

## SUPPLY CHAIN TRANSFORMATION UNDERWAY IN SOUTHEAST ASIA

### —PRODUCTION SHIFT DUE TO US-CHINA CONFLICT AND STRENGTHENED RESILIENCE IN RESPONSE TO THE COVID-19 PANDEMIC—

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## SUMMARY

- Production sites in China for export to North America have been shifted to third countries due to China's rising labor costs, tighter environmental regulations, and more recently confrontation with the United States. Southeast Asian countries, particularly Vietnam, have served as alternatives to China for such production.
- US-China relations are likely to deteriorate further amid the coronavirus pandemic. In the United States, political momentum is increasing to decouple or diversify their supply chains from China. Meanwhile, Southeast Asian countries remain promising candidates for production relocation.
- There is also growing momentum to strengthen resilience in the procurement of supplies related to the citizens' lives during the coronavirus pandemic. Against this backdrop, Southeast Asian countries began efforts to expand domestic production of strategic goods, such as medical equipment, pharmaceuticals, and food.

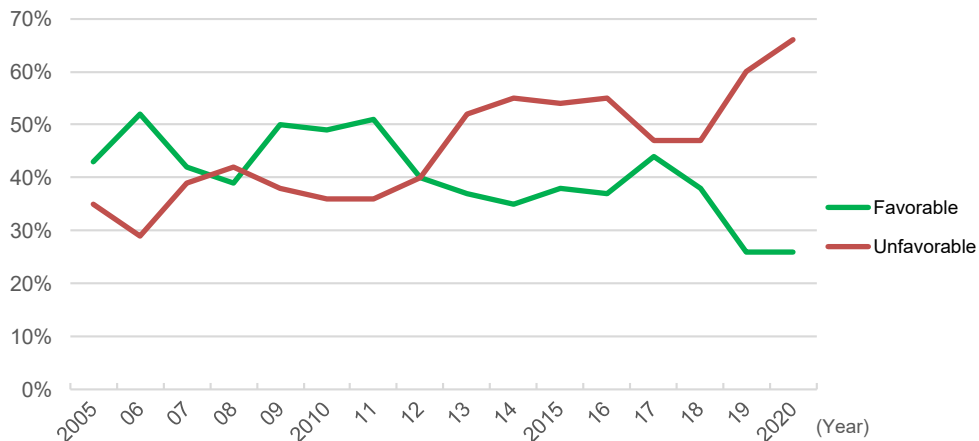
## SUPPLY CHAIN RESTRUCTURING IN SOUTHEAST ASIA

Companies exporting from China to North America have been shifting their production to Southeast Asia due to China's rising labor costs, stronger environmental regulations, and confrontation with the United States. Countries similar to China in the structure of export to the United States, particularly Vietnam, have served as alternatives to China, and have continued to benefit from the US-China conflict. This trend is likely to continue as American public opinion of China has hardened during the coronavirus pandemic (Figure 1), indicating further deterioration of the two countries' relations. As China internationally trumpeted the superiority of its political system with its success in quickly containing the COVID-19 outbreak, US policy-makers have become increasingly concerned that China is using the pandemic to take the US's position in the global order.<sup>1</sup> Under such circumstances, some observers expect greater US congressional support for decoupling or diversifying from China.<sup>2</sup> A recent survey conducted by FTI Consulting shows that 40% of Americans say they "won't buy products from China."<sup>3</sup> A growing sense of distrust towards China has been formed in the United States, which is directed not only at particular Chinese products, most notably Huawei's 5G equipment, but at "made-in-China" products more broadly.

<sup>1</sup> Campbell, K. M. and Doshi, R. (2020) "The Coronavirus Could Reshape Global Order: China is Maneuvering for International Leadership as the United States Falter," *Foreign Affairs*, March 18.

<sup>2</sup> Green, M. J. (2020) "Geopolitical Scenarios for Asia after COVID-19," Center for Strategic and International Studies, March 31.

<sup>3</sup> Murray, B. (2020) "Americans Are Giving Made-in-China the Cold Shoulder: New poll shows 40% won't buy Made-in-China products," *Bloomberg*, May 17; Cheng, A. (2020) "US Consumers Are Less Willing To Buy 'Made In China' Items in Wake Of Coronavirus Pandemic: Study," *Forbes*, June 11.

**Figure 1. US Public Opinion of China**

Note: Percentage of respondents with a "favorable" or "unfavorable" view of China.

Source: Prepared by MGSSI based on Pew Research Center data.

Anti-Chinese sentiment has spread beyond the United States to other countries including Australia, India, and the United Kingdom.<sup>4</sup> As the idea of decoupling or diversifying from China has gained greater currency,<sup>5</sup> the reorganization of international supply chains has now come to be discussed in the context of international security, becoming an important strategic agenda at such forums as Quadrilateral Security Dialogue (QUAD) and Five Eyes.<sup>6</sup> While maintaining production for the Chinese market in China,<sup>7</sup> companies will likely accelerate the relocation of production sites for exports to the United States to avoid the US-China conflict.<sup>8</sup> In this context, Southeast Asian countries such as Vietnam, Thailand, and Malaysia will continue to be leading alternatives for such relocation.

Another trend created by the coronavirus pandemic is a greater policy focus on domestic production of strategic goods. The temporary shortages of medical equipment and pharmaceuticals in many parts of the world have heightened political impetus to place more emphasis on "resilience" than on "economic efficiency" regarding strategic supplies directly linked to citizens' lives. In addition to medical equipment and pharmaceuticals, whose shortages attracted much media attention, there has been increased interest in food security (trends identified by an analysis of major newspaper articles worldwide are shown in Figure 2). Having experienced the suspension of farming activities and slowing of logistics due to outing restrictions, and restriction of agricultural exports by certain countries,<sup>9</sup> efforts to enhance domestic production and shorten supply chains will likely be accelerated in the future, particularly in countries where food self-sufficiency rate is low.<sup>10</sup> In this context, Southeast Asian countries too have launched policy initiatives to strengthen resilience in the procurement of strategic goods.

<sup>4</sup> In May 2020, Australia began discussions with India aimed at restructuring supply chains. The aim is to reduce dependence on China in medical supplies, technology, and mineral processing. Packman, B. (2020) "Coronavirus: Scott Morrison identifies India as major trade partner," *The Australian*, May 19.

<sup>5</sup> Pamuk, H. and Shalal, A. (2020) "Trump administration pushing to rip global supply chains from China: officials," *Reuters*, May 4.

<sup>6</sup> A confidential information sharing network made up of five English-speaking countries.

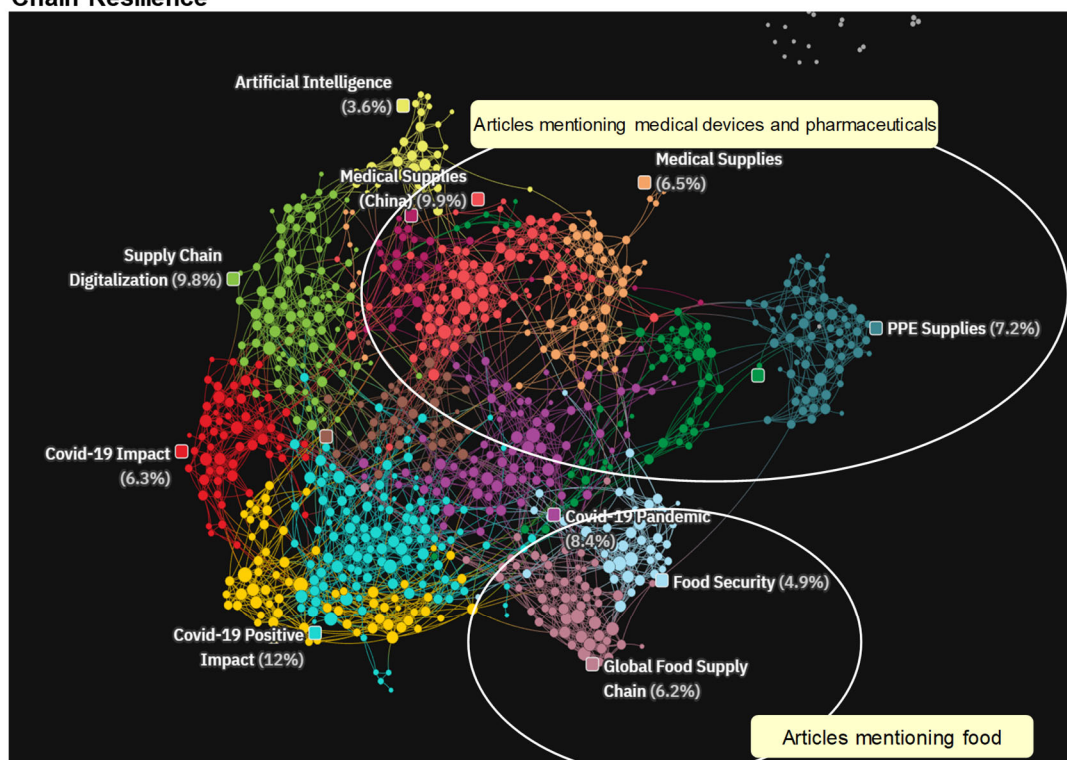
<sup>7</sup> In response to this, China abolished regulations on investment by foreign companies conducting electric vehicle production and implemented deregulation such as allowing majority investments by foreign securities companies. China aims to promote the entry of foreign investment and discourage withdrawal from the market by further highlighting the appeal of the Chinese market.

<sup>8</sup> According to a survey of US companies operating in China, the percentage of companies that think "it is impossible for the two economies to decouple" decreased from 66% in 2019 to 44% in 2020. PwC, AmCham China and AmCham Shanghai (2020) *Supply Chain Strategies Under the Impact of COVID-19 of Large American Companies / Operating in China*.

<sup>9</sup> In Southeast Asia, Vietnam, the Philippines, Myanmar, and Cambodia restricted export of rice, and Thailand restricted export of eggs.

<sup>10</sup> Kurth, T., Walker, D. and Subei, B. (2020) "Sings of Rebound Forecast a New Era for Agriculture," Boston Consulting Group, May 14.

**Figure 2. Distribution of Global Media Topics Concerning Strengthening of Supply Chain Resilience**



Note: Natural language analysis software from QUID was used to extract articles containing keywords such as coronavirus pandemic, supply chain and resilience from among major newspaper articles worldwide during the period from February until July 2020, and then group highly similar articles. The points in the figure represent articles and the lines connecting the points indicate related content (the distance between articles containing similar terms is close). Groups of articles mentioning medical devices/pharmaceuticals or food associated by keywords have discernable presences.

Prepared by MGSSI based on QUID data

## PRODUCTION SHIFT ASSOCIATED WITH US-CHINA CONFLICT

Vietnam, which is in close geographical proximity to China and has relatively cheap labor, has traditionally been the leading destination for companies pursuing the “China Plus One” strategy. Viewing the US-China conflict as an opportunity, the Vietnamese government has accelerated initiatives to attract inbound investment across governmental ministries and agencies under the direction of Prime Minister Nguyễn Xuân Phúc. Vietnam is followed by Thailand, which in September 2019, introduced the new “Thailand Plus” package of measures to attract inbound investment from companies considering relocation from China.<sup>11</sup> In October of the same year, the Malaysian government announced preferential steps for major overseas companies and startups newly investing in the country, approaching each selective investor as a priority target.<sup>12</sup> The Indonesian government is also working to attract foreign investment, though they have fallen behind Vietnam, Thailand, and Malaysia.

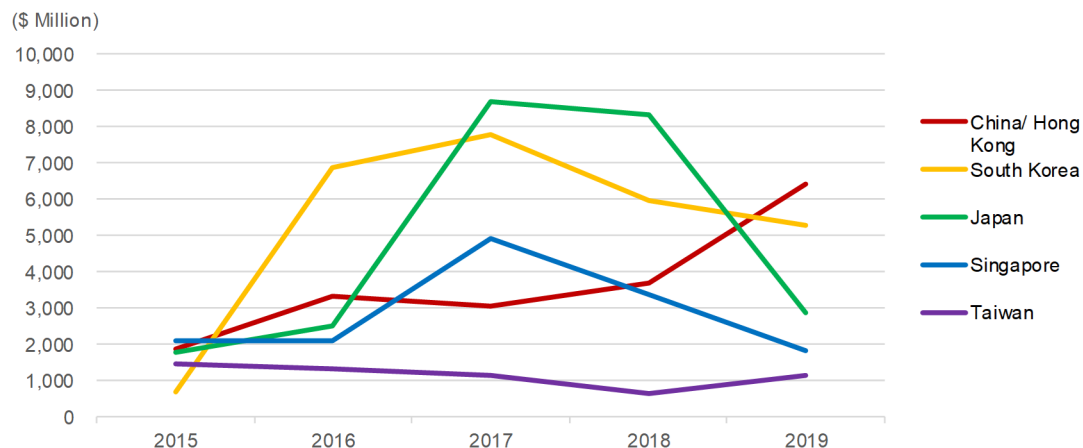
<sup>11</sup> In September 2019, the Thai government approved the new “Thailand Plus” package of measures, including expansion of investment benefits regarding the Thai Board of Investment, special deductions for investment in advanced technologies and innovative production automation, and establishment of an investment steering committee aimed at investment facilitation.

<sup>12</sup> “Thailand and Malaysia implement foreign investment incentives in succession, competing with Vietnam to attract foreign investment,” *Nihon Keizai Shimbun*, November 18, 2019

## Vietnam ahead of competition to invite foreign investment

Vietnam has seen discernable increases in investment from China and Hong Kong (Figure 3). In 2019, China made large investments in tire manufacturing, and so did Hong Kong in the manufacturing of power tools and electronic equipment.<sup>13</sup> The recent pandemic revealed the vulnerability associated with the overconcentration of supply chains in China, further prompting companies such as Google (mobile phone production) and Apple (earphone production) to accelerate the process of production shift to Vietnam.<sup>14</sup> The Vietnamese government, which has had a difficult relationship with China, particularly over security issues such as territorial disputes in the South China Sea, is concerned about the rapid increase in investments from China many of which are related to manufacturing processes with low added value and high environmental impact.<sup>15</sup> Vietnam has placed new FDI applications under greater scrutiny to improve the balance among investment countries, while prioritizing projects that would promote “technology transfer” and be “environmentally friendly”. In this context, Vietnam has high expectations of Japanese companies. For example, Nipro, a major Japanese medical equipment manufacturer, invested \$300 million to build a plant of medical equipment (catheters, infusion sets, and blood circuits) in Saigon High-Tech Park. It was reported that the plant, completed in September 2019, was highly praised by local officials for its excellence in both quality (of the plant) and quantity (of its scheduled production).<sup>16</sup>

**Figure 3. FDI in Vietnam (Five Major Countries, Approval Basis)**



Source: Prepared by MGSSI based on Vietnam's Foreign Investment Agency data

As the production shift from China to Vietnam continued, Vietnam's exports to the United States soared,<sup>17</sup> raising fears that Vietnam might become the next target of the Trump administration after China. In fact, the Trump administration has expressed concern over Vietnam's exports to the United States.<sup>18</sup> To be sure, the trade relations between the two countries need to be closely monitored, though it should also be noted that the United States' relationship with Vietnam is qualitatively different from that with China. While increasingly wary of China as a strategic threat, the United States sees Vietnam as a potential partner to contain the threat.<sup>19</sup>

<sup>13</sup> “Record number of investment approvals in 2019, topped by South Korea,” *JETRO Business Tanshin*, January 27, 2020

<sup>14</sup> Ting-Fang, C. and Li, L. (2020) “Google, Microsoft shift production from China faster due to virus,” *Nikkei Asian Review*, February 26; Ting-Fang, C. and Li, L. (2020) “Apple to produce millions of AirPods in Vietnam amid pandemic,” *Nikkei Asian Review*, May 8.

<sup>15</sup> It appears that Google will also locate its product development sites and initial manufacturing sites in China. “Google to relocate Pixel manufacturing to Vietnam to avoid tariffs on China,” *Forbes Japan*, September 3, 2019

<sup>16</sup> Hirai, S. (2019) “Vietnam Strengthens Screening of FDI” *JETRO Regional Analysis Report*, October 16.

<sup>17</sup> In 2019, Vietnamese exports to the United States increased 27.8% year-on-year mainly in areas such as electronics, mobile phones, machinery and textiles.

<sup>18</sup> In May 2019, the U.S. Department of the Treasury added Vietnamese currency manipulation to the Monitoring List in its report on Macroeconomic and Foreign Exchange Policies of Major Trading Partners of the United States. In June that year, President Trump said, “Vietnam is worse than China” considering the trade deficit with Vietnam.

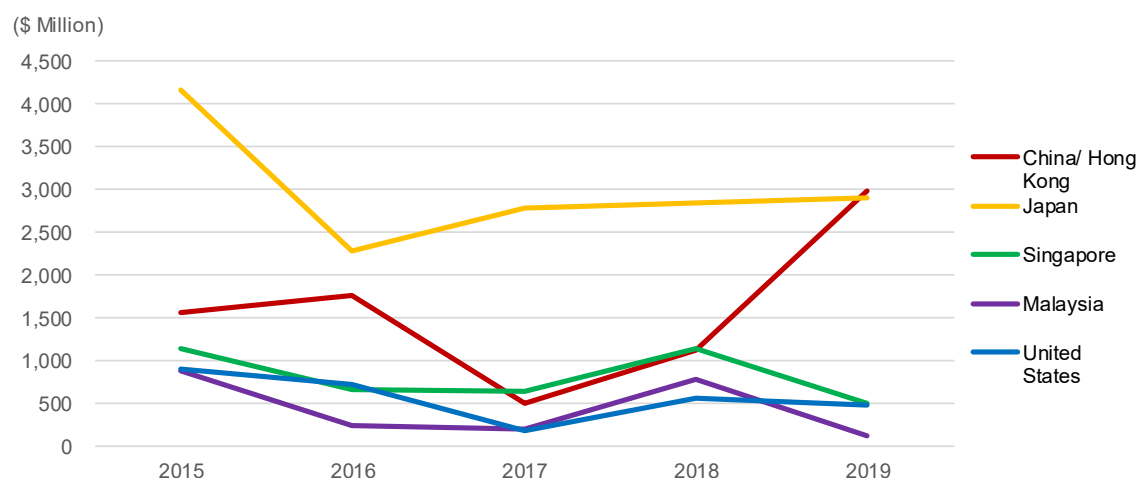
<sup>19</sup> In March 2020, Vietnam was invited to QUAD along with South Korea and New Zealand, and this is seemingly expected to play a role in the decoupling of the supply chain from China being led by the United States. In June 2020, Adam Böhler, CEO of the International Development Finance Corporation (DFC), met with Vietnamese Ambassador to the US Ha Kim Ngoc, announcing US

Vietnam does not want to be forced to choose between the United States and China, and it is unlikely that Vietnam will directly confront with China. Nonetheless, Vietnam has been promoting security cooperation with the United States on the back of the tensions with China over the South China Sea in recent years. The United States and Vietnam relationship is now said to be more intimate than ever. Vietnam is also showing consideration for the Trump administration by expanding its purchase of goods and services from the United States.<sup>20</sup>

## Thailand sees increase in investment from China

In Thailand, direct investment from China has been increasing since the second half of 2018, mainly in manufacturing industries such as metals and machinery sectors (Figure 4). In 2019, for example, Xiamen Golden Egret Special Alloy, a leading Chinese cemented carbide manufacturer, announced its advance into Thailand. The company plans to build its first overseas plant (production of cemented carbide) in Rayong Province in eastern Thailand and export those products to the United States and other countries.<sup>21</sup> Other Chinese entrants in the Thai market include manufacturers of auto parts, such as tires, aluminum plates, and aluminum wheels. Thailand is connected by land to the CLMV countries, and it is also in a favorable position to reap the high-growth benefits of those countries.<sup>22</sup> In November 2018, the WHA Group, which operates industrial parks in Thailand, announced a partnership with China's Yunnan Provincial Energy Investment Group to cooperate in the creation of a logistics network spanning China, Thailand, and Laos and in the industrial parks development.<sup>23</sup> Mapping out a plan to be the hub to connect China with the CLMV countries, Thailand aims to capture the foreign investment being shifted to Southeast Asia.

**Figure 4. FDI in Thailand (Five Major Countries, Approval Basis)**



Source: Prepared by MGSSI based on CEIC data

support for building the supply chains in the Greater Mekong Sub-region. Anh, V. and Anh, P. (2020) "US values Vietnam partnership for supply chain links," *VN Express*, June 3.

<sup>20</sup> In February 2019, Bamboo Airways and BetJet Air signed an agreement to purchase a total of 110 aircraft from Boeing. In September 2009, the United States and Vietnam signed a memorandum of understanding on cooperation in the field of energy, and approval was granted to the construction of an LNG thermal power plant planned by the US major power company AES in Binh Thuan Province. The plant is scheduled to start operating in 2024, after which it is expected to import LNG from the United States.

<sup>21</sup> "Major Chinese alloy manufacturer establishes new plant in Thailand, decentralizing production amid US-China trade friction," *Nihon Keizai Shimbun*, August 29, 2019

<sup>22</sup> Kumagai, S. (2020) "Entry of Chinese companies into Thailand and the impact on Japanese companies there," *RIM*, February 19

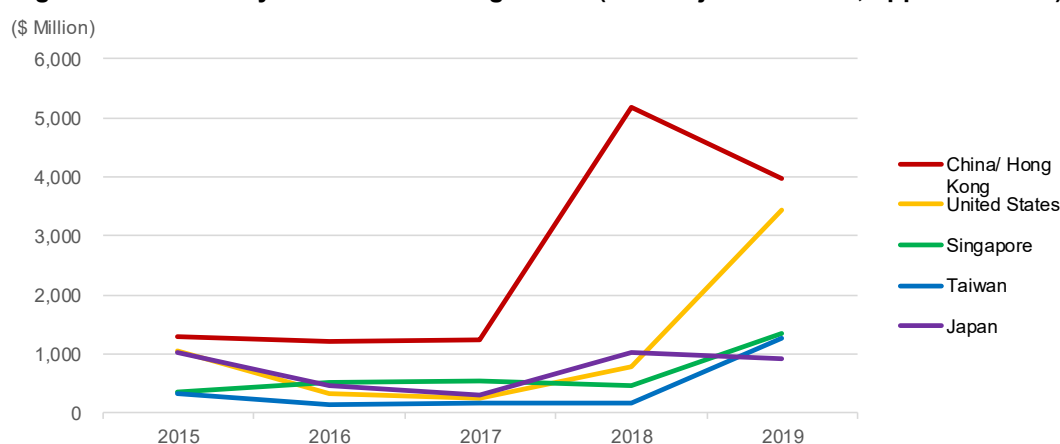
<sup>23</sup> "The World's eyes on Southeast Asia: Thai WHA, US-China friction provides new opportunities," *Nikkei Business*, September 24, 2019



## Malaysia receives more investments from the US

Malaysia has a long history of concentration of foreign electrical and electronic manufacturers and medical equipment manufacturers. In 2019, the country saw an increase in investments from US companies (Figure 5). Since the trade friction between the United States and China escalated in 2018, US manufacturers have been actively moving to expand production in Malaysia. This move was particularly noted among major US semiconductors and integrated circuit manufacturers with an established presence in Malaysia.<sup>24</sup> Most investments are directed to Penang, which touts itself as “Malaysia’s Silicon Valley.” US semiconductor giant Micron Technology, for example, is constructing a solid-state drive assembly plant and inspection center, meanwhile US EMS giant Jabir is expanding production facilities. Furthermore, UK medical equipment company Smith & Nephew is proceeding to set up a base there, as the company’s first production site in Southeast Asia.<sup>25</sup> Tuan Chow Kon Yeow, Chief Minister of Penang said that the state aims to position itself as a manufacturing hub for medical equipment in the fight against the coronavirus pandemic. It was also reported that the state will focus on medical equipment and electronic components among others as an industrial policy for post-COVID-19 times.<sup>26</sup>

**Figure 5. FDI in Malaysian Manufacturing Sector (Five Major Countries, Approval Basis)**



Source: Prepared by MGSSI based on CEIC data

## Indonesia, the Philippines are lagging behind

The benefits of such production shifts are still limited in Indonesia and the Philippines. Indonesia has obstacles to attracting inbound investment, such as the complex regulatory environment, generous worker protections, and trade barriers.<sup>27</sup> In the Philippines, the tax system of special economic zones is undergoing drastic revision, which is apparently encouraging the withdrawal of some foreign investors.<sup>28</sup> In 2019, net foreign direct investment (FDI) inflows in the Philippines fell by 23.1% compared with the previous year. Particularly illuminating in this regard is a recent survey of Japanese manufacturers conducted by the Japan Bank for International Cooperation, where respondents were asked whether Indonesia and the Philippines would be promising in the medium to long term. Only respondents who answered “promising” would then be asked whether those countries could be alternatives FDI destinations for other countries (e.g. China) in terms of risk

<sup>24</sup> Tanaka, M. and Hara, T. (2020) “The appeal of concentration of semiconductors and medical equipment - the current state of the Northern Corridor Economic Region (Malaysia): corporate movements and the investment environment in Penang and Kedah,” *JETRO Regional Analysis Report*, March 17.

<sup>25</sup> Chua, T. (2018) “Nasdaq-listed Micron’s RM 1.5b investment in Penang for SDD centre of excellence,” *The Star*, November 30; Dermawan, A. (2019) “Smith + Nephew picks Penang for new high technology manufacturing facility,” *New Straits Times*, November 19.

<sup>26</sup> Mok, O. (2020) “Penang can be medical equipment manufacturing hub in fight against Covid-19, says Chow,” *Malay Mail*, April 17.

<sup>27</sup> Fukuoka, Y (2019) “Indonesia’s Jokowi to Commence Second Term: Challenges of Becoming a Leading Economy by 2045” Mitsui & Co. Global Strategic Studies Institute, July.

<sup>28</sup> “15 multinationals have already withdrawn in first phase of tax reform,” *JETRO Business Tanshin*, November 27, 2019.

diversification. To this question, 8.1% of the respondents answered affirmatively for Indonesia, and 4.3% for the Philippines. These affirmative percentages are quite low compared to Malaysia (22.5%), Vietnam (18.9%), and Thailand (11.5%), revealing that the two countries are seen less attractive as a destination for production relocation.<sup>29</sup>

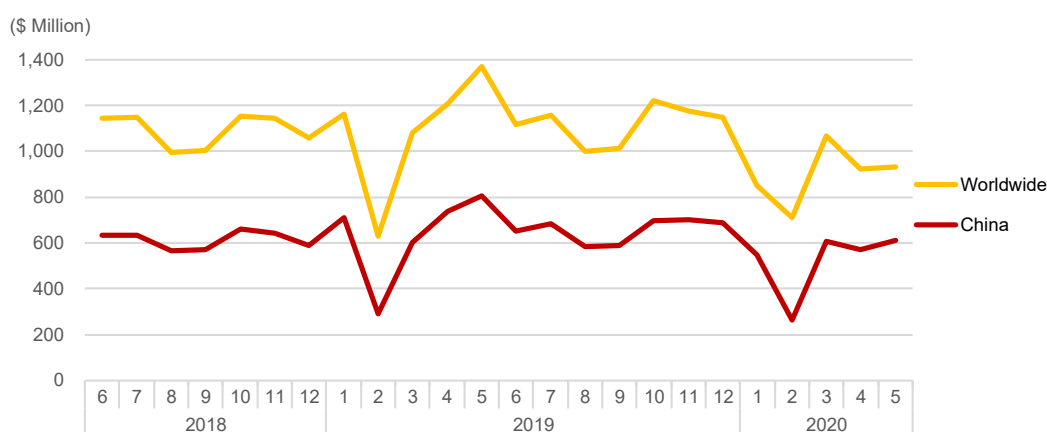
## EFFORTS TO ENSURE STABLE SUPPLY OF STRATEGIC GOODS

The coronavirus pandemic has created a momentum for greater domestic production of strategic goods such as medical equipment and pharmaceuticals. This is because international “enclosure” moves targeting medical equipment and food through temporary export restrictions and other measures surfaced as many countries rushed to secure supplies.<sup>30</sup> Singapore Prime Minister Lee Hsien Loong, for example, commented on the international situation during the pandemic by providing the bleak view that “countries will also strive to become less dependent on others. Especially for essential goods and services, like food or critical medical supplies.” He added, “They will fight more over how the pie is shared, rather than work together to enlarge the pie for all.”<sup>31</sup> Under the circumstances, governments in Southeast Asia have begun to ramp up domestic production of strategic goods.

### Domestic production of medical equipment and pharmaceuticals

Particularly noteworthy in this context is the strengthening of the domestic production capacity of personal protective equipment (PPE) such as masks. For example, in Myanmar, where no masks had been produced domestically in the past, the Ministry of Health and Sports prompted domestic production, while political leaders such as State Counsellor Aung San Suu Kyi also encouraged people to wear masks. Mask production began in Yangon and Pango Divisions in late April 2020.<sup>32</sup> Meanwhile, Vietnam, which had long been a major producer of masks, suffered a temporary drop in the procurement of raw materials such as fabric and yarn, for the supply of which the country had been dependent on China and other countries (Figure 6). This experience drove home the importance of improving the local procurement rate.<sup>33</sup> Since before the coronavirus pandemic, the Vietnamese government has been increasing the local procurement rate by attracting inbound investment and nurturing local enterprises, including the development of the Ran Dong Textile Industrial Park, and these initiatives are likely to accelerate further.

**Figure 6. Value of Vietnamese Fabrics Imports**



Source: Prepared by MGSSI based on CEIC data

<sup>29</sup> Japan Bank for International Cooperation (2019) “FY2019 JBIC Survey (the 31st) Report on Overseas Business Operations by Japanese Manufacturing Companies,” November 27.

<sup>30</sup> According to the World Trade Organization (WTO), 80 countries and regions had introduced trade restrictions associated with the coronavirus as of April 22.

<sup>31</sup> Lee, H. S. (2020) “Overcoming the Crisis of a Generation,” Singapore national broadcast, June 7.

<sup>32</sup> “Local companies begin domestic production of masks,” *JETRO Business Tanshin*, May 22, 2020.

<sup>33</sup> See Ngyuen, J. Q. and Le, Q. V. (2020) “Vietnam's textile and garment industry hit hard by COVID-19,” East Asia Forum, May 19 for discussion on this.

In addition to PPE, there have also been initiatives toward domestic production of medical equipment. For example, in Vietnam, with the government's support, the largest conglomerate Vingroup and others have begun to manufacture ventilators. In the Group, VinFast, which handles the automobile business, and VinSmart, which operates the smartphone business, embarked on the development in cooperation with the US's Massachusetts Institute of Technology and major medical equipment manufacturer Medtronic. They successfully developed the VSmart ventilator and obtained distribution approval from the Ministry of Health of Vietnam in June 2020.<sup>34</sup> The Thai government has also taken action to increase inbound investment in the medical sector. It recently extended the corporate tax exemption period for companies investing in the production of medical equipment and components, active pharmaceutical ingredients, drugs, vaccines, and industrial chemicals.<sup>35</sup> The Thai Board of Investment (BOI) Secretary-General Duangjai Asawachintachit said that measures in the medical field would enable them to rapidly respond to COVID-19, and pave the way for long-term development. This statement suggests that industrial development in the medical area is positioned as part of long-term industrial policy.<sup>36</sup>

Some countries have started development of novel coronavirus vaccines. At present, the United States, the United Kingdom, and China are leading the development of vaccines, and it has been reported that mass production is scheduled to begin as early as this autumn. However, there is a possibility that the volume manufactured and distributed will initially be limited due to production capacity constraints. In anticipation of such a possibility, governments in Southeast Asia have begun to develop capabilities for domestic production. In May 2020, for example, Thailand's Chulalongkorn University and the National Vaccine Institute succeeded in administering vaccine to mice, and clinical trials are scheduled to begin as early as the end of 2020.<sup>37</sup> In Indonesia as well, major state-run pharmaceutical company Bio Farma aims to produce PCR testing kits and vaccines domestically. Mass production of the testing kits has already begun, and the company aims to commence mass production of the vaccine in March 2021.<sup>38</sup> A similar development can be observed in Vietnam, where the Company for Vaccine and Biological Production No.1 (VABIOTECH) under the direction of the Ministry of Health has partnered with the University of Bristol in the United Kingdom, and is developing a vaccine.<sup>39</sup>

## Strengthening food security

In addition to medical equipment and pharmaceuticals, efforts to secure a stable supply of food have also begun. Singapore, which imports more than 90% of its food, was quick to act. The country has been internationally acclaimed for its efforts to diversify its food sources, and it ranks first by the Global Food Security Index<sup>40</sup> (Figure 7). Still, the country has a strong sense of alarm over its external vulnerabilities, and since 2019 has implemented the policy goal of "producing 30% of its nutritional needs by 2030" (30x30). During the coronavirus pandemic, the importance of food security is once again

**Figure 7. Global Food Security Index Ranking**

Rank	Country/ Region	Rank	Country/ Region
1	Singapore	10	Australia
2	Ireland	28	Malaysia
3	United States	52	Thailand
4	Switzerland	54	Vietnam
5	Finland	62	Indonesia
6	Norway	64	Philippines
7	Sweden	77	Myanmar
8	Canada	90	Cambodia
9	Netherlands	92	Laos

Note: 11th and lower from among Southeast Asian countries

Source: Prepared by MGSSI based on The Economist Intelligence Unit data

<sup>34</sup> "Vietnamese firms find business opportunities amid the COVID-19 pandemic: Production of ventilators and masks" *Nikkei Sangyo Shimbun*, June 4, 2020.

<sup>35</sup> Thailand wants to export medical equipment other than consumables such as single-use syringes, catheters, and gloves, and intends to proceed with domestic production. The anticipated rise in medical demand due to the aging of the population and the increase in lifestyle diseases is another factor propelling the strengthening of domestic production.

<sup>36</sup> Macan-Markar, M. (2020) "Thailand drums up post-COVID-19 investment in medical supplies," *Nikkei Asian Review*, May 22.

<sup>37</sup> Thailand wants to export medical equipment other than consumables such as single-use syringes, catheters and gloves, and intends to proceed with domestic production. The anticipated rise in medical demand due to the aging of the population and the increase in lifestyle diseases is another factor propelling the strengthening of domestic production.

<sup>38</sup> Syakriah, A. (2020) "Indonesia targets local COVID-19 strain in Eijkman-led 2022 vaccine initiative," *The Jakarta Post*, May 5.

<sup>39</sup> Vu, L. (2020) "Vietnam prepares to put indigenous Covid-19 vaccine on human trial," *Vietnam Times*, July 1.

<sup>40</sup> The Global Food Security Index consists of three categories: affordability of food, physical accessibility to food, and availability of safe and nutritious food, and assesses countries on a scale of 1 to 100.



recognized, further accelerating the 30 by 30 initiative (30x30 Express). In April 2020, the Singapore Food Agency issued a policy to support increased production of eggs, leafy vegetables, and fish by announcing a SGD30 million (approx. USD21.9 million) grant for local companies working on food production.<sup>41</sup>

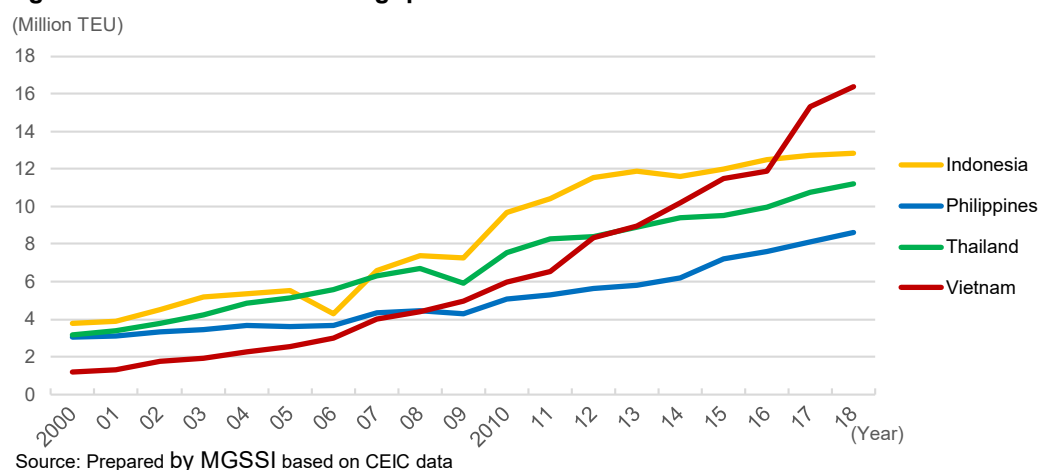
## BUSINESS OPPORTUNITIES ASSOCIATED WITH SUPPLY CHAIN RESTRUCTURING

The restructuring of supply chains in Southeast Asia has created new business opportunities. The following section presents a brief overview of such opportunities with a particular focus on the three areas of 1) development of infrastructure and logistics networks, 2) improvement of productivity, and 3) stable supply of strategic goods.

### Development of infrastructure and logistics networks

The development of infrastructure has been lagging in Vietnam, which is expected to enhance its presence as a major exporter in the region. For example, the volume of containers handled has increased along with the exports increase (Figure 8), but the expansion of port and harbor functions has not kept pace with it. According to the Vietnamese government's port development master plan for the period of 2020-2030, development of deep-sea ports is expected for the northern and central parts of the country, in addition to the southern part, where most containers have been handled.<sup>42</sup> For example, in the central city of Da Nang, Lien Chieu Port is expected to be developed as Tien Sa Port, the main terminal of the city's port system, is already overloaded. It is anticipated that development will be conducted utilizing the public-private partnership model, and a survey is being conducted by the Japan International Cooperation Agency.<sup>43</sup> In addition, there is much room for optimization in fields such as port access and port logistics. In 2019, Sumitomo Corporation, Suzuyo, and Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development invested in a Vietnamese port transportation company. Their aim is to establish locally operated logistics networks connecting industrial parks with ports, and improving the efficiency of administration using port system management developed in Japan.

**Figure 8. Container Port Throughput**



The production shift to Southeast Asia will provide an opportunity to capture domestic demand in the rapidly growing Mekong region, as well as obtaining an alternative hub for export to North America. In Myanmar, for example, as demand for automobiles begins to grow among the middle class, foreign automotive manufacturers are entering the market, but the parts and materials required for the assembly of vehicles are dependent on imports. This may present an opportunity to expand sales channels for Chinese parts manufacturers that relocated to Thailand to avoid the US-China conflict. At present, maritime transport is mainly used for exports

<sup>41</sup> "Rapid support for increased food production in response to the novel coronavirus," *NNA Asia*, April 9, 2020

<sup>42</sup> Viet Nam News (2019) "Vietnamese port infrastructure needs to keep pace with growth," *Viet Nam News*, October 21.

<sup>43</sup> "JICA and Da Nang City sign memorandum of understanding on survey on port development," *NNA Asia*, June 19, 2020.

from Thailand to Myanmar, but if the economic corridors spanning the Mekong region become developed, this could reduce the time and cost required (Figure 9). The expectation for improved logistics efficiency by land routes is shared among Japanese companies too.<sup>44</sup> To be sure, there are some remaining issues, such as transportation in sections where roads have not yet been constructed, and the low volume of transportation from Myanmar to Thailand. Still, if Myanmar succeeds in putting roads in place and developing industry in the medium to long term, this could potentially lead to more active cross-border logistics and heightened needs for commercial vehicles accordingly.<sup>45</sup>

**Figure 9. “East–West Economic Corridor” and “Southern Economic Corridor”**

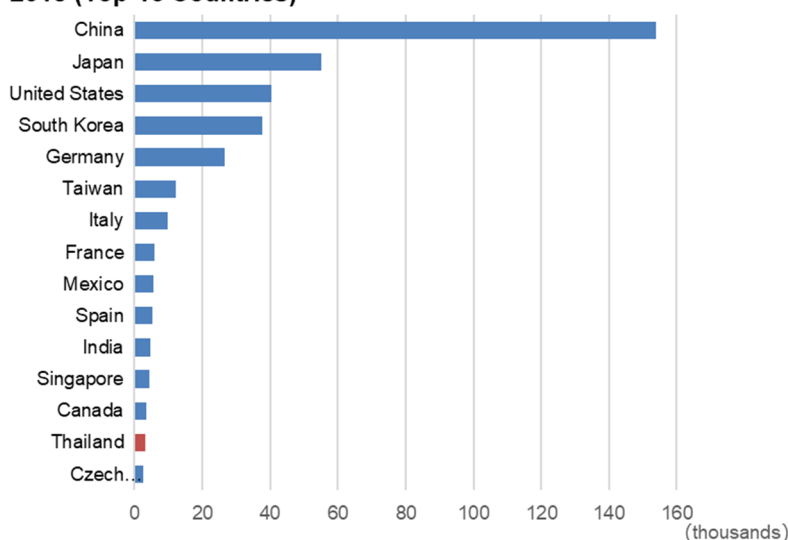


Source: JICA website ([https://www.jica.go.jp/topics/2016/20161214\\_01.html](https://www.jica.go.jp/topics/2016/20161214_01.html))

## Improvement of productivity through automation

Needs for productivity improvement through automation are expected to increase in Southeast Asian countries with continually rising labor costs. In Thailand, following Vietnam in competition to attract foreign investment, a labor shortage and rising labor costs have driven investments into production automation (Figure 10). However, most automation to date has been in large-scale auto plants, and has been limited in second-tier and lower auto

**Figure 10. Number of Industrial Robots Installed in 2018 (Top 15 Countries)**



Source: Prepared by MGSSI based on International Federation of Robotics

<sup>44</sup> “The pulse of Southeast Asian logistics: the beating pulse of economic corridors driven by friction between the United States and China,” *Nikkei Business*, September 23, 2019.

<sup>45</sup> Matsuda, T. (2020) “Seeking the potential of Myawaddy bordering Thailand as a logistics and production hub (Myanmar),” *JETRO Regional Analysis Report*, March 16.

part suppliers. There is also much room for production automation in the electrical and electronic industries, the metal industry, and the food industry.<sup>46</sup> Since many small and medium businesses now do not own their production technology divisions in these industries, there is an urgent need for the development of system integrators to propose and introduce systems from outside.<sup>47</sup> With this issue in mind, the Japanese and Thai governments have been working together, and Denso has been developing system integrators for handling production facilities and factory automation equipment since 2018.

Malaysia has a national plan (Industry4WRD) to increase per capita labor productivity in the manufacturing industry by 30% over 2016 levels by 2025. In this context, in 2019, Siemens of Germany opened a Southeast Asian Technical Competency Hub in the state of Penang and aims to expand the German ecosystem by creating learning lock-in from the human resource development phase to equipment and standards. The Malaysian manufacturing industry, especially Japanese companies, has had a strong tendency to depend on cheap migrant labor. The viability of such a reliance on migrant labor, however, has come under greater scrutiny as the coronavirus outbreaks among migrant workers became a problem in neighboring Singapore, and infections were also confirmed in migrant worker residential areas in Malaysia, which strengthened calls to promote automation.<sup>48</sup>

### Stable supply of strategic goods

Finally, the needs for foreign technology and know-how are also present in the context of strengthening the domestic production of strategic goods. As mentioned above, development of coronavirus vaccine is in progress in Southeast Asian countries. To ensure that the vaccines produced can be safely delivered to the people, each country needs to establish domestic storage facilities and transportation networks with stringent temperature control, and real-time monitoring of fleet conditions. For example, in Indonesia, which is working to produce PCR kits domestically, Denso and others are supporting the transportation of products and raw materials by providing compact refrigerated cars.<sup>49</sup> As countries in the region strive to establish new systems aimed at stable supply of pharmaceuticals in the future, there will likely be business opportunities for companies with relevant technology and expertise.

In the context of strengthening food security, particularly illustrative is the experience of Singapore where farmland is very limited, not more than 1% of its territory. In order for the country to improve its self-sufficiency rate, productivity must be enhanced. Under the guidance of the government, indoor plant production utilizing vertical farming in locations such as the roofs of parking complexes has been expanded, and development of cultured prawns and breastmilk has also been conducted using cell culture technology. The government of Singapore has been actively attracting inbound investment in these areas, and Panasonic has already established a plant factory in the Tuas area in the West Region of Singapore. It has also been reported that Crop One Holdings, which is building the world's largest plant factory in the United Arab Emirates, has indicated interest in entering Singapore.<sup>50</sup> Against the backdrop of heightened interest in food security amid the coronavirus pandemic, the development of ecosystems utilizing new technologies may accelerate further in the future.

<sup>46</sup> Japan-Thailand Economic Cooperation Society "Project to strengthen Asian industry infrastructure (study on human resource development aimed at enhancing the Thai manufacturing industry)," March 2019.

<sup>47</sup> Ibid.

<sup>48</sup> Azhar, K. (2020) "Special Report: Wake-up call for Malaysia to cut dependence on foreign labour," *The Edge Markets*, April 30.

<sup>49</sup> "Global Mobility Services, Denso to Help Indonesian Distributor PCR Test Kit to Detect Novel Coronavirus," DENSO Corporation News Release, May 18, 2020

<sup>50</sup> "Rising plant factory industry: tripling in two years in Singapore," *NNA Kanpasar*, August 2019