TRADE FACILITATION, VALUE CREATION, AND COMPETITIVENESS: POLICY IMPLICATIONS FOR VIETNAM’S ECONOMIC GROWTH

VOLUME 2

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Kee-Cheok Cheong
John Arnold
Anh Minh Trinh
Huyen Thi Ngoc Ngo
Hien Thi Phuong Nguyen

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THE WORLD BANK
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FOREWORD

Trade plays a particularly important role in contributing to the economic growth of Vietnam. The country’s rapid trade growth during the past two decades has been built on international economic integration process -- lower barriers to trade and participation in agreements with trade partners. However, with this progress in international commitments well advanced, the advantages of trade liberalization in contributing to the growth of trade are reaching their limits. It is time to have a new approach to improve trade competitiveness and export growth.

The study “Trade Facilitation, Value Creation, and Competitiveness: Policy Implications for Vietnam’s Economic Growth” is an activity under the World Bank-funded technical assistance program to support the formulation and the implementation of the National Action Plan for trade competitiveness enhancement in Vietnam. The program has been carried out in collaboration with Office of the National Committee for International Economic Cooperation (NCIEC) to help Vietnam formulate and implement activities to enhance trade competitiveness, especially in the context of global crisis, and at the same time improve the efficiency of international economic integration.

I must welcome and am highly appreciative of the close collaboration between the World Bank in Vietnam and Office of the NCIEC in this and the past endeavours. I believe that the continued cooperation and support of the World Bank will contribute to promote the economic development of Vietnam.

Vu Van Ninh
Deputy Prime Minister
Chairman, National Committee for International Economic Cooperation
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This report is a product of a comprehensive study “Trade and Transport Facilitation Assessment” (TTFA) funded by Trust Fund TF097373 under the umbrella of the World Bank-managed Trade Facilitation Facility (TFF). The general objective of this study is to identify ways to improve the competitiveness of Vietnam’s exports. The challenge facing Vietnam is not only reducing the cost and time of logistics for its exports but also restructuring its supply chains to add value to its exports and to promote trade in higher value goods. The study supports activities that can bridge the policy gap in trade and logistics facilitation and assist the formulation of a national trade facilitation strategic plan. The strategy, when implemented, will enhance Vietnam’s competitiveness and sustain productivity-based growth.

An endeavor of this breadth and detail cannot succeed without the contribution of many people. The team is grateful to the following for contributing to the writing of this report: Thomas Farole, Gerard McLinden, Jose Barbaro, Jean-Francois Gautrin, Trinh Minh Anh, Nguyen Luong Hien, Ngo Thi Ngoc Huyen, Nguyen Duc Tri, Nguyen Thi Phuong Hien, Nguyen Thi Diem Hang, and Nguyen Ngoc Anh.

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This report consists of three volumes. The first, the Summary Report captures the salient features and key messages of the entire study. Volume 1 provides the detailed analysis of the themes while Volume 2 contains case studies of trade facilitation of six industries.

The summary report brings together the main features of trade facilitation. It views trade facilitation as having three main components -- trade-related (“hard infrastructure”), regulatory and organizational framework (“soft infrastructure”), and supply chain organization. These components are considered against the context of changes in Vietnam’s trade environment, as well as function within the country’s institutional framework. The strengths and deficiencies of these components are highlighted and the role of government in capitalizing on these strengths while addressing weaknesses discussed. A summary of recommendations concludes the report.

Volume 1 consists of the detailed analytical discussion from which conclusions are drawn and recommendations made. Chapter 1 presents the conceptual framework for the analysis, beginning with characterizing trade facilitation and demonstrating how different parts fit together to have an impact on export competitiveness. Chapter 2 provides the context of Vietnam’s trade dynamics, showing why, despite a current robust export performance, Vietnam needs to take trade facilitation seriously. Chapter 3 depicts the country’s performance in this area, identifying performance gaps to show the scope for improvement. Chapters 4 to 6 provide detailed discussion of the “pillars” of trade facilitation. Chapter 4 examines the state of Vietnam’s trade related infrastructure in terms of the major transport nodes. Chapter 5 outlines the regulatory framework for cross-border trade. This is viewed from the perspective of the domestic economy as well as Vietnam’s trade facilitation commitments from agreements with other countries, especially the ASEAN grouping of which it is a member. Chapter 6 explores the role and state of supply chains in Vietnam. This is an important area for trade facilitation, but one in which little work has been carried out. The discussion consolidates surveys of six subsectors undertaken specifically for the study. Chapter 7 discusses the institutional framework within which the pillars of trade facilitation function. This framework has macro-, mezzo-, and firm-level dimensions. The final chapter summarizes the many policy recommendations to address the deficiencies identified in the preceding chapters. A policy matrix matches deficiencies to remedies.

Volume 2 contains case studies of supply chains for six subsectors - three manufacturing and three agricultural. The manufacturing subsectors are textiles and garments, footwear, and electronics and electrical equipment. The agricultural/aquaculture subsectors are rice, coffee and seafood. All these subsectors have experienced healthy export growth but each has weaknesses in its supply chain.
## ABBREVIATIONS AND ACRONYMS

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<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>AFET</td>
<td>Agricultural Futures Exchange of Thailand</td>
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<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
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<td>BMP</td>
<td>Better Management Practices</td>
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<td>C&amp;F / CIF</td>
<td>Cost and Freight / Cost, Insurance and Freight</td>
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<td>CMT</td>
<td>Cut-Make-Trim</td>
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<td>CNF</td>
<td>Cost, No Insurance, and Freight</td>
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<td>CoC</td>
<td>Code of Conduct for Responsible Aquaculture</td>
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<td>DWT</td>
<td>Dead-Weight Tonnage</td>
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<td>EMS</td>
<td>Electronic Manufacturing Services</td>
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<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<td>EU</td>
<td>European Union</td>
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<td>FOB</td>
<td>Freight on Board</td>
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<td>FDI</td>
<td>Foreign Direct Investment</td>
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<td>G-to-G</td>
<td>Government-to-Government</td>
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<td>GAP</td>
<td>Good Aquaculture Practices</td>
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<td>HACCP</td>
<td>Hazard Analysis and Critical Control Points</td>
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<td>HCMC</td>
<td>Ho Chi Minh City</td>
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<td>ICD</td>
<td>Inland Container Depot</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>MARD</td>
<td>Ministry of Agriculture and Rural Development (Vietnam)</td>
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<td>MDB</td>
<td>Multinational/Multilateral Development Bank</td>
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<tr>
<td>OBM</td>
<td>Original Brand Manufacturer</td>
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<td>ODM</td>
<td>Original Design Manufacturer</td>
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<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<td>PCU</td>
<td>Passenger Car Unit</td>
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<td>QR</td>
<td>Qualitative Restrictions</td>
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<td>SOE</td>
<td>State-Owned Enterprise</td>
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<td>TBT</td>
<td>Technical Barriers to Trade</td>
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<td>TEU</td>
<td>Twenty-Foot equivalent unit (cargo capacity measure)</td>
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<td>THC</td>
<td>Terminal Handling Charge</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>UN</td>
<td>United Nations</td>
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<tr>
<td>US$ / USD</td>
<td>US Dollar</td>
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<td>USA</td>
<td>United Stated of America</td>
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<td>USDA</td>
<td>United States Department of Agriculture</td>
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<tr>
<td>VF</td>
<td>Vendor Factory</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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1.1 Introduction

Garments are Vietnam’s most valuable export. They accounted for 14 percent of the country’s total export earnings in 2011 and 4 percent of global garment exports. However, its market share is small compared to China with about 40 percent of garment exports. Vietnam specializes in relatively low value garments with t-shirts, jackets and trousers representing the largest proportion of garment exports in 2011. ²

1.2 Production and Trade

The value of Vietnam’s exports of apparel has grown at an average rate of 20 percent over the last 15 years (Figure 1.1). Apparel exports were estimated to total US$16 billion in 2011 with strong growth projected for 2012. Over the last decade, Vietnam’s share of the global garment trade has quadrupled. There are a number of factors driving this growth. First, there is continuing migration of manufacturers to Asia looking to reduce the costs of labor inputs. Second, large retailers and brand manufacturers are reducing supply risk exposure by ordering garments from a wider array of countries. Third, Vietnam has gained preferential access to large markets through bilateral and free trade agreements. Vietnam entered a bilateral trade agreement with the United States of America (USA) in 2001 and, in the subsequent 10 years, garment exports have increased 15-fold from US$45 million to nearly US$7 billion in 2011. As a member of the Association of South East Asian Nations (ASEAN), Vietnam is part of free trade agreements with developed countries like Japan and Australia.

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The principal destinations for Vietnam's apparel exports are the USA, the European Union (EU), and Japan (Figure 1.2). The countries within the EU that account for most of the demand are Germany, the United Kingdom (UK), Spain and the Netherlands. However, these countries' shares of Vietnamese exports have been declining as Vietnam has diversified into new markets.

Garment exports include both woven and knitted garments. The value share of knitted garments has gradually increased and now accounts for about half of garment exports (Figure 1.3). Since the unit value for woven garments is higher than for knitted, the increase in share of knitted garments measured in terms of volume is much greater.
Exports can also be divided into market segments. The basic division is between men and women's clothes, and others. The latter includes athletic clothes, t-shirts and pullovers. The share of women's clothes in total exports increased over the four years up to 2005, but has since fallen to 34 percent in 2011. The share of export value from men's clothes has been falling steadily for the last 10 years. In contrast, t-shirts and pullovers have increased their share in recent years to 35 percent (Figure 1.4). As garments in the 'others’ category are generally less expensive, this shift has been more pronounced in terms of volume. This combination of trends suggests that growth in Vietnam’s apparel exports has been driven by volume while the unit value of garments has been declining.

The textile industry in Vietnam is less developed. Production of local and synthetic fiber is limited and significant imports of fiber are required for local spinning. For example, less than 4 percent of the cotton used is grown locally. Most of the fabric produced domestically is of low quality and used in the manufacture of apparel for the domestic market. As a result, Vietnam imports about 80 percent of the fabric used in the apparel sector, mostly from the Asian region. While it is estimated that the portion of local inputs increased significantly (Figure 1.5), this is partly a result of purchases of imported inputs from local wholesalers.

Vietnam has about 2400 garment manufacturers and about 750 firms involved in the production of textiles. Together they employ almost 2 million workers. A majority of the factories are located around Ho Chi Minh City, but some factories have been built in rural areas in response to tax incentives offered by government (Table 1.1). There is little concentration in the industry with the exception of VINATEX, which has about a 20 percent market share -- much of which is produced for the domestic market.

![Figure 1.4: Women and Men's Garments, 2002-2010](http://www.keepandshare.com/doc/1514992/onderzoek-bandolera-870k?da=y)

![Figure 1.5: Import Content of Exported Garments, 2005-2011](http://www.keepandshare.com/doc/1514992/onderzoek-bandolera-870k?da=y)

Source: UN Comtrade and ITC.  

Most of the output is produced by factories employing 1000-5000 workers, but there are much smaller firms that serve the domestic market and act as subcontractors to larger firms. More than half of Vietnam's garment exports are produced by companies that are either foreign-owned or have a significant amount of Foreign Direct Investment (FDI). The portion of exports produced by State-Owned Enterprises (SOEs) has been decreasing together with the number of SOEs in the garment industry.

---

Table 1.1: Enterprises in Vietnam’s Apparel Industry 2006

<table>
<thead>
<tr>
<th>Location</th>
<th>Product Categories</th>
<th>Location</th>
<th>Product Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho Chi Minh City</td>
<td>Materials and spinning</td>
<td>1090</td>
<td>96</td>
</tr>
<tr>
<td>Ha-Noi City</td>
<td>Woven Fabric</td>
<td>17</td>
<td>382</td>
</tr>
<tr>
<td>Dong-Nai Province</td>
<td>Non-Woven Fabric</td>
<td>142</td>
<td>6</td>
</tr>
<tr>
<td>Binh-Duong Province</td>
<td>Garment</td>
<td>116</td>
<td>1446</td>
</tr>
<tr>
<td>Long-An Province</td>
<td>Accessories</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>Da-Nang City</td>
<td>Services</td>
<td>55</td>
<td>265</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>364</td>
<td></td>
</tr>
</tbody>
</table>


1.3 Structure of the Garment Industry

Garment manufacturing can be divided into six distinct activities (see Figure 1.6). The core activity is the assembly processes, which include cutting, sewing (making) and trimming. This step, referred to as Cut-Make-Trim (CMT), is usually the most labor intensive. Upstream of the assembly is the sourcing and procuring of fabric and other inputs while downstream is the distribution of the garments. These represent the inbound and outbound supply chains and include both transactions and logistical services. The remaining activities -- establishing a brand and designing the garment -- are performed separately but utilize information gathered from distribution and marketing.

Figure 1.6: The Garment Industry in Vietnam

In Vietnam, most of the firms are involved only with the core activity. A relatively small proportion participates in all six activities. The former are called foreign-owned vendor factories (VF) and make up around 60 percent of factories in Vietnam. Vendor factories operate under the direction of their foreign owners and have little direct involvement in their inbound and outbound supply chains. The next largest group of firms is contract manufacturers. In addition to undertaking the CMT, they also purchase the necessary input materials. In Vietnam, these firms are referred to as “Freight on Board” (FOB) 1 since they receive payment for the full price of the garment that is exported, not just a payment for the assembly of the garment (as vendor factories do). Firms that have extended their activities to include sourcing and procuring a significant portion of their inputs are referred to as original equipment manufacturers (OEMs) or FOB II in Vietnam. About 98 percent of the firms in the garment industry fall within one of these three categories.

The fourth category of firms is original design manufacturer (ODM). These firms extend their involvement to include design and distribution and marketing. The fifth category, original brand manufacturers (OBM), is involved in all stages of production including developing a brand. At present, the garments produced by these firms are marketed only within the region. But this is only the beginning of what is expected to become an important niche market with a number of firms considering establishing design teams as a means to increase the value addition of their business.

The five types of firms have different levels of value addition within Vietnam and face different levels of commercial risks depending on their involvement in different aspects of the industry. These are summarized in Table 1.2.

Table 1.2: Characteristics of Different Business Models

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Value-added</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor factory</td>
<td>CMT</td>
<td>Labor only</td>
</tr>
<tr>
<td>Contract manufacturer</td>
<td>CMT (FOB 1)</td>
<td>Margin on processing order for inputs</td>
</tr>
<tr>
<td>OEM</td>
<td>FOB 2</td>
<td>Reduce input cost but lack scale to buy from larger suppliers</td>
</tr>
<tr>
<td>ODM</td>
<td>FOB 3</td>
<td>Possible savings in costs, more value from design</td>
</tr>
</tbody>
</table>

Source: Authors.

Nearly all factories base their production on existing orders and maintain a minimum inventory of inputs or products. Inputs are ordered only after a production order has been confirmed. The time from order confirmation to delivery to the buyer varies, with some firms operating in the range of 40 - 60 days and others 90 - 120 days. Most of this variation is due to the delivery time for inputs, which varies from a few days for domestic inputs to three months for custom-made imported fabrics. Most imported inputs are sourced from China, Taiwan (China), Korea and other locations in Asia. Standard items can be obtained in 2 - 4 weeks. If special fabric is required, then the delivery time can extend to 45 days for solid fabrics and 60 days for striped fabrics.

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5 One business model that has been underutilized is the subcontractor network, in which large firms outsource excess orders or demand for special components to smaller firms included in their networks.
TRADE FACILITATION, VALUE CREATION, AND COMPETITIVENESS

1.3.1 Transportation

Figure 1.7 shows the locations of productive areas and flows of textile and garments exports in Vietnam. At present, apparel and textile production is scattered throughout the country. Nevertheless, 88 percent of apparel and textiles are exported from two major export centers: one in the North (31 percent) and one in the South (57 percent). The different shades of blue color in the map denote the export value by province. The map also shows the main international gateways for the garment export flows. 2010 statistics of the General Department of Customs (GDC) show that 80 percent of apparel and textiles is exported by sea, 13 percent by air, and the remaining 7 percent by road. The export transport hubs in the North include the Hai-Phong port and Noi-Bai international airport. Those in the South include ports in Ho Chi Minh City (HCMC) and Tan-Son-Nhat airport.

Currently, Vietnam’s apparel and textile industry imports high cost inputs that account, on average, for 60 percent of the total exported value. 2010 statistics of the GDC show that apparel and textile raw materials are mainly imported to Vietnam by sea (US$8.7 billion, 89 percent in total) and by air (US$780 million, 8 percent in total, mainly through Noi-Bai and Tan-Son-Nhat airports). The primary sea traffic ports were the HCMC port complex (approximately US$6 billion, or 68 percent in total) and Hai-Phong port (US$2.5 billion, or 29 percent in total). The remainder of imports came through Da-Nang, Vung-Tau and Can-Tho ports.

The bar charts show volume and destinations of textile and apparel products exported through the main gateways. The exported volume is denoted by the size of the bar. The area of the empty circle in the legend represents a sample volume measured by 50,000 twenty-foot equivalent units (TEUs). Exported apparel and textiles and imported raw materials are transported by road to and from exporting areas, ports and factories through main transport routes as shown in Table 1.3 below.

<table>
<thead>
<tr>
<th>Route</th>
<th>Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Red River Delta region to Ha-Noi and Hai-Phong</td>
<td>NH5</td>
</tr>
<tr>
<td>The Northern Mountainous region to Hai-Phong</td>
<td>NH2, NH3, Thang-Long – Noi-Bai and NH5</td>
</tr>
<tr>
<td>The Northern Central region to Hai-Phong</td>
<td>NH1A, NH10 and NH5</td>
</tr>
<tr>
<td>The South East region to HCMC</td>
<td>NH13, NH22 and NH51</td>
</tr>
<tr>
<td>The Mekong Delta region to HCMC</td>
<td>NH1A from Ca-Mau to HCMC</td>
</tr>
<tr>
<td>The Central Region to HCMC</td>
<td>NH1A</td>
</tr>
</tbody>
</table>


Traffic volume on NH5, the main connecting link to Hai-Phong port is very heavy. Since this road passes through densely populated areas, vehicle speeds are limited and the rate of accidents is high. A traffic count at Hai-Duong station (km58+700) in 2010 recorded a volume of 54,000 passenger car units (PCUs) per day versus a capacity of only 30,000 PCUs per day. The truck traffic was also heavy with nearly 6000 trucks per day with three or more axles.

A similar level of congestion was observed on NH1A. In 2011, a volume in excess of 150,000 PCUs per day was reported on the section between Dong-Nai and HCMC. This included more than 20,000 trucks of three-axle or more. The section between Can-Tho and HCMC had a volume of 56,700 PCUs per day. The links to the ports including Nguyen-Van-Linh – Phu-My bridge and Ha-Noi highway – Nguyen-Thi-Dinh road have problems with frequent congestion.
### Export Volume by Air

- **USA**: 47%
- **Korea**: 11%
- **Other**: 42%

### Export Volume by Sea

- **USA**: 47%
- **Japan**: 8%
- **Korea**: 5%
- **Germany**: 5%
- **Spain**: 5%
- **Others**: 28%

### Export Value by Province

<table>
<thead>
<tr>
<th>Province</th>
<th>Value (Mil. USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>&gt;1,000</td>
</tr>
</tbody>
</table>

### Export Flows

- **10,000 TEUs**
- **50,000 TEUs**
- **100,000 TEUs**

### Share of Export Value by Transport Mode

- **Import**: 50%
- **Export**: 50%

Source: Freight flows data provided by TDSI.
Apparel and textile exports are loaded into containers at the factory and transported by road to the gateway ports. From the Northern region to Hai-Phong port, the average cost for transport is US$1.5-2 per TEU-km. The cost for unloading at the port is US$30 per TEU. Travel time between Ha-Noi and Hai-Phong is 3-4 hours. For the Southern region, cost for transport is US$1.3-2.0 per TEU-km, with a charge of US$27 per TEU for unloading at the port. The principal destinations for apparel and textiles are USA (43 percent), EU countries (16 percent), Japan (11 percent) and Korea (6 percent). The international routes are:

- From Hai-Phong port and Sai-Gon port complex, transshipping via Singapore, then through the Suez Canal and the Mediterranean to Europe and the US East Coast.
- From Hai-Phong port and Sai-Gon port complex, transshipping in Hong Kong SAR (China)/Japan to the US West Coast.
- By air from Noi-Bai airport to America, Japan, South Korea and from Tan-SON-Nhat airport to the United States, Japan, Germany, France, the UK, and South Korea.

International sea transport costs depend on the routes and the ship tonnage: for HCMC ports to America the cost is 2200-2500 US$/TEU, to Europe it is 1500-2500 US$/TEU, and to Korea and Japan it is 900-1200 US$/TEU. Time for transport is about 30-40 days to America, 25-35 days to Germany and about 7-10 days to Japan.

### 1.3.2 Forecast for Garment and Textile Export

Vietnam’s 2020 Export and Import Strateg for Apparel and Textiles envisage a gradual relocation of production factories to provinces with local agricultural workforces and transport advantages, while fashion centers, sample design research units and centers for material supply and trade will be built in Hanoi, HCMC and other big cities. From 2011 to 2015, the export growth rate in this sector is forecasted at 12 percent per annum. Export revenue is forecast to increase from US$11.2 billion in 2010 to US$18 billion in 2015. From 2016 to 2020, a sector growth rate of 9 percent per year is forecast, while the total export value is targeted to reach US$25 billion by 2020. According to the Garment and Textile Plan by Region under Decision 36/2008/QD-TTg, the following zones will play specific roles in sector development:

- **Region I - Red River Delta region.** Ha-Noi is projected to become a service center, supplying materials, technology, design and factories for high value added products. Other factories will be moved to provincial industrial zones such as Hoa-Xa (Nam-Dinh), Nguyen-Duc-Canh (Thai-Binh), Pho-Noi B (Hung-Yen), Dong-Van (Ha-Nam), Vinh-Phuc, Bac-Ninh, and Ninh-Binh.

- **Region II - South East region.** HCMC is projected to become the center of trade, fashion design, apparel and textile industry services and high value added fashion factories. Dyeing and finishing factories will be located in HCMC with additional finishing factories in Hoa-Khanh (Da-Nang) and Quang-Tri.

- **Region III - Mekong Delta region.** Can-Tho will be the center for an export apparel and textile industrial complex, with a dyeing industrial zone located in Tra-Vinh.

- **Region IV - Northeast and Northwest region.** A textile industrial zone will be developed in Phu-Tho. Other garment factories will be located in other provinces. Planting areas for cotton and the production of silk will also be developed in Son-La and Dien-Bien.

- **Region V - Northern Central region.** Garment and textile factories are expected to locate along NH1A in some industrial parks/ zones in Bim-Son (Thanh-Hoa), Vinh (Nghe-An) and Hue (Thu-Hien-Hue). Three integrated dyeing and weaving industrial parks will be established in Dien-Chau (Nghe-An), Ha-Tinh, and Quang-Tri between 2012-2015.

- **Region VI - Central Highlands region.** This area will be the center of agricultural production of cotton and mulberry trees for silkworms, with a focus on processing materials for export products and domestic markets.
1.3.3 Forecast for Import of Raw Materials/Inputs for the Garment and Textile Industry

The general direction of export and import strategies for 2011-2020 is to promote domestic production of the raw materials required for the apparel and textile industry, thereby reducing imports from external markets.

Over the next few years, raw material imports for the apparel and textile sector will continue to increase. From 2011 to 2015, the value of imported cotton is projected to increase by 15.7 percent per year to US$1.4 billion, the value of yarn to increase 8.9 percent per year to US$1.8 billion, imported fabric to increase 10.9 percent per year to US$6.3 billion and the value of accessories to increase 7.7 percent per year to US$2.6 billion. Between 2016 and 2020, the value of imported cotton and yarn is expected to increase only slightly due to the substitution of domestic production to supply the demand.

Garment and textile raw materials will be centralized primarily in Ha-Noi and HCMC, with materials supplied to sector enterprises from there. Imported cotton will be supplied primarily to Phu-Tho, Hung-Yen, Thai-Binh, Thanh-Hoa, Quang-Tri, Hue, Quang-Nam, Da-Nang, Binh-Dinh, Tay-Ninh, and Tien-Giang provinces. Imported yarn will be delivered to many provinces in four main regions: the Red River Delta region, the Central region, the South East region and the Mekong Delta region. Fabric will be supplied to provinces with an available workforce.

1.3.4 Forecast for Export Markets

Export markets for the sector’s finished products are expected to be developed in countries such as the United States, the EU, Canada, Japan, Korea, Australia and some smaller markets such as Hong Kong SAR (China), Singapore, Switzerland, UK, etc. In addition, emerging markets such as China, South Korea, Angola, New Zealand, India, and Russia are seen as potential export markets for the Vietnamese garment and textile sector.

1.3.5 Forecast of Transport System

Based on the sector development strategy, export route requirements will be determined by the relocation of factories from Ha-Noi and HCMC to neighboring provinces and the needs for domestic linkages. The development of ports in the Central region and the promotion of the Vung-Tau container transshipment port will reduce the traffic for two major export centers, namely: Noi-Bai airport and Hai-Phong port in the North and the export center in HCMC in the South. Long-Thanh airport – Dong-Nai is also expected to begin operation, attracting export and import traffic from HCMC. Through implementing the Expressway Network Master Plan, it is expected that domestic road transport networks will meet the demand for transport within the garment and textile sector.

In the future, therefore, more than 90 percent of apparel will be exported by sea, and the rest by air, while raw material is completely imported by sea. Domestic transportation will be formed as follows:

- **The Red River Delta**: Corridor of NH2 – NH5, NH10 – NH5, NH18 – NH5 to Hai-Phong port and Noi-Bai Airport;
- **The Northern Mountains**: Corridor NH2, NH3, NH1A – NH5 to Hai-Phong Port;
- **The Northern Central Region and Central Coastal Region**: NH1A to Da-Nang Port;
- **Central Coastal Region, Central Highlands, South East Region, MeKong River Delta**: Corridor of NH1A (Khanh-Hoa – HCMC), NH20 – NH1A, NH13 and NH14 – NH1, NH51 – NH1, NH1A (Ca-Mau – HCMC) to Sai-Gon port complex; and
- **The South East Region**: NH13 – NH1A, NH1A to Tan-Son-Nhat and Long-Thanh airport.
Figure 1.8: Garment and Textile Transportation Flows for Export-Import by 2020

Source: Freight flows data provided by TDSI.
1.4 Development Strategies

Broadly speaking, by 2020 exported flows of apparels will be changed by the fact that factories in Ha-noi and HCMC will move to neighboring provinces. The development of port groups in the Central region and the promotion of Vung-Tau container transshipment port will reduce the concentration on two major export centers: Noi-Bai airport and Hai-Phong port in the North region and the export center in HCMC. The expected operation of Long-Thanh airport – Dong-Nai will attract exported and imported flows in HCMC to this area. With the expressway network as envisioned in the master plan, domestic road transport is expected to meet the demand of transport flows.

While Vietnam has been successful in increasing its market share in the global apparel trade, it has done so by increasing the volume of lower-value garments. In the process, it has reduced the value addition that could otherwise have been attained. While this strategy has been successful in the past, it will face difficulties in the future as the labor costs rise and Bangladesh and other low-wage countries gain a competitive advantage. There will also be continuing competition from China, which has an advantage in terms of scale and efficiency. A more sustainable path would be to move into the production of higher-value goods. Since Vietnam’s garment industry is relatively diverse, with different business models and markets, any move towards higher value garments will be incremental and gradual.

There are different approaches to increasing garment value, five of which are discussed in the box below. There are firms in Vietnam’s apparel industry that are applying each of these approaches and it is expected that development along the different paths will continue. A significant portion of the industry will continue to function at the low-end of the market but will gradually be crowded out by manufacturers in low-wage countries. Therefore, the objective should be to accelerate this transition.

<table>
<thead>
<tr>
<th>Box 1.1: Paths to High Value Garments</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are several paths that can be followed to increase the unit value of garments. The first involves moving up the fashion pyramid, a path followed by Italy, France and more recently Japan. Another path is to produce those components of the textile and apparel industry that offer the highest value addition. A third path is to focus on niche markets that require higher value inputs and more sophisticated production procedures, a path followed successfully by Sri Lanka but not so by Nepal. A fourth path, which has been followed by Turkey, is to provide additional services, such as design, input sourcing and marketing. A final path is to move into markets that offer higher prices in exchange for shorter delivery times and greater flexibility. For example, mass-market retailers in the USA buy large orders of relatively uniform products and are more concerned about price than quality and lead-time. In contrast, EU retailers place smaller orders with greater variety in terms of quality and design content. As a result, lead times and flexibility are usually more important than price. Japanese retailers have similar requirements.</td>
</tr>
</tbody>
</table>

Source: Authors.

To increase the value added of the garment industry in Vietnam it is necessary to develop a consensus on the future development of the industry, especially among local factory owners. This vision should include increasing not only the value of the garments but also the value addition taking place in Vietnam, for example, through greater participation in procurement of inputs and design of products. This vision should address the major changes not only in products and markets but also in order cycles and business models. An example is presented in Table 1.4.
Table 1.4: Potential Elements of a Vision for the Garment Industry

<table>
<thead>
<tr>
<th>Product Niches</th>
<th>Higher value, limited fashion content, requiring skilled labor (e.g., men’s suits, athletic wear, women’s undergarments, children’s clothes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Markets</td>
<td>Greater presence in regional markets, reduce presence in mass-market garments</td>
</tr>
<tr>
<td>Distribution Channels</td>
<td>Direct sales to up-market retail that is expanding in the area (e.g., Uniqlo, Esprit, Forever 21, H&amp;M, Zara)</td>
</tr>
<tr>
<td>Inputs</td>
<td>Imported fabrics with local finishing</td>
</tr>
<tr>
<td>Order Cycles</td>
<td>2-3 months from order confirmation to overseas delivery</td>
</tr>
<tr>
<td>Business Models</td>
<td>OEM and OBM, sourcing inputs with mix of FOB and Cost &amp; Freight (C&amp;F) deliveries</td>
</tr>
</tbody>
</table>

Source: Authors.

It is assumed that the target audience for this vision is domestic factory owners and foreign-owned contract manufacturers. The long-term goal is to increase the proportion of these enterprises that apply the ODM and OBM business models. Some have already made the transition, but it is difficult since it requires a restructuring of supply chains to develop new sources of inputs and diversify the distribution channels. The situation is different for vendor factories. They operate under the direction of their foreign owners who manage their logistics and arrange for procurement of inputs and sale of outputs. They will benefit from any improvements in logistics, but are unlikely to change their current business model or market.

The movement to higher value products requires similar changes in supply chains. More efficient inbound supply chains are required to reduce order cycles and a greater variety of inbound and outbound supply chains are required to handle smaller order sizes and specialized shipments. This implies a broader selection of more reliable and efficient transport services in the principal trade corridors and simpler and faster clearance procedures for imported inputs and exported products. It would require planning investments for the trade corridor serving the urban area to improve overall performance on the major trade, beginning with the completion of the access road to Cai-Mep ports. It also requires simpler procedures for temporary admission and expedited testing procedures through the use of private certified laboratories and risk analysis.

Additional efforts would include backwards integration of the inbound supply chains through development of textile and apparel clusters. For the private sector, these clusters would provide the opportunity to utilize both economies of scale and scope. For the government, they would simplify the provision of utilities (e.g., reliable power and water), and logistics infrastructure to the industry. Government could also improve and expand the bilateral and regional trade agreements to reduce barriers to other countries’ markets; this would obviously help the development of the garment export industry. Finally, it could provide support for training in basic production skills, supply chain management and product development to improve the level of human capital in the apparel sector.

1.5 Strategy Implementation

Efforts to develop this vision would require a marketing study to identify opportunities in terms of products, markets and distribution channels. This would be conducted jointly by the government and the private sector. The study should also review opportunities for implementing modern design techniques that apply up-to-date technology in order to keep up with current trends.
Diversification of the outbound supply chains may be more challenging. The more entrepreneurial manufacturers have already begun this process, but the majority continues to give priority to increasing the volume moving through the existing distribution channels. Also, most manufacturers focus on a specific region, be it the USA, EU or East Asia. With the improvement in the container ports around HCMC, it is accepted that there will be significant improvement in connectivity providing faster access to more markets.

Another opportunity currently being pursued is upgrading the quality of domestic production of textiles and accessories. This is expected to occur as a natural expansion of business activity and will increase the value added provided by Vietnam. Since Vietnam does not produce a significant quantity of natural fibers and lacks experience in the production of woven fabrics, the principal growth will be in knitted fabrics made from synthetic fibers and blends. The garment factories producing for export will likely continue to import higher quality fabric in order to meet the requirements of different buyers. This lack of backward integration does not necessarily reduce Vietnam’s competitive advantage. In fact, the modern trend has been towards separation of textile and garment production as shown in Figure 1.9.

The production of higher value goods will increase the amount of working capital required per unit of production but this will be offset by a reduction in order cycles and therefore the cash-to-cash cycle. So far, the factories do not appear to have difficulty obtaining trade finance primarily through their foreign owners; however, for local manufacturers to compete effectively they will require access to foreign exchange at interest rates that are comparable to that available to competitors.

The industry has begun to introduce modern IT systems with increased use of programs for client management and inventory control. However, the transition to Enterprise Resource Planning (ERP) systems, which are used to manage the activities and transactions linking suppliers, manufacturers and buyers, has yet to occur.

Figure 1.9: The Process of Backwards Integration

2.1 Introduction

Footwear is one of Vietnam’s most important export categories accounting for 7 percent of export earnings in 2011. Exports are concentrated on sports shoes, canvas shoes, fashion shoes, and sandals. Vietnam is the third largest exporter of footwear, after China and Italy, with 7.4 percent of global trade.  

2.2 Production and Trade

Footwear exports have grown rapidly in value over the last 10 years to more than US$7 billion in 2011 (Figure 2.1). Vietnam exports about 80 percent of its footwear production. These exports range from low-value plastic footwear (including sandals) to high-value athletic shoes manufactured for international brands (e.g., Nike, Reebok and Adidas). While the global average value per pair exported was US$6.50 in 2010, Vietnam’s unit value was almost US$7.50. 

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6 International Trade Center (ITC).
7 The previous year the average value per pair for the world was about US$6.5 versus about US$3.3 in China, US$12.5 in India, and about US$24 for Italy.
Ten years ago, textile shoes generated the most value for Vietnamese footwear exporters. Over the last decade, however, leather, rubber and plastic shoes have become more important. The production of plastic shoes is more capital-intensive, especially when injection molding is involved. In contrast, leather shoes are more labor intensive because they are hand-assembled and stitched using semi-automatic machines (Figure 2.2).

**Figure 2.1: Vietnam Footwear Exports, 2001-2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>Footwear Exports (Million US$)</th>
<th>Annual Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>7,000</td>
<td>70%</td>
</tr>
<tr>
<td>2002</td>
<td>6,000</td>
<td>60%</td>
</tr>
<tr>
<td>2003</td>
<td>5,000</td>
<td>50%</td>
</tr>
<tr>
<td>2004</td>
<td>4,000</td>
<td>40%</td>
</tr>
<tr>
<td>2005</td>
<td>3,000</td>
<td>30%</td>
</tr>
<tr>
<td>2006</td>
<td>2,000</td>
<td>20%</td>
</tr>
<tr>
<td>2007</td>
<td>1,000</td>
<td>10%</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>-10%</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td>-20%</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>-30%</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>-40%</td>
</tr>
</tbody>
</table>

Source: UN Comtrade and Vietnam Customs.

**Figure 2.2: Vietnam Footwear Exports by Type, 2002-2011**

Source: UN Comtrade and ITC.
Vietnam’s major footwear export markets are the EU and the United States, which collectively account for more than 70 percent of exports (Figure 2.3). Within the EU, it is the richer countries such as the UK, Germany and the Netherlands which are Vietnam’s primary markets. The imposition by the EU of ‘anti-dumping’ tariffs on footwear in 2006 did little to slow the growth of exports to the EU. The impact of the elimination of these tariffs in early 2011 is not yet clear.

The cost of material is about 80 percent of the ex-works cost of the footwear. Vietnam produces little of the necessary inputs for footwear manufacturing; therefore, about 70 percent of this cost goes towards imported inputs. Vietnam has limited capacity for the production of leather, and most domestic leather is suitable only for production of low-value shoes. As a result, nearly all leather products are imported, primarily as pretreated leather. The same situation applies to canvas since domestic production does not provide consistent dyeing quality. For plastic shoes, plastic resins and sheets must be imported because of a lack of manufacturing capacity and quality. Because these are generic and imported mostly from the region, delivery times are generally short. A large portion of these inputs are ordered by the foreign-owned factories with whom they have established relationships.

Vietnam’s principal competitors are located in the region. China produces around 35 percent of global footwear exports, but most of this is low quality despite investments in advanced technology intended to offset increasing labor costs. Elsewhere in the region, India focuses on mid value footwear while Indonesia and Bangladesh produce low-to-mid value products. However, both expect to move up to higher-value exports in the future. The manufacturing of high-value footwear continues to be concentrated in Europe with Italy, Germany, Belgium and the Netherlands responsible for more than 20 percent of world trade.

According to the government’s Footwear Industry Development Master Plan to 2020, footwear exports are forecast to grow 7 percent annually for 2011-2015, before growth rises to 8 percent for 2016-2020. Considering annual growth has averaged around 15 percent over the last decade, such forecasts appear conservative. In 2011, the first year for which 7 percent growth was forecast, exports expanded 27 percent.

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8 Ex-works in this context refers to the non-transport costs of the good.
9 China has a similar issue. Nearly 80 percent of the leather used for manufacturing is imported from various countries.
2.3 Structure of the Footwear Industry

It is estimated that there are around 700 footwear factories in Vietnam with each factory producing between a few thousand and 10,000 pairs of shoes per day. Broadly speaking, there are four types of firms operating in the Vietnamese footwear industry.

The first type is vendor factories which make up 45 percent of footwear factories. These are foreign owned subsidiaries of international firms. The international firms specify the design and arrange for the delivery of inputs and manage the sale and distribution of the produced footwear.10

The second is locally owned original equipment manufacturers (OEMs), which produce goods under contract for, and designed by, international footwear companies. OEMs make up around 40 percent of the industry. Approximately half of OEMs receive all required inputs from the company they are producing for, while the other half participates in the procurement of inputs. For the latter group, the buyers often provide specifications and a list of approved suppliers. Footwear produced by OEMs is usually sold to the buyer on an FOB basis with a nominated forwarder arranging international logistics.

The third type of firm is the original design manufacturers (ODMs), which produce products based on their own generic designs, procure their own inputs and sell the finished footwear to traders as unbranded products. These traders will often brand the shoes before selling them. ODMs are locally owned and account for 10 percent of footwear factories in Vietnam.

Finally, original brand manufacturers (OBMs) account for 5 percent of the industry, and produce footwear from their own designs under their own brands. Such footwear is sold in Vietnam and exported to some emerging economies.

The smaller domestic factories often sell to buying agents who, in turn, sell to wholesalers. The buying agents provide contacts and negotiate with wholesalers/retailers. They also inspect the finished goods and ensure delivery. Larger domestic factories sell not only to international buying agents but also to foreign wholesalers or brand manufacturers who then sell the finished goods directly to the retailers. Most of the exports are sold on FOB terms with the buyer’s nominated forwarder arranging the shipment. Figure 2.4 shows the supply chain participants.

The foreign-owned firms have access to finance through their parent companies, while local producers are dependent on local banks for a significant portion of their investment and working capital. Working capital is especially important since imported inputs account for a substantial portion of the value of the footwear and the cash-to-cash cycle varies from four to six months. The high proportion of inputs in the final prices limits foreign exchange risk, since both inputs and products are priced in US dollars, Euros, or other benchmark currencies.

The major inputs are obtained from the region and the suppliers organize most of the logistics, so there are few difficulties with delivery times. Instead, problems arise with the quality and consistency of inputs for domestic factories which lack the buying power of larger foreign factories. These lead to low rates of order fulfillment that lead to delays in production and missed export shipment dates. In order to obtain the amount and quality of inputs required, some firms rely on domestic wholesalers to maintain an inventory of imported inputs. However, this adds to the cost and, more importantly, limits the selection of materials available.

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10 Under some international firms’ Corporate Social Responsibility (CSR) requirements, wholesalers/retailers are increasingly likely to perform social audits of the factories.
The footwear market can be divided into sub-markets with different requirements in terms of quality, cost and time. The basic division is based on quality. High value footwear includes men's leather shoes, women's shoes and internationally-branded athletic shoes. These require high quality inputs and production that provides good fit and finish. Design is also an important source of value-added for athletic shoes and women's shoes. Good quality control extends throughout the whole supply chain, from sourcing of inputs through to delivery to the buyer. The ex works value of such footwear is well above US$10 a pair. The buyers are larger brand manufacturers or high-end retailers. The principal markets are Europe and North America, although there is growing demand in middle income countries. The logistics used for this segment emphasize high reliability both inbound and outbound and relatively short delivery times. For the inbound supply chain, consistency in the quality of inputs is critical whereas for outbound supply chains, it is important to deliver consignments with many different models and styles with fixed delivery dates.

Mid-value products cover five basic types of shoes: men's, women's, kids' and athletic shoes, and specialty footwear produced from textiles, plastics (including synthetic leather) and rubber. The inputs are mid-value but consistent in quality. The designs are variations on standard designs. The level of automation varies with product type and scale. The buyers are wholesalers and large retail chains. The logistics are simpler than for high-value footwear since it is easier to manage the inventory of inputs and the size of export consignments is larger with fewer models. The resulting supply chains strike a compromise between cost and reliability.

Low-value footwear includes simple shoes and sandals produced from synthetic material. These use less expensive inputs and are less durable. The designs are standard, the production is more automated, and the order sizes are larger. The average value ex-works is in the range of US$2-4 per pair. The buyers are primarily wholesalers who sell to low-end retailers. These products are in demand both in the domestic market and throughout the world. The logistics emphasize low cost and large volumes. For inbound logistics, the priority is to insure timely delivery to support a lean production schedule. For outbound logistics, the requirement is to ship large consignments of relatively few models but a full range of sizes and colors at low cost with moderate delivery times.
2.3.1 Transportation

Figure 2.5 shows the density of footwear production and flows of footwear export, including the nature of domestic linkages and international gateways used, and transport modes. Footwear industry production is located in four key regions: the South East region (the largest production area, 79 percent), the Red River Delta region (10 percent), the North Central and Central Coastal region (6 percent) and the Mekong Delta region (5 percent). 77 percent of footwear exports came from the South East and the Mekong Delta region (factories are located primarily in HCMC, Binh-Duong and Dong-Nai) and 20 percent from the Red River Delta (located primarily in Hai-Phong, Ha-Noi, Hai-Duong, Quang-Ninh and Hung-Yen), while only 3 percent came from the North Central and Central Coastal region.

Footwear products are containerized in the areas of production and typically put into 20-foot containers (containing approximately 4,000 pairs of sport shoes and 10,000 to 15,000 pairs of sandals), transported mainly by road and shipped by sea. Of the total value of footwear exports, 92 percent is shipped by sea, and only 5 percent and 3 percent, respectively, by air and road transport. The main international gateways include HCMC port complex (73 percent), Hai-Phong port (19 percent), Tan-Son-Nhat airport (4 percent) and Noi-Bai airport (1 percent). Footwear is exported to the Chinese market by road (3 percent) through Lao-Cai and Mong-Cai border gates.

Currently, in Vietnam's footwear industry, 60 percent of raw materials are imported, mainly from Asian countries, to make the end-product. Vietnam Customs statistics for 2010 show that 35 percent of total imports are from China, 21 percent from Korea, 16 percent from Taiwan (China), 9 percent Japan, 5 percent and 3 percent from Hong Kong SAR (China) and Thailand, respectively, and 11 percent from other. Raw materials are largely imported by sea (92 percent), 7 percent by air, and only 1 percent by road. Imports primarily come through the HCMC port complex (59 percent), Hai-Phong port (32 percent), Tan-Son-Nhat airport (5 percent), and Noi-Bai airport and Gia-Lam airport (2 percent).
Figure 2.5: Footwear Production and Export Flows, 2010

Source: Freight flows data provided by TDSI.
Table 2.1 shows the main domestic transport routes. NH5, the main connection to the Hai-Phong port, currently suffers from too high traffic volume. Coupled with passing through many densely populated areas, vehicle speeds are limited and serious accidents often occur. A traffic survey on this highway in 2010 showed that the traffic volume through Hai-Duong station (km58+700) was 54,000 PCU per day, with the number of heavy trucks of three axles or more at nearly 6,000 vehicles per day when the capacity of the road is only 30,000 CPU/day.

The Dong-Nai – HCMC section of NH1A also has high traffic volume. Survey data from 2011 showed that traffic volume exceeded 150,000 PCUs per day, comprised of more than 20,000 heavy three-axle and more trucks. The section from Can-Tho to HCMC had a high traffic volume of 56,700 PCUs per day. Inner roads connecting to ports in HCMC, including Nguyen-Van-Linh – through Phu-My bridge and Ha-Noi highway – Nguyen-Thi-Dinh road experience frequent serious congestion, increasing the time required to transport goods to the ports.

Table 2.1: Main Domestic Transport Routes

<table>
<thead>
<tr>
<th>Road</th>
<th>Section</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH5</td>
<td>Ha-Noi – Hai-Phong</td>
<td>106</td>
</tr>
<tr>
<td>NH18</td>
<td>Ha-Noi – Quang-Ninh</td>
<td>303</td>
</tr>
<tr>
<td>NH10</td>
<td>Quang-Ninh – Thanh-Hoa</td>
<td>228</td>
</tr>
<tr>
<td>NH1</td>
<td>Thanh-Hoa – Can-Tho</td>
<td>1745</td>
</tr>
<tr>
<td>NH13</td>
<td>HCMC – Binh-Phuoc</td>
<td>142</td>
</tr>
<tr>
<td>NH22</td>
<td>HCMC – Tay-Ninh</td>
<td>58</td>
</tr>
</tbody>
</table>

Source: Corridor Analysis, TDSI 2012.

Transport costs in the North to Hai-Phong port range from US$1.5 - 2 per TEU per km. The cost of cargo discharge at the port is US$30 per TEU. Container transport time from Ha-Noi to Hai-Phong is 3 - 4 hours. In the South, transport costs are about US$1.3 - 2 per TEU per km, with discharge costs at ports being about US$27 per TEU. Footwear export companies often hire forwarding companies to take freight to ports and complete customs procedures. Customs declaration procedures for an export footwear batch can take anywhere from about half a day to three days. The cost a company pays to a forwarding company is US$280 - 340 per 20-foot container and US$330 - 440 per 40-foot container.

According to transport companies, overloading vehicles is quite popular because domestic transport costs would be very high if trucks carried their standard volume, resulting in higher product prices. Currently, the transport fee collection is unreasonable in some places because there are too many toll collection stations on many important roads. For example, from HCMC to Binh-Duong, Binh-Phuoc, three toll collection stations are located along the 100-km segment of road. In particular, some stations are located near other stations, such as in the 16-km segment from Suoi-Giua station (Thu-Dau-Mot town) to Vinh-Phu station (Lai-Thieu town), and in the 8-km segment from Vinh-Phu station to Binh-Trieu station. The fee-over-fee situation currently covers the Southern key economic region where freight traffic density is the highest in Vietnam.

According to Vietnam Freight Forwarders Association (VIFFAS), transport companies are heavily influenced by the recent increase in fuel prices. Difficulties will increase if the road utilization fee is applied in the near future. Transport companies must increase their cost to compensate for the fee, resulting in higher production and business costs for the economy. Thus, Vietnam's products will be less competitive on the world's market. The main export markets for footwear are the EU (45 percent), the USA (25 percent), Japan (3 percent) and Mexico (3 percent). International export shipping routes include:
By sea from Hai-Phong and the HCMC port complex, transshipment via Singapore to Europe; and through European waters to the United States’ East Coast;

By sea from Hai-Phong and the HCMC port complex, transshipment via Hong Kong SAR (China)/Japan to the United States’s West Coast; and

By air from Noi-Bai airport to Italy, the United States, UK, Germany and Spain and from Tan-Son-Nhat airport to the United States, Spain, UK, France, Germany, Netherlands, Italy, Japan and other countries.

International sea transport costs depend on the routes and the ship tonnage. It costs between 2200-2500 US$ per TEU from HCMC ports to the United States, 1500-2500 US$ per TEU to Europe, 900-1200 US$ per TEU to Korea, Japan. Under normal conditions, transportation time is about 30-40 days to the United States, 25-35 days to Germany, and about 7-10 days to Japan.

Since the beginning of 2012, almost every month, imported and exported companies have received notices of increased fees and charges from shipping firms. Increased fees of 400 US$ per 20-foot container must be paid on the goods transiting from Vietnam to Europe and the United States. For destinations in Asia, the shipping firms have increased the Terminal Handling Charge (THC) and fuel surcharge 8 percent, on average. Sea transport costs have generally almost doubled since the beginning of 2012. With these increased transport costs, higher product sale prices have been inevitable. In particular, the increase in sea transport costs has had considerable influence on the contracts signed before the cost increases.

### 2.3.2 Forecast of Footwear Export

According to Vietnam’s 2020 Footwear Industry Development Master Plan (Decision No.6209/QD-BCT dated 25th November 2010) and planning guidance to 2025, the development strategy focuses on production and investments in four major regions, namely:

- **Red River Delta Region.** Ha-Noi will serve as the center for services, supply of materials, technologies, fashion samples, high-value footwear, bag production factories of a suitable scale, and trade promotion centers. Outsourcing factories will be developed or relocated to provinces such as Hai-Duong, Bac-Ninh, neighboring areas of Hai-Phong city, Pho-Noi (Hung-Yen), Dong-Van (Ha-Nam), Nam-Dinh, Ha-Noi, Phu-Tho, and Vinh-Phuc.

- **South East Region.** HCMC will serve as the center for services, supply of materials, technologies, fashion samples, high-value footwear, bag production factories of a suitable scale, and trade promotion centers. Small industrial zones and traditional craft villages will be built near the city. Leather factories in the center and near the city will be relocated to areas away from the city and densely populated areas. Footwear and bag production factories will be developed or moved to provinces such as Binh-Duong, Dong-Nai and Tay-Ninh.

- **Northern Central and Coastal Region.** Da-Nang will serve as the production center of footwear and bag outsourcing. Factories manufacturing footwear uppers, footwear, bags and products from crocodile and ostrich leather will be developed in provinces such as Binh-Dinh, Da-Nang, Quang-Nam, and Khanh-Hoa.

- **Mekong Delta Region.** Can-Tho will serve as the center. The Master Plan encourages enterprises to expand footwear outsourcing and production and to establish factories in regions with available workers in order
to support economic restructuring. Enterprises are also expected to focus on developing leather, footwear, bags made from crocodile and python leather. That this region has developed as the largest producer of leather material has given it a competitive advantage.

Currently, sports and canvas shoes are the main items produced and exported, with a future focus on exporting fashionable and high-quality footwear products for new markets and advanced markets. In recent years, markets for footwear exports have been developed in countries with large purchasing power such as the United States, the EU, Canada, Japan, Hong Kong SAR (China), Korea, and Australia. In addition, Vietnam is exporting footwear to markets with smaller purchasing demands but which accept a volume of goods in line with Vietnam’s enterprises’ production capacities. These markets include Indonesia, Malaysia, the Middle East, Africa, South Asia, Russia and the old Eastern Europe countries, etc.

For imports, by 2015 the import substitution rate is expected to be 60-65 percent, and by 2020 to be 75-80 percent with more emphasis on local designs and development of domestic industry. According to the Vietnam Leather and Footwear Association, these figures are achievable due to estimates that current raw material imports account for 45 percent of the total value of materials used for manufacturing handbags and shoes. By 2020, imports of fabrics and materials for producing shoes are estimated to reach US$4,800 million. Current suppliers of imported raw materials for footwear production are mainly Asian countries (e.g., China, Korea, Taiwan (China), Hong Kong SAR (China), Japan, etc.).

By 2020, depending on the development progress of major production regions, the production focus is expected to shift due to the relocation of factories from Ha-Noi and HCMC to neighboring provinces. By 2020 planned infrastructure development will also change traffic routes for footwear exports and raw material imports.

Based on the 2020 Expressway Network Master Plan, domestic routes are expected to meet the demand for efficient and effective transport. The development of ports in the Central region by 2020 is expected to attract freight from the North Central and Central Coastal region for export through the Da-Nang port. In addition, through the development of the Vung-Tau container transshipment port, freight from the South East region will be exported through Vung-Tau instead of through ports in HCMC, reducing the high volume concentration on the largest exporting center in the country. Long-Thanh airport in Dong-Nai is expected to begin operating in 2020, attracting import-export traffic from Tan-Son-Nhat airport to the area (Figure 2.6).
Figure 2.6: Export Footwear Movement Flows by 2020

Source: Freight flows data provided by TDSI.
2.4 Development Strategies

In setting objectives for future growth, the government’s ability to influence the policies of footwear parent companies is limited, but efforts can be made to encourage greater value addition within Vietnam. For domestic companies, the objective is clear: to increase the value of finished goods. This is necessary because competition from lower-wage countries will limit future growth opportunities in mature markets. More importantly, Vietnam has a comparative advantage in terms of skilled labor for producing, in large quantities, leather footwear and other finished goods that meet the standards of international brands.

In order to achieve the objective of increasing the value of finished goods, the domestic industry should focus on mid-to-high value products, specifically men’s and women’s dress shoes and athletic shoes that have leather components. In order to do this, it will be necessary to strengthen inbound supply chains for procurement of imported leather while increasing the quality and capacity of local leather production. For production, it will be necessary to provide additional skilled labor and upgrade production equipment. For the outbound supply chains, it will be necessary to diversify into new markets, including in the region, and to increase the proportion of finished goods shipped direct to distributors and retailers.

This strategy should include developing the image of Vietnam as a supplier of quality products. This does not require creating brands, as this would entail a significant investment in marketing and distribution networks. It also does not require a significant reduction in order cycles or improvement in inventory management. However, the improvement in connectivity associated with ongoing port developments will reduce delivery times for both inputs and exports, which currently account for a majority of the order cycle.

2.5 Strategy Implementation

Implementation of this strategy would build on the current trends among larger domestic factories to improve product quality and attract business from brand manufacturers. It would also require continued growth in the number of ODM/OBM firms, simplification of distribution channels, and an increase in the number of in house designed products.

The primary beneficiaries of this strategy would be domestic factories but it would also benefit foreign-owned factories. The strategy would focus on increasing the capacity to manufacture and export mid-to-high value leather goods but does not preclude continued growth in the low end of the market. However, the latter is likely to experience greater competition in the future.

Continued government support for FDI in the sector is important, as international investment assists domestic producers to access global markets and new technology. FDI has other positive externalities such increasing awareness of market trends and international standards, improving management skills and creating demand for local inputs. International investment can also provide economies of scale and scope in procurement of inputs that developing markets such as Vietnam cannot generate on their own.

Four specific initiatives involving public-private participation have been identified. These are not new in the sense that they have been discussed in the past and are similar to recommendations made in other countries. However, they would be implemented within the context of objectives and strategies discussed above.

Efforts to move into higher-value products should be informed by a marketing study that identifies potential markets and distribution channels, and examines the requirements of these markets in terms of product quality and logistics performance. While individual firms already collect this type of data, a larger-scale effort is needed to refine an industry-wide strategy.
Two initiatives to improve the supply of inputs can be undertaken. The first is investment in domestic production of inputs where there is potential for competitive advantage. This would include efforts to increase the production of leather and textiles and the development of networks for supply of intermediate goods. For these, the constraint is not so much capital for investment as it is the development of effective supply chains between the factories and the sources. For leather this requires upgrading the collection of hides and skins, and the tanning and treatment of the leather. For canvas, it means improving the quality of yarn used in production.

A parallel initiative would be development of production clusters. Clustering production is a common mechanism for overcoming the fragmented nature of the leather and leather products industry and consolidating procurement and marketing activities. Some of this clustering may be infrastructure-based (e.g., industrial zones that include capacity for tanning and treatment of leather, which requires effluent treatment plants and warehousing). Clustering can also be transaction-based, with companies collaborating on procurement of inputs and equipment, promotion of products, integration supplier networks, outsourcing production to fill large orders, and monitoring supply chain performance.

The final initiative is to improve access to finance. There is a need to increase investment in equipment in order to produce higher-value products but equally important is the provision of working capital because of the long cash-to-cash cycles and the high proportion of the cost of finished goods accounted for by inputs. Since foreign-owned firms can access global financing, it is necessary to provide comparable financing opportunities for domestic firms. This may be in the form of factoring of Letters of Credit or greater latitude in the use of foreign exchange earnings.

11 The footwear products include numerous intermediate products, e.g. uppers, lasts, outsole, mid-sole, insole, heel, lining, which lead to a division of labor and production activities.
3.1 Introduction

In recent years, the electronics and electrical equipment sector has become an important export industry in Vietnam. While Vietnam’s share of global exports is below 1 percent, the sector’s rapid growth has provided some evidence that Vietnam is moving up the manufacturing value chain.

3.2 Production and Trade

Vietnam’s electronic industry has seen impressive growth in recent years as a result of liberalization and significant foreign investment. In the period 2002-2008 export growth averaged 35 percent annually, albeit from a low basis. Growth slowed significantly in 2009 due to the global recession, but increased sharply in 2010 and 2011 thanks to large factories coming online. Although Vietnam’s electronics exports have grown more rapidly than global electronics exports, they still represent a very small fraction of global output.

While a wide range of products are produced in the electronics industry in Vietnam, volumes remain relatively low and the entry of a new manufacturer can drastically modify the export share of different product groups (Figure 3.1). In the period 2002-2009 wires/cables, computers and printers were the most valuable export groups -- the latter in part due to Canon manufacturing facilities. With the establishment of a large Samsung plant in 2009, by 2010 the largest electronics export group was cell phones. Recently, motors and generators have increased their share of electronics exports with the production of nano-motors and integrated circuits at a new Intel factory.
In 2009, the last year for which complete data is available, Japan was the leading destination for Vietnam’s electronics, with the United States ranked second. The products shipped to these countries include assembled equipment such as printers and photocopiers and components such as circuit boards and automotive electronic apparatuses. Vietnam Customs data for 2010 indicates that China became the number one destination for Vietnam’s electronics exports, while the proportion of exports going to Japan dropped significantly.

Electronic exports from Vietnam often fit into complex global supply chains, where they are components of more complex electronics that are finally assembled in other countries. Vietnamese exports of this kind are normally sold within Asia to markets like China, ASEAN, Korea, Hong Kong SAR (China) and India. It is estimated that 90-95 percent of the inputs for Vietnam’s electronics exports are imported. China is the main source of these inputs followed by Japan and Korea. Most of the local inputs are either packaging for the manufactured electronics or basic electrical equipment parts.
Among emerging economies with electronics industries, India has an advantage in terms of the skilled workers available to perform design work. China is attempting to emulate this through substantial investment in research and development and education, which is expected to double as a percentage of GDP over the period 2006-2020.

Of the approximately 350 enterprises producing electronics in Vietnam, only 30 percent involve FDI. The FDI businesses account for over 95 percent of the industry’s output value. More than 50 percent of output is produced by fewer than 3 percent of electronics firms. Despite this high level of concentration, there are few barriers to entry and it is expected that competition among exporters will increase over time.

Most of the FDI is from Japan and Korea, and involves leading brands such as Samsung, Canon, and Fujitsu, as well as suppliers like Intel, Compal and Foxconn. The size of investments has been increasing in the last few years, with Samsung investing over US$1 billion, Compal about US$500 million and Nokia making an initial investment of about US$200 million. Their plants employ between 5000 and 20,000 workers and production typically reaches capacity within a few years of establishment. Nearly all output from these operations is exported, although an increasing proportion is sold in the local economy. Large-scale electronics plants are usually located in special purpose industrial parks near Ha-Noi and HCMC. Near Ha-Noi, these include Lang – Hoa-Lac High Technology Zone, Sai-Dong Industrial Zone, Quang-Minh Industrial Zone, Thang-Long Industrial Zone and Yen-Phong Industrial Zone. More than 90 percent of electronics exports are produced in the northern region, around Ha-Noi.

Vietnam’s electrical equipment manufacturing focuses on household appliances and power distribution equipment (for example, insulated wires, transformers and switchgear). Most of the production of household appliances is focused on the domestic market, but larger manufacturers such as Midea and Hitachi also export to the region. There are over 200 foreign-owned, local and joint venture firms involved in the production of aluminum and copper cable, and insulated wires.

### 3.3 Structure of the Electronics Industry

The electronics and electrical equipment industry has a tiered structure like most modern manufacturing industries. At the top is the brand manufacturer or retailer, which distributes the branded products to the consumer. In the electronics industry, the brand manufacturer is designated as an original equipment manufacturer (OEM). The second tier is comprised of the contract manufacturers who produce the branded products. These are either original design manufacturers (ODMs) that design the product to meet the OEM’s requirements or electronic manufacturing services (EMS) that manufacture according to the designs provided by the OEM. The third tier is made up of the producers of components that supply inputs to the contract manufacturers. The fourth tier entities are the producers of the basic materials used to produce the components. As with other industries, the responsibility for design is distributed throughout the value chain (Figure 3.3). Innovations occur early in the value chain and are incorporated into the designs in subsequent stages. The downstream activities are focused on assembling inputs produced at an earlier stage of the value chain.

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12 The terminology used in the industry differs slightly from that used in other industries, specifically with reference to the role of the OEMs.
In Vietnam there are firms involved in all tiers of the electronics supply chain; these include Intel, which produces semiconductor components; Foxconn and Compal, which function as an EMS and ODM, respectively; and Samsung and Canon, which are OEMs but also do final assembly/customization. Firms in Vietnam are also involved in the production of household appliances and electrical equipment at all four levels.

The overseas owners manage both the inbound and outbound supply chains, and inputs are imported from companies that provide components to the owner’s various production facilities. Deliveries are arranged by the owners using the parent company’s distribution network. The factories provide labor and procure local packaging material and some physical inputs. The factory has limited contact with suppliers and almost none with the final buyer. The payments for imported inputs and exports are handled by the parent company and the only return to the local factories is the payment for local assembly, which is about 10 percent of the product value.

Electrical equipment for power distribution is produced in Vietnam by both foreign and domestic companies operating as either contract manufacturers or brand manufacturers. These companies are involved in the procurement of imported and local inputs and sell the products to construction companies or distributors. The inputs and outputs are shipped on both FOB and C&F terms.

Most electronics factories operate according to a semi-annual or annual production schedule provided by their headquarters. The suppliers receive procurement orders six weeks prior to the start of production and deliver them according to a just-in-time schedule. The finished products are prepared for retail sales with delivery arranged by the parent companies to regional distributors and through other corporate distribution channels.

Since volumes are determined by orders from the headquarters, the factories focus on reducing manufacturing costs, maintaining reliability and improving quality control so as to eliminate returns.

The development of the electronics industry in Vietnam has been led by international players. Large brand manufacturers have moved to Vietnam in order to reduce their production costs, locate nearer to their markets and reduce their dependency on specific countries or suppliers. Initially, electronics factories imported and assembled components but once established many major suppliers built factories in Vietnam to simplify their inbound logistics. These suppliers import parts to be assembled into components that are then delivered to their clients’ factories. It is likely that over time they will increase the amount of locally-produced parts they use. Eventually the brand manufacturers may procure components from local producers. This phase is just beginning in Vietnam and further development could include both joint ventures and diversification by existing domestic manufacturers.
3.3.1 Transportation

The production of electronics in Vietnam is primarily in the hands of FDI companies with connections to product supply and consumption networks worldwide. Electronic exporting enterprises share strategic connections with other enterprises in their supply chains, based on direction received from their parent corporation. Supplies and end-products are managed by specialized departments responsible for products in various markets. A contracted freight-forwarding unit sends its staff to electronic enterprises in the chain to assess production and delivery schedules, ensuring that forwarding services meet the electronic enterprise’s demand. Characterized by small items of high value and specific transportation requirements, electronic products are packaged in cartons that can be stowed into containers for travel by sea.

Figure 3.4 shows that 92.1 percent of the national production of electronic products and relevant spare parts are exported from the North, with 90 percent exported by sea from Hai-Phong port and the remainder exported from Cai-Lan port and by air via Noi-Bai airport. Only 5.7 percent of electronic products and spare parts are exported through HCMC, with 3.4 percent of these exports shipped by air and 2.3 percent by sea. The remaining small percentage is exported by road. Accounting for only 5.7 percent of the total national exported electronics volume, the exported electronics value in the South accounts for 37 percent of the total exported electronics value due to the exported electronic products and spare parts from factories in Dong-Nai, HCMC, Binh-Duong and Binh-Phuoc being small and light weight but of high value.

Twenty-five percent of electronic products and spare parts produced in Vietnam are shipped to Japan, 17 percent to the United States, 7 percent to China, 6 percent to Thailand and 6 percent to Singapore. International shipping routes for electronics include: (a) by sea from Hai-Phong, HCMC ports to the United States; (b) by sea from Hai-Phong, HCMC ports to China, Singapore, Hong Kong SAR (China), Japan and other countries; (c) by air from Noi-Bai airport to Japan, Hong Kong SAR (China), China; and (d) by air from Tan-Son-Nhat airport to China, Japan, the United States and ASEAN countries. Sea transport from Hai-Phong to Shanghai costs US$270 per TEU. Air transport from Noi-Bai airport to Shanghai costs US$11,000 per TEU. Shipping from HCMC port to Los Angeles (the United States) costs US$2,200 per TEU. From Tan-Son-Nhat airport to Los Angeles, the cost is US$23,100 per TEU.
Figure 3.4: Electronics and Electrical Equipment Export Flows, 2010

Source: Freight flows data provided by TDSI.
Electronic products and spare parts are transported by inland roads to ports for export. Road transport costs are between US$1.5-2 per TEU per km, shipment loading costs are US$30 per TEU at ports in the North and US$27 per TEU at ports in HCMC, with loading shipments on plants costs of about US$300 per TEU.

### 3.3.2 Forecast for Export of Electronics and Electrical Equipment

Projections indicate that from 2012 to 2015, the export value of electronics will increase, while the value of imports will decrease. From 2016 to 2020 it is projected that export and import values will be equal, with surplus value in the electronics industry due to:

- Enterprises producing exported goods will increasingly utilize partnerships with domestic enterprises to develop spare parts and other materials;
- Although the consumption of televisions is projected to increase by only about 3 percent per year, this market segment will be replaced by demand for products with higher quality and more features; and
- The share of domestic assembly of computers and laptops will increase from 30 percent in 2010 to 60 percent in 2020. Assemblers will only import spare parts so transport volumes will not increase significantly, but the value of imports will increase over 2012-2015 levels.

To achieve its electronics export objectives between 2011 and 2020, Vietnam needs to encourage FDI companies to invest in the electronics production field through preferential land tax treatment as well through an assessment of the most important high technology goods for which to offer preferential tax treatment.

### 3.3.3 Future Export Markets

At present, the main export markets for electronics are in ASEAN, the EU, Japan, Korea, and the United States. In the future, markets will expand in countries such as China, Hong Kong SAR (China), the EU (especially Germany) and new members of the EU such as Poland, Hungary, Czech, and Slovakia. 13

### 3.3.4 Future Imports

In recent years, with industry development support from the State, imports have fallen gradually, with an increasing import substitution rate. It is envisioned that enterprises supported through 100 percent foreign funds will build satellite factories and joint-venture companies in Vietnam to produce spare parts. The main sources of imports will be Taiwan (China), Korea, Japan, China, and Hong Kong SAR (China). 13

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3.3.5 Future Transport Routes

According to a survey of existing exporting enterprises and newly developed enterprises, freight transportation routes from provinces to the ports will not require significant change to handle the small volume of high value products. Expressway networks handling higher traffic capacity are expected to be constructed, resulting in no major changes in traffic routes handling electronics. However, when Long-Thanh airport in Dong-Nai is in operation, it will attract some of the export shipments currently utilizing Tan-Son-Nhat airport.

Figure 3.5: Electronic Export and Import Movement Flows by 2020

Source: Freight flows data provided by TDSI.
3.4 Development Strategies

The Vietnamese Government’s Master Plan for the Electronics Industry, introduced in 2007, sets out an ambitious vision for 2020 including generating half a million jobs, a significant portion of these being engineers, technicians, and middle managers. These would be complemented by development of domestic research capabilities. The initial concentration on production of low-margin consumer goods would change as the industry diversified into special-use electronic products and production of materials for use in components.

Although the electronics industry in Vietnam is currently in the early stages of development and is expanding rapidly, it is possible to reconsider the original objectives based on both recent events and the evolution of the electronics industry in other countries in Southeast Asia. The initial growth is characterized by investment in large factories to produce basic components or consumer goods. Continued growth depends on the ability to provide land, labor, power and logistics services in sufficient quantity and at reasonable cost. It also depends on the size of the market that is being served.

Over time, the products will become more sophisticated but the production methods will remain the same. As labor costs rise, growth will slow but production will continue through increases in productivity and changes in product mix. To the extent that there is diversification, it will be in the form of developing suppliers for inputs to the large factories. Production of specialized equipment and development of research capability may occur but not as a result of diversification by these factories. Instead, they will develop through a separate path characterized by improvements in education and domestic investment research and development.

The primary objective for the medium term is to sustain the growth in production and the employment derived from that growth. Complementing this would be an increase in value addition through an increase in the inputs supplied by domestic industry.

The strategy for achieving these objectives is to address the current challenges facing the industry and Vietnam. For the industry, some of the major challenges include reducing the time required to bring new products to market and improving the forecasting of demand and the flexibility of production to respond to changes in demand.

For the Vietnamese government, the rapid growth in electronics production means that improving the quality of logistics, including transport infrastructure, and increasing the supply of land with access to labor and international gateways is very important if the industry is to continue to expand. The government should also ensure the availability and reliability of power, work to simplify administrative procedures, especially those related to trade facilitation, and develop IT-based procedures and transactions to complement those of the industry.

These can be addressed through development of industrial clusters with linkages to efficient trade corridors. The clusters would be designed to attract foreign investment but at the same time accommodate the development of local suppliers and subcontractors. The trade corridors would be designed to support transport and clearance of inputs and exports through the international gateways in a single day and allow for multiple deliveries during that day.

The strategy should begin with an adjustment of the government’s vision. This need not be a formal exercise but would involve assigning priority to the goals and developing a timeframe which takes into account what has already occurred and the experience of other countries in ASEAN, such as Malaysia, the Philippines, and Thailand.
While there have been concerns regarding Vietnam's infrastructure and trade facilitation procedures, the industry has been able to develop efficient supply chains, both inbound and outbound, for both foreign and domestic industries. There are opportunities for further improvements in reliability and cost savings taking advantage of improvements in port services and customs modernization. These will be required to support the rapid growth in trade anticipated. At the same time, the lessons learned from this trade can be extrapolated to other trades in order to improve Vietnam's comparative advantage as a location for these industries that benefit from reductions in order cycles and logistics costs.

The development of clusters for the electronics and electrical equipment industry is already well established (Figure 3.6). However, these have focused on the provision of land and, to a lesser extent, power and trade facilitation. More attention is required regarding access to both labor and to the gateways.

**Figure 3.6: Location of Industrial Zones Relative to International Gateways**

![Location of Industrial Zones Relative to International Gateways](source: Authors, based on Google Map.)

### 3.5 Strategy Implementation

Implementation of this strategy requires broader coordination between investors and Government. Traditionally, this coordination has focused on land and incentives and, therefore, involved relatively few participants. A broader planning effort requires the participation of local and national agencies responsible for planning and delivery of services and utilities. It also requires participation from the private sector that extends to foreign and domestic suppliers and subcontractors. Finally, it requires participation by regulatory agencies in order to simplify and automate their procedures and provide an interface for the modern IT systems used by the industry to manage its activities and resources.

The development of local suppliers of parts and subcontractors to produce components will involve joint ventures and diversification of existing electronics industries. This can be encouraged through various incentives such as deregulation of investment policy, improvement of the business environment and greater transparency in government procedures. Efforts to encourage the development of these industries require consultation with ODM/EMS and potential investors to identify needs and constraints. It also requires a longer-term plan for developing the skills required for managing these activities and for designing and producing components.
CHAPTER 4
RICE

4.1 Introduction

In 2011, with 20 percent of the world market, Vietnam was the second largest exporter of rice in the world, after Thailand. National rice production has nearly doubled since 1990, moving Vietnam from a food insecure country to a very large exporter of food. Rice exports currently account for around 4 percent of Vietnam’s export earnings. Rice export growth contributes to both economic growth and poverty reduction, in particular in rural areas where more than 80 percent of Vietnamese population lives. Vietnam’s two most important rice-growing regions are at opposite ends of the country -- the Red River Delta in the north and the Mekong Delta region in the south. While responsible for only just over half of Vietnam’s rice production, the Mekong Delta accounts for 95 percent of the country’s rice exports.

4.2 Vietnam in the Global Rice Market

Global trade in rice has grown steadily over the last two decades but still accounts for less than 15 percent of global production (Figure 4.1). India and China produce about half of the global rice output, but generate only 10 percent of total exports. In contrast, Vietnam and Thailand account for half of world exports but only 10 percent of global production. Together with the US, Pakistan and India, they account for over three quarters of total exports (Figure 4.2). Unsurprisingly, importers are more diverse with concentrations among Asian and Middle Eastern countries (Figure 4.3).

14 Policy Note #2, Beyond the ‘Rice Bowl’: Building on Past Gains to Enhance the Quality, Sustainability, and Equity of Growth in the Mekong Delta.
15 Ibid. 1-2
Of the major exporters, India’s value per kilogram is highest as most of its exports are high-price Basmati rice. Thailand has the second highest value per kilogram thanks to its various branded products and the quality of the milling. Vietnam’s rice exports have a relatively low value as most is generic, medium-grade white rice (Figure 4.3). Over the past 10 years, the top five exporters’ share of global trade has not changed significantly. On a value basis, Thailand has commanded a 25-30 percent share of global exports, while Vietnam has been responsible for 12 percent of exports (Figure 4.4).

**Figure 4.1: Major Rice Producers, 2010-2011**  
![Figure 4.1: Major Rice Producers, 2010-2011](image)

**Figure 4.2: Major Rice Exporters and Importers**  
![Figure 4.2: Major Rice Exporters and Importers](image)

*Note: Value average of 2007-2011.  
Source: UN Comtrade, Trademap.*

*Source: US. Department of Agriculture (USDA).*

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**Figure 4.3: Rice Exporters, 2007-2011**  
![Figure 4.3: Rice Exporters, 2007-2011](image)

**Figure 4.4: Global Rice Export Value Share**  
![Figure 4.4: Global Rice Export Value Share](image)

*Note: Quantity and value average of 2007-2011.  
Source: UN Comtrade, Trademap.*

*Source: UN Comtrade, Trademap.*
4.2.1 Key Exporters

Thailand’s success in the international rice trade is due to its high quality, long-grain white rice, which has a substantial price premium over lower grades. Private export companies supply world markets with different qualities of long grain rice, including fragrant rice. The marketing and milling industry in Thailand is very sophisticated and responsive, allowing it to compete with the United States in the high-quality market and with India and Vietnam in the lower- and medium-quality markets. A significant portion of Vietnam’s rice exports are procured by Government and sold through Government-to-Government (G-to-G) arrangements.

Vietnam became the world’s second largest rice exporter in 1997 but was a provider of low-quality rice. More recently, investments in milling and infrastructure, along with increased experience in dealing with importers, have led to improvements in both quality and reliability. But issues in the supply chain remain and contribute to a lower price for Vietnamese rice compared to similar grades of Thai rice.

India exports high-value aromatic rice varieties such as Basmati. After a slow year in 2011, Indian rice exports are likely to rebound with the lifting of a government ban on selling non-basmati varieties. To keep local prices above a certain floor the government-owned Food Corporation of India buys rice from farmers, often at above-market prices.

The United States exports relatively high quality long-, medium-, and short-grain rice to more than 100 countries. The United States exports are a mix of raw rice, brown rice, and fully-milled rice. This makes it the only major exporter not to capture the value added from fully milling the rice. There are more than 10,000 rice farm operators in the country.

Pakistan exports both long-grained high-value aromatic rice to the Middle East and medium-grain rice to South and Southeast Asia. Rice is grown under diverse climatic conditions and the varieties produced include Basmati, Japonica, and long grain. An increasing proportion of the exports are parboiled rice, and Pakistan is now second to Thailand in this trade.

4.2.2 Key Importers

The biggest importers of rice are found in Asia and the Middle East, although there has been real growth in the imports of African nations. The type of rice imported varies with local preferences and purchasing power. Canada, Western Europe, Saudi Arabia, and South Africa generally import high-quality long-grain rice. The Philippines, Indonesia, and the rest of the Middle East are more price-sensitive, switching between high- and medium-quality depending on prices and domestic conditions. The volume of imports varies significantly from year to year and rice prices tend to be more volatile than the prices of other grains.

The Philippines has been the largest importer of rice on average over the last decade, although in 2011 Indonesia imported more. In recognition of the food security concerns of the government, the Philippines has been allowed by the World Trade Organization (WTO) to implement a policy of quantitative restrictions (QR). Once rice imports for the year reach a certain point, any additional rice imports are hit with a very high tariff rate. Vietnam is the Philippines’ leading supplier of rice imports, responsible for between 75 percent and 95 percent of annual rice imports over the last five years. Thailand is the country’s second largest source of rice imports.

Other major Asian importers are Malaysia and Indonesia. Malaysia imports about half its rice from Vietnam, a significant change from 10 years ago when Thailand supplied most of Malaysia’s rice imports, and Vietnam less than one fifth. A similar trend can be seen in Indonesia, where 10 years ago Vietnam supplied 15 percent of imports, while in recent years this has risen to around 60 percent.
Large rice importers in the Middle East, such as Saudi Arabia, the United Arab Emirates and Iran, have a preference for expensive rice such as Basmati. As a result, they import most of their rice from India and Pakistan. The UK has a very diverse import base, perhaps reflecting its multicultural population. India provides about one quarter of the UK’s rice, while Pakistan, Spain, Italy and Thailand each cover about 10-15 percent of import needs.

**4.3 Vietnamese Production and Trade**

Since 2000, Vietnam paddy rice\(^{16}\) production has increased at an annual average rate of around 2 percent.\(^{17}\) This growth, combined with improved milling techniques and a substantial increase in the ratio of exports to domestic consumption, has allowed Vietnam to increase rice export volumes by an average of 7 percent per annum over the same period.\(^{18}\) In 2011, exports accounted for 36 percent of rice production.\(^{19}\) Increasing rice export volumes have been accompanied by rising world rice prices, leading to large increases in the value of Vietnam’s rice exports. From around US$1 billion in 1999, rice exports have more than tripled to US$3.5 billion in 2011.\(^{20}\) Over this period, average rice prices have risen 123 percent while volumes have increased 56 percent (Figure 4.5).

\[\text{Figure 4.5: Vietnam Rice Exports, 1989-2011}\]

![Figure 4.5: Vietnam Rice Exports, 1989-2011](source: Vietnam Food Association)

The destinations of Vietnam’s rice exports have changed considerably over the last 10 years. In 2001 and 2002, Ghana was particularly important, while since 2005 the Philippines has, on average, been Vietnam’s most important export market for rice. Exports to Indonesia have been especially volatile, with Indonesia accounting for around 20 percent of Vietnamese exports for a number of years, almost zero for most other years, but then more than 40 percent in 2011 (Figure 4.6).\(^{21}\)

\(^{16}\) Rice with its husk still attached, also called rough rice.
\(^{18}\) Vietnam Food Association.
\(^{20}\) Vietnam Food Association.
Around one quarter of Vietnamese rice exports are of high quality (5 percent broken) rice. Nearly half are lower quality (15 percent broken) rice, while around 20 percent are of a poorer quality. The remaining rice exports are either glutinous or aromatic (Figure 4.7).  

According to U.S. Department of Agriculture (USDA) forecasts, Vietnam’s rice exports by quantity will fall slightly over the next couple of years before reaching about 8 million tons around 2020. The World Bank forecasts rice prices to fall over the next 10 years by about 10 percent.

**Figure 4.6: Vietnam Rice Export Destinations, 2001-2011**

Source: UN Comtrade, TradeMap.

Around one quarter of Vietnamese rice exports are of high quality (5 percent broken) rice. Nearly half are lower quality (15 percent broken) rice, while around 20 percent are of a poorer quality. The remaining rice exports are either glutinous or aromatic (Figure 4.7).  

**Figure 4.7: Exported Rice**

Source: USDA.

According to U.S. Department of Agriculture (USDA) forecasts, Vietnam’s rice exports by quantity will fall slightly over the next couple of years before reaching about 8 million tons around 2020. The World Bank forecasts rice prices to fall over the next 10 years by about 10 percent.

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4.4 Structure of the Rice Industry

Broadly speaking, the rice sector in Vietnam has five components, as shown in Figure 4.8. The first is the farm, where the rice is grown. The size of rice farms in Vietnam varies from smallholdings of less than 0.2 hectare to large rice fields of over 3 hectares. The majority of rice for export is produced on the 300-400 thousand largest farms. This concentration has increased in recent years as smaller farmers have diversified out of rice into other agricultural goods. In the Mekong Delta, yields have increased over the past twenty years as multiple growing seasons have been introduced. Currently, the majority of export rice production is from farms with at least two crops per year. More than one quarter of hectares in the Mekong Delta employ triple cropping. As most export rice production is dispersed across a large area of the Mekong Delta, the second component of the rice production process is collectors who purchase paddy (un-milled) rice from farms and transport it in barges for sale to small mills. There are several thousand collectors, some specializing in rice but most handling a range of commodities.

The third component is the small mills located relatively close to the rice farms. These purchase dried or semi-dried paddy and removes the husk to produce brown rice. These mills have a capacity of about 3-5 tons of paddy per hour. They have limited storage capacity, with paddy rice often left outside or under basic roofing, leading to physical losses of around 2 percent annually. The fourth component is the large mills that purchase husked rice and mill it to produce polished or unpolished white rice. Such mills operate at around 20-50 tons per hour. Some large mills also husk the paddy allowing some large rice producers to bypass the small mill stage.

The fourth component is the exporters and wholesalers who by rice from the large mills and export or sell to the domestic market or to exporters. Although there are about 200 registered exporters, most export less than 1000 tons per year. Eleven companies account for 70 percent of the trade. SOEs, which are responsible for G-to-G transactions, account for about 80 percent of exported rice and distribute the exported rice through concessional government programs in the Philippines, Indonesia, and Cuba.

Exports are usually sold on an FOB basis, payable with a time draft of 7-21 days following the rice being loaded on the vessel. Payments are guaranteed through a Letter of Credit. Exporters also receive advance payments of 10-30 percent from the importers. The ordering and processing requires less than one month so that the exporter’s cash-to-cash cycle is limited to 6-8 weeks.

There is very little inventory stored in the supply chain even though both paddy and bagged rice have relatively long shelf lives. Exporters purchase milled rice after an export order is confirmed. The mills purchase and mill paddy shortly after the exporter’s order is received. The smaller mills maintain a small inventory of paddy and mill the rice for sale to larger mills at the time an order is received. Since the rice is sold through brokers on a shipment-by-shipment basis, there is no need to maintain an inventory for supplying regular customers throughout the year. As a result, the order cycle from receiving the initial order to loading for shipment is 30 days or less with most of this time spent confirming the order and the sailing date of the vessel.

This industry structure generally produces three levels of rice quality for export (see the arrows in Figure 4.8). Low quality paddy is bought by collectors from the small farms in volumes ranging from 100 kilograms to 50 tons per transaction. The paddy is delivered to small mills along the rivers where it is dried, husked, and stored. Upon receiving purchase orders or bids from exporters, the mills transfer raw rice to ports designated by the exporters or to the exporters’ mills where the brown rice is polished (red arrow). This

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rice has a high proportion of broken rice because the small mills have older technology, do not have the capability to segregate different varieties, are unable to regulate moisture content effectively, and most lack HACCP (Hazard Analysis and Critical Control Points) certification.

Better quality paddy is purchased from the larger farms and delivered to the large mills where it is milled and polished (yellow arrow). This provides reasonably high yields, but also mixed varieties. The output from the large mills is sold on a G-to-G basis or a private-to-private basis and shipped to the importing countries in 50 kg bags on general cargo vessels. Both the low-and better-quality rice is packed into 25-50 kilogram bags according to customers’ requirements and then transported by barges to Sai-Gon port where they are loaded into general cargo ships.

Figure 4.8: Alternative Rice Supply Chains

The highest quality rice (blue arrow) consists of special varieties purchased from farms in specialized paddy growing areas and delivered to the large mills. Each variety is processed as a separate product. Raw rice is cleaned, color separated and packaged based on the exporters’ requirements. This is primarily 5 percent broken aromatic rice (e.g., jasmine, fragranced). The rice is packaged into 1-10 kilogram multi-layer bags. The bags are transported by road to the inland container depots (ICDs) near Sai-Gon port where they are loaded into containers for shipment to foreign distributors on CNF (cost, no insurance, freight; i.e., cost plus freight with no insurance), CIF, or FOB terms. The destinations are primarily high-income countries/markets such as Hong Kong SAR (China), Saudi Arabia, and Korea.

For G-to-G trade, the importing government designates the buyer. For private-to-private trade, exporters sell to international traders or brokers who in turn sell to foreign distributors that supply retail outlets. The gradual liberalization of the rice trade has allowed the role of private traders to increase. However, most exports are still sold through the state-owned traders. This arrangement may change in the future with foreign traders being able to buy Vietnamese rice directly without entering into a joint venture with a domestic company.

Despite the large volumes shipped, in many respects the rice trade remains a small-scale activity involving a large number of small-scale farmers, collectors, mills and even exporters. The fragmented nature of the trade is reinforced by limitations on working capital, which leads to a large numbers of relatively small shipments. Furthermore, the supply chains are not designed to maintain the integrity of the paddy/rice and instead tend to mix them indiscriminately. This begins with the small farms, which plant a significant quantity of saved-seeds of varying quality. The paddy collected from different farms is then combined into a single consignment and loaded on a barge for delivery to a mill. Further mixing occurs when there is a two-stage milling process. The small mills still employ older technology and have limited capacity for regulating moisture content, which results in low yields of hulled rice.26 This not only reduces the quality of the exports but also the returns to farmers.

Because of the fragmentation, farmers have little interaction with the foreign markets or even the exporters. As a result, the incentives for improving the quality of the rice are not communicated to the farmers. This presents a challenge for the rice industry, as agricultural land is limited and other crops potentially offer greater returns. The predominance of large G-to-G rice contracts reinforce a system based on exporting low-quality rice, as the buying governments are mainly concerned with price rather than quality.

Most of the trade continues to be in white rice, with the value determined based on ‘percentage broken’. However, some trade is developing in parboiled and aromatic brands. Trade in higher-value rice is primarily through private sector initiatives. The challenge is not only to produce and process higher quality rice, but also to market and distribute the rice in a way that earns higher returns.

4.4.1 Transportation

Paddies (un-milled rice) are mainly produced from Mekong Delta provinces. About 96 percent of exported rice is produced in the Mekong Delta Region. In Figure 4.9, the different shades of blue color depict the various levels of provincial outputs of rice production. Paddies are collected from Mekong Delta to transport to two two-stage milling centers: one along Hau River for paddies from An-Giang, Dong-Thap, Kien-Giang, Can-Tho; and the other along the Tien River, for paddies from Tien-Giang and Long-An, etc. Around 90 percent of the exported rice is transported from the Mekong Delta region to HCMC by inland waterways with a small volume being transported by road via NH1A and the HCMC – Trung-Luong expressway (for rice exports coming from Long-An and Tien-Giang). Table 4.1 shows the main inland waterway routes, which are highlighted in Figure 4.9 as well.

26 In Vietnam a normal private mill is, on average, only able to yield 60-66 kilograms of milled rice out of 100 kilograms of paddy rice, of which only 40-48 kilograms are head rice. This compares with a typical yield for Asian mills of 67-70 kg with 52 kilograms of head rice.
Given its serious alluvial status, Route 3 is less used compared to Route 1 and Route 2. In 2010, the inland waterway routes carried about 5.9 million tons of rice for export, of which 5.6 million tons passed through Route 1 and Route 2. These two routes connect to Cho-Gao canal, en-routed to Thi-Vai River ports in HCMC. The Cho-Gao canal therefore serves as an arterial route for rice export transported from the Mekong Delta to the main international gateways (see Box 4.1). It takes a longer time to transport to the ports and ICDs, and causes uncertainty in delivery time. Most of the inland waterways from the Mekong Delta to HCMC are not in optimal condition; many pre-existing bridges over the rivers are below standard, with limited clearance for river traffic. Maintenance funds for inland waterways are limited, with only the most urgent works being undertaken.

**Table 4.1: Main Domestic Routes**

<table>
<thead>
<tr>
<th>Route</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1: HCMC – Ca Mau route via the Xa No canal</td>
<td>338.3</td>
</tr>
<tr>
<td>Route 2: HCMC – Kien Luong route via the Sa Dec – Lap Vo canal</td>
<td>322</td>
</tr>
<tr>
<td>Route 3: HCMC – Kien Luong route via the Thap Muoi canal number 1</td>
<td>288.8</td>
</tr>
</tbody>
</table>

Source: Corridor Analysis, TDSI 2012.

**Figure 4.9: Domestic Traffic Flows of Rice Export**

Source: Freight flows data provided by TDSI.
The bar chart in Figure 4.9 shows the use of international gateways for rice export. HCMC ports, denoted as red arrow, account for 87.9 percent of rice exports, while other Mekong Delta ports (My-Thoi port, Can-Tho port) are used for 1.9 percent of rice exports. The remaining of 8.7 percent of rice exports passed through ICDs (mainly ICDs in HCMC). The main seaports for rice exports in HCMC include the Ben-Nghe, Tan-Cang, Cat-Lai, VITC, Hiep-Phuoc, Khanh-Hoi and Tan-Thuan ports.

From HCMC, 87.9 percent of the rice was transported directly to vessels for loading. About 600 thousand tonnes of rice are cleared at ICDs including Phuoc-Long - Thu-Duc ICD, Tay-Nam ICD (HCMC port - Region IV), Transimex III ICD (HCMC port - Region IV) and other ICDs in HCMC and Dong-Nai. After being packed into containers at the ICDs and completing customs procedures, the rice is transported by road to the ports for export. The route from the ICDs is mainly via the Ha-Noi Expressway – Nguyen-Thi-Dinh road to Cat-Lai port. Traffic routes to the ports in HCMC are frequently congested because the ports are located in the inner city. Due to these problems, these routes are unable to meet transport demands in the area. The G-to-G trade with Indonesia and the Philippines is shipped on Vietnam vessels on CIF terms. For other markets, such as Africa, rice is exported on FOB terms with the buyers selecting the vessels.

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**Box 4.1: Cho-Gao Canal**

The Cho-Gao canal is one of Vietnam's most heavily transited waterways connecting the Mekong Delta Region and HCMC. Constructed in 1877 and operational since the early 1900s, the canal is 28.6 kilometers long and approximately 80 meters wide at its surface. The canal is a relatively narrow but critically positioned waterway linking the much wider, higher-capacity Tien and Vam-Co Rivers at each end of the canal; this narrowness, coupled with increasing traffic levels and expanding average vessel sizes over the past several years, has rendered the canal the most critical bottleneck for waterway cargo transport in the region. The resulting congestion has not only increased logistics costs for regional and import-export shippers (in a region that accounts for 62 percent of Vietnam’s industrial output and 71 percent of its seaport container throughput), but has also led to unsafe navigation (e.g., higher collision and wreckage rates) and heavy bank erosion (with serious environmental and social implications).

In 2001, under the Bank-financed Vietnam Inland Waterways and Ports Rehabilitation Project, the canal was formally dredged and upgraded to meet Class III standard for national inland waterways. Since the completion of those works, however, sustained high rates of economic growth, both nationally and in the region, have resulted in waterway cargo flows to/from the Mekong Delta and HCMC – via Cho-Gao – that have consistently grown at a multiple of GDP. For example, freight volumes through the canal increased from 16.9 million tons in 1995 to 65.0 million tons in 2010, for an average annual growth rate of 9.4 percent over the period. The latter rate was 1.3 times the average annual growth of Vietnam’s real GDP over the same 15-year span (7.2 percent). Today, according to government data, an average of approximately 1,400 vessels varying in size from 200 DWT to 1,000 DWT traverse the canal each day (with peak volumes closer to 1,800 vessels per day).

Despite considerable capacity constraints at Cho-Gao canal, the alternative routes to/from HCMC and Can-Tho remain far less desirable for a critical mass of shippers, as Cho-Gao canal still represents the most direct route between these two critical nodes in the Mekong Delta network. Another option for some shippers could be to bypass HCMC ports altogether and use Can-Tho as an international gateway for Mekong Delta trade. However, large vessels face severe restrictions entering Can-Tho ports as the Dinh-An estuary remains alluvial. Unless large and time-intensive investments are committed to upgrading Can-Tho port and the related waterway systems, most import-export flows in and out of the Mekong Delta region will continue to pass through Cho-Gao canal en route to HCMC and the Vung-Tau port range.


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27 According to Vietnam Customs statistics.
River transport costs from the Mekong Delta to the ports in Ho Chi Minh City are from 4-5 US$/ton; costs for loading and unloading (at river ports and from ICDs to the ship) are from 2.3-2.5 US$/ton. Besides these operational costs, additional costs include the cost for river control stations at an average of 50 US$/shipment as well as labour costs for loading and unloading at an average of 0.75 US$/ton, bringing the total cost to 8.5 US$/ton. Transport time is from 18 to 36 hours depending on the region. Loading and unloading often takes two days. Thus, under favorable conditions, transport time per shipment is between 3 to 5 days. The cost is reasonable compared to the time and quality of service. Waterway transport is suitable for low- and medium-quality rice.

Road transport costs are from 12-20 US$/ton, with average tolls at 2 US$/ton. Besides these operational costs, additional costs are incurred at road control stations due to transport violations such as overloaded or poor quality vehicles, costing an extra 15 to 25 US$/ton. Travel time, loading and unloading takes approximately 8-10 hours. Road transport is mostly used for high-quality rice, which requires more careful treatment.

Vietnam's rice exports follow two main international routes: one to the ASEAN countries and the other to Europe and Africa. For shipments to ASEAN countries, ships of 3000-5000 dead-weight tonnage (DWT) are most commonly used, and for shipments to more distant destinations such as to Africa and Europe, larger ships of over 10,000 DWT are used. Transport costs depend on the routes and the ship tonnage: from HCMC ports to Cebu (Philippines) costs 27 US$/ton, to Kobe (Japan) costs range from 12-20 US$/ton, and to Hamburg (Germany) costs range from 30-45 US$/ton. Vessel speed ranges from 11 to 13 knots/hour. Thus, for long routes, such as those to Africa, transport takes about one month.

4.4.2 Forecast for Rice Export

According to the Ministry of Agriculture and Rural Development’s plan, by 2020 Vietnam will have 3.8 million hectares of rice paddy under cultivation, predominantly located in the Mekong Delta, and will export 4 million tons of rice annually. In the coming years, the focus for Vietnam will be on improving the quality of exported rice, developing brand name recognition for specialty Vietnamese rice, and increasing the volume of exported rice.
According to seaport development planning, by 2020 construction and upgrading of ports in the Mekong Delta will be completed. This includes ports such as Hoang-Dieu general berth, Cai-Cui and Tra-Noc with a capacity of 12 - 13.5 million tons per year, able to handle ships from 5,000 to 12,000 DWT. The demand on transportation routes for rice exports will change due to rice being exported directly from Mekong Delta ports, reducing the volume of rice transported from the Mekong Delta to ports in HCMC. Shipments to other countries in the ASEAN region can be directly exported from the Can-Tho port. For large-volume orders destined for distant markets, rice will be transported by inland waterways to the ports of HCMC for export. Rice exports will continue to focus on traditional markets such as Southeast Asia and Africa with potential market expansion into South America and the Middle East. For SE Asia regional routes, ships from 5,000 - 10,000 DWT will be used for exports from the Mekong Delta in order to reduce transport time and costs.
4.5 Supply Chain-Focused Development Strategies

In the past, growth in the export of rice has been achieved by increasing the volume of shipments and expanding into new markets. However, the opportunities for increasing volume are diminishing because of limitations on available land and competition from other agricultural activities. If Vietnam is to increase the value of its rice trade, it must do so by raising the unit value of rice exports, which will also increase the returns to labor and land. Improvements in seed varieties and farming practices will raise yields at the farm level, but this requires time and the rate of increase will decline over time. New markets for rice exports can be developed but these will be more challenging in terms of demand for quality of rice and reliability of deliveries. Most short-term improvements will be obtained from changes in the performance of the supply chains connecting farms to mills and mills to loading ports, and the introduction of distribution channels with better connections to individual markets. The basic strategy for improving supply chain performance has three components:

- For the inbound supply chain, the improvements would segregate different varieties of rice moving through the supply chains, coordinate sequential activities and reduce the number of transactions, capture economies of scale, add storage between the farm and the mill, and integrate quality control from the farm-gate through to the mill;

- For the rice mill, the improvements would modernize the processing technology to increase yield and consistency of milling, and transact directly with growers or operators of intermediate storage; and

- For the outbound supply chain, the improvements would reduce the proportion of sales that are G-to-G sales or involve traders, increase linkages to distributors and retailers, differentiate products according to demand in individual markets, and develop the capacity to delivery smaller, higher value shipments.

These components would increase the unit value at various locations along the supply chain as shown in Table 4.2. Complementing these supply chain changes would be efforts to improve the quality of seeds and cultivation, simplify transactions and mitigate financial risk.

These changes would be introduced through a combination of public sector efforts to modify policies and legal and regulatory frameworks, private sector efforts to introduce economies of scale in production and distribution, and joint efforts to develop the institutions and financial instruments to promote investment in facilities and mitigate the financial risks of those investments. Several changes in production and export of rice that are consistent with this strategy have already begun. These include: (i) formation of growers’ associations together with increased use of contract farming; (ii) gradual elimination of the two-stage milling process; (iii) construction of storage facilities; (iv) investments in modern drying and processing technology; and (v) better access to market information for both farmers and mills.

Perhaps the most important mechanisms for restructuring the supply chains are: the introduction of appropriate financial instruments; a legal framework to enforce contractual relations between the producers, processors and exporters of rice; and dissemination of market information to improve the transparency of rice trade and related supply chains. The financial instruments are needed to: (i) reduce the cost for capital investment in storage and processing; (ii) increase availability of working capital for procurement and storage; and (iii) mitigate the risk associated with the fluctuation in prices for paddy and milled rice.

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28 Farmers should also be supported to diversify out of rice if they can obtain higher returns from other crops or generate more income by taking employment in other sectors. Potential government interventions to encourage diversification should aim at making it easier for farmers to upgrade their production systems or, alternatively, to migrate to areas where better opportunities exist through wage employment.
A legal framework to enforce contracts is needed to encourage the use of supply contracts and thereby increase both the reliability of the supply chains and the utilization of the processing capacity. Greater transparency is needed not only to improve coordination among the participants in the supply chain but also to develop a common set of performance goals. In combination, these three mechanisms greatly reduce financial risk, which has been the major impediment to restructuring the supply chains.

The financial instruments to be introduced are:

- Loans for working capital with longer tenure and more favorable terms to accommodate supply chains with larger inventories and longer cash-to-cash cycles. More rice will be stored during the period between harvests. For contract farming, the cash-to-cash cycle extends from procurement of agricultural inputs to delivery of the paddy rice to the mill, which may include the time in storage. For the mills, the cash cycle extends until final payment by the exporter;

- Domestic Letters of Credit to guarantee delivery of domestic supplies;

- Supply contracts including forward contracts, designed for clarity and ease of enforcement. These not only guarantee physical delivery but can also be used to reduce the risk of price fluctuations during the cash-to-cash cycle. These are used for contract farming, deferred payment storage, and purchase/sales agreements for silo operators and millers/exporters; and

- Commodity futures contracts that allow operators of storage and mills to hedge against fluctuations in prices of paddy and milled rice. This can also be used to mitigate the risk associated with the sales/purchase agreements that are indexed against a spot price.

### Table 4.2: Opportunities for Value Addition in Rice Supply Chain

<table>
<thead>
<tr>
<th>Supply Chain Location</th>
<th>Supply Chain Activity</th>
<th>Type of Value Added</th>
<th>Increase in Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream</td>
<td>Cultivation</td>
<td>Yield</td>
<td>20%-40%</td>
</tr>
<tr>
<td></td>
<td>Seeds</td>
<td>Variety (Fragrant)</td>
<td>40%-50%</td>
</tr>
<tr>
<td></td>
<td>Storage</td>
<td>Moisture, Market timing Segregation</td>
<td>20%-40%</td>
</tr>
<tr>
<td>Processing</td>
<td>Milling</td>
<td>% Broken, Polishing Segregation</td>
<td>10%-150%</td>
</tr>
<tr>
<td>Downstream</td>
<td>Certification</td>
<td>Market access</td>
<td>20%-30%</td>
</tr>
<tr>
<td></td>
<td>Packaging</td>
<td>Retailing</td>
<td>20%-40%</td>
</tr>
<tr>
<td></td>
<td>Distribution</td>
<td>Retailing</td>
<td>20%-40%</td>
</tr>
</tbody>
</table>

Source: TTFA Survey.
4.6 Strategy Implementation

The restructuring of the supply chains would enable a transition in the rice trade:

- From smaller-holder production, with fragmented systems for collection of paddy rice, minimal storage, inefficient processing, and dominance of government-managed FOB trade;

- To farmers groups and large farms, with integrated collection and storage, modern processing, and private sector sales and distribution.

The starting point would be efforts to develop farmers’ associations, contract farming agreements, and other mechanisms that increase the scale of production and collection of paddy rice. This would also create opportunities for dissemination of modern farming techniques and exchange of market information among participants in the supply chain. It would also increase the predictability of supply and market price for paddy rice, thereby encouraging the use of storage and allowing for better utilization of milling capacity.

This would lead, in turn, to an increase in investment in modern storage and processing. The additional storage would be used to reduce the volatility of supply and allow supply contracts to extend over several months. The newer processing equipment would increase the yield and provide better control over moisture content and consistency of the milled rice. Both would be designed to differentiate between paddy and milled rice and by variety and quality.

These improvements would allow the large private mills to assume a greater role in the export of rice and to develop different distribution channels based on the quality and variety of rice. These changes would allow government to reduce its role in the rice trade and to decrease Government-to-Government trade. The steps involved in implementation of this strategy would follow a similar sequence and include:

- Establishing policy support and risk migration (legal instruments) to encourage contract farming and formation of farmers groups;

- Improving finance for working capital and procedures for collecting paddy rice in order to simplify supply chain structure;

- Introducing new financing for modernization of processing equipment;

- Introducing loans for construction of storage facilities, and provision of forward contracts and supporting legal framework to allow the use of storage for timing the sales of paddy and milled rice;

- Improving access and increasing capacity of seaports used for break-bulk and container shipments of rice and for developing inland water transport systems to support larger shipments of paddy rice and small consignments of specific varieties;

- Implementing policy reforms to reduce the role of the state in rice trading and setting of rice prices; and

- Developing benchmarks, an exchange, and legal framework for issuing futures contracts to better manage risk in rice trading. The buyers of these contracts would include farmer’s groups and operators of silos and mills.
Public Support

Public policy would focus on value addition, rather than volume, in the rice trade. This implies a change from the supply-push strategy for increasing commodity volume to a market-pull strategy for increasing the value of specific rice varieties. Complementing this would be a plan for reducing the proportion of exports of low-value rice traded by state-owned enterprises using government-to-government agreements and increasing sales by private mills of higher-value rice using supply contracts.

In order to simplify collection of paddy rice from farms, it is important to increase the proportion of direct transactions between small farms, which will remain the major source of rice, and the operators of the silos and mills. This will require the formation of growers’ associations and village-level institutions. These groups also provide scale in procurement of inputs, provision of local facilities for drying and storing, and sales to the operators of silos and mills. They also provide an effective conduit for introducing higher-value rice varieties and improved agricultural procedures. However, developing these relationships requires a sustained, multi-year effort to build trust among market participants. Support for this effort requires an effective public-private dialogue with a clear policy on the part of government and a broad consensus among operators of silos and millers. This consensus could be developed through an association similar to the Thai Rice Exporters Association.

The development of storage is critical to the transition to a higher quality rice trade. While there are some silos available, most of the storage is warehouses with paddy or milled rice in bags. More importantly, most of the storage is designed to be rented rather than used to time the sales of paddy rice and maintain inventory for large-scale shipments of rice exports and continuous supply of product to buyers. The private sector can construct and manage silos but public regulation is required to enforce forward contracts and eventually future contracts. Public support is also needed to introduce loans with extended tenure to cover the longer cash-to-cash cycles that accept trust receipts for collateral.

During this period, the Government should continue to develop infrastructure to support the gains in efficiency in the supply chains. The increase in the size of farms or farm groups and the scale of milling operations requires infrastructure to accommodate larger-capacity transport units, especially for inland water transport. The separation of higher-value varieties requires intermodal facilities that can segregate products. The increase in containerization and the reduction in the size of bulk shipments as a result of the decrease in Government-to-Government shipments will require continuing improvement in port performance. This will, in turn, require improvements in the access to the port facilities as well as expansion in terminal capacity for both break-bulk and container shipments.

In order to increase the quality of rice exports, the facilities for testing and other regulatory procedures should be integrated into the supply chain to improve quality and avoid procedural delays. This is especially important for the phyto-sanitary certification and testing required for specific markets. Given the capabilities of the logistics industry and the millers/exporters to introduce electronic data solutions, it is important that government regulatory institutions utilize modern communications.

International Experience: Increase in Unit Value of Rice

There are several opportunities for increasing the unit value of rice. The principal ones are the introduction of higher-value varieties, improvements in processing, and the capture of downstream value added. The former can have a dramatic impact as shown in Figure 4.11, which compares the prices for plain and aromatic long-
grain rice from Thailand. The price differential ranges from 75-100 percent. A similar but less dramatic increase applies for varieties currently grown in Vietnam, as shown in Figure 4.12. The price differential is 40-50 percent.

Improvements in processing can result in better control of moisture levels and improvement in appearance through polishing; however, the principal measure is the percentage of broken rice. The difference in unit value fluctuates, with price as shown in Figure 4.13 for Vietnam White Long Grain. The price differential is 10-15 percent. A more dramatic price differential can be seen in the timing of sale. The price fluctuations during the year were almost +20 percent. The extension of the supply chain to capture some of the value added includes arranging for storage and shipment of rice and includes packaging the rice into smaller units (bags and cartons) for retail distribution.

**Figure 4.11: Price for Hom Mali and 5% Broken White**

![Figure 4.11: Price for Hom Mali and 5% Broken White](image)

*Notes:* Blue line - Thailand White Long Grain 5% Broken  
Red line - Hom Mali White Long Grain 100% Grade B  

**Figure 4.12: Price for Fragrant and 5% Broken White**

![Figure 4.12: Price for Fragrant and 5% Broken White](image)

*Notes:* Blue Line - Thailand White Long Grain 5% Broken  
Red line - Vietnam White Long Grain 5% Broken  
International Experience: Forward and Futures Contracts

A forward contract is an agreement between two parties to trade a commodity at a fixed price sometime in the future. It is used to complement a cash purchase of that commodity or the inputs used to produce that commodity. It includes the terms of the physical transfer of the commodity and the counterparty risk. In contrast, a futures contract is a standardized agreement to buy or sell a commodity at a date in the future that is guaranteed by a futures exchange rather than a physical transfer of goods. Futures are used primarily to hedge against changes in price over the period of the futures contract.

Forward contracts are important for operators of third party storage. The storage operator buys rice when farmers want to sell, and stores it until the millers/exporters want to buy it. A farmer can deliver grain to the operator for payment at a later date, at the price prevailing at that time. The operator takes ownership of the grain and may sell it at any time before or after the date specified by the farmer. This is inherently risky since commodity prices can change. The operator can reduce the risk by using forward contracts to sell grain not yet purchased or to anticipate the price that will be set by the farmers for grain already purchased.

Future contracts are used to manage price risk by hedging against future changes in price. These are used to offset cash positions including those in forward contracts or in delayed-pricing contracts. In order to introduce forward contracts to mitigate risks associated with both price fluctuations and physical delivery, changes must be made in the current system of rice trade including development of: (i) an effective legal framework for enforcement of forward contracts; and (ii) storage capacity under private management that has sufficient capacity to store the rice for the period required in forward contracts.

In order to introduce futures contracts to hedge risks of fluctuations in commodity process, further changes in the rice trading system are required and will take some time to accomplish. These include: (i) a standardized price benchmark with a mechanism for linking this to prices of different varieties and qualities

Note: In effect, the futures exchange is the seller to every buyer and buyer to every seller. Its clearinghouse guarantees contract performance thereby eliminating counterparty risk.
(this is a problem because of significant differences in variety and quality of both paddy and milled rice. Thai white rice: 5-percent-broken has been introduced as a benchmark on Thailand’s Agricultural Futures Exchange (AFET) but the prices do not track close to Vietnam’s white long-grain, 5-percent-broken, as shown in Figure 4.14); (iii) a sufficient volume of forward contracts to establish a real-time market price; (iii) sufficient price volatility to create interest in hedging; (iv) a legal system to support the enforcement of future contracts; (v) very limited involvement of government in rice procurement and export; (vi) minimal subsidies, price supports, or other mechanisms that constrain competitive markets; and (vii) widespread dissemination of information on rice market conditions so as to insure transparency.

**Figure 4.14: Market Price for White Long Grain 5% Broken**

*Notes:* Blue Line: Thailand White Long Grain 5% Broken; Red line: Vietnam White Long Grain 5% Broken.

5.1 Introduction

Coffee is a seasonal crop grown and is processed mainly in equatorial countries with tropical climates, such as Vietnam, Indonesia, India, Colombia, Brazil, and Ethiopia. After expanding its production activities rapidly in the 1990s, Vietnam has become the second largest coffee producer in the world, currently responsible for 13 percent of world production volumes, behind Brazil (33 percent), and followed by Colombia and Indonesia (at approximately 7 percent and 6 percent of total world production, respectively).\(^{31}\) Arabica and Robusta are the two main variants of coffee, with Vietnam being the world’s largest producer of the latter. Arabica is grown at higher altitudes, is more sensitive to pre-harvest conditions, and is more valued than Robusta, due to flavor. However, the higher caffeine content of Robusta means it is favored as a cheap substitute for commercial instant coffee blends. Approximately 70 percent of world export volume is raw coffee beans to be processed into instant coffee, and 95 percent of Vietnam’s coffee product is unroasted Robusta bean also for this purpose. Vietnam’s marked growth in coffee production accounts for the increase in world trade and production in Robusta.

5.2 Production and Trade

As shown in Figure 5.1, Vietnam’s coffee sector has experienced rapid output growth, increasing at an average rate of approximately 12 percent per annum over the last 15 years. As a result, Vietnam’s share of the export market has grown considerably (approaching 17 percent) and export value has risen by an average of 25 percent per annum over the last 10 years. This growth accounts for most of the increase in world production and trade in Robusta. Nearly all of Vietnam’s coffee exports are dry-processed green beans of relatively low quality. The remaining 5 percent are exported as ground, roasted or instant.

\(^{31}\) 2011/12 Crop Year (CY), International Coffee Organization (ICO).
Vietnam exports to more than 70 countries and territories, including leading importers in the EU and North America. The United States and the European Union are the main destinations for coffee exports, accounting for nearly 50 percent of world export volumes and these markets also represent the main destination countries for Vietnam’s exports as well. Figure 5.2 shows the key destinations of Vietnam coffee export during the 2000-2010 period.

The Vietnamese Ministry of Agriculture and Rural Development (MARD) estimates that coffee exports from Vietnam reached 1.25 million tons in 2011, up 2.7 percent from 2010. The export price rose about 45.8 percent to US$2,193 per ton. For 2012, trade is expected to drop to 1.1 million tons, with revenues reaching US$2 billion, implying about US$1,820 per ton in FOB prices. According to UN Comtrade data (2010), Brazil remains far and away the world’s largest coffee exporter, accounting for 20.54 percent of the total coffee exports in 2010. While Brazil produces both natural Arabica and Robusta, exports are mainly the higher value Arabica. Vietnam is the four largest coffee exporter in 2010, with a 6.78 percent share of global coffee exports. As Figure 5.3 indicates, Vietnam maintains its position on the basis of volume, largely of the cheaper Robusta variety. Nevertheless, Vietnamese production growth remains impressive – from under 300,000 tons in 2002 to over one million tons in 2011 (ITC 2012).
Coffee is mainly grown in the Northern mountain region and Central Highlands of Vietnam (Table 5.1). The latter area is well suited for growing Robusta and has provided large areas for planting and reasonable yields. The area of Robusta accounts for more than 95 percent of the total cultivated area. The region's coffee area and volume account for 91 percent of Vietnam's coffee area and 93 percent of Vietnam's coffee volume. Arabica is mainly grown in the Southern Central region and Northern mountain region due to their altitude, but these regions offer small available area and output.

High coffee prices in the 1990s prompted farmers to raze forest and rush into planting trees without suitable land for cultivation. These practices, coupled with excessive soil exploitation and the practice of harvesting unripe coffee beans, have reduced yields and quality and threaten sustainable development in the sector. Currently, 25-30 percent of the planted area, almost 140 thousand hectares, has old-growth coffee trees that need to be replaced. These factors will make it difficult to maintain the rapid growth in output.

With the increasing growth rate came problems with the quality of both the parchment (i.e., coffee beans...
with the parchment-skin layer still on) and green beans. The former are graded in terms of sieve size and percentage substandard. The quality is affected by poor sorting (size and color), post-harvest procedures (processing technology), and limited drying facilities.

In Vietnam, there are nearly 100 processing plants, with annual capacities ranging from 5,000 to 60,000 tons of coffee beans. Most of the plants use dry processing with domestically-produced processing equipment. The output has relatively high proportions of black and broken beans as well as a high percentage of impurities. Also, the moisture content is high, creating problems with mold contamination. Contributing to the low quality is the fragmentation of the supply chain and the lack of coordination between mills and farms. Another factor is the lack of working capital, which limits the scale of the collection activity and the potential for backward integration from the processor to the farm.

5.3 Structure of the Coffee Industry

Vietnam’s main contribution to the coffee supply chain is at the primary level of farm production. Many of the country’s coffee farmers have land property rights and run small-to-medium sized family-operated farms of 2 to 5 hectares. Another 10-15 percent of coffee-producing households are tenant farmers for state-run plantations and private companies. A third group of farmers do not have assigned property rights but cultivate unused or forested land. The households of the third group are a more affluent segment of operators and constitute more than 50 per cent of the coffee farming producers in Vietnam.

Harvesting and the post-harvest processing are largely undertaken by farming households themselves, and quality control is a critical issue at these stages. Generally speaking, the Vietnamese coffee sector follows two main process paths post-harvest (Figure 5.4). In the first, coffee is simply harvested and traded as green beans that are then sold, usually through domestic middlemen, to international traders. These traders then sell to roasters who prepare the beans for sale to different retail outlets. When harvesting, Vietnamese farmers often pluck all the berries on each branch, and do not distinguish between ripe berries and green ones in order to achieve higher productivity.

A majority of farms will put the beans through a drying process. This involves drying the coffee “cherries” (i.e., the berries of the coffee tree) in the sun for up to four weeks following harvest, remove the pulp layer, and having the resulting parchment sent to the mills. The method yields about one ton of parchment from about 4.5 tons of coffee cherries. It is also the favored method because it is relatively cheap and easy, and the product obtains a better price. Few farmers will have access to more reliable machines for post-harvest processing but the broad reliance on the sun-drying method can be problematic particularly in wetter harvest seasons as the possibility of mold can compromise the quality of the product and, in more severe cases, result in toxic contamination of Ochratoxin (OTA).

The parchment is purchased at the farm-gate by collectors who provide road transport from the farm and sell it to the buying agents who then transport it to the mill. Green beans can then be extracted from the parchment. The buying agents also purchase recently-harvested cherries for delivery to mills that have capacity for wet processing. The buying agents are private companies operating at the provincial or local level. Most have contracts with mills or are subsidiaries of companies owning mills.

As such, the principal transactions occurring in the coffee supply chain are: (i) purchase of parchment from the farm by the collector or buying agent, generally on a cash basis; (ii) sale of parchment by the buying agent to the processor on a cash basis; and (iii) sale of the green beans to the foreign trader under FOB terms with an advance and sight draft.

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32 For plants using wet processing, better quality equipment is imported from Brazil. Also various mills have introduced sorting equipment from Japan.
The span of control of the exporters varies from simple trading of beans produced by others to total integration from plantation to retail outlet. The various opportunities for integration in the inbound and outbound supply chains are shown in Table 5.2. The first column reflects the situation of most farms while the second applies to the few growers’ associations.

### Table 5.2: Examples of Integration of Supply Chain Activities

<table>
<thead>
<tr>
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<td>√</td>
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</tr>
</tbody>
</table>

*Source: TTFA Survey and Authors.*
Columns 3 to 5 apply primarily to international organizations. Currently, most of the large international traders are expanding their activities in Vietnam as a result of reductions in barriers agreed to as part of the WTO agreements. However, it is not expected that they will extend their involvement to the production of green beans.

Vietnam has a few integrated food and coffee companies that operate in the last two columns. These include domestic and international companies, the most notable being Nestlé and Trung Nguyen. Nestlé trades some beans but its primary activity is the production of instant coffee. Local producers of instant coffee include Highland, Trung Nguyen, and Vina cafe. Olam and Ngon Coffee have also recently invested in production facilities for instant coffee. Most of the local integrated operations involve state-owned enterprises, which have better access to capital.

The challenge for the processors is to obtain sufficient working capital to cover the cash-to-cash cycle and to maintain sufficient inventory to fulfill orders. The problem of working capital has been exacerbated by high interest rates and the government’s decision to restrict borrowing in order to limit credit growth. This policy, combined with an increase in domestic prices to a record of US$2,468 per ton in May 2011, caused farmers not to honor contracts. As a result many exporters had to delay and sometimes default on shipments, which caused the banks to reduce loans to those exporters. This had a flow-on effect of causing leading roasters to buy in the international commodity markets at a higher price and to reconsider their future sourcing of coffee beans. This allowed the international trading companies to increase their share of exports. 33

A variety of trade finance is available to coffee growers. However, most of this is only accessible to the larger growers. The most common sources of trade finance are pre-shipment financing, advances against actual stock holdings, and the short-term financing of the goods during processing for export and shipment. Pre-shipment finance is only available when the goods are lodged for shipment or when the shipping documents are available. Longer-term financing is available to exporters with long-term supply contracts with large roasters and they can borrow internationally at lower rates.

A coffee trading floor, Buon-Ma-Thuot Coffee Exchange Centre, was established in the Central Highlands. There its members place bid or ask orders for standardized coffee and a minimum order size. The financial transactions are processed though a designated clearing bank. The seller’s coffee is then stored in a designated warehouse with warehouse receipts issued. The exchange has also appointed a quality inspection company. Eventually, 20 companies registered. However, the trading volumes have been thin. The exchange is now being converted to an open auction.

The firms surveyed export green coffee beans to the EU, United States, and Asia. About 80 percent of the beans are Robusta, used primarily for producing blends and instant coffee. When an order is confirmed, the exporters buy parchment for milling from traders and collectors. Typically, the parchment is delivered in 1-7 days. Payment is made when the parchment is ordered or when it is delivered to the factory.

**Transportation**

Ninety-three and one-half percent of the exported coffee was planted in the Central Highlands. The map in Figure 5.5 shows the output levels (denoted in shades of blue) of coffee production in the provinces in the Highlands. Coffee is mainly transported on roads from growing areas to ports or ICDs in HCMC and Dong-Nai. There are two main routes connecting Central Highland provinces to HCMC, consisting of the NH14 and the NH20. (See Table 5.3 for more details).

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The 2010 survey found that 88.5 percent of exported coffee was shipped through ports in HCMC. As shown in the bar chart in Figure 5.5, in 2010, 67.4 percent of the total volume of exported coffee had been cleared by Vietnam Customs at seaports, 22.1 percent at ICDs in HCMC and Dong Nai, 0.2 percent at road border gates, mainly to China, and 10 percent by other border gateways.

**Table 5.3: Main Domestic Transport Routes**

<table>
<thead>
<tr>
<th>Road</th>
<th>Section</th>
<th>Length</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>NH14</td>
<td>Kon-Tum – Binh-Phuoc</td>
<td>581</td>
<td>III</td>
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<tr>
<td>NH20</td>
<td>Dong-Nai – Da-Lat</td>
<td>268</td>
<td>III, IV</td>
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<td>NH51</td>
<td>Dong-Nai – Vung-Tau</td>
<td>73.6</td>
<td>I</td>
</tr>
<tr>
<td>NH13</td>
<td>HCMC – Binh-Tau</td>
<td>142</td>
<td>III</td>
</tr>
</tbody>
</table>

Source: Corridor Analysis, TDSI 2012.

The 2010 survey found that 88.5 percent of exported coffee was shipped through ports in HCMC. As shown in the bar chart in Figure 5.5, in 2010, 67.4 percent of the total volume of exported coffee had been cleared by Vietnam Customs at seaports, 22.1 percent at ICDs in HCMC and Dong Nai, 0.2 percent at road border gates, mainly to China, and 10 percent by other border gateways.

**Figure 5.5: Exported coffee Movement Flow, 2010**

Source: Freight flows data provided by TDSI.
Traffic volumes on the main domestic transport roads are now at a moderate level, given their capacity of 18,000 PCUs/day. Traffic surveys at Bao-Loc station (Km108+800 NH20) found traffic to be 9,000 PCUs/day. However, NH13 and NH1A, the connecting routes from NH14 and NH20 to HCMC, show large traffic volumes, especially those on NH1A. 2011 traffic data surveys show that at Dong-Nai station, the traffic volume was over 150,000 PCUs/day, with more than 20,000 heavy over-3-axle trucks. When transiting to HCMC, vehicles mainly travel along the Ha-Noi highway – Nguyen-Thi-Dinh road to Cat-Lai port, causing severe traffic congestion on this road.

The costs of road transport from the Central Highlands to HCMC now range between 260-400 US$/TEU. Besides the standard operating costs, companies must pay additional costs at road control stations due to charges for overloading, poor quality vehicles, etc. Transport time from the Central Highland provinces to HCMC is approximately two days. The time over which freight is stored at ICDs prior to loading onto a ship depends on the shipping schedule and the volume of the export Bill of Lading.

Cat-Lai port is the main port for coffee exports. Vietnam’s shipping routes for coffee exports include international routes to European countries, to the United States and to Korea, Japan and other ASEAN countries, often using large ships over 10,000 DWT, with transshipment mainly at Singapore or in Hong Kong SAR (China) ports.

International shipping costs depend on the routes and the ship tonnage: from HCMC ports to the United States costs between 2200-2500 US$ per TEU; to Europe costs are between 1500-2500 US$ per TEU; and to Korea or Japan the cost is between 900-1200 US$ per TEU. Transport takes about 30-40 days to the United States, 25-35 days to the EU and about 7-10 days to Japan under normal conditions.

Figure 5.6 shows projected flows of coffee exported by 2020 based on the 2020 Coffee Export Strategy. The strategy focuses on increasing value-added processing of exported coffee products by enhancing the levels of in-country processing, promoting investment by the processing industry from coffee beans to coffee end-products, and diversifying the types of coffee-related products and distribution channels.

The strategy made a forecast of the exported volume of coffee based on the total area of coffee plants (500,000 ha with productivity 2.4 ton per ha), and the total capacity of processing industry coffee (from 120,000 to 130,000 ton products per year). It was forecasted that between 2011 and 2015, the export of coffee beans and processed coffee will increase at an average rate of 8.6 percent per year, with a value for exported coffee beans of 2500 US$ per ton. Exports will total 1.1-1.2 million tons per year, with an increase in value from US$1.85 billion in 2010 to US$2.8-3 billion in 2015. Between 2016 and 2020, the price of exported coffee beans is forecasted to reach about US$3,000 per ton. It was projected that the export of coffee beans will reach around 0.9 million tons with a value of about US$2.7 billion, with an addition of 0.25 million tons of roasted, ground and processed coffee with export value of about US$1.1 billion. Thus, the value of Vietnam’s exported coffee products will amount to around US$3.8 billion by 2020.

This projection is also based on increased value addition in the coffee supply chain and other industry potential including the possibility to improve productivity of coffee plantations and enhanced competitiveness of Vietnamese coffee products in the global market.

It was assumed that by 2020, road transportation will continue to be the sole means to carry the finished coffee product from producing provinces to main ports currently serving as key international gateways for exported coffee. As ports in Vung-Tau develop transshipment potential, it is expected that exported coffee will be transported from storage in Bien-Hoa – Dong-Nai ICD via NH51 to these ports for export in the future. In addition, as planned in the Port Development Plan – Group No.3, it is expected that Quy-Nhon port will emerge as an additional gateway for export coffee; in this case, part of the exported coffee would be transported using the traffic route NH19 from Gia Lai to this port.
It is foreseen that the United States, Germany, Italy and Japan will remain the major destinations for Vietnam’s coffee through 2020. Vietnam is projected to maintain its market share for coffee exports in the 10 other main countries and is expected to continue exporting to the 80 countries around the world which currently import Vietnamese coffee.

**Figure 5.6: Exported Coffee Movement Flows by 2020**

Source: Freight flows data provided by TDSI.
5.4 Development Strategies for the Sector

The principal objective of Vietnam’s coffee trade over the last decade has been to increase its share of the global trade in Robusta by increasing both the area planted and the yield. The country has had remarkable success in achieving this objective, but growth is expected to slow in the future. For example, the Vietnam Export and Import Strategy to 2020 forecasts that export of coffee beans and processed coffee will slow to an average growth rate of 8.6 percent per year between 2011 and 2015. Going forward, it is recommended that the objective be changed to increasing value-addition exclusively rather than combining it with volume. This strategy would have four components: (i) increasing the quality of green bean exports; (ii) improving capacity in downstream processing of the beans; (iii) delivering value to farmers; and (iv) improving the performance of the primary trade corridor.

The quality of Robusta, unlike Arabica, is less dependent on growing conditions and cultivars than on post-harvest processing and quality control. Therefore, there is considerable potential for productivity improvements to the green bean product. This first component requires restructuring the inbound supply chain in order to: (i) increase the scale and efficiency of collection activities; (ii) simplify transactions and convert from a system of spot market purchases of parchment to a system of contracts for procuring parchment and cherries; (iii) improve solar drying and increase the use of wet processing; and (iv) integrate quality control activities (specifically sorting and grading) at critical points in the supply chain.

Complementing this effort would be changes in the outbound supply chain, including: (i) improving storage and inventory management; (ii) increasing order fulfillment; and (iii) requiring exporters to be millers.

The second component -- adding value through downstream processing -- would involve expansion in four processes: roasting and blending, decaffeination, preparation of soluble coffee, and retailing. These would be used for products sold in the domestic market and to neighboring countries, but would be less effective for sales to overseas markets. Nevertheless, the local markets are more accessible, the logistics are simpler and the cash-to-cash cycles are shorter. Foreign markets are more difficult because of the additional investment required in marketing and distribution, the higher level of competition from major international companies, and the risk associated with operating in a foreign business environment.

The third component -- delivering value to farmers -- is necessary to ensure that the farmers do not switch to other crops that appear to offer more profits, since it is difficult to switch in and out of coffee production. It requires simplifying the supply chain linking farms to mills, introducing production contracts in place of spot purchases, and providing the farmer with better information on opportunities to improve production and the market prices for cherry and parchment.

The final component includes additional improvements in transport and trade facilitation. Although there have been significant improvements in recent years, more are needed to reduce delivery times and costs, and improve reliability of delivery. Rather than approach these as separate initiatives, an effort should be made to provide an efficient corridor, linking the farms and mills with terminals for general cargo and container shipments. This could include enhanced procedures for testing and clearing exports, which could be performed at the mill rather than at the port.

34 There is some distinction between Robusta beans based on the origin. For example, there is current preference for African (Uganda, Congo, Guinea India, Madagascar) and Asian (India and Laos) beans, but it is unclear if this is related to taste or to scarcity.
35 Implicit in this component is to encourage the formation of growers associations and large-scale agricultural producers, which would include coffee plantations, however, this is will occur naturally need not be given priority.
36 Coffee plants require 5-7 years after planting to achieve full production.
5.5 Strategy Implementation

Efforts to implement this strategy would build on current private sector initiatives to improve the quality of the beans exported and the downstream processing of the coffee beans. The government could contribute to this effort by introducing a sector policy that focuses on value addition and by coordinating with the private sector in introducing financial instruments to address the requirements for capital investment and additional working capital.

The principal challenge will be to restructure the supply chains linking the farms and the mills, beginning with changes in procurement of parchment and cherries. The current system of small collectors purchasing at the farm-gate needs to be replaced with farmers groups selling both cherries and parchment directly to the mills. The proportion of cherries would increase together with an increase in wet processing while the quality of the parchment would increase through improved solar drying and pulping. The mills would introduce contracts to ensure regular supply and strengthen enforcement of these contracts through prices linked to the spot market and financial obligations secured through domestic letters of credit. The mills could also provide technical assistance for replanting older plants and increasing the yield of existing plants.

Capital investments for upgrading the processing of parchment, increasing the capacity for wet processing of cherries, and introducing steam treatment for green beans\(^{37}\) could begin prior to restructuring the inbound supply chain, but major investments should only occur when the restructuring is well underway. At this point, the mills would also need to develop new distribution channels to supply roasters and retailers with green beans throughout the year. Capital investment for downstream processing, to produce roasted blends and soluble coffee for retail outlets in local and regional markets, could occur on a parallel track.

Other financial instruments that could help develop the sector include: (i) lines of credit for domestic exporters backed by non-negotiable Letters of Credit from the buyer or warehouse credits; (ii) loans to growers’ associations to improve post-harvest processing, encourage replacement of older cultivars, and promote efficient use of agro-inputs; (iii) domestic letters of credit used to guarantee delivery to the mills by the growers’ associations; and (iv) commodity futures to be used together with contracts for green beans that include a clause for adjustment of the selling price.

A possible source for these instruments is on-lending from Multinational Development Bank (MDBs).\(^{38}\) Other initiatives that will require government participation are: (i) selection of land suitable for coffee growing to be included in the national land allocation plan as agricultural land; (ii) enforcement of international standards for coffee exports in a manner that will facilitate the clearance of coffee exports. This would include the use of certified private testing labs in the approval procedure; and (iii) identification and elimination of key bottlenecks along the corridors that serve the coffee trade as soon as possible.

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\(^{37}\) Steam-treatment has increasingly been used to treat Robusta green beans to make a milder coffee with some ‘acidity’. This allows roasters increase the percentage of Robusta in their blends.

\(^{38}\) MDBs includes World Bank, Asian Development Bank, and Inter-American Development Bank. An example is the proposed US$55 million loan facility to be provided by IFC to the commodity trader EcomAgro industrial. This would be used to finance working capital for inventory and advances to suppliers for its coffee operations in Africa and Asia and its cocoa operations in Indonesia and Papua New Guinea.
6.1 Introduction

Seafood is one of Vietnam’s six major exported commodities, and is an important contributor to economic growth and incomes, nutrition and rural development. In 2010, the value of exported seafood was above US$5 billion, more than 1.5 times its value in 2006. The growth of the industry is broadly consistent with global trends, namely the rise of fish farming around the Mekong Delta and some inland areas, and the decline of marine capture due to the effects of overfishing. In 1990, Vietnam represented a mere fraction of the world’s aquaculture output but has grown that share to over 3 percent in 2010. The success of its seafood cultivation is in part due to a targeting of specific species for export. Tiger Shrimp and Pangasius represent two-thirds of production and value; however, this concentrated dependence on two species can also raise economic risks.

6.2 Production and Trade

Vietnam’s strong growth in production of seafood over the last two decades is attributable to the increased activity in aquaculture. In 2010, 52 percent of the 5.2 million tons of fish and shellfish produced were cultivated in aqua-farms (Figure 6.1).
The percentage of production that was exported had been declining up to 1997, when it was only 7 percent. Since then, the value of exports has increased eight-fold. The percentage exported reached 26 percent in 2010, when 1.35 million tons with a value of US$5.03 billion were exported. These exports included US$2.11 billion of shrimp, US$1.44 billion of Pangasius (i.e., Striped Catfish), US$0.49 billion of mollusk, and US$0.29 billion of tuna.

While the growth in exports of Pangasius was steady up through 2008, it dropped off as a result of trade restrictions in major markets. The exports of shrimp have also fluctuated due to various factors discussed below. Vietnam ships its seafood products to over 160 countries but three major importers accounted for 61 percent of the value, as shown in Figure 6.2, with Germany and the UK being the most prominent European destination markets.

**Figure 6.1: Vietnamese Seafood Production (by Source), 1990-2010**

![Vietnamese Seafood Production](image)

**Source:** FAO.

**Figure 6.2: Key Destination Markets for Seafood Exports (by Value), 2000-2012**

![Key Destination Markets](image)

**Source:** UN Comtrade.
Most of the growth has been as a result of the increase in production of white-legged shrimp, which were only recently introduced. Vietnam has traditionally produced Black Tiger shrimp, but the White-Legged shrimp provide better income more quickly.\textsuperscript{39} In 2010, exports rose to 241 thousand tons due in part to the collapse of Mexican exports following the oil spill and the global recovery in the demand. The increase in the value of shrimp exports was more dramatic because of a rapid run-up in the price of shrimp. As a result, shrimp became the major source of revenue from seafood but are a much smaller contributor in terms of volume (Figure 6.3).

![Figure 6.3: Shrimp and Pangasius Export Volumes and Values, 2003-2009](source: FAO)

Japan is the leading destination for shrimp (Figure 6.4): approximately 30 percent of exports are shipped there and Vietnam has a 20 percent market share in Japan despite strong competition from Indonesia, Thailand, India, and China. Another major destination for shrimp is the United States, and Europe is a growing market as a result of declining domestic fisheries industries. Most of the demand is for processed shrimp (i.e., peeled and/or deveined). About 65 percent of the total shrimp exports are either fresh, frozen, or dried whereas 35 percent are processed. Competition focuses on quality, including freshness and freedom from bacterial contamination.

Vietnam is by far the world’s largest producer of Pangasius, a popular low-value generic fish product. Other producers are Thailand, Cambodia, Lao People’s Democratic Republic, Myanmar, Bangladesh and China -- but Vietnam produces about 90 percent of the global production of Pangasius. Its production increased from about 160 thousand tons in 2003 to 1.3 million tons in 2008 and has since fluctuated between 1 and 1.4 million tons. Most of the production is exported as fillets, with current annual volumes fluctuating around 700 thousand tons. Approximately one-third of all Pangasius exports are shipped to the EU but otherwise the import markets are quite diversified with the top ten importing countries accounting for only 43.5 percent of tonnage and 42.5 percent of value.

\textsuperscript{39} The quality of Asian white shrimp (P. Vannamei) is the same as Black tiger shrimp (P. Monodon), but the former is more profitable. As the result, Viet Nam’s black tiger shrimp is in danger of being weeded out from import contracts as has happened in Thailand.
An increasing proportion of Vietnam’s processed seafood product is imported from Scandinavia as frozen whole fish then processed and then re-exported to East Asia. This trade has been important to increasing the level of utilization of factories that were unable to secure sufficient supplies of local seafood.

6.3 Structure of the Seafood Industry

Vietnam’s seafood industry is highly competitive. There are several thousands of farmers engaged in aquaculture together with a large number of traders purchasing fish at the farm-gate. There are also a significant number of fishermen still engaged in maritime fishing. The raw material intended for export is processed at approximately 455 plants. Margins are thin throughout the seafood supply chain and there is significant excess capacity due to the limited local supply. In order to increase plant utilization, a number of processors import whole fish from Northern Europe for export to East Asia.

The structure of the inbound and outbound supply chains for the sector is shown in Figure 6.5, which depicts the major activities for the three major sources of inputs and five distribution channels for the outputs. The principal intermediary in the supply chain is the collector -- who arranges the procurement and delivery of marine and freshwater catch from the wholesale market and aquaculture production from the farm; however, it is the processors that are the focal points and most powerful actors in seafood production, accounting for three quarters of the total net value added in the chain.

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Figure 6.4: Shrimp Destinations by Value, 2009

Source: UN Comtrade / ITC.

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40 One estimate is that plants are operating at about 30 percent of capacity.
There are a large number of state-owned processing plants, many owned by provincial People’s Committees. However, the proportion of privately-owned factories is increasing and most of the large plants are privately owned. Foreign investors come from northern Europe as well as from the Asia Pacific region, including China. There is also foreign investment in upstream activities, for example CP Foods of Thailand has invested in farms and feed plants for shrimp. There are also investments from Japan in state-of-the-art premises to produce high-end seafood for the Japanese market.42

Most exporters are owners of processing plants. However, there are still a sizeable number of traders. In 2010, there were 341 shrimp exporters (including 149 White-Legged shrimp exporters and 163 Black Tiger shrimp ones). For Pangasius, there were 290 exporters shipping to 140 markets. The ten largest exporters ship approximately 13 percent of the export tonnage, mostly of which are higher value products, and account for about 20 percent of the value.

Most of the exports are sold to foreign wholesalers and retailers in a wide range of countries. The wholesalers are generally limited to specific geographical areas while the seafood retailers are small to medium enterprises and are not part of the larger chains. As a result, the distribution of exports is highly fragmented.

Competition among suppliers is based on quality and cost of production. The price of raw materials typically accounts for 70-90 percent of the cost of producing the exported product. The price for the exports is based on international prices. Thus, a small change in the cost or the quality of the raw material has a significant

42 Mike Urch, SeafoodSource.com, 26 September, 2011.
impact on competitive advantage in the world market. The challenge for the fish farmers and fishermen is to continually increase yields through more efficient use of inputs and reduction in post-harvest losses, while the challenge for the processors is to deliver quality and meet health standards at a competitive price.

The business model used by the processing plants is that of a stand-alone production facility, which can be differentiated by the type of seafood they process, the source of their inputs, the markets to which they sell, their contractual relationship with the fish farmers and fisherman, and the extent of processing as shown in the matrix in Table 6.1 below.

The processor produces seafood ready for sale at grocery outlets and food services or semi-finished products to be further processed just prior to retail sale. The larger processors do their own marketing and sales while the smaller processors rely on exporters. Exporters are also used to reduce the commercial risk and mitigate or quarantine health risks for the processors.

The involvement of the processors in the activities of their inbound and outbound supply chains varies. On the inbound side, processors generally purchase raw material from collectors under their employment or who operate as independent buyers. For marine catch, the collectors purchase the fish at the wholesale market but may also contract boats to secure their catch. For aquaculture, some of the larger plants establish supply contracts with larger farms or farmer groups and in some cases establish their own farms. For the imports of frozen whole fish, plants have long-term contracts with their foreign suppliers.

The involvement of the plants in the outbound supply chain is generally limited to loading the frozen products into containers and arranging for transport to the loading port. Some of the larger, foreign-owned processing plants are also involved in arranging international transport, downstream processing, and distribution, especially for shipments to East Asia.

The firms compete in terms of both quality and price. In order to increase trade volumes, they are expanding into new markets and developing new distribution channels. To increase value, they plan to invest in new equipment and to diversify the species they process. There is also interest in exporting ready-to-eat seafood but as of yet, only one firm that exported table-ready (pre-cooked) seafood was identified.

### 6.3.1 Transportation

Figure 6.6 shows traffic flows of seafood. The Mekong Delta is the largest seafood production region in Vietnam, accounting for 72 percent of production from hatcheries and 41 percent of seafood catches. The North Central Coastal region accounts for 39 percent of catches. The Mekong Delta is also the focal area for seafood export enterprises, accounting for 70 percent of the total exported volume from Vietnam. Provinces having the highest seafood export values in 2010 were Ca-Mau, Soc-Trang, Can-Tho, Dong-Thap, and HCMC.
Broadly speaking, exported seafood is mainly transported by road between the Mekong Delta and HCMC and the Central region to HCMC and mainly shipped by sea. In 2010, 91 percent of the total exported seafood was shipped through ports in HCMC, 4.6 percent of the total was shipped through other ports such as Hai-Phong, Da-Nang, Quy-Nhon, etc., 1.8 percent by air via Tan-Son-Nhat International Airport, and 2.6 percent via road through border gates in Quang-Ninh and other areas.43 (See the bar chart in Figure 6.6).

Table 6.1 shows the domestic traffic routes for exported seafood. The section of NH1A from Can-Tho to HCMC is the most important and has very high traffic volume. Survey data from 2010 showed that at Tan-An station, the traffic volume was 56,700 PCUs per day. Although the road had been widened to Category 2 (4 lanes), in rush hours the road was overloaded. The opening of the HCMC – Trung-Luong expressway has contributed to a reduction in traffic jams on NH1A, but the road tolls per vehicle per km are considered quite high. In order to reduce costs, heavy trucks therefore travel on NH1A, causing traffic jams. The Nguyen-Van-Linh road – Phu-My Bridge and the Ha-Noi highway – Nguyen-Thi-Dinh road connecting to the NH1A from the Mekong Delta and the Central region going to Cat-Lai port are often congested, increasing the delivery time for transiting freight to the port.

43 According to the General Department of Customs of Vietnam.
After being processed at factories mainly in the Mekong Delta, exported seafood is transported by freezer trucks to the stores located HCMC, and containerized for transport to the ports. Only small volumes of seafood products from the area near HCMC are directly transported by freezer containers to the ports for shipment. Transport costs from the Mekong Delta to storage facilities in HCMC are between 15 to 20 US$ per ton depending on the distance. Transport costs from the storage facility to the port are about 200-250 US$ per TEU. Travel time from Ca Mau to HCMC is about 10-12 hours.

The major destinations for Vietnam’s exported seafood are the EU (26 percent), Japan (18 percent), the USA (17 percent), and Korea (7 percent). The main international shipping routes from ports in HCMC are to Europe, the United States, and to Japan - Korea. To Europe and the United States, large ships with capacity over 10,000 tons are often used, transshipped through Singapore or Hong Kong SAR (China). This result in longer travel time and higher travel cost compare to no-transshipment traffic routes. It takes about 30-40 days to reach the United States, about 25 - 35 days to Europe, and about 7-10 days to Japan or Korea. International sea transport costs depend on the routes and the ship tonnage: it costs between 2200-2500 US$ per TEU from HCMC ports to the United States, 1500-2500 US$ per TEU to Europe, and 900-1200 US$ per TEU to Korea, or Japan.

### Table 6.1: Main Domestic Transport Routes

<table>
<thead>
<tr>
<th>Route</th>
<th>Section</th>
<th>Length (km)</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
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<td>NH1A</td>
<td>HCMC – Ca-Mau Section</td>
<td>379</td>
<td>I - III</td>
</tr>
<tr>
<td></td>
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<td>1588</td>
<td>I-V</td>
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<td>NH30</td>
<td>Dong-Thap – Tien Giang</td>
<td>119</td>
<td>III</td>
</tr>
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<td>NH61</td>
<td>Hau-Giang – Kien-Giang</td>
<td>96</td>
<td>III - V</td>
</tr>
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<td>My-Thuan Bridge – Ha-Tien</td>
<td>217</td>
<td>IV</td>
</tr>
<tr>
<td>NH91</td>
<td>Can-Tho – An-Giang</td>
<td>142</td>
<td>III</td>
</tr>
</tbody>
</table>

Source: Corridor Analysis, TDSI 2012.

6.3.2 Forecast for Seafood Export

According to the 2020 Vietnam Export and Import Strategy and the 2020 Seafood Industry Development Strategy, export-based seafood development will focus on new high-quality products, more-value-added products, developing and protecting brand names, diversifying markets to disperse risks, dealing with trade barriers, and protecting fair competition.

Vietnam’s seafood volume is projected to increase by an average rate of 6-7 percent per year in the period from 2011-2015. The total volume is expected to increase from 5.2 million tons in 2010 to 7-7.2 million tons by 2015. During the period from 2016-2020, seafood volume is forecasted to increase, on average, about 5 percent per year, accompanied by a sizable increase in the rate of frozen and canned seafood production and export. Currently, the main difficulties in the seafood sector are that other countries are applying trade protection actions, technical barriers, and strict quarantines. Additionally, foreign countries regularly issue new and stricter standards on antibiotic residues and food hygiene safety. Weaknesses in international marketing and lack of qualified managers as well as labor are also problems for the seafood sector.

With regards to seafood production and export from the delta and coastal regions, the goals of the 2020 plan are to maintain the size of the fishing areas and also to keep stable the population of fish in the wild. In the Red River Delta region, the primary goal is to develop industrial hatching areas, while promoting
traditional fresh water and brackish water fishing (Figure 6.7). In the Northern Central and Coastal region the main goals are to maintain the development of fresh and brackish water aquaculture in estuaries, coastal, and swamp areas and to also develop a Vietnamese tuna brand name. The South East region’s goal is to develop seafood hatcheries on the sea and in coastal areas and islands. The goals for the Mekong Delta region are to continue developing strong aquaculture capacity and to increase production efficiency by applying advanced technology and new models and standards including Good Aquaculture Practices (GAP), Better Management Practices (BMP), and Code of Conduct for Responsible Aquaculture (CoC).

The overall objectives for Vietnam 2020 are to maintain large market share in the EU, the United States, Japan, and Russia and to expand to other markets to gain market share in China, Korea, the Middle East, Canada, Australia, East Europe, Central America and South America. Thus, production for seafood exports will be mainly concentrated in the Mekong Delta and the Northern Central Coastal region. However, transportation routes will change due to new infrastructure development of specified port complexes. It is expected that by 2020, the capacity of Da-Nang and Quy-Nhon ports will increase to meet the export needs of the Central region, reducing travel time and transport costs from the Northern Central Coastal region to HCMC for exports.

In addition, with the development of the Vung-Tau port complex into an international container transit port, it is projected that a significant flow of goods would come from the provinces of the Central Coastal region and from HCMC via NH51 to the ports in Vung-Tau for export.

6.4 Development Strategies

The seafood industry is the third largest contributor to the country’s trade and generates a substantial amount of employment, especially in rural areas. The sector experienced strong growth over the last decade through expansion of farming activities as well as development of processing plants and diversification into new markets. However, in the future, it will be important to consider environmental constraints on expansion of both maritime capture and aquaculture. Limits on sustainable yields are already restricting the growth of exports of maritime capture and have led to the import of whole frozen fish to meet the demands of the fish factories.

Other difficulties for the sector have been regulatory: trade protections, technical barriers, strict quarantine and new stricter standards on antibiotic residues and food hygiene safety present continuing challenges. The lack of production materials and knowledge is also problematic where there has not been a formal connection (financial advance, better understanding of product requirements) between primary producers and processors.

The Vietnam Export and Import Strategy to 2020 and Seafood Industry Development Strategy to 2020 project that export volumes will increase at the average rate of 6-7 percent per year in the period between 2011 and 2015, and slow moderately to 5 percent per year in the next five-year period to 2020. By 2020, exported catfish and shrimp values are estimated to be US$3.6 billion and US$3.2 billion, respectively.

The strategies have also identified a number of focus areas for sector development. These include focusing on new higher-quality and more-value-added products, the development and protection of Vietnam brands and reputation, diversifying markets to disperse risks, overcoming trade barriers, and promoting fair competition. Maintaining the sector’s growth momentum is also a priority, with directives to work on means of sustainable development such as renewable resources, fisher safety, and the reduction of coastal and offshore fishing.
Figure 6.7: Exported Seafood Movement Flows by 2020

Source: Freight flows data provided by TDSI.
Even with environmental pressures, there is considerable potential for growth in the medium term for aquaculture. This would primarily be through improved management of fish farms, better selection of species for breeding, and selective use of cold chain technology rather than through expansion in the number of farms. Also the transition from Black Tiger shrimp to White-Legged shrimp has begun in order to increase both yields and returns to farmers.

At the same time, there is considerable potential for increasing the value of exported seafood through additional processing and selection of new distribution channels. Therefore, the primary objective for the seafood trade should be to increase the value of exports and the returns to the fish farmers rather than to increase the volume of exports or employment in the industry.

The strategy for accomplishing this objective should be demand-driven and focused on how the market for seafood is changing. In this regard, two trends are important. First, the regulatory environment is becoming increasingly complex with health standards evolving rapidly together with accountability through traceability. Second, retail chains for both groceries and food services increasingly dominate the distribution channels. In addition to the health standards, they have strict requirements in terms of scale of production, uniformity of quality and packaging.

6.5 Strategy Implementation

The Vietnamese seafood industry can address these trends by restructuring the inbound supply chains linking the farms and fish factories. This could include three parallel activities: (i) integrating controls for health standards into the supply chain; (ii) improving management of aquaculture to provide a more reliable supply of fresh seafood and accommodate larger orders; and (iii) introducing value-added processing and diversifying products in order to increase revenue yield from fresh seafood.

The first requires greater collaboration between the industry and Government to improve the process of testing and certification. The private sector should assume greater responsibility for monitoring the quality of seafood moving through the supply chain and performing the tests required for certification. Government could then focus on general oversight of the testing procedures. This activity would build on the increasing application of Hazard Analysis and Critical Control Points (HACCP) systems management in processing plants as well as the adoption of various certification programs based on international standards.

To provide more efficient and effective phyto-sanitary inspections, the responsibility for testing should be transferred to local laboratories that are internationally certified and that offer fee-based tests in a competitive environment. The government should limit its efforts to perform random inspections based on a risk-management approach and focus on working with the industry to introduce basic inspection capabilities at the farm level and eventually at the nurseries and hatcheries.

The second activity requires a change in the relationship between the farmers and the factories, in particular more use of contract farming arrangements. This is necessary to ensure a regular supply of inputs, implement good agricultural practices, and facilitate monitoring of the quality and hygiene of seafood moving through the supply chain. It can also be used to allow factories to accept larger orders. This would accelerate the current trend away from procuring fresh seafood through a network of traders who make spot market purchases from a large number of small farms to the use of supply contracts with a limited number of reliable suppliers.

The third requires investment in processing plants to enhance downstream processing and diversification.

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41 Diseases in the Delta have affected about 25 percent of the area under aquaculture.
of distribution channels to serve niches in both grocery and food services markets. This has already begun with the exports of shrimp in individual, ready-to-eat portions, but additional market research is needed to identify other opportunities. It is also necessary to consider the additional labor skills required.

At the same time, the industry needs to strengthen the capabilities of its members in supply chain management, improve the contractual arrangements between farmers and factories, and increase the transparency of the supply chains. The last is needed not only to improve coordination among the participants in the seafood supply chain but also to improve the performance of aquaculture. To accomplish this, the seafood industry needs to work with relevant government agencies and research institutions to establish an information portal easily and freely accessible through the internet. This could also provide SMS services to farmers. This portal could provide information in five areas: (i) market indicators, including prices for inputs to aquaculture, current market prices for different categories of seafood, and international prices for standard seafood products; (ii) environmental information including weather forecasts; (iii) regulatory information including new health and trade regulations for Vietnam and for major trading partners; (iv) new techniques and efforts to improve control of hygiene and quality and meet international standards; and (v) programs and events relevant to the industry.

It would offer current information from various data feeds and also maintain a searchable archive of articles and research papers relevant to the Vietnamese seafood industry.

The government’s role in these efforts should begin with the preparation of a common vision and policy in collaboration with Vietnam Association of Seafood Exporters and Producers (VASEP) and other industry-related associations. This collaboration could extend to funding market research to identify market niches for higher-value seafood exports and distribution channels that serve these niches. Following on this, individual firms could be encouraged to conduct more targeted product studies.

The most important role for Government remains the development and enforcement of regulations to ensure the quality and safety of the country’s seafood exports. However, as suggested above, this should be a joint effort with the private sector. A related role of Government could be to encourage the principal importing countries to establish local offices for pre-shipment inspections.

Another important government initiative is to take a proactive approach towards technical barriers to trade (TBTs), using local and international research to support the country’s position in trade negotiations as well as in cases brought to the attention of the WTO. This will not only prevent some of the more severe fluctuations in demand, which can have a devastating effect on the fish farming community, but also strengthen the country’s reputation as a reliable supplier.

Finally, the government should continue funding research on species and farming techniques to increase yields and reduce the threat of disease.
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