh, T. H., & Phuong, N. T. (2015). Innovation in seed production and farming of marine shrimp in Vietnam. *World Aquaculture*, 46(1), 32-37.

⁴⁰ VASEP (2019). Overview of shrimp industry. http://vasep.com.vn/Tin-Tuc/1017_56183/Tong-quan-nganh-tom.htm

Input factors

Natural conditions

Out of 13 coastal provinces in the Mekong Delta, eight meet the conditions for brackish water shrimp farming, including Long An, Tien Giang, Kien Giang, Ca Mau, Soc Trang, Ben Tre, Tra Vinh, and Bac Lieu.

Weather conditions and mild climate are favorable for the brackish water shrimp farming. Flat topography and the area for developing the industry still have great potential for the formation of large and concentrated shrimp farming areas. However, the phenomenon of climate change has affected the production of shrimp, giving rise to diseases and decrease of shrimp growth; rising sea level can also risk losing the brackish water shrimp farming area of coastal provinces.

Source of production inputs

Shrimp is a popular product for daily use and can be consumed in domestic market or used for export. In 2018, domestic processing enterprises consumed 1.4 million tons of shrimp, 1.7 times of domestic shrimp production. As a consequence, Vietnam now has to import shrimps to serve the domestic consumption and probably imported inputs for export processing.

In 2010, Vietnam imported about USD 100 million of shrimps of all kinds, but by 2018, Vietnam's shrimp import turnover reached USD 1.9 billion. The majority of these imported shrimps are temporarily imported for trans-shipment to the Chinese market. Import of shrimp from India and Ecuador for export also started to take place, especially after shrimp farming areas were badly affected by EMS disease (2010 – 2015), or the attempt to export Indian shrimps to the U.S via Vietnam after U.S. tax incentives for imported Indian shrimp products ended. This, however, can seriously affect the country's shrimp export industry if quality control is not strongly put in place and certification of origin is

not clear (the incident of Minh Phu enterprise accused by the US Customs and Border Protection Department for avoidance of anti-dumping tax in 2019 was a lesson for enterprises and relevant agencies).⁴¹

According to Decision No. 5528/QĐ-BNN-TCTS by MARD approving the plan for brackish water shrimp farming in the Mekong Delta until 2020, the demand for brackish shrimp seeds in the Mekong Delta is 120 billion (40 billion for black tiger shrimps and 80 billion for whiteleg shrimps) and by 2030 it will be 160 billion (60 billion of black tiger shrimps and 100 billion for whiteleg shrimps). According to planning, by 2020, the Mekong Delta will be able to meet 50% of the demand for SPF shrimp seeds produced in the region and 100% by 2030. The reason is that at present time, the majority of broodstocks and shrimp seeds depends on supply sources outside the region, thereby increasing production costs, limiting disease control, and thus adversely affecting shrimp survival rates. Moreover, the increasing production cost of raw shrimps contributes to the weakening of the industry's competitiveness. In addition, a large part of farming households are still stocking at high density and buying low-price shrimp seeds, which created a need of using shrimp seeds of uncontrolled origin, enabling the existence of poor quality shrimp seeds breeding facilities. In contrast to this situation, though not very ubiquitous, the participation in hind market by seafood export processing enterprises, and the vertical link between large shrimp hatchery enterprises and economic cooperative organizations in farming areas (cooperation groups and cooperatives) have contributed to enhancing the quality of SPF shrimp seeds, as well as improving the behavior in using shrimp seeds in a quality-oriented way together with the stocking practice at appropriate density.

Although the Mekong Delta maintains a relatively high production growth (9% per year compared to 8% per year of the whole country), in general, the growth rate has decreased by about a half compared to the growth rate in the 2000-2010 period (about 17-17.5% per year).

⁴¹ Le Thu (2019). *Transisting in Vietnam to re-export shrimp*. Online Customs Newspaper: <https://haiquanonline.com.vn/mu-on-duong-viet-nam-nhap-khau-tom-106263.html>

According to a research by Nguyen Phu Son and Nguyen Thuy Trang (2017), the proportion of feed cost for shrimp is the highest in the production cost of raw shrimp (about 50% for black tiger shrimp and 53% for whiteleg shrimp in intensive farming). Therefore, after seed resources, feed is considered the second most important resource for the shrimp industry. Currently, the Mekong Delta has a dense shrimp feed distribution system (often accompanied by aquaculture drugs), which makes it very convenient for farmers to make different choices when buying raw materials for shrimp farming. In general, the food supply in the Mekong Delta is sufficient to meet shrimp farming needs. Although the supply is not inadequate, farmers still have to pay a high cost for this item in the price structure. The reason is that the price of aquatic feeds has increased and the farming households have no association to buy large orders to enjoy cheap prices and stable feed quality.

From the aquacultural perspective, the increase in production will face many challenges: (i) the risk of disease can subject the farming area to total losses at any time; (ii) abnormal, volatile weather conditions (rain, drought) can change environmental conditions of the farming area, affecting production; (iii) the cost of aquaculture in Vietnam is often higher than that in other countries due to inadequate seed quality, depending on seed supplies from the Central region or FDI enterprises; feed (~ 50% of cost) and drugs - probiotics (~ 15% of cost) keep increasing in terms of price due to a dependency on FDI enterprises; (iv) the scalability and

development of farming areas are significantly affected by saline intrusion and extreme weather, hence increasingly polluted farming environment; (vi) unstable power infrastructure; and (vii) fluctuating raw shrimp prices, subject to the world market demand and strongly regulated by traders or large processing enterprises.

From the perspective of processing enterprises, the stabilization of production inputs is the biggest challenge. Enterprises dare not sign export contracts of great value because they cannot be self-sufficient and ensure the availability of required raw materials. They can produce and manage about only 40% of raw material resources. The rest depends on purchase from farmers, but the yield and quality of raw materials can only be assessed at the end of the crop.

Another important issue that limits the ability of businesses to expand their own farming areas by themselves is the issue of land. Enterprises do not have enough land to invest and develop farming areas by themselves; often encounter difficulties in mechanisms and plans for reclamation, conversion, or long-term lease for investment. Meanwhile, land use by farmer households is fragmented; therefore, it is difficult for enterprises to invest in the application of scientific advances in production when developing cooperation models. In addition, product theft near the time of harvest is relatively common, so businesses choose to buy raw materials from farmers, because farmers are better at managing this risk.

Table 4.2 Shrimp production in the Mekong Delta relative to that of the whole country

Region	Production (tons) and structure (%)					Average production growth	
	2000	2005	2010	2015	2019	2000 – 2010	2010 - 2019
Whole country	93,503	327,194	449,652	634,812	899,840	17.0%	8.0%
% Mekong Delta, of which	73.8%	81.2%	77.2%	80.5%	83.7%	17.5%	9.0%
Ca Mau	51.3%	30.5%	31.3%	28.7%	25.0%	11.9%	6.3%
Soc Trang	16.2%	16.1%	17.5%	17.7%	22.3%	18.5%	11.9%
Bac Lieu	15.1%	23.9%	20.3%	20.5%	18.0%	21.1%	7.6%
Kien Giang	2.6%	6.9%	10.0%	10.2%	11.0%	34.7%	10.1%
Ben Tre	8.4%	9.4%	8.4%	9.2%	9.6%	17.5%	10.6%
Tra Vinh	3.3%	7.4%	6.0%	6.9%	8.2%	24.7%	12.8%
Tien Giang	1.7%	3.0%	3.7%	4.0%	3.8%	27.0%	9.2%
Other provinces	1.4%	2.6%	2.7%	2.7%	2.1%	27.3%	9.0%

Source: General Statistics Office



Labor force

The sector workforce consists of three main groups: (i) workers of shrimp farms; (ii) processing workers in seafood export factories; and (iii) workers of wholesalers who purchase and pre-process shrimp in shrimp farming areas.

The brackish water shrimp industry in the Mekong Delta attracts an average of 1.3 million workers annually (Nguyen Phu Son, 2019). Workers involved in shrimp farming are typically one to two people per household. Shrimp farmers mainly use available family workers at approximately 93%. Workers participating in farming are regularly supported in terms of technical knowledge by local professional organizations and institutes. Farmer households have nearly 20 years of experience, a strong point of labor resources in brackish water shrimp farming in the Mekong Delta. However, a number of households are still unwilling to apply technical advances in safe production, meeting long-term market demand, which leads to heterogeneous product quality and makes the demand for inputs by seafood export processing enterprises hard to meet.

Workers in the shrimp manufacturing industry are mainly unskilled workers; qualifications or training is not required. The demand for workers is very seasonal, especially at harvest time, but redundant during off-season; the labor force, thus, has very low stability. They are always subject to fierce competition among enterprises in the fisheries sector in general, and with other labor-intensive sectors in the region, especially the attraction of the popular jobs market in the Southeast. Similar to the Tra fish manufacturing industry, the work environment in the shrimp manufacturing industry is also relatively harsh. It's quite common that workers switch to other professions after a few years despite an usual inclusion of a 5% support rate for hazardous work environments in their salary. Processing enterprises also give their feedback that changes in the minimum wage policy, regulations on trade union fees, and insurance for unskilled workers are inappropriate and a significant financial burden on enterprises.

Vietnamese workers are valued higher than those of competitors in terms of workmanship. Chinese workers used to be formidable competitors, but as the living standards and incomes of Chinese people increased, unskilled labor intensive processing in China was no longer attractive. India has an abundant workforce but its cultural practices are a concern for importers related to food safety and hygiene. Meanwhile, workers in the Thai farming industry are assessed to be better, but they are not interested in processing activities. In summary, Vietnam is still considered to have advantages in processing activities, but product cost is deemed higher than that of other countries due to disadvantages in raw materials.

Enterprises in the sector are mainly operating in processing for export. There is a common need for skilled workers who know foreign languages to conduct transactions with international partners, though the number is not high. However, the supply of this type of labor force does not meet the demand according to some leading enterprises in the region. Specifically, Can Tho University is a supply hub of professional labor, but the number of workers getting trained there per year is limited

while a number of excellent students move to Ho Chi Minh City after graduation. Meanwhile, labor demand for research activities is not high; it's mainly for technical workers to manage farming areas, rather than processing activities.

Science and technology

As the activities and products of manufacturing industry are pretty monotonous, the demand for science and technology application in processing is not high. Due to the impact of labor shortage in the main season, a number of solutions to replace unskilled labor with machinery application were considered, but those are not applicable because of the specificity of processed shrimp products (fresh agri-products, lack of uniformity of raw materials, and required good-looking products post pre-processing), so humans are still the prioritized choice.

Other machines and production lines for processing are mainly imported. Domestic machinery is used mainly for simple steps, providing additional support to the imported production line system.



Capital and credit

The demand for capital and credit in the industry mainly comes from activities in farming and purchasing of raw materials by processing enterprises.

Farmer households have no collaterals while the cost of seeds, feed, drugs, and bioproducts accounts for about 70% of production costs if there are no diseases or natural disasters, so there is a very high demand for working capital in the season, but this depends entirely on credit from traders, feed agents, and partly from processing enterprises (but also often through purchasers or the system of traders). The official loan amount from credit institutions is approximately 40-50 million VND/crop, mainly by way of mortgaging certificates of land-use rights (lower than the credit line of 75 million VND/crop by traders as mentioned above).⁴² As a result, farmer households' cost of capital use credited from traders is higher than that offered by credit institutions. The ability to pay back debts depends entirely on the revenue at the end of the crop, and the risk of total losses or reduced output in each crop is very high due to characteristics of the sector.

Needs for capital by processing enterprises mainly originates from raw material purchasing and labor costs, it is thus very seasonal in nature. Leading enterprises have the advantage of their reputation in the industry, but more importantly, their export contracts, stable export partners, and fluctuations in world market prices. Using funds advanced by importers is a popular move to finance short-term capital needs for enterprises, but on the flip side, this approach is very risky because of sudden spikes in material price or abnormal drop in output

price. Meanwhile, investment capital needs are desired mainly for the development of the farming areas of enterprises; however, they are not high, for the ability to develop farming areas is limited by the problems mentioned above.

Infrastructure

Irrigation infrastructure for farming areas faces multiple shortcomings; water for aquaculture shared from the same irrigation system for agricultural production, exposes to risks of water pollution and diseases by agricultural use of chemicals, pesticides, and fertilizers, which are discharged to water sources.

Recent development of ground transport has helped the shrimp products in particular and frozen seafood in general improves partly their delivery and export through seaport systems in Ho Chi Minh City and the Southeast.

Container transport systems have been put into use and gradually replaced the previous system with trucks under 10 ton capacity, helping enterprises reduce logistic costs. According to enterprises, however, logistic costs are high, especially for shipments exported to China by road (average cost for a container from the Mekong Delta to be exported through Northern border gates is about 40-60 million VND, higher than the cost of shipments exported to the West coast of the U.S).

Recently, ideas about the need for regional deep-water ports have been brought up, but such ports do not play a significant role for shrimp export processing enterprises in particular and seafood in general, and export via ground transport is still a priority for enterprises.

⁴² Bui Van Trinh (2014). *Access to official credit analysis: The case of shrimp farmers in Tra Vinh*. *Journal of Science - Can Tho University*. Quoted in Duong Van Lang (2019). *Characteristics of the private trader credit model in the shrimp farming industry in the Mekong Delta and policy implications*. MPP Master Thesis, Fulbright University Vietnam.

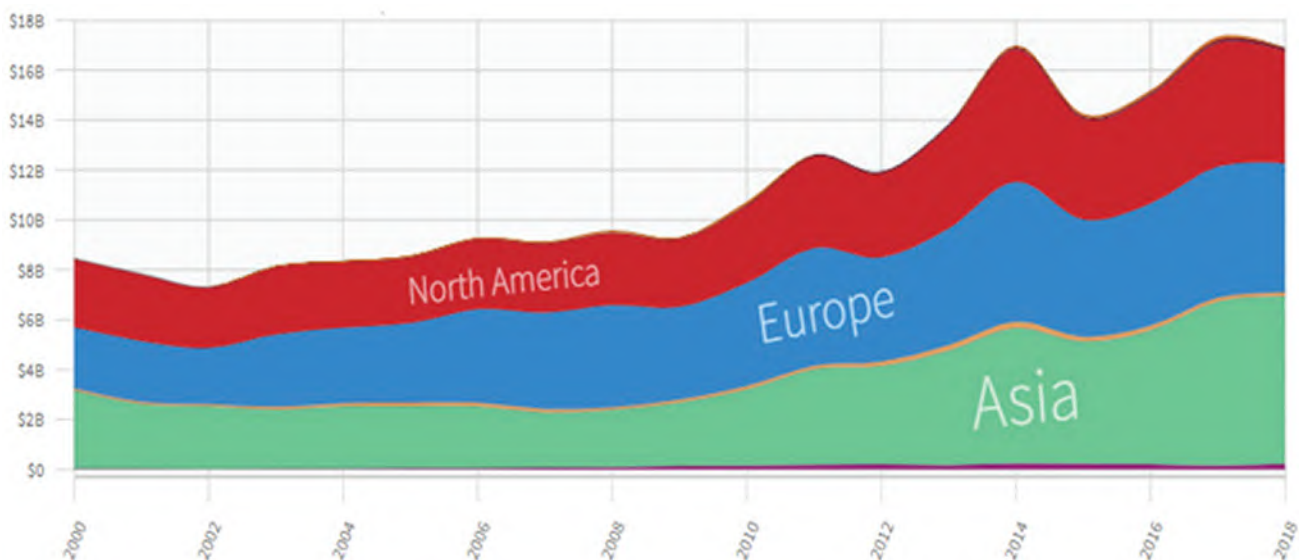
Demand conditions

Growing demand for shrimps due to population growth and increase of people’s income in both export and domestic markets is an opportunity for the development of the sector. Growth in global shrimp demand, ppos-2008 crisis was significantly higher than that in the previous period. However, demand volatility during this period was higher due to two main effects: (i) price fluctuation as farm output was affected by the previous period's procurement and export prices; and (ii) consumption is affected by declination in demand, post economic crises or recessions. This is synonymous to the power of market in eliminating weak enterprises from the market is getting stronger.

If total export value of shrimps nationwide was approximately 2.1 billion USD in 2010⁴³, accounting

for 41.8% of total value of seafood export, in 2019 this figure went up to nearly 3.4 billion USD⁴⁴, accounting for 39.2% of the total seafood value. In 10 years (2010-2019), the shrimp industry had a relatively high growth rate in terms of export value (nearly 60% growth and average annual growth was 5.3%). This indicates that shrimps, mainly whitelegs and black tigers, which are concentrated in Mekong Delta provinces, play an important role in the seafood sector. Demand for whiteleg shrimps has gone up strongly in the past 10 years. From 2010 to 2019, out of nearly 90 Vietnam’s shrimp import markets, the top 5 importers that account for over 80% of the country’s total shrimp export value are the EU, the U.S, Japan, China, and South Korea,. The U.S is the largest importer of whiteleg shrimps from Vietnam while China & Hong Kong are the largest importers of the country’s black tiger shrimps.

Figure 4.13 Global demand for imported frozen shrimps (billion USD)



Source: Atlas of Economic Complexity, Harvard University

⁴³ VASEP, 2018. "Report on Vietnam shrimp industry, 2008-2017"

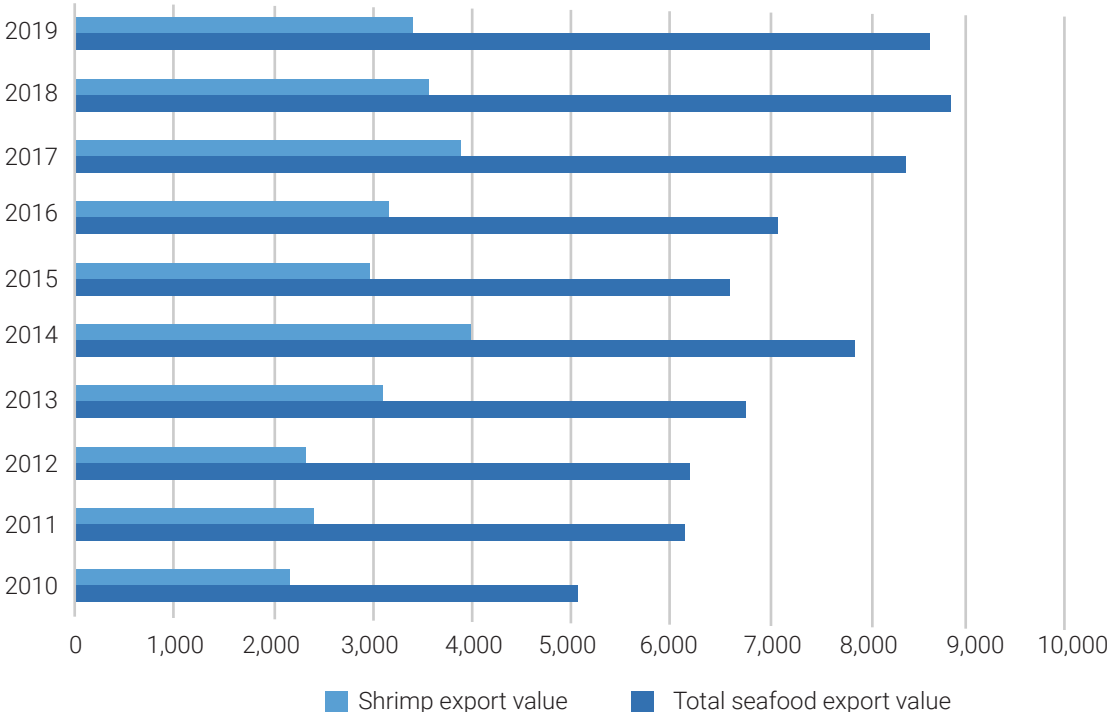
⁴⁴ VASEP, 31/12/2019. "Vietnam Seafood Exports Report 2019"



Vietnamese shrimp processing and export industry faces significant competition in the global market by competitors such as India, Ecuador, Indonesia, China, and Thailand. The last 10 years have seen strong rise of India and Ecuador in contrast with declines of China and Thailand while Vietnam and Indonesia maintain export market shares with insignificant reductions. India has the most abundant

supplies of inputs but it has limitations in processing. Thailand has good production capacity but not interested in processing and is focusing only in demanding markets. Chinese shrimp production is declining due to environmental pollution and increased labour cost. Ecuador and Indonesia have different harvest and processing seasons from those of Vietnam.

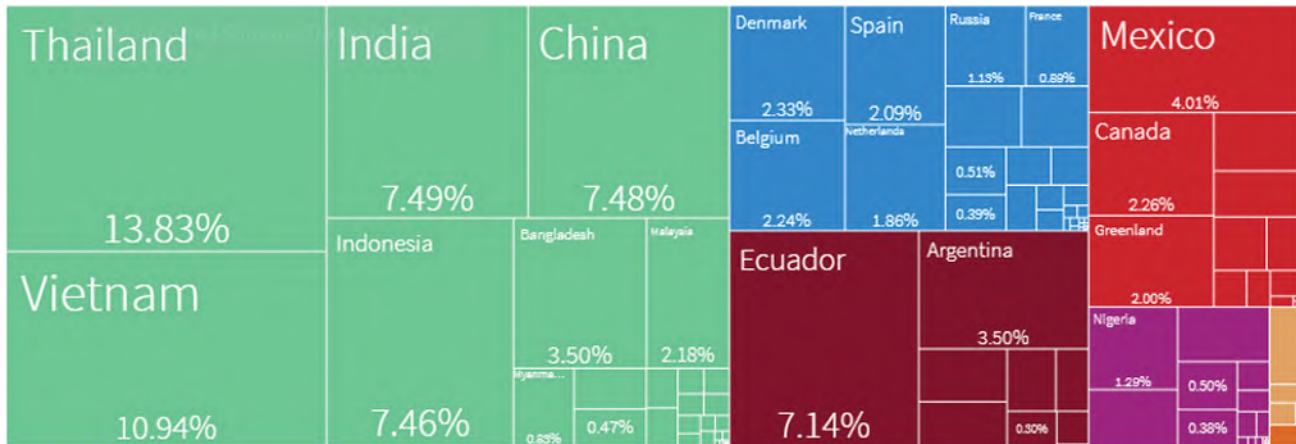
Figure 4.14 Proportion of shrimp EXV in Vietnam’s total seafood EXV in 2010-2019 (million USD)



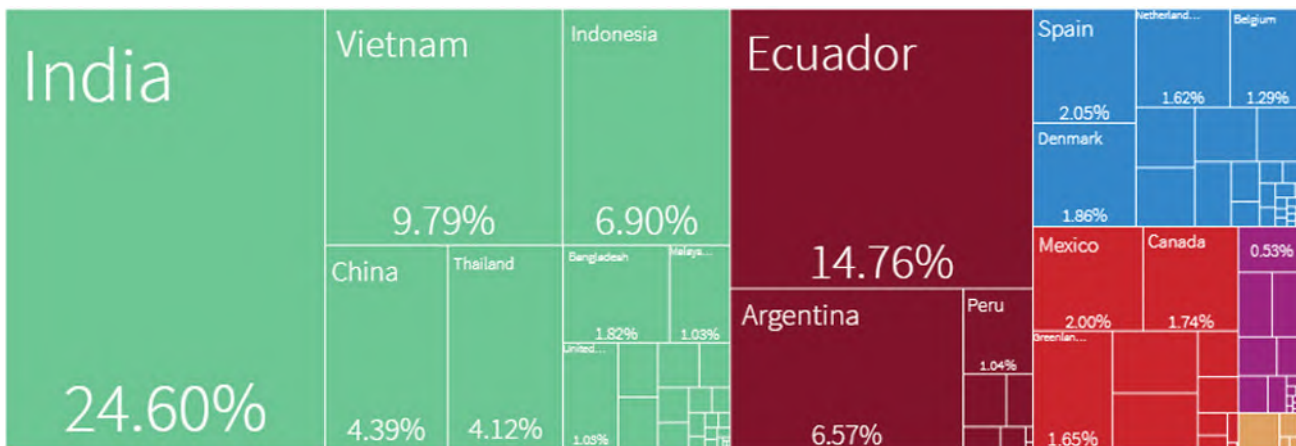
Source: VASEP and MOIT

Figure 4.15 Global export market shares of materials for frozen shrimps 2009 and 2018⁴⁵

2009



2018



Source: *Atlas of Economic Complexity*, Harvard University

Compared to frozen raw shrimp market, the global market of semi-processed and processed shrimps has a comparable growth (5.8% per year compared to 6% of frozen shrimp material market) but the trend of growth slackened in the 2010 – 2018 period (between 2000 and 2010, average growth rate was 7% per year), especially there was almost no growth in the 2010 – 2016 period prior to a quick recovery in recent years. Market size remains at 37 – 38% compared to that of frozen shrimp.

Regarding this abovementioned segment, China, Vietnam, and Thailand are strong competitors with almost comparable market shares of 21.2% - 18.7% and 16.2%, respectively in 2018. Compared to 2009, the market of processed shrimps has a significant shift from Thailand (33.3%) to Vietnam (8%) and China (15.7%). This shows that the trend of transition to processing activities to augment added export value has been inevitable, as shown by China in addressing the problem of contaminated farming area and increased labour cost.

⁴⁵ Note to be taken that data from *Atlas of Economic Complexity* (Harvard University) may be different from Vietnam's statistics due to different sources and methods of adjustments.

Regarding Vietnam’s shrimp export, the general trend shows that in the 2010 – 2019 period the growth was only 5.8% per year, a significant reduction compared to the previous 2000 – 2010. Except the bumper year of 2014 witnessing a strong rise of whiteleg shrimp export, the recent five years’ trend shows that Vietnam export turnover has saturated, while the growth of world market has been faster. This shows a significant influence of material supplies and competition from other competitors, especially India.

A positive point in shrimp processing and export of Vietnam in general and the Mekong Delta in particular is that the market share of processed and semi-processed shrimps continues increasing more quickly than the export of shrimp from 2010 until now.

As for shrimp import markets, the EU, U.S, Japan, and China are Vietnam’s key markets recently (accounting for 75% of export). Whiteleg shrimps are preferred by the EU, U.S, and Japan, whereas China prefers black tiger shrimps.

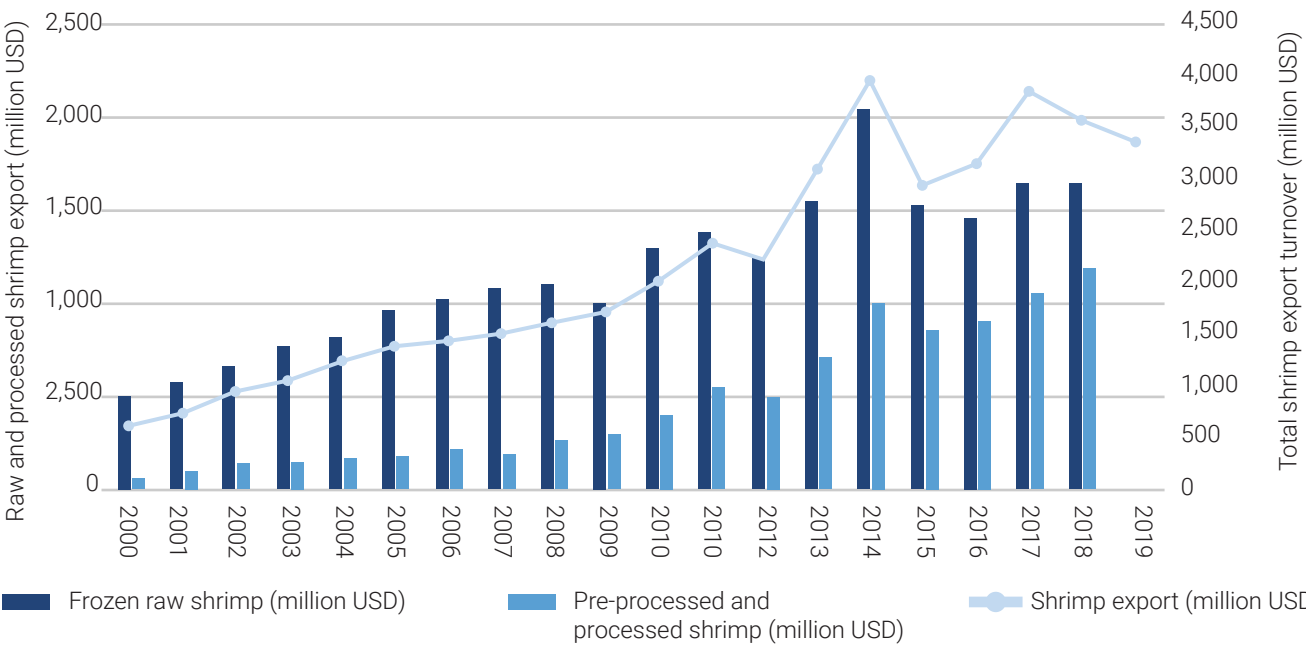
A research by Nguyen Phu Son et al (2019) has pointed out opportunities for the development of

the shrimp sector such as the world's shrimp consumption, lie in the oversupply trend, especially value-added products; increasing economic integration trend helps enterprises open their markets; strong development of Vietnam tourism will help export processing enterprises sell their export products right on Vietnam’s territory (on-spot export); and reduced shrimp production in countries that import Vietnam shrimps gives rise to opportunities to increase export price to these markets.

The biggest challenge to Vietnam’s shrimp processing and export industry is quality assurance by regulations on food safety, antibiotic residues, and issues related to anti-dumping litigation by the U.S. On the flip side, Vietnam's shrimp manufacturing industry has the advantage over competing countries thanks to the seasonal element; shrimp consumption often increases during festivals in the first and fourth quarter annually, which is very suitable for farming conditions and seasons in Vietnam.

Regarding domestic market, Vietnam is a very attractive market, but processing enterprises are mainly exploiting export markets.

Figure 4.16 Vietnam’s shrimp export over the years



Source: VASEP và Atlas of Economic Complexity, Harvard University

As for strengths, shrimp is a suitable product for the middle class or higher customer segment given increasing income and middle-class population in Vietnam, leading to increasing seafood demand. In 2019, per capita consumption in Vietnam is 29 kg / person / year, 1.3 times higher than the world average demand.⁴⁶ Besides, tourism is one of the key economic sectors of Vietnam where the demand for shrimps are higher.

As for weaknesses, Vietnamese people like fresh or unprocessed products, therefore access to this market faces difficulties. Moreover, for export processing enterprises, investing in the finished product processing segment will lead to significant cost of investment in factories and separate production processes. Another reason is that people's preferences for foreign goods.

However, the domestic market is certainly a buffer zone for export markets, at least for farmers, and needs to be exploited by shrimp processing enterprises in particular or by food processing enterprises in the long run.

Competition

The demand in international market continues to increase but unstable; the rise of India is a challenge while the decline of China and Thailand is an opportunity. The EVFTA which goes into effect has a great impact on the industry's export growth as this is the largest export market of Vietnam in recent years. When it comes into effect in 2020 shrimp can enjoy 0% tax rate immediately while taxes on processed shrimps will reduce to 0% after 7 years (as opposed to competitors such as India, Thailand, Indonesia, and Ecuador are subject to tax rates of 4 - 12%). In addition, India is facing difficulties exporting its shrimps to Thailand and is in danger of being banned from exporting to the EU due to antibiotic residue problem. This is an opportunity for the shrimp industry in Vietnam in general and the Mekong Delta in particular to increase its competitiveness.

Also, the sector faces other challenges and difficulties such as: Vietnamese shrimp production costs are higher than those in India and Thailand, resulting in higher export shrimp price from 1-1.2 USD/kg; India and Thailand are increasing investment in developing the sector through large projects, thereby challenging Vietnam's. In the wave of increasing foreign investment flow in Vietnam, foreign shrimp competitors' relocation of processing factories to Vietnam may cause Vietnamese export processing enterprises likely to lose their competitive advantages in terms of labor resources and raw shrimp in situ. Duty rate imposed on India's shrimps in import countries is lower than that of Vietnam's exported shrimps, and this is a disadvantage for Vietnam shrimp export business, in terms of competition. Shrimp outputs of Indonesia and Thailand have been restored since 2016, in addition to the fact that Thailand is going to remove some tariff and non-tariff barriers in seafood exports, and thus creating more competition pressure.

Anti-dumping lawsuits are still an obsession for businesses in the industry (until 2019, there have been a total of 13 finding announcements on anti-dumping lawsuits against Vietnam's shrimp products by the U.S), but there are signs of positive improvement in capacity, readiness and coordination between leading domestic enterprises. The US-China trade war also partly creates an opportunity for Vietnam's shrimp export when Chinese shrimp products are included in commodities imported to the U.S, which are subject to 25% import duty.

In other markets, bilateral trade agreements will help maintain market stability. The remaining problems are the production capacity of domestic export processing enterprises, satisfaction of product quality, safety standards, and satisfaction of origin requirements.

⁴⁶ VASEP. 2019. Overview of Vietnam's seafood: <http://vasep.com.vn/1192/OneContent/tong-quan-nganh.htm>

At home, the competition for raw materials and labor force during high season is relatively fierce among enterprises in the sector. The potential but untapped domestic market remains an opportunity for the development of the sector in the coming time. The impact of climate change is also a challenge for the development of raw material zones to serve both domestic and export demands. Going forward, FDI presence in the shrimp manufacturing industry of Vietnam is both the pressure and driving force for all enterprises in the industry to innovate and enhance their competitiveness. There is also fierce competition in the domestic retail market due to the presence of some leading retailers, e.g., the acquisition of Big C supermarket chain by a Thai group.

Related and supporting industries

VASEP is the only association currently representing the shrimp processing enterprises in Vietnam. It acts as a bridge connecting enterprises and state management agencies at both central and local levels. This organisation also participates in industry-related policy planning and making, but its advocacy role is relatively insignificant. The periodic provision of information online or through publications contributes numerous values to the industry, but information need to be provided in a systematic and easily accessible way to stakeholders, especially via its online platform. In terms of defense

against trade barriers, VASEP is a relatively positive factor. Its roles related to the trade broadcast, promotion and investment attraction are still limited.

Shrimp processing currently does not require a lot of investment in R&D or skilled labor. The major needs are activities related to stocks and production technicians. Aquaculture Institute II, Can Tho University, and a number of universities in the region play a supporting role, but limited in both quantity and quality. At present, stocks can be supplied in sufficient quantity, but their quality has not met expectation and depends much on the supply from the Central region or enterprises and FDI groups in the sector (e.g., Viet-Uc Seafood Corp, CP, etc.).

In the past, the shrimp farming and manufacturing industry has received much attention of the Government and local authorities through various supporting solutions, such as planning of farming areas, promoting high-tech shrimp farming models to cope with impacts from natural calamities, and shrimp industry development action programs. In general, these initiatives are mainly focused on production rather than the processing and output development.



Mekong Delta shrimp processing industry competitiveness assessment

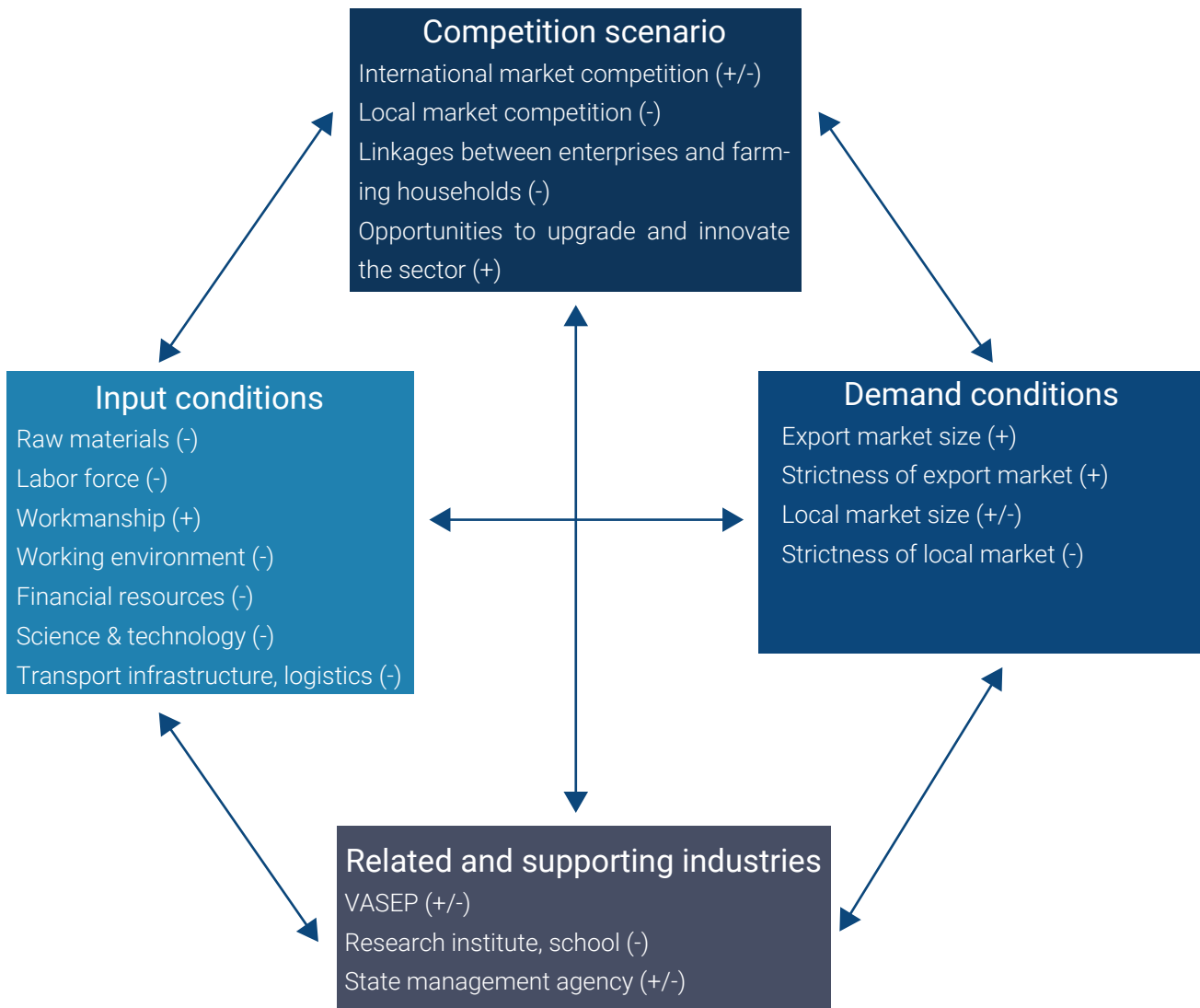
As a whole, the shrimp farming sector has plenty of room for growth in both domestic and international markets despite of relatively high competition. Opportunities from trade agreements and advantages from seasonal characteristics or labor skills are the competitive edge of the industry for now and in the future.

The domestic shrimp production and processing are moving forward in the right direction, but need to be further boosted and directed toward the high-

est product standards of the industry. Shifting farming methods from relying on natural conditions to a high-tech farming models with better control of farming conditions will help reduce the risk of raw material shortages. Obstacles related to land acquisition and/or land-use need to be resolved soon to enable enterprises to actively invest in and expand farming areas. Shrimp processing should be promoted to improve the added value of export products.

The overall competitiveness of the Mekong Delta shrimp manufacturing industry can be summarized in the following diamond model:

Figure 4.17 Mekong Delta shrimp processing cluster competitiveness



Source: Compiled assessment by the authors

Seafood cluster competitiveness assessment

The diagram and competitiveness of the pangasius-shrimp cluster (collectively referred to as the seafood cluster) of the Mekong Delta are summarized in the diagram below:

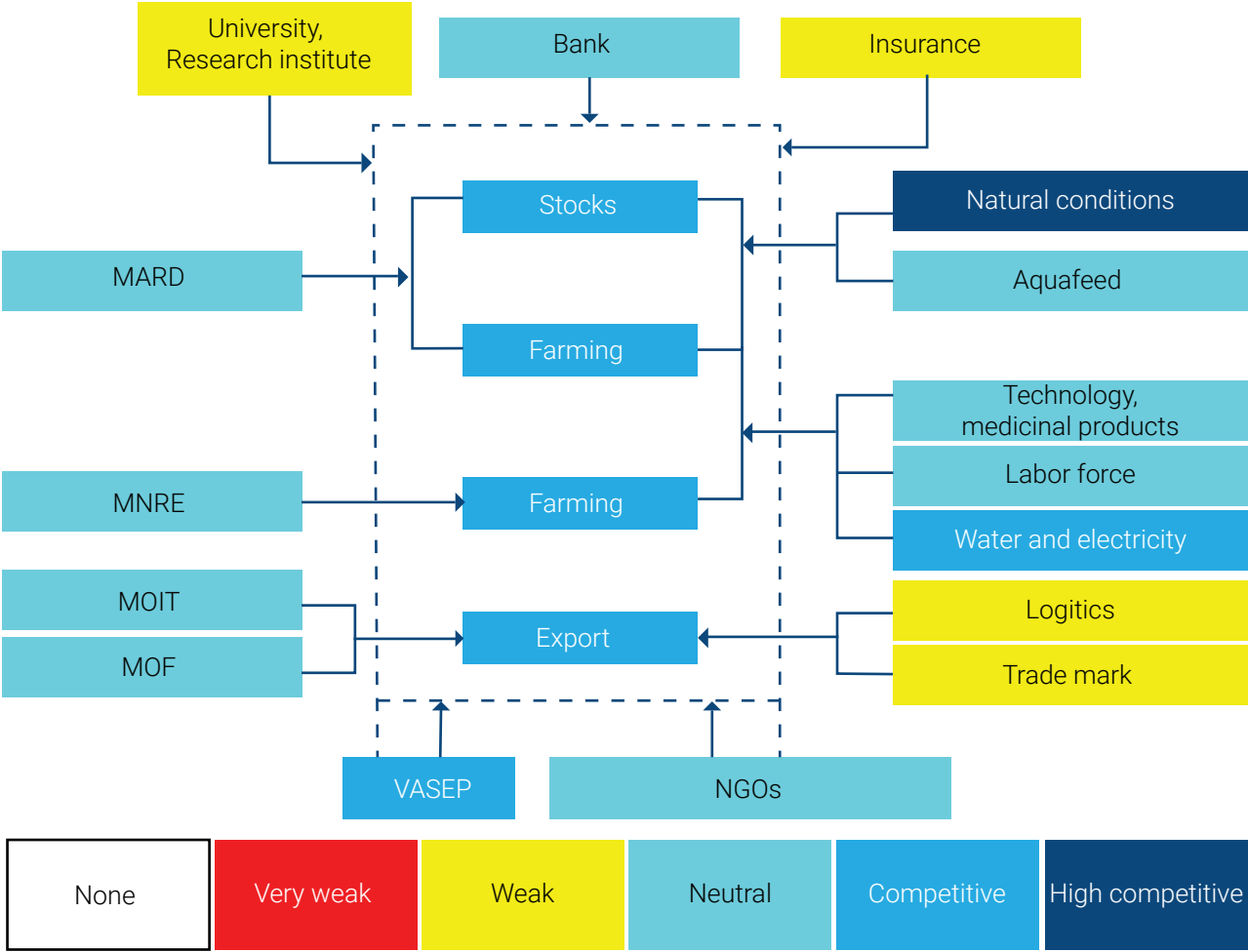
The Mekong Delta seafood cluster has advantageous inputs such as natural conditions for farming thanks to suitable soil conditions and water sources, despite the impacts of climate change and saline intrusion that may limit the industrial cluster's development. Labor force in both shrimp and fish sectors are experienced and qualified enough to meet business needs. However, the shortage and aging of the labor force in farming areas will be a major challenge for the industry in the long run.

In farming, the industry's greatest challenge is to ensure a stable and plentiful supply of disease-free and highly survival stocks. The existing dependence on stocks supply from outside the region is also an important limitation.

The output market of the industrial cluster in the past 10 years has revealed many development steps, but the fierce competition among seafood export countries is a problem that needs solutions from actors participating in the supply chain, as well as from relevant agencies and ministries.

Achievements by the cluster over the past 10 years cannot deny the supports of the Government, MARD, MOIT, and especially the role of VASEP. However, these organizations' involvement has not been fully carried out, especially in assisting the industry to overcome difficulties and challenges as analyzed above.

Figure 4.18 Diagram of the Mekong Delta seafood cluster



The competitiveness of the cluster is largely limited by the weakness in building vertical linkages among actors in the chain, as well as horizontal linkages among members of the same actor group (i.e., between farming households in economic cooperative organizations or among seafood export processing enterprises).

Another factor reducing the competitiveness of the seafood cluster lies in the inadequate transport infrastructure and logistics system in the region and the misalignment among different types of transport.

Solutions and recommendations for seafood cluster competitiveness enhancement

Solutions

Based on the competitiveness assessment findings of the brackish water shrimp and pangasius clusters, the following solutions are proposed to enhance the seafood industry competitiveness in the Mekong Delta:

- Expand farming areas satisfactory to quality standards such as VietGap, GlobalGap, ASC, and BMP based on links with buyers;
- Expand the raw material zones owned by enterprises for proactive supply of stocks;
- Build a model of vertical link between farmers and input products' suppliers on the basis of economic cooperation organizations (ECO), including Cooperatives and cooperation groups;
- Enhance the quality of horizontal link between farming households, based on the reduction of production costs and enhancement of farming households' production level; provide market information for farming areas;
- Strengthen horizontal links among export processing enterprises, on the basis of linking farm-

ing zones together and sharing resources among export processing enterprises;

- Strengthen investments in high quality breeding facilities/enterprises to meet the demand of the market in the locality;
- Enhance the awareness, production level and business skills of farming households in the use of stocks, coupled with the expansion of links between farming households and disease-free stocks suppliers;
- Enhance the technical level, production behavior, business awareness, and market knowledge to participants in the value chain, especially farmers;
- Enhance the management capacity for leaders of the economic cooperation organizations to strengthen the horizontal link to form a basis for building vertical link with input products' suppliers and for consuming output products;
- Develop a system of information on technical matters, economy, weather, input and output markets necessary for participants in the shrimp and fish value chain;
- Strengthen investments in facilities and economic infrastructure, and logistics serving the production, processing, distribution and preservation of products;
- Build up regional link in the supply of stocks, farming and processing for export;
- Develop high-tech shrimp farming model in the form of Cooperatives/cooperation groups connected to buyers;
- Invest in expanding the size, developing the processing of value-added products from shrimps and fishes; and
- Improve the quality of communication and training of market information and knowledge for farming households.



Policy recommendations

To carry out the solutions mentioned in Section A, apart from efforts of farming households/economic cooperation organizations, and export processing enterprises, the State supporting policies are needed, as follows:

- A Decree from the Ministry of Finance is needed as guidelines for the implementation of the Government Decree No. 98/2018/ND-CP regarding the Policy on encouraging the development of cooperation and links in the production and consumption of agricultural products. The reason is that at present time, most of provinces are confused by lack of grounds to issue the limits and objectives for expenditures of the financial subsidy specified in this Decree. Localities in the Mekong Delta, thus, have not yet implemented this policy widely, thereby hindering the formation of links between economic organizations and enterprises;
- The State and Mekong Delta provinces need to build a system of information about regional market for sharing information and techniques between farming areas, and this is also a platform to link farming areas with seafood export processing enterprises;
- Local governments and seafood associations

need policies on encouragement of and support for seafood export processing enterprises in transferring technology, investing in machinery, and promoting trade for the development of value-added shrimp and fish products;

- Governments of localities and seafood associations also need to discuss with financial institutions in the region, commercial banks, micro-financial institutions, and the like on designing financial and credit products in line with the demand of actors in the sector to help these entities overcome the lack of necessary financing for the expansion and development of the production and trade.
- The State needs to develop a master plan program for a common logistic system for the transport in the region, including river ports, warehouses, and packing services to serve the distribution of agricultural products, in general and shrimp and pangasius, in particular, with the purpose of saving costs, enhancing product quality, and hence the competitiveness of the industry;
- Also, there are needs for expansion of policy on calling for domestic and foreign investments in building shrimp and pangasius hatcheries/enterprises, applying high-tech to improve the quality of stocks and cutting down the production costs of stocks, thereby enhancing the competitiveness of the region's shrimps and Tra fish.

Fresh fruit and vegetable cluster

The Mekong Delta has an outstanding advantage in agriculture thanks to its favorable climate and soil conditions. Previously, farmers mainly grew rice. However, it brings unstable and low income, making the life of a farmer precarious. The conversion of rice cultivation to vegetables and fruit plants is an inevitable trend for more earnings. Compared with rice, the cultivation of vegetables and fruits brings more value and thus more earnings and has been growing at high rate in recent years.

The fruit and vegetable industry has continued to take shape, but also copes with many challenges. At a national level, policies on directing the agricultural economic development toward fruits and vegetables cultivation are incomplete and not effective enough. Mekong Delta vegetable and fruit trademarks are well

known at home and abroad, but linkages among localities are not as tight as expected. Each province still pursues its own policy and the planning of cultivated areas has not taken into account the big picture for a joint direction among provinces in developing the region.

Given existing difficulties, namely the impact of climate change and international trade restrictions caused by the Covid-19 pandemic, the cultivation and trade of Mekong Delta fruits and vegetables face various challenges. On a positive note, this is also an opportunity to re-evaluate the position and capacity of the cluster. The enhancement of competitiveness will help the vegetables and fruits cluster steer toward higher standards required by the increasing demand of domestic and international markets, and thus change the cultivation and trade practices that face multi-weaknesses.



Analysis on fruit and vegetable cluster competitiveness

Input factors

■ Climate

The Mekong Delta is located in the tropical monsoon region, suitable for cultivation and husbandry. It has an interwoven system of rivers, canals, arroyos, which ensures the continuous supply of fresh water all year round to the needs of people and cultivation. Every year the Mekong river pours into the Mekong Delta more than 460 billion cbm on average and carries around 150-200 million tons of alluvial, which is very favorable for the vegetable cultivation.

Recently, natural conditions in the Mekong Delta vary with the tendency of temperature increasing higher than before in the summer and more rainfall in the rainy season. These changes cause worsening diseases and pests with negative effects on agriculture. The impacts of climate change cause deep saltwater intrusion into rivers and inland while upstream hydroelectric dams seriously affect the change of water flow patterns and alluvial, thereby reducing the quality and quantity of water used for agriculture. Also, farmers' agricultural practices of abusive use of chemical products for a long time have caused undeniable pollution to the groundwater and farming environment.

■ Land and soil

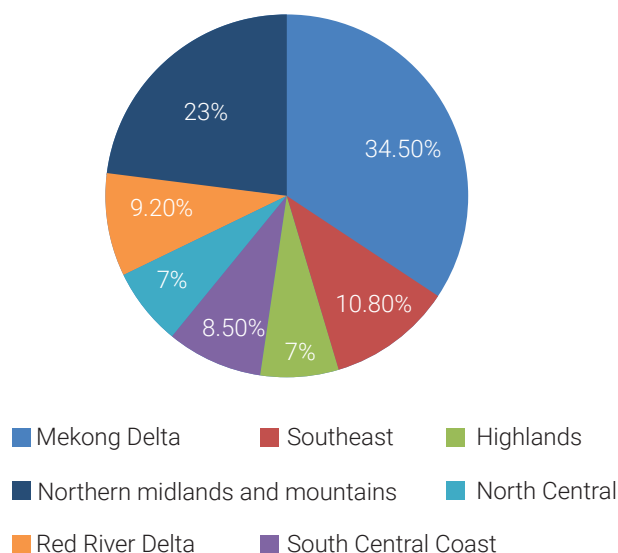
The Mekong Delta's natural land area is about four million hectares, of which about 2.6 million hectares - accounting for 65% - are used for agriculture and aquaculture. Fifty percent (50%) of agricultural land bank is used mainly for annual rice crop – more than 90%. Land specialized for the cultivation of farm produce and short-term industrial crops occupies about 150,000 hectares and over 320,000 hectares

are land for perennial plants, accounting for about 8.2% of the natural area. Every year, the Mekong Delta provides nearly 70% of the whole country's export fruit.

Total area of fruit plants in the Southern provinces has constantly increased. Fruit plants area is estimated at over 596,300 hectares. Out of which, the Mekong Delta is the main fruits growing area, accounting for about 60% of the fruit plants area in South Vietnam. Fruit production output is about 4.3 million tons, accounting for 60% of the national output.

The area of fruit plants in the Mekong Delta is the largest, accounting for 34.5% of the whole country. The fruit export's effectiveness has helped many localities to accelerate the formation of large-scale concentrated fruit produce areas, such as longan (in Tien Giang and Vinh Long); orange (Vinh Long, Hau Giang); mango (Tien Giang, Dong Thap, and An Giang); grapefruit (Ben Tre, Vinh Long); dragon fruit (Long An, Tien Giang); pineapple (Long An, Tien Giang, Kien Giang); and rambutan (Ben Tre); etc.

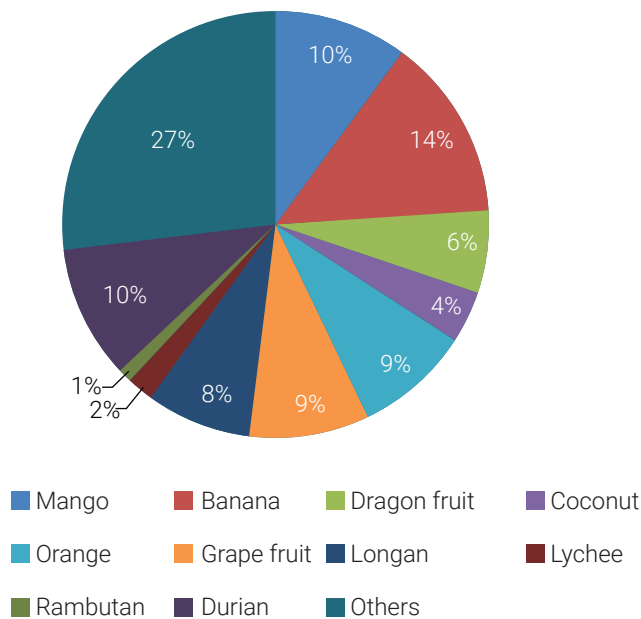
Figure 4.19 Vietnam's fruit production zone, 2019



Source: Department of Crop production

By 2019, the actual fruit produce area reached 596,300 hectares, which is quite high compared to the planned area of 350,000 hectares. From the beginning of 2019 up to now, farmers in the Mekong Delta provinces have converted more than 12,593 hectares of inefficient rice field to cultivation of fruits, such as jackfruits with 4,728 hectares followed by mangoes and oranges with 1,470 hectares for each, and dragon fruits with 1,234 hectares.

Figure 4.20 The Mekong Delta’s total area for fruit produce in 2019



Source: Department of Crop Production

Despite the rapid growth in recent years, the growing area of vegetables and fruits in the future will be difficult to expand due to national food security policies, which restrict the transformation of rice field into fruit plantation in some localities. Saltwater intrusion and less alluvial have also led to less fertile land for agriculture in the region than in the past and the risk of increasing land degradation in the long run. In addition, the actual state of small and fragmented land owned by farming households in the Mekong Delta affects the application of scientific and technological advances to ensure a uniform quality of the region’s vegetables and fruits.

■ Type of fruit plants

The fruits system is diversely developed; many imported fruit types from abroad with high yield and resistance for acidity and salinity were studied and

cross-bred. The salinity resistance of fruit plants varies with the type of cultivar and dissolved salt content in water. However, the salinity resistance of some fruit varieties can be classified in groups, as follows:

- Susceptible-to-salinity fruits (salinity resistance from 0.5‰ to <1‰): banana, longan, papaya, durian, rambutan, langsat, mangosteen, etc.
- Medium-salinity-resistant fruits (salinity resistant from 1‰ to 2‰): cherry, citrus, guava, star apple, etc.
- Fair-salinity-resistant fruits (salinity resistance from 3‰ to 4‰): jackfruit, mango, custard apple, etc.
- Good-salinity-resistant fruits (salinity resistance from 5‰ to 6‰): coconut, sapodilla, tamarind, etc.

At present, varied fruits susceptible-to or medium-resistant to salinity are still planted in quite a large scale. Given stronger impacts by climate change and more serious saltwater intrusion, shift in crop varieties will become a challenge in the future.

■ Human resources

Human resources in the sector include two main groups. The first major group consists of farmers who formerly cultivate rice and now shift to vegetable and fruit cultivation to improve their earnings. This group consists of mostly low educational level, aging, and beyond working age farmers. Although these farmers are not properly trained, they have experiences in farming due to their long-standing attachment to the sector, even farming is "hereditary". Therefore, they have accumulated many practical lessons and have a good understanding of the natural conditions of land in the region. The formal training that these farmers have had is mainly in the form of short-term vocational programs or workshops organized by the Department of Crop Production, cooperatives, industry departments, and non-governmental organizations. The two biggest limitations of this group are in outdated farming practices with tendency to abuse limited resources and agrochemicals and in difficulties to acquire new farming techniques and processes satisfactory to safety standards.

The second major group is higher qualified human resources who are well-trained in agriculture colleges or vocational schools and choose to work or start a career in the vegetable and fruit industry in different sections such as farming, processing or trading. From 2010 on, the qualification of human resources has been improved quite rapidly, but the ratio of trained workers in the region is still low compared to that of the whole country, and there is a large difference between provinces/cities in the region. In 2018, 86.6% of workers in the region did not have a vocational certificate while vocational training workers accounted for 2.8%; intermediate level, 2.7%; college level, 1.7%; and university, 6.2%. The ratio of employment in the agro-forestry-fishery sector has decreased at a slower pace, compared to that of the whole country. Therefore, the economic growth in the region is unstable and has not gone into depth; the economic restructuring and the introduction of scientific and technological advances into production are at slow pace, and the quality, efficiency, and competitiveness of products are still not significant. Compared to other regions, the Mekong Delta still has many limits in human resources and needs more improvement.

■ Transportation

Fruits and vegetables in the Mekong Delta are mainly transported by road for lesser travel time than by waterway and for freshness preservation. The transportation system in the Mekong Delta, however, is underdeveloped. Frequently occurred congestions cause more time-consuming and costly delivery of goods and affect the quality of vegetables and fruits, and hence uncompetitive price.

The system of rivers, canals, and arroyos in the Mekong Delta is interlaced and thus difficult to promote the exploitation of water transport. At the same time, the system of local and international routes, river ports, and seaports in Vietnam is still underdeveloped with misaligned operations, which are the reason why the water transport takes longer traveling time than other means of transport. Consequently, the water transport can affect the preservation of fresh produce; therefore, the waterways are only suitable for processed and canned products,

though they are offered at a lower cost than other means of transport.

■ Technology

The arable land area with applied technology in the Mekong Delta is limited. The existing technology in use is still rudimentary. With the cultivation costs expensive and the consumption of outputs unsure and unstable, there is low motivation for applying technology to the development of agriculture. With limited State budget and priority given to the development of education and health services, the expenditures for technology in the region are negligible.

■ Processing and trade

At present, many large enterprises have made professional agri-investments in a large scale chain, such as Vingroup, PAN Group, Hoang Anh Gia Lai, Loc Troi, NutiFood, Ecofarm, FPT Group, Elcom companies, Vinaseed, and Thaco, etc. These enterprises are carrying out supporting programs and business links with cooperatives and agricultural farming households in order to establish clean and safe food sources; they also contribute to building a modern, methodical, and effective production mentality for farmers through direct provision of trainings and guidance to farmers in need of a clean production process, support for technology, seeds and seedlings, quality control during production and before harvesting, purchase of products, and brand development support.

However, unstable price of agricultural product output, easily broken links between farmers and enterprises as well as lack of mutual confidence are the barriers to their long-term cooperation. Consequently, 90% output of vegetables and fruits in the Mekong Delta are actually distributed through the system of individual traders. The quantity of vegetables and fruits purchased by enterprises for export, local distribution, and processing is very modest, accounting for less than 10% of the total output. This is one of the reasons why the produce output is difficult to penetrate into large, reliable, and sustainable markets.

Demand conditions

■ Domestic consumption market

Regarding distribution channels, the Mekong Delta has favorable conditions with 38 wholesale markets for agri-products. In addition, these products are supplied mainly to wholesale markets in Ho Chi Minh City.

Hanoi and Ho Chi Minh City are two largest markets for domestic fruits and vegetables consumption. According to the Southern Center for Agriculture and Rural Strategy and Policy (SCAP), assessed needs of these two markets showed that Hanoi dwellers consume per capita 86 kg of vegetables/year and 68 kg of fruits/year while HCMC inhabitants consume per capita 84.6 kg of vegetables/year and 74.6 kg of fruits/year. These two major cities annually consume 1.5 million tons of vegetables and 1.2 million tons of fruits. The domestic market for fruits and vegetables remains very potential for this sector's production.

Table 4.3 Export turnover of fresh fruits and vegetables and total export turnover of Vietnam and the world (2016) (1,000 USD)

No.	Indicators	Value
1	Vietnam's export turnover of fresh fruits and vegetables	1,989,687
2	Vietnam's total export turnover	176,580,787
3	World's export turnover of fresh fruits and vegetables	124,185,231
4	World's total export turnover	16,011,181,638

Source: www.trademap.org

The domestic market for fruits and vegetables is considered easy, for many standards on quality as well as food safety and hygien are not too much required. Besides, the spontaneous and informal distribution system of vegetables and fruits is well developed in Vietnam. Alongside with the socio-economic development trend, however, the demand for vegetables and fruits in the country is changing toward the direction of increasing value, quality, and safety. The expansion of the middle class in the future can help change shopping habits of the people when the income per capita increases; consumers will become much more easier in accepting higher prices of agri-products in exchange for quality assurance and especially food hygiene and safety.

■ Export market

According to FAO, between 2016 and 2021, the world's fruits and vegetables market has an average growth rate of 2.88%/year while the world population increases by 1.1%/year from 2011 to 2020. This means there will be an increase of 2.5 billion consumers in 2020; thus it will promote the increase in demand for vegetables and fruits in daily meals. Around the world, the trend of consumption of exotic fruits or import of specialties is on the rise, accompanied by an increase in the consumption of organic vegetables and fruits.

It is estimated that the total transaction value of the world's fruits and vegetables market is about 120 billion USD per year. Only 11 member countries of the CPTPP, of which Vietnam is a signatory, import annually more than 50 billion USD of vegetables and fruits. According to Vinafruit, vegetables and fruits have great export potentials and the world consumption demand will, by estimate, continue to rise up to 3.5-5%. Other forecasts show that the world's fruits

market will reach 200 billion USD by 2030 (Oliver Wynman, 2018). The demand for Vietnamese fruits will increase from 5 million tons to 7 million tons (2009 - 2030) (WB, 2016).

In 2005, Vietnam only exported fruits and vegetables to 36 countries and territories with an export turnover of 235 million USD, but as of 2017, its export turnover reached about 3.45 billion USD,

surpassing the rice export turnover and far exceeding the export turnover of rubber, tea, cashew nuts, etc. However, it's estimated that the total volume of the world's fruit and vegetable market each year is about 120 billion USD. Vietnam, as a country with highly potential export of agri-products, only occupies, at present time, a very small portion in that landscape. Vietnam's fruits export only accounts for 1.4 - 1.5% of the world's import value. Data by ITC shows that, in terms of vegetables and fruits, Vietnam ranks 28th in the total number of exporting countries in the world. This implies that rooms for in Vietnam's export of vegetables and fruits are still very large.



Free trade agreements and international cooperation agreements show Vietnam's deep integration into the world economy for about 20 years up to now. It is expected that fresh fruit and vegetable for export will have a chance to increase strongly if their quality can be well controlled. Large and high value import markets such as the Netherlands, France (EU), the U.S, Japan, and Korea are continuously growing. In addition, markets near Vietnam like China and other ASEAN countries (Singapore, Malaysia, Indonesia, and the Philippines, etc.) have relatively stable growth in output and export turnover. In line with the world economic integration, the demand for fresh fruits and vegetables in economic cooperation blocks will also increase sharply following the removal of tariff barriers.

Fruit export of the Mekong Delta accounts for about

65% of the country's fruit export turnover. Vietnamese fruits have, so far, left their footprints in 60 countries and territories worldwide. Largest consuming markets such as the U.S, China, Japan, Korea, Russia, and Indonesia must be taken into account; and four out of five types of fruits imported by the U.S in bulk are dragon fruit, longan, rambutan, lychee, and star apple, which are all produced in the Mekong Delta.

A major problem for fruit and vegetable export is the dependence on the Chinese market that imports fruits through unofficial channels, causing high fluctuations in price and quantity, and hence risk of uncertain income. In addition, failure to meet the standards of large, reliable, and highly committed markets limits the fruit and vegetable cluster's capacity to expand its export.

Related and supporting industries

■ Quality certification for fruits and vegetables

The agri-product quality certification sector is considered as in "blossom" in the recent period, but is difficult to expand its influence, for most of the cultivated areas in the Mekong Delta are small, fragmented, and not satisfactory to the large-scale management requirements. In addition, the certification fee is quite high compared to the farmers' income while the State, by policy, subsidizes the fees for only one year. The limited farming practice and technical level of the human resources are also major barriers that make it difficult for the quality certification activities to develop.

In Vietnam, the Department of Crop Production has, so far, granted Viet GAP certificates to more than 22,600 hectares of fruits planting areas and granted 452 planting area codes to about 7,600 hectares of fruits such as dragon fruit, rambutan, longan, lychee, mango, and star apple for export to markets that require strict standards such as the U.S, Australia, New Zealand, Japan, Korea, and Taiwan; and 1,200

fruits for export. Mango, rambutan, and jackfruit are respectively granted code numbers 131, 53, and 53 with a total production area for these fruits reaching nearly 40,000 hectares.

Fees schedule for quality certification increases the production costs while the sale of fruits and vegetables to major export markets has not yet expanded, leaving farmers with no motivation to join in quality certification systems. The problem for the agricultural quality certification sector is how to maintain and expand the fruit planting area in conformity with international safety standards in the roadmap of the export market expansion.

■ Logistics

Statistics from the Saigon Newport Corporation show that the total transport demand for rice, seafood, and fruit items for export from the Mekong Delta is about 17-18 million tons/year. Due to the lack of logistics services for import and export goods, about 70% of goods for export have to be hauled to ports in Ho Chi Minh City and Cai Mep by ground transport, resulting in 10-40% spike in transport costs, subject to transport routes.

Table 4.4 Number of planting area codes issued by the end of 2018

No.	Product	Number of codes issued	Area (ha)	Locality
01	Dragon fruit	210	4,000	Long An, Tien Giang provinces
02	Banana	219	20,800	
03	Labels	194	9,900	
04	Watermelon	157	12,200	
05	Mango	84	1,600	Dong Thap
06	Rambutan	34	349	
07	Jackfruit	19		

Source: Department of Crop production

planting area codes to fresh fruits such as dragon fruit, longan, lychee, mango, rambutan, watermelon, jackfruit, and banana for export to China. However, only about 50,000 hectares of land are producing fruits for global export, which only accounts for nearly 5% of the whole country's planting areas of

According to the 2019 Vietnam logistics report, by end of March 2018, the whole country saw 296,469 enterprises having logistics-related business certificates and a total number of employees reaching about 1.5 million people. Meanwhile, the number of enterprises operating in the logistics sector in the Mekong Delta only accounts for 5.2% of the whole country. Investment in logistics development will contribute to helping the Mekong Delta overcome post-harvest losses of up to 45% of many types of agri-products, including vegetables and fruits.³⁵ The central economic sub-region of the Mekong Delta enjoys strategic locations convenient for building logistics centers thanks to transportation connectivity and land bank availability.

³⁵ Thanh Tam (2018) Post-harvest loss of agri-products: Major agricultural bottlenecks: <http://tapchitaic-hinh.vn/nguyen-cuu-trao-doi/that-thoat-nong-san-sau-thu-hoach-diem-nghen-lon-cua-nong-nghiep-144670.html>



■ Cooperatives and associations

The Mekong Delta has 1,800 agricultural cooperatives with over 230,000 members, accounting for 13% of the total number of agricultural cooperatives of the whole country and 15% of the production households in the whole region. Agricultural cooperatives here have organized the largest linked production area in the country with a total area of 450,000 hectares, and more than 71% of communes in the region have an effective agricultural linked production model. According to estimates of the Department of Economic Cooperation and Rural Development, one third of the region's cooperatives have organized and carried out activities assisting their members to respond to and limit the negative impacts caused by climate change. In addition to cooperatives, the Mekong Delta has more than 11,700 cooperation groups with more than 260,000 members, of which farming cooperation group accounts for 46%. These are groups linked together to support the development of the household economy, increase the income, create jobs for members, and are the models for the Mekong Delta to develop more groups of the same and improve the effectiveness of operations in cooperatives in the near term.

Some models of business cooperation and link have seen good results in recent years such as Tan Thuan Tay Cooperative (Dong Thap province) linked with Long Uyen Company for the mango supply and distribution; Binh Hoa Phuoc Cooperative (Vinh Long province), with the Mekong fruit and vegetable company, for rambutan; Nhon Thanh green skin pomelo Cooperation group; Tan Phu Tay green orange Cooperation group; My Duc Tay pomelo Cooperation Group; My Luong pomelo; and green orange Cooperation Group, and so on. However, most of the cooperatives only provide some services to members such as seeds and seedlings, fertilizers, agricultural inputs, and

product distribution without paying sufficient attention to the needs or to make use of capacities of existing equipment, machines and services of cooperative members.

In addition, the "Society" model in Dong Thap province with practical linkages among members in the same sector has brought positive effects on the cooperation and promotion of horizontal business links. The role and impact of Vinafruit, however, have not been clearly shown to farmers, producers, and enterprises operating in the Mekong Delta fruit and vegetable cluster.

■ Credit institutions

Credit institutions such as secured funds for SMEs, supporting funds for cooperatives, and programs that encourage agricultural production restructuring, etc., have increasing activities of providing credit to Cooperatives, individual farmers, and enterprises, but credits granted are still insufficient, compared to actual demand. Timeline to complete a loan program is quite long compared to the seasonal needs of agricultural production; banking procedure for security deposit in order to obtain a loan remains a major obstacle for farmers to access credits from banks. In addition, the farmers' skills for elaborating a project or production plan and/or business plan to meet the requirements of a loan application are still limited and therefore, most of them have to resort to service agencies for documentation, and this causes dependency in loan applications. Cooperatives as well as SMEs still do not have much access to these funding sources or the size of loans is still quite limited compared to the need of expanding production or machineries and equipments serving primary processing and packaging tasks.

Competition

■ Policy

There are not many policies to support the development of the cluster, especially those that promote safe and high quality agriculture in the region and the whole country. The initial policies only stop at the agricultural sector in general through promoting preferential loans to farmers and rural areas and supporting funds for renting VietGAP certification in the first year.

The food security policy makes it difficult for many localities in the region to convert their land from rice cultivation to that of vegetables and fruits, creating barriers to the cluster's development. Besides, the level of linkages among provinces is low, making the value chain of fruits and vegetables produce difficult to develop on a larger scale.

MARD has issued Decision No. 1648/QD-BNN-TT mapping a master plan for concentrated planting of major fruits and for separated planting of dragon fruit, mango, rambutan, durian, and longan. The Steering Committee for harvesting, except for the Department of Agriculture and Rural Development (DARD) of Binh Thuan province - the leader of the dragon fruit group - consists of the remaining four

groups, which are located in the Mekong Delta provinces, namely DARD of Tien Giang as the leader of the durian group; DARD of Dong Thap, the mango group; DARD of Ben Tre, the rambutan group; and DARD of Vinh Long, the longan group.

Reality shows that, for the planning of agricultural clusters, it is necessary to adjust the land use policy toward creating a more flexible land bank, increasing the ability to shift the agricultural land within sectors and objects engaged in agricultural production so that it can be used most effectively (thanks to economy of scale, selection of suitable products, and application of advanced farming methods, etc.).

■ Competitors

According to statistics of the authorities, the import turnover of Vietnamese fruits and vegetables also tends to increase continuously, from 622 million USD in 2015, to 925 million USD in 2016; 1,547 million USD in 2017; 1,745 million USD in 2018; and 1,775 million USD in 2019. Imported vegetables and fruits were mainly from Thailand, China, the U.S, Australia, New Zealand, India, Myanmar, Korea, South Africa, and Chile. Many kinds of imported fresh fruits such as mango, durian, mangosteen, bacon, tamarind, apple, orange, and tangerine, as well as processed produce such as dried fruit, syrup, fruit juice, among others can be planted or made in Vietnam.



In the Southeast Asian region, Thailand is a country with many competitive advantages for the same type of vegetable and fruit produce seen in the Mekong Delta. Agricultural production as well as types of agri-products between Vietnam and Thailand bear many similarities, so they are often in a competitive mode in export markets. Thailand has an area of 51.3 million hectares, of which 40% of Thailand's land area is devoted to agriculture. Specifically, land area for crops at this country is 450 thousand hectares and for fruit plants, about 1.2 million hectares. Out of more than one thousand kinds of fruit plants, 57 types grown for commercial purposes. Kinds of Thai fruits and vegetables that compete strongly with the domestic produce of the same type and are being accepted by our domestic market are longan, durian, bacon, guava, mango, mangosteen, and jackfruit. Also, some other countries have a number of fruits available on the Vietnamese market such as durian from Malaysia, Cavendish banana of the Philippines, and Nevel orange of Australia, etc.

Fruit and vegetable cluster competitiveness assessment

The existing problems the cluster faces derive from two directions: the internal resources of the region and external influences.

This is an industry that represents 14% of the country's GDP, but the number of enterprises is quite modest, accounting for less than 1% of all enterprises operating in this sector. Agri-businesses are mainly household ones. The proportion of enterprises operating in the agricultural sector is modest in the business community (it only accounted for 3.8% in 2018) and mainly focuses on services. Currently, the problems posed for the development of the private sector in the region are: (1) development of private enterprises has not been directed to the sectors considered as strengths of the region; (2) the size of the private sector is still limited; (3) the growth is still based on the mobilization and exploitation of production resources; the capital is deepening; and the shift to growth models based on technology and knowledge is still slow; and (4) the quality for growth is not high due to the lagging impact of economic growth.

In general, the fruit and vegetable industry has not taken advantage of export opportunities. The reason is that marketing is weak and especially the inappropriate farming habits such as the abusive use of chemical fertilizers and pesticides. At the same time, due to history, the raw material areas for growing vegetables and fruits are fragmented and small, making it difficult to create large, safe, and homogeneous goods. Variety is also a drawback to note.



Therefore, in order to export into modern retail or distribution systems of the world, it is necessary to comply with the farming process, ensure the requirements of food hygiene-safety standards and the traceability of products, and use appropriate varieties according to the requirements of the importers.

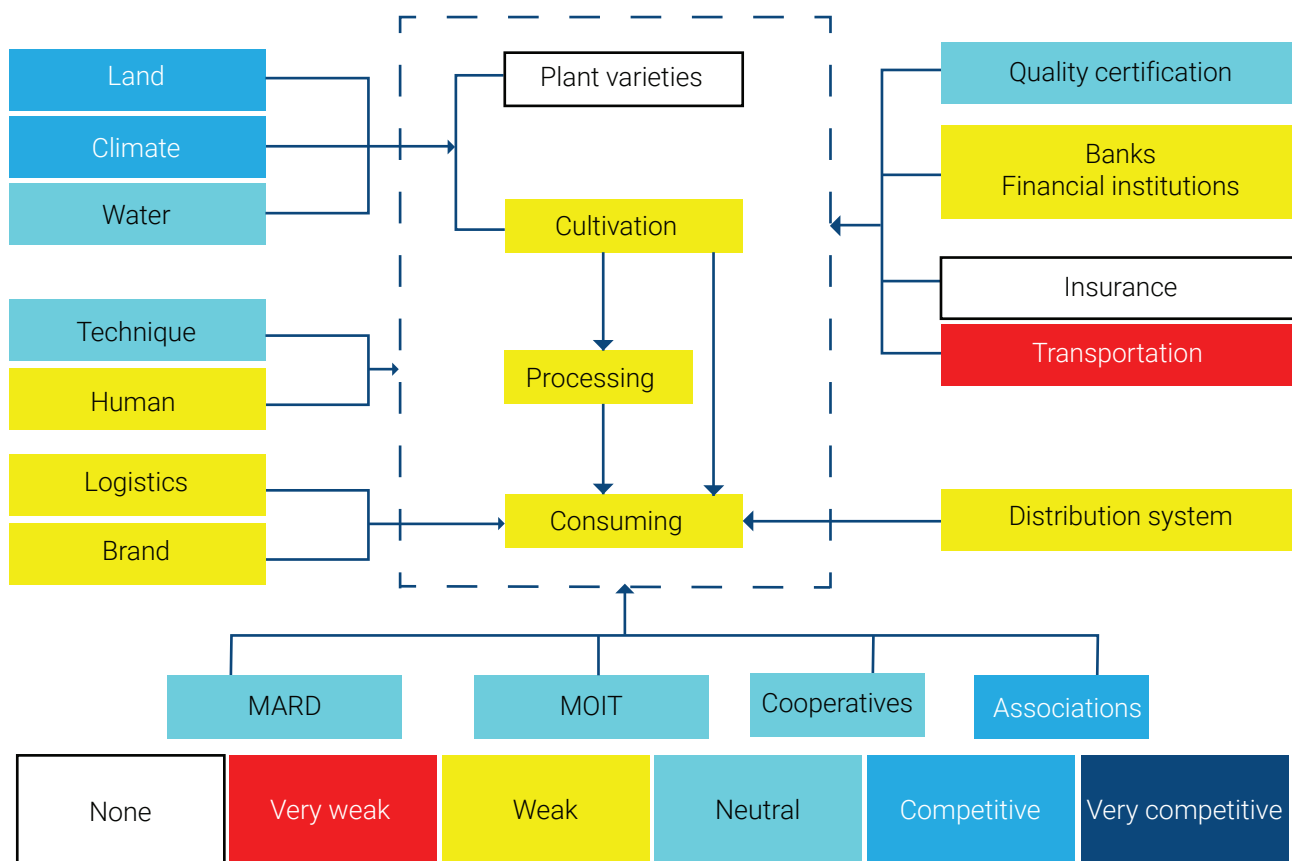
Overall, all the weaknesses and difficulties of the region originate from three main points:

First, the human factor plays the most important role in causing negative effects, leaving many ramifications. The influence of human resources not only comes from education level and capability, but also from attitude and working skills. The biggest inherent weaknesses of workers in the Mekong Delta come from outdated farming practices, rudimentary farming techniques while their ability to absorb new processes that meet international quality standards is not high. In addition, short-term thinking and chasing immediate interests make farmers choose agricultural practices that abuse chemicals and are more likely to be led by traders rather than associating with big cooperatives or processing and trading enterprises.

Second, the Mekong Delta is a "low-lying area" in terms of transport infrastructure, a factor considered the lifeblood of economic activities. The regional fruit and vegetable cluster is seriously affected by the weak transport infrastructure due to the fact that the freshness of produces is required; they need to be moved quickly. Road and waterway transport systems are underdeveloped, resulting to the fact that the logistics of the region has no motivation to grow and has not yet formed a large-scale shipping system to save delivery costs. This, in turn, affects the price of vegetables and fruits, hampering the cluster's competitiveness.

Third, the specific policies for the development of the cluster through out the country and for the region have not been clearly formed, not creating a thrust for cultivation, processing and trade. The food security policies that inhibit land conversion also create barriers to the expansion of fruit and vegetable cultivation. In addition, the linkages among provinces have not been oriented, nor supported by national and regional policies, hindering the Mekong Delta fruit and vegetable brands to grow.

Figure 4.21 Diagram of fruit and vegetable cluster in the Mekong Delta



Policy recommendations

In order to develop sustainable and efficient agricultural production, increase added value and competitiveness of the fruit and vegetable sector in the Mekong Delta, solutions for implementation need to revolve around two axes of major impact: enhancing the internal force of the sector at the regional level and creating the external forces to help promote favorable development for the sector.

■ Strengthening internal forces in the region

Promote research, transfer and application of science and technology and continue to strengthen the quality management of agricultural inputs, food hygiene, and safety;

Actively and dynamically integrate into the world, develop, and improve the quality of human resources; Invest and improve the ground and waterway transportation systems in the area, especially the construction of highways throughout the region should be accelerated to ensure trade activities and linkages, and promptly respond to the shipping requirements of the sector;

Develop agricultural and rural infrastructure and effectively manage investment funds for fundamental constructions and effectively protect and use natural resources; improve institutions and policies to support conversion of rice cultivation land;

Improve the infrastructure, especially the irrigation of the transitioning regions, develop irrigation, and prevent natural disasters to adapt to climate change; take the initiative in measures to respond and protect fruit orchards; make the most of organic materials from straw, hay, dried leaves, water hyacinths or agricultural mulch to cover the roots to keep the plants moist; prune branches, creating neat canopy, and pruning buds and flowers to limit vaporizing; strengthen the dike system around the gardens to prevent saline intrusion and measure salinity before each water intake to avoid watering with a salinity greater than 1‰ for plants in general and to avoid watering with a salinity of more than 0.5 ‰ to avoid damage for fruits that are sensitive to salt such as durian, rambutan, mangosteen, and so on, in particular.

Renovate and develop forms of production organizations and agri-businesses; it is necessary to form and develop agricultural joint stock company and cooperatives; it is necessary to gather farmers in the same planning area for fruit and vegetables produce in a horizontal chain or by associating with a group of companies that have facilities to preserve and process branded produce, have the output of distributing the branded, digitizing the supply sources, and apply trading platforms;

Promote research on solutions to meet the requirements of climate change adaptation in line with the conditions of the region, synchronously resolving the interdisciplinary, inter-regional, inter-provincial overlapping and conflicting issues, bringing into full play the region's potentials, advantages, and comparisons, and turning challenges into opportunities in the context of globalization and international economic integration.

■ Creating external boosting forces

Strongly develop the consumer market for agricultural products both domestically and for export; organize production associated with consumption and mechanize production.

Build and complete institutions and policies in the agricultural and rural sectors; utilize the strengths of each locality in the overall economic linkage and regional economic development planning (including industry, construction, transport, trade, service, science and technology, and agriculture, etc.) to determine each locality's agricultural strengths to be focused on.

Increase the added value of agri-products and income of agricultural producers through the application of ICT in production and business operations and the application of post-harvest technology to agri-products; propose to MARD to support the construction of a traceability system for agri-products combined with an advanced farm management system to help producers, enterprises, and state management agencies gain more favorable conditions in market access and improve the supply capacity.

Attach to production and business practices through the linkage between the Department of Science and Technology and Hi-Tech Agricultural Park in attracting innovation and invention toward the direction of high efficiency agriculture through the "innovation voucher", orders, and organization of an agricultural initiative council that comprises enterprises, scientists, and management agencies to place research orders on problem solving in practical production - business activities; high-tech agricultural forum should be built to exchange technical issues and market initiatives, among others, with contributions from regions to maintain academic exchange and practical experiences and to promote creative ideas in agriculture.

Build technology transfer linkage models according to the following specific mechanism:

- Linkages among hi-tech agricultural zones: Each high-tech agricultural zone in different areas shares the same functions in accordance with the laws; however, due to the characteristics and advantages of each different area, focus should be placed on different fields of research and technology transfer. Therefore, it is advisable to have a clear division of roles for each specialized hi-tech agricultural zone

in different farming areas to avoid technology overlap between areas to avoid waste of budget. When implementing the assigned field, hi-tech agricultural zones need to connect with each other on the following aspects: (1) sharing and exchanging information (it is able to create a joint database among hi-tech agricultural zones); (2) exchange of experts; (3) exchange of technology transfer; and (4) support in referrals and investment attraction. This mechanism should be issued in the form of a national level document to unify the linkages.

- As for linkages between hi-tech agricultural zones and enterprises: for sectors that are in need of connection between enterprises and farmers, technology needs to be transferred to enterprises so that they can use it as assets to invest in farmers, who, in turn, will produce products to sell to enterprises. This method of technology transfer aims to help farmers realize the benefits to fulfill their commitments to enterprises. However, the State needs to determine what types of technology should be transferred via this approach. In addition, post-harvest technologies should be considered to introduce to enterprises so that these can be put into use to increase added value for Vietnamese agricultural products.





- As for linkages between the hi-tech agricultural zones and cooperatives: For fields where cooperatives have the ability to find outputs and consume products for farmers, hi-tech agricultural zones should give priority to transferring technical advances and technologies to cooperatives so that they can use such technology and techniques as investment assets for cooperative members to attract farmers to join cooperatives.

- As for linkages between hi-tech agricultural zones with universities/institutes: they should work in coordination to implement research, development, testing, and technology transfer projects. Hi-tech agricultural zones should act as a facility for experimentation and demonstration of technology models, as well as for trial practice of hi-tech agricultural researches by universities/institutes; these zones shall also undertake the function of technology transfer from certain universities/institutes' research to enterprises, cooperatives, and farmers. It is difficult for researchers in universities/institutes to conduct technology transfer because in order to sell technology, demonstration models and communication costs are in need. These functions could be taken over by hi-tech agricultural zones. At the same time, schools are the recipients of successfully tested technologies to train and develop human resources in hi-tech agriculture. This model should be legalized and applied nationwide to ensure consistency in implementation.

With respect to organizing forms of fruit and vegetable production and trading in the Mekong Delta, it is necessary to encourage reorganization of agricultur-

al production by households, increasing voluntary linkages among farmers to create better position and greater efficiency for farmers to access the supply of essential services and inputs and output markets, as well as to increase farmers' voice on policies and their enforcement. The model of "farmers' society" (hội quán) in Dong Thap is clearly much more effective than cooperatives; careful reference to this model shall be thus conducted. Also, it is necessary to encourage the application of shared and circular economy models in agricultural clusters and promote the implementation of the "more from less" motto to both reduce costs and further green agriculture in the Mekong Delta. In addition, attention should be paid to remove barriers which play very important roles, i.e., barriers to the business environment such as market access, resources access, information access, informal costs, business costs, compliance costs, and so on. Improving the business environment is another critical issue; this has to be a comprehensive solution, on a continuous and long-term basis. These improvements not only encourage enterprises and facilitate production and business activities, but also enable service providers to diversify and improve the quality of their services. In addition, it is very important to find solutions to meet the requirements of climate change adaptation in line with the conditions of the region, to synchronously solve overlapping and conflicting inter-disciplinary, inter-regional, and inter-provincial issues, and to maximize the region's potentials and competitive advantages, seeking opportunities from challenges in the context of globalization and international economic integration.

Tourism cluster

Travel is like a gemstone; it's born naturally after a long enough time to gather the essence of Heaven and Earth. In order for that piece of gem to shine and meet all eyes, however, sharpening and polishing by artisans are a must. Tourism resources also take time to shape and have a unique appearance to suit the taste of visitors, but for tourism products to develop into a sophisticated and creative whole, it requires the support of policies, stakeholders, and related sectors.

In the past, tourism was seen as a type of entertainment service for the rich and quite unfamiliar in Vietnam. Today, tourism products are becoming more essential, meeting the needs of retreat, entertainment, learning to improve personal values and to regenerate energy in the lives of many people. This

change is due to the income of the people as well as the increasing size of the middle class. Following this trend, the tourism industry in Vietnam will continue to develop rapidly; the forms and ways of organizing tourism activities, however, change continuously through various stages, requiring the dynamics and creativity in providing this service.

The Mekong Delta is abundant with diversified tourism resources; it cannot improve regional competitiveness if be based on that advantage for development alone. For a region like the Mekong, an approach from a cluster perspective will help point out advantages and bottlenecks for development. In terms of competitiveness for tourism, four groups of factors need to be identified and analyzed: factors that constitute tourism products, potential markets, supporting industries, and policy for tourism development.



The constituent factors of the Mekong Delta tourism products

Tourism resources

Based on the characteristics and design capabilities of its respective products, tourism resources in the Mekong Delta can be divided into two major groups:

■ Natural resources

The Mekong Delta comprises 12 provinces and one city of Can Tho, covering an area of 40,000 square kilometers, including the mainland and the Southwestern sea-islands of the country. When thinking of tourism in the Southwestern region, the typical images that come to mind will be the rice fields, criss-crossed rivers, and the pearl island of Phu Quoc. At the first glance, the landscape of the mainland is relatively similar, but if you go deeply, it is not quite so. The Mekong Delta has relatively different sub-regions.

- The fruit cultivated areas along Tien and Hau rivers, which writer Son Nam calls "lush land", now belong to all or part of the provinces of Vinh Long, Dong Thap, Ben Tre, Tien Giang, Soc Trang, Tra Vinh, and city of Can Tho.
- Dong Thap Muoi wetland that covers most of Long An, Tien Giang, and Dong Thap provinces; and Long Xuyen Quadrangle of provinces of An Giang and Kien Giang.
- Coastal wetlands of Tien Giang, Ben Tre, Tra Vinh, Bac Lieu, Ca Mau, and Kien Giang provinces.
- Islands in the West Sea, of which the largest is Phu Quoc.

This difference is relative not only from natural features but also by geographical location, development orientation, and exploitation method of local resources.

It thus can be said that natural resources of the Mekong Delta are quite diverse; it is possible to devel-

op a variety of products associated with "Heaven, Earth and water" in line with the design of ecotourism and experiences (homestay).

■ Cultural and religious resources

The Mekong Delta is a new land; imprint of relics, historical architecture, and religions is not as much as that of the Central and Northern regions. Humanistic assets in the Mekong Delta, however, are a big difference, which can be named just a few as follows:

- Villages – hamlets, built along rivers and canals in line with the concept of "good land is where water flows", urban areas, constructed "on the dock, under the boat", and floating markets on the rivers, all form a second-to-none Southwestern river culture in the country.
- The Khmer culture with hundreds of ancient pagodas found in most of the Mekong Delta provinces, but mostly concentrated in the provinces of Soc Trang and Tra Vinh.
- Major annual festivals of the three ethnic groups Kinh, Hoa, and Khmer; of which the most attractive is the Ngo boat race festival, which takes place at the end of October.
- Types of Vietnamese music such as ancient songs, cai luong, and Khmer five-syllable music are only available in this strip of land.

All tangible and intangible assets have created valuable materials to design a variety of cultural and spiritual tourism products in the Mekong Delta.

In general, the Mekong Delta's resources are abundant and unique, suitable for designing a variety of tourism products to serve the needs and tastes of many domestic and foreign tourists. However, the tourism products of each locality are less different; the ability to attract visitors, prolong their stay, and to increase revenue is thus very difficult. Enterprises and farmers in the region often copy tourism products of one another due to lack of in-depth understanding of the nature of tourism resources and lack of expertise in product development.

Natural conditions

The Mekong Delta is hardly affected by force majeure events such as earthquakes, tsunamis, storms, and floods. Construction of tourist facilities as well as organizing tours, therefore, have little risk compared to other regions. Besides, due to the average temperature of about 30°C, it is possible to travel all year round without being affected by the cold winter.

However, if looking deeply into the environment, the impact of climate change coupled with over-exploitation of potentials and chemical-based agriculture are causing imbalance in the ecosystem, and the groundwater is seriously polluted. The Mekong Delta is gradually becoming less livable, making it less attractive to tourists.

The tourism hubs of the Mekong Delta today are mainly concentrated in the freshwater ecosystem, which is the area of rice cultivation, fruit plants, and aquaculture. As the sea water penetrates more into the inland, the freshwater ecosystem will be narrowed, threatening these hubs. If there is no adaptive measures to these phenomena via ways of developing new products associated with saltwater and brackish water ecosystems, the current tourist destinations in the countryside will hardly survive.

Human resources

Tourism in an area like the Mekong Delta needs to be broadly defined; this could include services that revolve around all tourist activities such as food, accommodation, travel, sightseeing, shopping, and so on. Due to the fact that it cannot be located in a single location or type, the human resources required here should be understood as a supportive human factor that directly and indirectly affects all services offered in a series of tourism products. The human resources then can be viewed as two groups: direct and indirect.

■ Direct human resources

Human resources working in travel companies are mostly capable of organizing tours for domestic tourists, but less able to operate tours for visitors coming directly to the Mekong Delta. In other words, they only have expertise in working with the Vietnamese people and building short and simple tours. Orchestrating tours for foreign visitors to the Mekong Delta before they can visit other regions or neighboring countries, and vice versa, are all done by companies based in Ho Chi Minh City and Hanoi. The Mekong Delta is only considered an "optional" item in tour itineraries, thus the income earned from the value chain for the region is very low.

In addition, the tourism training programs by schools in the region are not different from those of Ho Chi Minh City's. After graduation, thus, students often seek for jobs in urban areas while the rural lacks human resources to develop tourist spots.

Young people trained from universities and colleges have the tendency not to return to their hometowns, so these localities do not have enough head counts to develop tourism strategies. This is a situation that all provinces are facing, especially those located far from Can Tho City.

■ Indirect human resources

As a "low-lying land" in education of the whole country with a high drop-out rate, the Mekong Delta faces difficulties from low educational attainment and low quality of labor. This is a critically key issue that makes the region difficult to build a unique cultural background with nice manners and professional attitude upon providing tourism products to tourists, especially foreign visitors.

In addition, a number of cultural practices and beliefs that are deeply rooted in the lifestyle and thinking of the people in the Southwest go against the requirements for tourism products that are called for professionalism and an industrial style.



Transport infrastructure

Ground transportation system in the Mekong Delta is weak and has not yet established a thorough expressway for the whole region. Current roads are degraded; road surface is narrow while the quality is bad; and traffic congestion occurs on a frequent basis. These make it difficult to travel to the region or consume a lot of time to travel, leaving a negative effect on the competitiveness of the cluster. This bottleneck in transport also makes tourists tend to choose localities with more convenient routes; this, in turn, leads to limited tourism connectivity in the region, i.e., just a few advantageous provinces promote tourism but only revolve around single products.

Although there is a largest river in the country, along with a coastline of hundreds of kilometers long, the infrastructure for tourism exploitation associated with the water surface is very limited. The lack of specialized ports or shared harbors with logistics services providers, makes it impossible to develop tourism by large ships, inherently bringing in revenue and much higher profits than operating tours by small boats. Also, the Mekong Delta is located on the Southeast Asian cruise line; if there is a port for cruiseships connecting Singapore, Thailand, and Malaysia, that will thus create breakthroughs for Vietnam's tourism.

A branded destination

In textbooks of geography around the world, the name Mekong Delta is mentioned quite a lot; it is associated with the image of the vast delta created

by the Mekong River. If we could leverage this brand better, it is easy for the Mekong Delta to be marketable to international visitors.

Demand conditions

The Mekong Delta borders Ho Chi Minh City and the Southeastern industrial provinces - the largest domestic tourism market in the country, near the international gateway of Tan Son Nhat airport that welcomes more than 50% of the country's inbound tourists by air and is on the most important tourist route connecting Cambodia and Thailand. For Northern visitors, the Mekong Delta is one of their favorite destinations, especially places like Ca Mau Cape, Phu Quoc, and Can Tho city. Currently, there are many air routes connecting the Mekong Delta with the northern provinces/cities; high-class air passengers coming here will increase rapidly.

Also, compared to the other six key tourist regions of the country, this is a tourist area having heterogeneous resources which are, by default, associated with the landscape of rice fields, rivers, and sunshine all year round. Around the world, agri-tourism has been very successful in a number of countries such as the U.S, Israel, Taiwan and so on, and is forecasted to continue to thrive as the industry's trend. In Vietnam, especially the Mekong Delta, with its field and village landscape, it is expected to attract tourists from countries of the cold weather such as Europe, America, Canada, and Australia to come exploring. The Mekong Delta is abundant in tropical fruit, vegetable, shrimp and fish. The things that end-users often see in their refrigerators, once they come over here, they can harvest, catch, process, and enjoy by themselves.

Current attractiveness to tourists

According to statistics of localities in the region, the tourism development in 2019 brings the following results:

The number of tourists in this table is seen to be larger than the entire region's. Based on the infrastructure, tourism services, and the number of accommodation rooms, the data reported by some localities may not be compatible with their actual pick-up capacity. Among the provinces, An Giang was the one that received most visitors (9.2 million) and Kien Giang was the one with the highest tourism revenue (22,000 billion VND). These provinces attract visitors the most because there are many different tourism products or their tourism products are different, notably An Giang is a pilgrim, Kien Giang has Phu Quoc Island, Can Tho is a stay-over and night service provider. Provinces with high revenue are largely owing to their grasp of the most important stages in the value chain of tourism, i.e., accommodation, shopping, and activities by night.

Tourists structures

■ Domestic visitors

Currently, there are no complete studies, but through the actual survey, it can be seen that domestic tourists coming to the Mekong Delta are mainly from the region itself, Southeastern, Northern, and Central regions. Local tourists rarely stay over while about half of Southeastern guests stay at least one night; North and Central guests lay over for 2 nights or more. If we categorize guests according to their spending, Northern tourists, which are considered high-class customers, often require three-star services; so many provinces/cities are aiming to attract this segment.

According to the Statistical Yearbook, in the last 2 years, the Mekong Delta tourism has achieved the number of domestic tourists and revenue as follows:

Compared to the whole country, the number of domestic visitors to the Mekong Delta in 2019 accounted for more than 30% (26 million vs. 85 million VND), but the total revenue accounted for less than 2% (12,000 billion vs. 700,000 billion VND).

Table 4.5 Number of visitors and tourism revenue of Mekong Delta cities/provinces in 2019

Locality	Total visitors (million visitors)	International visitors (visitors)	Revenue (billion VND)
An Giang	9.2	120,000	5,500
Can Tho	8.9	410,000	4,400
Kien Giang	8.8	714,000	22,000
Dong Thap	4.0	86,000	1,051
Bac Lieu	2.5	73,500	2,308
Soc Trang	2.4	90,000	1,020
Tien Giang	2.1	850,000	1,160
Ben tre	1.9	800,000	1,791
Long An	1.8	23,500	782
Ca Mau	1.7	29,000	2,500
Vinh Long	1.5	215,000	525
Tra Vinh	1.0	30,000	359
Hau Giang	0.5	25,000	172
Total	46.3	3,466,000	43,568

Source: Departments of Tourism; Departments of Culture, Sports and Tourism; Departments of Culture, Information, Sports, and Tourism of 13 provinces/cities of the Mekong Delta.

Note: The total number of guests is rounded up to units of thousand.

Table 4.6 Total number of domestic tourists and tourism revenue for the Mekong Delta in 2018 and 2019

	2018	2019	Growth (%)
Total domestic tourists (arrivals)	23,270,200	26,132,220	12.3
Total revenue (billion VND)	9,500,000	12,000,000	26.6

Source: Statistical Yearbook 2019

However, if based on the report of the Ministry of Culture, Sports, and Tourism at the Conference on Tourism Development Links between Ho Chi Minh city and 13 Mekong Delta localities on December 14, 2019 in Bac Lieu, the number of tourists coming to the region was estimated at 47 million and stay-over visitors were estimated at 13.5 million while total revenue from tourism was estimated at 30 trillion VND.

It is likely that the application of statistical methods by the agencies are not the same, thus laying out different numbers that show an unbright landscape of the Mekong Delta tourism. However, if based on reports by individual provinces/cities, the tourism development in the region was not necessarily less exciting.

■ International visitors

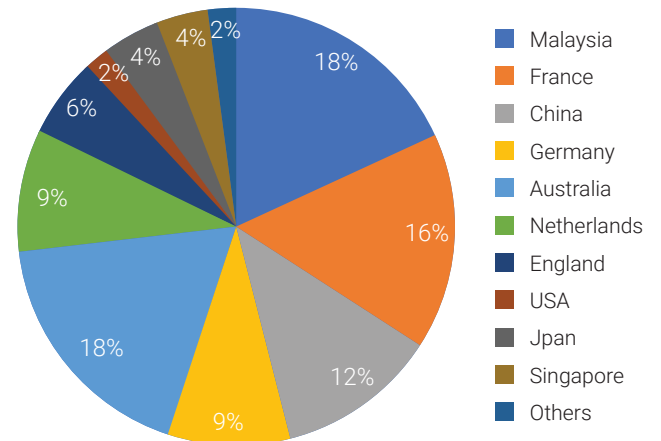
International visitors to the Mekong Delta were estimated at 3.5 million in 2019 (accounting for nearly 20% of the total number of international visitors to Vietnam) and the majority of them left on the same day. Guests that stay overnight usually come from Europe, America, and Australia, and they prefer such accommodations in the country side as lodge, homestay, resort, yacht, and four-five star hotels.

Taking the statistical number of international visitors to Vinh Long as an illustration, we have the resulting structure of visitors by nationalities as shown in the following chart:

Based on the statistics, the Mekong Delta has not received much of the pie from the three main tourist markets (accounting for more than 60% of the total market of Vietnam), i.e., China, South Korea, and Japan; tourists' stay-over rate is even lower. The Mekong Delta, thus, needs to work on these leading

markets to attract these tourists to stay longer if it desires to increase the number of international visitors.

Figure 4.22 Structure of international visitors to Vinh Long in 2019 classified by nationalities (%)



Source: Department of Culture, Sports and Tourism of Vinh Long



Related and supporting industries

Most of tourism enterprises based in the Mekong Delta are small in scale, having limited resources and weak brands. Farmers who wish to switch from agricultural production to tourism development do not have enough fundings and quality human resources.

Direct management departments, i.e., local Departments of Culture, Sports, and Tourism only fulfill their responsibilities in a sufficient way; they have not yet met the requirements of developing an industry that requires dynamism and high level of competitiveness like tourism. On the one hand, this is partly due to the weak institutions of the public sector that have not created the drive force for creative thinking and breakthroughs. On the other, the limited professional capacity of most of the sector officials is a major barrier.

The influence of local tourism associations and business associations is rather fuzzy; dialogues between parties with respect to policy advocacy and solving bottlenecks related to the industry has not brought much value as expected.

Policy for tourism development in the Mekong Delta

Currently, provinces/cities are issuing resolutions on tourism development with different support mechanisms; however, there is a lack of coordination between localities for these policies to have the same voice. An association for market research and destination marketing under the regional brand (Mekong Delta), is not available. There are provinces or groups of provinces in the east and west of the region, often organize separate, discrete, and low-effective promotion programs.

Around the world, agri-tourism has many different names, such as agro-tourism, rural tourism, farm

tours, and so on, and is considered by many countries as the major type of tourism. According to Filippo (2008), more than 10 years ago in Switzerland, about 20% of farms opened tourism operation, and according to the Austrian Farm Holidays, their members have, at the onset, designed farms for tourism purposes, as these services bring in 30 to 40% profit. Austria is one of the countries with the highest per capita tourism income in the world, largely due to agri-tourism.

With diverse resources and good climate all year round, the Mekong Delta has the advantages to develop this type of tourism. Therefore, after the Workshop on "Improving the efficiency of agri-tourism in the Mekong Delta" by the Vietnam National Administration of Tourism held in An Giang province, on October 1, 2018, a number of regional localities promoted the development of this type of tourism. The initial results show that visitors from regional cities and Ho Chi Minh City are very fond of experiencing activities out in the gardens and the fields, as well as staying in farms and bungalows. Provinces that are receiving many tourists from agri-tourism products are Dong Thap, Ben Tre, Soc Trang, and Hau Giang. According to forecasts by many industry experts, this will be a new trend that help the Mekong Delta develop sustainable tourism based on the strengths of agriculture and natural resources.

The Covid-19 pandemic is a disaster that the whole world has never experienced before; many economic sectors have been affected, but perhaps tourism is one of the sectors that is most severely affected. Pre-Covid-19, the favorable conditions for the world tourism to develop continuously for more than 20 years (UNWTO, 2019) were convenient travel, diversified services, and guaranteed health; now these almost exist no longer. Currently, border are closed, travel is restricted, medical costs are high, risks are great, and so on; these are the obstacles that the global tourism industry has encountered.



According to the Vietnam National Administration of Tourism, Vietnam's tourism generates an annual revenue equivalent to 10% of GDP and creates more than four million jobs. Due to the Covid-19 impacts, however, in the first 6 months of 2020, tourism establishments only reached about 20% of their capacity, leaving the number of employees quit their jobs rise up to 70-80%. Especially, entities serving outbound and inbound tourists have almost no revenue because the government closes borders and visitors cannot thus come or leave.

Thanks to the successful anti-epidemic measures in the face of the pandemic's global impact, Vietnam will benefit from these achievements in the long run. According to forecasts by many experts, when scientists have vaccines and medicines for Covid-19, visitors will travel again, and surely the safe destinations like Vietnam will be their priority choice.

As one of the regions having no Covid-19 infection in the community, the Mekong Delta is considered the safest destination in the safe country of Vietnam. The psychology of tourists, post-pandemic is that they desire to travel in near distances, by small groups, and choose natural destinations; these are factors available in the Mekong Delta. Agricultural-, community-, and cultural-tourism products will give the region the upper hand in attracting domestic tourists from Ho Chi Minh City and Hanoi. This is an opportunity for Mekong Delta farmers and businesses to develop medium-standard tourism products to attract domestic tourists. It is also an opportunity for investors to help improve the sector's quality to welcome the influx of international visitors to Vietnam from 2021.

Tourism cluster competitiveness assessment

The tourism industry in the Mekong Delta has a great deal of potentials owing to the availability of natural resources, the ability to attract domestic and foreign tourists based on natural attractions and geographical locations. The above advantages are, however, difficult to put into use because of restrictions by three major bottlenecks:

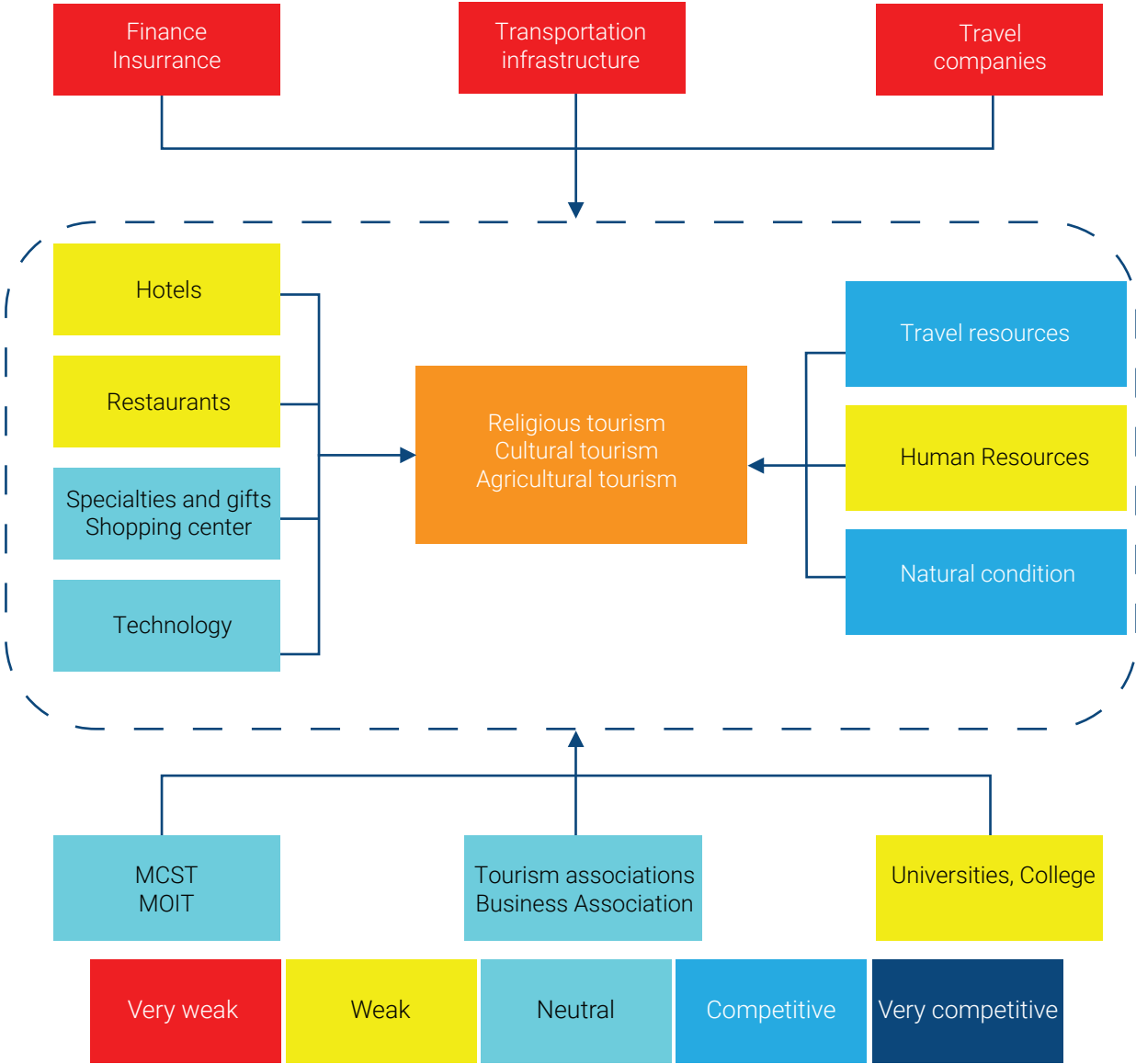
First, weak human resources make it difficult for the regional tourism to promote internal resources. Tourism is an industry where the human factor appears at all stages of the product chain and is highly decisive to the service quality. Poor literacy and quality of the workforce are hindering the construction of a sophisticated tourism suite from the smallest detail.

Second, poor transport infrastructure leads to the loss of regional tourism's competitive advantages. The difficult and time-consuming transportation makes the Mekong Delta difficult to be the preferred destination of choice. Waterway transport is the strength associated with river-based culture, being able to link sightseeing places and forming unique cruise boat tours, but unable to promote due to many limitations on berths.

Third, the role of departments and agencies has not yet brought into play the promotion effect, coupled with the lack of effective support policies, make connectivity between localities in the region be mainly in form rather than in specific values. Tourism activities in the region are also only on a small scale, low value, and gradually being eroded.



Figure 4.23 Diagram of the Mekong Delata tourism cluster



Solutions and recommendations

■ Improving the State management capacity

Tourism business activities involve many industries and people, collectively referred to as "stakeholders". Without the participation of any industry, it will also be difficult to implement a destination development strategy. However, it is a fact that the management officials at all levels, including the tourism profession, are almost very few people with expertise in this industry. Therefore, it is necessary to improve the capacity of the state management sector through sessions/seminars to report on tourism economy, product development operations, and other related topics.

■ Developing two international tourism hubs

The Mekong Delta should be oriented to develop Can Tho and Phu Quoc into two international tourist hubs, as a gateway to welcome visitors for the whole region. The city of Can Tho should build a number of travel companies capable of serving international visitors for the whole country and neighboring countries and invite internationally recognised hotel management brands to cooperate with the local investors. The island city of Phu Quoc, the best location in the Southeast Asia, is located in a sea area that is rarely affected by natural disasters; it thus needs a central vision for marine tourism, retreat, and MICE to connect with other countries in the region. Looking forward, when Ca Mau province has sufficient infrastructure conditions, then Can Tho - Phu Quoc - Ca

Mau can be developed into a tourism triangle as a drive force for the entire Mekong Delta.

■ Developing an agri-tourism training program

Currently, universities and colleges in the region have training programs like those offered in Ho Chi Minh City's and Hanoi's. Agricultural and rural tourism are oriented to be the major products for the Delta. Therefore, it is necessary to have a project to develop curriculum and train teachers to divert training in association with the strategy of developing tourism products of the region.

■ Advising startups in tourism

We should develop an agri-rural tourism start-up advisory framework, with practical study tours for students who want to start a business or convert to tourism. This is how provinces like Tra Vinh, Soc Trang, and Ca Mau are doing effectively.

■ Building tourism infrastructure

There should be tourist ports on Tien and Hau rivers associated with riverside towns, to serve the strategy of calling for investment in yachts with bedrooms inside or simply to organize related tours. At present, many ports in the region with low capacity can also be switched to serve tourism. It is also necessary to establish construction planning for cruiseship ports in Ca Mau and Phu Quoc to welcome large cruise ships that carry thousands of passengers and to connect neighboring countries.





■ Establishing programs and policy pertinent to Mekong Delta tourism

Currently, when it comes to the Mekong Delta, the policy makers only think of the development of agriculture and fisheries in this region. Therefore, the State's target programs mainly aim at ensuring the availability of agri-products for food security and export. The transport systems, especially waterways, are often not designed for tourism purposes. Therefore, it is necessary to include tourism in the production-consumption value chain of the Mekong Delta as clean produce processing is to sell food to tourists and protected and clean environment is to sell holidays in the countryside to tourists.

Also, there should be a common policy applicable to all localities in the region to support rural tourism start-ups, including support for capacity building, financing, taxes, and land.

■ Setting up an organization to develop the region's tourism

Currently all provinces desire to do tourism, but they do not know where to start; the implementation plans are thus ineffective. This can be seen through fragmented product development and promotion and replication by each province or by cluster as well. Due to the lack of market research, there is also no reliable information to support state agencies in their policy making as well as enterprises in their business planning.

According to many experts, the cohesion of geography, resources, and environment of the Mekong Delta

provinces and cities is very high; when it comes to the Mekong Delta, thus, foreigners only think of it as "one block" rather than any single province/city. Therefore, it is necessary to have an advisory agency/organization for product development and joint promotion for regional brands. This organization should be a joint stock company, with the Board of Directors being the Departments of Culture, Sports, and Tourism, having sources of fundings from the promotion activities of the provinces, and recruiting skilled staff who are able to work with foreign partners, keen on, and understand the Mekong Delta. This organization should not be a state agency because we do not need an additional administrative unit; moreover, with the application of the current administrative salary regulations, it is worth being noted that this organization will have difficulties in attracting good human resources.

■ Envisaging the Mekong Delta tourism growth

The Mekong Delta is currently a granary and land of fruits and seafood in Vietnam. However, we need a vision for an agro-rural tourism hub for the next 10 years. When it comes to that, we can refer to the Nine-Dragon Land as a place with a unique economic value chain: a fresh environment - clean production - safe food - and countryside holiday.

By 2030, the tourism industry contributes at least 10% to the GRDP and generates at least 10% of employment. Tourism will turn muddy farmers who just know how to sell agri-products into the ones who do farming and gardening and build shrimp ponds to sell tourism services, or more profoundly, offer experiences to tourists from home and abroad.

Other activities in the manufacturing industry

In 2000s, the development of manufacturing industry using the Mekong Delta's inputs - such as fish, shrimp and agri-products - was once expected to create breakthroughs for the region's economy due to its ability to create jobs, improve livelihoods, and enhance the value of regional agri-products. Apart from that, the natural industrial spillover process of the Southeast helps bring some other manufacturing activities to the Mekong Delta. However, industrial development outcomes in the Mekong Delta are not on par with expectations, as shown in Table 4.7 - Structural shift trends.

First, the role of the manufacturing industry in the region decreases in the period 2010 - 2015 but gradually improves between 2015 and 2019. Compared with the whole country, the decline of the industry in the Mekong Delta in the period 2010 - 2015 is much higher because the output is relatively unstable and depends almost entirely on the world market. In fact, the manufacturing industry of the whole country in

the period 2010 - 2015 was able to maintain its role thanks to the FDI inflows to Vietnam with an unprecedented scale starting post-2008 crisis.

Second, the ratio between the production value of the processing-manufacturing industry and GRDP of the Mekong Delta is always higher than that of the whole country. This is mainly due to the relatively low monotony of the production structure and the relatively low GRDP growth of the region rather than the development of the manufacturing itself. In fact, the scale of the region's manufacturing cluster is falling behind that of the country as its proportion has decreased from 24.9% to 16.9% in the last 10 years.

From a cluster's perspective, however, processing is part of the whole value chain. The processing cluster is a very important link to help the Mekong Delta agriculture improve its productivity and income. Currently, the regional provinces have not been able to strengthen their manufacturing industry to develop agricultural clusters. The catfish and shrimp sectors are the ones with the best processing activities, but they are still quite limited.

Table 4.7 Role of the manufacturing cluster in the Mekong Delta economy and its correlation with the whole country

Regions	% of processing – manufacturing industry relative to GRDP			Average growth (%)		
	2010	2015	2019	2010 - 15	2015 - 19	2010 - 19
An Giang	7.4	6.6	8.1	5.1	8.7	6.7
Bac Lieu	16.9	6.8	8.0	10.6	12.5	11.4
Ben tre	11.1	10.4	13.5	10.6	9.4	10.1
Ca Mau	14.4	13.6	9.2	8.7	9.4	9.0
Can Tho	36.4	25.6	26.4	5.7	10.4	7.8
Dong Thap	17.7	17.1	18.5	8.3	6.3	7.4
Hau Giang	21.2	13.2	17.2	16.2	8.6	12.8
Kien Giang	18.1	10.3	11.7	7.9	9.7	8.7
Long An	30.1	34.9	45.2	16.4	13.8	15.2
Soc Trang	6.4	6.3	8.2	6.8	8.3	7.5
Tien Giang	23.5	15.9	22.4	13.0	10.9	12.0
Tra Vinh	8.3	8.3	8.2	19.5	13.9	17.0
Vinh Long	12.0	15.3	12.9	13.0	7.8	10.6
The Mekong Delta	18.3	15.6	18.6	10.1	10.2	10.2
The whole country	13.0	13.7	16.5	14.2	9.5	12.1
% compared to the whole country	24.9	16.7	16.9			

Source: GSO and Statistical Yearbook of the provinces



The above-mentioned parts analyzed the competitiveness of traditional clusters in the Mekong Delta, including rice, seafood, fresh fruits and vegetables, and tourism.⁴⁷ The remainder of this section will briefly analyze the competitiveness of a number of industrial processing activities, especially labor-intensive industries. These activities have developed in the Mekong Delta in the past decade thanks to the rapid growth of investment demand, especially FDI; the transport infrastructure in the Mekong Delta and improved connectivity with the Southeast; and the spillover effects of industrial activities from the Southeast due to the increasing cost of land and labor in that region.

Labor-intensive processing – manufacturing industries such as textile-garment and footwears have been present in the Mekong Delta before the 2008 crisis to take advantage of the common labor force in the region (for example, Tra Vinh-based My Phong leather shoe company used to have a labor scale of

over 20,000 people). However, over time, this input supply is also gradually saturated and declining because the Southeast's attractiveness is too great, especially when the transportation conditions between the Mekong Delta and the Southeast are increasingly favorable. This shows that the development of other processing industries in the Mekong Delta has mainly been relocated and spilled over from the SE. Accordingly, Long An is the typical locality representing the presence and development of these said industries, and it is not surprised to see it is classified as part of the Southeast key economic region instead of that of the Southwest's.

The following section, therefore, focuses on presenting some outstanding features of the changing manufacturing industry in Long An, from the post-crisis period of 2008 to present, to see whether these opportunities can continue to spread further to other provinces in the Mekong Delta in the next period.

⁴⁷ The Mekong Delta is also famous for other agro-processing activities such as rice, coconut, tubers - fruits, but within the limits of this report, we cannot analyze all the clusters above.

The emergence and development of manufacturing industry in Long An

The development and structural shift toward industries in Long An commenced in the pre-crisis period of 2008. In 2000, agriculture was the main economic activity of the province, accounting for 48.5%, as opposed to services that ranked 2nd (29.8%), while the industry – construction cluster only accounts for 21.7%. By 2010, the structure has shifted significantly from agriculture to the industry – construction – service cluster with the economic structures which are accounted for as follows: agriculture (29.5%), industry – construction (31.3%), and services (35.8%). By 2019, the role of the industry – construction cluster become most prominent with the proportion of 50% (the industry itself accounts for 46.6%), services (27.6%), and agriculture (only 15.9%).

The strong shift in economic structure of Long An originated from Long Hau Industrial Park located in Can Giuoc district, adjacent to Hiep Phuoc port cluster (HCMC), located at the estuary facing the sea of Long An and the development of a series of industrial zones in the next stages, with huge capital flows and the role of the FDI sector, especially from 2007 to present.

Currently, the whole province of Long An has about 35 industrial parks, of which 22 industrial zones have been put into operation; 7 industrial zones are under construction; and 6 industrial zones are at the completion phase of investment procedures. The whole province has 6,651 operating enterprises, of which the processing and manufacturing cluster accounts for 2,554 entities and the number of FDI enterprises is 588.

The role of FDI in industry in general and the manufacturing industry in particular has been positioned from the previous period. Accumulated in the period 1994 - 2011, Long An has a total of 379 projects with a total registered capital of 3.62 billion USD and implemented capital of 1.34 billion USD. The manufacturing industry alone has accounted for 346

projects, with a total registered capital of 2.55 billion USD and implemented capital of 1.093 billion USD. FDI started to increase the most since 2007, then dropped sharply in 2009 due to the crisis but recovered quickly after that.

Accumulated by the end of 2019, FDI in Long An accounts for 68% of the number of projects and 34% of the total capital of the Mekong Delta. The major FDIs in Long An are Taiwan's (125 enterprises), Korea's (63), Japan's (35), China's (35), Singapore's (14), and the U.S's (14), with a focus on groups of key industries such as textile – garment – dyeing, footwear, chemicals and plastics, animal feed, F&B, metals, and metal products. These are also the major groups of the manufacturing industry of Long An from 2010 to present.

The structure of main processed products in Long An has undergone a remarkable shift over the past 10 years. Textile, garment, and footwear are the product groups that have maintained a stable trend in terms of growth and position since the time of industrial development with an average annual growth rate of 15-16%. The average annual growth rate of weaving – dyeing is 15.4%; chemicals, 19.4%; plastics, 15.2%; metals, 16.2; and metal products, 21.2% from 2015 to present. Food and beverages grew rapidly before 2015 (19.6%/year). Paper production after a period of rapid growth has started to decline from 2014 to 2015, but then maintained a high growth rate in the 2016-2019 period (15.4%).

In general, it can be viewed that the processing – manufacturing industry in Long An has grown rapidly in both scale and product portfolio. In the period before 2010, the major industrial production in Long An deprived from textile, garment, footwear, and agro-aquatic processing products only. Since then, the product structure of the manufacturing cluster in Long An has become more diverse, with a focus on light and outsourced industrial goods.

The following section presents the fundamental factors driving another growth of the manufacturing industry in Long An relative to the rest of the Mekong Delta.



Input conditions

■ Geographical location

Long An, adjacent to Ho Chi Minh City, is located at the intersection of many connecting routes: (i) the gateway to the Mekong Delta; (ii) the bridge between Cambodia and the East Sea; and (iii) a possible linking route to Long Thanh - Cai Mep port cluster via Ben Luc - Long Thanh expressway. This prime location enables Long An to develop industries that spill over from Ho Chi Minh City, using the city's basic infrastructure such as airports and seaports. Long An is also able to develop a labor-intensive manufacturing industry thanks to its ability to gather and attract unskilled workers from other provinces in the Mekong Delta and the Southeast region; or develop more specialized processing industries using the existing labor market in HCMC; or develop agro-aquatic product processing industries through the region's gateway role.

■ Land

Relative to Ho Chi Minh City and other provinces in the region, Long An has a relatively large area, low population size and density, non-agricultural land bank of about 20.2%, much higher than that of the whole country (by 11.4%), and flat terrain. These factors are very suitable for business production or for the development of new residential or urban areas, or even favorable for the land clearance to invest in connecting transport infrastructure. Given the increasing land costs and overcrowdings in Ho Chi

Minh City, Binh Duong, and Dong Nai – the localities which have developed industries, Long An is thus a favorable destination for relocation and extension from HCMC in particular and from the whole South-eastern Region in general.

■ Labor and labor skills

Labor force in Long An is not abundant but has the advantageous supply of unskilled labor from the Mekong Delta and skilled workforce from Ho Chi Minh City. The current processing cluster activities are mainly of light and labor intensive ones, thus the supply of labor force both in quantity and quality is guaranteed.

■ Infrastructure

Long An does not own pertinent infrastructure such as airports and international seaports, but thanks to its location of good connection with most of the important infrastructure of the Southeast region, Long An has all the basic and essential infrastructure for industrial development, especially export-oriented processing industries. In addition, Long An has favorable conditions to develop a regional logistics hub thanks to its role of gathering and trans-shipping goods for the whole region. The power grid infrastructure in the central and Eastern and Northern industrial areas of the province is assured, while the Western and the Southern are agricultural areas with limited supply and connectivity. Water supply is ensured in urban and industrial areas, while ground-water and surface water are still in use in rural areas.

■ Investment resources - budget

Given the strategy of prioritizing the industrial development and of attracting the business community to invest and do business, the budget resources in Long An have always been balanced during the past period, namely budget revenues exceeded budget expenditures in 2018 and 2019, with balances of 1,053 billion VND and 3,413 billion VND, respectively. Although the rate of expenditure on the development of investments in Long An is lower than that of the national average, the trend has gradually improved over the past period; this rate was increased from 20.2% in 2015 to 26.0% in 2019 (while the whole country saw a decrease from 31.5% to 25.0% in the same period). Moreover, investment spending in Long An is significantly supported by resources from the non-state sector and FDIs (accounting for 84.2% of the total investment capital while this ratio of the whole country is only 69%). Investment capital in Long An is poured most on the manufacturing industry with the average rate in the whole period 2010 - 2019 reached over 40% (much higher than the average rate of 25% of the whole country).

■ Credit

Compared to the other provinces in the region, the mobilized capital and credit balance in Long An are on average different from the whole region and quite balanced. In 2019, the total mobilized capital in the province is 68,350 billion VND and the total credit capital is 69,807 billion VND. Another advantage for Long An are the credit lines for businesses to enjoy services available in Ho Chi Minh City.

■ Science and technology

Just like other analyzed factors, Long An has no institutes, specialized research centers on science and technology; labor skills are limited, but the province inherits research and application results from HCMC and technologies brought in by FDIs.

Demand conditions

The domestic demand in Long An is small but it can leverage market demands of the Southeast Region and the Mekong Delta; also, the world's and Cambodia's markets have plenty of room for future development thanks to the good connectivity to the airports and seaports in Ho Chi Minh City and Ba Ria – Vung Tau region in the future.

As a focal point, Long An is very suitable for businesses to invest in the development of consumption or supporting goods for the region's industries or agriculture, or of outsourcing-export goods for the world market.

Competition

From an international perspective, the shift of labor-intensive production and light industry activities from China and such developed economies in the region as Japan, Korea, and Taiwan are opportunities for Vietnam in general and the Southern economic region in particular. Long An has the advantages thanks to the position and presence of the existing FDI pool. As a result, FDI attractiveness in Long An over the past 10 years has always remained very high compared to the rest of the Mekong Delta.

From a domestic perspective, the industrial shift from Ho Chi Minh City to the surrounding areas is inevitable; Long An has an advantageous location to attract the industries both from HCMC and other regional provinces due to sea level rise. Competition, however, may come from other localities such as Tay Ninh, Binh Phuoc, and Ba Ria - Vung Tau.

Challenges may come from environmental pollution, especially water pollution, when some manufacturing activities have high environmental risks such as weaving – dyeing, chemical production, etc. This is an issue that needs to be addressed in screening investment projects and in considering trade-offs between economic benefits and environmental pollution.

Related and supporting industries

Long An does not have the presence of industry associations at the national or regional level, related to key industrial activities as mentioned above. Most of support and promotion programs for cooperation at present are adopted mainly through existing organizations in Ho Chi Minh City or conducted by businesses themselves.

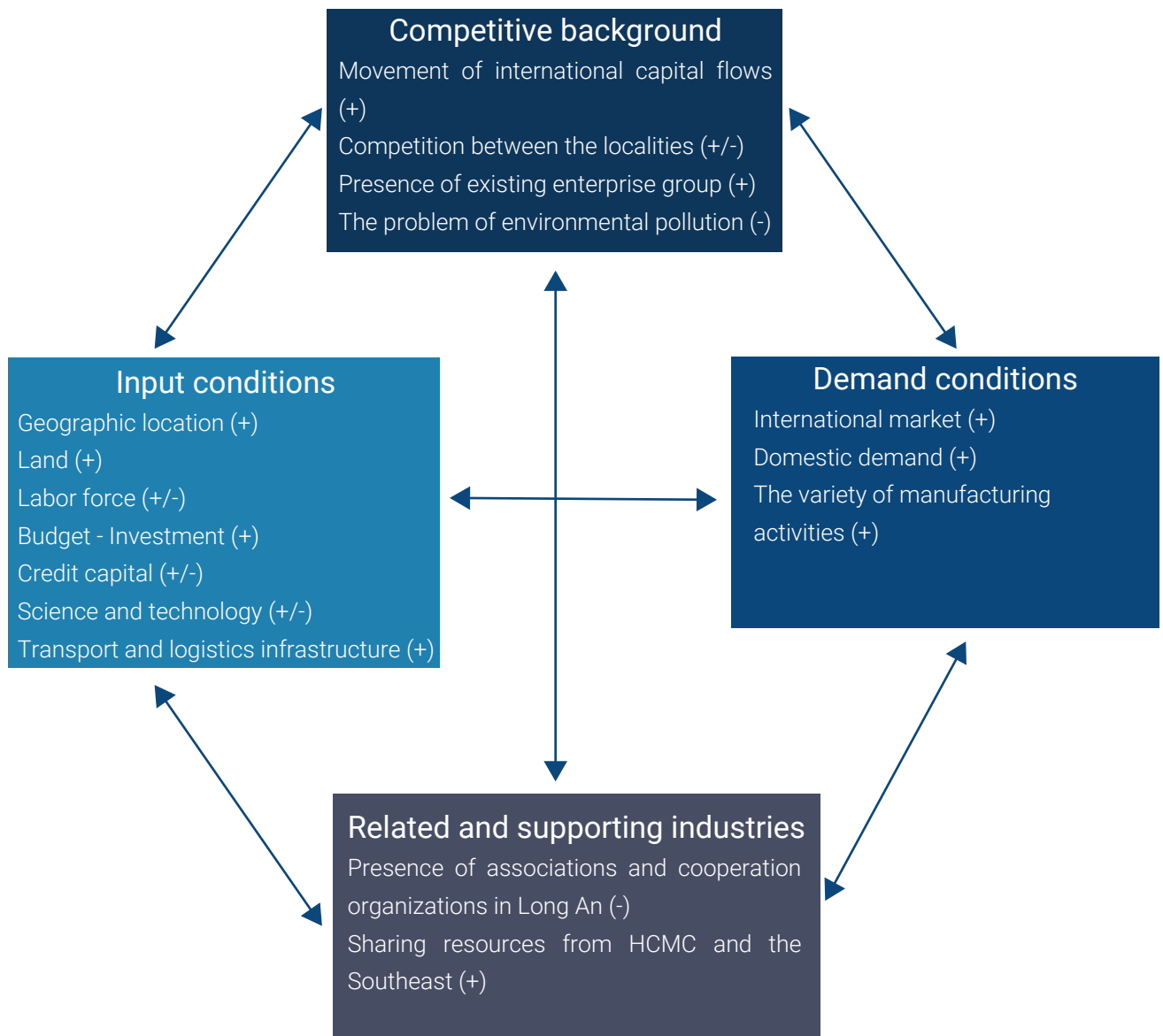
Overall assessment of business environment in Long An through diamond model

As an overall, the biggest advantages for Long An to

develop industry in general and the processing – manufacturing industry in particular lie in its geographical location, connectivity, and land bank. These are also the biggest limits for the rest of the Mekong Delta in terms of the development of the manufacturing industry. Another differential is that although it does not directly own the basic elements to develop the processing – manufacturing industry, Long An inherits and shares the endowments from the Southeast Region and especially from Hochiminh City.

The following section summarizes the business environment assessment of the manufacturing cluster in Long An via the diamond model.

Figure 4.24 Assessment of the business environment of the manufacturing industry in Long An



Source: Synthesized assessment by the authors



4.2

POTENTIAL CLUSTERS IN THE MEKONG DELTA

Energy cluster

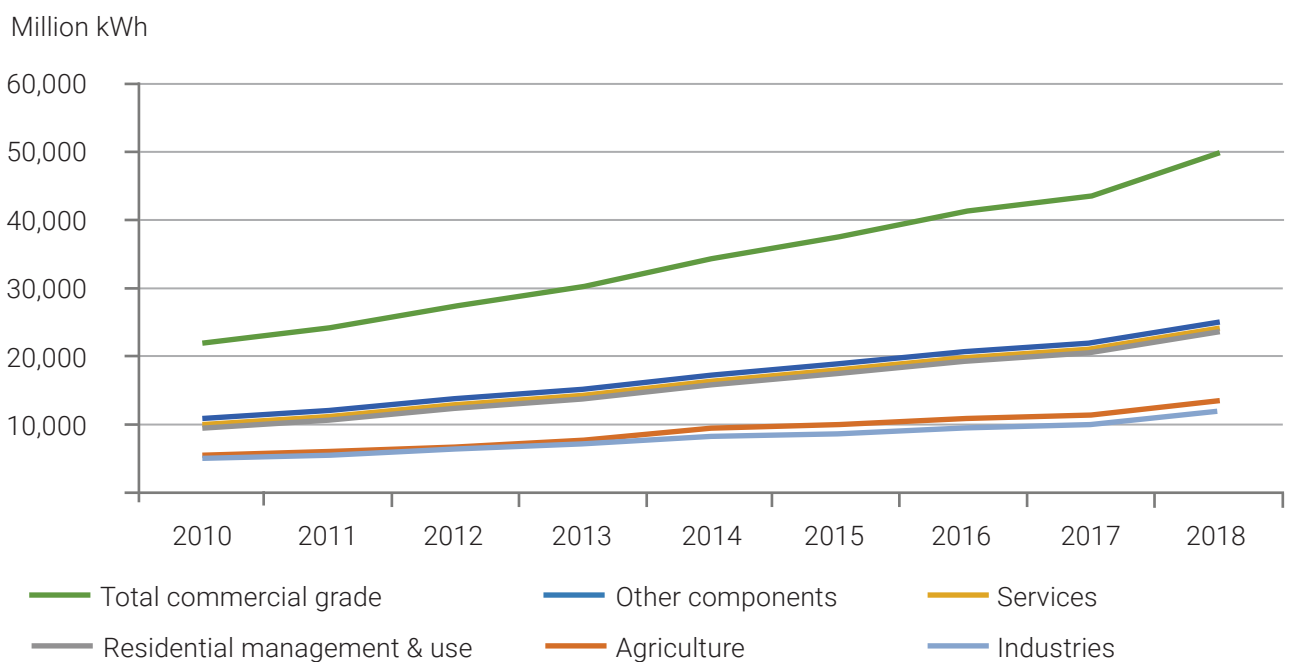
Overall landscape of the cluster in the Mekong Delta

Over the past two decades, Vietnam has witnessed a dramatic increase in energy demand. The current Vietnamese economy has a very unreasonable energy consumption level. Electricity consumption has increased by about 13% per year, doubling the economic growth rate, thus it requires a huge increase in generating capacity from a modest 8.7GW in 1990 to 27GW in 2000, and more than 48GW in 2018. After 30 years of economic reform, Vietnam has become one of the most electrified countries in the world, with the national electricity grid reached 98% of its population. Prior to the economic reform in 1986, Vietnam consumed only 70kwh of electric power per capita. This figure has now reached nearly 2,000kwh, though the per capita consumption is still much lower than many countries in the region (Malaysia, 4,600; Thailand, 2,500; and China, 3,900). With the current growth rate, by 2030, the per capita electricity consumption will reach over

5,000kwh. However, per capita electric power consumption in the Mekong Delta is only 70% of that of the whole country. The main reason lies in the limited development of industrial zones in the region, plus the relatively low living standard of the inhabitants compared to the whole country's.

The development of domestic power sources from hydro-electricity and available coal materials has basically met the need for socio-economic development. However, the available low-cost energy resources approach the limits that can be exploited. In addition, coal-fired thermal power plant projects have been implemented much slower than expected and face many challenges, from economic to environmental. The coal fuel price is increased, the financial regime for debt-financed investments turns difficult, and the resulting increasing environmental pollution from coal gas emissions and slag, all make coal power projects increasingly a burden for the electric power sector. Vietnam's air quality has declined rapidly over the past decade and is now ranked among the worst in the world (2019 World Air Quality Report).

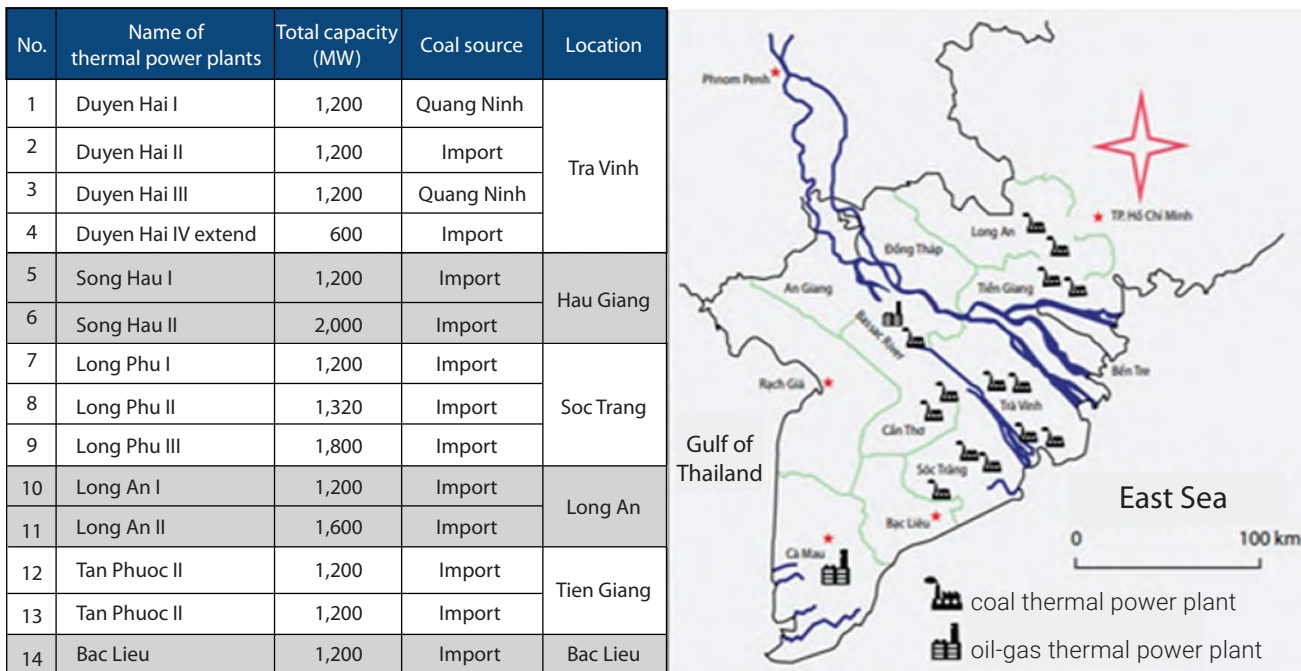
Figure 4.25 Electric power use by end-consumption components, 2010-2018



Source: World Bank (2020)⁴⁸

⁴⁸ The World Bank 2020. Electric power consumption (kWh per capita) – Vietnam. <https://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC?locations=VN>

Figure 4.26 List of thermal power plants in the Mekong Delta according to revised power plan 7⁴⁹



Source: Le Anh Tuan, *Energy development in Vietnam's Mekong river delta: a 'green' or 'grey' outlook?* (2018)

The pertinent assessment of investment needs for the power sector states that Vietnam will need a new investment capital of about 130 billion USD by 2030, with an average of about 12 billion USD per year; of which, about 9 billion USD is of want in electric power production and 3 billion USD in transmission grid (MVEP 2019). In the Mekong Delta, the forecast demonstrates that by 2030 the total electricity demand will increase from 25.6 billion Kwh to over 65 billion Kwh.⁵⁰ As for the source structure, the current on-site power source of the Mekong Delta is 5,000 MW and greater than the peak load. Since the date Duyen Hai thermal power plant cluster put into operation in Tra Vinh, the supply has exceeded the local demand. The Mekong Deltacurrently has clusters of Duyen Hai thermal power plants (Tra Vinh), Ca Mau gas power plant, Can Tho thermal power plant, O Mon thermal power plant, and Bac Lieu wind power farm. The potentials for industrial development in some provinces such as Long An, Can Tho, or Kien Giang will lead to a sharp increase in electricity demand. Therefore, the development of sustainable local energy sources plays an extremely important role and is a decisive factor in accelerating Vietnam's sustainable industrialization and modernization. In the Mekong region, it is more urgent than ever to develop the electric power source structure toward taking advantage of the renewable energy potentials

because this is the most important area in the country with respect to rice and aqua-products, which are easily affected by dust and pollution emitted from thermal power plants.

2019 has seen a boom in the solar PV market, in which more than 4.5GW of solar PV capacity has been installed and certified for commercial operation during the period of 6 months of 2019 (National Load Dispatch Center), with large projects concentrated in the South Central region and scattered in several provinces in the Mekong Delta. According to Master Plan VII (revised), Vietnam will significantly increase the share of renewable energy in the total electricity production, with an installed capacity of 850 MW in 2020, 4 GW in 2025, and 12 GW by 2030. However, these targets have been met quickly through the Feed-in Tariff (FIT) under Decision 11 in 2017. By June 2019, there was a total registered capacity of 26GW from more than 110 solar and wind power projects. With the current progress of construction and installation, we expect to have 7.9 GW put into operation by 2020. On top of that, there is still over 17 MW capacity registered pending construction. This demonstrates the "baking" level of the renewable energy market, and investors have high expectations for investment opportunities in this area.

⁴⁹ According to this planning scheme, from now to 2030, the Mekong Delta will have a total of 14 coal-fired power plants with a total capacity of 18 GW.

Given high growth in demand, the Mekong Delta will be in dire need of a large amount of investment capital to build energy supply infrastructure, transmission systems, and gas storage terminals; on the other hand, upgrading distribution systems and making the most of available and clean energy sources are new directions for the region. This analysis uses Michael Porter's competitiveness analysis framework to explain factors affecting the opportunities to develop the energy cluster, especially renewable energy, in the Mekong Delta, to analyze in-depth causes that can hamper the transition process of the cluster, and to propose policy recommendations in a timely manner.

Input factors

Natural conditions

The Mekong Delta is the natural convergence ideal for the development of the energy industry, including renewable energy (solar, wind and biomass powers) and gas thermal power. Regarding the potential from solar power, 11/13⁵¹ provinces in the region have potentials from 1,387 to 1,534 kWh/kWp/year. In which, provinces of Long An, Tien Giang, Ben Tre, and An Giang share a better radiation level than the rest.⁵² In addition, five coastal provinces of Tien Giang, Ben Tre, Tra Vinh, Soc Trang, and Bac Lieu have very good wind energy potentials with wind speeds along the coast from 6.5 – 7 m/s.⁵³ Similarly, the offshore wind speed of the above provinces is also high, from 6-7m/s, while the seabed depth, below 50m occupies a much larger area than that in the Central region (Ninh Thuan and Binh Thuan), where the highest wind speed is seen. On top of that, the Mekong's source of raw materials for biomass electricity is abundant with nearly 50 million tons of straw/year⁵⁴ and about 2.5 million ton of broken rice/year⁵⁵, from broken rice⁵⁶ and straw⁵⁷ can help produce 10 million liters of ethanol that both serves as a substitute for oil in vehicles and as a replacement for D.O oil used in thermal power plants.

⁵⁰ Nguyen Quoc Khanh 2019. *Calculation of power source structure in Mekong Delta region*. Green Innovation Organization (GreenID), Hanoi.

⁵¹ Except Ca Mau and Hau Giang

⁵² See more: www.globalsolaratlas.info

⁵³ *Wind Resource Atlas of Vietnam, 2011*

⁵⁴ Roughly calculated from the rice yield in 2018, source: GSO

⁵⁵ See more: <https://www.2lua.vn/article/pham-chat-hat-lua-phan-2-5a702623e49519d63d8b456c.html>

⁵⁶ See more: <http://tietkiemnangluong.com.vn/->



Another advantage of the region lies in its close proximity to the Cuu Long, Nam Con Son oil and gas basins and the farther Malay - Tho Chu, where abundant gas fields can be supplied as raw materials for gas power; apart from that, 7/13 provinces of the Mekong Delta share the same coastline, so it is possible to build a gas terminal to import LNG for gas thermal power plants. According to the government's master plan on the development of the gas industry, in the period of 2021 - 2025, the State will invest in two LNG terminals in the Mekong Delta (Tien Giang and the Southwestern)⁵⁸ and a gas pipeline system to transmit Block B gas to O Mon gas thermal power projects⁵⁹, in addition, Delta Offshore Energy intends to invest in a 2 MMTA terminal for a 3.2GW LNG power plant in Bac Lieu.

Having favorable natural conditions and abundant input sources for renewable energy and gas thermal power, the region enjoys indispensable advantages as a premise for the development of the energy industry. However, this cluster is capital-intensive and consumes huge expenditure rate, capital thus plays a critical role in the construction of the aforementioned projects.

tin-tuc/chinh-sach-nang-luong/t12936/brazil-bat-dau-thu-nghiem-san-xuat-ethanol-tu-gao.html

⁵⁷ See more: <http://tietkiemnangluong.com.vn/tin-tuc/pho-bien-kien-thuc/t12845/hai-cau-chuyen-ve-san-xuat-con-tu-rom-ra.html>

⁵⁸ *Vietnam Gas Industry Masterplan*

⁵⁹ See more: <http://nangluongvietnam.vn/news/vn/dau-khi-viet-nam/tien-do-trien-khai-chuoi-du-an-khi-lo-b-o-mon.html>

Investment capital

Electric power projects are capital-intensive and of large-scale, with commercial-scale solar PV projects having a total investment of 1.2 million USD/MW⁶⁰; onshore wind farm has a total investment of about 1.2-1.5 million USD/MW, while offshore wind farm shares a much higher total investment of about 4.5 million USD USD/MW⁶¹. Currently, many energy projects have to mobilize capital from international financial institutions. The reason is that the long-term domestic interest rate is about 10%/year for a maximum of 10 years, while international commercial banks only applies an interest rate of around 7%/year for a 15-year loan (US Export – Import bank offers an even lower interest rate of about 4.2%/year for an 18-year loan⁶². Banks actively involve in supporting investment projects include KfW Development Bank (Germany), US Export Import Bank (USA), Modern Energy Management (USA), Climate Fund Managers (Netherlands)⁶³. In addition, Chinese contractors often propose EPC packages with a one-off payment commitment after commercial operation date (COD), thus this is another option for solar energy develop-

ers in Vietnam to reduce the financial burden. These projects, however, are often of small and moderate scales, and because the Chinese contractors often have the upper hand in these deals, thus projects' quality becomes hard to assure.

A major reason why it is difficult for domestic developers to raise capital deprives from the fact that the power purchase agreement (PPA) has some adverse terms and risks for sellers, making it difficult to get loan approvals. Typically, there is a disclaimer from EVN in that if their transmission system exceeds the capacity or does not meet technical requirements, they are released from the power purchase. As an inevitable consequence, after a series of renewable power projects were connected to the grid (time-varying FIT, 9.35 cents), many investors suffered heavy losses⁶⁴ due to inadequate transmission infrastructure. Having seen the above consequences, associated with the slow construction of and upgrading the capacity of the transmission line by EVN, international banks hardly take risks in providing loans for new projects; funding sources, thus, is a huge obstacle for the development of renewable energy in Vietnam.



⁶⁰ According to a report by International Renewable Energy Agency, *Future of Solar Photovoltaic*, 2019

⁶¹ According to a report by International Renewable Energy Agency, *Future of Wind*, 2019

⁶² David O.Dapice, *Vietnam's Crisis of Success in Electricity: Options for a Successful Clean Energy Mix*, Harvard Kennedy School, 2018

⁶³ Wind Minds International, *Wind Energy Potential Vietnam*, 2018.

⁶⁴ See more at: <https://vietnamnet.vn/vn/kinh-doanh/dau-tu/do-xo-lam-dien-mat-troi-huong-uu-dai-van-lo-ket-dang-547214.html>

Labor force

Currently, in the energy industry's supply chain, the workforce involved is divided into three groups: production - manufacturing, installation, and maintenance - operation. Since most projects imported 100% equipments from countries of heavy industries such as China, Germany, India, and the U.S, etc., the workforce mainly participates in the latter two (2) segments.

The main contractors are of international background such as GE, CTV (France), HCE (Germany), along side with Chinese contractors and some big Vietnamese contractors such as PCC5, PVPC, TechGel, Lilama 451, Atad and so on. These have subcontractors supply and handle pertinent items. Subcontractors usually use on-site laborers to save costs; thus, during the construction phase, a large number of local unskilled workers can have jobs with decent income.



As for wind and solar power, upon commissioning, major developers with varied projects will organize their own operation – maintenance – cleaning teams. Most technical management positions are highly trained personnel, while maintenance personnel receive short-term training and cleaning staff are unskilled workers. Therefore, important positions are usually handled by international experts or highly trained overseas specialists, while the remaining positions are usually for local residents; however, there are only about 20 person/team that is in charge of a solar power plant from 50 - 200 MW. This number is even less for wind power projects. For gas and biomass power projects, personnel must be trained

in-depth and the training is long haul before they can be put into operation. The demand for labor, therefore, is not high in quantity but strict in professional quality, leading to a need for the energy industry to have an ecosystem of supportive education and training.

However, the education and training system in the Mekong Delta is quite thin and does not meet the above-said requirements while attracting personnel from neighboring industrial centers is a challenge. Currently, the Mekong has only one regional university, Can Tho University. Due to specific requirements of the region, Can Tho University has its strengths in research and training in relation to agricultural and service sectors while the energy sector's demand focuses on mechanical and electrical engineering. Engineering schools and industrial training institutions are concentrated in the Southeast Region and Ho Chi Minh city - the industrial center of the country - attracting headcounts from the city to the Mekong

Delta is a difficult problem. The reason is originated not only from incomes but also the size of the labor market in the Mekong, which is small and less attractive.

Skilled and highly skilled labor force is the bottleneck in promoting and developing the energy industry in the Mekong Delta. This obstacle, however, is not that big a problem for the solar and wind sector; it is difficult for the gas and biomass power sector. That said, there should be a plan to coordinate with training institutions to prepare human resources for specific projects in the gas and biomass power development strategies.

Transmission infrastructure

The Mekong Delta has a relatively weak transmission system with the total transmission capacity from the region to the Southeast Region– Ho Chi Minh City of 7.9GW.

The above data demonstrates that the transmission system is mainly connected to existing power plants such as Duyen Hai thermal power plant, Ca Mau fertilizer power plant, and O Mon gas thermal power plant. In order for the development plans to work, the transmission system must be carried out in parallel with the construction plan of the power plants. One observed consequence from the rushed development of renewable energy plants in recent years is that the transmission network development is very slow due to lack of resources and appropriate institutions causing great damage for investors: a transmission project takes 2-3 years, sometimes even longer if it is subject to land conditions. Meanwhile, private investments that can well meet both resources and progress are restricted from the Law on Electricity .

It thus can be safely said that the current transmission system and policy mechanisms are the major obstacles to the desired development of the energy industry in the Mekong Delta. Without solving the bottleneck of the transmission system, this cluster cannot thrive.

Table 4.8 Transmission line statistics of the Mekong Delta – the Southeast region

Start point	End point	Voltage (KV)	Length (km)	Limited capacity (MW)
My Tho	Nha Be	500	71	2,150
My Tho	Phu Lam	500	64	2,150
Long An	Phu Lam	220	40	530
Can Duoc	Hiep Phuoc	220	38	530
My Tho	Chon Thanh	500	160	2,600
Total capacity				7,960

Source: Nguyen Quoc Khanh, Power source scenario for the Mekong Delta region, 2019



⁶⁵ See more: <https://vietnamfinance.vn/lech-pha-dien-mat-troi-20180504224231902.htm>

⁶⁶ See more: <http://vovgiaothong.vn/giai-phap-nao-de-cuu-van-un-tac-giao-thong-tai-cua-ngo-mien-tay->



Ground and inland waterway infrastructure

The biomass energy sector has a very high demand for transportation because of the demand to transport input materials, gathered from all over the region and the surroundings to the power plants. The road system of the Mekong Delta is both in shortage and weak, tripping into an overloaded situation that needs upgrading. The Mekong Delta connects with the Southeast Region via National Highway 1A and N2. While, recently, National Highway 1A has often had congestion at key intersections in Tien Giang province,⁶⁶ the upgrading of N2 route, which is expected to help reduce congestion on National Highway 1A, lacks capital or the investment capital is very limited. Many sections on the N2 route only have 2 lanes while the Cao Lanh - My An stretch lies in wait for investment capital.⁶⁷ Even when the N2 route completes the said stretch, the current lack of investment capital will soon cause congestion resumed if the transportation density increases. It can be said that poor road transport infrastructure is the biggest and most difficult bottleneck hindering the development of the region in general and of the future energy cluster in particular.

Meanwhile, the waterway infrastructure - which is the strength of the river delta - is both ineffective and

under-invested. While the Mekong Delta has an interweaving system of rivers and canals, it faces bottlenecks due to lack of alignment in investment terms; and lack of investment in ports connecting to ground transport system turns the said advantages, which are not exploited, into obstacles to the development of the overall transport infrastructure in the whole region. Inland waterways are planned asynchronously, thus, the connectivity between the Mekong Delta and the Southeast Region is paralyzed by this bottleneck; specifically, just a few large ports that can handle ships of over 10,000 dwt such as Can Tho and My Thoi⁶⁸ ports, which have the ability to connect to the ground road. The accretion at Dinh An estuary, however, restricts large vessels' transportation. While Quan Chanh Bo project is conducted with the aim to create a channel shortcut to overcome the above difficulties, it has become an ineffective investment,⁶⁹ due to lack of necessitated research. The waterway transport is thus in dire need of research and full investment to solve the transportation bottlenecks connecting the inter-Mekong Delta and the region with the Southeast region.

In general, transportation infrastructure is a major bottleneck of the region in promoting economic development, and the energy industry will also incur impact from this problem. Without timely and effective solutions, it is difficult for the energy cluster to grow in the Mekong Delta.

⁶⁷ See more: <https://tuoitre.vn/cho-tuyen-cao-toc-thu-2-ve-mien-tay-20181109082023373.htm>

⁶⁸ See more: <http://vovgiaothong.vn/thao-go-%E2%80%9Cnut-that%E2%80%9D-trong-van-tai-thuy-dbscl>

⁶⁹ See more: <https://motthe-gioi.vn/kinh-te-c-67/tai-chinh-dau-tu-c-98/phai-xem-lai-hieu-qua-kenh-tat-quan-chanh-bo-truoc-khi-do-tien-vao-tiep-84528.html>

Related and supporting industries

The investment wave of renewable energy has started since 2017, but most the equipment and machinery are imported into Vietnam. Some simple mechanical structures such as the support frames for solar panels and wind turbine foundations have been outsourced to a number of Vietnamese enterprises by general contractors. These enterprises are mostly located in the Southeast region; because the Mekong Delta focuses on agriculture and processing industries, the manufacturing thus is mainly aimed at serving the two above industries. However, if the demand is large enough, supporting industries will be formed quickly to meet the above demand. But for high-tech equipments that requires a large investment pool in technology and people, it takes a lot of time and appropriate investment. Taking an example from Long An province, there has been an industrial

company to make batteries for Globe-branded cars and motorcycles.⁷⁰ This product is supplied to most of the famous automobile and motorcycle manufacturers today. It is then feasible to develop high-tech manufacturing sectors for the energy cluster in the long term.

Apart from that, there is a rather developed sector in the region, which is the technology system for wastewater treatment equipments from seafood and agri-product processing factories. This is an advantage that shall be taken into consideration upon developing the biofuel sector for biomass power because there are similarities between the two fields. Also, the food processing – alcoholic beverages sectors are quite developed in the Mekong Delta, having more than eight breweries of all kinds.⁷¹ The supporting industries for these plants, when needed, can quickly meet the demands from the biofuel – biomass power sectors.



⁷⁰ See more: <https://www.lelong.com.vn/vn/Applications>

⁷¹ See more: <https://vnbrewers.com/factory/>

Role of the State

The energy sector is an industry pertinent to national security and macro-economic issues, the central government thus plays a leading role in the management and coordination of the sector's development. The central government, so far, has made remarkable achievements in promoting the development of the renewable energy with a large number of solar and wind power projects being built and connected to the national grid. In addition to the achievements, the current policies reveal a number of shortcomings that need to be overcome for the cluster to develop effectively. For example, policies promulgated for renewable energy projects lack a long-term vision, i.e., when the time limit of a certain policy ends, the policy may not be formed and/or implemented in time, leading to ambiguity. As a result, investors are stuck in an uncertain position that they cannot make any certain decisions, leading to delayed or prolonged project progress, increasing financial costs for investors, and economic costs for the whole economy as well. The solar power price policy, post-June 30, 2019, is an example. It took nearly 9 months to be issued, resulting in many investors delaying or postponing project implementation or having concerns over making investment decisions.⁷² Similarly, the expiration of FIT on wind power by November 1, 2021 causes confusion for investors in their investment decisions.

In addition, the current Electricity Law restricts the participation of private investors in power transmission projects⁷³, while investment resources for the transmission sector by the State are limited and the investment process is lengthy. This constrains the development of the renewable energy and discourages investors upon seeing the transmission system fails to keep up with the growth of power plants, causing damage to them. Policy making needs to

have appropriate vision and forecast put into place, and considers allowing private investors to participate in the transmission sector to reduce the burden of public investment. Furthermore, there are problems in relation to the FIT and the power purchase agreement (PPA), drafted to ensure interests of the parties, that have raised concerns about whether the energy sector is sustainable or not. For solar PV project developers and financial institutions, the PPA cannot currently be used to apply for loans due to uncertain terms or disclaimers imposed by EVN on investors.

We expect that as the market becomes more mature or moves to a bidding regime, the purchase price of the renewable energy will plummet and the terms of power purchase and sale agreements will be improved to facilitate the loan application process. Currently, the latest proposal has brought the purchase price of solar PV down to 7.09 US cents/K-wh, and in the future this price is expected to continue to decrease. Along with the policy to develop the renewable energy, the energy cluster also receives appropriate invitations to invest in other electric power sources to ensure the system's stability when the rate of renewable energy increases. In particular, the Mekong Delta, with its long and storm-hidden coast, can receive a number of large LNG power projects with the gas sources imported from abroad. The government should implement a retail price policy reform, energy efficiency improvement, economic restructuring, and overall emission reduction policy; the energy cluster is expected to go through structural transformation in the coming years. Some initiatives are proposed by international organizations such as the direct power purchase agreement, which allows buildings in industrial parks to install solar PV equipments up to 30MW for use and for behind-the-meter sale and creating legal frameworks and financial mechanisms for energy service companies (ESCO) is also of great potential.

⁷² See more: <https://laodong.vn/doanh-nghiep-doanh-nhan/60-nha-dau-tu-du-an-dien-mat-troi-lo-lang-pha-san-trong-tuong-lai-gan-774392.laod>

⁷³ Law on Electricity, 2011

In addition, the local government plays a key role in providing land and assisting investors in project formation. The local authorities currently face difficulties in choosing the right investors because investors that lack capacity and experiences are abundant out there, but they have certain relationship, thus show the desire to "jostle" for a certain project and then resell it to real investors to pocket the difference. Consequently, when investors lacking capacity get approvals, their projects are often delayed or slowly progressed, leading to impact incurred by the people, causing social stress and economic damages to the localities. To overcome the above situation, some localities have proposed such solutions as bidding for investment projects and increasing investor's background investigation. Typically, Tra Vinh province has applied the investors selection process in the form of bidding similar to that of a construction project to select contractors for public projects.⁷⁴ However, this is only a temporary solution, pending appropriate policies put in

place by the government to assist the local authorities in choosing suitable investors.

General conclusion

In summary, the Mekong Delta has great potentials and special favorable conditions to develop the renewable energy sector. But in order to make the most of the region's potentials and advantages, the Delta needs to overcome many barriers from policy to economics and technology. Challenges lie in the PPA design, which cannot guarantee interests of investors makes it difficult or impossible for renewable energy projects to apply loans from financial institutions. One of the shortcomings is the provisions related to curtailment, exchange rate risk, force majeure, dispute resolution, and lack of clarity or delay in the approval process of a project, land reclamation, and allegations of harassment by the licensing agencies.



Regarding financial barriers, the power purchase price for certain sources such as wind power, especially offshore wind power, is still quite low compared to the investment expenditures as well as the price range applied in the world. Investors have to cover construction fees of transmission lines to medium-voltage transformer stations. Regarding technical factors, the domestic equipment manufacturing market is quite small, and there is a lack of human resources qualified in system management, construction, and maintenance of equipments, especially for wind power technology. Vietnam does not have the infrastructure to develop a smart grid while lack of data or poor data quality costs and prolongs the investment process. In addition, to develop the energy cluster, it is necessary to have a serious investment strategy for the related and supporting industries.

Furthermore, the renewable energy sector should be seen as part of the economic development strategy.

With each policy, there go beneficiaries and disadvantages when we make the transition from conventional centralized power systems to distributed energy systems, having the renewable energy penetrated at a high level. More clear evidence is needed on the impacts on job creation, income distribution, government fiscal policy, and on the socio-economic and environment in relation to energy development scenarios. The private sector will play an important part in the energy structure through investments in solar and wind energy, energy storage, and the implementation of energy efficiency initiatives. There are also large firms investing in the LNG sector, in the construction of transmission grids, and in the provision of energy services. Electricity prices are an important component of the energy sector reform. When the energy structure is put in transition, it is necessary to clarify what the total cost of the entire system is, what it will be for the end users, and whether to maintain a broad cross-subsidy system as currently applied.



⁷⁴ See more: <https://teza.travinh.gov.vn/1455/39526/71432/603487/-tin-noi-bat/thong-bao-ket-qua-lua-chon-nha-dau-tu-thuc-hien-du-an-dien-gio-tai-04-vi-tri-v1-7-v3-2-v3-3-v3-8>

Logistics cluster

General introduction

Today's competitiveness, especially in the export sector, is a major determinant for long-term growth. Three key factors determining Vietnam's export competitiveness are transport infrastructure and logistics services, legal procedures on import and export, and organization of production value.⁷⁵

Logistics is the process of optimizing the location, storage, movement of resources, and inputs from the starting point which is suppliers, to manufacturers, wholesalers, and retailers before reaching end-consumers through a range of economic activities.⁷⁶

In the value chain analysis model by M. Porter, the company's activities are divided into two groups, including primary activities and supporting activities.

The primary are of activities directly linked to the company's products or services, including input logistics, production or operations, output logistics, marketing and sales, and services.

Factors affecting the value chain⁷⁷ are poor connectivity, reflected not only in the ability to access international transport networks, but also in matters of policies and barriers, etc. In addition, the quality of the infrastructure is viewed as one of the driving forces behind a nation's integration into global manufacturing. Seaports, hubs, and inland transport networks play critical roles.

The Mekong Delta is the largest production center for foodstuffs, aqua-products, and tropical fruits in the country, rich in raw materials with high yield. Growth of logistics in the Mekong Delta plays an important role in the socio-economic development of the region and in the overall development of Vietnam's logistics industry.



⁷⁵ Blancas, Luis C., John Isbell, Monica Isbell, Hua Joo Tan, and Wendy Tao (2014), *Efficient Logistics: A Key to Vietnam's Competitiveness. Directions in Development. World Bank, Washington DC, doi:10.1596/978-1-4648-0103-7.*

⁷⁶ MOIT (2019), *Vietnam Logistics Newspaper*, 2019. MOIT, Hanoi.

⁷⁷ WTO (2013), *Aid for trade at a glance 2013: Connecting to value chains, Chapter 3 "Value chains and the development path".*

Logistics demand for agri- aqua products of the Mekong Delta

Overall landscape of Vietnam's logistics industry

The development of Vietnam's logistics industry is assessed by the logistics performance index (LPI), which is announced by the World Bank every 2 years; of which, in 2018, Vietnam increased by 25 places, compared to 2016's or ranked third among ASEAN countries (Table 4.9).

Over the years, indicators related to customs, infrastructure, international transport, logistics capacity, tracking and traceability of goods, as well as logistics service time, all have been improved positively, especially logistics capacity and traceability are indicators showing remarkable increase.

According to Vietnam Logistics Business Association (VLA), out of the total number of 26,694 registered logistics providers (data as of 2018), mainly small and medium-sized, Vietnam has about 4,000 entities having professional operation and international connection. The logistics industry contributes about 4-5% to GDP in 2017. The rate of outsourcing logistics is 60-70%. Logistics costs, compared to GDP are of 16-17% from the total market size of about 40 billion USD.⁷⁸

Decision No. 200/QD-TTg approving the "Actions plan to improve competitiveness and develop Vietnam's logistics until 2025", issued on February 14, 2017

states that "Logistics is a service sector, important in the overall structure of the national economy, playing the role of supporting, connecting, and promoting socio-economic development of the whole country as well as each locality, contributing to improving the competitiveness of the economy; developing logistics into a service industry that brings high added value, associating the industry with the development of goods production, import-export and domestic trade and with the development of transportation infrastructure and information technology; optimizing the advantages of the strategic geographic location and strengthening connectivity to make Vietnam an important logistics hub in the region; the State plays a supporting role, enabling a favorable environment to enhance competitiveness and development of Vietnam's logistics". In line with this statement, six main task groups were given, including "completing policies and laws on logistics; completing logistics infrastructure; improving business capacity and service quality; growing logistics markets; training, raising awareness and the quality of human resources and of other task groups".⁷⁹

Decision No. 708/QD-BCT, dated March 26, 2019 outlines the tasks to be implemented to improve Vietnam's LPI, including seven major tasks of upgrading infrastructure, improving the capacity and quality of logistics services, shortening delivery time and reducing costs, and improving efficiency of customs clearance and complementary tasks.

Table 4.9 LPI rankings of Vietnam over the years, from 2007 to 2018

Year	LPI Rank	LPI score	Customs	Infrastructure	International transport	Logistics capacity	Tracking and traceability	Time
2018	39	3.27	2.95	3.01	3.16	3.40	3.45	3.67
2016	64	2.98	2.75	2.70	3.12	2.88	2.84	3.50
2014	48	3.15	2.81	3.11	3.22	3.09	3.19	3.49
2012	53	3.00	2.65	2.68	3.14	2.68	3.16	3.64
2010	53	2.96	2.68	2.56	3.04	2.89	3.10	3.44
2007	53	2.89	2.89	2.50	3.00	2.80	2.90	3.22

Source: World Bank, *Connecting to Compete, 2007-2018 (2018: 160 countries review)*

⁷⁸ Vietnam Logistics Business Association – VLA (2018), VLA White paper, 2018.

⁷⁹ Prime Minister, Decision No. 200/QD-TTg approving the Action Plan for improvement of competitiveness and development of Vietnam's logistics services up to 2025.

Logistics demand for agri-aqua products in the Mekong Delta

As the largest granary of rice and aqua-products in the country, the Mekong Delta contributes 40% to the total value of agricultural production, more than 54% of rice production, 90% of rice exports, 65% of fisheries production, and 70% of fruit production. The export turnover is mainly from rice products and processed seafood; these two items account for 75-80% of the country's total agricultural export turnover. The average growth of vegetable and fruit export turnover between 2016 and 2018 reached 23% while that of seafood and rice both grew by 12% and 18%, respectively; the aggregated export turnover of these three commodities accounts for about 65% of the total export turnover of the region (Table 4.10). The Mekong Delta's potentials for agri- and aqua-products export create opportunities and urgent needs for the development of the logistics cluster to provide services for agri-and-aqua products of the whole region via major services such as

transportation, warehousing, safe storage of goods, and value-added services, including cold storage, irradiation, and heat steaming of fruits to ensure quality for export and for domestic consumption.

Decision No. 245/QĐ-TTg, dated February 12, 2014, approves the master plan on the socio-economic development of the Mekong Delta key economic region until 2020, with a vision to 2030, identifying that the services/GDP ratio will reach 65.7% by 2030. This goal deems the importance of the region's logistics growth as a key factor for the socio-economic development of the whole region in general, and for the agri- and aqua-production growth in particular, to contribute to enhancing the value chain of agri-and aqua-products of the Mekong Delta. Investments in logistics development also help the region overcome the post-harvest losses of up to 30-40% of many agri-products. Growth of the logistics cluster in the Mekong Delta is, therefore, an important strategic move for the region's development of this key service sector.

Table 4.10 Export turnover of some agri-aqua and seafood products in the Mekong Delta (billion USD)

No.	Items	2016	2017	2018	Average growth in the period 2016-2018 (%)
1	Sea food	4.2	5.4	5.85	18%
2	Rice	2.2	2.37	2.75	12%
3	Fruits and Vegetables	1.75	2.45	2.67	23%
4	Total: (I) = (1)+(2)+(3)	8.15	10.22	11.27	18%
5	Export turnover of the Mekong Delta (II)	12.84	15.4	17.4	16%
6	Ratio (%) = (I)/(II)*100	63.47	66.36	64.75	

Source: Statistics of General Department of Customs, 2018

⁸⁰ Donald J. Bowersox et al. (2002).: *Supply Chain Logistics Management*. McGraw Hill., New York, ISBN 0-07-235 100-4.

⁸¹ Trong Tung, 2020, Post-harvest losses of many Vietnamese agricultural products amount to 30%. Hanoi: Economy & Urban Online Newspaper: <http://kinhdothi.vn/ton-that-sau-thu-ho-ach-cua-nhieu-nganh-hang-nong-san-viet-nam-len-toi-30-365698.html> [truy cập: 2/5/2020].

Current state of logistics infrastructure and its construction planning in the Mekong Delta

Current state of logistics infrastructure

The preservation of agricultural products has a number of attributes such as short-cycled use, easy spoil, seasonal nature, produce storage at low temperature, and different temperature control required for different products from time to time.⁸⁰ For example, lychees kept at 30°C will remain fresh for 15 days. Agri-products for export will meet different requirements, depending on import markets. For the U.S market, it is necessary to possess product unit code (PUC), packing house code (PHC), and treat inspection number (TIN); currently Vietnam has exported six types of fruits to the U.S, namely dragon fruit, longan, mango, star apple, lychee, and rambutan. For the European market, it is necessary to be Global GAP and HACCP certified, and to have Health certificates, and so on. Logistics services for agri-products, thus, require an integrated chain from production to harvest, processing, packaging, storage, transport, and delivery to end-users. Enterprises providing logistics for agricultural products need to well know the regulations of each export markets to ensure the provision of suitable and safe services.

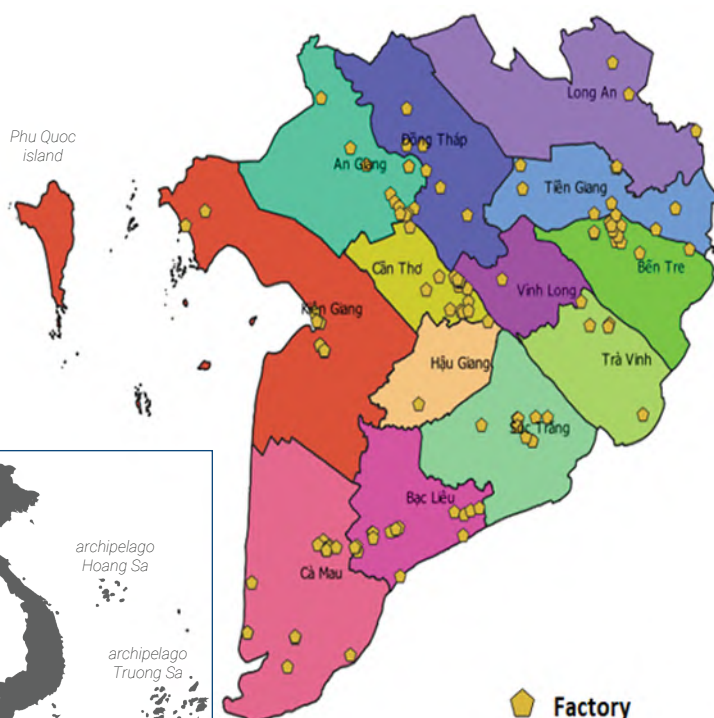
As for preservation activities, post-harvest, MARD provides self-assessment and finds that this is a weak link, post-harvest losses are still at large. In general, post-harvest losses that agri-products incur range from 10-20%, depending on specific products. Such facilities as means of transport, storage, and warehouses are inadequate and inappropriate. Advanced preservation technology has not been studied, transferred, and applied much in practice. Rates of post-harvest losses by some specific items are as follows: vegetables, fruits, and cassava are 20-30%; coffee, pepper, cashew, and tea, about 10-15%; wild-caught fish, about 15 - 20%; rice, about 5% - 7%.⁸¹



Table 4.11 Agri-production factories in the Mekong Delta via GIS map

Provinces/Cities	No.	Seafood	Fruit	Rice
Long An	5	2	1	2
Tien Giang	6	2	0	4
Ben Tre	13	5	6	2
Vinh Long	3	0	0	3
Tra Vinh	4	3	0	1
Dong Thap	9	7	1	1
Hau Giang	1	1	0	0
Soc Trang	11	10	1	0
An Giang	10	7	0	3
Kien Giang	10	10	0	0
Bac Lieu	15	15	0	0
Ca Mau	21	21	0	0
Can Tho	15	11	0	4
Total	123	94	9	20

Source: VLA/Vietnam Logistics Research and Development Institute (VLI), 2019



There are currently many shortcomings in logistics affecting the production and trade of agri-and aqua-products of the Mekong Delta. This report, however, focuses on some major ones, including limitations in cold chain technology investment, port infrastructure, and lack of connectivity in logistics infrastructure. Statistics in 2019 showed that although there are currently about 123 factories producing and processing key agri- and aqua-products (rice, fruit, and seafood) in the Mekong Delta, there are only six (6) cold warehouses concentrated mainly in Long An, Can Tho, and Hau Giang, having a capacity of about 50,000 tons and 93,000 pallets.⁸²

Out of the above-mentioned cold warehouses, Mekong Logistics with a capacity of 50,000 pallets is a logistics center, an association between Gemadept Logistics and Minh Phu Seafood Corp (Hau Giang). It can be said that this is an effective cooperation model between a logistics service provider and a seafood processor.

Given the cold storage infrastructure serving agri-and aqua- products of the Mekong Delta faces varied shortages and limited capacity for cold storage at different levels, such as temperature control warehouses (usually at 18-28°C), cold storages (from 0-5°C), and frozen storages (from -18 to -25°C), the model of cooperation between logistics service enterprises having experiences in cold warehouse operations and manufacturing companies with specific demand for different items is very encouraging; this should be replicated to create a bridge between logistics service providers and users, thereby enhancing connectivity and sharing quality logistics resources to improve the value chain of agri- and aqua- products of the region for export and for domestic consumption.

The Mekong Delta's seaports play an important role in the international and domestic transportation

routes of agri-aqua goods for export and for domestic use. According to the analysis, the demand to export goods of the Mekong Delta is about 17 to 18 million tons/year. 70% of these exported goods, however, must be hauled to the ports in Ho Chi Minh City and Cai Mep-Thi Vai port cluster; this hikes transport costs by 10-40%, depending on the routes. Although Cai Cui port is expected to be put in use for export goods of the region, large load vessels cannot enter the port due to navigating difficulties at entrance fairways.⁸³

With the advantage of a dense river network and connectivity to the Mekong river, at present, the inland waterway transport of the Delta plays an important role in connecting the transport of goods for import-export and for inland distribution, having the advantage of transporting goods with large volume and the ability to connect with agri-aqua production areas. However, at present, the inland waterway transport of the Mekong Delta is facing competition by the ground transport due to limited infrastructure, dependence on water, and the altitude of bridges; the transport time via Can Tho-Cat Lai and Can Tho-Cai Mep-Thi Vai routes averages 18 - 36 hours, respectively, while the average ground transport is about 5 - 8 hours on the same routes; especially, reefer container freight rate for inland waterway barge transport is higher than that by trucks (70% higher for 40 feet containers, and about 9% higher for 20 feet containers) (Ho Thi Thu Hoa et al, 2019). The above issues are huge barriers to promoting inland waterway transport connecting the Mekong Delta region with major ports in the South.

Survey findings on logistics service providers and manufacturers in the Mekong Delta show that lack of connectivity in logistics infrastructure is the most important factor causing raises in logistics costs of the region (Figure 4.28).

⁸² Ho Thi Thu Hoa, Bui Thi Bich Lien, Tran Quang Dao, Tran Duy Khiem (2019), *Strengthening logistics infrastructure connectivity for Mekong Delta agricultural and fishery products - from changing minds to actions. Workshop on STRENGTHENING CONNECTIVITY TO IMPROVE THE VALUE CHAIN OF AGRICULTURE & AQUACULTURE OF MEKONG DELTA* by City People's Committee Can Tho coordinated with the Vietnam Association of Logistics Service Enterprises to organize April 23, 2019.

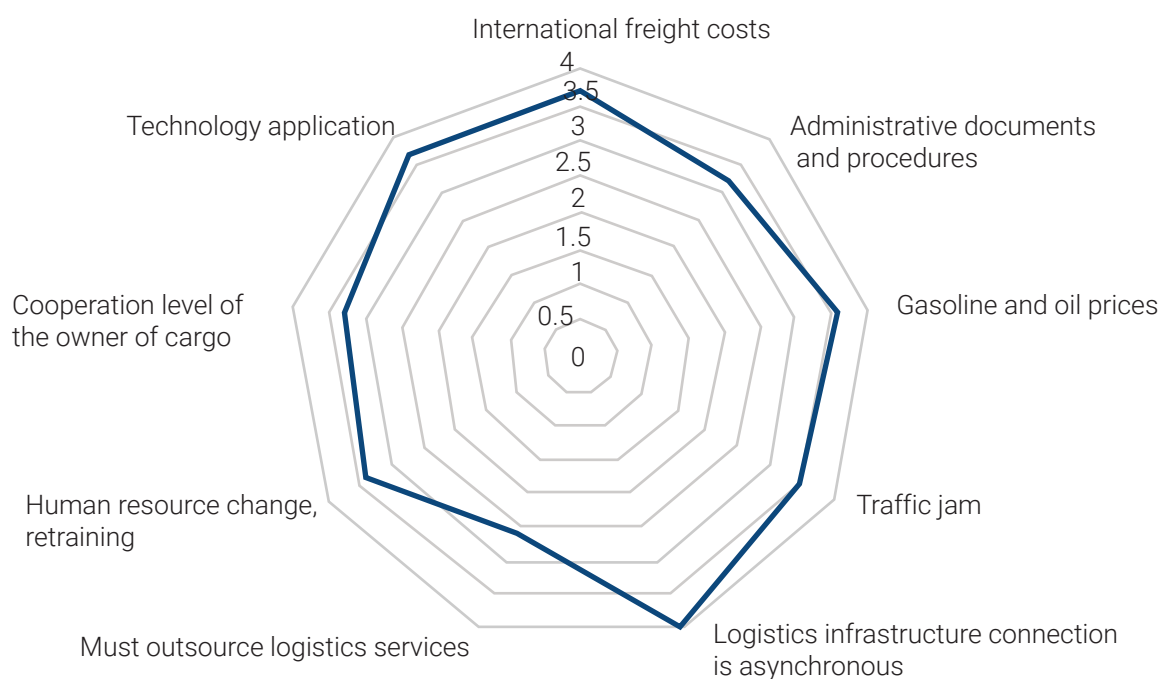
⁸³ Nguyen Thu, 2019, 2019, *Developing logistics services to increase competition for Agriculture and Fisheries in the Mekong Delta* [online]: <https://canthopromotion.vn/phat-trien-dich-vu-logistics-tang-canh-tranh-cho-nong-thuy-san-dbscl/> [access: 2/5/2020].



In the context of the complicated Covid-19 pandemic, MOIT has made suggestions to logistics enterprises, especially those having cold warehouses to support agri-businesses through prioritizing the preservation of agri-products that are having difficulties in exporting to China, reducing terminal and storage costs, lowering transport, loading and unloading fees, etc. This fact demonstrates that development of cold

storage infrastructure in the Mekong Delta is extremely urgent in that it improves the ability to cope with all arising incidents to ensure agri-aqua products can be stored and preserved, post-harvest, minimizing the failure rate of goods and being proactive in manufacturing, exporting, and distribution for domestic use.

Figure 4.28 Influence level of factors that raise enterprises' logistics costs



Source: VLA, VLI, HCMC University of Transport Research Group - 2019 (Ho Thi Thu Hoa et al, 2019)

Logistics system in the Mekong Delta: Strengths, weaknesses, and quality

The logistics system generally comprises infrastructure, legal and policy frameworks, logistics service providers, and logistics service users. The logistics

system of the Mekong Delta has the following strengths and weaknesses:

Strengths

- The port system of the region stretches across the Hau and Tien rivers.
- There exist five road corridors connecting the Mekong Delta with the Southeast Region and the whole country.
- The waterway network is long and of a higher quality than that of other regions in the country, with a system of rivers and canals of 28,000 km in length; of which, 23,000 km is capable of being exploited for transport, accounting for 70% of the national river way length; there are two (2) arterial waterways linking Ho Chi Minh City with Kien Giang and Ca Mau, and one Quan Chanh Bo canal for large vessels navigating the Hau river.
- The airport system in the Mekong Delta has been upgraded and developed to connect to international routes.
- A regional logistics center has been put into the pipeline to serve the needs of logistics services of the region, namely the region's key export sources like agri-aqua products, thereby tapping into the global value chain.

- Lack in both quantity and quality of human resources in the logistics cluster.
- Services are mainly provided by logistics companies based in HCMC; the region's providers are under-developed and in dire need of network connectivity.
- Lack of value-added services such as irradiation; goods must be hauled to HCMC for this technique prior to being exported to the U.S market, thus logistics costs are raised and delivery time to the markets, prolonged. Also, reefer vehicles and cold warehouses are insufficient during peak season, leading to damaged goods and value losses.

Weaknesses

- Currently, there is no railway connecting this area.
- Jams at wharves and traffic congestions occur frequently.
- Bridges' clearance height in the Mekong Delta is very limited; in rural areas, large load trucks are prohibited to enter, thus causing difficulties in goods pick-up.
- The port system is still fragmented, on small scale, and with low capacity; there are few specialized container ports that can leverage the advantages of inland waterway transportation system.
- Misaligned and ineffective connectivity between modes of transport within the Mekong Delta and between the region and the export markets. Ships mainly navigate via domestic or intra-Asia routes; there is no direct route to Europe or America yet. Intra connectivity is also limited, especially that between the production area and the transport infrastructure.
- Lack of warehouses and terminals
 - Lack of key logistics centers and satellite centers.
 - Lack of ICDs and empty container yards.
 - Lack of cold storage system for agri-aqua products; mainly manufacturers' warehouses.
 - The production zones are very far from the loading points and given poor infrastructure, the transport time is prolonged, resulting in 20% - 40% losses of agricultural products, post harvest.
 - The storage system in the Mekong Delta is largely invested by producers themselves, having small scale of around 2,000-3,000 tons, not convenient for both waterway and ground transport. The system is both shortaged and of fundamental nature; cold storage system to preserve agri-aquatic products, rice storage system, and post-harvest preservation technology are in severe shortages, hence rather high loss rate (20%).



Quality assessment

The waterway and road transport system in the Mekong Delta is dense and evenly developed; however, its quality is not high, and the system is misaligned, partly restricting the load capacity of vehicles and transportation activities. Especially, in the rainy season, goods delivery to remote areas face multi difficulties due to highly raised costs and few points of sale; this greatly impacts on the efficiency of exploitation and promotion of potentials for commercial development.

Also, intra-regional transport connectivity is limited; the connection between production areas and load points or factories is inconvenient, prolonging the transport time and reducing the quality and value of agri-aqua products. Ground transport system is underdeveloped compared to the whole country. There is no railway while many seaports have not brought into full play, thus the inland waterway transport system's advantages are not leveraged in the chain of goods manufacturing, transport, and consumption. There is lack of centralized logistics hubs and satellite systems; lack of human resources for the development of logistics; and lack of connectivity between localities and businesses in the construction and supply chain of logistics services, etc.

Connectivity between the modes of transport, i.e., between the ground and waterway, land and seaport, and road and airport, is not yet in favorable conditions and effective use. Quality transport and transport service quality are not high; transport costs are not reasonable, affecting the competitiveness of the economy, hindering the socio-economic development speed of the region. It does not meet the demands of exchanges and of taking advantages of new business opportunities to facilitate the expansion of economic links between the localities and the surrounding areas and between the Mekong Delta and other economic centers in the country and the region.

Lack of direct connection between the Mekong Delta and the import-export markets via maritime routes is also a constraint that affects the delivery time and the competitiveness of the region's exported goods. The Mekong Delta does not have a completed logistics service supply chain, thus companies' goods have to be transported to the ports in the Southeast Region for export procedures. This not only incurs costs, shipping time, and clearance procedures, but also reduces the competitiveness of the goods. Although it is a land rich in potentials for economic development, especially agricultural economy, the Mekong Delta faces multiple difficulties in the sector of goods storage, preservation, transportation and consumption.

The region has not seen a logistics center, which is established by Decision No. 1012/QĐ-TTg dated July 3, 2015 on the planning of developing a nationwide system of logistics centers up to 2020, with orientation to 2030. The size of existing logistics centers is quite small (less than 10 ha) and mainly serve a number of businesses in industrial zones or a province or a city. This system has not yet developed to a scale that can serve one industry or an economic region. The services provided by logistics centers are still limited, and the connectivity in their activities are weak.

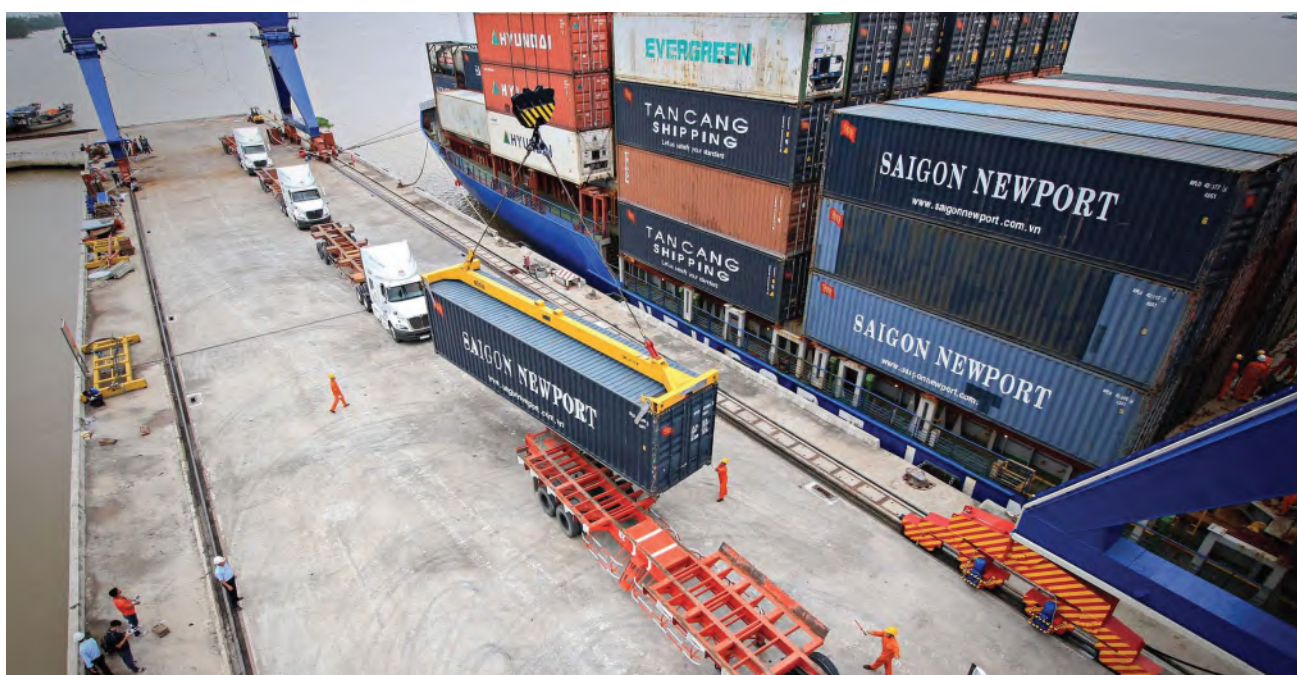
There are few full-pledged logistics service providers in the Mekong Delta; most of which are of small scale. Majority of logistics services related to production, trade, service provision, and so on are done spontaneously in line with traditions and often operated in 1PL model (i.e., manufacturers and traders self-perform logistics activities, rather than outsourcers). Outsourcing also stops at a single activity, thus no close connectivity occurs among modes of transport, or between the transport system and warehouses, or between the transport-warehousing system and the forwarding procedure, hence delays happened, high costs incurred, and troubles for customers happened. Currently, there are no foreign logistics providers entering this market in the Mekong Delta, except for a handful of domestic businesses, based mainly in Ho Chi Minh city. There are not many large enterprises specializing in logistics services in the region; their ability to provide

services in the logistics supply chain is weak; logistics costs are also high, thereby affecting the competitiveness of commodities.

Investments in the development of logistics services will help the region overcome post-harvest losses, up to 20% for many agricultural products. The development of logistics services in the Mekong Delta, thus, is truly a new strategic direction to bolster key services in the whole region.

The Mekong Delta has not seen an aligned planning of material resources, which are concentrated in some localities, but are in need of allocation to other provinces that focus on manufacturing; some localities have advantages for commercial transactions but their logistics systems have not yet been promoted due to lack of specific linkages prescribed by governmental policies. This has resulted in the fact that thirteen regional provinces are all alike and even compete against one another. These shortcomings need to be addressed to facilitate and quickly attract investments in the Mekong Delta.

In addition to potentials and advantages, the distribution system of goods in the Mekong Delta is much spontaneous with weak linkages, inside and outside while the facilities and techniques of the traditional market networks are still poor and outdated; the transport infrastructure system is much constrained, causing logistics costs hike and reducing the competitiveness of the Mekong Delta goods.



Trends for development of the Mekong Delta logistics system

The government and the authorities of the Mekong Delta provinces are actively investing in construction, as well as putting into use a series of important infrastructure projects. Once the urban and transport infrastructure systems are completed, multiple new urban areas will arise; population density, higher; and purchase power, in blossom due to increased demand. This is an advantage that beef up the development of the region's logistics cluster.

With the aim to build a regional logistics center capable of acting as a regional touch point for logistics companies to provide services and forming an integrated chain of co-operation and capacity sharing, logistics providers shall diversify their services toward import-export, including container and bulk cargoes; domestic commercial goods; distribution of consumer goods in the region; e-commerce business; operation of empty depots (for empty container storage), etc.

Also, according to the socio-economic development orientation of the Mekong Delta up to 2020, with a vision to 2030, the ratio of services accounting for 65.7% of GDP (by 2030) indicates the increasing needs for logistics to serve the agri-aqua sector of the whole region.

With the advantages of inland waterway transport and the development trends of inland waterway transport infrastructure system in the Mekong Delta, it is forecasted that there will be increased inland waterway transport up to 2030-2040 with an average growth rate of 5%. The feasibility studies report by MOT in consultation of WB for the project to develop the inland waterway corridors and logistics in the Southern region, indicates the transition from land transport to that of inland waterway in the Mekong Delta provinces, thereby increasing the needs for logistics services provision for inland waterway transport and for adequate resources to ensure the future development trends.

Table 4.12 Transport model – Forecast of increase in inland waterway traffic, 2030-2040

2030		Long An	Tien Giang	Ben Tre	Tra Vinh	Vinh Long	Dong Thap	An Giang	Kien Giang	Can Tho	Hau Giang	Soc Trang	Bac Lieu	Ca Mau
Rice	Road (%)	30	30	25	25	25	25	25	20	25	20	20	20	20
	Waterway (%)	70	70	75	75	75	75	75	80	75	80	80	80	80
Shrimp	Road (%)	60	55	45	43	43	43	43	43	43	43	43	43	43
	Waterway (%)	40	45	55	57	57	57	57	57	57	57	57	57	57

2040		Long An	Tien Giang	Ben Tre	Tra Vinh	Vinh Long	Dong Thap	An Giang	Kien Giang	Can Tho	Hau Giang	Soc Trang	Bac Lieu	Ca Mau
Rice	Road (%)	25	25	20	20	20	20	20	15	20	15	15	15	15
	Waterway (%)	75	75	80	80	80	80	80	85	80	85	85	85	85
Shrimp	Road (%)	55	50	40	38	38	38	38	38	38	38	38	38	38
	Waterway (%)	45	50	60	62	62	62	62	62	62	62	62	62	62

Source: MOT and WB: Feasibility study for Southern region's logistics and inland waterway corridors development Project, 2017

Construction planning of Mekong Delta logistics infrastructure

The Government and ministries are very keen on giving directions for the development of logistics infrastructure in the Mekong Delta to promote socio-economic development and enhance the value chain of agri-aqua production of the whole region.

■ Decision No. 1012/QĐ-TTg dated July 3, 2015 approving the planning for development of the system of logistics centers in the whole country up to 2020, with orientation toward 2030. Accordingly, the planning schemes are as follows: the economic sub-region of the Mekong Delta: one tier II center with a minimum size of 30 ha by 2020 and over 70 ha by 2030; scope of activities mainly include provinces and cities of Can Tho, Tra Vinh, Hau Giang, Vinh Long, Kien Giang, Ca Mau, Bac Lieu, Soc Trang, and An

Giang; this center will connect dry ports, river ports (Can Tho, My Thoi), airports, railway stations, bus stations, industrial zones, and border gates (Kien Giang and An Giang).

■ Decision No. 593/QĐ-TTg dated April 6, 2016 on the pilot linkage mechanism for socio-economic development in the Mekong Delta in the period of 2016 – 2020, promulgating the linkage mechanism for the socio-economic development in the Mekong Delta, including the provinces and cities, directly under the central Government, of Long An, Tien Giang, Ben Tre, Dong Thap, Vinh Long, Tra Vinh, Soc Trang, Hau Giang, An Giang, Kien Giang, Bac Lieu, Ca Mau, and Can Tho City (hereinafter referred to as the locality), in the period 2016 – 2020, and focusing on three main areas of linkage, including construction and upgrading the infrastructure of ground transport, inland waterway, aviation, river ports, and seaports.

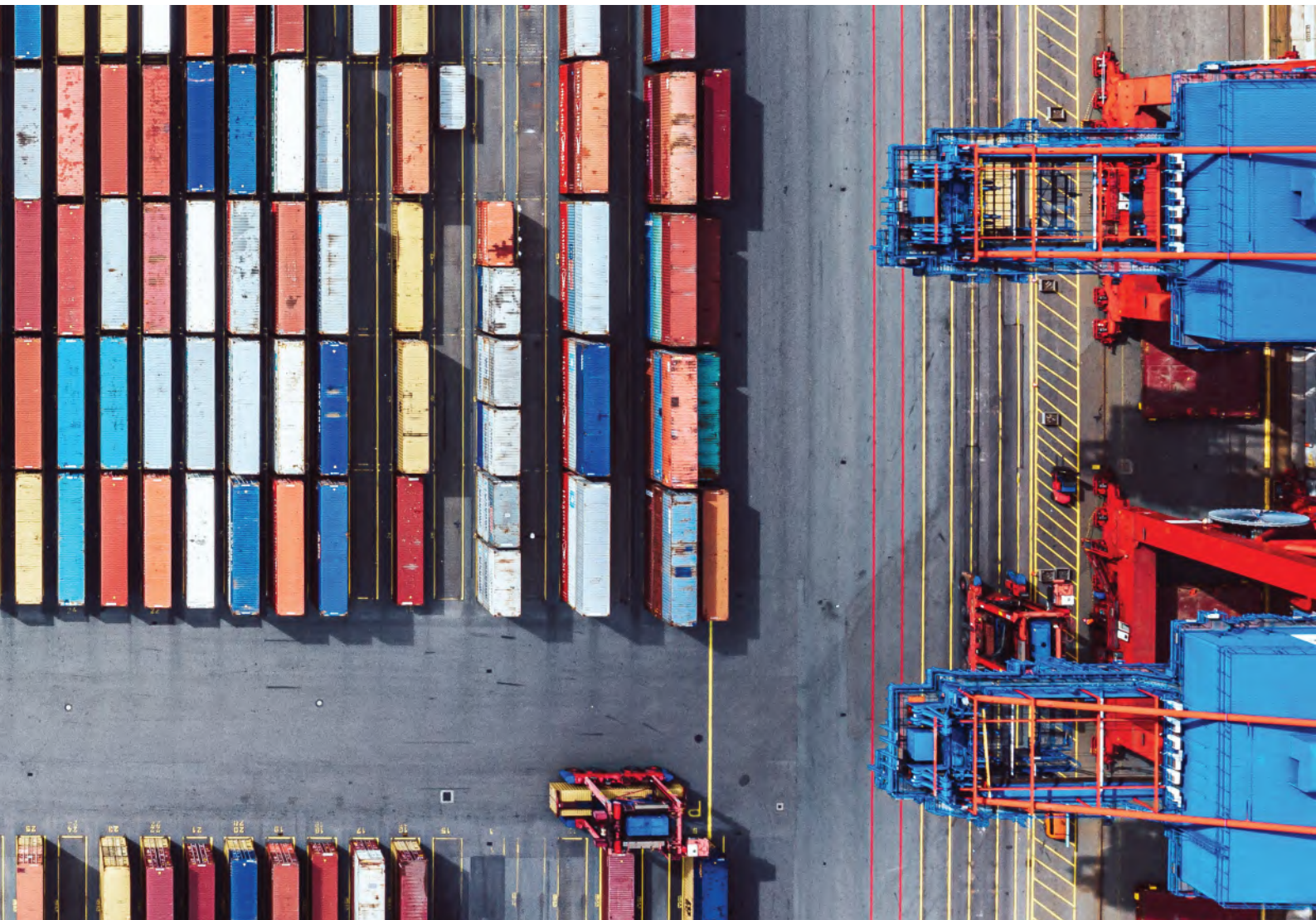


■ Notice No. 29/TB-VPCP dated January 23, 2017 by the Government Office on the conclusion by Deputy Prime Minister Vuong Dinh Hue at the investment promotion conference on logistics business in the Mekong Delta, stating : “provinces and cities in the Mekong Delta review relevant plans for logistics activities, promptly supplement and adjust the planning to meet the requirements of logistics development in the area; select and announce key logistics infrastructure projects that need to call for investments; closely coordinate with relevant ministries, agencies, and international organizations (e.g., WB and the like) to strengthen promotion activities and investment promotion”.

■ Decision No. 2072/QD-TTg dated December 22, 2017 approving the adjustment of the master plan for

the development of Vietnam's dry port system up to 2020, with a vision toward 2030. It focuses on “the development of ICDs to mainly serve goods from provinces/cities of Can Tho, Tra Vinh, Hau Giang, Vinh Long, Kien Giang, Ca Mau, Bac Lieu, Dong Thap, Long An, Tien Giang, Ben Tre, Soc Trang, and An Giang”.

■ Directive No. 21/CT-TTg dated July 18, 2018 promoting the implementation of solutions to reduce logistics costs, effectively connecting the transport infrastructure systems, with a focus on “improving the quality and aligned connectivity of the inland waterway system in the Mekong Delta and between the system and seaports and outside areas as well”.



Solutions to improve logistics infrastructure for agri-aqua production in the Mekong Delta

Arising from the current state of the cluster and deriving from the needs to develop the industry to serve the import-export of the agri-aqua products of the Mekong, a number of following recommendations are proposed to stakeholders:

Solutions for agri-aqua products exporters and distributors

- Pay attention to using logistics service options to reduce costs, improve production efficiency, and increase professionalism.
- Change behavior of shippers: negotiating with partners in foreign trade contracts for use of commercial conditions in group C and D to create opportunities for Vietnamese logistics enterprises to participate in the integrated and full-pledged logistics service chain.
- Increase the rate of logistics outsourcing to increase specialization and reduce the rate of depreciation and losses of agricultural products, post harvest.
- Associate with businesses in using logistics services to take advantage of economy of scale; creating the buyer's power.

Solutions for logistics services providers

- Strengthen the linkages among providers to create a service chain in the Mekong Delta to help customers reduce costs and time consumption.
- Establish in Can Tho or a neighboring locality a standardized container depot in the operating system of the freight companies in the Mekong Delta as an empty container yard, thereby encouraging the development of the inland waterway transport.

- The infrastructure for logistics services should be invested and renovated by the providers to meet the needs of customers. Specifically, the systems of warehouses, ports, means of transport, information systems, and so on need to be upgraded and re-built to be compatible with the national logistics infrastructure system.

- Providers need to focus on investing and using more ICT applications in line with I.R 4.0 to ensure seamless connectivity between customers and partners throughout the logistics chain, taking advantage of ICT in providing necessary information to customers and in handling logistics services more quickly and professionally. Activities in applying information technology and associating/sharing in the transport system shall be like those in a container exchange.

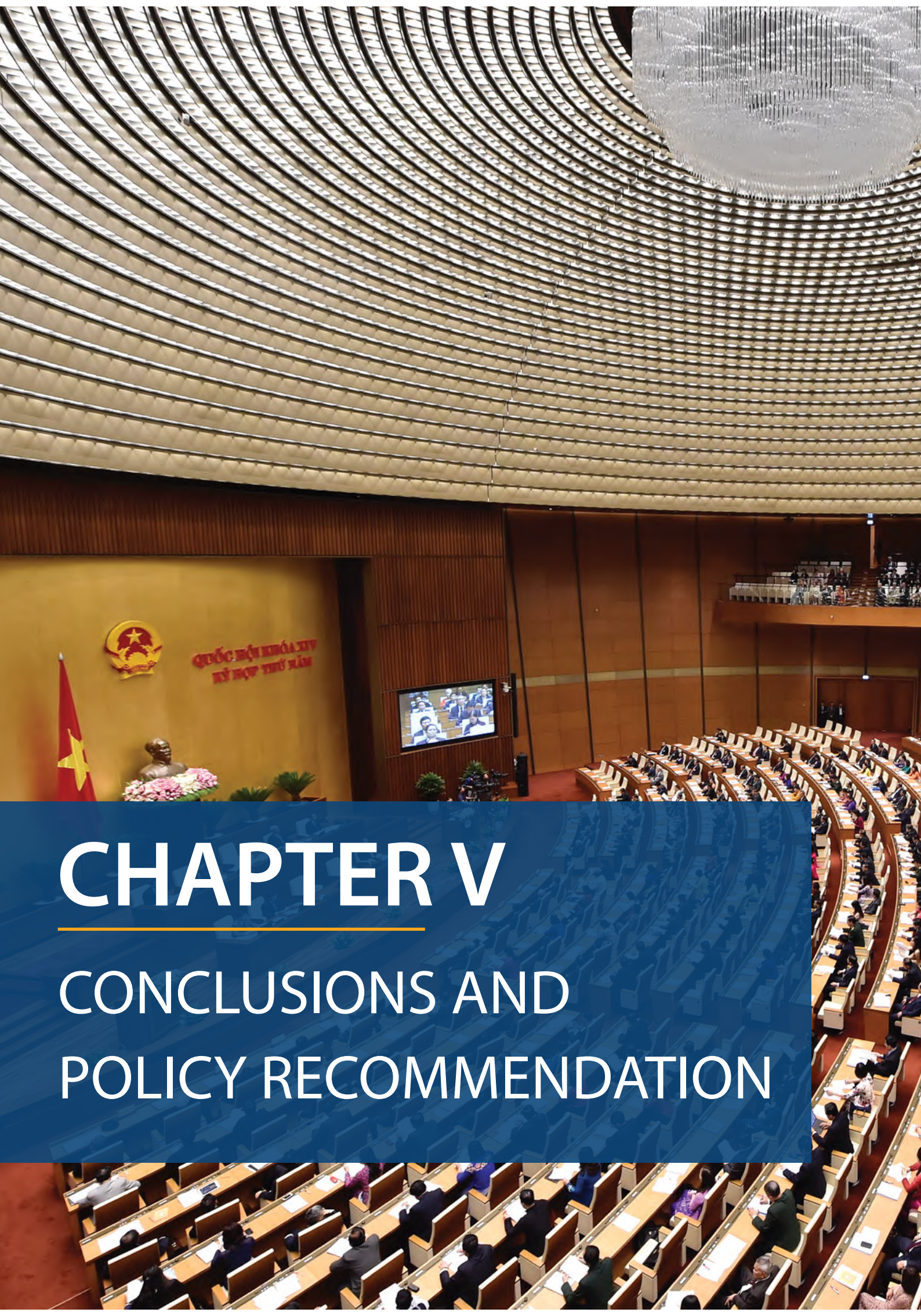


Recommendations for regulatory agencies

- Focus on planning logistics infrastructure network (hard infrastructure includes transport infrastructure, port and warehouse infrastructure; soft infrastructure is information technology application) and investing in the region's infrastructure, especially the inland waterway transport infrastructure and logistics center infrastructure.
- Study on planning of aviation logistics infrastructure to distribute Mekong Delta goods domestically and to export them abroad.

- Promote communications on logistics services routes and fairways, and on re-routes to serve the growth of agricultural exports in the Mekong Delta.
- Strengthen regional linkages to use resources of the whole region effectively for the avoidance of fragmented infrastructure investments.
- Own a human resources development strategy for the logistics service industry to proactively ensure the supply of human capital for the development of the region's logistics services.





CHAPTER V

CONCLUSIONS AND POLICY RECOMMENDATION



Over its history of formation and development, the Mekong Delta has never been undergoing bigger challenges

■ The first group of challenges involves land, water, and the environment, of which the most notorious problems include sea level rise and saltwater intrusion due to climate change. Currently, the average sea level rise is between three and four millimeters per year. Despite the consequence of this phenomenon, this rise is in fact many times lower than the subsidence caused by excessive groundwater extraction together with construction and infrastructure building. Furthermore, the saline intrusion – albeit detrimental to rice – is beneficial for shrimp, fish, and aquaculture, which brings multiple larger economic benefits, causing less change in and damage to the environment than the three-crop intensive rice cultivation.

The second type of challenge, discussed remarkably in recent years, is water deterioration in both quantity and quality caused by the interlocking network of over 140 large upstream hydro-electric dams. Water shortage in the Mekong Delta has become increasingly severe in the dry season. Although Chinese dams only account for less than 10% of the entire water system in the rainy season, this figure can reach between 40% and 50% in the dry season. Consequentially, the intake timing and the amount of water in the downstream are heavily dependent on the operation of Chinese dams. In addition, a large amount of silt and sand trapped by upstream dams, estimated up to 50%, incurs the loss of a valuable sediment source to the Mekong Delta.

This trend, coupled with undisciplined and insatiable sand exploitation for years, makes land loss and coastal landslides a grave challenge.

More dangerous problems eroding the Mekong Delta's vitality daily and hourly, in fact, come from inadequate policies or farming practices. The policy of intensive agricultural cultivation - particularly the three-crop rice – proves both ineffective and unsustainable, causing a series of environmental damage.⁸⁵ Additionally, regarding farming practices, the surface water becomes heavily polluted due to the excessive use of fertilizers and pesticides to maintain three-crop rice farming and increase agricultural yields. Also, the aquaculture and processing have even exacerbated the pollution. Moreover, the groundwater – the tragedy of the commons - is overexploited for a long time due to polluted surface water and poor management of groundwater. This, along with the pressure of construction and infrastructure works, causes the ground to sink seriously - occasionally up to 2-3 cm per year - many times higher than sea level rise. If this trend continues, most of the lower Mekong Delta will be below the sea level in just 30 to 50 years.⁸⁶

■ Not only suffering from serious land, water, and environmental challenges, the Mekong Delta is also experiencing important shifts in demographics as well as labor quantity and quality. The average population growth rate of the Mekong Delta between 2009 and 2019 was only 0.05% per year, much lower than the national one of 1.14%.

⁸⁵ The system of dike ring in the lowlands of the Long Xuyen and Dong Thap Muoi Quadrangle reduces the water-absorbing space during the flooding season. This, on the one hand, makes the downstream region flooded longer and more expansively, and on the other hand, causes the water to drain quickly into the sea in the flood season, leading to strong erosion and intensified drought in the dry season. The network of more than 10,000 sluices for saltwater intrusion, large and small, prevents natural flows and thus causes lack of oxygen as well as pollution to rivers. Moreover, the saltwater-preventing sluice system completely cuts off the circulation between rivers and the sea in the 6-month dry season, making fish impossible to travel into estuaries for breeding and coastal seawater saltier, more polluted, and less nutrient. All those issues seriously impact the fishing industry.

⁸⁶ For the elevation above the sea level of the Mekong Delta in different scenarios (groundwater extraction, sand extraction, silt addition and sea level rise), see <https://iopscience.iop.org/article/10.1088/2515-7620/ab5e21/pdf>

The primary cause of this phenomenon is that the Mekong Delta has the highest net migration rate in the country, as much as minus 39.9%, mainly due to the lack of jobs and economic opportunities. In fact, since 2017, for the first time in its history of formation and development, the Mekong Delta has recorded an absolute decline in population.

As a result, the shortage of labor is getting increasingly common while the population aging turns more and more serious.⁸⁷ Apart from the labor shortage, the quality of human resources in the Mekong Delta has long been an unresolved issue. The literacy rate of the population aged 15 and over in the Mekong Delta is 94.2%, below the national average (95.8%) and only above the Central Highlands (91.3%). The population group aged 15 and above with high school degrees in the Mekong Delta is only 11.3%, the lowest and far below the average of 17.3% of the country. Likewise, for the quality of labor training, the population group

aged 15 and older with technical and professional qualifications in the Mekong Delta is only 9.7%, also the lowest and much lower than the national average of 19.2%. The proportion of trained workers in the Mekong Delta is 13.6%, again the lowest and far below the national average of 23.1%.

■ The third group of challenges derives from economic development. While popular major drivers of economic growth of the Mekong Delta, such as rice, aquatic products, and seafood, appear to reach the tipping point, new growth drivers are still weak or yet even in viable shape. This is the primary reason why the Mekong Delta provinces have been concerned with the problem of structural transformation and growth model reform yet found a satisfactory solution. This challenge turns more pressing when the Mekong Delta is lagging farther behind the Southeast and even feels "abandoned" in the development course of the country.

⁸⁷ The aging index in the Mekong Delta (measured by the ratio of the population group aged 60 and above to that aged 15 and below) is 58.5%, much higher than the national average of 48, 8%.



■ The fourth group of challenges is about science and technology. These are "shocks" for not only the Mekong Delta but also Vietnam and even the world. After a long evolution, new technologies - including IoT and Big Data, the optimization of manufacturing industries by AI, or gene editing not only for plants but also for humans - have got mature and will fundamentally change the way we live, work, produce, and interact with each other. As a technological "low-lying area" relying mainly on traditional agricultural production and outdated technology, the Mekong Delta will face numerous challenges from these shocks. If well leveraged, these new technologies will open enormous opportunities. Otherwise, the Mekong Delta will lag farther and farther behind the country and the world.

There exist opportunities in dangers; not all "challenges" are detrimental. On the contrary, they urge the Mekong Delta provinces to thoroughly re-examine

their development goals, re-assess the existing growth drivers, review their strengths and resources, and then rethink the development model.

The Mekong Delta needs to build not only another model of economic growth but, above all, a new development model. Over the past three decades, the old economic model has relied on agricultural production rather than agricultural economy, quantity above quality, fragmentation in preference to land aggregation and piecemeal production instead of supply chain. Despite succeeding in hunger eradication and poverty reduction, the Mekong Delta has yet brought prosperity to most of its residents, evident by the significantly slow growth rate, the lower standard of living than the national average, and the falling behind in most dimensions of socio-economic development.



The new development model of the Mekong Delta should not only focus on economic growth but, above all, create a comprehensive economic, social, cultural, educational, environmental development, which must be sustainable. Fortunately, this guideline is completely in line with Resolution 120 of the government on the "Sustainable Development of the Mekong Delta in Adaptation to Climate Change". However, the right resolution is only the first step. More importantly, the Mekong Delta must together put forward strategies, policies, and regional master plans to set a conducive environmental, economic, social, infrastructural, and regionally coordinated context to put this development model into practice.

To contribute to the Mekong Delta efforts to build and implement a new development model, VCCI Can Tho has collaborated with the Fulbright School of Public Policy and Management to publish the first Annual Mekong Delta Economic Report with the main goal of strengthening the competitiveness of the region for sustainable development. As shown above, each section/part of the Report is designed as a stand-alone module, including specific conclusions and policy recommendations. These general conclusions and recommendations, thus, will not go into details but summarize the main ones running across the Report:

1 The Mekong Delta's competitive advantages mainly come from its endowed natural conditions (land, water, and ecosystems) and past heritage (cultural and religious resources). However, these resources are over-exploited to an unsustainable extent, exposed to large external risks, gradually degraded over the years, or hindered by policies from leveraging their diverse power.

2 The future of the Mekong Delta development depends on both its capacity to nurture these resources for successive generations and the efforts of finding and building new development drivers for the region. These two factors require new mindset and approaches to the development of the Mekong Delta, because only in that way can it break away from the current orbit and shift to a new development model for itself wholly as well as each regional province.

3 A new development model should not be dreamy or idealistic but very practical. It should be built upon the current context and must provide solutions to burning economic, social, and environmental problems in the Mekong Delta. More broadly, the new development model must also be integrated to the country's economic and institutional contexts and aligned with global trends to take advantage of new opportunities from the diversion of FDI inflows and the outstanding development of information technology and biotechnology that meet the increasing demands of consumers across the world.

4 As a lagging region with a relatively low starting point, limited resources, and heavily dependence on the central government, the Mekong Delta must build its development model in the next decade upon its outstanding existing strengths. However, instead of following the traditional path, the Mekong Delta provinces need to create the conducive environment and conditions for people, businesses, and government to work together to find new solutions and pathways for its developmental problems, thereby contributing to the development of the region as a whole.

5 Although traditional agriculture is currently the main source of employment for most farmers, thus contributing to poverty reduction and social stability, but it is not likely, in the long run, the foundation for regional economic development and social stability. Therefore, the Mekong Delta must fundamentally transform its agriculture, in which the key task is to develop a modern agri-economy in replacement of traditional agricultural production. Details may include:

- Marketize agricultural activities to stabilize the output
- Industrialize and apply technology to agriculture to increase productivity and quality
- Servitize agricultural-related activities to enhance specialization and improve efficiency
- Adapt agriculture to the environment and climate for sustainable development

6 The intensive agricultural systems, especially the three-crop rice farming, should be replaced by more efficient and environmentally friendly farming systems to develop an environmentally and economically sustainable agriculture. Agriculture should prioritize quality above quantity and compete by high value instead of low price. Agricultural organization and policies need to be driven by cluster and value chain rather than fragmentation and localization.

7 Apart from the agricultural structure of quality and value as discussed in point [6], agriculture of the Mekong Delta needs to change the priority, in the long term, from rice – aquatic products – fruit to aquatic products – fruit – rice. To achieve this goal, it is a prerequisite to shift the mindset about the Delta resources, not only treasuring fresh water (for rice and fruit), but also appreciating saltwater and brackish water as valuable resources for both inland and coastal aquaculture development. Accordingly, the dyke system and the saltwater prevention sluice need to be adjusted to return to the Mekong Delta's soil, water, and ecosystems the inherent life and "natural" properties in line with Government's Resolution 120 of 2017. In the long term, the Mekong Delta needs to thoroughly calculate the impacts of climate change, the water sources of the Mekong River, trends in world's consumption and agricultural production to have a long-term strategy and a restructuring roadmap suitable for the subsequent stages.

8 In the short or even medium term, tourism will be unable to become a key sector or the foundation for regional provinces' economic development. However, tourism is very important for improving residents' jobs and income as well as the image of the Mekong Delta. Instead of adopting tourism in the old way, the Mekong Delta and its provinces need to seek

new tourism development models to meet the growing needs of a relatively young population and the increasingly sophisticated demands of the fast-growing middle class in Vietnam.

9 In the coming decade, the Mekong Delta will face many opportunities and choices in industrial development due to the connected infrastructure development, the spillover impact of industrial activities in the Southeast, and the regional land and cost advantages. However, as analyzed in the Report, the Mekong Delta industries should organically connect to and become a foundation platform for the region's agricultural-economic development. This implies that the Mekong Delta provinces shall balance the light industry, processing industry, and renewable energy industry, on the one hand, with agricultural processing to improve added value and stabilize output for agriculture, on the other. It should be noted that the Mekong Delta shall minimize polluting industries to develop high-quality agriculture and tourism.

10 For traditional industries (including rice, aquatic products, fruit, and tourism) and potential industries (like renewable energy or logistics), an approach of cluster and value chain should be adopted toward eventual performance indicators such as job creation, workers' income, and local budget contributions. In this effort, enterprises and business associations play a key role not only in organizing production but more importantly in branding, developing value chains, and securing output markets. The local government plays an enabling role particularly in facilitating the business environment and institutions to support the connectivity between farmers and enterprises, and among actors in the clusters to cooperate for mutual development.

11 Just like the country, the Mekong Delta is confronting three important bottlenecks in its development process. The first and most important one impeding the economic development of the entire Mekong Delta as well as all provinces is poor infrastructure (in terms of quantity, quality, and connectivity), especially the transportation infrastructure. Instead of individual campaigning by each province for its own airport or deep-water port, all 13 provinces and cities of the Mekong Delta should work in uniform, cooperating and proposing to the Central government to build a system of transportation infrastructure that is qualified, integrated, and concerted to intra-connect themselves and inter-connect with the Southeast region. The development of the highway axis connecting Ho Chi Minh city to Ca Mau province shall become the top strategic priority of the entire region in the coming years.

12 The poor infrastructure of the Mekong Delta comes from inadequate investment for a long time; however, this is not necessarily due to the lack of central investment as a prevailing belief. The fact of the matter is that the Central government has spent substantial investment in huge projects such as the irrigation megaprojects that transfer fresh water from Hau River to Quan Lo-Phung Hiep, the flood-preventing dyke system, the sluice gate system against saltwater intrusion, and recently many coal-fired powerplants. Had these investments been calculated more thoroughly with priority given to the region's critical transport infrastructure such as highways, inter-provincial roads, important bridges, or road network connecting the production areas to the national highway, the Mekong Delta would have had a completed road system effectively connecting Ho Chi Minh city and the Southeast. The transportation infrastructure bottleneck is, thus, not merely due to the shortage of funding but mainly because of prioritizing the said resource on other targets rather than the transportation infrastructure system.

13 The second development bottleneck in the Mekong Delta is human resources. The quality of human resources is the decisive factor for the long-term living standards and development of individuals, provinces, and the whole nation. As a “low-lying region” in the country with regards to education and training, the new development model of the Mekong Delta must address this important bottleneck by formulating policies to motivate schooling, overcoming families’ short-term mindset, and pursuit of immediate benefits that force their children drop out early of primary or secondary schools. After all, this motivation mainly depends on the ability to create job opportunities so that local people can see the benefits of knowledge and skills, thereby having a strong incentive to pursue learning and skill development. This would, thus, create demand pressure on the educational and training system to link itself to businesses and the labor market.

14 Institutions and policies are the third bottleneck hindering the development of the Mekong Delta. The Report has analyzed and made various suggestions on mechanisms and policies for the Mekong Delta development, hereby only summarizing three recommendations on land, water, and regional coordination mechanisms. Land policies shall be redesigned to create a more flexible land market, increasing the mobility of agricultural land within each sector and between agricultural production activities. Therefore, agricultural land can be best utilized thanks to the economies of scale, selection of suitable products, and applying advanced farming practices. Apart from that, all water sources – including fresh water, saltwater, brackish water, groundwater, and surface water – should be considered valuable resources to have appropriate policies of management, usage, and protection. It should be added that only by protecting land and water resources can the Mekong Delta preserve its own living space, thereby developing its community and conserving its traditional culture and religions.

15 An indispensable pillar of the Mekong Delta's new development model is an effective and efficient regional mechanism of cooperation and coordination in replacement of current formal and ineffective practices. A key message of the Report is that the Mekong Delta biggest challenges - including poor transport infrastructure, economic and educational drawbacks, polluted water, climate change and sea level rise, and risks from upstream dams – are ones of the whole region, not of any individual locality. Therefore, it is essential to build a truly efficient and effective regional coordination mechanism to address the common challenges of the region as a whole.

From the governance perspective, the fragmentation of economic resources - the consequence of

fragmented planning and budgetary allocations - has impeded regional coordination and coherence. On top of that, while the region's master plan or strategy is apparently regional, its implementation is predominantly at the provincial level and therefore reliant on the existing governance and institutional systems as well as their accompanying incentives. For example, as long as the provincial leadership is measured by local indicators - in terms of GRDP growth, budget contributions, industrial development, FDI attraction, or export turnover - without integration to regional performance, the provinces will keep on building massively industrial parks, airports, and seaports with high cost yet low efficiency.



These issues imply that for truly effective regional strategic planning and coordination, there must exist a certain form of regional government (below the national but above the provincial level). The government at this level needs fiscal, planning, and personnel power. The regional government will then be appropri-

ately positioned and motivated to pursue the common benefits of the whole region, not influenced by the local interests of each province. At the same time, the region becomes an administrative unit sufficiently scaled to develop a complete and modern economic structure and infrastructure.

The Mekong Delta is facing the critical threshold of the old development model. If this model - including government policies and practices of people and businesses - does not change, the Mekong will inevitably lag further behind and its disintegration is just an issue of timing. On the contrary, should there be

sufficient courage and wisdom to shift to a new development model, current challenges will become a great opportunity for the Delta to strengthen its competitiveness and develop sustainably, thereby opening a bright future for over 17 million people and their generations of descendants as well.



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Appendix 1

Introduction to Michael Porter's Competitive Analysis Framework

Competitiveness is a constant concern of both central and local governments. This appendix introduces the competitive analysis framework of Professor Michael Porter (1990, 1998, 2008) to assess the competitiveness of the provinces.

According to Michael Porter, the only meaningful concept of the competitiveness is productivity, where productivity is measured by the value added created by a unit of labor (or a unit of capital) per a unit of time. Productivity is the most important determinant of long-term living standards and the underlying cause of per capita income. The sustainable productivity growth requires the economy to continually upgrade.⁸⁸

This report uses the Michael Porter's competitive analysis framework, which is adjusted to suit the research objectives and objects of the Report (Figure 1). In this framework, the productivity of using resources (including capital, labor, land, and other resources)

plays a central role, on the one hand because it is the most accurate and uniquely meaningful measure for competitiveness; on the other hand it is the decisive factor for the prosperity of localities.⁸⁹ This also means how to compete (the productivity is high or low) is even more important than what industry to compete in.

With the central role of productivity in the competitive analysis framework, a key question to answer is: What are the factors determining productivity and the rate of productivity growth? According to Michael Porter, there are three groups of factors that determine the competitiveness of a country, including (i) The factors of natural advantage of the country, (ii) macro competitiveness, and (iii) micro competitiveness. Since the research object here is the competitiveness at the provincial level, this theoretical framework is adapted appropriately, summarized in Figure 1 and presented in details in the following sections.⁹⁰

⁸⁸ See Porter (2008).

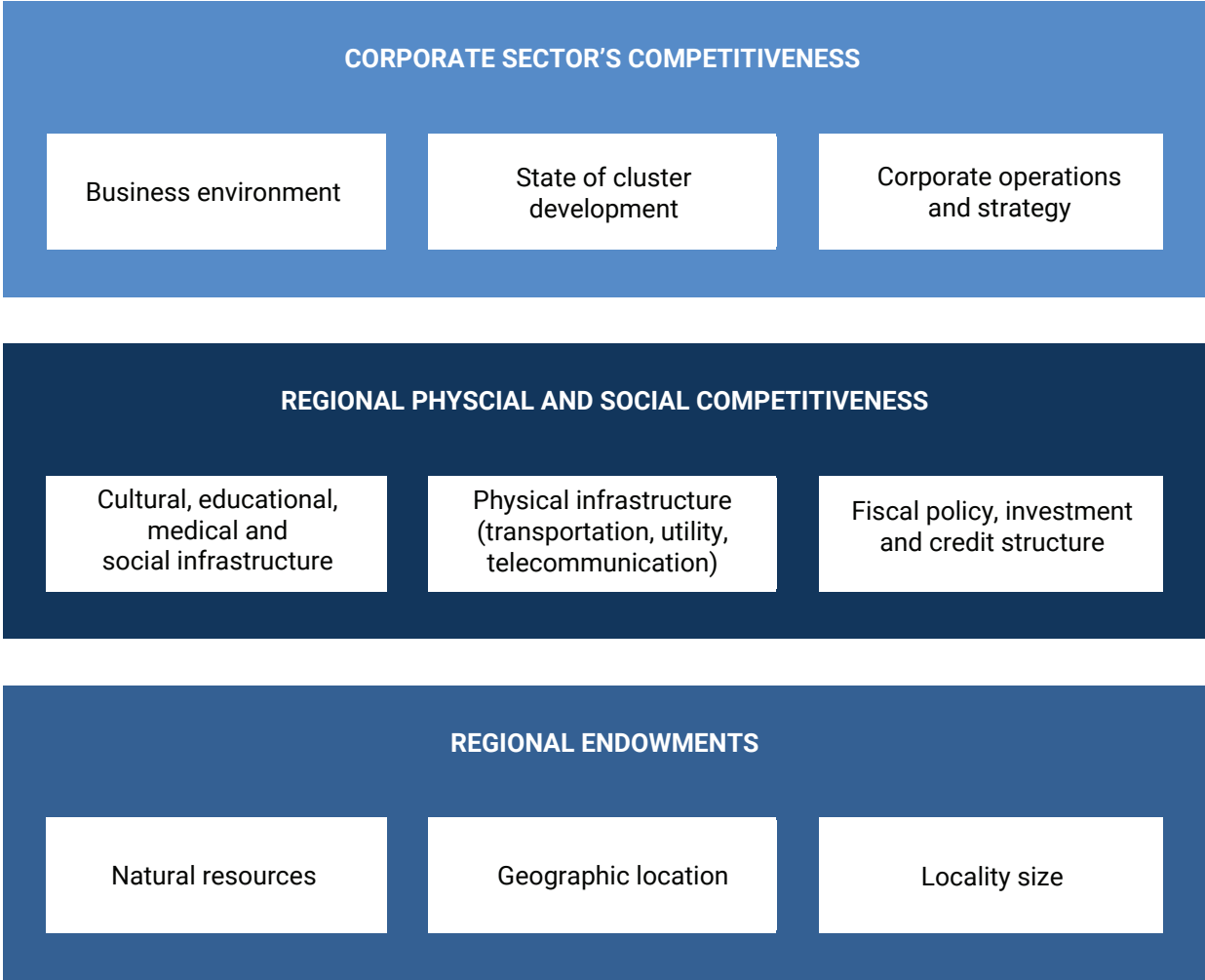
⁸⁹ A locality here refers to an economic unit, may be a province, a city, a region (like the Mekong Delta), a country, or even an economic region (such as ASEAN or EU).

⁹⁰ By convention, in this Report, "locality" is used to refer to the province and/or region.

⁹¹ This factor can in fact be referred to more generally as "congenital resources" because it also includes historical tangible and intangible resources left by generations of ancestors (such as civilization, historic sites etc).

⁹² See Porter (1990), *The Competitive Advantage of Nations*

Figure 1: Analysis framework on competitiveness at the locality level



Source: Fulbright School, adapted from Michael Porter's (1990, 1998, 2008).

Available advantageous factors of the locality

The fundamental factors that determine productivity of the locality are divided into three groups. The first group, which is at the bottom of Figure 1, is the "available advantageous factors of the locality", including natural resources,⁹¹ geographic location, or scale of the locality. These factors are not only quantity but also abundance, quality, usability, land costs, climatic conditions, area and region topography, mineral resources, water resources, and fisheries resources or fishing grounds, etc. Although these factors may be similar or different between localities, they are all essential inputs for the competition of any locality and for the businesses operating in that locality.

However, the abundance of these "natural" factors does not always bring better competitiveness for the locality. At the same time, their poverty is not always the same as a disadvantage in competition. World economic history has given us a lesson that the excess of factors of production can lead to the decline, rather than the increase of competitive advantages. Meanwhile, the certain disadvantages of production factors, through the impact of strategy and innovation, often contribute to the long-term success of competition.⁹² This also means that the advantages of resource availability or geographic location can contribute to the prosperity of the locality over certain periods and under certain conditions, but if only basing on these "heaven-sent" advantages, the prosperity will also be limited.

Not only that, it does not rule out the possibility that it is easy income “falling down from the sky” resources that will be a seed of corruption and allow bad policies to persist. Economists call this paradox the “resource curse”.⁹³ Many evidences show that there are countries that are rich in natural resources but very underdeveloped, while there are countries that enjoy in their development in spite of lack of significant resources. According to Porter (2008), when the materials are abundantly provided with cheap price or excess labor, the businesses may tend to over-rely on these advantages and exploit them in an ineffective way. But when the businesses face some disadvantages, such as high land use costs, labor shortages, or shortages of local materials, they have to innovate and upgrade themselves to be able to compete.⁹⁴

Competitiveness at the locality level

The second group of factors, which is in the middle of Michael Porter's model, is “Competitiveness at the locality level”.⁹⁵ This group includes factors that make up the operating environment of the enterprises. Operating environment of the enterprises is a combination of factors that affect the competitiveness of enterprises from thinking, opinion, attitude to behavior, creativity and entrepreneurship. These factors can be divided into two main groups including (i) quality of social infrastructure and political, legal, cultural, social, educational, and health institutions; and (ii) economic institutions and policies such as fiscal, credit policy, and economic structure.

The social infrastructure factor centers on human development, which focuses on the role of basic education for human personality fulfillment and the health system for physical development. Considering the competitiveness, basic education is also the foundation for learning, absorbing knowledge, creating and

innovating in the enterprises. The more peace of mind about health and a better physical base will also help people work more resilient, adapt quickly to high labor intensity, and have non-stop creativity. However, it should be noted that in modern competition, contrary to the conventional knowledge, simply having people with good basic education does not translate to competitive advantages. To support competitive advantages, the factors must be highly specialized for the specific needs of an industry. On top of that, the living and working environment also affect the employees' decisions to leave or stay.

The development of political institution is measured by the openness and social stability of the locality, enterprises' voices are heard and respected in practice, accountability of local government officials is highly respected, effectiveness and efficiency of the public administration is improved. When it comes to the role of political institution, it must be tied to the rule of law, in which social security, independence of the judicial system, effectiveness of the legal framework, level of corruption, and the exercise of civil rights are focused.

Apart from the political and social institutions, the economic institutions and policies also have an impact on the competitiveness at the locality level. For that reason, the economic development policies of the locality generally receive special attention from the enterprise community. Although these policies are mainly influenced by the macro-economic policies of the central government, the assessment at the locality level lies in the ability of the locality government to put those policies into practice. For example, the macro-policy guidelines of economic restructuring will determine the allocation of central resources to the locality, and will require prioritizing resources for sectors and fields of the locality. The fiscal, credit, and investment policies, accordingly, will also need to be tailored to conditions and priorities at each locality.

⁹³ See Jeffrey Frankel (2010), *The Natural Resource Curse: A Survey*. Harvard Kennedy School, Faculty Research Working Paper Series.

⁹⁴ See Porter (2008)

⁹⁵ In Michael Porter's model, the second group of factors is called “macro competitiveness”. However, because the research object here is a province - city, the name of this group of factors is changed accordingly.

Fiscal policy and its status not only describe the current state of public finance in the locality, but also reflect the characteristics of competition in that locality, such as tax bases and special tax incentives.⁹⁶ Finally, credit policy and the development of the financial and banking systems are also factors that have important influences on the competitive environment of the locality. The availability of funds, easy access to capital, low cost of capital use, and a good payment system are all of the special concerns of any enterprise when deciding to choose the environment for investment and development.

It should be noted that, although the above factors do not directly "create" productivity, and hence, the competitiveness, they play a very important role in promoting or hindering efforts to increase productivity of enterprises.

Competitiveness at the enterprise level

The third group of factors, which is at the top of Michael Porter's model, is "Competitiveness at the enterprise level". These are factors that directly affect enterprise's productivity, including the quality of the business environment and technical infrastructure, cluster development, and strategy and operations of the enterprise.

Business environment is an external condition that helps enterprises achieve the highest level of productivity and innovation and creativity.⁹⁷ According to Porter (2008), the quality of the business environment is often assessed by four general characteristics including: (i) conditions of input factors, (ii) demand conditions, (iii) related and supporting industries, and (iv) corporate strategy, structure, and domestic

competition. Porter (2008) described these four characteristics through the four corners of a rhombus that many researchers call in a fancy way "the Porter Diamond Model" (see Figure 2). Accordingly, the conditions of inputs can be divided into infrastructure, capital, human resources, physical assets, and knowledge sources. All localities have these factors, but the combination of these factors is very different, and the competitive advantages of these factors depend on whether they are implemented and effective or not (Porter 2008).

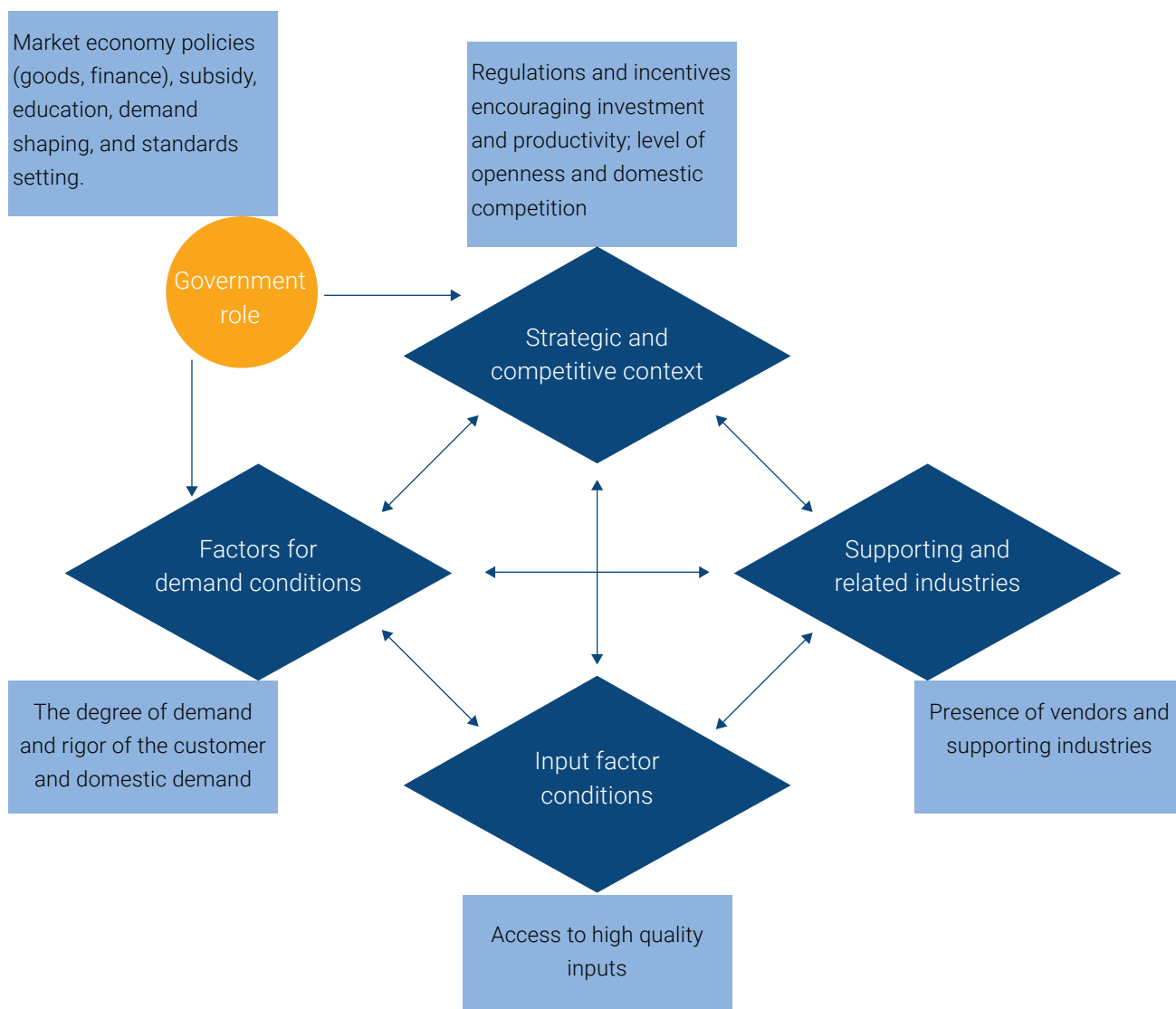
It should be noted that some factors such as human resources, knowledge, and capital can move between localities, thus the availability of these factors in each locality is not an inherent, immutable advantage. Furthermore, the stockpile of inputs that a locality has at a particular time is not as important as the speed and efficiency that the locality generates, as well as the upgrading and using these factors in specific industries (Porter 2008). In addition to the four above-mentioned characteristics, therefore, it is necessary to emphasize the role of local governments in planning and implementing economic policies, shaping needs, and setting standards for competition aimed at improving productivity.

Unlike the business environment and technical infrastructure, enterprises' operational and strategic factors assess internal conditions to help the enterprise achieve the highest level of productivity and innovation based on enterprises' expertise, skills, capacity, and management practices. This factor includes assessments of enterprises' background and their expertise, knowledge and abilities to apply technique and information technology in business and their high standards of governance, administration, dialogue capabilities, and policy consultancy and criticism.

⁹⁶ "Tax base" is understood as a quantity serving as a basis for determining tax liability of tax payers. For example, "taxable income" is the tax base for corporate and personal income tax, or property value is the tax base for non-agricultural land use tax.

⁹⁷ In Vietnam, since 2005, the Vietnam Chamber of Commerce and Industry (VCCI) has cooperated with the Vietnam Competitiveness Initiative (VNCI Project) to develop indicators to assess business environment of the localities through the Provincial competitiveness index (PCI). This index is based on 9 basic criteria, including the analysis of the infrastructure foundation factor, although this factor is not included in the calculation of the PCI.

Figure 2: Michael Porter's Diamond Model



The cluster development level analyzes the geographic concentration of enterprises, professional assets, or organizations operating in certain fields. An industrial cluster forms one corner of the above Diamond model, but this should rather be viewed as interactions between four corners of the Diamond.⁹⁸ Industrial clusters reflect the effects of linkages and the pervasive effects between enterprises and related organizations in competition. The development of

industrial clusters will also help increase productivity and efficiency, and drive innovation and commercialization. The presence of the industry clusters also creates opportunities for the flow of information and technical exchanges, increases the possibility of creating new opportunities in certain industry, and help shape a new form of enterprises which will bring a new way to competition (Porter 2008).

⁹⁸ See Porter (2008). *Industrial clusters and competition*. Vietnamese translation of FETP

Appendix 2

A few notes about statistical figures

In preparation for the Report, the research team tries to gather multi relevant facts and figures to sketch the socio-economic picture of the Mekong Delta. As predicted beforehand, however, different data sources gave very different facts and figures, even on very basic indicators, such as GDP, GDP growth rate, budget, labor, employment, poverty status, and so on.

The research team has made great efforts in filtering from the collected data sources to build a set of data for this Report; in which, the team tries at the highest level to ensure the consistency and compatibility among the statistical indicators, so that the socio-economic landscape of the Mekong Delta,

which is reflected through these figures, appears relatively truthfully and clearly. Of course, the research team is aware that, despite all best efforts, the quality control capabilities for developing the data set for this Report are extremely limited; this is simply because of the fact that the authors have to use a variety of secondary data from different sources. Having said that, the research team is always in a position to be ready to seek new sources of information and data, and in the event that these new data and information prove to be more accurate than the existing data set, the research team will update accordingly.

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