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《論説》

# Consideration of the Factors that Led to the Huge End-of-Life Vehicles and Used Auto Parts Trading between Japan and Malaysia

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## Abstract

Huge volumes of used vehicles and used auto parts are exported worldwide from Japan. Malaysia is one of the most important markets for these vehicles. Used vehicle trading is not much compared with UAP trading. According to estimates, one-third or one-fourth of the volume of used engines from end-of-life vehicles in Japan are exported. This is due to market- and policy-related factors. One market-related factor is that Malaysia has a huge agglomeration of vehicles for re-exportation. An example of a policy-related factor is that the Malaysian government had promoted the rebuilt commercial vehicle industry for a certain time. These results are important for consideration of the ELV and cross-border ELV recycling systems in Malaysia.

**Key words:** rebuilt commercial vehicle, used vehicle, used auto parts, agglomeration, ELV, reexport

## List of Abbreviations

AP: Approved Permit

CVRAM: Commercial Vehicle Rebuilders Association Malaysia

ELV: End-of-Life Vehicle

KL: Kuala Lumpur

LCA: Life Cycle Assessment

MITI: Ministry of International Trade and Industry

ML: Manufacturing License

NAP: National Automotive Policy

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RCV: Rebuilt Commercial Vehicle

UAP: Used Auto Parts

UP: Unit Price

## 1. Background and Objective

In Japan, after launching End-of-Life Vehicle (ELV) Recycling Law, establishing a vehicle recycling system became suitable because the current rate of recycling is nearly 100% and no illegal dumping problem have been reported recently like in the era before the implementation of the recycling law (Asazuma et al. 2019). However, from a wider perspective, some issues must be considered.

First, from Japan, a huge volume of used vehicles are exported to many countries as “potential waste” (Togawa et al. 2010). These used vehicles contribute to the supply of vehicles that are cheaper than new ones. This would improve economic welfare because it allows low-income people to acquire vehicles. However, the remaining period of an exported used car’s lifetime is shorter than that of a new one naturally. In addition, a huge volume of very old vehicles are being exported to African and South American countries. In other words, exportation of used cars means exportation of “potential waste.” Regarding the disposal of ELVs in Japan, car manufacturers are responsible for the appropriate recycling and final disposal of ELVs under the ELV Recycling Law based on the “extended producer responsibility (EPR)” policy. This responsibility is not applicable to exported used cars because the law targets domestic recycling and disposal. In addition, the demands for used auto parts (UAP) for exported used vehicles and vehicles made by Japanese manufacturers for diverse uses are huge. This aspect has the same problem as in used vehicles.

Second, the dismantling and disposal of used cars are inadequate in the countries where used cars from Japan are exported. Generally, the industry of dismantling ELVs has not been sufficiently developed yet in these countries. In these countries, the number of ELVs is not enough because of the ongoing progress of motorization. In addition, the motivation for dismantling ELVs suitable for dismantlers is low in these countries because of the lack of an ELV recycling regime. We have confirmed the inept recycling and dirty soil with oil at dismantling sites such as those in Russia (Abe & Asazuma 2008). Some articles have reported illegal dumping of used vehicles from Japan (Nuki 2006; Shioji 2018).

Furthermore, the recycling system will become even more important as the number of automobiles owned in developing countries will increase in the future. Thus, whether the Japanese recycling system can be used as a reference must be determined. In recent years, the automobile dismantling companies in Japan has been actively expanding overseas (Abe & Hiraiwa 2013). However, because the number of automobiles owned has peaked in Japan, the system transfer may benefit Japanese automobile dismantlers aiming for overseas expansion.

Against this background, research is needed to clarify the volume and location of the distribution of used vehicles and UAP generated in the Japan market, the distribution process

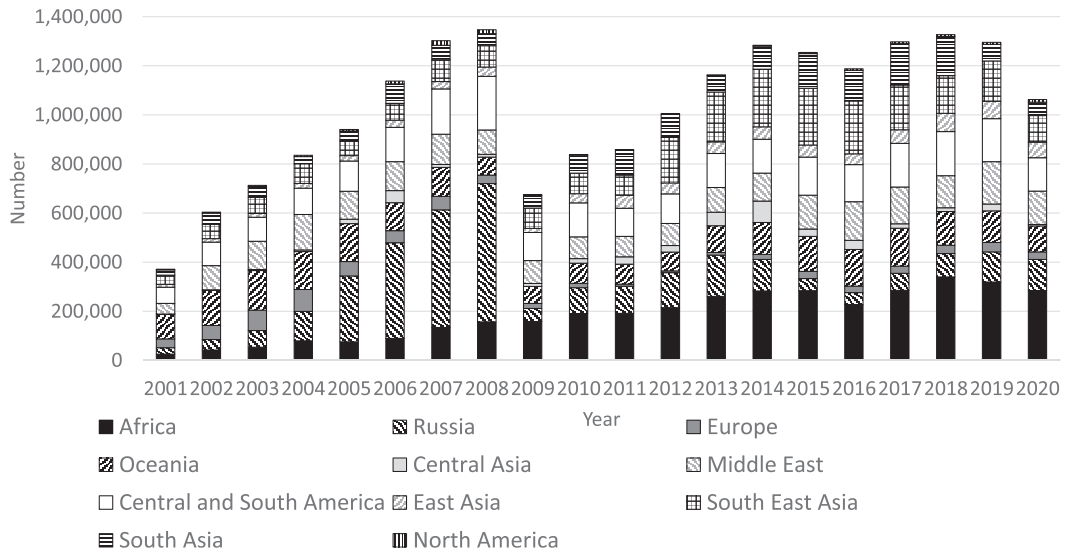


Figure 1: Numbers of used vehicles exported to different countries

Source: Trade Statistics of Japan

being followed, and how the vehicles are used and disposed in the countries of export destination. This research study targeted Malaysia regarding these subjects. The purpose of this study was to clarify the actual distribution situation, the background of these distributions, and how vehicles are used and disposed in export destinations, including institutional aspects.

## 2. Used Vehicle Exportation from Japan to Malaysia

The number of exported used vehicles from Japan to each country can be grasped from the trade statistics of the Ministry of Finance. The statistics was started only in 2002 because this is when the classification of “used” vehicles was started. This trade statistics, in addition to information on export volume in each destination, provide information on export categories such passenger vehicles and trucks and according to displacement and drive system. Many articles have been published on this topic, including those by Asazuma et al. (2017) and Togawa et al. (2010), which summarized the characteristics and history of this market.

Recently, more than 1 million units have been exported annually (Figure 1). The number exported to African countries has shown an increase over the long term, making these countries the largest export destination. Before the bankruptcy of Lehman Brothers, Russia was a huge market that accounted for half of the total market for exports. The number exported to Southeast Asian countries, including Malaysia, increased significantly in the 2010s owing to the rapid increase of the Myanmar market.

In Malaysia, used vehicle importation is regulated by the “approval permit” (AP) issued by the Ministry of International Trade and Industry (Asazuma et al. 2017). Thus, as shown in Figure 2, only approximately 20,000 vehicles are exported annually. Most used vehicles are passenger

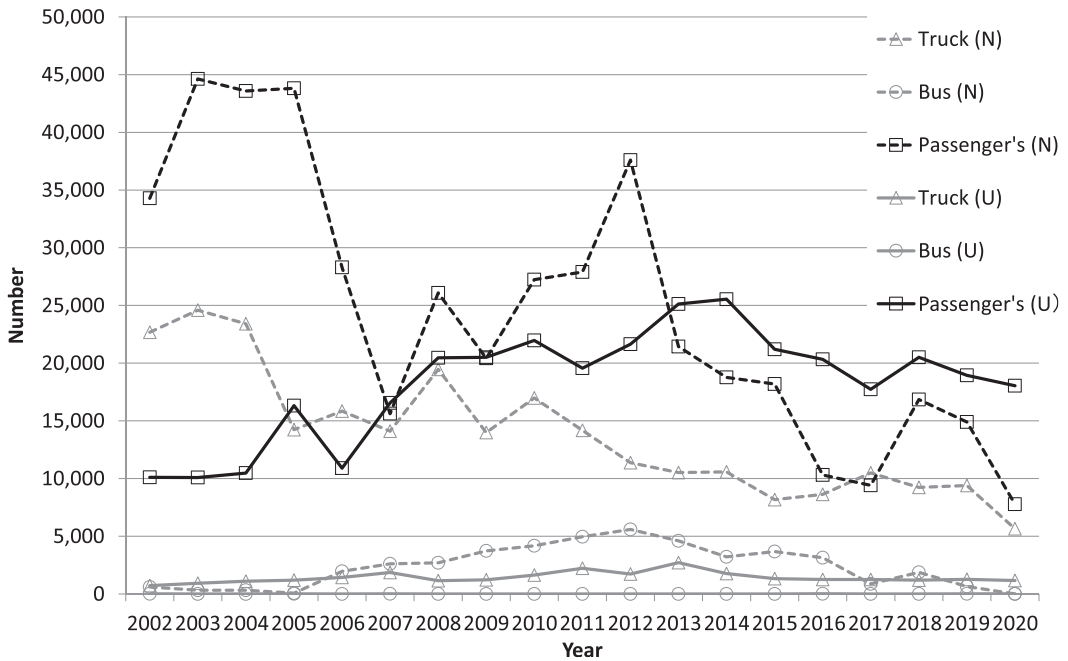


Figure 2: Numbers of new and used vehicles in each category that are exported from Japan to Malaysia over the years.

Source: Trade Statistics of Japan

vehicles. In addition, the age of cars is strictly limited to 5 years or lower; as a result, most used vehicles exported to Malaysia are relatively newer models (Asazuma et al. 2017). With this regulation, the Malaysian government aims to protect domestic manufacturers.

However, this statistics does not fully reflect the depth of the relationship between Japan and Malaysia in the used automobile market. However, as will be described later, the facts that used truck exportation is active in Malaysia and the country has become a distribution hub for UAP for many used vehicles in Africa and Asia are important for the relationship between the two countries.

Figure 3 shows the total number of vehicles exported to Malaysia. Figure 2 shows the number of new cars exported, but many of them were knockdown exports, especially in the era of in the early 2000s. However, the knockdown rate has been declining over the long term. The production volumes of automobile modules and parts in the local and ASEAN regions were assumed to be increasing. Used vehicle exports have a greater presence than new car exports and the knockdown car trade, albeit with the AP regulation.

The topics to be added at the end this chapter is that the Malaysia government has implemented the “national car” policy. Approximately half of the total car sales are for national cars, namely Proton and Perodua. Originally, from the 1980s to the 1990s, both makers had a tight connection between Japanese manufacturers in terms of capital and technology. The remaining proportion of the total car sales are for cars from Japanese major automobile manufacturers,

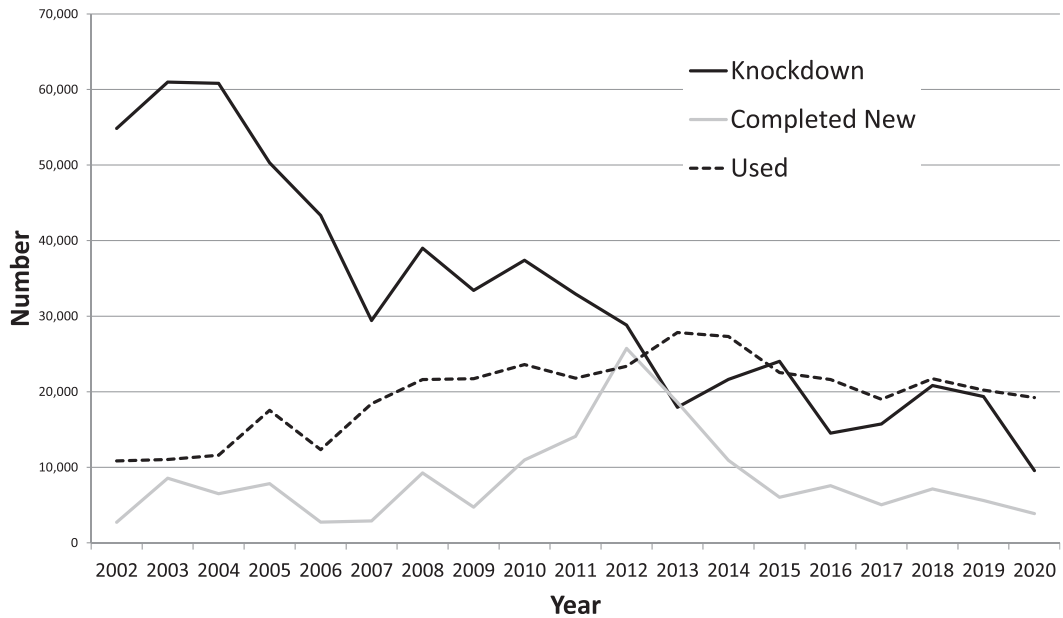


Figure 3: Number of cars exported from Japan to Malaysia according to vehicle condition.

Source: Trade Statistics of Japan

which account for a huge share in the market. Generally, the Malaysian automobile market has a tight connection with Japanese automobile manufacturers (Asazuma et al. 2019).

### 3. Estimation of the Volumes of UAP in the Two Countries

UAP are exported from Japan to Malaysia in two ways. One is the export of UAP for rebuilt commercial vehicles (RCVs), and the other is the export of UAP for vehicles other than RCVs. Therefore, this chapter consist of two sections.

#### 3.1. Trading of Used Chassis and Bodies of Trucks

A huge volume of used trucks are exported from Japan to Malaysia. However, the style of exportation is unique (Asazuma et al. 2019). Historically, trucks and heavy equipment, rather than passenger vehicles, are relatively important in economic development. For this reason, Malaysia has been importing a huge volume of used trucks from Japan. However, the Malaysian government has enforced the AP regime for the importation of used vehicles (Asazuma et al. 2017). Thus, almost all used trucks have been imported as truck UAP, that is, after separating the chassis from the engine and body of ELV<sup>1</sup>. Of course, after importation, they are reassembled into used trucks and called RCVs.

<sup>1</sup> Only ELV is admitted to separate trucks by dismantlers because of the regulation of Automotive Recycling Low.

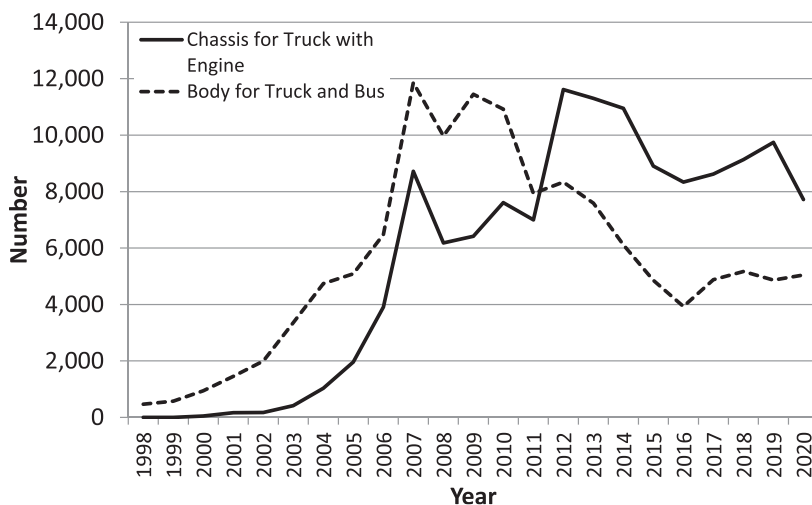


Figure 4: Numbers of chassis and bodies for trucks exported from Japan to Malaysia

Source: Trade Statistics of Japan

Figure 4 shows the trading of them from Japan to Malaysia. From the trade statistics, we cannot confirm whether the chassis and bodies are new or used. However, we can estimate that almost all of them are used because these parts could not be intended for new trucks as knockdown parts (Asazuma 2019). There is a little possibility that these are replacement parts, but the demand is low.

Their transition is similar except for some years. This fact proves that the parts were obtained from one used truck. We confirmed this situation in some companies in Chiba Prefecture<sup>2</sup>.

Figure 5 describes the trading prices of the parts. The graph shows that the price of a chassis with an engine is relatively higher than that a body. The reason for the higher price is clearly that the chassis included the engine.

### 3.2. Estimation of other UAP

#### 3.2.1. Introduction of the previous research

The volume of exportation of UAP is difficult to estimate because the original trading codes for UAP are not indicated, except for used tires, in the records of Trade Statistics of Japan. Thus, efforts have been made to develop a method of estimation of this volume for a long time (Asazuma et al. 2017).

Figure 6 shows the results of UAP exportation to each area worldwide. The values were calculated using the rates of new and used tire exportation in each port to each country. The results show that approximately 500,000-600,000 tons of UAP are exported annually.

<sup>2</sup> This investigation was held on 22 and 23 March, 2018 by Asazuma & Okamoto. The area was Yotsukaido, Sakura & Yachimata city.

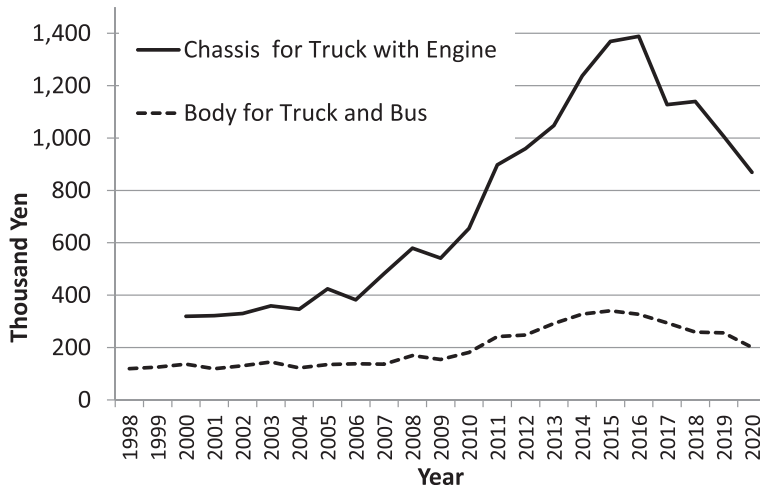


Figure 5: Prices of chassis and bodies for trucks exported from Japan to Malaysia  
Source: Trade Statistics of Japan

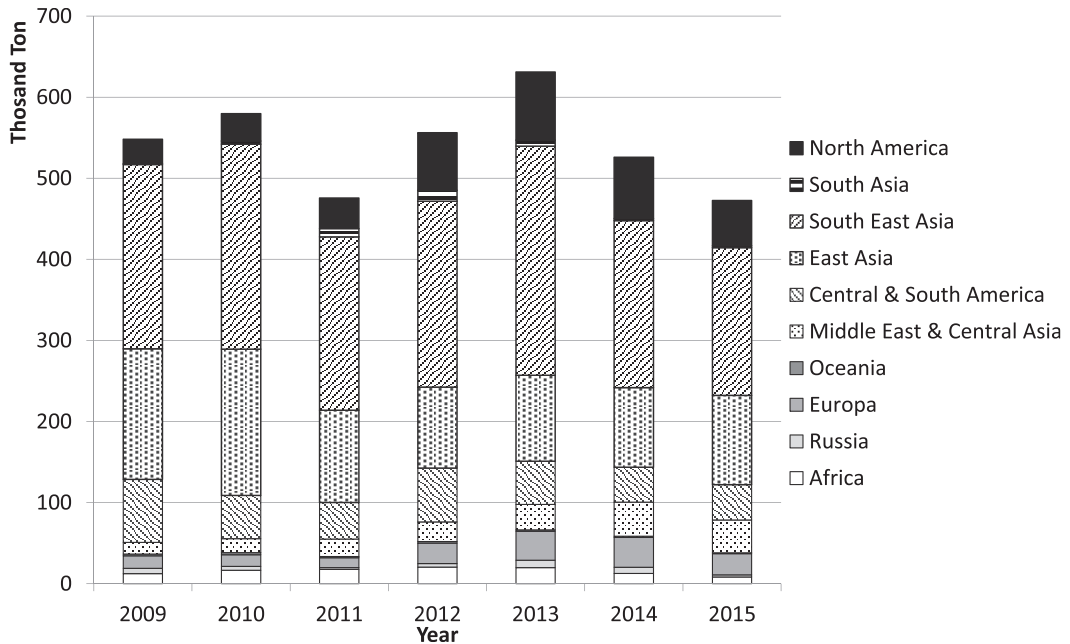


Figure 6: Weights of the UAP exported from Japan to the different regions

Source: Trade Statistics of Japan

Approximately 20% of these UAP are for Malaysia (Asazuma et al. 2017). However, no evidence shows that the ratio of used tires to new tires is similar to the ratio of UAP to new auto parts.

Another estimation also shows the importance of Malaysia market. Table 1 shows the amounts of UAP exported in terms of million yen. This estimation might have been made only



Table 1: Prices of UAP exported to other countries

	Thailand	Philippine	Malaysia	Others	World Total
Amount of UAP export (million yen)	8,253	7,384	20,849	50,384	86,870
Share	9.5%	8.5%	24.0%	58.0%	—

Source: Yano (2014)

from information heard from related companies. Thus, this method of estimation does not have much objectivity, but the result reflects the real situation of UAP trading. This warrants the development of better methods of estimation.

USAID (2015) estimated the value of trading UAP from the aspect of importing to Malaysia. USAID (2015) reported that the Malaysian government prohibited the importation of used brake pads, brake lining batteries, and tires for safety reasons. Therefore, the reliability of the estimation of Asazuma et al. (2017) can be judged as lower. USAID (2015) indicated that the value of UAP importation in Malaysia is \$2.3 billion, and a proportion of these UAP are used for remanufacturing. Furthermore, 35% of the imported UAP are reexported to African and Middle Eastern countries. This article shows that Malaysia is an important hub for international UAP trading.

### 3.2.2. Estimation of the Volume of Used Engines Exported

We have investigated many dismantlers and used parts dealers. Generally, the most important and popular part is the used engine. However, the volume of used engines exported could not be estimated. Figure 7 shows the total number of engines exported. Southeast Asia, including Malaysia, is one of the major areas of exportation. However, the statistics include new and used engines. Thus, an alternative method of estimation using export unit price (UP) data was developed.

Figure 8 shows the unit prices of the engines exported to major countries, including China, the United States, Thailand, and Malaysia. The UPs in Malaysia are clearly different from those in other countries. The United States and Thailand are the major countries that import new engines from Japan for manufacturing complete vehicles (Nagoya Custom 2019). However, China banned the importation of used engines. Hence, the export market clearly differs between Malaysia and the other three countries.

Moreover, the Port of Tomakomai is known as the major port for used engine exportation to Malaysia. As far as we know, only one engine manufacturer, Isuzu Engine Manufacturing Hokkaido Co., Ltd., exists near the Tomakomai port. However, this company does not export to Malaysia<sup>3</sup>. Figure 8 also shows the UPs of Tomakomai, but the exports from Tomakomai are

<sup>3</sup> This company shows the countries of exporting in the website (<http://www.iemh.isuzu.co.jp/>). But Malaysia is not including.

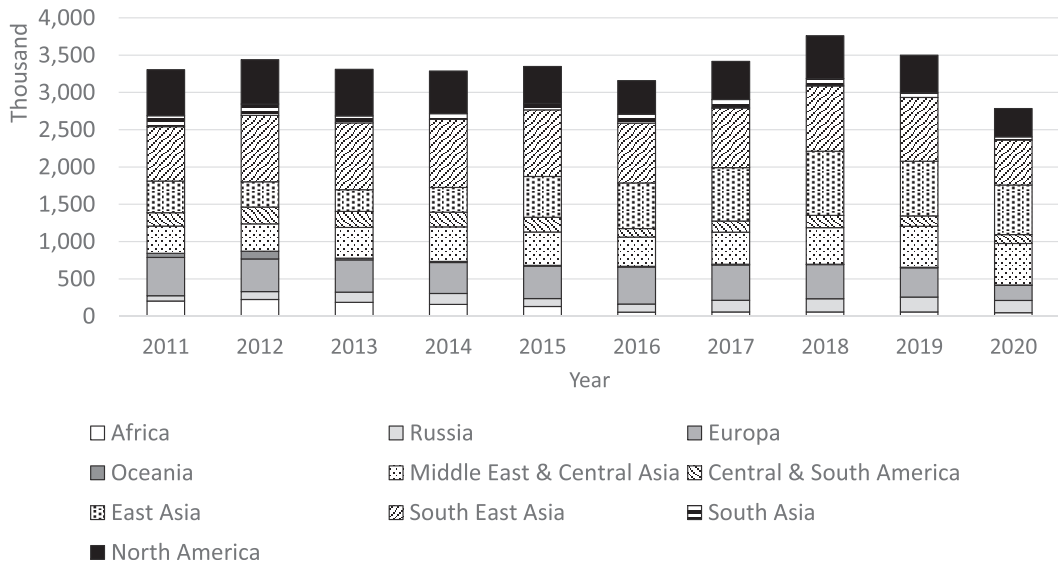


Figure 7: Numbers of engines exported to different regions

Source: Trade Statistics of Japan

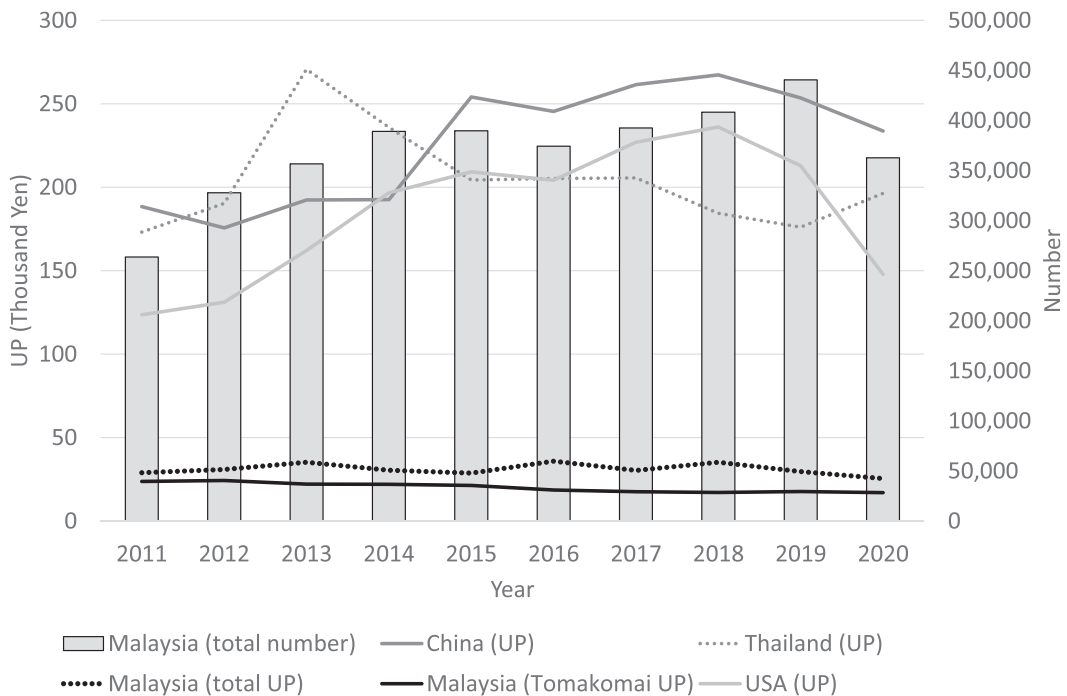


Figure 8: UPs of engines exported to different countries

Source: Trade Statistics of Japan

considered used engines. Moreover, the total UP and UP in Tomakomai are similar. As a result, we can assume that almost all engines exported to Malaysia are used engines. In Japan, the number of ELVs is approximately 1-1.5 million. Figure 8 also shows that the number of exports to Malaysia is approximately 300,000-400,000. Thus, it can be estimated that approximately one-third or one-fourth of the engines from ELVs are exported to Malaysia. As a result, Malaysia is a huge market of used engines exported from Japan.

Furthermore, this research estimates the trading volume based on information from UAP dealers around Kuala Lumpur (KL). In the next chapter, the results will be presented.

## 4. Factors Related to the Huge Volume of Trading: The Existence of a Huge Port and UAP Agglomeration

### 4.1. Overview of Port Klang

Port Klang is the port with the largest cargo handling volume in Malaysia and is not only an outer port of KL but also a distribution base for Malaysia as a whole. Its container handling volume is approximately 13.58 million TEU (2019)<sup>4</sup>, making it the 13th largest port in the world. In addition, more than 60% of the containers handled (approximately 8.55 million TEU) are transshipped, making Port Klang one of the world's hub ports. This convenience seems to have contributed significantly to Malaysia being a hub for the UAP trade.

Port Klang is divided into three ports, namely the south, north, and west ports, in this order of development. Containers are mostly used for importing and exporting UAP and are handled in the north and west ports. Both ports have deep berths of -17 m or more. The north port has no room for expansion, but offshore expansion is currently underway in the west port.

Both ports have terminals that handle new and used cars imported from Japan. When new cars are transported, used cars are included because they occupy the remaining space in the ship, so the terminal handles both. According to operators (almost all Indians) at the west port terminal, approximately 10,000 cars are imported a month, of which approximately 100 to 120 are used cars. Of the 10,000 units, 1,000 units/month will be imported to mainland Malaysia, and the rest will be shipped out to Sabah and Sarawak.

### 4.2. Relationship between the agglomeration of UAP traders and ports

Currently, the agglomeration of UAP traders is mainly around Port Klang, which is around 40 km west of KL (Figure 9). Originally, an agglomeration existed in the area from Kepong to Segambut, in the outskirts of KL, but the agglomeration around Port Klang has gradually grown and surpassed it. Such movements demonstrate that the location oriented to consuming area has shifted to the location oriented to raw material.

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<sup>4</sup> Port Klang Statics ([https://www.pka.gov.my/index.php/en/download/statistics/category/75-port-klang-performance?\\_cf\\_chl\\_jschl\\_tk\\_\\_=pmd\\_X53qKLdpe.xlABGj3A5ybC0iTfLm7xWqnjq4WTaFJQ-1630464863-0-gqNtZGzNAmWjcnBszQhl](https://www.pka.gov.my/index.php/en/download/statistics/category/75-port-klang-performance?_cf_chl_jschl_tk__=pmd_X53qKLdpe.xlABGj3A5ybC0iTfLm7xWqnjq4WTaFJQ-1630464863-0-gqNtZGzNAmWjcnBszQhl))

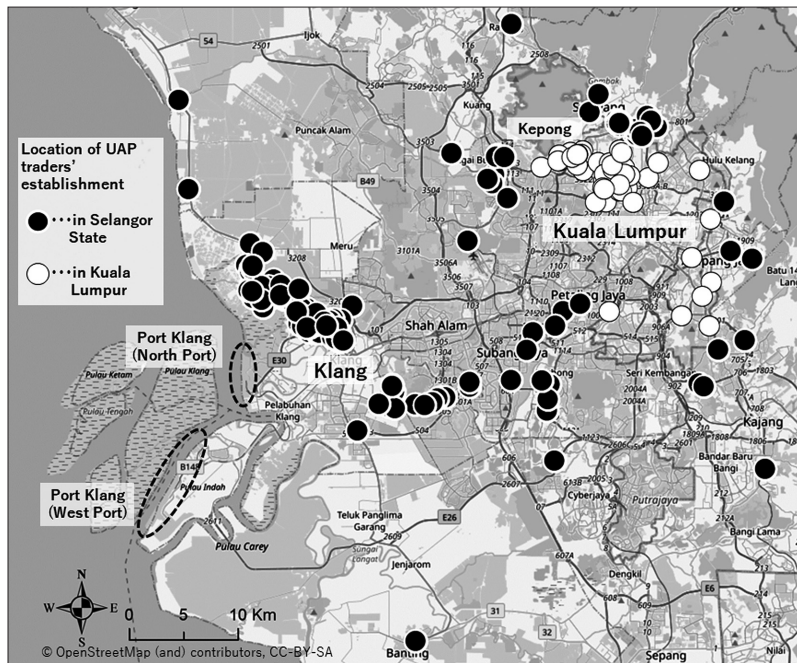


Figure 9: Agglomeration of UAP traders in Selangor State and KL

Source: MUVATA website

In formerly, the suburbs of KL, land prices are relatively low and it is easy to set up a yard that is accessible to both domestic and foreign customers. Therefore the area seems to have been chosen. The northern suburbs were chosen because it was the gateway to Northern Malaysia. The region has a demand for rebuilt trucks due to some tin mines exist. The location is in harmony with the consumer behavior.

However, with the development of KL, the area from Kepong to Segambut has also become urbanized and land prices have increased. On the other hand many traders who have begun to engage in relay trade have intended to expand the capacity of their yards to cover for the assortment by quantity. Therefore, the area around Port Klang seems to have been selected as the location. Because the land prices in the area were cheaper, which makes it easier to set up a wider yard. Furthermore, the transportation costs (included time cost) of UAP for import and export can be suppressed. The locational distribution of traders around Port Klang seems to be slightly biased near the north port, probably because the north port was developed earlier as a container port. Currently, the development of the west port is progressing, and the port is becoming the mainstay of Port Klang. Thus, in the future, the locational distribution of traders will be modified taking into account accessibility to the west port.

According to interviews with traders, the port they use for imports and exports is basically Port Klang, and containers for UAP are transported by hauliers between the port and the own store yard. It was few that they use other ports in the country with long-distance haulage.

#### 4.3. Estimation of the amount of imports and reexports generated from the agglomeration

From the results of the interview survey, we estimated the amounts of imports and reexports by UAP traders that agglomerated around Port Klang and the suburbs of KL.

According to a major company (Company A) located near Port Klang, the import volume is approximately fifty 40-ft containers/month, 70% of which are imported from Japan and 30% are imported from Australia and New Zealand. However, this quantity is by major traders. According to Company B, which is also located near Port Klang and considered to be a medium-sized company, the import volume was around 12 containers/month.

On the other hand, according to the list of the Malaysia Used Vehicle Autoparts Traders Association (MUVATA)<sup>5</sup> member companies (August 2021), 152 active MUVATA member companies are located in the state of Selangor, where Port Klang is located. KL has 68 companies, making the total number of companies 220<sup>6</sup>.

On the basis of the results of medium-sized companies, the import volume from the agglomeration is 2640 containers/month, which can be estimated to be approximately 31,600 containers (63,200 TEU) per year. Regarding the import value, according to Company A, each container contains approximately 2 million yen's worth of parts. On the basis of this value, the import value per year of UAP from the agglomeration is 63.2 billion yen.

Furthermore, used parts for assembling of rebuilt trucks in Malaysia are separately imported. According to Company C, which assembles rebuilt trucks, as a whole member of the Commercial Vehicles Rebuilders Association Malaysia<sup>7</sup>, 10,000 containers are imported annually. If these 10,000 containers are added to the previously mentioned 34,200 containers a year, the total import volume of UAP(including those for rebuilt trucks) can be estimated to be 41,600 (83,200 TEU) a year. As the value of the imported containers handled at Port Klang Port in 2018 was approximately 2.39 million TEU<sup>8</sup>, the volume of UAP would account for approximately 3.5% of that.

Regarding UAP for rebuilt trucks, the import value per container is not clear yet. However, if value per containers of used parts that use for rebuild truck is equivalent to the value per containers of used parts that are not specified for rebuilt trucks(previously mentioned 2 million yen that is Company A was referring to),the import scale will be 83.2 billion yen per year.

Next, the amount of reexports will be estimated by interviewing traders. According to the medium-sized Company B, the export volume was around 10 containers/month. In addition, Company D, which is a slightly larger business establishment, also had similar export volumes. Assuming this export volume as the standard and aforesaid 220 companies are engaged in

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<sup>5</sup> An industry group of UAP traders in Malasia

<sup>6</sup> MUVATA members directory (<http://www.muvata.org.my/members-directory-368903575924405.html>). Since 304 companies are active members of MUVATA in Malaysia as a whole, 72% of the member companies are concentrated around Klang Port and Kuala Lumpur City.

<sup>7</sup> An organization of rebuilt truck assemblers. As of August 2021, 13 companies are members, eight of which are in Borneo Island

<sup>8</sup> Port Klang Statics, op.cit.

exports, the reexport volume of UAP will be 2200 containers/month, which is considered to be around 26,400 (52,800 TEU) per year. Therefore, the reexport rate of UAP containers is 64%. This result is much higher than the rate reported by USAID (2015). As the export container handling volume of Port Klang in 2018 was approximately 2.35 million TEU<sup>9</sup>, the volume of UAP account for approximately 2.2% of that.

Furthermore, according to Company D, they load ordinarily the approximately 2 million yen worth of used parts in each container for reexport. Therefore the reexport value per year is estimated to be 52.8 billion yen. Used parts for rebuilt trucks are used in Malaysia, they will not be reexported.

## 5. Factors Related to the Huge Volume of Trading: The Formalized Rebuilt Truck Business

In chapters 3 and 4, we examined the huge UAP market from Japan exported to KL. In addition, a different type of UAP trading, which is RCV, exists between the two countries. In this chapter, we provide a partial introduction of the history of and material flow in this business.

### 5.1. History before 2010

The origin of RCV is below. According to Jaafar et al. (2009), the automotive remanufacturing or RCV industry in Malaysia was introduced in the 1970s, the period after the construction sector in Malaysia was booming. Heavy industrial vehicles and machinery for construction, such as tractors, scrapers, and cranes, were highly demanded at that time. Huge capital was also required to purchase the equipment. However, once the construction project was completed, all the equipment was no longer required and most pieces were left idle even though they could still be used.

Therefore, as part of effort to reduce wastage and avoid additional costs, the majority of the heavy machinery was transferred to new construction sites. Old and broken parts were replaced; the chassis cabs were refurbished and reconditioned. This is the origin of the industry of RCV. However, the industry was put to a halt in the late 1980s when most of projects from the government agencies, Public Work Department were outsourced to private contractors (Jaafar et al., 2009)

From 1990s, the remanufacturing practice was again introduced. License were given out to rebuild or remanufacture a huge number of used trucks that were left idle at several construction site such as Putrajaya in Selangor, Bakun in Sarawak so that the truck could be given a second life (Jaafar et al., 2009). In Malaysia, the automotive rebuilt industry operates through a Manufacturing License (ML) introduced by the Ministry of International Trade and Industry (MITI) in 1998. MITI and other organization have encouraged interested parties and given them permission to purchase used vehicles from abroad, such as from Thailand, Singapore and Japan,

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<sup>9</sup> Ibid.

and rebuild (recondition and reassemble) them for the purpose of reselling them, back either locally or internationally.

In 2001, RCV industry in Malaysia is still new, however the industry has developed significantly since the first license was given out to Boon Koon Vehicles Industries Sdn Bhd in 2001 (Jaafar et al., 2009)

In 2008, there are 33 companies that have been given license by the government. However up to March 2008, 18 companies were already in operation, namely 5 companies in Peninsular Malaysia, 8 companies in Sabah and 5 companies in Sarawak. All these 18 companies are members of CVRAM. The CVRAM was established and registered under the Registrar of Societies Act 1966 on the 28 May 2007. (Mustaffa et al., 2009)

## 5.2. Regulations on the Entry of RCV Industry by MITI (2010~)

Later, the review of National Automotive Policy 2009 (NAP09) has placed an impact on the RCV industry in this country. Freezing policy of AP effective January 1, 2010 to last of December 2015 has hindered rebuilt industry from importing chassis, cabin, engine, transmission, axle, and other components for the purposes of production. The freezing policy is applicable to company who wants to obtain the license after 2010. As an impact, most of the RCV industries faced uncertainties in the future of their investment and dilemmas of closing up business.

Based on the MITI Rebuilt Committee Report (2009), there were 33 MLs assigned to MITI to companies interested in Reconditioning & Reassembly of Heavy activities Commercial Vehicles, Reengineering and Refurbishing and Reconditioning and Reassembly of Commercial Vehicles.

Based on the contents of NAP09, the policy amendments directly touch on the importance of the rebuilt industry is in Article E (safety and environmental arguments) as well as in Article A (market liberalization argument). In item E, the issue of safety associated with the problem of the absence of any restrictions or mandatory inspections by the parties power over the imported components until an unhealthy race occurs in the process importation and reconstruction of commercial vehicles compromising safety users. This includes the act of 'outsourcing' the production process or part of it to unregistered factories (Yusuf et.al., 2009: 4).

The government also uses the reason for turning to the 'green engine' as the basis for the abolition of AP by insisting requirements for the use of Euro2M and Euro4M engine specifications as practiced in Europe. The use of rebuilt vehicles, especially using a diesel of which are over 7 years old seen to lead to an increase in environmental pollution due to having Euro1M specifications (MIDF Research, 29 October, 2009).

In item A, the argument institutional for the abolition of the AP is related to the government's efforts to achieve liberalization economy by implementing all ASEAN and WTO commitments in relation to the Free Trade Agreement (FTA), reduction of import duties as well as elimination of market protection against the local automotive industry, including rebuilt.

In this connection, development of the rebuilt industry is seen as uncondusive to market demand as it undermines interest investment of OEM manufacturing companies, reducing automotive technology innovation as well affect the expansion of the new commercial vehicle

market in the country (MIDF Research, 29 October, 2009; The Star, 16 November 2009).

The introduction of NAP09 has put the nationwide rebuilt automotive industry within dilemma. There is confusion and ambiguity about the position of the rebuilt automotive industry so that the industry is currently in a state of hanging (halt) and facing directional problems (Omar and Awang, 2012). As of January 2011, there were a total of 21 companies operating fully while the remaining 12 are not operational (CVRAM-MITI Presentation Report, September 2010). We confirmed that in 2018 only 23 companies last possessing MLs and only around 15 companies continue manufacturing RCV.<sup>10</sup>

### 5.3. Current Practices of RCV in Malaysia

There are four ways currently being practiced by the commercial vehicle rebuilders in Malaysia. The four practices are: (Yusuf et al., 2009)

- i ) Dismantle and reassemble to different vehicles using fully imported components.
- ii ) Dismantle and reassemble the same vehicle (to avoid higher tax and to differentiate with recondition vehicles).
- iii ) Dismantle and reassemble to different vehicles using mixed of imported components and local new components.
- iv ) Outsource to “unknown” operators and issue Certificate of Manufacturing (COM).

The contents of each practice are described below.

- i ) Dismantle and reassemble to different vehicles using fully imported components.

The process starts by dismantling the commercial vehicles into components at the origin country (Figure 10).

-The components would then import by the Malaysian rebuilders.

-Upon arrival at the rebuilt factory, each component is checked; refurbished and any wear-and-tear parts are replaced in accordance with the factory specifications.

-Then the components are reassembled to different vehicles and thus forming new rebuilt vehicles. These rebuilt vehicles are sending to PUSPAKOM<sup>11</sup> for testing and inspection before registration with JPJ<sup>12</sup>.

- ii ) Dismantle and reassemble the same vehicle (to avoid higher tax and to differentiate with recondition vehicles) (Figure 11)

-The process starts by dismantling the vehicles into components at the origin country.

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<sup>10</sup> This information is from the hearing to Hong Seng Group on 27<sup>th</sup> of Feb in 2018.

<sup>11</sup> PUSPACOM is approved automobile inspection agency by the government.

<sup>12</sup> The Malaysian Road Transport Department (RTD) is a government department under the Malaysian Ministry of Transport. According to the Road Transport Act, the enforcement and regulatory duties are under the roles and responsibilities of JPJ. JPJ has more than 90 offices nationwide, the function of JPJ offices is to examine and issue the Malaysian driving license, road tax, vehicle registration and relevant documents for its users. (Source: JPJ Website, <http://www.jpj.my/>)



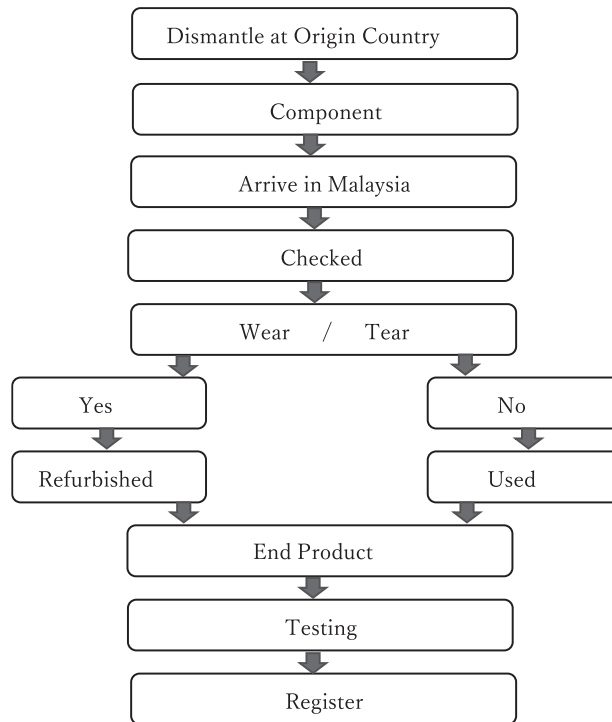


Figure 10: Flow chart of 1st practice

Source: Fauzi et al. (2009)

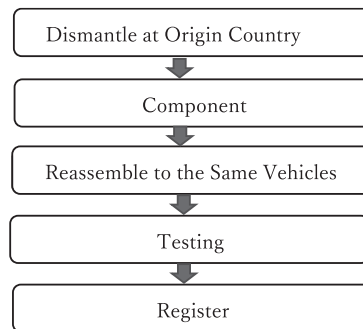


Figure 11: Flow chart of 2nd practice

Source: Fauzi et al. (2009)

-The components are imported by the Malaysian rebuilders which then reassembled the components to form the same vehicle that is now known as rebuilt vehicles.

-The rebuilt vehicles would then send to PUSPAKOM for testing and inspection before registration with JPJ. This procedure is done in order to avoid paying higher tax and also to differentiate from importing of recondition vehicles.

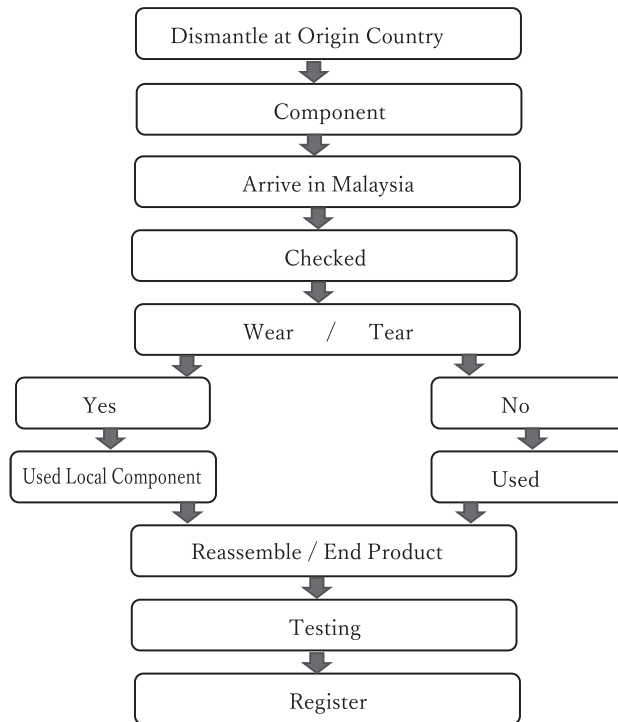


Figure 12: Flow chart of 3rd practice

Source: Fauzi et al. (2009)

iii) Dismantle and reassemble to different vehicles using mixed of imported components and local new components

-The process is similar to the first practice except for any wear-and-tear components would not be refurbished.

-When the Malaysian rebuilders reassembled the components to different vehicles to form new rebuilt vehicles, they would replace the wear-and-tear components with new local components.

-Thus, the rebuilt vehicles are assembled using both the imported components and local new components. Figure 12 shows the flow chart of the third practice.

iv) Outsource to “unknown” operators

-Rebuilt manufacturers just issue the COM to unknown operators for registration purposes.

#### 5.4. Current ELV recycling system in Malaysia

In former section, we introduced the rebuild process. In terms of handling used parts, we can treat RCV and ELV as similar industry. So, in this section, we show the ELV recycling system as a reference.

#### 5.4.1. Deregistration Process

In Malaysia, ELV can come from two sources:

i ) Vehicle from local market

-All local vehicles which intended for disposal will be required for Deregistration process.

-This process was meant to unregister the vehicle and to notify the government through Road Transport Department (also known as Jabatan Pengangkutan Jalan, JPJ) that the vehicle is no longer in use, and to strike out the record from JPJ together with all required tax payments. This process also prevents the vehicle from being used as an accessory for crime

ii ) Vehicle imported from overseas.

-These vehicles will require clearance from Royal Malaysian Customs office. According to the law, any importation of vehicle will require an Importation Approval Permit (or AP). This also applies to ELV importation.

#### 5.4.2. De-pollution Process

-The vehicle will undergo a de-pollution stage.

-Here, all fluids are being drained and stored for respective recycler. Battery mercury and other pollutant agents are removed to storage at this stage.

#### 5.4.3. Dismantling Process

-All vehicles are later being sent to the Dismantling facilities.

-Here, the documents required for dismantling will need to be inspected for the purpose of verifying ownership on the vehicle. Reputable companies will not proceed if deregistration documents procured from JPJ are not present (for local ELV) but small-scale dismantler often disregard this rule.

-Imported vehicles on the other hand are easier and only needed customs validation. Documents required are cross checked with the vehicle engine number and chassis number.

-Finally, the vehicle will be dismantled. Useable parts are harvested and enter used spare parts market. Unusable or heavily damaged will be sorted by their respective material which will be sold to recyclers which meant for other industries. Parts which cannot be sold or recycled will be sent for disposal.

In Figure 13, the contents described in this section are illustrated.

## 6. Consideration, Conclusion, and Future Task

In this paper, we clarified the reason for the cross-border distributions of many used vehicles, including RCVs and UAP, between Japan and Malaysia.

The earlier chapters of this paper discussed trading volumes from numbers, weights, or monetary values. Regarding the complete used vehicles discussed in chapter 2, the trade volume between the two countries is small relative to the worldwide market of used vehicles exported

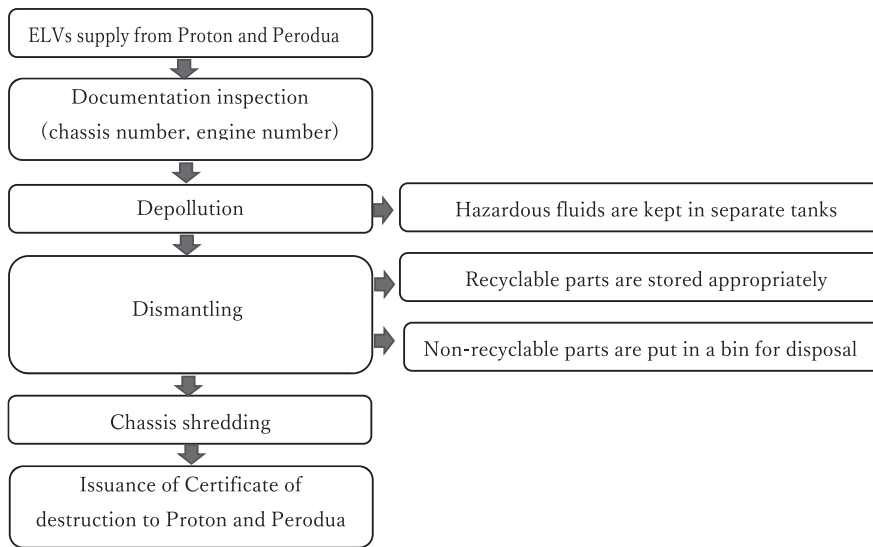


Figure 13: Framework for ELV Recycling System in Malaysia

Source: Mamat et al. (2016)

from Japan. The reason is mainly the AP regulation for the importation of used vehicles. On the other hand, the car market in Malaysia has a tight connection with manufacturers in Japan, where the EPR policy is implemented.

Regarding UAP, we identified two types trading in chapter 3. One is RCV manufacturing from the bodies and chassis of ELVs from Japan at certain amounts. The other is originally UAP trading. However, the considerable part of importing UAP is reexportation to other countries. The number or values is difficult to estimate. However, in the estimation for the used engine trading, we have clarified that the market in Malaysia is huge and is important for the Japanese UAP export market.

In a later chapter, we provided a background and identified the factors related to the huge trading volume. Chapter 4 presented the huge agglomeration of UAP dealers and the RCV industry around the suburban area of KL and Port Klang area. They import UAP from Japan in containers and sell UAP to foreign buyers and local dealers. The location is highly suitable especially for reexportation. The huge agglomeration produced the huge trading volumes of UAP and ELV.

Chapter 5 described the reasons for the existence of the RCV industry in Malaysia from the aspects of history and regime. The economic development in Malaysia, which required heavy equipment, including RCVs, and was promoted by the government to improve the economy, is an important background. However, after 2010, the policy about RCVs changed, so the RCV industry has become a relatively declining industry. As mentioned in chapter 3, there is huge volume of trading “materials from ELV” for RCVs; thus, the importance of RCVs has not changed. In addition, chapter 5 described the process of making RCVs and ELV disposal and mentioned that

the industry was government approved.

The result of this study indicates that a huge volume of trading exists because of the huge demand for RCV manufacturing and reexportation of UAP. This study is the first to examine the real status and background of this trading industry. Of course, this research is tentative, so in the future, studies are needed to clarify how the distribution will affect the environment and economy of both countries and whether problems exist in the cross-border recycling system from a quantitative perspective, including LCA.

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