Annex II

Country Reports

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1. India
2. Indonesia
3. Lao People's Democratic Republic
4. Malaysia
5. Mongolia
6. Myanmar
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8. Philippines
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11. Taipei
12. Thailand
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Annex II

Country Reports

1. India

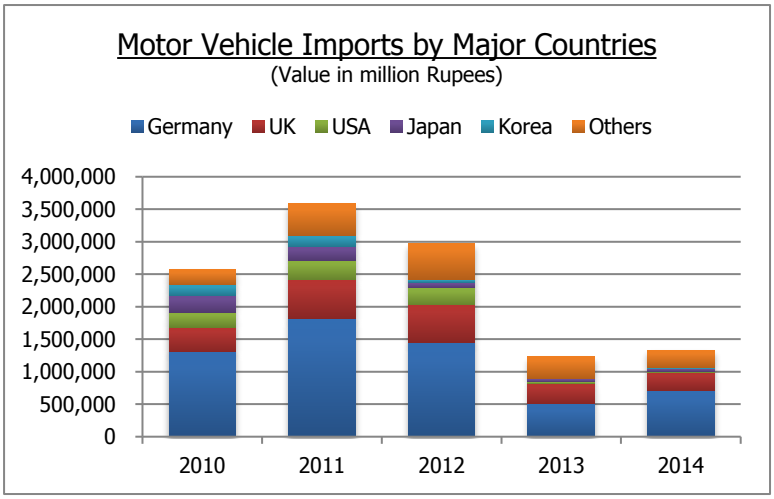
Country :	India
1. Current status of automobile recycling in the targeted country	

(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows India's automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Germany and the UK.The decline in imports from 2013 is said to be due to the increased tax on imported Sports Utility Vehicles (SUVs).

Figure A-I.1: India's Automobile Imports



UK = United Kingdom; USA = United States of America.

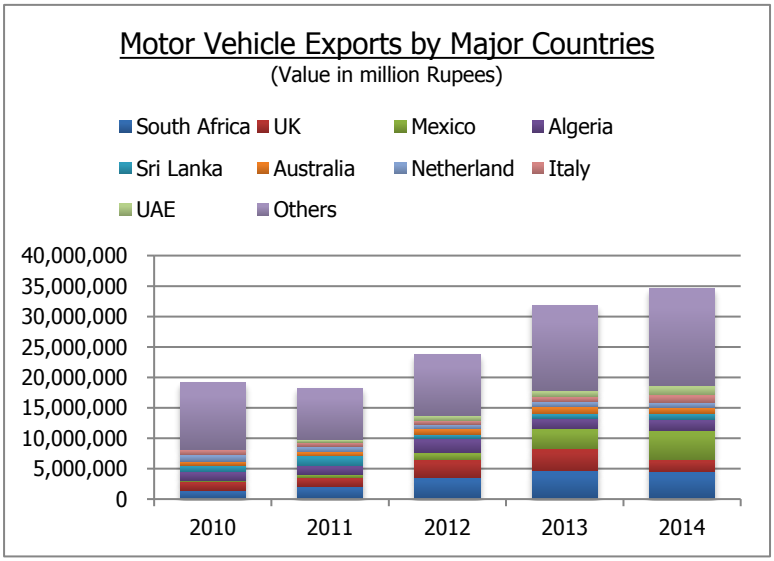
Source: UN Comtrade Database.

Country :	India

Export

The volume of export of motor vehicles from India was smaller than that of its import volume. Destinations of the vehicles were Saudi Arabia, UK, Mexico, Algeria, Sri Lanka, Australia, Netherlands, Italy, UAE, and others.

Figure A-I.2: India's Automobile Exports



UAE = United Arab Emirates, UK = United Kingdom.

Source: UN Comtrade Database.

Reference

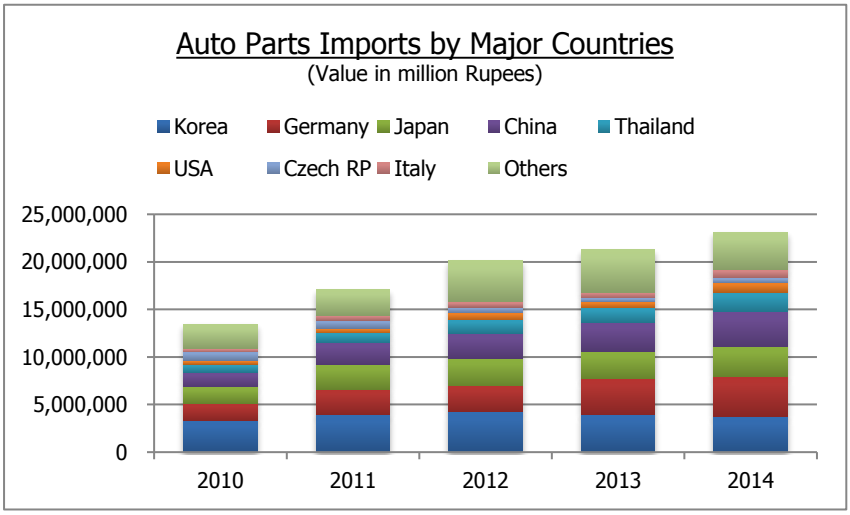
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts (HS code: 8707 - 8708), including used parts, for 2010 - 2014.

Country :	India

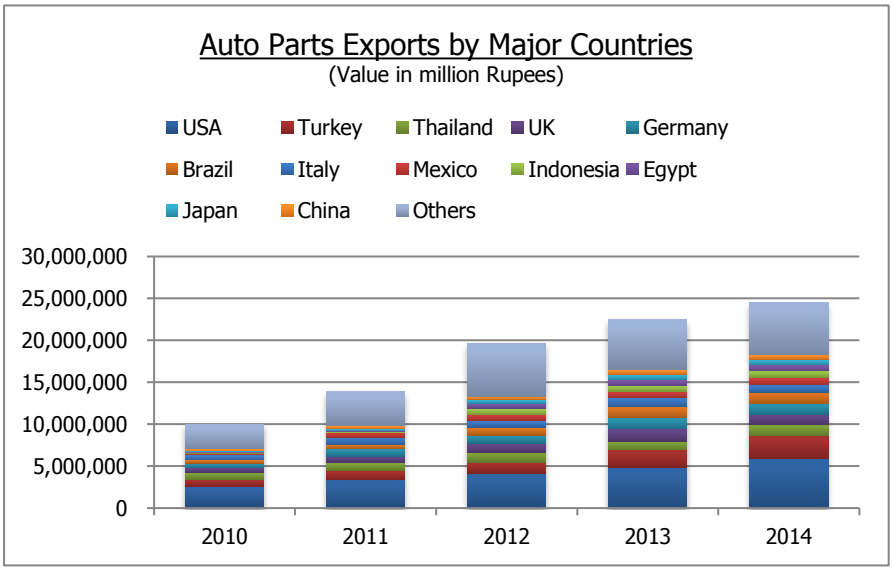
Figure A-I.3: India's Auto Parts Imports



Czech RP = Czech Republic, USA = United States of America.

Source: UN Comtrade Database.

Figure A-I.4: India's Auto Parts Exports



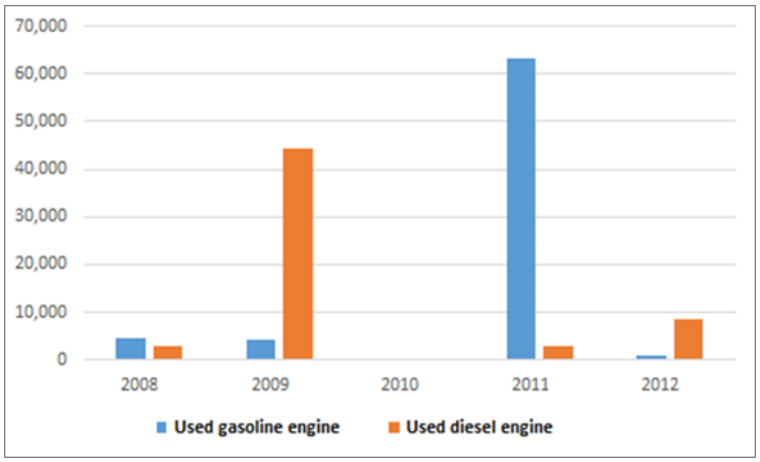
UK = United Kingdom, USA = United States of America.

Source: UN Comtrade Database.

Country：	India

The graph below shows estimates of India's used engine exports between 2008 and 2012. While no exports were found in 2010, more than 40,000 diesel units in 2009 and more than 60,000 gasoline units in 2011 were exported.

Figure A-I.5: Estimates of India's Export of Used Engines



Source: UN Comtrade Database.

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Trade Control

All items, including tanks and armoured fighting vehicles, can be imported by the Ministry of Defence.

The importation of chassis with two-stroke engines of three-wheeler vehicles (tempo, auto rickshaw, and others) is banned.

Country：	**India**

Motor cars of any cubic centimetre, and microbus, minibus, jeeps, including other old vehicles, and tractors, are importable under the following conditions:

1. The vehicle must not be more than five years old in the case of shipment.
2. Old vehicles can be imported only from the country of its origin. Old vehicles from any third country cannot be imported, except those which are to be used personally. In the case of import from a third country, a certificate of registration and certificate of cancellation of registration (from the country of use) will have to be submitted to the Customs authority.
3. A certificate containing age, model number, and chassis number of the old car will have to be submitted to the Customs authority from the Japan Auto Appraisal Institute (JAAI) for cars imported from Japan, or from recognized automobile associations for imports from other countries.
4. The date/age will be calculated from the first day of the next year of manufacture of the chassis.
5. For cars that have been imported from Japan, the date of manufacture will be ascertained/determined after examining the chassis book published by JAAI. For cars imported from other countries, the date of manufacture will be determined by examining the chassis book published by the country's government-approved automobile association. No old car or vehicle can be imported from a country that does not publish chassis books.
6. With respect to catalytic converters in petrol-driven cars and connection of diesel particulate filters in diesel-driven cars, action will be taken as per S.R.O.29-law /2002 dated 16 February 2002 issued by the Ministry of Environment and Forest.
7. No car can be imported without seat belt.
8. Wind shield glass and window glasses on both sides of the driver's seat must be transparent so that the inside of the car is visible.

Country：	India

Subject to the fulfillment of conditions laid down in clauses (2) to (6) above, old taxicabs from 1,250 cubic centimetres to 2,000 cubic centimetres that are less than three years old can be imported.

Motorcycles that are more than three years old and above 150 cubic centimetres are banned. However, this limit is not be applicable to the Police Department. For the importation of three-year old motorcycles, the period is calculated from the first day of the calendar year to the next manufacturing year. To determine the age of old motorcycles, certificates from internationally recognised companies such as PowerSport Institute and National Board of Revenue-approved inspections can be accepted as alternatives to the registration cancellation certificate.

The importation of remanufactured, rebuilt, and/or used parts is not permitted.

Duties and Taxes

- Customs Duty: In India, the basic law for levy and collection of customs duty is Customs Act 1962. It provides for levy and collection of duty on imports and exports, import/export procedures, prohibitions on importation, and exportation of goods, penalties, offences, among others.

  -The basic tariff applied to cars is 60 percent (overall duty is 100 percent)

  -The basic tariff applied to trucks is 10 percent.

  -The basic tariff for auto parts (Chapter 84 and 87) is 7.5 percent.

- Basic Excise Duty: This is the duty leviable under the first schedule of the Central Excise Tariff Act 1985.

- Special Excise Duty: This is the duty leviable under the second schedule of the Central Excise Tariff Act 1985. At present, this is leviable on very few items.

- National Calamity Contingent Duty: Normally known as NCCD. This duty is levied as per section 136 of the Finance Act 2001, as a surcharge on specified goods.

- Excise Duties and Cesses leviable under the Miscellaneous Act: On certain specified

Country：	India

goods, in addition to the aforesaid duties, a prescribed rate of excise duty and cess is also leviable.

- Education cess on excisable goods is levied in addition to any other duties of excise chargeable on such goods, under the Central Excise Act 1944 or any other law in force.

References

Central Board Of Excise And Customs. http://www.cbec.gov.in/customs/cst-2k11-12/cst1112-idx.htm (accessed September 2015).

United States Department of Commerce International Trade Administration Office of Transportation and Machinery. *Compilation of Foreign Motor Vehicle Import Requirements.* http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

New Car Registration

The registration of motor vehicles in India is governed by the country's Motor Vehicles Act of 1988. Motor vehicles cannot be used unless they are registered. Every owner of a motor vehicle must have their vehicle registered by authorities in his/her residence or place of business where the vehicle is normally kept.

Section 41 of the Act details the steps to register a motor vehicle in India. An application by or on behalf of the owner of a motor vehicle for registration shall be accompanied by documents, particulars and information, and shall be made within a period as may be prescribed by the central government. The registering authority shall issue a certificate of registration to the owner of a motor vehicle.

Country：	India

Re-registration

The Central Motor Vehicles Rules 1989 stipulates the regulation on renewal of certificate of registration. An application for the renewal of a certificate of registration for a motor vehicle, other than a transport vehicle, shall be made to the registering authority more than 60 days before the date of its expiry, accompanied by the appropriate fee as specified in rule 81.

Deregistration

There is no formal deregistration system in operation. AIS-129 proposes a formal deregistration system to be implemted along with a destruction certificate for ELVs.

Inspection

There is no inspection system for private vehicles. Only commercial vehicles are subject to inspection/fitness checking, which is authorized by the State Transport Department. Article 62 of the Central Motor Vehicle Rules 1989 prohibits testing stations from conducting vehicle inspection without permission from the registering authority.

Insurance

Third party insurance is comulsory for all vehices.

References

Automotive Industry Standard 129.

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Motor Vehicles Act 1988. http://www.vakilno1.com/bareacts/motorvehiclesact/motor-vehicles-act.html#39_Necessity_for_registration (accessed September 2015).

http://www.spahmedabad.gujarat.gov.in/Upload/002motor-vehicles-act-1988.pdf

Country：	India

(accessed September 2015).

The Central Motor Vehicles Rules 1989. http://www.tn.gov.in/sta/Cmvr1989.pdf (accessed September 2015).

(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

According to the Motor Vehicle Act 1988, the importation of used cars is allowed. However, due to the high tariff and complicated procedure, it is almost impossible to import them.

Rules and regulations on imported used cars are follows;

- Imported used cars must have been manufactured within three years.
- Right-and drive cars are allowed to be imported only from designated ports.
- Imported cars must be usable on the road for at least five years and accompanied by submission of documents that prove they are able to be fixed at repair facilities in India for the first five years.

Accident Status-quo Cars

Accident cars are auctioned off in India. Currently, the informal sector is taking in ELVs, but the industry is reported to have many problems. The working condition is very bad for the estimated 100,000 recycling workers with severe health threats. Little treatment is done for hazardous materials, resulting in air, water, and soil pollution in these informal recycling centres situated in city centres. The testing of a formal mechanised recycling process has been started at the Recycling Demo Unit of the Global Automotive Research Center which can properly treat batteries, oils, airbags, and other materials.

Country：	India

References

Captain N.S. Mohan Ram, Chairman. Recycling sub-group, Society of Indian Automotive Manufacturers, *Recycling ELVs –India Report.* http://www.npo-jara.org/irt/pdf/SIAM_IRT2014.pdf (accessed September 2015).

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

With the rapidly increasing number of new cars, there is a concurrent need for modern facilities for recycling and recovering materials from old and used cars that reach their end-of-life. The ELV market of India is expanding. It was reported that the cumulative number of ELVs reached 3,900 thousand in 2014.

According to EX Research Institute's survey, the estimated number of ELVs from 2008 to 2012 is as follows:

Table A-I.1: Estimated Number of ELVs in India (in thousands)

Year	2008	2009	2010	2011	2012
No. of ELV	1,780	4,763	139	2,434	-1037

ELV = end-of-life vehicle.

Source: EX Research Institute. *Survey on recycling law and business in Asia 2014*.

Another organisation estimates that, at current percentages of dismantling, 718,000 vehicles are expected to be dismantled by 2020 and 1.8 million by 2030. These percentages are however

likely to go up in the future. If all ELVs were to be dismantled, the number would stand at 8.7 million by 2020 and 26.6 million by 2030.

Table A-1.2: Estimated Number of ELVs in India (million)

ELVs by 2020-2030 (mn nos)		
Vehicles	**2020**	**2030**
Passenger vehicles	0.68	2.63
LCV	0.22	0.78
M & HCV	0.24	0.23
Scooters	1.05	6.31
Bikes	5.77	15.15
Moped	0.41	1.02
Three wheelers	0.31	0.51
Total Vehicles	**8.68**	**26.63**

HCV = heavy commercial vehicle, LCV = light commercial vehicle, M = power driven vehicles for passengers, mn nos = million number.

Source: Feedback Business Consulting Services, Report on Understanding Automobile Recycling Practices in India.

Model Years

In India, cars are driven for 15-20 years until they can no longer be cajoled into life.

Prices

A study of EX Research Institute indicates the purchase price of ELV ranges from Rs50,000 to Rs200,000.

Distribution

Old vehicles are repaired by the informal sector and those that cannot be repaired are sent to dismantling centres as ELVs. Bulk disposers such as companies and governmental institutions sell ELVs at auctions. Individual owners trade their old cars in for a new one at car dealers or they go to the local dismantling centres.

Country：	India

Processing Situation

Used cars have been traded by small-scale dealers or acquaintances in India. However, situation has changed recently. Major automobile manufacturers such as Maruti Suzuki, Toyota and Tata launched the program dealing with used cars, which supports the expansion of the ELV market.

Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity. The working condition is very bad for the estimated 100,000 recycling workers who face severe health threats. Furthermore, there is not enough space for a facility. Vehicles are dismantled in scrap yards located inside the cities using hand tools, hammers, and the like. Historically, these locations were in the city outskirts but they are now in busy residential areas, often in the heart of the city.

Around 410,700 tons of scraps (metals, aluminum and plastics) are sent to scrap dealers and around 7, 800 tons of rubber and plastics that cannot be recycled are dumped in open garbage areas.

Currently, dismantling is centered on the informal sector, offering employment to nearly 15,000 people directly and 80,000 people indirectly.

There is not a single shredder in operation in India for ELVs. The small volumes do not make a shredder economically viable to operate. The Ministry of Steel is proposing to install shredders where ELV volumes are guaranteed.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Feedback business consulting services. *Report on understanding Automobile Recycling Practices in India.*

G.D. Sivakumar, S. Godwin Barnabas, S. Anatharam. *Indian Automobile Material Recycling Management.* http://www.rroij.com/open-access/indian-automobile-material-

Country：	India

recyclingmanagement.pdf (accessed September 2015).

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

Used parts are mainly generated domestically due to prohibition of import of used motor vehicle parts. However, the number of used engines exported to India was about 50 thousand in 2008, about 350 thousand in 2010, and about 300 thousand in 2011.

Distribution, flow, and processing situation

Generally speaking, useful spares are recovered by using basic tools and no specialised equipment, refurbished and sold. Parts such as bumpers, head lamps, bonnets, steering wheels, batteries, among others, are used. Metal and plastic items are sold to scrap dealers and the rest are disposed through 'kabbadi wallahs' or dumped in open garbage areas.

Rewinding of motors, starters, alternators, and the like is done in a crude manner by the informal sector. There is no organised industry for remanufacturing used car parts.

AIS-129 controls the quality management of the component parts deemed to be non-reusable.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Feedback business consulting services. *Report on understanding Automobile Recycling Practices in India.*

Country：	India

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading and resources: steel and non-ferrous metals

Steel scraps are in high demand in India. A lot of steel scraps have been imported from other countries. The amount of imported steel scraps in India reached a record high of 8,170 thousand tons in 2012. As a breakdown, 2,681 thousand tons (35 percent) was from EU, 1,960 thousand tons (24 percent) was from Asia, 1,737 thousand tons (21 percent) was from Africa, and 1,135 thousand tons (16 percent) was from the US. It should be noted that the amounts have been dramatically increasing from only 4,600 thousand tons in 2010.

The table below shows volume of domestic generation of steel scrap.

Table A-1.3: Volume of Steel Scrap Generation in India

Year	2008	2009	2010	2011	2012
Steel Scrap (ton)	1,348	3,865	7,336	10,953	9,897

Source: Nikkan Shikyo Tsushin sya.

There are more than 700 electric furnace companies in India. However, while there is a fluctuation in the price of steel scrap, direct reduced iron coal and hot metal are used more as raw materials rather than steel scrap.

Steel can be taken from air filters, oil filters, switches, and clutch disks. Steel and aluminum are from brake shoes. Steel, brass and coppers are from battery terminals.

Generally, in India, scrapped metal items such as sheet metals, aluminum and plastics are retrieved and reused. Unusable items such as rubber parts, excluding tires, insulation material, glass, among others, are disposed at municipal garbages.

A lot of disposed catalysts of vehicles are disposed by the informal sectors such as Saraks and Hindestan Pt. (details are unknown).

Rubber is used as fuel for electric furnace.

Country：	India

Reference

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Generally, little treatment is done for hazardous materials, resulting in air, water, and soil pollution in recycling facilities.

Batteries:

Batteries are sold to spare shops and the like, though there are formal regulations concerning disposal of used batteries. Regulations exist for return and recycling of batteries, but these are not strictly enforced.

Tires:

Scrap tires are either retreaded, sold to small industries, or discarded into garbage dumps. Scrap tire collectors and traders collect and transport scrap tires from tire shops to retreaders, recycling facilities, or to the nearest landfill sites.

Engine Oils:

Engine oils are used as fuel for industrial furnaces and boilers, or as recycled oil after distillation. Oil without the process of distillation is used as lubrication for crane wires and gears.

Wasted Oils

Several kinds of wasted oils such as transmission oil, coolants, power steering oil, brake oil, hydro oil and gear oil are mixed and heat treated. Then, it is used as lubrication for gears after chemical congelation.

The testing of the formal mechanised recycling process has been started at the Recycling Demo Unit of Global Automotive Research Centre which can properly treat batteries, oils, airbags, and other materials.

Country：	India

Reference

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

(10) Factual survey of end-of-life two-wheeled vehicles

While the sale of new cars and commercial vehicles declined in the country, powered two-wheelers saw modest growth of 2.3 percent in financial year 2012-13.

According to the Society of Indian Automobile Manufacturers (SIAM), in the 12 months to the end of March 2014, demand for two-wheeled transportation climbed 7 percent to 16.9 million, and in the first half of this financial year, growth more than doubled to 16 percent to record sales of 8.17 million. That figure represents nearly one-fifth of the world's total motorcycle, scooter and e-bike sales.

According to automotive supplier Bosch, volumes will continue to grow. The company expects the two-wheeler market in India to reach 27 million units by 2020.

The study team could not acquire the information on end-of-life motorcycles in this study. However, as the motor cycle is one of the subjects of the Draft Automotive Industry Standard for End-of-Life Vehicles drafted by SIAM, the regulation on end-of-life motorcycles is considered to be concretised and strengthened.

Reference

Automotive Manufacturing Solutions. *India: Two wheels still good.* http://www.automotivemanufacturingsolutions.com/focus/india-two-wheels-still-good (accessed September 2015).

Country：	India

(11) Type of operation and number of recycling-related companies

Type of Operation

Both large-scale organised and small-scale informal sector companies deal with ELVs in India. The former buy and sell bulk ELVs at auctions, and then sell them to scrap dealers once they have picked the reusable parts. The latter manually deal with ELVs which were picked and cannot be reused.

Shredder

There is not a single shredder in operation in India for ELVs at this time.

Other related companies

Batteries:

Small recyclers that dominate the Indian market mostly rely on coal to fuel crude furnaces. Furthermore, the quality of lead derived from these operations is insufficient to be used in producing high-quality long-life lead batteries.

According to a study of the Occupational Knowledge International conducted in 2010, there are number 336 registered recyclers for lead batteries in India. However, most of these facilities are small and very few are likely to operate efficiently and with sufficient pollution controls.

Tires:

There are waste tire recycling plants in India. Fab India is a manufacturer with a waste tire recycling plant and a pioneer in the field of designing, developing and quality manufacturing recycled tires with more than 20 years' experience. The company is located at Ahmedabad, Gujarat.

Divya International is also a manufacturer of recycled waste tires and spare parts that has a professional approach aimed at result orientation. The company installs quality pyrolysis machineries across India. Divya International today is one of the leading manufacturers of pyrolysis plants in India.

Country：	India

S&J Granulate Solutions Private Limited is a company that started its production in its new fully automated Eldan tire recycling plant in 2012. The plant, which is located in the Vapi region, Gujarat, India, has currently the highest capacity among such facilities in India. The production line is capable of processing up to 5,000 kilograms of shredded used tires per production hour.

References

Fab India. http://www.pyrolysisplant.in/about-us.html (accessed September 2015).

Divya International. http://divyaint.com/divya-sadf/about-us.aspx (accessed September 2015).

Eldan Recycling. http://www.eldan-recycling.com/content/fully-automated-tyre-recycling-plant-india (accessed September 2015).

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Occupational Knowledge International. *Lead Battery Recycling in India: Insufficient to prevent widespread contamination, lead poisoning, and ensure future lead supplies.* http://www.okinternational.org/docs/Lead%20Battery%20Recycling%20in%20India.pdf (accessed September 2015).

(12) Management situation of recycling-related companies

The study team could not acquire information on the management situation of recycling-related companies in India.

Reference

N/A

Country：	India

2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates)

The following are the challenges in the vehicle recycling system in India:

- Unavailability of adequate collection systems for certain waste materials. In the case of ELVs, the collection infrastructure is not in place.
- Lack of technology to identify, separate, and recover quality recyclables economically from the waste stream. Separation and cleaning of the desired materials at a high enough purity for recycling can be complicated and costly, depending on the characteristics and composition of the waste stream. A clear example is the separation and cleaning of plastics from ASRs.
- Incompatibility of different materials. For example, most polymers are not compatible with each other, and the separation from each other can be challenging and costly. Researches on compatibilizers conducted by the Vehicle Recycling Partnership (VRP) and others indicate that compatibilizers such as block-co-polymers may compatibilize some mixtures of commingled plastics without the presence of polyvinyl chloride (PVC) like municipal solid wastes.
- The market value of the recovered materials (i.e. available amounts, market price of the recovered material, and the like). The price of recycled plastics and foam has been fluctuating and, in many cases, is dependent on export of the materials overseas.

Against these challenges, a draft of AIS-129 is being prepared by the SIAM to be approved by the government. The objective of AIS-129 is to effectively regulate the ELVs. The scope of target of AIS-129 is diverse, covering items such as collection and dismantling of ELVs, heavy metal restriction and dismantling information, and type approval of vehicle regarding the 3R principles.

Country：	India

References

Automotive Industry Standard 129.

G.D. Sivakumar, S. Godwin Barnabas, S. Anatharam. *Indian Automobile Material Recycling Management.* http://www.rroij.com/open-access/indian-automobile-material-recyclingmanagement.pdf (accessed September 2015).

(2) Trend in vehicle recycling policy and related automobile recycling laws, and the enforcement, presence and details of related institutions.

a) Status of institutional system collateral for improper processing of three designated recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

CFCs not retrieved during the dismantling process are released in the air as there is no CFC collecting facility.

Airbags

The study team could not acquire detailed information. However, the testing of a formal mechanised recycling process has been started at the Recycling Demo Unit of Global Automotive Research Centre which can properly treat airbags.

Automobile Shredder Residues

Currently, ASRs are not properly disposed. According to Feedback Business Consulting Services, in its *Report on understanding Automobile Recycling Practices in India*, large landfills will be required to handle the scrap, unless dismantling processes are improved to reduce scraps discarded in garbage dumps through auto shredder usage and post ASR treatment. Improved infrastructure in the system (use of auto shredders) can help recycle 85 percent of the total weight of the vehicle. With shredding, 15 percent of the scrap alone will find its way in landfills

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies

Country：	India

(including local governments)

The current roles and responsibilities among stakeholders related to the regulation of the automotive industry are as follows:

- Importers – subject to Customs formalities (e.g. required documents, fees, re-export, registration)
- Manufacturers – subject to design/technical standards and regulations, vehicle registration, and taxes. Multinational companies in India are promoting Design for Recycle (DfR) as per their global standards. Two major Indian car companies also make their export vehicles comply with EU standards. The entire production of Maruti Suzuki Limited complies with DfR standards.
- Users – compliance with transport regulations and standards (e.g. emission standards, periodic inspection)
- Government Agencies
    - Ministry of Road Transport and Highway – in charge of new car registrations, licensing, inspection and management of exhaust gas.
    - Ministry of Environment, Forestry and Climate Change – in charge of protecting the environment by ensuring compliance with environmental laws, establishing proper guidelines and plans, and coordination of relevant policies and management of hazardous wastes
    - Central Pollution Control Board – in charge of managing hazardous wastes and setting the standards for their treatment and disposal
    - State Pollution Control Board – in charge of making the inventory of hazardous wastes and monitoring of compliance by handing certifications on hazardous wastes.
- SIAM – in charge of the coordination of manufacturers in India, and proposals on ELV registration and technical standards.

Country：	India

References

Captain N.S. Mohan Ram, Chairman, Recycling sub-group. Society of Indian Automotive Manufacturers, *New Kid on the Block in Automotive Recycling India.* http://www.a-r-a.org/article.asp?paper=102&cat=166&article=804 (accessed September 2015).

DENSO and JAPIA-CLEPA Material Regulation Event, *Indian ELV.* Feedback business consulting services, *Report on understanding Automobile Recycling Practices in India* EX Research Institute, *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

There is no automobile recycling law in India so far, however, India is now focusing on creating a practicable end-of-life policy such as safe vehicle recycling and scrapping.

SIAM has taken a proactive approach and focused its attention to the issue. It has established a special group to deal with recycling of ELVs and proposed the draft AIS-129 to the government.

Draft AIS-29 requires dismantlers to possess the equipment and facilities for 'depollution' of ELVs. AIS-129 incorporates a provision for accreditation of dismantling standards after they meet specified standards.

AIS-29 also formulates technical standards for the safe disposal of ELVs and the reduction of heavy metals in vehicles.

The following regulations stipulate general waste management in India.

The Environment（Protection）Act 1986, amended 1991

The Act is a basic law of environmental protection. The Act stipulates that the central government has the power to take all necessary measures for the purpose of protecting and improving the quality of the environment; and preventing, controlling, and abating environmental pollution. The act also stipulates that no person shall handle or cause to be

Country：	India

handled any hazardous substances.

The Hazardous Wastes (Management and Handling) Rules 1986, amended 2000, 2003, 2008

The rules are the primary regulations addressing the management of hazardous wastes in India. These rules were established under the Environment (Protection) Act 1989, which gives the central government the power to 'take all such measures as it deems necessary or expedient for the purpose of protection and improving the quality of the environment and preventing, controlling and abating environmental pollution'.

The rules require a person or facility to handle hazardous wastes. Any person who is involved in handling hazardous waste must apply to a State Pollution Control Board (SPCB) for a grant of authorisation. This includes any person involved in the 'generation, processing, treatment, packaging, storage, transportation, use, collection, destruction, conversion, offering for sale, transfer, or the like of hazardous wastes. After receiving an application, an SPCB may grant or deny an authorisation. An SPCB may grant an authorisation if it is satisfied that the applicant has: (1) appropriate facilities; (2) technical capabilities; and (3) equipment to handle hazardous waste safely. If an SPCB grants an authorisation, it may set out conditions for the applicant to follow in the authorisation. Authorisations must be granted within 120 days of the application, and are valid for five years.

In addition to persons handling hazardous wastes, people who recycle or reprocess hazardous wastes must apply to SPCB for a grant of registration. The SPCB may grant registration if it is satisfied that the applicant (1) utilises environmentally sound technologies; and (2) possesses (a) adequate technical capabilities, (b) requisite facilities, and (c) equipment to recycle, reprocess or reuse hazardous wastes.

The grant of authorisation must be renewed every five years. SPCBs may renew an authorisation if there has been no report of violation of the Environment（Protection） Act (EPA) or related rules, or violation of the conditions set forth in the original grant of authorisation. While SPCB has the discretion not to renew an authorisation, in practice, it is expected that renewals will be granted if there have been no reported violations. The Central Pollution Control Board (CPCB) may renew a registration.

Country：	India

The Batteries (Management and Handling) Rules 2001

The Batteries (Management and Handling) Rules 2001 applies to the handling of batteries and their components. Batteries are defined under the rules to include lead-acid batteries that contain metal and are a source of electrical energy. Manufacturers, importers, assemblers, and reconditioners have specific responsibilities under the rules, including stated procedures for collection, recycling, and transportation. A battery recycler must register with an SPCB for a five-year licence. To obtain a registration as a battery recycler, an applicant must possess consents under the Air and Water Act, valid authorisation under the Hazardous Wastes Rules, registration with their District Industries Centre, and documentation of their installed capacity. Under the rules, registration is granted by the joint secretary of the Ministry of Environment, Forestry and Climate Change (MOEF), while the SPCBs are responsible for ensuring compliance with the Hazardous Wastes Rules and the Air and Water Acts, as well as certifying installed capacity. Renewal of registration will depend on the recycler's compliance status. Recyclers must also submit annual returns to the SPCB using a specific form set out in the rules, along with all records relating to the receipt of used batteries.

Both the EPA and the Hazardous Wastes Rules give SPCB the power to impose penalties. Under the EPA, anyone who 'fails to comply with…any provision of [the EPA], or the rules made or orders or directions issued thereunder' is subject to fines (up to Rs1), imprisonment (up to five years), or both for each failure. Additional fines may be imposed (up to Rs5,000 per day) if a failure continues after the first conviction. If it continues for more than a year after the conviction, a violator is subject to imprisonment for a period of up to seven years. The Hazardous Wastes Rules allow SPCBs to impose civil fines on occupiers and operators if they violate any of the provisions. Before an SPCB may impose a fine, however, it must first get approval from the CPCB.

Hazardous wastes requiring registration for recycling/reprocessing identified in the Hazardous Wastes (Management and Handling) Rules 1986, as amended in 2008, are listed in the table below:

Country：	India

Table A-1.4: Hazardous Wastes Requiring Registration for Recycling/Reprocessing

No.	List of Hazardous Wastes
1	Brass Dross
2	Copper Dross
3	Copper Oxide mill scale
4	Copper reverts, cake and residue
5	Waste Copper and copper alloys in dispersible form.
6	Slags from copper processing for further processing or refining
7	Insulated Copper Wire Scrap/copper with PVC sheathing including ISRI-code material namely "Druid"
8	Jelly filled copper cables
9	Spent cleared metal catalyst containing copper
10	Spent catalyst containing nickel, cadmium, zinc, copper, arsenic, vanadium
11	Zinc Dross-Hot dip Galvanisers slab
12	Zinc Dross-Bottom Dross
13	Zinc ash/skimmings arising from galvanising and die casting operations
14	Zinc ash/skimming/other zinc bearing wastes arising from smelting and refining
15	Zinc ash and residues including zinc alloy residues in dispersible form
16	Spent cleared metal catalyst containing zinc
17	Lead-acid battery plates and other lead scrap/ashes/residues not covered under Batteries (Management and Handling) Rules, 2001. [*Battery scrap, namely: Lead battery plates covered by ISRI, Code

Country：	India
	word ‘Rails’ Battery lugs covered by ISRI, Code word ‘Rakes’. Scrap drained/dry while intact, lead batteries covered by ISRI, Code word ‘Rains’.
18	Components of waste electrical and electronic assembles comprising accumulators and other batteries included on list A, mercury-switches, activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule 2 constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in part C of this Schedule.
19	Paint and ink Sludge/residues
20	Used Oil and Waste Oil - As per specifications prescribed from time to time.

ISRI = Institute of Scrap Recycling Industries Incorporated, PCB = polychlorinated biphenyl, PVC = Polyvinyl chloride.

Source: Hazardous Wastes (Management and Handling) Rules 1986, amended 2008.

References

Automotive Industry Standard 129.

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Environmental Law Institute, *Enforcing Hazardous Wastes Rules in India - Strategies and Techniques for Achieving Increased Compliance.* https://www.eli.org/sites/default/files/eli-pubs/eli-nlsiu-enforcing-hazardous-wastes-rules-india-handbook.pdf (accessed September 2015).

Annex II

Country Reports

2. Indonesia

Country :	Indonesia

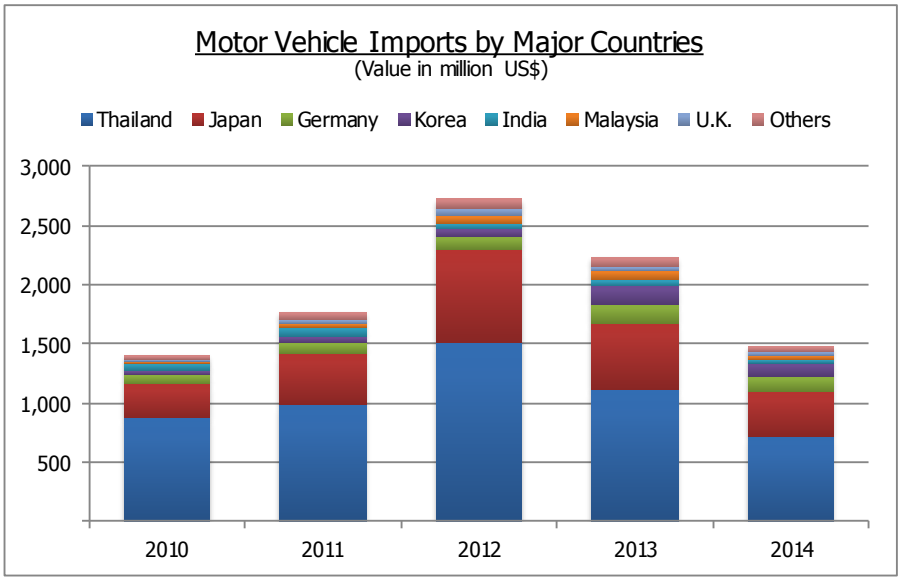
1.The current status of automobile recycling in the targeted countries

(1) Import and export situation from Japan and other countries: used cars

Import

The cumulative bar graph below shows automobile imports (HS code: 870321 - 870390), including used cars, to Indonesia for 2010 - 2014. Indonesian imports of vehicles in 2012 surged 155 percent to US$2.7 billion compared to 2011 due to the country's high private consumption. Thailand has been the biggest supplier during the period followed by Japan, which accounted for more than 50 percent in average of the total, while the value dropped in 2013 and 2014.

Figure A-II.1: Indonesia's Automobile Imports



UK = United Kingdom.

Source: UN Comtrade Database.

Country : **Indonesia**

Table A-II.1: Number of Used Passenger Motor Cars Exported from Japan

Year	2010	2011	2012	2013	2014
Indonesia	5,762	3,647	3,491	2,790	3,434
World	672,627	699,881	830,703	947,990	1,059,617
Share of Indonesia	0.9%	0.5%	0.4%	0.3%	0.3%

Source: Trade Statistics of Japan, Ministry of Finance.

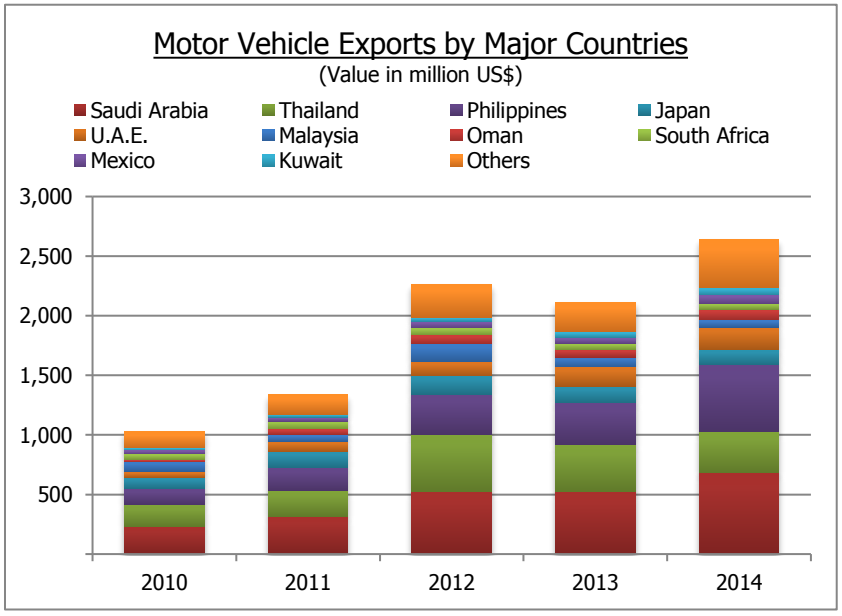
Table A-II.2: Number of Imported Used Cars Estimation

Year	2009	2010	2011	2012	2013
Total	8,701	16,595	10,368	10,040	7,929

Source: Yano Research Institute.

Export

Figure A-II.2: Indonesia's Automobile Exports



UAE = United Arab Emirates.

Source: UN Comtrade Database.

Country：	Indonesia

The country's annual automobile exports growth has reached a figure of more than US$2 billion in the past three years, indicating a continuous improvement in performance.

References

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

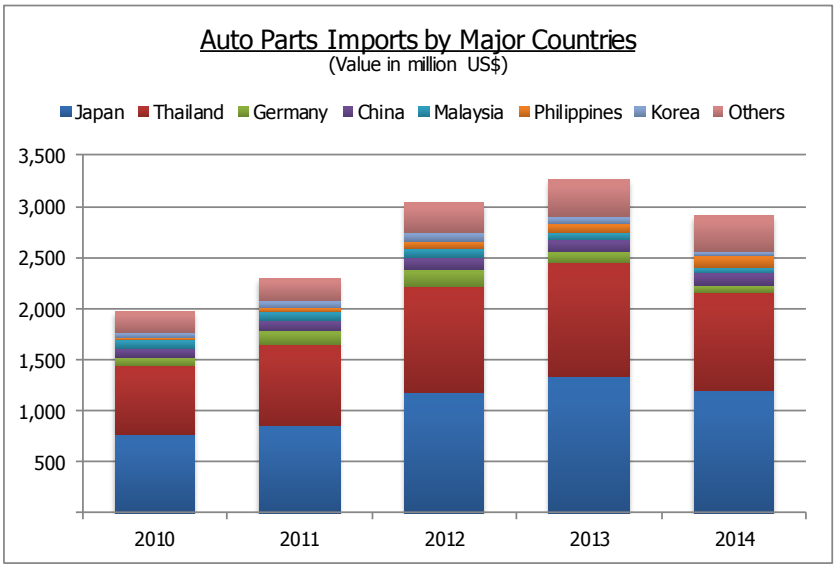
(2) Imports and exports from Japan and other countries: used parts

Although the importation of used car parts is prohibited in Indonesia, used parts are still imported, mainly from Singapore, especially for functional parts such as engine, though they are suspected to have originated from Malaysia. Direct imports from Japan and other countries are also reported. According to the trade statistics of Japan, car parts imports from Japan reach ¥298,664 million.

The two cumulative bar graphs below show imports and exports of auto parts (HS code: 8707 - 8708), including used parts, to Indonesia for 2010-2014. The total volume of imports has steadily grown for the past years, but decreased in 2014.

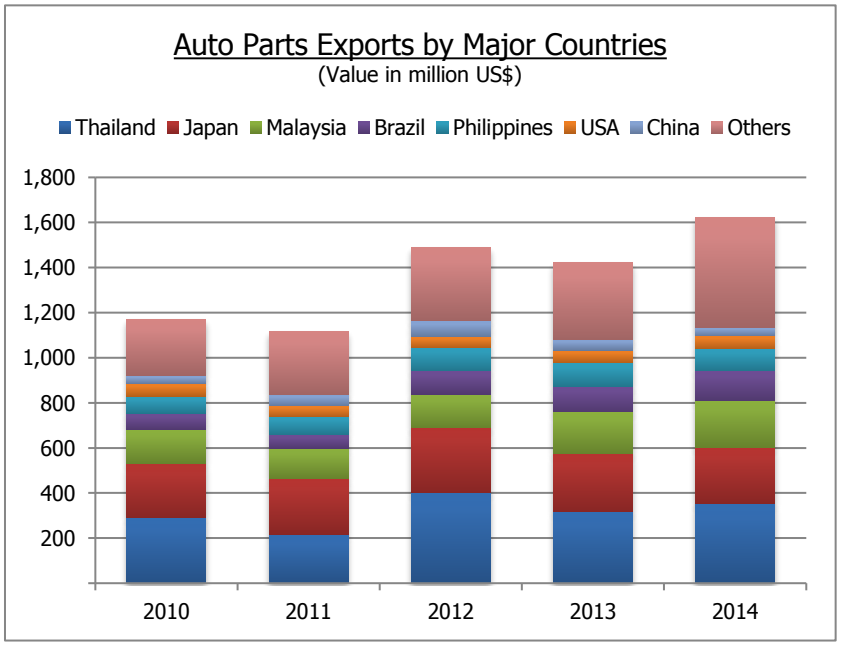
Country :	Indonesia

Figure A-II.3: Indonesia's Auto Parts Imports



Source: UN Comtrade Database.

Figure A-II.4: Indonesia's Auto Parts Exports

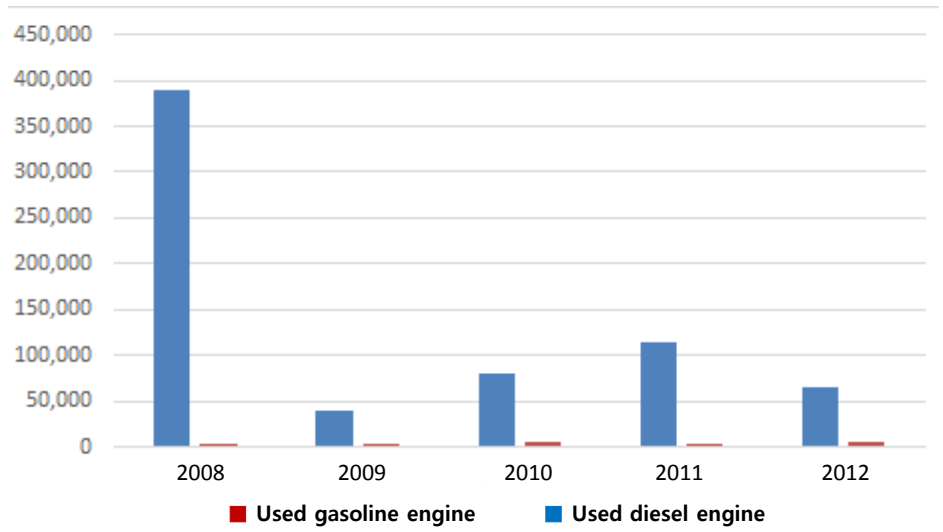


USA = United States of America.
Source: UN Comtrade Database.

Country :	Indonesia

Used Engines

Figure A-II.5: Import of Used Engines



Source: Department of Statistics.

References

Department of Statistics. http://www.bps.go.id/ (accessed September 2015).

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Trade Control

Tariffs:

- Tariffs on completely built-up (CBU) passenger vehicles range from 65, 70, and 80 percent, depending on engine displacement.
- A 45 percent tariff is applied to CBU Commercial vehicles.

Country： **Indonesia**

- CBU pickup trucks and buses tariff rates range from 5, 40, 45 percent, depending on engine size.
- Tariffs on non-passenger car kits are a uniform 25 percent.
- Tariffs on auto components and parts imported for local assembly of passenger cars and minivans are a uniform rate of 15 percent.

Duties and Taxes

- In addition to the duty and luxury tax, Indonesia applies a 10 percent value-added tax (VAT).

Import Bans and Quotas:

- The importation of used vehicles and automotive parts is prohibited.

The Indonesian Government raised import tariffs on more than a thousand items, including cars, on 23 July 2015. Under the new tariffs, the duty on cars was fixed at 50 percent, from a range of 10 percent to 40 percent previously.

Currently, duty on imported parts ranges from 0 percent to 40 percent. The government has committed to working towards a 0 percent tariff on all auto parts imports by 2020.

Table A-II.3: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10	Kg	40%
- Other:	8707.90	Kg	5 - 40%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- - - - For vehicles of tariff lines 8704.10.28.00 with mass of 1.2 t or	8708.40.2710	Kg	0%
- - - - For vehicles of tariff lines 8704.10.28.00 with drive axle diameter of 120 mm or more	8708.50.2710	Kg	0%

- - - - For vehicles of tariff lines 8704.10.28.00 with diameter of 1,000 mm or more	8708.70.3910	Kg	0%
Other than the above		Kg	10%

HS = Harmonised system, Kg = kilogram, mm = millimeter.

Source: Indonesian Customs.

Other

Indonesia does not have specific regulations on the number of years on the road of used vehicles.

Reference

Indonesia Customs.
http://www.beacukai.go.id/wwwbcgoid/index.html?page=apps/browse-tarif-dan-lartas.html (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

The Directorate General of Land Communications is in charge of registration and inspection systems in Indonesia. The basic law is Indonesian Law No. 22 of 2009 on Road Transport and Traffic.

New Car Registration

Under Indonesian Law No. 14, Law on Traffic and Land Transportation 1992, all motor vehicles are required to be registered. The Indonesian National Police is the agency responsible for motor vehicle and driver registration and identification. Compulsory insurance is also required.

In addition, prior to the sales and use of motor vehicles, manufacturers and importers must subject vehicles to the vehicle type approval system, also in accordance to Indonesian Law No.

Country：	Indonesia

14. This includes document application, vehicle testing and inspection, and certification by the Directorate General of Land Transport.

For registration, the Surat Tanda Nomor Kendaraan (STNK)/Vehicle Registration Number, Buku Pemilik Kendaraan Bermotor (BPKB)/Proof of Car Ownership book, and Plat Nomor/licence plates are issued to the car owners. The issuer of STNK and BPKB is the local police office.

Transfer or Selling of Licence

In case of a change in car ownership, the car owner is required to follow the change procedure of BPKB. The new owner is required to pay the registration fee.

Re-registration

Car owners are required to renew their car registration annually. The STNK and Plat Nomor are valid for five years and should be renewed after five years.

Deregistration

Car owners need to deregister their cars at police stations. In practice, car owners often sell ELVs to repair shops instead of following the deregistration procedure. In the process of deregistration, car owners are required to change the owner described in the BPKB. The process is done on a written basis only and the car owner is not required to return the Plat Nomor.

Inspection

Commercial vehicles and public vehicles are required to take the inspection every six months. However, personal vehicles are not currently the target of compulsory inspection. The introduction of the inspection system for all vehicles is currently under discussion. There are 130 inspection centres in Indonesia.

Insurance

Third-party vehicle insurance is a mandatory requirement and each individual cars and motorcycles must be insured. Therefore, a car owner cannot drive the vehicle until it is insured. Third-party vehicle insurance is included through a levy in the vehicle registration fee which is

paid to the government institution known as 'Samsat'. Third-party vehicle insurance is regulated under Law No. 34 of 1964 on Road Traffic Accident Fund. The government protects the public from traffic accident loss through the implementation of the Law No. 33 and the Law No. 34, the management of which is conducted by Jasa Raharja, a state-owned insurance company.

Penalty

In case a car owner fails to comply with the annual renewal of registration and continues to use the car, the car owner shall be subject to imprisonment not exceeding six months or a fine not exceeding Rp6 million.

Any person driving a car without the vehicle inspection certificate should be subject to imprisonment not exceeding three months or a fine not exceeding Rp3 million.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* **http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf** (accessed September 2015).

Directorate of Road Traffic and Transport, Directorate General of Land Transport, Ministry of Transportation. *Development of Vehicle Type Approval In Indonesia.* http://www.apec-tptwg.org.cn/new/Archives/tpt-wg39/Land/VSH/20.%205.5.3_Development%20of%20Vehicle%20Type%20Approval%20System_Indonesia.pdf (accessed September 2015).

Sutomo, Heru Sand H. Purwoto. *Assessing Road Accident Fund in Indonesia.* http://www.easts.info/publications/journal_proceedings/journal2010/100426.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(5) Handling of imported used cars and/or accident status quo cars

Country :	Indonesia

Some imported used cars and accident cars sold by insurance companies are broken up and vehicle dismantlers and 'bengkels', which are small-scale car repair shops in Indonesia take these parts. In some cases, accident cars are sold to the scrap trading companies through the auction. They take parts from accident cars or treat them as steel scraps.

Reference

Field Survey of the Study Team.

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

The number of ELVs was estimated at 124,002 per year in 2013. Yano Research Institute forecast the number of ELVs as follows:

Table A-II.4: Forecast of the number of ELV in Indonesia

Year	2013	2014	2015	2016	2017	2018	2019	2020
No. of ELV	124,002	152,723	178,524	176,370	160,389	175,493	218,337	248,676

ELV = End-of-life vehicle.

Source: Yano Research Institute.

Price

As an example, a pickup truck from the 80s was priced Rp11,000,000 including repair cost.

According to the field survey conducted by EX Research Institute, the purchase price of ELV ranges from Rp1 million. An interviewee in the field survey said that he purchased his ELV at Rp3,900 per kilogram.

Distribution

Car owners continue to use old cars. If used cars become older, they are likely to circulate from

Country：	Indonesia

urban to rural areas, or to be exported to neighbouring countries. Old vehicles deemed to be unusable are still treated as 'repairable' for years without being repaired.

In Indonesia, the existence and necessity of the automobile dismantling industry are not recognised. However, there are some sites where ELVs are gathered such as Simatupang. In such a site, vehicles are used as sources of parts, and the remnant car body is manually cut into steel scraps which are resold to iron recyclers. These vehicles are procured by car dealers, individuals, insurance companies and so on.

Processing Situation

Generally, the informal sector plays a central role in the operation of waste collection/recycling. Used parts are taken off and bodies are dismantled manually by gas burners. In Indonesia, there is no official vehicle shredder location.

Steel scraps, which are resold to iron recyclers, and non-ferrous metals are sent to aluminium product manufactures.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Distribution, Flow, and Sale Prices

Although there is prohibition on the importation of used parts, used parts are imported from Japan and Singapore. In some cases, domestic used parts are taken from accident cars and used cars. There are many used parts dealers in Indonesia. Used parts are sold in the agglomerated market of 'bengkels', and there are car repair shops and parts dealers in the market. In some

Country：	Indonesia

cases, end-users buy the used parts in the market.

The supply of ELVs from which parts are taken has a wide variety of pathways, including import, reselling from dealers who received old used cars, brokerage, and personal transaction.

Used parts are sold as follows:

- Used Battery: The price is about Rp50,000 if the brand new parts are priced at Rp350,000
- Used Handle: The price is Rp40,000 for a Toyota and Rp22,000 for a Mercedes.

In Indonesia, a few companies remanufacture alternators, starters, and the like. Remanufacturers are required to register the year of the product, which leads to quality control at a certain level and provides one-year guaranty. Remanufactured parts prices are about 50 percent of the brand new parts.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sale prices, processing situation, items on trading and resources: steel and non-ferrous metals

Domestic car scraps occupy only a small fraction of raw materials used in Indonesian ironworks where cheaper imported scraps dominate. Other metals are recovered in crude ways such as open incineration for wire harnesses. The remnant car body is manually cut into steel scraps. Iron recyclers buy and process these scraps. Recyclable materials such as glass, tires, large plastic parts, among others, are processed using separate recycling techniques.

Country：	Indonesia

1) Steel

There are more than 10 smelting companies in Indonesia where 60 percent of scraps are used as raw materials for recycling, e.g. Madura company.

There are not enough steel scraps for steel production in the country. The table below shows the volume of steel scraps generated domestically. The country largely depends on imports. The top three suppliers of ferrous scrap to Indonesia in 2012 were USA (40 tons), Australia (39 tons), and EU (23 tons).

Table A-II.5: Volume of Steel Scrap Generation in Indonesia

Year	2008	2009	2010	2011	2012
Steel Scrap (ton)	1,105	1,296	1,222	584	-131

Source: Nikkan Shikyo Tsushin sya.

As the receiver of the steel scraps, there are several electric furnace companies in Indonesia.

Table A-II.6: Electric Furnace Companies in Malaysia (1,000 ton per year)

Company	Location	EAF capacity	Steel making capacity (1000t/year)
Master Steel	Jakarta	30t×1,50t×2	600
(PT Kesa)	Jakarta	80t×1	300
(Pulogadung)	Jakarta	60t×1	200
(PT Spa)	Surabaya	40t×1	200
		Total of Master Steel	1,300
Inti General	Semarang	25t×1	150
Inter World	Jakarta	35t×1	200
Jakarta Steel	Jakarta	35t×1	200
Toyogiri Iron & Steel	Jakarta	25t×1	150

Jakarta Catra	Jakarta	80t×1	300
Gunung Garuda	Jakarta	125t×1	400
Ispat Indo	Surabaya	80t×1	600
Djatim Taman Steel	Surabaya	25t×1, 30t×1	200
Gunung Gahapi	Medan	40t×1	250
Growth Sumatra	Medan	-	300
Kurakatau Steel	Cilegon	65t×4,125t×6	1,600
		Total of steel making capacity	5,650

EAF = electric arc furnace, t = ton.

Source: Steel Plantec research.

2) Non-ferrous Metals

The volume of automobile catalysts generated, including that of commercial vehicles, was about 470 tons in 2011.

Aluminium is the main source of recycling materials in Indonesia. Most of the materials collected are mixed metal materials like copper and bronze.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Ministry of Environment, Japan. *Feasibility Study on biomass utilization for arc furnace in Indonesia.* http://www2.gec.jp/gec/jp/Activities/cdm-fs/2007/2007JPSteelPlantec_jIndonesia_rep.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

Country :	Indonesia

(9) Distribution, volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Batteries:

There are many battery recyclers in Indonesia. Many of them are from the informal sectors. Batteries are recycled but not all batteries are recycled. Battery is treated as valuable resource. There are some recyclers that dismantle the battery into lead and plastic, and fabricate ingots from the dismantled lead.

Tires:

Used tires are recycled in Indonesia. Recycling is mainly conducted by the informal sector but companies such as Xinxiang Huayin Renewable Energy Equipment Company Limited introduced advanced technology to change waste tires to fuel oil.

Waste Oils:

Approximately 529 tons of oils are accumulated and resold to recycling shops. Waste oil is treated as a valuable resource. The research of EX Research Institute showed that collected oils are finally accumulated into four waste oil recyclers, which contain Pennzoil, an American company, and Agip, an Italian company. The waste oil recyclers are required to get a licence from the Department of Transportation, Indonesia.

CFCs:

CFC is generally not recovered even though recovery instruments are distributed to some factories. The Narogong factory of PT Holcim Indonesia is the first factory of cement kilns which directly destroy CFCs.

Country：	Indonesia

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.*
http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(10) Factual survey of end-of-life two-wheeled vehicles

The study team could not acquire the information on end-of-life motorcycles in this study.

Reference

N/A

(11) Type of operation and number of recycling-related companies

Dismantlers:

The informal sector plays a central role in the operation of waste collection/recycling. The formal sector collectors are in charge of industrial and hazardous wastes which are sent to formal recyclers. Other wastes such as municipal wastes go through a complex system of informal waste management where mobile door-to-door scavengers (pemulung) and community-based crews collect wastes which are sold to 'lapaks', along with traded recyclable items (cans, plastics and others). Lapaks function as intermediaries between collectors and 'bandars', the informal dealers from whom the wastes eventually reach formal and informal recycle factories. These intermediaries perform the function of collection, selection, separation, cleansing, and pre-treatment.

Downstream Recycling Companies:

PT. Daiki Aluminium Industry Indonesia was established in Kawasan Industri kiic, JL. Maligi Ⅷ LOT T-2, Kawawang 41361, Indonesia in 2010. From 2011, the company started the melting of

aluminium scraps and the production of alloy for aluminium die-casting.

Other Related Companies

Battery recyclers:

Gramitrama Battery

PT. Gramitpama Battery, which is based in Sidoarjo, is a national privately owned company that was established in 1975. The company first produced battery plates and now supplies both domestic and international customers with good raw materials made through the use of the latest technology.

Tire recycling companies:

PT. Buana Eka Sakti Tangguh is located in Jl. Lodan Raya Jakarta, Jakarta. The company has 11 to 50 employees and the revenue is less than US$ 100,000.

PT. Baretec Indonesia has innovative and most advanced technology for refurbishing batteries. It has a patent for the production method and chemicals and its world patent is pending now. The company can supply all kinds of refurbished lead-acid batteries for cars, ships, heavy equipment, golf carts, and many others.

Reference

Kojima, Michikazu. 3R Policies for Southeast and East Asia. http://www.eria.org/RPR-2009-10.pdf (accessed September 2015).

(12) Management situation of recycling-related companies

Scavengers are typically paid Rp15,000 to Rp25,000 per day. They are quite often reliant on credit from Lapaks who would pay them beforehand for future transactions. Lapaks have warehouses, vehicles, and a small number of workers. Many of these warehouses were started by former scavengers and junkmen (waste traders). Lapaks desire to be brokers or even dealers (bandars) who enjoy a relatively large scale of operation, including pre-treatment. One iron and metal dealer yields Rp5,000,000 profit per month which is 30 to 50 percent of revenue. Some

Country：	Indonesia

bandars even perform industry-level recycling.

Large portions of scraps come from automobiles. Most of the recycling businesses are located in northeastern Java.

Reference

Kojima, Michikazu. 3R Policies for Southeast and East Asia. http://www.eria.org/RPR-2009-10.pdf (accessed September 2015).

2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in vehicle recycling systems (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates)

There are currently no provisions on automobile recycling and/or the management of ELVs in Indonesia. In addition, the following issues surrounding the waste management sector in general could also indicate potential challenges for vehicle recycling in Indonesia (Chaerul, Tanaka and Shekdar, 2007):

- lack of national policy and legal framework for municipal solid waste (MSW) management
- low coverage service for waste transportation
- use of improper waste storage at generation points
- lack of appropriate final disposal practices.

Dismantling operation is being done by the informal sector. Components and scraps are circulated through the informal route. Furthermore, vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity.

Country :	Indonesia

Environmental measures such as prohibition on illegal dumping of waste and collection of CFCs, and the like are insufficient. Metallic component recycling is done manually. This causes labour safety issues.

Reference

Field Survey of the Study Team.

(2) Trend in vehicle recycling policies and related laws in automobile recycling laws, and the enforcement, presence, and details of related institutions.

a) Status of institutional system collateral for improper processing of three designated recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

There is no proper facility to collect the fluorocarbon in most of the automobile garages or repair shops. Most of the refrigerants are released within the working areas. CFC is generally not recovered even though recovery instruments are distributed to some factories. CFC is defined as a B3 substance under Act No.32/2009 and Government Regulation No.18 of 1999 concerning the Hazardous Waste Management. B3 means a substance or material that may, either directly or indirectly, contaminate and or damage the living environment, and/or may harm the living environment, health, human survival, and other living creatures.

Airbags

There is no guarantee on the functionality of the used restraint component with inflator contents (i.e. airbags, belt pre-tensioners). Even though the electrical telltale shows normal function (no airbag light 'on' on the cluster), it may only show normal resistive value of the component.

Currently, the proper treatment of the airbag is not regulated.

Country：	Indonesia

Automobile Shredder Residues

There is no official shredder location in Indonesia. Metallic component recycling is done by manual cutting. The shredding process is not developed due to the limited number of ELVs.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies (including local governments)

- The structural framework of the automotive industry in Indonesia consists of the following players:
  - Regulators: Ministry of Industry (main), Ministry of Trade, Ministry of Transportation, State Ministry for the Environment, Ministry of Finance, Ministry of Energy and Mineral Resources, and Ministry of Home Affairs
  - Financing: Banks and Multi-finance Companies
  - Automotive Industry: Principals, Brand Holding Sole Agents ('ATPMs'), Sole Distributors, and Main Dealers/Dealers
  - Automotive Aftermarket: Components/parts, Maintenance, Insurance
  - Customers: Individual users and Corporates
  - Association of Indonesian Automotive Industries ('GAIKINDO')
  - Importers/Manufacturers: subject to tariffs and taxes, vehicle type approval, registration
  - Users: compliance to road transport regulations, including licences and periodic inspection
  - Government Agencies:
  - Directorate General of Land Transport – certification for vehicle type approval
  - National Police – in charge of vehicle and driver registration/ identification

References

Field Survey of the Study Team.

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Country：	Indonesia

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Ministry of Environment, Japan. *Feasibility Study on biomass utilization for arc furnace in Indonesia.* http://www2.gec.jp/gec/jp/Activities/cdm-fs/2007/2007JPSteelPlantec_jIndonesia_rep.pdf (accessed September 2015).

Ministry of Environment, Japan. Feasibility Study on Biomass Utilization for arc furnace in Indonesia. http://www.apec-tptwg.org.cn/new/Archives/tpt-wg39/Land/VSH/20.%205.5.3_Development%20of%20Vehicle%20Type%20Approval%20System_Indonesia.pdf (accessed September 2015).

United States Department of Commerce International Trade Administration, Office of Transportation and Machinery. *Compilation of Foreign Motor Vehicle Import Requirements.* http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

There are currently no provisions on automobile recycling and/or the management of ELVs in Indonesia.

Generally, industrial and hazardous wastes related to ELVs are regulated by Law No.32 of 2009 on Environmental Protection and Management: industrial waste and hazardous waste, and related regulations.

There are myriads of regulations and legislations in Indonesia that are related to or directly govern waste management and protection in the country. These can be classified into five categories, namely:

1. General Environmental Legislation (GEL) - legislation accompanied by implementing

Country :	Indonesia

regulations governing environmental management in general and covers all sectors, such as Law No. 23/1997 on Environmental Management

2. Sectoral Environmental Legislation (SEL) – legislation accompanied by implementing regulations governing certain sectors closely related to environmental management, such as:
    a. Law No. 32/2009 for Industrial Waste
    b. Law No. 18/2008 for Municipal Solid Waste (MSW)
    c. Regulation No. 85/1999 for Hazardous Waste Management
    d. Regulation No. 18/2009 for Licensing for Waste Management
    e. Regulation No.74/2001 for Hazardous and Toxic Management
3. Ratified Environmental Convention (REC) - including international treaties such as:
    a. Basel Convention (hazardous wastes)
    b. Convention on Climate Change
4. Provincial Environmental Legislation (PEL)
5. Local Environmental Legislation (LEL).

The Ministry of Environment is in charge of waste management and Act No.32/2009 and Regulation No.18 of 1999 concerning the Hazardous Waste Management defines B3 as waste. B3 means a substance or material that may, either directly or indirectly, contaminate and/or damage the living environment, and/or may harm the living environment, health, human survival, and other living creatures.

Article 59, paragraphs 1 - 6 of Law No. 32/2009 stipulate the management of hazardous waste in the following manner:

- Everyone that produces hazardous waste must conduct hazardous waste management.
- The management of expired hazardous materials must follow the hazardous waste

management stipulations.

- In the event where everyone is unable to perform their own hazardous waste management, it can be done by someone else.
- Hazardous waste management activity must have permission from the Minister, Governor, or Regent/Mayor in accordance to their authority
- The Minister, Governor, or Regent/Mayor must mention environmental requirements that must be met, along with responsibilities that must be obeyed by hazardous waste manager within the permit.
- The decision on permit/licence grants must be publicly announced.

There stipulations on penalties for violation of Article 59 mentioned above in articles 102 and 103.

- Article102: Anybody treating B3 waste without permit shall be subject to imprisonment of one year at the minimum and three years at the maximum, and a fine amounting to Rp1,000,000,000 at the minimum and Rp3,000,000,000 at the maximum.
- Article103: Anybody producing B3 waste and not conducting the treatment as referred to article 59 shall be subject to imprisonment of one year at the minimum and three years at the maximum, and a fine amounting to Rp1,000,000,000 at the minimum and Rp3,000,000,000 at the maximum.

References

The Indonesian Center for Environmental Law (ICEL). *Environmental Compliance and Enforcement in Indonesia Rapid Assessment.* http://www.aecen.org/sites/default/files/ID_Assessment.pdf (accessed September 2015).

UNCRD Implementation of 3R in Indonesia. http://www.uncrd.or.jp/content/documents/RT2_03_Indonesia.pdf (accessed September 2015).

Annex II

Country Reports

3. Lao People's Democratic Republic

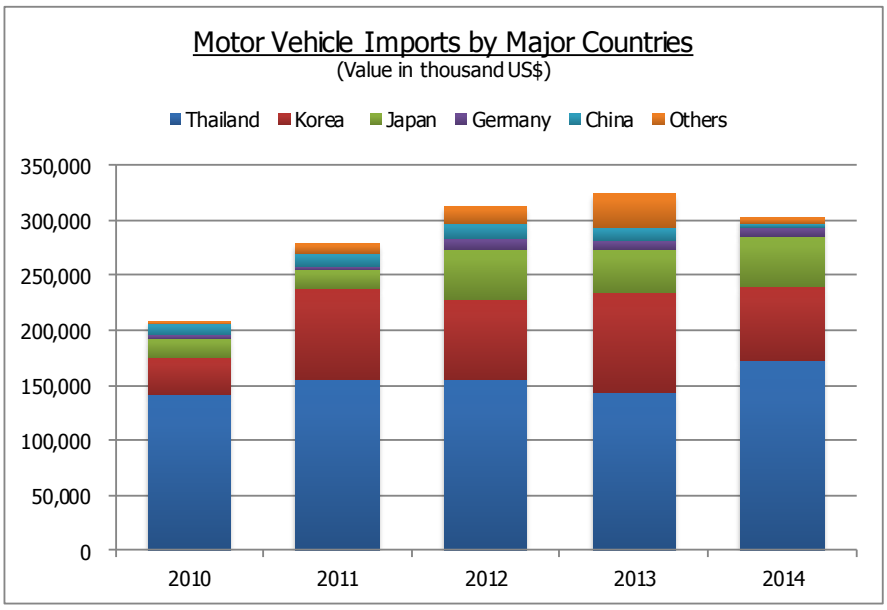
Country :	**Lao PDR**
1. Current status of automobile recycling in the targeted country	

(1) Imports and exports from Japan and other countries: used cars

Import

The cumulative bar graph shows automobile (HS code: 870321 - 870390) imports, including used cars, to Lao PDR for 2010-2014. The big suppliers during this period were Thailand, Korea, and Japan. The total import in value was over US$3 million in 2014.

Figure A-III.1: Lao PDR's Automobile Imports



Lao PDR = Lao People's Democratic Republic.

Source: UN Comtrade Database.

Country：	Lao PDR

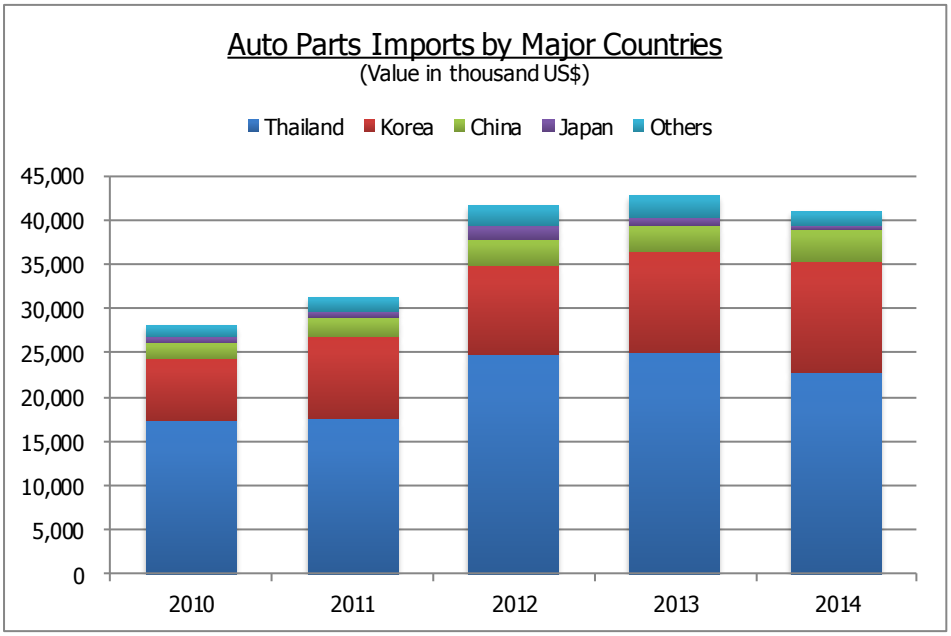
Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The graph below shows major importers of auto parts, including used parts, for 2010-2014. The majority of used parts were imported from Thailand and Korea.

Figure A-III.2: Lao PDR's Auto Parts Imports



Lao PDR = Lao People's Democratic Republic.

Source: UN Comtrade Database.

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Country：	Lao PDR

(3) Plans and regulations relating to import regulations

Trade Control

In Lao PDR, regulations relating to importation state that only diplomats can import vehicles into Lao PDR duty free, and they may do so by obtaining a letter from the Ministry of Foreign Affairs verifying their status and requesting that Customs permit duty free import.

However, the the procedures to import a vehicle into Lao PDR for a non-diplomat are time consuming and tedious. Vehicles are subject to duties assessed on the type, age, and engine size of the vehicle, and can be as high as 300 percent of the new purchase value of the vehicle.

All types of mechanised vehicles imported to be registered and used permanently in Lao PDR must have structures that comply with the technical standards of the production factories, steering wheels on the left hand side, and qualities that comply with the technical standards issued by the Ministry of Communications, Transport, Post and Construction.

On the other hand, specific regulations are issued to define the conditions and technical standards of vehicles that are authorised to be imported for registration and use in Lao PDR, including the import of vehicle accessories for assembling in Lao PDR, in compliance with relevant laws and regulations.

Duties and Taxes

Table A-III.1: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10		
- - For go-karts and golf cars, including golf buggies	8707.10.10	Kg	40%
- - For ambulances	8707.10.20	Kg	40%
- - Other	8707.10.90	Kg	40%

- Other: - - For vehicles of heading 8702:	8707.90		
- - For vehicles of heading 8701	8707.90.10	Kg	20%
- - - For motor cars (including stretch limousines but not including coaches, buses, minibuses or vans)	8707.90.21	Kg	40%
- - -Other	8707.90.29	Kg	40%
- - For vehicles of heading 8705	8707.90.30	Kg	20%
- - Other	8707.90.90	Kg	20%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	8708	Kg	10%

HS = Harmonised system, kg = kilogram.

Source: Department of Import and Export, MOIC.

References

Atlas International. *Importing Personal Property Into Laos.* http://webportal.atlasintl.com/Customs%20Docs/laos.pdf (accessed September 2015).

Department of Import and Export MOIC. http://www.laotradeportal.gov.la/index.php?r=site/index (accessed September 2015).

International Association of Movers, *Customs Regulations and Information for Imports.* https://www.iamovers.org/files/newimages/member/shippers/laos.pdf (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

In the management of land traffic, the Ministry of Communications, Transport, Post and Construction in Lao PDR is in charge of the management and inspection of vehicle registrations, licence plates, and driving licences throughout the country.

New Car Registration

The Law on Land Transport in Lao PDR distinguishes between vehicles owned by a transport company and those owned and used by individuals and organisations.

Country：	Lao PDR

Different regulations apply according to how a vehicle is classified.

Vehicles used for transport enterprises and specialised transport both require the following:

- registration as a transport vehicle;
- valid licence plates;
- compliance with technical requirements for transport;
- relevant insurance (Law on Insurance No. 11/90/PSA dated 18 December 1990, Article 37);
- Payment of annual road usage fees.

The Decree on the promulgation of the Law on Land Traffic stipulates that all types of mechanised vehicles of civilians, including heavy machinery, such as bulldozers, excavators, motor graders, compactors, and other heavy machinery, shall be registered and shall have licence plates in accordance with the regulations issued by the Ministry of Communications, Transport, Post and Construction. Only authorised state organisations have the authority to produce and issue driving licences, vehicle registrations, and licence plates.

The vehicle registration certificate, driving licences, and licence plates are issued by the communications, transport, post and construction divisions at each province, Vientiane prefecture or special zone district.

Inspection

All vehicles are required to be inspected every year, except the new vehicles which do not have any technical problems for the first two years. All transport vehicles shall receive technical inspections strictly at the technical inspection stations that are determined by the Ministry of Communications, Transport, Post, and Construction.

Insurance

Insurance for transport vehicles goods and passenger transport vehicles of all sizes, and vehicles for specialised and personal transport, including various types of trucks, for use within the country must have insurance, particularly third party insurance. Vehicles used for international or cross-border transport must have, in addition to third-party insurance, insurance covering the driver and goods being transported.

Country：	Lao PDR

Penalties

According to the Article 44 of the Law on Land Transport, the fines are stipulated in the following manner:

- Any individual committing any of the following violations shall be fined from ₭3,000 to ₭10,000:
  -No vehicle operator's permit accompanying the vehicle;
  -No bill of lading;
  -Not carrying out transport on designated roads;
  -No certificate of payment of fees and taxes regarding transport business;
  -No driver's licence for light transport and specialised transport business services.
- Any individual committing any of the following violations shall be fined from ₭15,000 to ₭30,000:
  -Transport business licence has expired;
  -No transport vehicle technical inspection certificate;
  -No insurance for vehicle;
  -No driver's licence for heavy transport, in the case of drivers providing services in transport enterprises and specialised transport.

References

Embassy of the Kingdom of the Netherlands in Kuala Lumpur Malaysia website. http://Malaysia.nlambassade.org/binaries/content/assets/postenweb/t/thailand/nederlandse-ambassade-in-bangkok/import/landeninformatie/laos/met-de-auto-naar-laos (accessed September 2015).

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Katahira & Engineers International, *New Mechanism Feasibility Study for Urban Transport Management in Vientiane, Lao PDR.* http://gec.jp/gec/en/Activities/fs_newmex/2011/2011newmex06_eKEI_Laos_rep.pdf (accessed September 2015).

Onnavong, Bounta. Division of Transport Techniques and Environment, Department of Transport, Ministry of Public Works and Transport Lao PDR. *Efforts on Environmentally Sustainable Transport "EST" in Laos.* http://gec.jp/gec/jp/Activities/unfcccconf/sb34se/3-MPWT.pdf (accessed September 2015).

Country：	Lao PDR

(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

The importation of used cars was prohibited by the government in June 2012, when the increasing number of used vehicles on the capital's roads was considered to cause problems such as traffic congestion and air pollution due to its poor fuel efficiency.

While the study team could not acquire detailed information on trading of used cars, there are several websites that sell used cars at the auction.

References

Hirotaka Yamakawa, Guest Researcher, Institute for International Studies and Training. *Rapidly Changing Laos New cars and even traffic jams in Vientiane.* http://www.iist.or.jp/en-m/2014/0232-0932/ (accessed September 2015.)

The Jakarta. *Laos puts brakes on secondhand car imports.* http://www.thejakartapost.com/news/2012/06/25/laos-puts-brakes-secondhand-car-imports.html#sthash.1hwP9kHd.dpuf (accessed September 2015).

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Generally, in Lao PDR, car owners continue to use old cars even if there is an inspection system. So, the domestic generation of ELV is low and it is difficult to estimate the number of ELVs.

There is no specific registration scheme for vehicle dismantling and it is difficult to effectively regulate the industry. It seems that car dismantling is actually done by the informal sector, and components and scraps are circulated through the informal route.

Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity.

Country：	Lao PDR

Dismantling is conducted mainly by hand and threatens labour safety. Little treatment is done for hazardous materials, resulting in air, water, and soil pollution.

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

The automotive scrap volume required to promote ELV recycling is insufficient. Imported used parts cause environmental pollution due to the lack of environmental measures from import dealers. Rebuilt parts are not popular due to the lack of awareness of parts dealers and their low quality. Metallic component recycling is done manually. This causes labour safety issues**.**

In the newsletter of the Embassy of the Republic of Korea in 2009, the government of Lao PDR required second-hand vehicle assembly plants in Lao PDR to meet industrial operation standards or face shutdown. At that time, there were about 80 small- to medium-scale second-hand vehicle assembly plants in Lao PDR. According to the newsletter, the government adopted the policy because it believed that if the car assembling factories meet industrial standards, they will be able to supply safer and more environmentally appropriate cars to their customers. Furthermore, many government officials have expressed concerns that allowing second-hand vehicles to run in Lao PDR is not healthy, adding that the second-hand vehicles create greater amounts of air pollution and noise.

Against this government decision, the owners of assembly plants insisted that the small number of officially-registered vehicle parts importers has led to a shortage of raw materials, affecting production and potentially leading to the laying off of workers.

Reference

Weekly Economic News of Lao PDR, Embassy of Republic of Korea, 24–28 August 2009.
http://lao.mofat.go.kr/webmodule/common/download.jsp?boardid=1552&tablename=TYPE_LEGATION&seqno=fc8fd8f8007c07bfe400afb1&fileseq=04efc101bfacf88f98020ff8

accessed September 2015).

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading, and resources: steel and non-ferrous metals

Steel scrap and non-ferrous scrap, which are not necessarily from vehicles, are exported to neighbouring countries such as Viet Nam, Thailand and others.

Table A-III.2: Steel Scrape Export from Lao PDR to Foreign Countries 2010

Import / Export	Vietnam	Cambodia	Laos	Thailand	Myanmar	China
Vietnam		0	0	12	0	102
Cambodia	17093			78070		70
Laos	456			0		0
Thailand	7058	0	0	61	0	10527
Myanmar	O			767		0
China	55548	0	0	122	35	82112

(unit: ton)

Lao PDR = Lao People's Democratic Republic.

Source: Presentation material on Working Group 2 Policy Research for Industrial Development and Recycling Mechanism for Sound Resource Circulation.

Table A-III.3: Copper Scrape Export from Lao PDR to Foreign Countries 2010

(unit: ton)

Import / Export	Vietnam	Cambodia	Laos	Thailand	Myanmar	China
Vietnam		0	0	12	0	49
Cambodia	65			1396		0
Laos	10			64		0
Thailand	464	0	5		0	22585
Myanmar	0			0		0
China	984	0	0	229	0	615

Source: Presentation material on Working Group 2 Policy Research for Industrial Development and Recycling Mechanism for Sound Resource Circulation.

Country：	Lao PDR

Other

There is an observed flow of recyclable wastes from Lao PDR to neighbouring countries. These include: paper to Thailand, plastics to China or Viet Nam, and batteries, circuits, and aluminum to Viet Nam.

References

Kojima, Sakata and Hatsukano. *Presentation on material on Working Group 2 Policy Research for Industrial Development and Recycling Mechanism for Sound Resource Circulation.* http://www.iges.or.jp/en/archive/wmr/pdf/activity20121213/6-1_GMS.pdf (accessed September 2015).

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Batteries:

As indicated in (8) above, lead-acid battery is imported by the Vietnamese.

While there is no local manufacturing in Lao PDR, batteries are imported into Lao PDR. Its main uses are for automobiles and for domestic power supply. There is no formal recycling programme in Lao PDR. The informal sector is very involved in recycling. Lead is recovered and the cases are reused.

Reference

United Nations Environment Programme. http://www.unep.or.jp/ietc/Publications/Integrative/EnTA/AEET/Final_Report/2.asp (accessed September 2015).

Country：	Lao PDR
(10) Factual survey of end-of-life two-wheeled vehicles The study team could not acquire the information on end-of-life motorcycles in this study. **Reference** N/A	
(11) Type of operation and number of recycling-related companies The study team could not acquire information on the operation and number of recycling-related companies. **References** N/A	
(12) Management situation of recycling-related companies The study team could not acquire information on the management situation of recycling-related companies. **References** N/A	
2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling	
(1) Challenges in vehicle recycling systems (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates) Lao PDR does not have an adequate legal system or equipment for the treatment of hazardous wastes. Some report emission of hazardous wastes from components such as batteries and	

Country：	Lao PDR

crankcase oils. Non-valuable resources are not properly collected and, in some cases, illegally dumped. Metallic component recycling is done manually. This causes labour safety issues.

According to a study conducted by the United Nations Environment Programme (UNEP), hazardous waste management is ranked as a high priority area in Lao PDR. National legislation specifically addressing hazardous and chemical wastes does not exist, and is therefore a priority for development. Although Lao PDR is a signatory country to international agreements such as the Basel and Stockholm Conventions, the country lacks adequate capacity to discover, monitor, and address breaches due to the failure of institutions to coordinate activities or share information. In particular, the responses note that some information concerning the chemical composition of products is confidential to the private sector and not accessible by government institutions. The capacities of hazardous waste management institutions in Lao PDR thus need to be strengthened.

Officials of the government of Lao PDR added the following challenges in their solid waste management:

- Inadequate legal framework and unclear institutional responsibilities.
- Institutions envisaged to be established in accordance with law are sometimes not established, nor given the proper mandate in accordance with the law (if established), neither are they given a budget to enable them to function in accordance with the law. New legislation is often drafted without proper reference to other legislation.
- A considerable amount of waste is illegally dumped into the drainage channels and rivers.
- Collection vehicle fleet is old and subject to frequent breakdowns.
- The institutional and administrative structure is not well established.
- Public education systems and participation programs are not established.

References

Thevarack Phonekeo and Phouthasom Inthavong, *Solid Waste Management in Laos.*

http://www.iges.or.jp/jp/archive/wmr/pdf/activity100728/5_Lao_Day1_Session2.pdf

(accessed September 2015).

Country：	Lao PDR

United Nations Environment Programme.

http://www.unep.org/gpwm/InformationPlatform/CountryNeedsAssessmentAnalysis/Laos/tabid/106530/Default.aspx (accessed September 2015).

(2) Trend in vehicle recycling policies and related automobile recycling laws, and the enforcement, presence, and details of related institutions.

a) Status of institutional system collateral for improper processing of three designated recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

The study team could not acquire detailed information on this domain.

Airbags

The study team could not acquire detailed information on this domain.

Automobile Shredder Residues

The study team could not acquire detailed information on this domain.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies (including local governments)

The current roles and responsibilities among stakeholders related to regulations on the automotive industry are as follows:

- Importers
  - Securing required documents for import of vehicles
  - Finishing the Customs formalities
- Manufacturers
  - In Lao PDR, there are not automotive manufacturers, although there are some parts makers such as Toyota Boshuku Lao Company Limited

Country：	Lao PDR

- Users
  - Compliance with road transport regulations (Law on Land Transport)
- Government Agencies
  - The Ministry of Communication,, Transport, Post and Construction – in charge of new car registration, licensing, and inspection
  - The Ministry of Natural Resources and Environment – in charge of protecting the environment by ensuring compliance with the environmental law, and of environmental issues related to solid waste management
  - The Department of Housing and Urban Planning of the Ministry of Public Works and Transport Communications – in charge of urban planning and urban development, and municipal solid waste management
  - The Urban Development and Administrative Agency of each city is directly responsible for collection and disposal of urban solid waste.

Reference

IGES Working Paper No. SCP-2012-01, *A guide for improving municipal solid waste management and promoting urban organic waste utilization in Lao PDR.* http://pub.iges.or.jp/modules/envirolib/upload/4132/attach/Attachment3_Guideline-UOWM-Lao-Eng.pdf (accessed September 2015).

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

Lao PDR is in its early stages of starting the ELV recycling system and considering ELV recycling regulations. The following regulations stipulate waste management in Lao PDR:

- The National Constitution (1991)
  -All Lao citizens must protect the environment and natural resources: land, subterranean, forests, fauna, water resources, and atmosphere.
- The Environmental Protection Law (1991, 2013 revised)
  -All kinds of littering are forbidden. Waste disposal sites must be allocated and waste should be separated before disposal. The government must support implementation of technologies for the waste treatments, reuse, and recycling. It is forbidden to

import, transport and carry any kind of hazardous waste over land, water, and sky borders of Lao PDR.

- Decree on Implementation of the Environmental Protection Law.

Furthermore, the National Environmental Action Plan (NEAP) envisages the gradual expansion of the waste management program from large to smaller towns. However, there is no quantitative target. The general direction of NEAP includes:

- Increasing coverage of waste collection service in urban areas.
- Cost recovery, including payments by households, depending on the level of service.
- Investment on equipment.
- An emphasis on organisation and community mobilisation will help reduce the capital and operation costs of waste management systems.

The Environmental Protection Law requires operators to strictly apply methods and measures regarding pollution control such as use of appropriate technology and equipment installation, prevention, solution, treatment-sterilisation, improvement, and rehabilitation of the environment that is affected by air, soil, and water pollution. An operator must release, discharge, dispose, burn, burry, or demolish wastes and rubbish in areas identified by regulations. The production, importation, utilisation, transportation, storage, and demolition of toxic chemicals or radioactive residues should strictly comply with specific regulations and standards.

In addition, persons, legal entities, and organisations producing toxic and hazardous wastes due to their own production and business operations shall comply with the law and should keep, eliminate, bury, and treat waste in accordance with the standards and regulations.

The law also stipulates that environmental inspecting agencies shall have the following rights and duties:

- Develop environmental inspection programs or annual plans to ensure that investment projects or activities shall not create environmental impacts exceeding the standards;

Country：	Lao PDR

- Inspect pursuance of environmental policies, strategies, programs, projects, and regulations;
- Inspect environmental status of investment projects or activities, based on environmental management and monitoring plans, via sector-wide coordination and collaboration with local authorities;
- Inspect pollution and disturbance in accordance with the National Environmental Quality Standards and the National Pollution Control Standards;
- Propose the line sectors to issue orders regarding suspension or termination of investment projects and activities upon recognising severe environmental impacts that are not resolved; and
- Coordinate with other concerned organisations for conducting their inspections.

Infringement of these law, restrictions, and contractual terms as stipulated in concession contracts or environmental compliance certificates shall be fined in accordance with the relevant regulations. Fine rates, which depend on each case, are identified by the specific regulations.

References

IGES Working Paper No. SCP-2012-01, *A guide for improving municipal solid waste management and promoting urban organic waste utilization in Lao PDR*. http://pub.iges.or.jp/modules/envirolib/upload/4132/attach/Attachment3_Guideline-UOWM-Lao-Eng.pdf (accessed September 2015).

Unofficial Translation Environmental Protection Law (Revised Version). http://www.laolandissues.org/wp-content/uploads/2012/03/Environmental-Protection-Law-2013English.pdf (accessed September 2015).

Annex II

Country Reports

4. Malaysia

Country :	Malaysia
1.The current status of automobile recycling in the targeted countries	

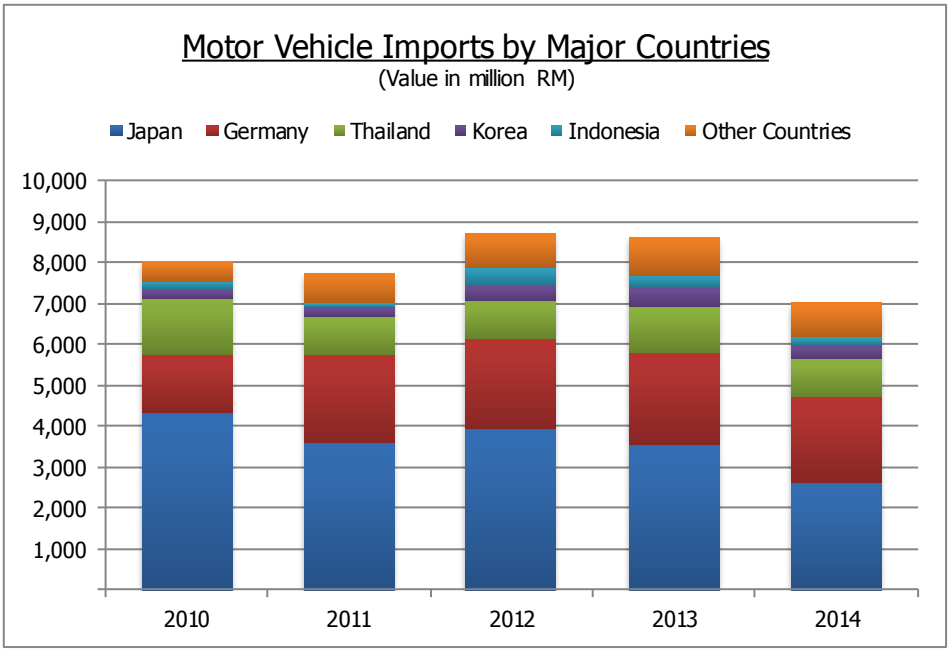
(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows Malaysia's automobile (HS code: 870321 - 870390) imports, including used cars, for 2010-2014. The biggest supplier during this period was Japan, which accounted for nearly 45 percent while the share has been decreasing. The total import in value was about RM7 billion in 2014.

Figure A-IV.1: Malaysia's Motor Vehicle Imports

(value in million RM)



Source: Department of Statistics, Malaysia.

Country :	Malaysia

Table A-IV.1: Number of Used Passenger Motor Cars Exported from Japan

Year	2010	2011	2012	2013	2014
Malaysia	21,960	19,557	21,641	25,122	25,544
World	672,627	699,881	830,703	947,990	1,059,617
Share of Malaysia	3.3%	2.8%	2.6%	2.7%	2.4%

Source: Trade Statistics of Japan, Ministry of Finance.

Table A-IV.2: Number of Imported Used Cars in Malaysia

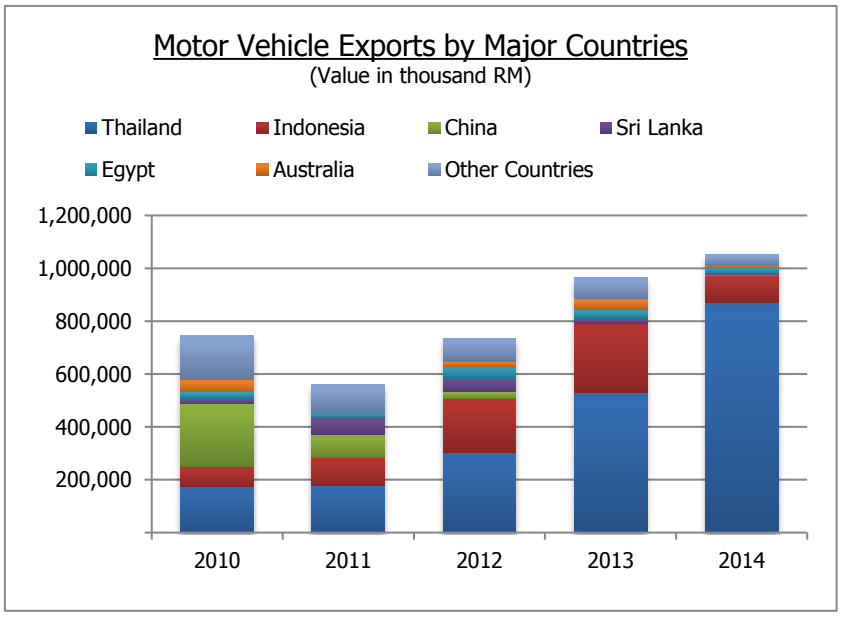
Year	2009	2010	2011	2012	2013
Total	22,285	28,678	24,006	25,666	35,879

Source: Malaysia's Trade Statistics.

Export

The following graph shows Malaysia's automobile (HS code: 870321 - 870390) exports, including used cars, for 2010-2014.

Figure A-IV.2: Malaysia's Motor Vehicle Exports



Source: Department of Statistics, Malaysia.

Country :	Malaysia

Table A-IV.3: Number of Used Vehicles Exported from Malaysia

Year	2009	2010	2011	2012	2013
Total	297	377	325	701	800

Source: Malaysia's Trade Statistics.

References

Department of Statistics, Malaysia. http://trade.stats.gov.my/tradeV2/ (accessed September 2015).

Malaysia's Trade Statistics. http://www.matrade.gov.my/en/malaysian-exporters/services-for-exporters/trade-a-market-information/trade-statistics (accessed September 2015).

Trade Statistics of Japan Ministry of Finance. http://www.customs.go.jp/english/index.htm (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

Import

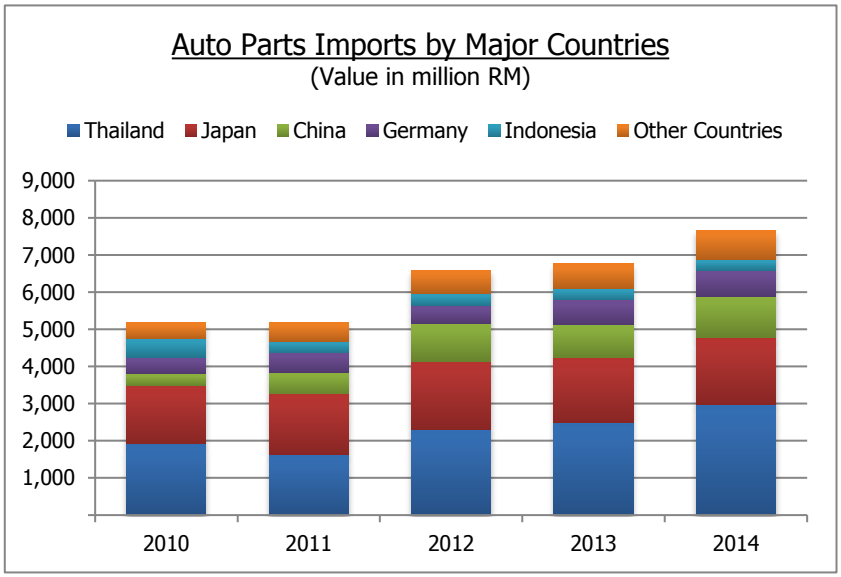
Used parts imported from overseas accounted for 90 percent of the total used parts. Of those, approximately 30 percent were sold in Malaysia and 70 percent were re-exported (14 percent to ASEAN region, 24 percent to Africa, 24 percent to Middle East, and 8 percent to others).

Imported parts from Japan occupied about 90 percent of used parts circulated in the market in Malaysia. Based on the proportion, the market volume of used parts was about ¥23.166 billion (estimated figure) from the world, with about ¥20.849 billion from Japan.

The two graphs below show major importers and exporters of auto parts (HS code: 8707 - 8708), including used parts, for 2010-2014.

Country :	Malaysia

Figure A-IV.3: Malaysia's Auto Parts Imports



Source: Department of Statistics, Malaysia.

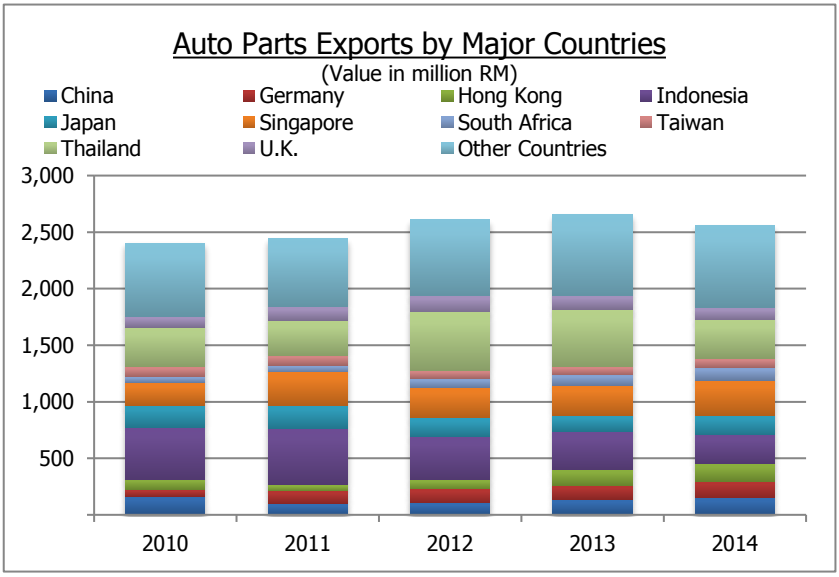
Japan was the largest exporter of bodies, including cabs, for four years but it became the second (surpassed by Germany) in 2014. As for other parts, including bumpers, brakes and steering wheels, Thailand was the biggest supplier, which accounted for nearly 40 percent, and Japan accounted for around 27 percent of the total.

Export

A large volume of Malaysia's exports went to neighbouring countries, although its trade partners were spread around the globe.

Country :	Malaysia

Figure A-IV.4: Malaysia's Auto Parts Imports

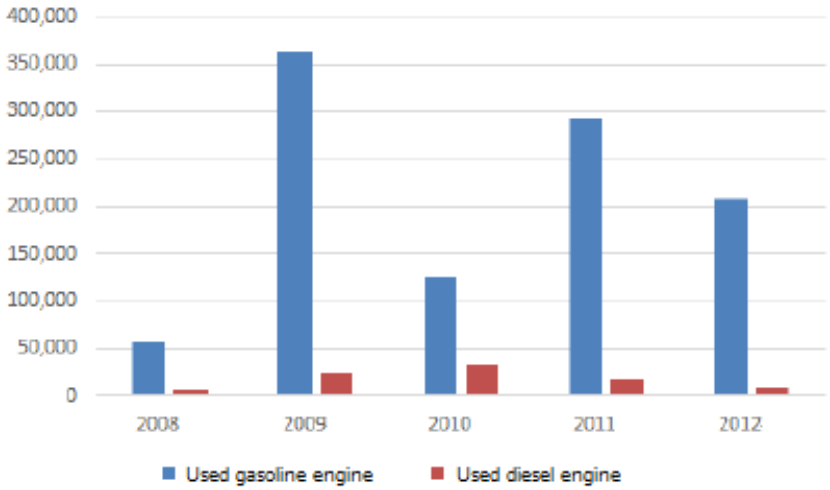


UK = United Kingdom.

Source: Department of Statistics, Malaysia.

The two graphs below show the import and export of used engines in Malaysia for 2008-2012.

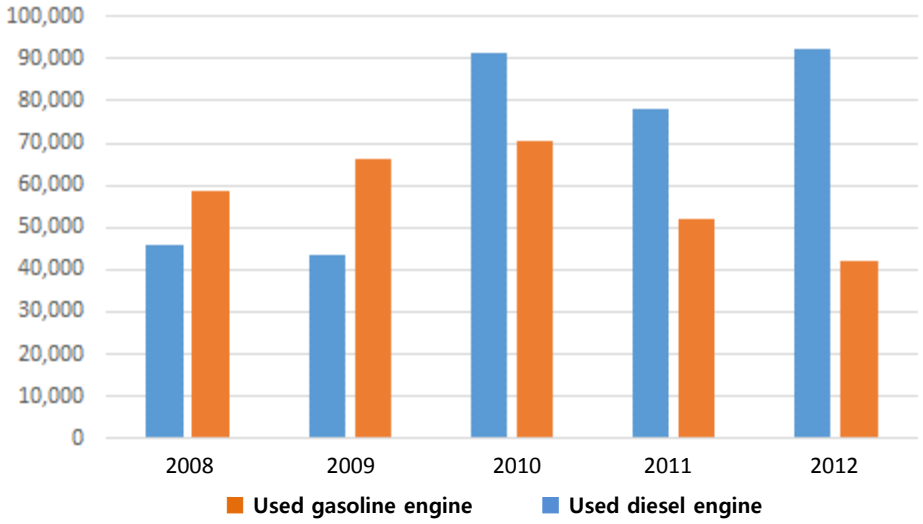
Figure A-IV.5: Import of Used Engines



Source: United Nations Commodity Trade Statistics Database

Country :	Malaysia

Figure A-IV.6: Export of Used Engines



Source: United Nations Commodity Trade Statistics Database.

References

Department of Statistics, Malaysia. http://trade.stats.gov.my/tradeV2 /(accessed September 2015).

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Yano Research Institute. ASEAN Automobile Recycling 2014.

(3) Plans and regulations relating to import regulations

Trade Control

Importing a car into Malaysia is very expensive. Import duty must be paid on any vehicle imported to Malaysia. These rates can be quite high and excise duties can be up to 100 percent when importing a foreign vehicle.

To import a car, an application must be made to the Ministry of International Trade and Industry (MITI) for an Approved Permit (AP). This is an importing licence. The car to be imported must have been registered in the home country of the person applying (if the importer is a foreigner).

Conditions and procedures that need to be complied with by companies that apply for an AP

Country :	Malaysia

to import motor vehicles:

Eligibility:

- Companies that hold existing allocation of AP for Completely Built-Up (CBU) motor vehicles
- Franchisees of CBUs
- Local assembly of multi-sourcing companies (Completely Knocked Down – CKD).
- Vehicle importation (others)
  - classic cars with car age of more than 25 years
  - vintage cars with car age of more than 50 years.

The AP system was expected to be abandoned with the introduction of a ban on used car import for commercial purpose from 2016. However, the AP system is still valid as of November, 2016.

Vehicle import on individual basis:

One AP for each individual – classic/vintage vehicle category

- Only Malaysian citizens may apply or foreigners with a valid work permit for the country
- The vehicle being imported shall be registered under the applicant's name and registration is not transferrable within five years from the date of registration in Malaysia
- The vehicle must be certified by a recognised body from the exporting country where the said vehicle is categorised as classic/vintage vehicle
- The vehicle on individual basis may only be imported for personal use; the car cannot be sold or transferred in Malaysia.

Malaysia allows its local ELV recycling companies to import ELVs from other countries. These vehicles require clearance from the Royal Malaysian Customs office. According to the law, any

importation of vehicles will require an importation AP. Normally, ELV recyclers will choose and import the vehicle using their own means of transportation.

All businesses need to obtain a Business Licence to import and/or export scrap materials. The Malaysian Government takes a measure to prevent resources from going out of the country. The measure ensures that any resource used in Malaysia should be processed and recycled in the country. Therefore, scrap purchase prices in Malaysia are low.

Duties and Taxes

Import duty and taxes are due when goods, including used cars and parts, are imported to Malaysia by either a private individual or a commercial entity. Malaysia uses the Cost, Insurance and Freight (CIF) valuation method, which means that the import duty and taxes payable are calculated from the total shipping value of the item, including the cost of freight and insurance during shipping. Some duties are also calculated based on their weight or volume.

The rates of duty vary according to the type of goods imported or exported. The table of import duty for auto parts below shows the import rate of various vehicle parts as of September 2015. In terms of duty concessions, the Government of Malaysia provides concessional tariff rates for a wide range of goods in line with Malaysia's commitment arising from its bilateral and multilateral trade negotiations with other nations.

The table below shows the import and excise duties for motor cars (including station wagons, sports cars, and racing cars).

Table A-IV.4: Import Duties for Passenger Cars

Engine Capacity (cc)	Import Duty				Excise Duty
	CBU*1		CKD*2		CBU & CKD
	MFN*3	ATIGA*4	MFN	ATIGA	
Up to 1,799	30%	0%	10%	0%	75%
1,800 - 1,999	30%	0%	10%	0%	80%
2,000 - 2,499	30%	0%	10%	0%	90%
Above 2,500	30%	0%	10%	0%	105%

ATIGA = ASEAN Trade in Goods Agreement, CBU = Complete built-up, CC = cubic centimetre, CKD = Complete knock down, MFN = Most Favoured Nation.
Source: Malaysia Automotive Association, Information on Duty Structure.

Country :	Malaysia

Table A-IV.5: Duties and Taxes for Automobile Parts

Bodies, parts, and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10	Kg	0 - 30 %
- Other:	8707.90	Kg	0 - 30 %
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- Bumpers and parts thereof:	8708.10	Kg	0 - 25%
- Other parts and accessories of bodies (including cabs):	8708.20	Kg	0 - 30%
- Brakes and servo-brakes; parts thereof:	8708.30	Kg	5 - 30%
- Gear boxes and parts thereof:	8708.40	Kg	0 - 25%
- Drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof:	8708.50	Kg	0 - 30 %
- Road wheels and parts and accessories thereof:	8708.70	Kg	5 - 30%
- Suspension systems and parts thereof (including shock- absorbers):	8708.80	Kg	5 - 30%
- Other parts and accessories:	8708.90	Kg	0 - 30%

HS = Harmonised System, Kg = kilogram.

Source: Royal Malaysian Customs Department.

Customs Order 2011, Value of Imported Completely Built-Up Motor Vehicles (Used), specifies dutiable imported used motor vehicles and their custom duties. The Order is applicable for completely built-up (CBU) motor vehicles (used), excluding motorcycles, imported by open AP holders. The table below shows the value of cost, insurance, and freight of some Japanese brand cars.

Country :	Malaysia

Table A-IV.6: Value of cost, insurance, and freight of selective Japanese brand cars

Bland/Model	Engine Capacity (cc)	Age 12 months and not exceeding 24 months	Age 24 months and not exceeding 36 months	Age 36 months and not exceeding 48 months	Age 48 months and not exceeding 60 months	Age 60 months and above
Toyota						
Corolla Axio L	1,797	RM30,846	RM26,894	RM22,941	RM18,988	RM17,011
Crown Sedan	1,998	RM45,688	RM39,756	RM33,824	RM27,893	RM24,927
Prius A type	1,496	RM38,777	RM33,767	RM28,757	RM23,746	RM21,241
Suzuki						
Kei A	658	RM13,062	RM11,481	RM9,899	RM8,317	RM7,527
Wagon	658	RM24,765	RM21,623	RM18,481	RM15,339	RM13,768
Subaru						
Impreza	1,994	RM53,426	RM46,463	RM39,499	RM32,536	RM29,054
Nissan						
Moco	658	RM18,444	RM16,145	RM13,846	RM11,546	RM10,397
Elgrand	3,498	RM54,700	RM47,567	RM40,433	RM33,300	RM29,733
Lexus						
LS600h	4,968	RM205,919	RM178,623	RM151,327	RM124,031	RM110,383

cc = cubic centimetre.

Source: Customs (Values of Imported Completely Built-up Motor Vehicles (Used) Order 2011.

Goods and Services Tax (GST) applies to all imported goods.

References

High Commission of Malaysia, Canberra Australia. http://www.malaysia.org.au/info2.html (accessed September 2015).

Muhammad Azmi, Muhamad Zameri Mat Saman, Safian Sharif, Norhayati Zakuan, and Salwa Mahmood, *Proposed framework for End-Of-Life vehicle recycling system implementation in Malaysia.* http://www.gcsm.eu/Papers/64/5.6_104.pdf (accessed September 2015).

Customs (Values of Imported Completely Built-up Motor Vehicles (Used) Order 2011.

Country :	Malaysia

http://www.federalgazette.agc.gov.my/outputp/pua_20110826_perintah%20kastam(nilai-nilai%20kenderaan%20motor%20pasang%20siap%20yang%20diimport)%20-complete.pdf (accessed September 2015).

Royal Malaysian Customs Department. http://www.customs.gov.my/front.html (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

In Malaysia, the Road Transport Department (RTD), under the umbrella of the Ministry of Transport, is in charge of new car registration, transfer or selling of licence, re-registration, and deregistration of vehicles under the Road Transport Act 1987 and Motor Vehicle (Registration and Licensing) Rules 1959.

New Car Registration

Any new or imported vehicle is required to be registered with the Malaysian Road Transport Department which is in charge of undertaking registration and licensing of drivers and all motor vehicles and trailers in Malaysia. The application for the registration of a motor vehicle should be submitted in a prescribed form to the Director of each registration area or each division of the Road Transport Department.

All cars should be registered. The owner's registered address and registration number are connected.

Users are required to pay RM100 stamp fee as registration fee.

Transfer or Selling of Licence

Within seven days after a change of possession, car owners have to inform the Director of the registration area, and a certification of registration should be sent to the new owner by original owner.

The new owner shall, within seven days after such change of possession, forward to the Director a statement in the prescribed form together with the registration certificate.

Country :	Malaysia

Re-registration

In case of reregistration, car users follow the procedure at post office with the car licence. Users are required to pay RM30 for re-registration at the post office. Car users are required to renew the registration annually.

Deregistration

Deregistration of cars in Malaysia is not compulsory. However, car owners can deregister a car. Also, if renewal of registration is not conducted for more than two years, a car is automatically deregistered. No certification of disposal of car is required for deregistration.

The owner who deregisters the car is able to request for a reimbursement of the paid road tax.

Inspection

Only a commercial vehicle is required to undergo annual inspection under the Road Transport Act. Random inspection is conducted on the road. Penalty is imposed on a commercial car, if it does not have a sticker indicating that it has been inspected annual.

There is no inspection system for private vehicles. But the plan to introduce an inspection system for private cars is often proposed in the connection with the deregistration policy. It is very possible that an inspection system for private vehicles will be introduced in Malaysia.

Vehicles are inspected at the inspection site by a private company which is authorised by the Malaysian Government to take all mandatory inspections.

Puspakom, the only authorised private company, has 83 inspection centres around the country performing more than 3 million inspections annually. The company is also in charge of the inspection of imported cars (both brand new and used ones) on behalf of Royal Malaysian Customs.

Country :	Malaysia

Table A-IV.7: Tax for Owning Vehicles

Fee		Details
1	Registration fee	Should be paid on registration, re-registration
2	Road tax	Should be paid upon owning a car
3	Compulsory insurance	Certification of paying issuance is required for renewal of registration.

Source: Yano Research Institute.

Tax

Road tax is compulsory in Malaysia. Driving without paying it results in severe penalties. The amount of road tax depends on engine capacity, fuel type, place of registration, and whether the car is for private use or commercial use. The tax is purchased either from the Road Transport Department or through the Internet. Car users are required to pay this tax when renewing their annual registration.

The table below shows the road tax structure for a standard vehicle (sedan, hatchback, wagon, coupe, or convertible) with a private registration in Peninsular Malaysia. Most of cars fall under this category and this applies to both petrol and diesel engines.

For a 'non-standard' vehicle, namely a multi-purpose vehicle (MPV), a sport utility vehicle (SUV), or a pickup truck as well as a company-registered vehicle, a slightly different number structure applies.

Table A-IV.8: Standard Vehicles with Private Registration in Peninsular Malaysia

Engine Capacity (cc)	Base Rate	Progressive Rate (per cc)	Total Road Tax
1,000 and below	RM20.00		RM20.00
1,001 to 1,200	RM55.00		RM55.00
1,201 to 1,400	RM70.00		RM70.00
1,401 to 1,600	RM90.00		RM90.00
1,601 to 1,800	RM200.00	RM0.40	RM200.40 to RM280.00
1,801 to 2,000	RM280.00	RM0.50	RM280.50 to RM380.00
2,001 to 2,500	RM380.00	RM1.00	RM381.00 to RM880.00
2,501 to 3,000	RM880.00	RM2.50	RM882.50 to RM2,130.00
3,001 and above	RM2,130.00	RM4.50	RM2,134.50 and above

Cc= cubic centimetre.

Source: Road Transport Department (RTD).

Country :	Malaysia

Since 1 April, 2015, the Government of Malaysia started to impose GST, superseding the existing 10 percent sales tax. Therefore, any car or part which is purchased in or imported into Malaysia is subject to the six percent GST.

Insurance

Car insurance is also compulsory in Malaysia. It is a criminal offence to drive without insurance.

There are three main types of insurance available for motor insurance requirements in Malaysia. The most basic cover for legal purposes is known as Act Only Insurance. It covers only death or injury in the event of an accident. The next level is Third Party Insurance which covers accident to third party vehicles and some minor injuries. The third party and fire and theft can be added to these policies. The highest level of insurance is the full comprehensive insurance and this covers all fire, theft, accidental damage, regardless of liability, and often has clauses such as legal cover. Every driver must at least have a third party insurance. This is the lowest level of cover available which fulfils legal requirements to be able to drive a motor vehicle on public roads. Car insurance can be paid in lump sum or on a monthly automated basis via direct debit or taken from a credit card each month.

Penalty

Based on the *Road Transport Act 1987* of Malaysia, any person who fails to comply with the ACT or refuses (neglects) to do anything shall be liable.

- *Any person who is guilty of an offence under this Act shall, where no special penalty is provided, be liable in the case of a first conviction, to a fine not exceeding RM2,000 or to imprisonment for a term not exceeding six months and, in the case of a second or subsequent conviction, to a fine not exceeding RM4,000 or to imprisonment for a term not exceeding 12 months or to both.*
- *Any person who contravenes the requirements of registration shall be guilty of an offence and shall on conviction be liable to a fine not exceeding RM2,000.*
- *Any person who uses a motor vehicle after declaring that it has not been used shall be guilty of an offence and shall on conviction be liable to a fine not exceeding RM5,000.*
- *Any person who without reasonable excuse fails to comply with any requirement of the inspection shall be guilty of an offence.*

Country :	Malaysia

References

ExpatFocus, *Malaysia - Car Tax and Insurance.* http://www.expatfocus.com/expatriate-malaysia-car-tax-insurance (accessed September 2015).

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Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(5) Handling of imported used cars and/or accident status quo cars

In case cars cannot be repaired, parts are removed and bodies as scrap are sold to waste traders. This number is very small because old cars are still utilised in rural areas. In case accident cars cannot be repaired, the ownership of the car is transferred to the insurance company, and car owner receives the insurance payment. The insurance company sells accident cars to the scrap trading companies through auction.

In some cases, local municipality gathers ELVs left in the city and sells them in auctions.

References

Field Survey of the Study Team.

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

The number of ELVs was estimated at 61,430 per year in 2013. Yano Research Institute estimates the number of ELV as follows:

Country :	Malaysia

Table A-IV.9: Forecast of the Number of ELVs in Malaysia

Year	2013	2014	2015	2016	2017	2018	2019	2020
No. of ELVs	61,430	89,319	122,512	128,107	125,242	124,969	160,146	212,464

ELV = end-of-life vehicle.

Source: Yano Research Institute.

Model year

Generally, in Malaysia, cars are utilised for 15 to 30 years. The model year of ELV ranges from the year 1985 to 2000.

Price

The price of a used car is about RM4,000 for a 1990 model, RM60,000 for a 2005 model (Toyota Carole), RM6,500 for a 1998 model (Perodua Kancil), and RM7,786 for a 1992 (Honda Accord 2.0).

According to the field survey conducted by EX Research Institute, the purchase price of ELVs ranges from RM500 to RM5,000.

Distribution

Old models of cars are sold as used cars many times by being repaired and changing parts. ELVs are seldom dismantled. In case cars cannot be utilised any more, the car owners bring them to repair shops or junkyards. Cars are dismantled there, and car parts are removed and bodies as scrap are sold to scrap trading companies. This number is very small because the old cars are generally utilised for a long time.

Actually, ELVs in Malaysia are mostly generated in rural areas. However, unusable cars are left as ELVs in the city. In some cases, local municipalities gather ELVs left in the city and sell them at auctions.

ELVs will be gradually generated in the near future. Proton started producing cars from 1984

and they produced ten thousand then. From the early 2000s, Proton started to produce more than 100 thousand. If we were to assume that the lifetime of cars is 20 years, then many ELVs will be generated from 2020.

Due to the introduction of 'Cash for clunkers', the number of dismantled ELVs in Malaysia will increase. Cash for clunkers is a new car scrapping program designed to encourage people to turn in their old cars for cash. The Malaysia Automotive Institute (MAI) is currently studying the viability of the program and is discussing with other government agencies such as the Finance Ministry, other related government bodies, and car manufacturers.

Few auto dismantlers exist in Malaysia. Since there is currently no registration system for such businesses, the number of dismantlers is hard to ascertain. According to Malaysia Automotive Recyclers Association (MAARA), the dismantling of ELVs is mainly carried out by used parts dealers and some of them have press machines.

Processing Situation

In the National Automotive Policy (NAP) 2014, the introduction of Authorised Treatment Facilities (ATFs) for ELVs is being considered. ATFs are expected to comply with the requirements of ELV regulations on dismantling. NAP 2014 also plans to add the shredding and sorting plant to the ATFs. Currently, used parts are taken off and bodies are dismantled manually using gas burners. Steel scraps are sent to recyclers and mufflers, including rare metals, are sold to recyclers. ASRs will be sent to ASR incinerators. Amsteel Mills installed shredding facilities to treat soft press imported from other countries. However, it became difficult to import and now they work much less than their capacities.

References

EX Research Institute. Survey on recycling law and business in Asia 2014. http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

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September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

The importation of used parts to Malaysia is very huge. Malaysia works as a hub of trade of used parts. Most used parts imported to Malaysia are re-exported to Africa and the Middle East. In Malaysia, used parts are traded in 'Used Parts Town' where more than 5,000 companies deal with used parts (Yano Report). Many Daihatsu and Mitsubishi Motors' used pars are traded in Malaysia because they collaborate with Perodua and Proton and both cars have many common parts. Remanufacturing companies for these parts also exist in Malaysia. The amount of import is larger than the domestic generation of used parts in Malaysia.

Distribution, Flow, and Sale Prices

Malaysia is said to become the global hub for used auto parts transaction. Malaysia imports 5,000 containers of used parts per month. Used parts are imported from mainly Japan and others countries such as Australia. Used parts are imported mainly as half-cuts and some are as engine and transmission, among others. Some 70 percent of used parts are re-exported and the rest are sold in Malaysia. The countries of destination are Nigeria, Egypt, Jordan, Pakistan, China, Thailand, Indonesia, Maldives, Myanmar, and Russia. Used parts are sold domestically as follows:

- Wire cables: Sold to local companies both with pealing cover and without pealing.
- Catalysers: old to local companies. The price is RM100 for each part.
- Engines: Sold to engine dealers. The engine dealers manually separate them into steel and aluminium, and sell them to electrical furnace steel manufacturers. Gear boxes are sold to the other companies. The companies buy aluminium from construction companies and can manufacturing companies and sell it to metal refineries.

Country :	Malaysia

- Batteries: treated as industrial waste.
- Suspension struts: Sold to local companies. The price is about RM33 for each part.
- Shock absorbers: Sold to local companies. The price is about RM40 for each part.
- Bonnet: Sold to local companies. The price is about RM100 for each part.

Table A-IV.10: Price Range of Automobile Parts

Parts	Sales price (RM)
Transmission	1,000 - 1,500
Nose cut	500 – 800
Axle	300 - 700
Dashboard	300 - 650
Bumper	300 - 500
Windshield	200 - 300
Bonnet	100 - 300
Radiator	180 - 250
Brake lamp	80 - 130
Fender	60 - 120
Head lamp	60 - 120
Starter	50 - 120
Shock absorber	40 - 90
Alternator	50 - 80
Engine	Several thousands
Suspension struts	33
Wire cable	No data available
Catalyser	100
Gear box	No data available

Sources: EX Research Institute; and Field survey of the study team.

Domestic clients of used parts are used parts traders or repair shops. Normally, the dealing of used parts is conducted on face-to-face basis. Sometimes, however, in some cases, the deal is conducted on the internet.

Country :	Malaysia

In Malaysia, brand new and used imitation parts circulate. Imitation parts imported from China, Taiwan, and others compete with used parts due to their low price, although they are considered to have safety problems. If the customer puts more priority on price rather than on quality, the imitation parts are selected by those customers.

Used Parts Market and Players

Several auto markets where a variety of auto dealers assemble in one place exist in Malaysia. Of those, two sizable markets, namely Kepong and Klang, are flourishing. According to MAARA, the number of business entities in the used parts trading is 5,266. While trading of counterfeit auto parts can be seen in those markets, functional parts including engines and components manufactured in Japan are dominant there.

Industry Association

There are three big used parts groups in Malaysia, namely, Feder, Sungai Sendock, and NL. Each group has approximately 10, 10, and 20 member companies respectively.

MAARA is the national association serving the auto parts recycling industry. It has more than 250 members all over Malaysia. MAARA provides industry information to its members in an effort to facilitate continuous growth and evaluation of the auto parts recycling industry. The association encourages aggressive environmental management programs to assist member facilities in maintaining proper management techniques for fluid and solid waste materials generated from the disposal of the motor vehicles. Member companies provide three-year warranty for their products as part of MAARA's policy.

References

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Country :	Malaysia

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sale prices, processing situation, items on trading and resources: steel and non-ferrous metals

Copper and iron are mainly recycled domestically because these industries are located in Malaysia. There is also an aluminium industry in Malaysia, but aluminium scraps are both utilised domestically and exported. Plastic is also used domestically and exported.

The level of metal recycling in Malaysia is high. Shredders and separators for non-ferrous metals are introduced. There are companies refining lead from batteries and rare metals are recovered from mufflers by scrap collecting companies.

Amsteel Mills is the only company that has a shredding machinery whose capacity is 1,000 tons per day. However, the company is unable to obtain enough materials. Thus, only a few thousand tons per month are processed.

There is not enough steel scrap for steel production in the country. The table below shows the volume of steel scrap generated. Therefore, the country largely depends on imports. The top three suppliers of ferrous scrap to Malaysia are Australia, Singapore, and USA.

Table A-IV.11: Volume of Steel Scrap Generation in Malaysia

Year	2008	2009	2010	2011	2012
Steel Scrap (ton)	2,361	1,828	1,662	1,598	2,050

Source: Nikkan Shikyo Tsushin sya.

The volume of automobile catalyst generated, including that of commercial vehicles, was about 500 tons in 2011.

According to a company interviewed by the study team, aluminium scrap is sold at RM5 per kilogram, steel scrap is sold at RM800 per ton, and plastic is sold at 15 centavos per kilogram.

Malaysia has several electric furnace companies as shown in the table below.

Country :	Malaysia

Table A-IV.12: Electric Furnace Companies in Malaysia (1,000 tons per year)

Company	Crude steel	Slab	Billet	Bloom	Bar Steel
Ann Joo Resources	910	600	910		1,045
Kinsteel	1,950		1,960	500	1,950
Lion Group	4,000	2,000	2,550		2,524
Malaysia Steel Works	550		550		350
Malaysia Perwaja	1,400		750		1,150
Southern Steel	2,000		1,500		1,200
Others			30		431
Total	10,810	2,600	8,300	500	8,650

Source: JFE Techno Research.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

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JFE Techno Research. *Study on Steel Industry in Asian region 2014.* http://www.meti.go.jp/policy/mono_info_service/mono/iron_and_steel/downloadfiles/tekkogizyutsu.pdf (accessed September 2015).

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Processing Situation

Tires:

Waste tires are not categorised as Scheduled Waste. Tire dealers usually employ private rubbish collectors to dispose their waste tires. They do not have any guidance or assistance from their principals or authorities for the proper management and disposal of waste tires. Private rubbish collectors collect waste tires, however, the extent to which these tires are disposed legally and in an environmentally friendly way is not known.

Country :	Malaysia

Scrap tire collectors and traders collect and transport scrap tires from tire shops to retreaders, recycling facilities, or to the nearest landfill sites. Although collectors charge a fee to discard scrap tires, the extent to which these tires are disposed legally and in an environmentally friendly way is also not known. Apart from that, high transportation fees are charged when there is an undefined coverage of collection.

There are three groups of scrap tire collectors/traders:

(i) Collectors that provide disposal service to the tire shops (paid service). These are for mainly unwanted tires that need to be disposed to the nearest landfill.

(ii) Collectors that buy scrap tires from the tire shops. These are mainly retreadable and reusable tires (second hand tires).

(iii) Collectors that voluntarily collect the unwanted used tires from tire shops without any charges (free disposal service). The frequency of this collection is usually not fixed, e.g. once or twice a week collection.

Scrap tire traders identify and sort scrap tires according to their usage, either to send them to tire retreaders or recycling centres. Traders are the middlemen who buy retreadable tires from collectors or directly from the tire workshops. These traders then resell retreadable tires to the retreaders, both locally and internationally. The remaining tires will go to the scrap tire treatment facilities or other usage.

Recycling and disposal are done through: 1) recovery of rubber granules/rubber powder steel wires from the scrap tires, 2) production of reclaimed rubber, 3) pyrolysis treatment, 4) used for cement industry, and 5) disposal.

1) Recovery of rubber granules/rubber powder, steel wires from the scrap tires:

Recycling of scrap tires refers to the recovery of rubber granules/rubber powder and steel wires from the scrap tires. Scrap tire recyclers like G-Cycle, located in Sungai Lalang Kedah, recover rubber granules and steel wires as end products. The rubber granules are sent to Klang and Kuala Lumpur, which will then be processed into rubber tiles as secondary products. The recovered steel wires are sold to the steel mills. Apart from that, G-Cycle has its own transportation for the collection of scrap tires.

Country :	Malaysia

2) Production of reclaimed rubber:

Reclaimed rubber production refers to the company that processes tire buffing and whole tires into rubber crumbs. This rubber crumb is then further processed into various grades and sold to end products manufacturers such as rubber tiles and rubber mats factory both locally and overseas.

This quality material in crumb form is capable of performing numerous tasks once applied to a variety of end products like rubberised asphalt for road building and building materials, sports surfaces, carpet underlay, noise and vibration insulation, rail crossings, sound barriers, industrial flooring, sealant, carpet pads, shoe soles, playgrounds and rubber matting, pond liners, conveyer belts, recycling bins, oil spill absorber, floating docks, wharf pilings and buffers, agricultural pipes, animal bedding, and fencing.

Rubplast Sdn. Bhd., located in Taiping, Perak, is a company that recycles scrap tires and processes rubber crumbs. Rubplast use rubber crumbs to manufacture end products such as rubber tiles and rubber mats in various grades. The other two identified reclaimed rubber producers are Jeng Yuan Reclaimed Rubber Sdn. Bhd. and Yong Fong Rubber Industries Sdn. Bhd., both located in Klang.

3) Pyrolysis Treatment:

Pyrolysis offers an environmentally attractive method to decompose a wide range of wastes, including scrap tires. In the pyrolysis process, the organic volatile components of tires are decomposed to low molecular weight products, liquids, or gases, which can be used as fuels or chemical source. The non-volatile carbon black and inorganic components remain as solid residues and can be recycled using other applications.

The use of pyrolysis as a method for recycling waste tire depends on the market for pyrolysis products. For this reason, the characterisation of pyrolysis products and the possibilities of their application in other processes are very important. At present, the main application for carbon black is its use as active carbon, as reinforcement in the rubber industry and as smokeless fuel. The liquid product is used as fuel or as a source of chemicals, and the gas fraction as fuel in the pyrolysis process.

Country :	Malaysia

Advanced Pyrotech Sdn. Bhd., a subsidiary company of Octagon Consolidated Berhad, has developed and operated a continuous process treatment system for waste tires by utilising pyrolysis technology. The process degrades the rubber chips into its original components and allows for the recovery of carbon black, oil, steel wires, and non-condensable flammable gases. Green Pluslink Sdn. Bhd. and Environmental Protection Technology Sdn. Bhd. are two other pyrolysis plants located in Klang.

4) Cement Industry:

The cement industry uses scrap tires as low-cost supplementary fuel due to their high-calorific value. Therefore, scrap tires are excellent materials for energy recovery. However, this process can be acceptable from an environmental point of view only in the case of controlled combustion due to the toxic emissions produced during the tire combustion process.

For example, Lafarge Malayan Cement is paid to accept and burn scrap tires as fuel in rotary cement kilns. If the company were to use local tires, they would have to pay for the collection of scrap tires. Since local sources are unreliable as supplies are inadequate and erratic in the absence of collection system, Lafarge ships in shredded tires from Singapore to fuel its cement kiln in Langkawi. YTL Cement is another cement industry that uses scrap tires as supplementary fuel.

The use of tires directly as fuel in cement kilns has the following advantages: reduced power-production costs, maximum heat recovery, and environmentally acceptable process. The disadvantages are: no material recovery, large capital investment, need for flue gas cleaning, carbon dioxide emission, and high operating costs. More research work is needed to find out the environmental impacts of the combustion of scrap tires, especially the polycyclic aromatic hydrocarbon emissions.

5) Disposal:

There are no disposal facilities specifically designed for the disposal of scrap tires in Peninsular Malaysia. Most of the landfill sites in Malaysia receive scrap tires as mixed waste with normal household waste. However, according to a few landfill operators, the number of scrap tires

Country :	Malaysia

received at landfills has reduced significantly in the past few years. Tires found at the landfills are mostly motorcycles tires.

Generally, landfills charge a tipping fee which ranges widely from RM10 per truck to RM33 per ton, depending on the landfill operator. High gate fees deter collectors from dumping scrap tires at landfills, which lead them to dumping scrap tires illegally. Apart from that, the scrap tires in landfills are usually not segregated from other domestic wastes.

Inert waste disposal facilities cater specifically to garden wastes, construction and demolition wastes, waste glasses, scrap tires, and other dry, non-leachable wastes. Two inert landfills were identified in the central region of Peninsular Malaysia. These are Dengkil Inert Landfill in Sepang and Kuang Inert Landfill in Sungai Buloh.

The burning of used tires in landfills generate tremendous amount of black smoke and toxic oils that create severe environmental and health hazards. Whole tires are bulky, taking up valuable landfill space and preventing waste compaction, which caused uneven settlement. In addition, it creates breeding grounds for mosquitoes. In any case, tires do not belong in dumpsites since they are recyclable.

Batteries:

Generally, used batteries are collected and sold to recycling companies such as Metal Reclamation Bhd (MRB).

Batteries are categorized as Scheduled Waste (SW102 Waste of lead-acid batteries in whole or crushed form). According to the Environmental Quality (Scheduled Wastes) Regulations 1989/2005, every waste generator of battery shall ensure that the scheduled waste generated are properly stored, treated on-site, recovered on-site for material or product from such scheduled wastes, or delivered to and received at prescribed premises for treatment, disposal, or recovery of material or product from scheduled wastes. Also, the recovery of material or product from waste batteries shall be done at prescribed premises or at on-site recovery facilities. Residuals from recovery of materials or products from scheduled wastes shall be treated or disposed at prescribed premises.

Country :	Malaysia

Waste oils:

Waste oils are also categorised as Scheduled Waste (SW312 Oily residue from automotive workshop, service station, oil or grease interceptor). Similar to the treatment of batteries, every waste generator of waste oil shall ensure that the scheduled waste generated are properly stored, treated on-site, recovered on-site for material or product from such scheduled wastes, or delivered to and received at prescribed premises for treatment, disposal, or recovery of material or product from scheduled wastes. Waste oil are stored and reused for waste generator sites or collected and sold by waste oil collectors.

Also, the recovery of materials or products from waste oils shall be done at prescribed premises or at on-site recovery facilities. Residuals from the recovery of materials or products from scheduled wastes shall be treated or disposed at prescribed premises.

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Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(10) Factual survey of end-of-life two-wheeled vehicles

The registered number of two-wheeled vehicles in 2013 was 11,087,873. The number of sales of two-wheeled vehicles in the same year was 546,719.

Country :	Malaysia

Table A-IV.13: Number of Sales and Registration of Two-wheeled Vehicles in Malaysia

	2008	2009	2010	2011	2012	2013
Registered two-wheeled vehicles	8,487,451 (106.85%)	8,940,230 (105.33%)	9,441,907 (105.61%)	9,949,774 (105.37%)	10,559,370 (106.12%)	11,087,878 (105.00%)
Sales number of two-wheeled vehicles	532,697 (118.46%)	432,683 (81.22%)	468,175 (108.20%)	494,586 (105.64%)	537,753 (108.73%)	546,719 (101.67%)

Note: Values shown in parentheses are those compared to the previous year.

Source: Yearbook Statistics Malaysia.

The flow of two-wheeled vehicles cannot be identified by this research. According to the study team's interview, they are brought to repair shops and repair shops sell them to scrap companies.

References

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https://www.statistics.gov.my/index.php?r=home/index&menu_id=b2ROaWpITmQ5NnAvMHVmRjRkZzlBQT09 (accessed September 2015).

(11) Type of operation and number of recycling-related companies

Dismantlers

Since the generation of ELVs is limited in Malaysia, there seems to be few ELV dismantling companies. Therefore, dismantling is mainly conducted by used parts dealers in the country.

Although the majority of companies are small, a relatively large company has a dozen to hundreds of employees. These companies annually receive 5,000 40-feet containers and dismantle and resell parts to recyclers. The revenues of the companies interviewed by the study

team range from RM4 million to RM20 million per year. Press machines and other technologies used in their procedures indicate Malaysia's dismantling advances over other ASEAN countries in this regard. It was reported that about 20 companies dismantling ELVs have dismantling licences which do not focus on ELVs. Thus, NAP 2014 is being considered as well as the establishment of ATFs. Companies with licence under the ATF framework are required to comply with waste management requirements to: store and treat ELVs in a way that does not harm the environment; remove all hazardous components and liquids; and recycle, store and dispose the parts appropriately. Approximately 40 used parts companies are located in Kepong which is a well-known site for vehicle dismantling.

Of the MAARA member companies, 70 percent are used parts sellers and 30 percent scrap sellers.

Shredders

Mega Steel is the only shedder company in Malaysia. Previously, there used to be two shredder companies. Mega Steel belongs to the Lion Group and is the only one that has blast furnace and that buys scrap from construction. The main products of other member companies of Lion Group, including Mega Steel, are:

- Mega Steel: Steel plate
- Armsteel: Steel bar and wire rod
- Antra Steel: Steel bar.

Four electrical furnace steel production companies exist in Malaysia but there are no casting companies. Steel production is top in Southeast Asia.

Downstream Recycling Companies

There are many scrapping traders for iron, copper, aluminium scrap, and plastics.

The Malaysian Iron and Steel Industry Federation (MISIF) is the national industry association for manufacturers of iron and steel products. It has 152 member companies. There are companies like Amsteel Mills who are not members of the association.

VCS Copper Industries Sdn. Bhd. is one of the largest manufacturers and exporters of high-

quality copper. It is the only company in Malaysia that recovers scrap copper and utilises it for producing products ranging in different forms of copper wires. The company produces 18,000 tons ~~MTS~~ per year.

There are numerous aluminium companies, including Press Metal Berhad and Daiki Aluminum Industry (Malaysia). Press Metal Berhad, the largest integrated aluminium producer in South East Asia, has a smelting capacity of 440,000 tons and an extrusion capacity of 190,000 tons per year.

Other Related Companies include:

Recycling of Scrap Tires

G-Cycle was founded in 1971 as a small retailer of tires, wheels, batteries, and wheel alignment servicing in Kedah, in the northern state of Malaysia. G-Cycle continues to grow by providing excellent service to its customers. Today, they use modern tire-changing equipment and wheel alignment machines to service almost all types of tires (from trailers, cars, vans to large line haul trucks, buses and coaches, earthmovers, forklifts, and container carriers).

In 2005, G-Cycle entered the tire recycling business. As tire crumb rubber has many benefits, this has led to continuous growth in processing capacity around the world, thus leading to the introduction of a modern tire recycling machine in 2008 to enhance the speed, efficiency, and quality of the production. To ensure sufficient scrap tire supply meets the increasing demand, strategic partnerships have been formed with many large and small tire retailers across Malaysia.

Today, they are capable of producing at least 300 tons of rubber and 60 tons of steel every month.

Production of Reclaimed Rubber:

Rubplast Sdn. Bhd. is a reclaimer of all types of rubber polymer. With 18 years' experience in manufacturing reclaim rubber, they have developed a premium quality product and have the capacity to produce 6,000 metric tons annually.

Pyrolysis Treatment:

Advanced Pyrotech Sdn. Bhd. develops and enhances a technology for waste tire pyrolysis. It is

also involved in developing other technologies for waste management; engineering and designing waste tire pyrolysis plants; applying intellectual property, design, and engineering to construct waste tire pyrolysis plants; and providing solutions to the disposal and management of waste tires in Malaysia and other markets. The company's activities further include the development and commercialisation of by-products from the operation of waste tire pyrolysis plants. Advanced Pyrotech Sdn. Bhd. was formerly known as KKIEC Rubber Pyrolysis (M) Sdn. Bhd. The company was founded in 1999 and is based in Petaling Jaya, Malaysia. Advanced Pyrotech Sdn. Bhd. operated as a subsidiary of K.K. Incinerator Engineering and Construction Sdn. Bhd. As on 30 July 2008, Advanced Pyrotech Sdn. Bhd. operates as a subsidiary of Octagon Consolidated Bhd.

Green Pluslink Sdn. Bhd. provides extrusion and recycling of waste tires for the production of carbon black, diesel fuel, and scrap metal. The company was founded in 2003 and is based in Kapar, Malaysia. As of 4 June 2014, Green Pluslink Sdn. Bhd. operates as a subsidiary of Destini Berhad.

Cement Industry:

Lafarge Malayan Cement is a leader of the Malaysian construction industry, contributing towards building better cities. Its solutions provide cities and townships with more housing, making them more compact, more durable, more beautiful, and better connected. Headquartered in the Klang Valley, Lafarge Malaysia has facilities that include three integrated cement plants in Langkawi, Kanthan and Rawang; a grinding station in Pasir Gudang; more than 30 ready-mixed concrete batching plants; and six aggregate quarries throughout Peninsular Malaysia. These facilities are supported by a wide network of depots, terminals, and distribution facilities connected by road, rail, and sea.

Lafarge Malaysia Berhad is today the parent of a group of companies in Malaysia and Singapore whose core businesses are in the manufacturing and sale of cement, ready-mixed concrete, and other related building materials.

YTL Cement operates two world-class integrated cement plants in Pahang and Perak as well as Clinker and Blastfurnace Slag Grinding Plants at Westport, Klang and Pasir Gudang, Johor.

YTL Cement is currently the second largest cement producer in Malaysia. It also owns an

Country :	Malaysia

integrated cement plant in Hangzhou, China, which has a production capacity of 2.0 million tons of cement per annum.

Batteries:

Recycling plants of batteries have to get licences. According to the 'Environmental Impact Assessment Guidance Document for the Construction of Scheduled Waste Recovery Plant (off-site)', recycling plants are required to submit an environmental impact assessment report to the Director General of the Environmental Quality–for consideration, as mentioned under Section 34A of the Environment Quality Act 1974 (amended1996).

Metal Reclamation Bhd (MRB) is a publicly listed company incorporated in Malaysia and has its shares listed on the Second Board of the Bursa Malaysia Securities Berhad (formerly known as The Kuala Lumpur Stock Exchange) since 4 June 1998.

The authorised share capital of MRB is RM100,000,000 comprising 100,000,000 ordinary shares of RM1.00 each while the issued and paid-up share capital is RM47,760,000 comprising 47,760,000 ordinary shares of RM1.00 each.

The table below is a list of facilities that have a licence for treatment of SW102.

Country :	Malaysia

Table A-IV.14: List of Licensed Facilities for the Treatment of SW102 Waste of Lead-Acid Batteries in Whole or Crushed Form

#	Name Of Contractor/Address	Licence No	Type of Licence	Waste Groups/Vehicle Registration No
1	Bukit Manik Enterprise: LOT 866, DEMAK LAUT INDUSTRIAL PARK, PHASE III, JALAN BAKO 3, Jalan Bako. 93050 KUCHING SARAWAK	685	Facilities : Penstoran Luar Tapak	SW102, SW206, SW305, SW306, SW307, SW312, SW408, SW409, SW410, SW416, SW417
2	E-CONCERN (M) SDN. BHD.: Lot 2979, Block 6, Kuala Baram Land District, Permy Technology Park, Jalan Tudan, Technology Park, Bandar Baru Permyjaya Tudan, 98100 Miri. 98000 MIRI SARAWAK	1708	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW204, SW206, SW301, SW302, SW303, SW305, SW306, SW307, SW308, SW309, SW310, SW311, SW312, SW314, SW321, SW322, SW323, SW324, SW325, SW327, SW401, SW405, SW408, SW409, SW410, SW411, SW416, SW417, SW418, SW421, SW423, SW429
3	HOM KIM WASTE MANAGEMENT S/B : LOT 1806, PADAWAN LIGHT INDUSTRIAL ESTATE, 10TH MILE, JLN PENRISSEN 93250 KUCHING SARAWAK	1720	Facilities : Penstoran Luar Tapak	SW102, SW103, SW204, SW305, SW306, SW307, SW312, SW409, SW410
4	INTERCEDAR INDUSTRY (M) SDN. BHD. (LOT 1339, BTG. KALI) : LOT 1339 BATU 29 MUKIM ULU YAM 44300 SELANGOR	1432	Facilities : Pemerolehan Kembali Luar Tapak	SW102
5	K.S. METAL (MIRI) SDN. BHD. : LOT 974, JLN LUTONG/KUALA BARAM, KMK1 98100 LUTONG MIRI 98000 MIRI SARAWAK	1710	Facilities : Penstoran Luar Tapak	SW102
6	KIEN SAN METAL (SIBU) SDN. BHD. : LOT 1448 & 4330, JALAN LANANG BARAT 96000 SIBU SARAWAK	1739	Facilities : Penstoran Luar Tapak	SW102, SW305, SW306
7	KIEN SAN METAL SDN. BHD : LOT 2214, SEC.66, JALAN BENGKAL, KAW. PERIND. PENDING,KUCHING KAWASAN PERINDUSTRIAN PENDING 93450 KUCHING SARAWAK	1700	Facilities : Penstoran Luar Tapak	SW102
8	LEGENDA BUMIMAS SDN.	3441	Facilities :	SW102, SW103, SW104,

Country :	Malaysia			
	BHD. (PENSTORAN BT) : LOT 2, JALAN 3, INDUSTRIAL ZONE 13, KOTA KINABALU INDUSTRIAL PARK, 88460 TAUARN 88460 TUARAN SABAH		Penstoran Luar Tapak	SW109, SW110, SW204, SW301, SW302, SW303, SW305, SW306, SW307, SW308, SW309, SW311, SW312, SW314, SW315, SW321, SW322, SW323, SW324, SW325, SW327, SW402, SW405, SW408, SW409, SW410, SW411, SW416, SW417, SW418, SW421, SW422, SW423, SW427, SW429, SW501
9	MAGNA-MITRE SDN. BHD. : No. 60, Jln Bintulu-sibu Junction, Bbc Industrial Estate, 97000 Bintulu, Sarawak 97000 BINTULU SARAWAK	1698	Facilities : Penstoran Luar Tapak	SW102, SW103, SW109, SW110, SW201, SW202, SW203, SW302, SW305, SW306, SW307, SW309, SW310, SW311, SW312, SW314, SW315, SW318, SW322, SW323, SW327, SW403, SW408, SW409, SW410, SW411, SW418, SW421, SW422, SW429, SW430
10	MBL METAL SDN. BHD. : LOT 2026, BLOCK 31, KEMENA LAND DISTRICT, JALAN SUNGAI NYIGU, BINTULU 97013 BINTULU SARAWAK	1741	Facilities : Penstoran Luar Tapak	SW102, SW305, SW306
11	METAL RECLAMATION (INDUSTRIES) SDN. BHD. : LOT 6, 8 & 9, SEKSYEN 6, PHASE 1A, TAMAN PERINDUSTRIAN PULAU INDAH, WEST PORT, WEST PORT 42920 SELANGOR	3196	Facilities : Pemerolehan Kembali Luar Tapak	SW102, SW104, SW204
12	MNA METAL RESOURCES SDN. BHD. : LOT 112, LORONG PERMATA 1/4 KAWASAN PERINDUSTRIAN ARAB MALAYSIAN ARAB MALAYSIA INDUSTRIAL PARK, 71800 NEGERI SEMBILAN	2055	Facilities : Pemerolehan Kembali Luar Tapak	SW102
13	PETRONAS CARIGALI SDN. BHD. : LABUAN SUPPLY BASE BUILDING, RANCA-RANCA INDUSTRIAL ESTATE, P.O.BOX 80040,WILAYAH PERSEKUTUAN LABUAN PO BOX 80040 87010 LABUAN W.P LABUAN	4266	Facilities : Penstoran Luar Tapak	SW102, SW103, SW109, SW110, SW201, SW203, SW301, SW305, SW306, SW309, SW310, SW311, SW322, SW323, SW327, SW403, SW404, SW408, SW409, SW410, SW417, SW418, SW421, SW422, SW429, SW430

Country :	Malaysia			
14	PETRONAS GAS BERHAD (SEREMBAN) : KM 11, JALAN SEREMBAN/TAMPIN SUNGAI GADUT KM 11, JALAN SEREMBAN-TAMPIN 71450 NEGERI SEMBILAN	2077	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW305, SW306, SW321, SW409, SW410, SW417, SW422
15	PETRONAS GAS BERHAD : LOT 1, JALAN JEMUJU LIMA 16/13E, KAWASAN PERINDUSTRIAN SEKSYEN 16 40200 SELANGOR	1413	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW305, SW306, SW321, SW409, SW410, SW417, SW422
16	PETRONAS GAS BERHAD : PEJABAT OPERASI SERANTAU GURUN KM 1, JALAN JENIANG, KM 1 JALAN JENIANG, GURUN KEDAH 08300 KEDAH	2435	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW305, SW306, SW311, SW321, SW409, SW410, SW417, SW422
17	PETRONAS GAS BHD - PASIR GUDANG RO: PLO 332 JLN PERAK 4 KAW. PERINDUSTRIAN PASIR GUDANG PLO 332, JALAN PERAK 4, KAWASAN PERINDUSTRIAN PASIR GUDANG, 81707 PLENTONG JOHOR	2323	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW311, SW321, SW409, SW410, SW417, SW422
18	PETRONAS GAS BHD - SITIAWAN RO : PEJABAT OPERASI SERANTAU SITIAWAN LOT 33263 JALAN DATO AHMAD YUNUS 32000 PERAK	1843	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW305, SW306, SW311, SW321, SW409, SW410, SW417, SW422
19	PETRONAS GAS BHD. - SCHEDULE WASTES STORAGE FACILITIES : LOT 1952 MUKIM KERTEH WILAYAH PANTAI TIMUR 24300 KERTEH TERENGGANU	2403	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW305, SW306, SW311, SW321, SW409, SW410, SW417, SW422
20	SRI TITIAN INDUSTRIES (M) SDN. BHD. : LOT 66, JALAN PERMATA 1/2 KAWASAN PERINDUSTRIAN ARAB MALAYSIAN 71800 NEGERI SEMBILAN	4971	Facilities : Pemerolehan Kembali Luar Tapak	SW102
21	SYARIKAT SEKITARAN OPTIMUM : LOT 714, DEMAK LAUT INDUSTRIAL PARK, OFF JALAN BAKO 93050 KUCHING SARAWAK	1663	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW206, SW305, SW306, SW322, SW401, SW402, SW408, SW409, SW410, SW417
22	TOD, PETRONAS GAS BERHAD : KM 10, LEBUHRAYA SEGAMAT-KUANTAN 85000	2328	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW311, SW321, SW409, SW410,

Country :	Malaysia			
	JOHOR			SW417, SW422
23	YB ENTERPRISE : LOT 76, BLOK 6, MCLD PIASAU JAYA INDUSTRIAL ESTATE MIRI SARAWAK	1725	Facilities : Penstoran Luar Tapak	SW102, SW305, SW306, SW307, SW312, SW409, SW410
24	YOKOHAMA RECLAMATION SDN. BHD. : Lot 49, Jalan Johan 2/5 Kawasan Perindustrian Pengkalan II 31550 KINTA PERAK	4178	Facilities : Pemerolehan Kembali Luar Tapak	

SW = Scheduled Waste.

Source: Electronic Scheduled Waste Information System, Department of Environment.

The following table lists the facilities that have a licence for the treatment of SW312.

Table A-IV.15: Facilities with Licence for the Treatment of SW312 - Oily Residue from Automotive Workshops, Service Stations, Oil or Grease Interceptors

#	Name Of Contractor/Address	Licence No	Type of Licence	Waste Groups/Vehicle Registration No
1	5E RESOURCES SDN. BHD.: PLO 317 & 318, JALAN PERAK KAWASAN PERINDUSTRIAN PASIR GUDANG PASIR GUDANG 81700 JOHOR	2120	Facilities : Pemerolehan Kembali Luar Tapak	SW202, SW204, SW206, SW303, SW305, SW306, SW307, SW309, SW312, SW322, SW323, SW401, SW409, SW410, SW416, SW417, SW418
2	A & C Technology Waste Oil Sdn. Bhd.: LOT 773-B, 773B-2 & 773B-3, JALAN SS13/1K, 47500 SELANGOR	1350	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312
3	BEYOND STATUS SDN. BHD. : LOT A2 (SEBAHAGIAN CL 205377886), RANCHA-RANCHA INDUSTRIAL ESTATE LABUAN W.P LABUAN	4275	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW309, SW310, SW312, SW408
4	BUKIT MANIK (SIBU) ENTERPRISE: LOT 586, BLOK 1, SG. MERAH TOWN DISTRICT NO.11, JLN GETAH, OFF JLN DING LIK KONG 96000 SIBU SARAWAK	1680	Facilities : Penstoran Luar Tapak	SW305, SW306, SW307, SW312
5	Bukit Manik Enterprise: LOT 866, DEMAK LAUT INDUSTRIAL PARK, PHASE III, JALAN BAKO 3, Jalan Bako. 93050 KUCHING SARAWAK	685	Facilities : Penstoran Luar Tapak	SW102, SW206, SW305, SW306, SW307, SW312, SW408, SW409, SW410, SW416, SW417
6	CHEMALAYA SDN. BHD. : Plo 128 Jalan Rimba 3 Tanjung	2331	Facilities : Pemerolehan	SW104, SW110, SW204, SW305, SW306, SW307,

Country :	Malaysia			
	Langsat Industri Complex Tanjung Langsat Industrial Complex 81700 Pasir Gudang JOHOR 81700 JOHOR		Kembali Luar Tapak	SW311, SW312, SW314, SW409, SW410, SW422
7	DAYA CLARIMAX SDN. BHD. : LOT 38, JALAN SUNGAI PINANG 5/1, PULAU INDAH INDUSTRIAL PARK (FASA 2) PULAU INDAH INDUSTRIAL PARK (FASA 2) 42920 SELANGOR	3117	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW309, SW312, SW314, SW322, SW323, SW409
8	DOUBLE CORPORATE SDN. BHD.: LOT 38, JALAN INDUSTRI 3/1 TAMAN PERINDUSTRIAN TEMERLOH 28400 MENTAKAB PAHANG	4406	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW314
9	E-CONCERN (M) SDN. BHD.: Lot 2979, Block 6, Kuala Baram Land District, Permy Technology Park, Jalan Tudan, Technology Park, Bandar Baru Permyjaya Tudan, 98100 Miri. 98000 MIRI SARAWAK	1708	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW204, SW206, SW301, SW302, SW303, SW305, SW306, SW307, SW308, SW309, SW310, SW311, SW312, SW314, SW321, SW322, SW323, SW324, SW325, SW327, SW401, SW405, SW408, SW409, SW410, SW411, SW416, SW417, SW418, SW421, SW423, SW429
10	ENVIRON WASTE MANAGEMENT (M) S/B: NO. 100, BLOCK 8, MUARA TEBAS LAND DISTRICT DEMAK LAUT INDUSTRIAL PARK, JALAN BAKO 93050 KUCHING SARAWAK	1718	Facilities : Penstoran Luar Tapak	SW305, SW306, SW307, SW312, SW322, SW323, SW409, SW410
11	HIAP HUAT CHEMICALS SDN. BHD. (LOT A4): LOT A-4, JALAN MIEL KAWASAN PERINDUSTRIAN BENTONG Kawasan Perindustrian MIEL, 28700 BENTONG PAHANG	3201	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW322, SW323, SW410, SW418
12	HOM KIM WASTE MANAGEMENT S/B: LOT 1806, PADAWAN LIGHT INDUSTRIAL ESTATE, 10TH MILE, JLN PENRISSEN 93250 KUCHING SARAWAK	1720	Facilities : Penstoran Luar Tapak	SW102, SW103, SW204, SW305, SW306, SW307, SW312, SW409, SW410
13	KRUBONG RECOVERY SDN. BHD. : Lot 2625, 2629 & 2630	1750	Facilities : Pemerolehan	SW104, SW109, SW110, SW202, SW204, SW206,

Country :		Malaysia		
	(PT1671, PT1675 & PT 1676), Kawasan Perindustrian Krubong, 75250 KRUBONG MELAKA		Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW314, SW322, SW323, SW325, SW409, SW410, SW412, SW414, SW422, SW423
14	LEGENDA BUMIMAS SDN. BHD. (PENSTORAN BT) : LOT 2, JALAN 3, INDUSTRIAL ZONE 13, KOTA KINABALU INDUSTRIAL PARK, 88460 TAUARN 88460 TUARAN SABAH	3441	Facilities : Penstoran Luar Tapak	SW102, SW103, SW104, SW109, SW110, SW204, SW301, SW302, SW303, SW305, SW306, SW307, SW308, SW309, SW311, SW312, SW314, SW315, SW321, SW322, SW323, SW324, SW325, SW327, SW402, SW405, SW408, SW409, SW410, SW411, SW416, SW417, SW418, SW421, SW422, SW423, SW427, SW429, SW501
15	LUNG SENG CHEMICALS SDN. BHD. : Lot 20237, PT 1430, Kawasan Perindustrian Senawang 70450 SENAWANG 70450 SEREMBAN NEGERI SEMBILAN	2081	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW322, SW323, SW409, SW410, SW416, SW417, SW418
16	MAGNA-MITRE SDN. BHD. : No. 60, Jln Bintulu-sibu Junction, Bbc Industrial Estate, 97000 Bintulu, Sarawak 97000 BINTULU SARAWAK	1698	Facilities : Penstoran Luar Tapak	SW102, SW103, SW109, SW110, SW201, SW202, SW203, SW302, SW305, SW306, SW307, SW309, SW310, SW311, SW312, SW314, SW315, SW318, SW322, SW323, SW327, SW403, SW408, SW409, SW410, SW411, SW418, SW421, SW422, SW429, SW430
17	Malik Family Resources Technology Sdn. Bhd.: LOT T115, JALAN SUNGAI PINANG 5/17, PULAU INDAH KLEEN CENTRE, 42920 PULAU INDAH SELANGOR	1296	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW410
18	MERIDIAN RECYCLING SDN.BHD (BARU-PLANT 2 - LOT 48): LOT 48, JALAN PKNK 1/5, KAWASAN PERUSAHAAN SUNGAI PETANI 08000 KEDAH	2441	Facilities : Pemerolehan Kembali Luar Tapak	SW202, SW204, SW305, SW306, SW312, SW314, SW321, SW325, SW411, SW416, SW417, SW418
19	MODERN ENERGY SDN. BHD.: PLO 594 JALAN KELULI 9 KAWASAN PERINDUSTRIAN PASIR GUDANG KAWASAN	2282	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW311, SW312, SW314, SW315, SW327, SW409, SW410, SW416, SW417

Country :	Malaysia			
	PERINDUSTRIAN PASIR GUDANG 81700 JOHOR			
20	OLST PETRO-CHEMICAL SDN. BHD.: LOT 51878, JALAN KELULI, KAWASAN PERINDUSTRIAN PASIR GUDANG 81700 JOHOR	2292	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW309, SW311, SW312, SW314, SW409, SW410
21	PENTAS FLORA SDN. BHD.: LOT 183, JALAN 5, KOMPLEKS PERABOT OLAK LEMPIT, KOMPLEKS PERABOT OLAK LEMPIT, 42700 SELANGOR	1444	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW309, SW312, SW314, SW315, SW327, SW409, SW410
22	PETROJADI SDN. BHD. (PENUNU B.T): Stesen Janakuasa ARL Tenaga Sdn. Bhd. Jln Teluk Sepanggar, Melewa, PPM 290 88450 MENGGATAL SABAH	4854	Facilities : Insinerator Buangan Terjadual	SW305, SW306, SW309, SW311, SW312, SW314, SW410
23	SAFE & CLEAN OIL RECYCLE SDN. BHD. : LOT 11946 (LOT 1) JALAN PATAU-PATAU RANCA-RANCA INDUSTRIAL ESTATE W.P. LABUAN 87000 LABUAN W.P LABUAN	4268	Facilities : Penstoran Luar Tapak	SW305, SW306, SW307, SW308, SW309, SW310, SW311, SW312, SW313, SW408, SW409, SW410, SW417
24	SIN CHAN HOO SDN. BHD.: LOT 81, JALAN INDUSTRI 4/2, KAWASAN PERINDUSTRIAN GOPENG PERINDUSTRIAN GOPENG, 31600 KINTA PERAK	460	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW308, SW312
25	SL RECYCLING (M) SDN. BHD. (KANTHAN): NO 6, PERSIARAN PERINDUSTRIAN KANTHAN, KAWASAN PERINDUSTRIAN KANTHAN 31200 PERAK	4194	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW308, SW309, SW311, SW312, SW409, SW410
26	SOUTHERN STRENGTH (M) SDN. BHD. : PLO 60, JALAN NIBONG, KAWASAN PERINDUSTRIAN TANJUNG LANGSAT, PASIR GUDANG 81700 JOHOR	4768	Facilities : Penstoran Luar Tapak	SW104, SW110, SW202, SW204, SW206, SW305, SW306, SW307, SW309, SW311, SW312, SW314, SW322, SW323, SW325, SW401, SW408, SW409, SW410, SW416, SW417, SW418
27	SP METRO (M) SDN. BHD. : LOT 14316 - 14319 JLN PERUSAHAAN 24 OFF JLN KAMPUNG IDAMAN PANDAMARAN JAYA INDUSTRIAL ESTATE 42000 KLANG SELANGOR	1411	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW311, SW312

Country :	Malaysia			
28	SPM Oil & Gas Sdn. Bhd.: LOT PT8292, JALAN 2/4, KWSN PERINDUSTRIAN PENGKALAN 2, MUKIM SUNGAI TERAP, DAERAH KINTA KAWASAN PERINDUSTRIAN PENGKALAN 2, PERAK	1834	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW309, SW311, SW312
29	SYARIKAT PERNIAGAAN SOON LI: LOT 87, JALAN INDUSTRI 4/2, KAWASAN PERINDUSTRIAN GOPENG GOPENG INDUSTRIAL PARK, 31600 PERAK	1811	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW312
30	SYP RECOVERY & RECYCLING SDN. BHD.: LOT 2833-2834, KAWASAN PERINDUSTRIAN BUKIT RAMBAI, MUKIM TANJUNG MINYAK, MELAKA KAWASAN PERINDUSTRIAN BUKIT RAMBAI 75250 BUKIT RAMBAI MELAKA	1776	Facilities : Pemerolehan Kembali Luar Tapak	SW104, SW109, SW110, SW202, SW204, SW206, SW305, SW306, SW307, SW310, SW311, SW312, SW314, SW325, SW409, SW410, SW416, SW417, SW422
31	TEX CYCLE (P2) SDN. BHD.: LOT 8942 DAN LOT 8960, KAWASAN PERINDUSTRIAN TELOK GONG, KLANG 42000 KLANG SELANGOR	1486	Facilities : Pemerolehan Kembali Luar Tapak	SW109, SW204, SW302, SW303, SW305, SW306, SW307, SW308, SW309, SW311, SW312, SW314, SW315, SW321, SW322, SW323, SW324, SW325, SW327, SW405, SW408, SW409, SW410, SW411, SW416, SW417, SW418, SW421, SW422, SW423, SW427
32	TRIOCHEM SDN. BHD.: PLO 584, JALAN MIEL 2, OFF JALAN KELULI 9, KAWASAN PERINDUSTRIAN PASIR GUDANG, 81700 PASIR GUDANG KAWASAN PERINDUSTRIAN MIEL, 81700 BANDAR JOHOR BAHRU JOHOR	2368	Facilities : Pemerolehan Kembali Luar Tapak	SW305, SW306, SW307, SW312, SW314, SW322, SW323, SW410, SW417, SW418
33	Urban Environmental Industries Sdn. Bhd.: Lot 4, Jalan Gebeng 1/5, Kawasan Perindustrian Gebeng, 26080 PAHANG	882	Facilities : Pemerolehan Kembali Luar Tapak	SW204, SW206, SW305, SW306, SW307, SW308, SW309, SW311, SW312, SW314, SW322, SW323, SW401, SW409, SW410, SW418, SW429
34	Urban Environmental Industries Sdn. Bhd. : Lot 4, Jalan Gebeng 1/5, Kawasan	4413	Facilities : Penstoran Luar Tapak	SW204, SW206, SW305, SW306, SW307, SW308, SW309, SW311, SW312,

Country :				Malaysia
	Perindustrian Gebeng, 26080 PAHANG			SW314, SW322, SW323, SW401, SW409, SW410, SW418, SW429
35	YB ENTERPRISE: LOT 76, BLOK 6, MCLD PIASAU JAYA INDUSTRIAL ESTATE MIRI SARAWAK	1725	Facilities : Penstoran Luar Tapak	SW102, SW305, SW306, SW307, SW312, SW409, SW410

SW = Scheduled Waste.

Source: Electronic Scheduled Waste Information System, Department of Environment.

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(12) Management situation of recycling-related companies

Management Situation

Based on the interview of recycling-related companies conducted by the study team, the number of employees of recycling-related companies ranges from 15 to 120.

Their revenues vary, depending on the size and domain of business. The revenues range from RM1 million to RM20 million for the companies.

References

Field Survey of the Study Team.

Country :	Malaysia

2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates)

The Malaysian Government has reviewed the NAP 2014. During the review, many challenges related to ELV recycling were proposed. The gradual introduction of the ELV policy was one of the issues raised in the review. According to the MITI website, at present, there are 2.7 million passenger vehicles that are 10 years old or older on the road. Compared to other countries, Malaysia presents a very low vehicle scrap rate and relatively high average vehicle age.

As a first step towards the implementation of a full ELV policy, the NAP review introduced mandatory annual inspections as a requirement for road tax renewal for all vehicles aged 15 years or older. At present, the obligation of inspection is imposed only on commercial vehicles. Expanding the obligation of inspection to private vehicles has been discussed several times and still is under discussion among stakeholders in Malaysia.

Initially, safety and environmental concerns were raised from the practice of importing used parts and components without any restrictions or mandatory tests. Consequently, the NAP review introduced a mechanism to prohibit imports of used parts and components, effective from June 2011. MAARA raised the importance of utilising used parts as the importation of used parts has not been introduced. However, safety and environmental issues related to used parts are still discussion points.

For the regulation on dismantling, there is no specific registration scheme for vehicle dismantling and it is difficult to effectively regulate the industry.

Some ELV recyclers do not adhere to the environmental law or guidelines, causing inappropriate processing of wastes. For example, engine coolants are being discharged freely into the drains, and air-conditioning gas is being freely released into the air. This will lead to a serious impact on the environment. Furthermore, metallic component recycling is done manually. This causes labour safety issues.

In Malaysia, specific dismantlers do not exist and dismantling is mainly conducted by used parts

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dealers. Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity. The occupational health of ELV recyclers during dismantling and down streaming processes is also a challenge. Some ELV recyclers are also working in bad conditions.

According to MAI, the development of appropriate infrastructure for promoting ELV recycling is also a challenge. The lack of standards covering the whole life of the vehicle, e.g. design, parts, dismantling process, among others, is also challenge. The enhancement of collaboration among ministries related to ELV recycling is thus expected.

References

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(2) Trend in vehicle recycling policies and related automobile recycling laws, and the enforcement, presence, and details of related institutions.

Malaysia is in its early stages of starting the ELV recycling system and is considering ELV recycling regulations. Many environmental regulations are related to ELV recycling. The Environmental Quality Act 1974 is the basic law for environmental issues. Waste management is also mentioned in this law. The law was amended in 1985, 1996, 2000, and 2001.

The NAP 2014 was crafted focusing on the objectives of enhancing the competitive advantage of the local automotive industry and developing an environmentally friendly automotive manufacturing ecosystem and its outputs. The main objectives of the document are to:

- promote a competitive and sustainable local automotive industry, including the national car companies;
- develop Malaysia as the regional automotive hub in energy-efficient vehicles (EEV);
- promote increase in value-added activities in a sustainable manner while continuously developing the local capabilities;
- promote increase in exports for vehicles and automotive components;

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- promote participation of Bumiputera companies in the total value chain of the local automotive industry; and
- safeguard consumers' interest by offering safer and better quality products at competitive prices.

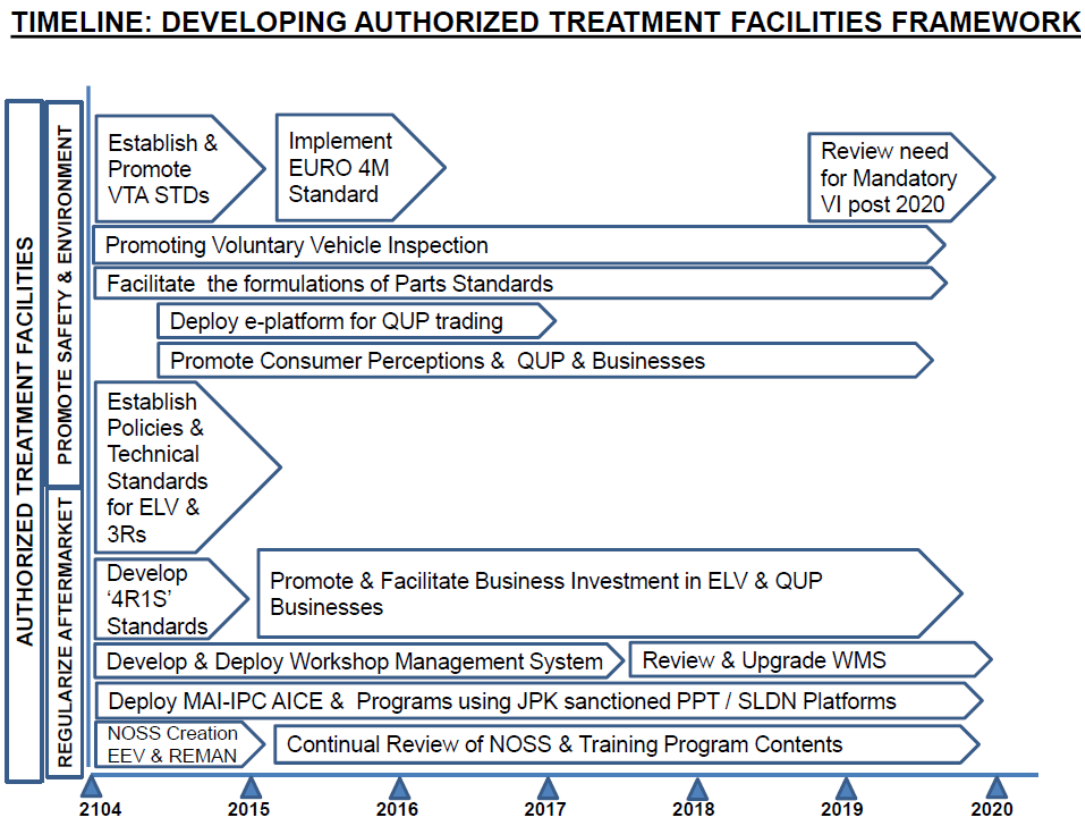
To complement the execution of NAP 2014, there are six road maps and implementation plans that have been developed and the roadmaps will be under the supervision of Ministry of International Trade and Industry (MITI) and MAI shall act as the agency that will coordinate, implement, and monitor the programmes. These road maps will serve as the guidelines to achieve the transformation objective of the local automotive industry. The outline of these road maps are as follows.

1. Malaysia Automotive Technology Road Map
2. Malaysia Automotive Supply Chain Development Road Map
3. Malaysia Automotive Human Capital Development Road Map
4. Malaysia Automotive Remanufacturing Road Map
5. Development of Automotive ATF Framework
6. Malaysia Automotive Bumiputera Development Road Map.

The development of the automotive ATF framework refers to ELV recycling. NAP 2014 will promulgate policies to introduce ELV regimes that will be supported by ATFs to enable ELV processing. NAP 2014 will promote regulations that drive 'Extended Producer Responsibility' and '4R' practices that substantially decrease the final 'waste' of a product by improving product design and through the 4Rs of 'Reduce, Reuse, Recycle and Remanufacture'. The Scientific and Industrial Research Institute of Malaysia (SIRIM) is also developing ELV standards. ELV standards will consist of general matters, hazardous wastes, dismantling, and 3R. Detailed discussions on ELV recycling schemes are also being considered by MITI.

Country :	Malaysia

Figure A-IV.7: Development of Automotive Authorised Treatment Facilities (ATF) Framework



AICE = Automotive Industry Certification Engineering, EEV = Energy Efficient Vehicle, IPC = Industry lead Professional Certification, JPK = Jabatan Pembangunan Kemahiran, NOSS = National Occupational Skills Standard, PPT = Pentauliahan Pencapaian Terdahulu, QUP = Quality Used Parts, REMAN = Remanufacturing, SLDN = Sistem Latihan Dual Nasional, STDs = Standards, VTA = Vehicle Type Approval, WMS = Workshop Management System, .

Source: Malaysia Automotive Institute (MAI).

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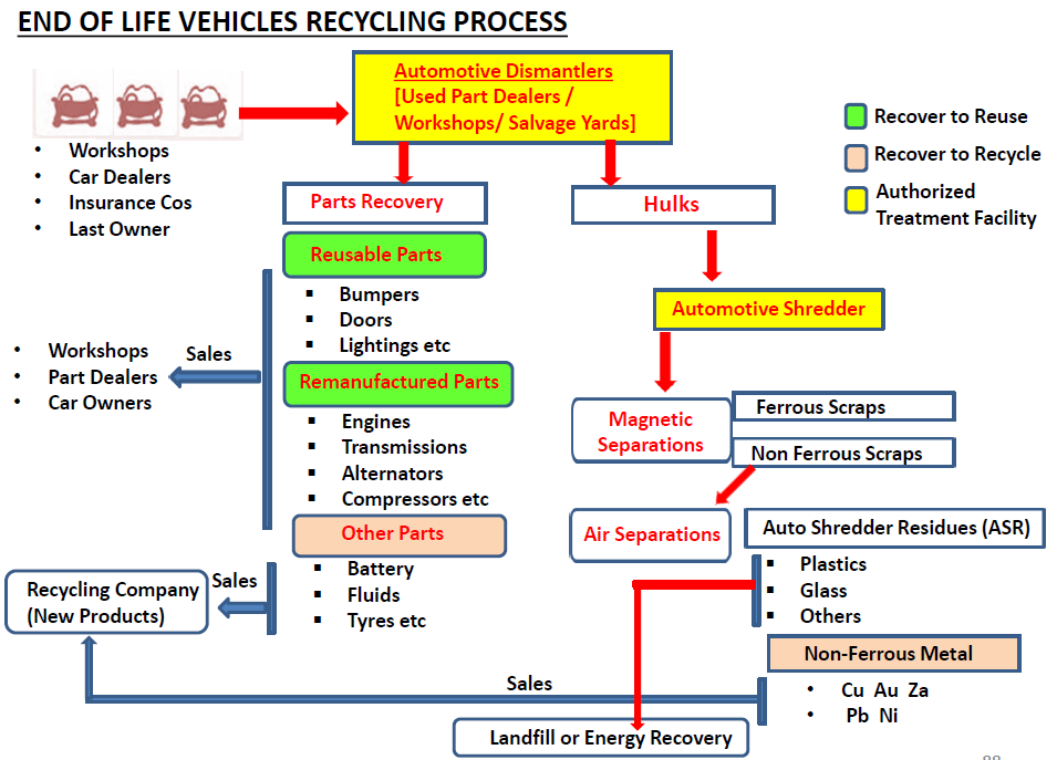
Figure A-IV.8 ELV Recycling Process



Au = Gold, ELV = end-of-life vehicle, Cu = Copper, Ni = Nickel, Pb = Plumbum, Zn = Zinc.

Source: Malaysia Automotive Institute (MAI).

a) Status of institutional system collateral of improper processing of three Designated Recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

CFCs for air-conditioners are collected by recovery equipment and stored in gas bombs. However, CFC is released in the air during confirmation of gas leak. Hydrochlorofluorocarbon (HCFC) is not currently the target of regulation. However, the Department of Environment (DOE) is considering to include the HCFC in the target and is planning to elaborate the control plan of HCFCs.

Airbags

Currently, the proper treatment of the airbag is not regulated. However, under the road map of NAP, the airbag is designated as an automotive component which is object of 'reuse'.

Automobile Shredder Residues

Shredding and sorting plants are the new addition to the proposed Malaysian ELV recycling

system. ASRs are sent to ASR incinerators. Incineration serves two purposes in the ELV recycling system: to extract the energy; and to reduce ASR weight. The by-product is a molten slag which can be used as brick or additional ingredient in concrete while the rest, if any, is sent to landfills.

The generators of ASRs are not required to have a licence as prescribed premises for waste management from DOE. Only the receiver of ASRs (treatment or disposal and transporter provider) must have a licence as stipulated under section 18 of Environmental Quality Act.

If ASRs contain heavy metals or are contaminated with coolant, oil or grease, they are considered as scheduled wastes SW104 under the Environmental Quality (Scheduled Wastes) Regulations 2005 and are subject to the regulation.

Other

All vehicles are later sent to the dismantling facilities, which are registered with MAARA. The vehicles undergo a de-pollution stage where all fluids are drained and stored for the respective recyclers.

Battery, mercury, and other pollutant agents are removed at this stage. Finally, the vehicle will be dismantled. Useable parts are harvested and enter the used spare parts market. Unusable or heavily damaged parts will be sorted according to their respective material. These will be sold to recyclers. Parts which cannot be sold or recycled will be sent for disposal.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users and government agencies (including local governments)

The current roles and responsibilities of stakeholders of the automotive industry are as follows:

- Importers
  - Required to apply for import permit and clearance; subject to Customs formalities (documents, fees, among others) and import tariffs
- Manufacturers
  - Subject to excise tax; manufacturing licence (for luxury cars and hybrid/electric vehicle manufacturers); technical design and safety standards for vehicles and vehicle parts; vehicle type approval
- Users
  - Compliance with road transport regulations (e.g. Road Transport Act 1987)

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- Government Agencies
  - Ministry of International Trade and Industry (MITI) – issuance of vehicle import permit
  - Road Transport Department – in charge of vehicle type approval and enforcing road transport regulations
  - Department of Environment – in charge of control of the scheduled wastes stipulated in the Environmental Quality (Scheduled Wastes) Regulations.

In implementing NAP 2014, the current roles and responsibilities are suggested by MAI:

- Government's Responsibility
  - Establishing and revising policies and technical standards
  - Strategic development, planning of automobile industry
- Manufacturers' Responsibility
  - Recovery and treatment of products and packages
  - ELV treatment approval management system

Core Summary of ELV and Extended Producer Responsibility requirements:

- Restrictions on the use of certain heavy metals in vehicle and component manufacture
- Design for Dismantle-ability / Recyclability
- Marking of certain rubber and plastic vehicle components
- Publication of design and dismantling information
- Introduction of a Certificate of Destruction
- 'Free take-back' of vehicles put on the market by OEMs
- Licensing of Authorised Treatment Facilities, and the site and operating standards with which they must comply

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(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

Malaysia is in the early stage of the ELV recycling system and considering ELV recycling regulations. The following regulations stipulate general waste management in Malaysia.

DOE is in charge of the control of the scheduled wastes stipulated in the Environmental Quality (Scheduled Wastes) Regulations. The Hazardous Substances Division under DOE is responsible for the disposal of scheduled wastes, licensing, processing of the import/export of scheduled wastes under the Basel Convention, and examination of related documents. The application for licence is handled by the state office of DOE and the final approval is conducted by the Director General of DOE. The application fee is RM300.

Under section 45 of Environmental Quality Act 1974, the person committing the offence under the Act or the regulations should be liable to a fine not exceeding RM2,000.

Environmental Quality Act 1974 is the basic law for environmental issues. The Act deals with industrial effluents, air pollution, and soil contamination caused by the industrial activities. Waste management is also mentioned in the law. The law was revised in 1985, 1996, 2000, and 2001.

Environmental Quality (Scheduled Wastes) Regulations 1989/2005 prescribes the type of scheduled waste and the responsibilities of waste generators. The Waste Electrical and Electronic Equipment (WEEE) and waste containing dioxins were added to the list of scheduled wastes in the 2005 revision. The regulations designate 'Prescribed Premises' authorised by the Director General of DOE as the final disposal sites of scheduled wastes. Waste generators are required to take the wastes to the prescribed premises.

Environmental Quality (Scheduled Wastes Treatment and Disposal Facilities) Order 1989

prescribes the type of waste treatment and disposal facilities and licence.

Environmental Quality (Scheduled Wastes Treatment and Disposal Facilities) Regulations, 1989 also prescribes the procedures and obligations of owners of facilities to inform the amount of waste accepted, treated, stored, and disposed.

The following items refer to ELV wastes.

Table A-IV.16: Designated Wastes under Environmental Quality (Scheduled Wastes) Regulations 2005

Code	Scheduled Wastes
SW 1	Metal and metal-bearing wastes
SW 102	Waste of lead acid batteries in whole or crushed form
SW 103	Waste of batteries containing cadmium and nickel or mercury or lithium
SW 104	Dust, slag, dross or ash containing arsenic, mercury, lead, cadmium, chromium, nickel, copper, vanadium, beryllium, antimony, tellurium, thallium or selenium excluding slag from iron and steel factory
SW 2	Wastes containing principally inorganic constituents which may contain metals and organic materials
SW 202	Waste catalysts
SW 206	Spent inorganic acids
SW 3	Wastes containing principally organic constituents which may contain metals
SW 305	Spent lubricating oil
SW 306	Spent hydraulic oil
SW 311	Waste oil or oily sludge
SW 312	Oily residue from automotive workshop, service station, oil or grease interceptor
SW 323	Waste of halogenated organic solvents

Source: Environmental Quality (Scheduled Wastes) Regulations 2005.

Country :	Malaysia

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Yano Research Institute. *ASEAN Automobile Recycling 2014.*

Annex II

Country Reports

5. Mongolia

Country：	Mongolia

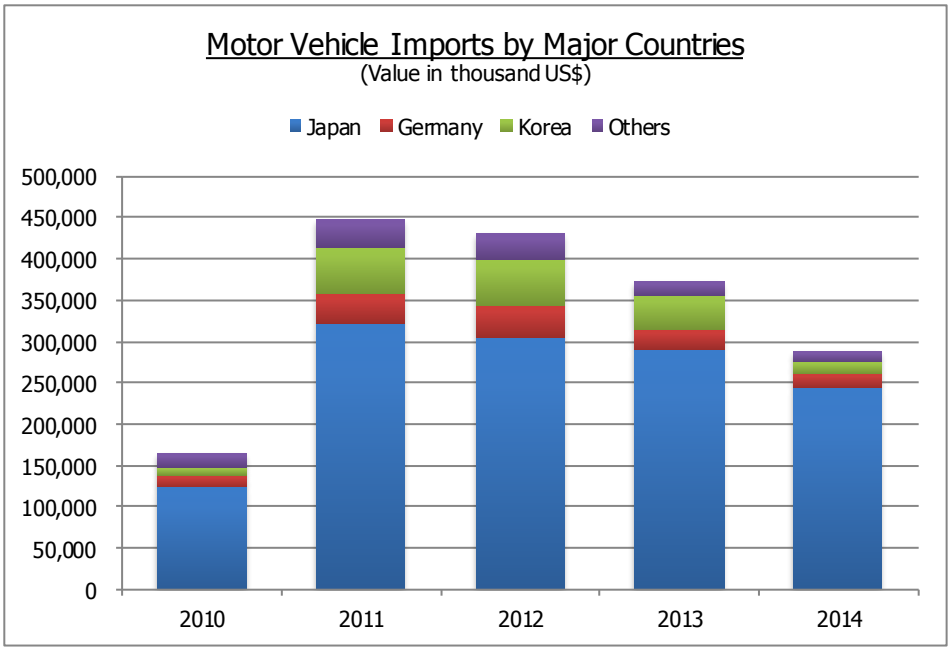
1. Current status of automobile recycling in the targeted country

(1) Import and export situation from Japan and other countries: used cars

Import

The following graph depicts Mongolia's automobile imports, including used cars, for 2010-2014. The big supplier during this period was Japan. The total import in value was nearly US$300 million in 2014.

Figure A-V.1: Mongolia's Automobile Imports



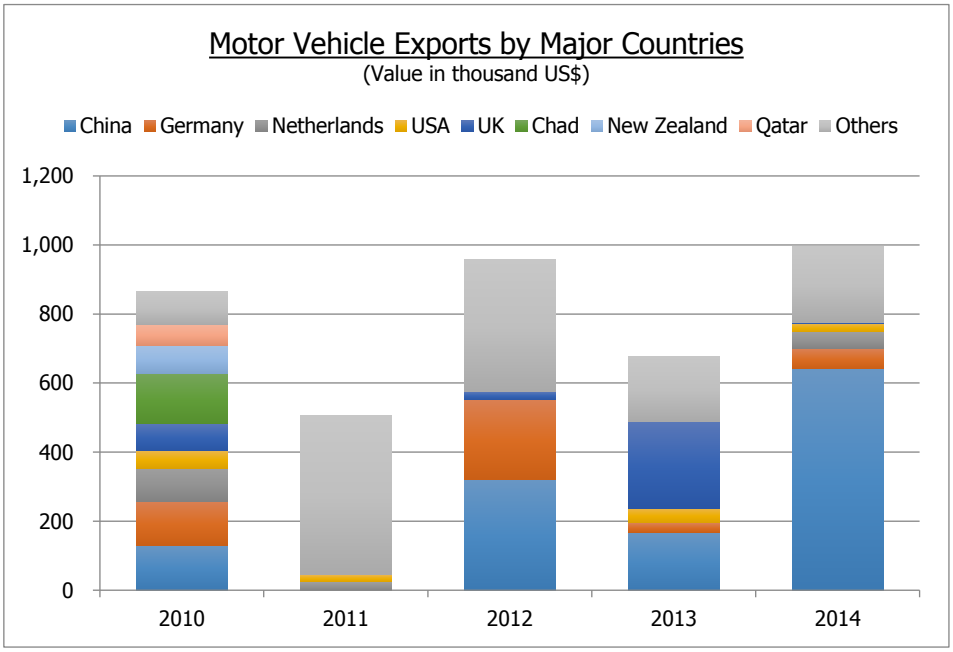
Source: UN Comtrade Database.

Export

The volume of export of motor vehicles from Mongolia was smaller than that of its import volume. Destinations of the vehicles were varied in 2010, as indicated in the following figure. However, from 2014, the presence of China as a destination country became predominant.

Country :	Mongolia

Figure A-V.2: Mongolia's Automobile Exports



UK = United Kingdom, USA = United States of America.

Source: UN Comtrade Database.

Reference

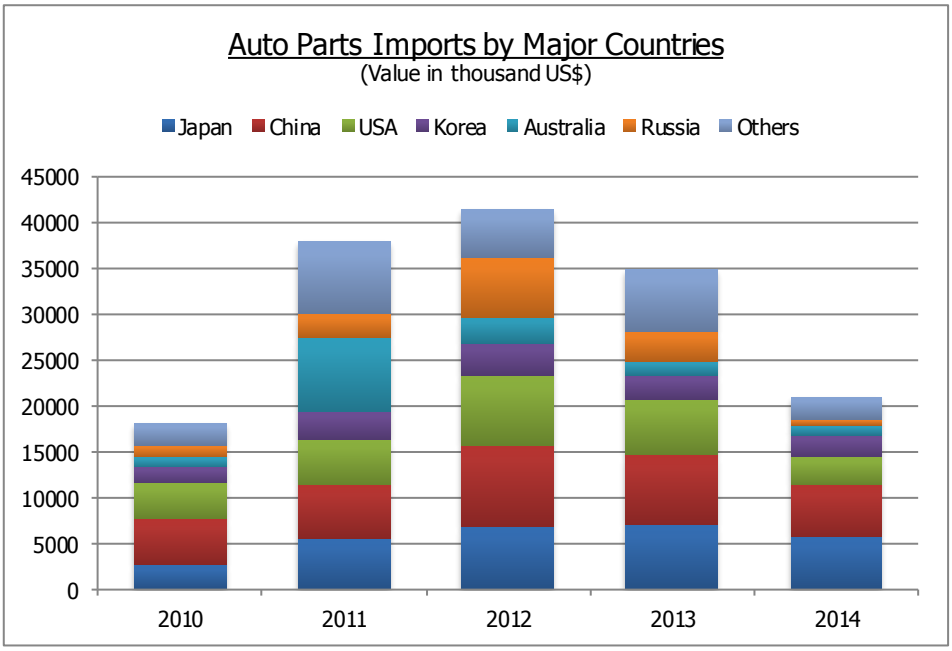
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts, including used parts, for 2010-2014.

Country :	Mongolia

Figure A-V.3: Mongolia's Automobile Auto Parts Imports

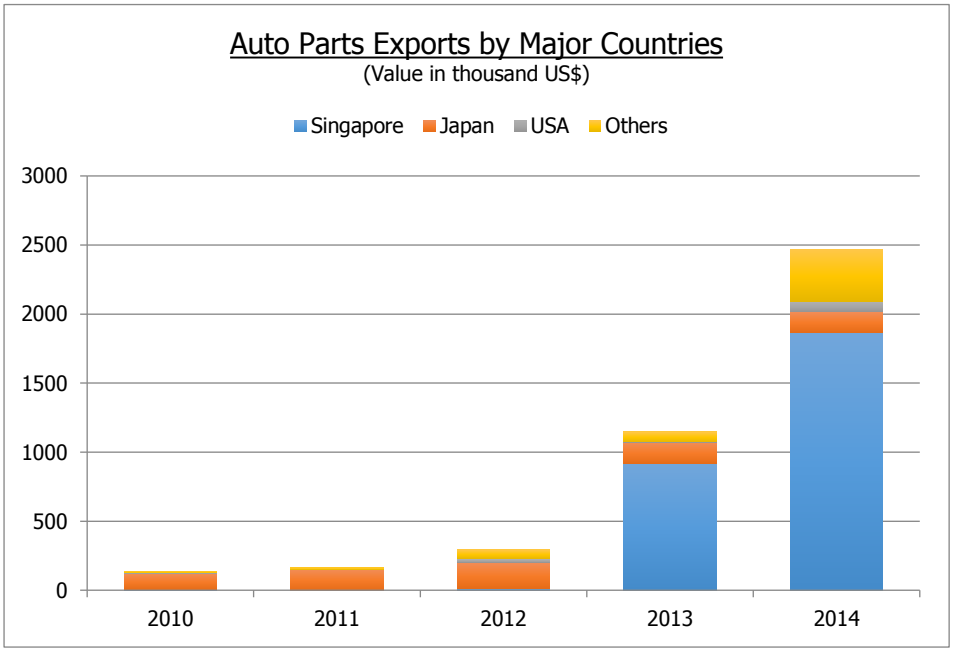


USA = United States of America.

Source: UN Comtrade Database.

Country :	Mongolia

Figure A-V.4: Mongolia's Automobile Auto Parts Exports



USA = United States of America.

Source: UN Comtrade Database.

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Trade Control

Documents Required

- Original Purchase Invoice
- Certificate of Title
- OBL (Ocean Bill of Lading)–

Country：	Mongolia

- List of features (manufacture, make, model, type, volumetric capacity of the engine, engine number, chassis number, fuel type, among others)

Specific Information

- Duties and taxes on the imported vehicle are to be paid. The calculations are as follows:
  - Value of the vehicle
  - Invoice price of the vehicle + freight cost + other costs
  - Duties – 5 percent of the value of the vehicle
  - Excise tax (passenger vehicles only)
  - VAT – 10 percent of the vehicle (value + duties + excise Tax)
  - Payable fee MNT7,000.

There is no importation ban on old/used vehicles in Mongolia.

Duties and Taxes

The importation of cars is subject to a standard 5 percent Customs duty and 10 percent VAT, but special excise duty is also imposed on cars based on engine capacity and year passed since manufacturing. Older and bigger cars are charged higher excise duties.

References

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https://www.iamovers.org/files/newimages/member/shippers/mongolia.pdf (accessed September 2015).

Country：	Mongolia

Mongolian Customs Webpage. http://www.customs.gov.mn/en/2012-03-14-03-21-37/trf (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

New Car Registration

The vehicle's registration number should be recorded at the State Safety Road Traffic Control Authority of Mongolia.

The Department of Auto Transport released reports that about 150-300 new private vehicles are granted licence plate numbers every day. Around 63 percent of vehicles in the country were registered and run in Ulaanbaatar (UB) city. Also, 70 percent of registered vehicles are over 10 years.

Inspection

People purchasing cars should get technical inspections before they purchase cars to ensure the integrity, serial number, manufacture date, and commissioned time period. These should match the documents. In some cases, an automobile's serial number, date of manufacture, and import dates are different. Due to these circumstances, many have suffered.

Public transportation vehicles must be inspected twice a year while others must be inspected once a year. Depending on the month that owners of vehicles had the inspection, they have to have another inspection around the same time the following year. According to the law, if vehicle owners are unable to get an inspection within the time period, they will be fined MNT5,000 to MNT30,000; officials will be fined MNT30,000 to MNT60,000; and business entities and organizations will be fined MNT100,000 to MNT250,000.

Through the project conducted by World Bank and Nordic Development Fund, 24 vehicle diagnostic inspection centres were established to check airbags and administrative units, and

to control emissions of vehicles and road safety requirements.

Environmental Control

The government has begun limited testing of tailpipe emissions in Ulaanbaatar. However, no comprehensive vehicle emissions standards and appropriate fuel quality standards have been established in the country. There is no legislation in Mongolia that sets the country's fuel standards. Leaded gasoline is still being sold in Mongolia's market.

Other

Owners are obliged to pay an annual tax (air pollution fee and vehicle excise duty) on transport facilities and vehicles once during the state technical inspection.

References

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Rules of the Road of Mongolia. http://www.traffic-institute.mn/c_rule/c-01/c-01-03/eng/c-01-03e-02.html (accessed September 2015).

Country：	Mongolia

(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

No specific inspection is required of used imported vehicles in Mongolia. However, cars imported from Japan are checked for radiation.

There is no limit on the age of vehicles imported to Mongolia.

Cars are taxed according to their age as well as their engine size. Cars less than three years old have the lowest tax, followed by cars less than 10 years old. The Mongolian tax rate is the highest after 10 years.

Table A-V.1: Excise Duty Based on Age and Engine Size of Vehicle

Vehicle Engine (Cylinder) Capacity /in Cubic Centimetres or cc/	The Excise Duty /in USD manufactured year			
	0-3 years	4-6 years	7-9 years	10 years and over
1500 or under	500	1000	2000	6000
1501 -2500	1500	2000	3000	7000
2501 -3500	2000	2500	4000	8000
3501-4500	4500	5000	6500	10500
4501 and over	7000	7500	9000	13000

Source: Mongolian Customs.

Other

No formal recycling activity is performed on used cars after taking out usable parts but there is a plan to build a car recycling centre in Emeelt which has the capacity to recycle 50,000 cars per year.

Country：	Mongolia

References

Mongolian Customs. http://www.customs.gov.mn/en/2012-03-14-03-21-37/trf (accessed September 2015).

UB post. *Mongolia to recycle junked cars.* http://ubpost.mongolnews.mn/?p=6939 (accessed September 2015).

Annex II

Country Reports

6. Myanmar

Country：	Myanmar

1. Current status of automobile recycling in the targeted country

(1) Imports and exports from Japan and other countries: used cars

In Myanmar, the Central Statistical Office (CSO) is the sole national statistics organisation under the Ministry of National Planning and Economic Development which is in charge of compiling various data from both public and private sectors. However, only the 2010 trading data is available from site as of September 2015. Therefore, the trend analysis was carried out based on mirror data which was reported by its trading partners to the United Nations Statistics Division.

Trading

Below is a brief history of Myanmar's regulations on passenger cars:

Before 1998

Western countries applied sanctions against Myanmar, banning car imports.

1998 - 2010

Imported cars were only available for government authorities, national government organisations, and foreign embassies in Myanmar. Importation of commercial vehicles was strictly controlled. Importation for commercial purposes was not allowed.

2010 - September 2011

Importation for commercial purposes was allowed for: trucks over three tons, passenger buses with more than 15 seats, and heavy equipment.

September 2011 - May 2012

Country：	Myanmar

The Old Car Substitution Program allowed application of permits for importing cars to replace older cars (20 - 40 years old) for newer models that were manufactured after 1995.

May 2012 - May 2013

Any Myanmar citizen aged 18 years old and older were allowed one passenger car under his/her own name (for personal use only). Meanwhile, imported passenger cars for commercial purposes were still limited.

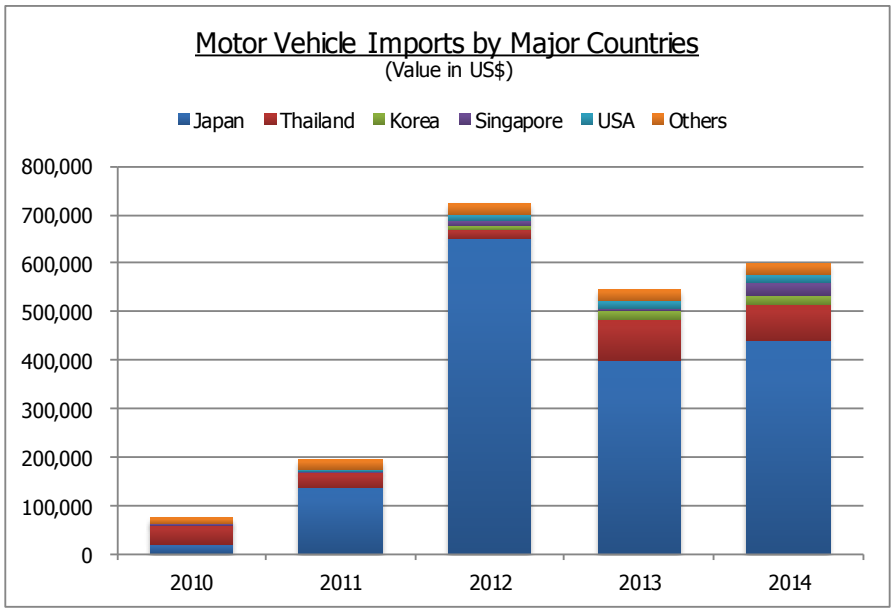
May 2013 -

The government allows individuals or companies to import light trucks less than three tons, lifting limits on imports of any kind of commercial vehicle for commercial purpose.

The cumulative bar graphs below show Myanmar's automobile (HS code: 8703) imports/exports, including used cars, for 2010-2014. Since September 2011, a system called the *Old Car Substitution Program* promoted the giving back of an old vehicle to get a new one has started. This has led to an increased activity in the country's car market. Vehicle import value in 2012 grew more than three times to US$700 thousand from a year ealier. In July 2012, the government gave the green light to allow individuals to import cars produced in 2007 and after. Myanmar's car market is currently dominated by used cars, mostly imported from Japan. As shown in the chart, Japan's share since the 2011 relaxation of import permits has been more than 75 percent on average. The number of cars imported into Myanmar in 2014 was 109,903 in total. Of those, 102,212 units were from Japan. According to Solidiandce consulting firm, passenger cars in total registered until July 2013 was 318,397 and commercial vehicles registered until July 2013 was 117,842.

Country :	Myanmar

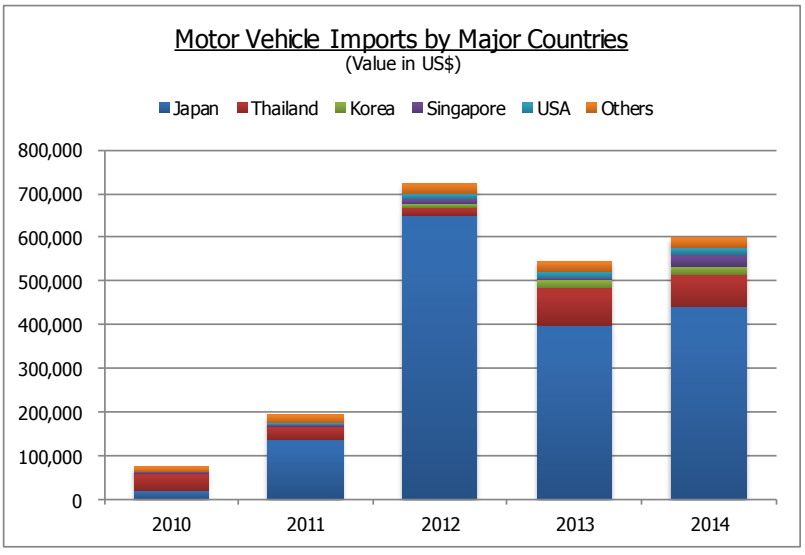
Figure A.VI-1: Myanmar's Automobile Imports (Mirror)



USA = United States of America.

Source: United Nations Statistics Division.

Figure A.VI-2: Myanmar's Automobile Exports (Mirror)



USA = United States of America.

Source: United Nations Statistics Division.

Country :	Myanmar

No specific trend in exports can be observed from the statistics.

Table A.VI-1: Number of Used Passenger Motor Cars Exported from Japan

Year	2010	2011	2012	2013	2014
Myanmar	4,503	16,822	93,044	77,697	101,766
World	672,627	699,881	830,703	947,990	1,059,617
Share of Myanmar	0.67%	2.40%	11.20%	8.20%	9.60%

Source: Trade Statistics of Japan, Ministry of Finance.

References

Trade Statistics of Japan Ministry of Finance. http://www.customs.go.jp/ (accessed September 2015).

United Nations Statistics Division. http://unstats.un.org/unsd/default.htm (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014*.

(2) Imports and exports from Japan and other countries: used parts

The two tables below show imports/exports of auto parts (HS code: 8707 - 8708), including used parts, for 2010-2014 based on mirror data. As for imports, China has been the largest exporter during the period, accounting for 70 percent on average, followed by Thailand and Singapore.

Country：	Myanmar

Table A.VI-2: Auto Parts Import Value in thousand US$ (Mirror)

Year	2010	2011	2012	2013	2014
Import Value	42,883	107,325	98,596	151,309	151,601

Source: United Nations Statistics Division.

Table A.VI-3: Auto Parts Export Value in thousand US$ (Mirror)

Year	2010	2011	2012	2013	2014
Export Value	0	1,154	1,346	47	539

Source: United Nations Statistics Division.

References

United Nations Statistics Division. http://unstats.un.org/unsd/default.htm (accessed September 2015).

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(3) Plans and regulations relating to import regulations

Trade Control

When importing a used or new Japanese car to Myanmar, the importer must obtain an import licence from authorities in Myanmar. Government issues a very specific import licence for a vehicle of a certain age and type. This licence will state all vehicle details.

Documents required to import a vehicle into Myanmar include copy of certificate of title and registration, import permit, and proof of ownership.

Country :	Myanmar

Duties and Taxes

Only a diplomat may import a vehicle into Myanmar duty free. Private individuals are prohibited from importing a vehicle. Duty will be assessed at approximately 300 percent of the new value of the vehicle. All automobiles must be left-hand drive.

Table A.VI-4: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10	Kg	1 - 5%
- Other:	8707.90	Kg	1 - 5%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- Bumpers and parts thereof:	8708.10	Kg	1 - 5%
- Other parts and accessories of bodies (including cabs):	8708.20	Kg	1 - 5%
- Brakes and servo brakes; parts thereof:	8708.30	Kg	1 - 5%
- Gear boxes and parts thereof:	8708.40	Kg	1 - 5%
- Drive axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof:	8708.50	Kg	1 - 5%
- Road wheels and parts and accessories thereof:	8708.70	Kg	1 - 5%
- Suspension systems and parts thereof (including shock absorbers):	8708.80	Kg	1 - 5%
- Other parts and accessories:	8708.90	Kg	1 - 5%

HS = Harmonised system, kg = kilogram.

Source: Myanmar Customs Department.

Country：	Myanmar

References

Japan Trade Car.com. http://www.japantradecar.com/info/Import_Regulations/Myanmar%28Burma%29.aspx (accessed September 2015).

Myanmar Visa Centre. http://myanmarvisa.org/customs-regulations.html (accessed September 2015).

Atlas International. *Importing Personal Property Into Burma (Myanmar).* http://webportal.atlasintl.com/Customs%20Docs/Myanmar.pdf (accessed September 2015).

Myanmar Customs Department. http://www.myanmarcustoms.gov.mm/ (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

In Myanmar, the Road Transport Administration Department under the Ministry of Rail Transportation is in charge of new car registration, transfer or selling of licence, re-registration and deregistration of vehicles under the Motor Vehicle Law 1964, amended in 1989, and Motor Vehicle Rules 1989.

New Car Registration

Every new vehicle is required to be registered but each procedure differs, depending on what kind of car is owned or where that car came from. Registration fee, inspection fee, compulsory insurance, and imported car fee (if necessary) need to be paid for this type of registration. The regsitration application should be submitted to the Road Transport Administration Department.

Car owners need to renew their registration every year.

Transfer or Selling of Licence

People in Myanmar can change the contents of their registration by applying to the vehicle registration's bureau. This is not commonly done because it requires a registration certificate

from the original owner of the vehicle and the payment of revision fees.

Deregistration

If a car owner sends an ELV to a Myanmar Economic Corporation (MEC) factory, the owner can receive a licence to import a new used car. This system works like deregistration.

There is also a system that automatically deregisters a vehicle if the renewal of registration is not done for five years.

Inspection

Automobile inspection is mandatory in Myanmar and owners need to take their vehicles for initial inspection, renewal inspection, and transfer inspection. Renewal inspections are done every year.

These inspections are conducted in 53 inspection places supervised by the Road Transport Administration Department. Usually, inspection places are located right beside vehicle registration bureaus and people are able to take inspections and renew their registrations at the same place for a cost of about MMK20,000-MMK30,000.

The road transportation bureau is thinking of delegating this inspection work to private enterprises with adequate facilities and technologies.

Tax

Vehicle owners are required to pay a vehicle registration fee with the Road Transport Administration Department under the Ministry of Rail Transportation.

Table A.VI-5: Automobile Inspection and Registration Fees in Myanmar

Vehicle Types	Validity (Year)	Inspection Fee (kyat)		Registration Fee (kyat)	
		Owned by Departments	Private	Owned by Departments	Private
Motorcycle	2	200	4,500	500	9,000
Three-wheelers	2	-	4,500	-	9,000
Small-sized vehicle (private)	1	200	4,500	500	9,000
Large-sized vehicle (private)	1	200	4,500	1,000	13,500
Small-sized vehicle (business-use)	1	-	4,500	-	9,000
Large-sized vehicle (business-use)	1	-	4,500	-	13,500

Source: Road Transport Administration Department.

Country：	Myanmar

Table A.VI-6: Automobile Renewal Registration Fee in Myanmar

Vehicles Type	Validity (Year)	Fee (kyat)
Motorcycle	2	500
Small-size vehicle (private)	1	500
Small-size vehicle (business-use)	1	1,000
Large-size vehicle (private)	1	1,000
Large-size vehicle (business-use)	1	2,000
Heavy-size vehicle (private)	1	2,000
Heavy-size vehicle (business-use)	1	4,000
Trawlergi / Tractor (private)	1	500
Trawlergi / Tractor (business-use)	1	1,000
Farm truck (private)	1	1,000
Farm truck (business-use)	1	2,000

Source: Road Transport Administration Department.

Insurance

All drivers must have compulsory insurance and they are prohibited from using their cars on public roads if they do not have this insurance.

References

Ministry of Economy, Trade and Industry, Japan. Final Report on Feasibility Study of vehicle registration and inspection infrastructure in Myanmar. http://www.meti.go.jp/meti_lib/report/2014fy/E004186.pdf (accessed September 2015).

The Road Transport Administration Department. http://www.myanmarrtad.com/?q=en/content/87 (accessed September 2015).

Yano Research Institute. ASEAN Automobile Recycling 2014.

(5) Handling of imported used cars and/or accident status quo cars

The importation of commodities in Myanmar requires an import licence. Import licences are issued for used cars in case the previous car is dismantled or was opened in a foreign currency account. MEC has two ELV dismantling sites. Car owners bring their ELVs to these sites to get a

new licence to import a used car.

There are cases when vehicles owned by the military or a government department are sold at auctions. Vehicles purchased at auctions should be re-registered according to the registration process.

References

Field Survey of the Study Team.

The Road Transport Administration Department.

http://www.myanmarrtad.com/?q=en/article/66 (accessed September 2015).

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

Total number of ELVs was estimated at 6,000 in 2014. The table below shows Yano Research Institute's estimates of the number of ELVs.

Table A.VI-7: Forecast of the Number of ELVs in Myanmar

Year	2013	2014	2015	2016	2017	2018	2019	2020
No. of ELVs	47,400	45,000	45,000	45,000	30,000	5,000	5,000	5,000

Source: Yano Research Institute.

Model Years

In Myanmar, the owner of a car that is 20 years old or over is entitled to have an import permit.

Country：	Myanmar

Distribution, Flow and Processing Situation

The disposal of ELVs is controlled and metals are collected by the government. The Ministry of Industry in Myanmar does not own any recycling facility for non-ferrous valuable metals so these metals are not supposed to be collected there.

Because of the replacement program announced by the Myanmar Government in 2011, there is an overwhelming amount of cars (making a 3-kilometre line) waiting to be scrapped in scrapped car plants. Before sending an ELV to a dismantling facility, the car owner requests the informal sector to take off the used parts. Brokers come to buy the used parts from car owners.

The researchers of this study could not get much information from the scrapped car plants because they are operated and supervised by MEC, which is a corporation under the Myanmar Government. However, according to the dealer in Yangon City, there are used parts dealing within the plant as well, which is making the process slower. Thus, not many cars are processed every day.

Sales Prices

According to a local person in Myanmar, a used car is sold at about MMK3,000,000 in case its brand new equivalent price is about MMK25,000,000. The study team was not able to ascertain the purchase price of ELVs.

References

Field Survey of the Study Team.

Y ano Research Institute. *ASEAN Automobile Recycling 2014.*

Country：	Myanmar

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Distribution

Around Yadana Street, there are areas where comparatively large-scaled parts stores gather. Other than that, there are some small-scale parts stores in districts such as Bayinnaung market.

Flow

Many of the recycled parts are imported from Malaysia and Thailand. Since Malaysia and Myanmar do have a land border, some of the items are imported from there via Thailand. Moreover, because the majority of cars in Myanmar are Japanese cars, many recycled parts are for Japanese cars, which explains why they often have the user's manual in Japanese. However, there are also engines imported from Dubai and Indian dealers import their parts from India. From this, we could draw a conclusion that parts store have their own way of buying parts, depending on their races and connections.

One of the places where those sold used parts end up is Ahlone District. This is where many maintenance service dealers from Yangon City gather and fix cars that are brought in.

Tamwe used car parts market deals with mainly imported used parts. The importation of half-cuts is prohibited. However, some shops import them illegally.

Japanese used parts dealers have a local storage and shop in Yangon. The importation of half-cuts is not allowed and, therefore, used parts such as used engines, transmissions, body parts, among others, are imported from Japan. Engines and transmissions are not sold as many as in other countries.

Normally, local used parts companies do not provide a guaranty for their quality. However, in some cases, foreign companies provide guarantees.

In addition to used parts, there are imitation parts in Myanmar that are mainly imported from China. Generally, in Myanmar, majority of used parts are imported. The domestic generation of used parts is scarce.

Country：	Myanmar

Model Years

Stores from Yadana area deal with parts made between 1988-2005.

Sales Prices

In Yadana area, used engines are sold at, for example, $450 for Toyota Probox, $1,000 for Toyota Vitz.

Doors are sold at approximately MMK50,000 for Toyota Probox (MMK80,000 with window glasses). Japanese used front lights (set of two for left and right) are approximately MMK200,000. However, there are some new imitation parts imported from China and they are about MMK35,000 each, which is quite cheaper compared to the used Japanese ones.

Industry Association

The Myanmar Automobile Manufacturers and Distributors Association (MAMDA) is an industry association that has a lot of used parts dealer members. The association was established under the Chamber of Commerce in Yangon. The association regularly sends its staff to Japan to participate in automobile repair workshops.

References

Field Survey of the Study Team.

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading and resources: steel and non-ferrous metals

Based on an interview conducted by the study team, Myanmar imports about 200 million tons of steel products annually. For instance, the flat products circulated in Myanmar are imported from Ukraine and India. In addition to those imported products, there are also domestic products. However, they are of low quality and are the least expensive.

In the steel scrap market, steel scrap is traded at about MMK300,000 per ton.

Country :	Myanmar

Scrapped cars taken to Myingyen are taken to an iron factory supervised by the Ministry of Technology and put into the electric furnace. This iron factory is temporarily stopping its work but it is estimated that the factory can deal with about 20 tons of iron annually.

Although irons are recycled under the strict control of the ministry, it seems that many other valuable metals are not recycled at all. In fact, there are no government-related facilities for copper and aluminum recycling. During the field survey, the study team heard that there was a copper recycling factory, but this information was not confirmed during the visit. Moreover, many people were not even aware that there were rare metals in mufflers and the mufflers were put inside the electric oven with other scrapped parts as iron scrap. Although rare metals might not be used in old models of cars made in Myanmar, if the same process were to be conducted in the future, this could become an enormous loss of resource.

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

There is a pioneer industrial lead smelter in Myanmar, the Yangon Metal Industry Company Limited (YMI). They produce 99.9 percent pure lead and other various lead alloys, antimony, and calcium for industrial applications. Every day, they take deliveries of used batteries, lead scraps, and other lead wastes from our collection points, which are then sorted, smelted, and refined into quality lead products for their industrial partners.

There are informal sector recyclers in Yangon that turn discarded tires into flip-flops, buckets, and hard-to-find spare parts for used cars. Old truck tires are transformed into rubber washers and bushings for cars and rice mills. There are around 300,000 cars on the road that are mostly second-hand and are in need of rubber bushings and washers.

Country：	Myanmar

References

Fox News.com. *Making everything from flip-flops to buckets, Myanmar tire recyclers unfazed by modernization.* http://www.foxnews.com/world/2014/07/09/making-everything-from-flip-flops-to-buckets-myanmar-tire-recyclers-unfazed-by/ (accessed September 2015).

Yangon Metal webpage. http://yangonmetal.com/company/ (accessed September 2015).

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(10) Factual survey of end-of-life two-wheeled vehicles

The study team could not acquire the information on end-of-life motorcycles in this study.

Reference

Field Survey of the Study Team.

(11) Type of operation and number of recycling-related companies

Dismantlers

As previously mentioned, the dismantling of ELVs is operated and supervised by MEC, which is a corporation under the Myanmar Government. MEC launched two ELV dismantling plants in Myanmar. Before sending ELVs to the dismantling facility of MEC, car owners request the informal sector to take out used parts. Brokers come to buy these used parts from car owners. In this case, recycling is mainly conducted by hand. Waste is finally sold to the recycling facility.

On the other hand, household waste collectors and waste pickers collect the waste product and sell it to the wholesalers, sometimes through brokers. Wholesalers sell these to the recycling facilities.

Country：	Myanmar

Other Related Companies

Battery:

As previously mentioned, Myanmar has a pioneer industrial lead smelter, the Yangon Metal Industry Company Limited (YMI). They produce 99.9 percent pure lead and other various lead alloys, antimony, and calcium for industrial applications.

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(12) Management situation of recycling-related companies

The study team interviewed a number of employees of the local recycling company. Revenue varies depending on the size and domain of business.

Reference

Field Survey of the Study Team.

2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates)

The informal sector dismantles components and scrap of vehicles and circulated these through the informal route. Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity. Capacity building is required for the proper operation of facilities. The automotive scrap volume required to promote ELV recycling is insufficient. Regarding downstream recycling, there is a difficulty in steel production because of insufficient and

Country：	Myanmar

unstable electricity. Appropriate infrastructure like stable electricity is required for sustainable operation. Also, environmental measures such as prohibition on illegal dumping of waste and collection of CFCs and the like are insufficient.

Used parts are illegally imported from other countries. Imported used parts cause environmental pollution due to the lack of environmental measures from import dealers. Remanufacturing parts are not popular due to the lack of awareness of parts dealers and their low quality.

Non-valuable resources are not properly collected and, in some cases, illegally dumped. Metallic component recycling is done manually. This causes labour safety issues. The quality control of steel production is required to promote metal recycling by separating the plastic during the burning. Standards for steel products are also required. Valuable metals such as copper and aluminum are not utilised due to the lack of government-related facilities for copper and aluminum recycling.

The emission of hazardous wastes from components such as batteries, plastics, and waste oils cause environmental problems such as waste accumulation. Metallic component recycling is done manually. This also causes labour safety issues.

The Myanmar Government does not hold a recycling facility for valuable metals such as rare metals, coals, and aluminum which might turn out as an enormous loss in the future.

Furthermore, since the release of the replacement program for scrapped cars by the government in 2011, people had been rushing to get their scrapped car certificate as well as car importing licence. The two scrapped car plants in the country are unable to handle the excessive amounts of used cars waiting in lines.

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

Country :	Myanmar

(2) Trend in vehicle recycling policies and related automobile recycling laws, and the enforcement, presence, and details of related institutions.

Myanmar is in its early stages of starting the ELV recycling system. It does not have a special regulation which focuses on ELV recycling. Furthermore, there is no comprehensive regulation on waste materials.

However, Myanmar is currently in the process of revising its policies and laws on environmental protection. The Environmental Conservation Law requires the Ministry of Environmental Conservation and Forestry (MOECAF) to put in place a comprehensive waste and pollutant monitoring scheme. MOECAF has just adopted the Environmental Conservation Rules 2014 and is in the process of developing environmental quality, starting with effluent standards. The United Nations Development Porgramme is supporting the Myanmar Government in developing its National Environmental Management Framework and Action Plan.

The updated 2012 Environmental Conservation Law and related rules empower MOECAF to act as the 'gate keeper' for business activities. The law confers powers on MOECAF to regulate and establish a 'prior permission scheme' for a range of business activities that 'may cause impact on environmental quality'.

The Environmental Conservation Law is based on the 'extended polluter responsibility', with compensation for environmental impacts to be paid to a fund to be set up by MOECAF. However, the application of the principle in the ELV recycling sysytem is uncertain at this stage.

The implementation of these laws needs to be factored into new and forthcoming rules to be developed under the 2012 Environmental Conservation Law.

a) Status of institutional system collateral of improper processing of three designated recovery items (fluorocarbons, airbags, and ASRs)

The study team could not acquire information on the treatment of fluorocarbons, airbags, and ASRs in this study.

Country：	Myanmar

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies (including local governments)

The regulations on the automotive industry stipulate the roles and responsibilities of stakeholders:

- Importers
    - Securing required documents for import of vehicles
    - Finishing the Customs formalities (upon certification)
- Manufacturers
    - In Myanmar, there are very few national manufacturers of automobile like Super Seven Stars. They are requested to comply with related regulations.
- Users
    - Compliance with road transport regulations (Motor Vehicle Law and Motor Vehicle Rules)
- Government Agencies
    - Ministry of Commerce (MOC) – issuance of vehicle import permit
    - Road Transport Administration Department – in charge of new car registration, transfer or selling of licence, re-registration and deregistration of vehicle
    - Environmental Conservation Department, and Ministry of Environmental Conservation and Forestry (MOECAF) – in charge of control of wastes
    - Myanmar Economic Corporation (MEC) and Ministry of Industry– in charge of control of ELVs.

Country：	Myanmar

References

Myanmar Centre for Responsible Business. http://www.myanmar-responsiblebusiness.org/pdf/SWIA/Oil-Gas/14-Environment.pdf (accessed September 2015).

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

Myanmar is in its early stages of starting the ELV recycling system. The regulation on waste management stipulates the general waste management in Myanmar.

The updated 2012 Environmental Conservation Law and related rules regulate the waste management in Myanmar.

The following are the waste management duties and powers of the ministry as stipulated in section 7 of the Environmental Conservation Law:

> (g) *To specify categories and classes of hazardous wastes generated from the production and use of chemicals or other hazardous substances in carrying out industry, agriculture, mineral production, sanitation and other activities;*
>
> *(h) To prescribe categories of hazardous substances that may affect significantly, at present or in the long run, the environment;*
>
> *(i) To promote and carry out the establishment of necessary factories and stations for the treatment of solid wastes, effluents and emissions which contain toxic and hazardous substances.*

However, at its current status, the development of categories and classes of hazardous wastes and hazardous substances is a challenge for policymakers.

In addition to the above-mentioned duties and powers, section 13 of the law stipulates that the ministry should maintain a comprehensive monitoring system in the following matter:

> (b*) transport, storage, use, treatment and disposal of pollutants and hazardous*

Country :	Myanmar

substances in industries;

(c) disposal of wastes come out from exploration, production and treatment of minerals, industrial mineral raw materials and gems;

(d) carrying out waste disposal and sanitation works;

Under the law, the business operator of the worksite, factory, or workshop shall submit a prior permission application to the minisrty. The ministry may grant or refuse to issue the prior permission after scrutinising if the application conforms with the law.

The responsibilities of the business operator for waste management are as follows:

Section 14: A person causing a point source of pollution shall treat, emit, discharge and deposit the substances which cause pollution in the environment in accord with stipulated environmental quality standards.

Section 15: The owner or occupier of any business, material or place which causes a point source of pollution shall install or use an on-site facility or controlling equipment in order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it shall be arranged to dispose the wastes in accord with environmentally sound methods.

The offences and penalties of the owner or occupier of the business, worksite, factory, or workshop is as follows:

Section 31: Whoever, without the prior permission, operates business, worksite, factory or workshop which is required to obtain the prior permission under this Law shall, on conviction, be punished with imprisonment for a term not exceeding three years, or with fine from a minimum of one hundred thousand kyats to a maximum of one million kyats, or with both.

Section 32: Whoever violates any prohibition contained in the rules, notifications, orders, directives and procedures issued under this Law shall, on conviction, be

Country：	Myanmar

punished with imprisonment for a term not exceeding one year, or with fine, or with both.

References

Dr. San Oo, Director, Environmental Conservation Department. *Sustainability Roadmap for Myanmar (Environment Perspective).* http://www.ifc.org/wps/wcm/connect/c71bea80471f3b458492ec57143498e5/2.1.San+Oo.pdf?MOD=AJPERES (accessed September 2015).

Hla Maung Thein, Deputy Director General, Environmental Conservation Department MOECAF. *Myanmar Environmental Conservation Law, and Status of Environmental Rules and Guidelines Preparation.* http://www.gms-eoc.org/uploads/resources/144/attachment/3a_Thein_MOECAF_Myanmar_Env_Law_and_rules.pdf (accessed September 2015).

Annex II

Country Reports

7. Pakistan

Country：	Pakistan

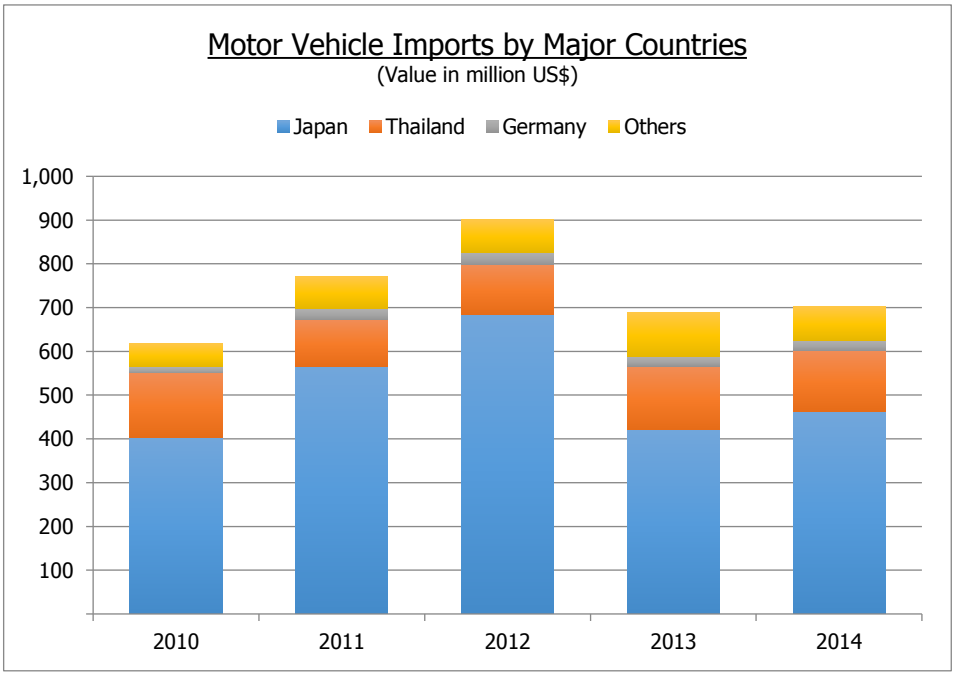
1. Current status of automobile recycling in the targeted country

(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows Pakistan's automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Japan and Thailand. The total import value was over US$700 million in 2014.

Figure A.VII-1: Pakistan's Automobile Imports



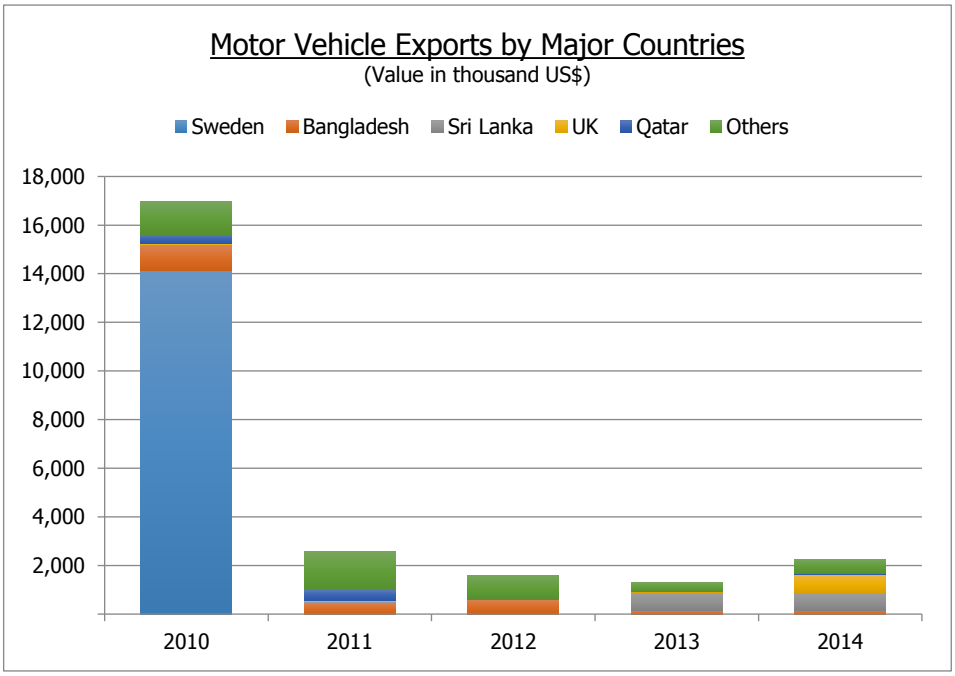
Source: UN Comtrade Database.

Country :	Pakistan

Export

The volume of export of motor vehicles from Pakistan was smaller than that of its import volume. In 2010, its vehicles' top share of destination was Sweden. However, the export of vehicles had been volatile from 2011, and it began to decline subsequently as indicated in the figure below.

Figure A.VII-2: Pakistan's Automobile Exports



Source: UN Comtrade Database.

Reference

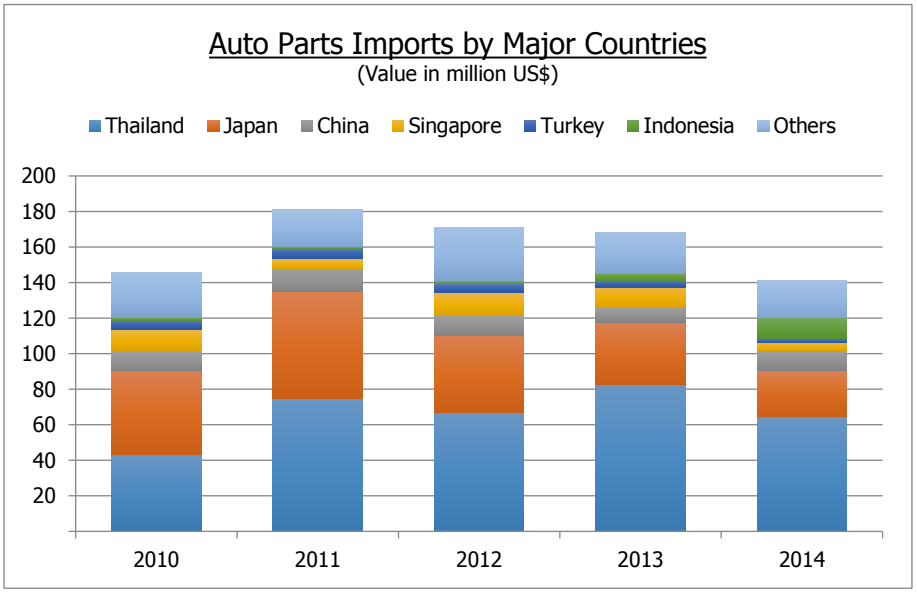
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts, including used parts, for 2010-2014.

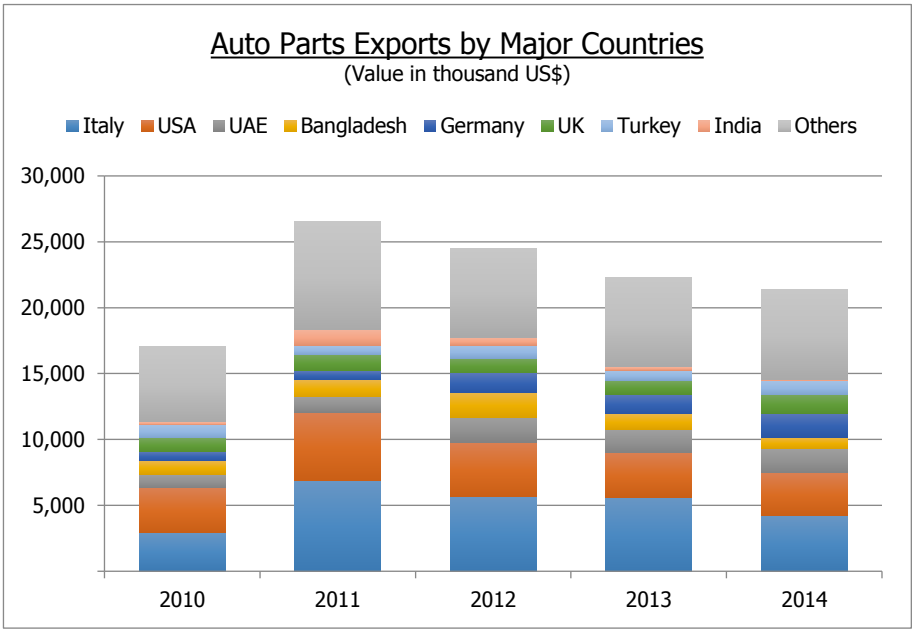
Country :	Pakistan

Figure A.VII-3: Pakistan's Auto Parts Imports



Source: UN Comtrade Database.

Figure A.VII-4: Pakistan's Auto Parts Exports



UAE = United Arab Emirates, UK = United Kingdom, USA = United States of America.

Source: UN Comtrade Database.

Country：	Pakistan

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Trade Control

Customs Duties:

- According to Business Monitor International, 'the general tariff regime [for commercial vehicles] in Pakistan is 20 percent on CKD buses and trucks; 60 percent on compressed natural gas (CNG) trucks; and 20 percent on CBUs for buses.' In addition, CKD bus imports have been exempted from Customs duty.

Taxes:

- A 15 percent General Sales Tax (VAT tax) is assessed on all motor vehicles (personal, commercial, CKDs, and CBUs.

Other Measures:

- Pakistan permits the importation of motor vehicles as a personal gift, or as personal baggage accompanying a returning Pakistani after residing abroad. Siblings are also now covered under the gifting scheme. The schedule of duties is listed in Appendix G of the Import Trade and Procedure Order, 2002-2003.
- The Government of Pakistan exempts diplomats, tour operators/travel agents, and privileged organisations/offices/agencies from Customs duties on the importation of certain categories of motor vehicles as defined under Customs Rules and Procedures 2002-2003.

Country：	Pakistan

Duties and Taxes

Table A.VII-1: Import Duties and Taxes for Automobile

Passenger vehicles	HS code	Unit	Import Rate
Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 87.02), including station wagons and racing cars.			
- Other vehicles, with spark-ignition internal combustion reciprocating piston engine:	8703.20		
- - - Of a cylinder capacity not exceeding 800cc:		Kg	50%
- - - Of a cylinder capacity exceeding 800cc but not exceeding 1000cc:		Kg	55%
- - Of a cylinder capacity exceeding 1,000cc but not exceeding 1,500 cc:		Kg	60%
- - - Of a capacity exceeding 1,500cc but not exceeding 1,800cc:		Kg	75%
- - - Other, of a capacity exceeding 1,800cc but not exceeding 3,000cc:		Kg	100%
- Other vehicles, with compression- ignition internal combustion piston engine (diesel or semi- diesel):	8703.30		
- - - Of a cylinder capacity not exceeding 800cc:		Kg	50%
- - - - Of a cylinder capacity exceeding 800cc but not exceeding 1,000cc:		Kg	55%
- - - Of a cylinder capacity exceeding 1,000cc but not exceeding 1,500cc:		Kg	60%
- - - Of a capacity exceeding 1,500 cc but not exceeding 1,800 cc:		Kg	75%

- - - Other, of a capacity exceeding 1,800 cc but not exceeding 2,500 cc:		Kg	100%

cc = cubic centimetre, HS = harmonised system, kg = kilogram.

Source: Federal Board of Revenue, Government of Pakistan.

Table A.VII-2: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.	8707	Kg	50%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	8708	Kg	35%

HS = Harmonised system, Kg = kilogram.

Source: Federal Board of Revenue, Government of Pakistan.

References

Federal Board of Revenue, Government of Pakistan. http://www.fbr.gov.pk/ShowDocument.aspx?view=Document&ActionID=998&ArticleID= (accessed September 2015).

Federal Board of Revenue, Government of Pakistan. http://www.fbr.gov.pk/OfficeHomePage.aspx?view=OfficeHomePage&ActionID=38&ArticleID=547 (accessed September 2015).

ITA website. http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

Country：	Pakistan

(4) Plans and regulations relating to vehicle registration

New Car Registration

Registration of motor vehicles in Pakistan is done through the Excise, Taxation and Narcotics Department (ETND). In addition, vehicle registration is managed through the Motor Transport Management Information System. Vehicle Registration engages the soundtrack of a motor vehicle in the official records subsequent to outstanding corroboration. Vehicle registration is obligatory and required for vehicle ownership. Registration is also required during the garage sale of a vehicle and transport of its ownership.

Taxes are incurred for registering new, imported, and transferred vehicles, based on specified rates by the ETND.

Transfer Registration

In 2015, the government cut the advance income tax on the transfer of ownership by 75 percent for those who file income tax returns and 33 percent to 50 percent for non-filers. However, out of a population of 180 million, only 880,000 persons have filed income tax returns.

The federal government took this action after phenomenally increasing it in the last fiscal year. In 2014, the government decided to impose heavy taxes ranging between Rs10,000 and Rs450,000 on the transfer of ownership of vehicles. These rates were equal to those imposed on the registration of a new vehicle, which discouraged car owners from getting their vehicles transferred, raising security concerns.

According to Shahid Hussain Assad, Member of the Inland Revenue Policy of the Federal Board of Revenue (FBR), the taxes on transfer of ownership of vehicles were reduced on the demand of the provincial governments.

The new rates are expected to cause a revenue loss of Rs500 million for the next fiscal year. However, while continuing its policy of increasing cost of doing business for non-compliant persons, the FBR increased taxes on contractors, suppliers, brokerage commissions, and on

accounts of annual token fees, which will yield additional Rs23 billion revenue. This amount is in addition to the Rs35 billion that the government has estimated from the withholding tax on banking transactions by non-filers.

Inspection

The legal basis for motor vehicle inspection can be found in Motor Vehicles Ordinance 1965, under Rule-35 of the M.V. Rules 1969.

Currently, periodic inspection and certification of vehicles only applies to commercial vehicles. However, the Motor Vehicle Examiner (MVE) is neither trained nor equipped for testing and certification. The systems, tools, and knowledge required for inspecting simply does not exist.

The structure of the MVE organization varies from province to province. For example, in Punjab, the MVE operates under the Provincial Transport Authority. In Sindh, the MVEs are being run by the police department and are referred to as Motor Vehicle Inspectors (MVI). In the North-West Frontier Province and Baluchistan, MVEs are under the Provincial Police Department. In the northern areas and federally administered tribal areas, MVEs are under the administrative control of the Deputy Inspector General of Police who acts as the motor vehicle registering authority.

Other

Each province has a different system of car registration in Pakistan. Typically, car registration requires a registration fee of some sort. Punjab is trying to adapt a web-based registration system.

References

Engineering Development Board, Government of Pakistan. http://www.engineeringpakistan.com/EngPak1/trucking/MVE.pdf (accessed September 2015).

Country：	Pakistan

Excise, Taxation and Narcotics Department, Government of Sindh. http://www.excise.gos.pk/index.php?option=com_content&view=article&id=70&Itemid=94 (accessed September 2015).

The Express Tribune with the International New York Times. *Widening tax base: Heavy taxes imposed on transfer of vehicle ownership.* http://tribune.com.pk/story/718181/widening-tax-base-heavy-taxes-imposed-on-transfer-of-vehicle-ownership/ (accessed September 2015).

The Punjab Information Technology Board website. http://pitb.gov.pk/mtmis_I (accessed September 2015).

(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

Pakistanis who have lived for six months abroad can import used cars up to three years old as personal baggage. Pakistanis overseas who have stayed abroad for 700 days are allowed to send a used car as a gift or if they are returning back to Pakistan, they can import it under transfer of residence category.

The duty on new cars in Pakistan ranges from 50 percent to 60 percent, plus 17 percent general sales tax (GST) and 1 percent excise duty for 800 cubic centimeters to 1,500 cubic centimeters cars. This 48 percent reduction in duty is a significant incentive to import used cars.

There is a duty concession of one percent per month up to a maximum of 50 percent for used cars in Pakistan for three-year-old models. There are no other restrictions. Even the environmental standards are not checked for the used cars.

Other

The so-called scrap-dealers in markets manually dismantle cars, and there is a reasonable chance that the car being dismantled is a stolen car in car-theft-ridden Punjab.

Country :	Pakistan

References

Maverick Pakistanis.com. *Import Of Used Vehicles Into Pakistan Most Liberal In Region: Study.* http://www.maverickpakistanis.com/2010/07/import-of-used-vehicles-into-pakistan-most-liberal-in-region-study/ (accessed September 2015).

The Nation. *15,500 vehicles vanished from Punjab.* http://nation.com.pk/lahore/13-Sep-2014/15-500-vehicles-vanished-from-punjab. (accessed September 2015).

Annex II

Country Reports

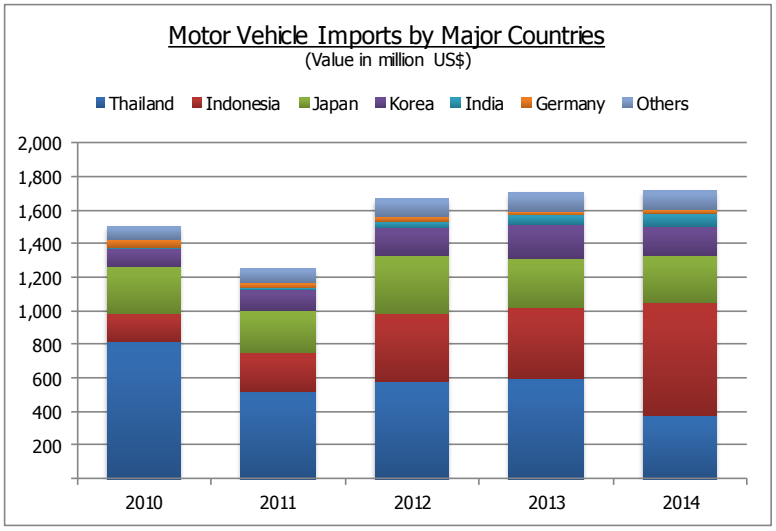
8. Philippines

Country :	Philippines
1. Current status of automobile recycling in the targeted country	
(1) Imports and exports from Japan and other countries: used cars	

Import

The following graph shows Philippines' automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Indonesia, Thailand, and Japan. The total import in value was over US$1,700 million in 2014.

Figure A-VIII.1: Philippines' Automobile Imports



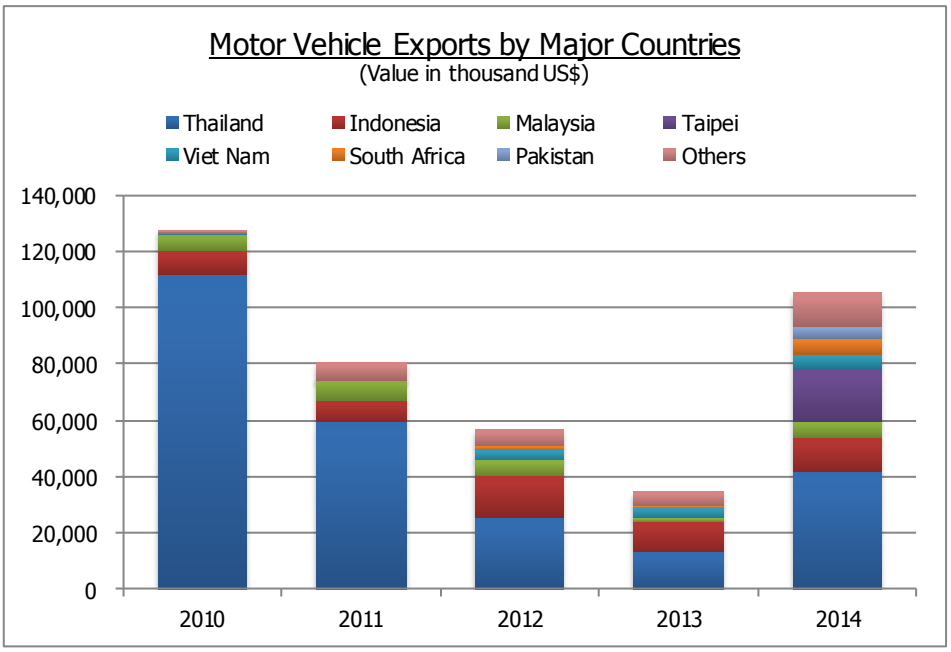
Source: UN Comtrade Database.

Country :	Philippines

Export

The volume of export of motor vehicles from the Philippines was smaller than that of its import volume. Destinations of the vehicles were Thailand and Indonesia. However, from 2014, exports became diversified, including countries such as South Africa, Taipei, and so on.

Figure A-VIII.2: Philippines' Automobile Exports



Source: UN Comtrade Database.

Reference

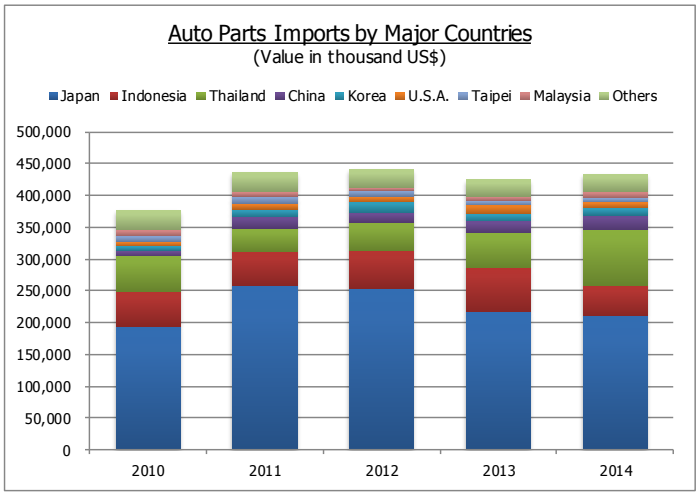
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Country :	Philippines

2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts, including used parts, for 2010-2014.

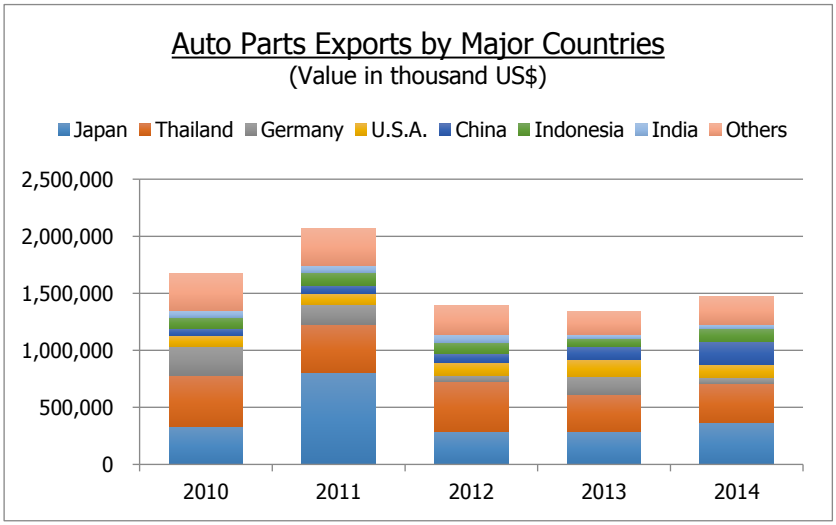
Figure A-VIII.3: Philippines' Auto Parts Imports



USA = United States of America.

Source: UN Comtrade Database.

Figure A-VIII.4: Philippines' Auto Parts Imports



USA = United States of America.

Source: UN Comtrade Database.

Country：	Philippines

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

3) Plans and regulations relating to import regulations

The Philippine regulation relating to import and export is the Tariff and Customs Code of the Philippines 1991, amended in 2001. The Code regulates the practice of evaluation and collection of import and export duties, as well as Customs supervision. The Philippine Tariff Commission makes tariff policies, including tariff concessions, modifications, and rebates. The Commission also holds public hearings on anti-dumping and countervailing cases, and conducts investigations on safeguard measures. The Bureau of Customs, under the Philippine Department of Finance, is the sole agency that administers tariff laws, and collects VAT and other additional taxes.

Table A-VIII.1: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	87.07.10	Kg	10%
- Other:	87.07.90	Kg	15%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- Bumpers and parts thereof:	8708.10	Kg	10%
- Other parts and accessories of bodies:	8708.20	Kg	3 - 20%
- Brakes and servo-brakes; parts thereof:	8708.30	Kg	10 - 20%

Country：	Philippines		
- Gear boxes and parts thereof:	8708.40	Kg	3 - 10%
- Drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof:	8708.50	Kg	3 - 10%
- Road wheels and parts and accessories thereof:	8708.70	Kg	3 -15%
- Suspension systems and parts thereof (including shock-absorbers):	8708.80	Kg	1 - 10%
- Other parts and accessories:	8708.90	Kg	1 - 30%

HS = Harmonised System, kg = kilogram.

Source: Philippine Tariff Commission.

References

Louis Adviento, Chief Export Division. POM, Bureau of Customs. Its Role in Export Control. http://www.meti.go.jp/policy/anpo/outreach/Industry_PH/pdf/ph04.pdf (accessed September 2015).

Philippine Tariff Commission. http://tariffcommission.gov.ph/ (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

Republic Act (RA) 4136, the national Law on Traffic, is the main act that controls vehicle operations in the Philippines such as the registration and inspection of vehicles. Also, the Department of Transportation and Communication (DOTC) is in charge of the use of vehicles and the operation of traffic rules.

New Car Registration

Starting April 2015, DOTC and the Land Transportation Office (LTO) will strictly enforce the 'No Registration-No Travel Policy"' for motor vehicles (MVs). This means that all vehicles must be

registered to be on the road.

The prescribed procedure of registration is conducted at the LTO. Vehicle registration is required to be renewed every year. On renewing the registration, users need to pay the Motor Vehicle Usage Charge (MVUC).

The MVUC rates have been set by RA8794, An act imposing MVUC on owners, depending on Gross Vehicle Weight (GVW) and vehicle classification. The rate is different for specific vehicles such as taxis and cars registered before RA8794 was enforced.

Table A-VIII.2: The MVUC for Passenger and Company Cars (ageless)

Categories	Rates (₱)
1. Passenger cars	
up to 1,600kg	1,600
1600 to 2,300kg	3,600
2,301kg and above	8,000
2. UV (Utility Vehicles)	
up to 2,700kg	2,000
2,701 to 4,500kg	2000 plus 0.40 x GVW in excess of 2700kg
3. SUV (Sports Utility Vehicles)	
up to 2,700kg	2,000
2710 to 4,500kg	2000 plus 0.46 x GVW in excess of 2,700
4. Motorcycles	
Without Sidecars / With Sidecars	240 / 300
5. Truck and Truck buses (over 4,501kg)	1800 plus 0.24 x GVW in excess of 2,700
6. Trailers (over 4,501kg)	0.24 x GVW

GWV = Gross Vehicle Weight, kg = kilogram, MVUC = Motor Vehicle Usage Charge, ₱ = Philippine peso.

Source: Land Transportation Office (LTO).

Transfer or Selling of Licence

The ownership of a car can be changed through the submission of required documents such as original copy of the Deed of Sale at the LTO district office. According to the provisions of Batas

Country：	Philippines

Pambansa Blg. 43, an Act providing number plates to owners of motor vehicles and trailers, the licence plate is not allowed to be changed.

Re-registration

Owners can re-register their vehicles at any LTO district office. The schedule of re-registration will depend on the vehicle's plate number. The last digit of the plate number will depend on the month of the registration while the middle digit indicates the weekly deadline.

Table A-VIII.3: Schedule of Re-registration Month

Plate number's last digit	Month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
0	October

Source: Land Transportation Office (LTO).

Table A-VIII.4: Schedule of Re-registration Week

Plate number's middle digit	Weekly deadline (on working days of the month)
1, 2, 3	1st to 7th day
4, 5, 6	8th to 12th day
7, 8	13th to 21st day
9, 0	22nd until last day

Source: Land Transportation Office (LTO).

Country：	Philippines

The LTO issued new standard licence plates in January 2015. Car owners who will renew their registrations will have to prepare an additional ₱450 for the licence plate fee. These new plates will be claimed 45 days after the LTO registration renewal.

Deregistration

There is a deregistration system but few people use it. Registered vehicles are required to be renewed every year, however, it will not apply for inactive cars. If owners want such cars to be active again, they need to renew the registration and pay accumulated renewal fees.

Inspection

All motor vehicles, including passenger and commercial cars, shall be subjected to mandatory inspection prior to registration as per MO No. 86-003 dated 3 June 1986. No motor vehicle of any classification shall be accepted for registration unless it has been fully inspected in accordance with the standards and procedures of motor vehicle inspection. The three venues of inspection are LTO district offices, Motor Vehicle Inspection Stations (MVIS), and Private Emission Testing Centres (PETCs).

The annual inspection is mandatory and the report of inspection is required to be submitted at the renewal of registration. Owners of brand-new cars can skip the safety inspection for the first three years, but they need to take the emission inspection from the first year.

Tax

There are three main types of taxes that owners need to pay.

Country：	Philippines

Table A-VIII.5: Taxes Related to Owning Vehicles

Fee		Details
1	MVUC	Rates fixed by each GVW and vehicle classification should be paid at the annual renewal registration
2	Compulsory Insurance	Compulsory Third Party Liability which costs around ₱1,200 is required to be purchased at the renewal registration
3	Inspection	Inspection report is required to be submitted at the renewal registration

GWV = Gross Weight Vehicle, MVUC = Motor Vehicle Usage Charge.

Source: Yano Research Institute.

Insurance

Philippine law requires all vehicle owners to purchase a Compulsory Third Party Liability (CTPL) insurance policy before they register or renew their vehicles. CTPL provides compensation to the third party in case of an accident. Comprehensive car insurance can also be purchased for extra protection, but it is not required by law.

Penalty

Registration:

All vehicles must be registered with the LTO, except for the first seven days. Under a joint administrative order, violators will be slapped with a ₱10,000 fine for driving an unregistered vehicle, which is assessed against the vehicle owner, and a ₱1,000 fine on the driver. If the driver is able to present a certificate of registration and an official receipt of the vehicle to prove that it has been registered, the driver will be fined only ₱5, 000 for failure to attach plates.

For MVs that are within the seven-day registration process, the driver must present the Certificate of Stock Reported, sales invoice dated within seven days prior to the apprehension, and a Certificate of Insurance Cover dated on or after the date of the sales invoice. If such

documents are presented, no penalties will be meted out.

As an additional penalty, should the date of the sales invoice exceed 37 days on the date of apprehension, the motor vehicle will be impounded by the LTO.

Re-registration:

Renewal later than the last working day of the indicated week from the middle digit is not allowed. The fine is computed weekly for late registration. There is a weekly fine of ₱200 for late registration. But, when the payment is delayed for a month, the fine shall become 50 percent of the user charge.

Environmental Control

RA No. 8749, known as the 'Philippine Clean Air Act of 1999', is the main act for environmental control in the Philippines. It provides for air quality management through the setting of ambient air quality guidelines and standards for monitoring, emission limits for motor vehicles (effective by 2003) which is linked to registration, and regulation of importation of motor vehicles and engines to comply with emission limits.

References

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Land Transportation Office. http://www.ltoregionvi.net/motor-vehicle-users-charge/, http://www.dotc.gov.ph/index.php/2014-09-02-05-01-41/2014-09-03-06-43-32/86-dotc-lto-time-to-change-old-licence-plates (accessed September 2015).

RA 8749. An Act Providing for a Comprehensive Air Pollution Control Policy and for Other Purposes. http://emb.gov.ph/ECA%20Center/RA8749.pdf (accessed September 2015).

The provisions of the Batas Pambansa Blg. 43. http://www.chanrobles.com/bataspambansa/bataspambansablg43.html (accessed

Country：	Philippines

September 2015).

(5) Handling of imported used cars and/or accident status quo cars

End-of-life cars in the Philippines would first flow to repair shops where usable parts are taken out. Then they, along with accident cars, would be sent to junk shops. There, valuable metals recovered from scrapped cars are separated by hand and open incineration. Retrieved metals are sold to metal factories.

Reference

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

According to Yano Research Institute, the number of ELVs was 17,866 in 2013. This was estimated based on the number of registered and re-registered vehicles.

Table A-VIII.6: Forecast of the Number of ELVs in the Philippines

Year	2013	2014	2015	2016	2017	2018	2019	2020
No. of ELVs	17,866	28,985	36,273	39,852	48,025	61,141	78,077	97,332

ELV = end-of-life vehicle.

Source: Yano Research Institute.

Country：	Philippines

Model Years

In the Philippines, cars are utilised for at least over 25 years with repairs. The locals are still not familiar with the concept of ELVs.

Sales Prices

The price of used cars in the Philippines is ₱378,000 for a 2010-year model (Nissan Sentra), ₱200,000 for a 2000-year model (Toyota Corolla) and ₱108,000 for a 1990-year model (Toyota Crown).

Distribution

Old models of cars are continuously sold as used cars by being repaired and changing parts. These old cars are seldom dismantled as ELVs. Owners bring in their cars to repair shops or junkyards. The scale of these shops is small so that the amount of ELV is few. Recently, there are several automobile insurance companies that launched the ELV project. For example, Standard Insurance, which is the biggest motor car insurance company in Philippines, has constructed the new automobile repair and maintenance factory and launched the repair business for damaged cars. For cars which cannot be repaired anymore, they pick out the usable parts and dispose the ELVs.

Processing Situation

Vehicle dismantling is mainly conducted by repair shops and junkshops and there are a few specialized operators in the vehicle dismantling business. Dismantling is conducted mainly by hand and this threatens labour safety.

The study team could not acquire information on shredding facilities for automobiles.

Country：	Philippines

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

Yano Research Institute. *Current situation of automobile recycling in ASEAN.* http://www.econ.kyoto-u.ac.jp/~shioji/resource/20150711%20QGAWA.pdf (accessed September 2015).

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

Used parts are in huge demand in the Philippines. In 2012, according to Philippine Statistics Authority National Statistics Office, $859,285,000 used parts were imported. This is almost twice the number that was imported in 2008 and 2009. The importation of used parts is not totally prohibited, however, some parts are not allowed or are regulated.

Table A-VIII.7: Regulated Parts for Vehicles

Philippine Standard Commodity Code (PSCC)	Customs code	Commodity description	
784.32-09	8708.2910	Other parts and accessories of body in PSCC group 781	
	8708.2990	Dashboard	Clasp fixed to plate
		Door	Running Board
		Fender	Radiator cowling

Country :	Philippines		
		Floor board	Trunk/Trunk cover
		Grill	Sun visor
		Hood	Wing
		Cabin	Dasher
		Luggage rack (exterior)	Floor mat
784.24.21-0	8707.1000	Vehicle body only in group 781 including driver seat and fuselage (prohibited)	
		Chassis with engine only in group 781 (prohibited)	

PSCC = Philippine Standard Commodity Code.

Source: Yano Research Institute.

Distribution and Used Parts Market and Player

There is an area called, Evangelista where used parts sellers are gathered. Used parts are mainly procured by Japan, China, and Thailand. Imitation parts occupy a large portion of parts imported from China. Parts dealers buy the used parts by way of auction in the form of parts package in the container or buy directly from buyers which procure used parts in auction.

Repair shops collect some parts which can be recycled and sell them as used parts. Non-usable parts are sent to junkshop, which sort them and collect valuable resource like steel scrap.

Also, used car shops dismantle ELVs and sell used parts. Insurance companies, repair shops, and vehicle makers also deal with used parts in the Philippines.

Reference

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Country：	**Philippines**

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading and resources: steel and non-ferrous metals

All iron-making factories operating in Philippines produce crude steels scrapped by electric furnace. Almost all of factory equipment and technologies remain outdated so that the capacity of production is not much changed in the past 10 years. As the exceptional company, Steel Asia manufacturing, the biggest company producing reinforced bar steel is expanding its capacity of production.

As the receiver of the steel scrap, in Philippines, there are several electric furnace companies in the following table.

Table A-VIII.8: Electric Furnace Companies in the Philippines (1,000 tons per year)

Company	**Crude steel**	**Slab**	**Billet**	**Bloom**
TKC: Treasure Steel Works	400		400	
Cathay Metal	300		300	
Steel Asia Manufacturing	300		300	
Metro Concast Steel	n.a			
Apollo Steel Mill	n.a			
Midland Steel	n.a			
SKK Steel	n.a			
Elegant Chemical Alloy	n.a			

Source: JFE Techno Research.

Country：	Philippines

While Philippines exports aluminium scraps to mainly Malaysia, Korea, China, and Japan, the size of aluminium recycling industry is not large due to the weakness the aluminium smelting industry.

Reference

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Almost all of auto weight including wasted oil, battery and tire are recycled.

-Batteries

The Philippine battery recycling industry is characterised by one dominant recycler, Philippines Recycler Inc., a few small licensed and therefore legitimate recyclers, and thousands of unregulated recyclers spread out all over the country. Only the legitimate recyclers have the smelting technology to properly process the scrap batteries to recover metal from battery active materials. The unregulated recyclers merely melt the metal from batteries and indiscriminately discard their non-metallic material wastes and acid wastes.

However, there is information that Philippine Recycler Inc., the company recycling the battery, is no longer operating.

Country：	Philippines

Table A-VIII.9: The Recycle of Lead-Battery

	Philippine Recycler Inc.	**Informal small refining factory**	**Informal re-conditioner / home refining**
Raw materials	From home and abroad	From Electrode plate and home	From Home and dismantled battery
Product	Refined load	Unrefined load	Unrefined load
The rate of lead recovery	98%	About 90%	About 40%

Source: EX Research Institute.

-Tires

Tires are recycled into sandals, slippers, and fuel for cement manufacturing. Danglos Eco Systems invested in a modern tire recycling plant to help rid the Philippines of the waste tires and convert them into useful bi-products known as Rubber Crumb. According to the company, this recycled material is used for sports stadium surfaces, children's playgrounds, rubber moldings and automotive parts.

-Waste Oils

It is recycled through draining and distilling process. In Philippines, there are more than dozens of waste oil treatment companies and they are listed in the List of Registered Treatment/Storage/Disposal Facilities for Hazardous Wastes of the Department of Environment and Natural Resources.

References

Danglos Eco System webpage. http://www.danglosecosystems.com/rubber-plastics-recycling. (accessed September 2015).

Department of Environment and Natural Resources. Environmental Management Bureau. ENVIRONMENTAL MANAGEMENT BUREAU, *LIST OF Registered Treatment/Storage/Disposal (tsd) Facilities for Hazardous Wastes.* http://www.emb.gov.ph/hazardous/treater.pdf

(accessed September 2015).

Kojima, Michikazu. Institute of Developing Economies, JETRO. *Re-use and Recycling in Asia.* http://www.meti.go.jp/committee/downloadfiles/g40713a40j.pdf (accessed September 2015).

(10) Factual survey of end-of-life two-wheeled vehicles

The registered number of two-wheeled and three-wheeled vehicles in 2013 was approximately 4,250,000. The newly registered number is approximately 1,140,000. In Philippines, the number of two/three-wheeled vehicles is increasing more than that of automobiles. The transition from two/three-wheeled vehicles to automobiles has not been seen so far.

Table A-VIII.10: The Transition of Registered and Newly Registered Number of Two-/Three-Wheeled Vehicles in the Philippines

	2008	2009	2010	2011	2012	2013
The registered number (year-over - year)	2,982,511 112.65%	3,200,968 107.32%	3,482,149 108.78%	3,881,460 111.47%	4,116,690 106.06%	4,250,667 103.25%
The newly registered number (year-over-year)	734,666 109.39%	756,228 102.93%	903,663 119.50%	1,052,863 116.51%	1,046,228 99.37%	1,140,329 108.99%

Source: Land Transportation Office (LTO).

The study team could not acquire the information on end of life motor cycle in this study.

Country：	Philippines

(11) Type of operation and number of recycling-related companies

Dismantlers

There is no specific registration scheme for vehicle dismantling and it is difficult to effectively regulate the industry. Dismantlers do not exist and dismantling is mainly conducted by repair and junk shops. Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity.

Other Related Companies

Lead batteries:

Philippines Recyclers Inc. is the largest and most advanced battery recycling facility in the Philippines. It supplies all the lead requirements of the Ramcar Battery group, the largest battery manufacturer in the Philippines. The company is certified to ISO 14001 and ISO9002 and has received numerous local awards and recognition for its environmental management efforts. However, there is information that Philippine Recycler Inc. is no longer operating.

Tires:

Danglos Eco Systems invested in a modern tire recycling plant to help rid the Philippines of waste tires and convert it into a useful bi-product known as Rubber Crumb.

Waste oils:

There are more than dozens of waste oil treatment companies in the Philippines and they are listed in the List of Registered Treatment/Storage/Disposal Facilities for Hazardous Waste of the Department of Environment and Natural Resources.

References

Danglos Eco System. http://www.danglosecosystems.com/rubber-plastics-recycling (accessed September 2015).

Country：	**Philippines**
Department of Environment and Natural Resources. Environmental Management Bureau. *List of Registered Treatment/Storage/Disposal (tsd) Facilities for Hazardous Wastes.* http://www.emb.gov.ph/hazardous/treater.pdf (accessed September 2015).	
(12) Management of recycling-related companies The study team could not acquire the information on management situation of recycling related companies in this study. **Reference** N/A	
2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling	
(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent situations at final disposal site, dismantling technology, safety, efficiency, and recycling rates) There is no specific act for vehicle recycling and dumping in Philippines. There is no registration and permit system for dismantling vendors, since dismantling companies specialized in dismantling vehicles do not exist. There are other challenges as listed below: • Waste oils are not mostly retrieved or resold, and are mostly dumped. • Due to the lack of processing facilities, CFCs are released into the atmosphere without being properly recovered. • Metallic component recycling is done manually. This causes labour safety issues.	
(2) Trend in vehicle recycling policies and related automobile recycling laws, and the enforcement, presence, and details of related institutions. RA 6969 and RA9003 are Acts related to scrapped automobiles.	

Country：	Philippines

RA 6969 is known as the Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990. It provides the list of registered treatment, storage and disposal (TSD) of hazardous wastes, including lead compounds (D406) and waste oils (I101).

RA9003 is known as the Ecological Solid Waste Management Act of 2000. It defines tire, battery and oil, parts related to vehicles, as special wastes that need to be disposed differently from other wastes.

Article 4, Section 28 of RA 9003 on reclamation programs and buy-back centres for recyclables and toxic wastes stipulates that the National Ecology Center needs to assist in establishing and implementing deposit or reclamation programs in coordination with manufacturers, recyclers, and generators to provide separate collection systems or convenient drop-off locations for recyclable materials, particularly for separated toxic components of the waste stream like dry cell batteries and tires to ensure that they are not incinerated or disposed in a landfill.

a) Status of institutional system collateral for improper processing of three Designated Recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

Around 70 percent of the recycled CFCs for refrigerators are from those collected from vehicles. However, CFCs are not retrieved during the dismantling process and are released in the air as there is no CFC collecting facility.

Airbags

The study team could not acquire detailed information on airbags.

Automobile Shredder Residues

The study team could not acquire detailed information on ASRs.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users and government agencies (including local governments)

Country：	**Philippines**

The current roles and responsibilities among stakeholders related to regulations on the automotive industry are as follows:

- Importers/Manufacturers
    - Subject to tariffs and taxes, vehicle type approval, and registration
- Users
    - Compliance to road transport regulations, including licences and periodic inspection
- Government Agencies
    - Department of Transportation and Communications - in charge of new car registration, licensing, car inspection, and exhaust gas inspection
    - Department of Environment and Natural Resources – in charge of protecting the environment by ensuring compliance with the environmental law, and of environmental issues related to hazardous waste management CFCs, lead batteries, waste oils and waste tires.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

The Philippines is in its early stages of starting the ELV recycling system and considering ELV recycling regulations. The following regulations stipulate general waste management in the Philippines.

-Hazardous Substances and Wastes Management

RA 6969: Philippine Toxic Substances and Hazardous and Nuclear Waste Act.

This Act mandates the regulation, restriction, or prohibition of the importation, manufacture, processing, sale, distribution, use, and disposal of chemical substances and mixtures that present unreasonable risks and/or injuries to health and the environment.

DAO 92-29: Implementing Rules and Regulations

DAO 2004-36: Further implementation Rules.

Section 24 of DAO 92-29 stipulates the responsibility of hazardous waste generators in the following manner:

- The waste generator shall be responsible for the proper management and disposal of the hazardous waste.
- The waste generator shall bear the costs for the proper storage, treatment and disposal of their hazardous waste.

It provides the list of hazardous wastes among which lead compounds (D406), waste oils (I101), sulfur acid (B201) as they relate to ELV recycling.

In DAO 92-29, waste treatment and disposal premises, and waste transporters are required to secure permits or authorizations from the Department of Environment and Natural Resources prior to the transport, storage, or disposal of hazardous wastes. The Secretary of the Department of Environment and Natural Resources has the authority to inspect any premises in which hazardous wastes are being generated, stored, processed, recycled, treated, and/or disposed, and to make recommendations to the proper authorities.

Penalties for failure or refusal to notify the department of the type and quantity of hazardous wastes generated and to provide quarterly report of waste generation and failure or refusal to

secure a permit or authorization from the Department prior to transport, storage, or disposal of hazardous wastes shall apply. The Secretary of the Department is authorized to impose a fine of not less than ₱10,000 but not more than ₱50,000 on any person or entity found guilty thereof.

-Solid Waste Management

RA 9003: Philippine Ecological Solid Waste Management Act (PESWMA) of 2000

The law was passed by Congress in December 2000 and signed by the President of the Philippines on 26 January 2001 with the aim of adopting a systematic, comprehensive, and ecological solid waste management program.

DAO 2000 - Implementing Rules and Regulations.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Implementing Rules and Regulations of Republic Act No. 6969. http://emb.gov.ph/ECA%20Center/IRR%20of%20Republic%20Act%206969.pdf (accessed September 2015).

Republic Act No. 6969. An Act to Control Toxic Substances and Hazardous and Nuclear Wastes, Providing Penalties for Violations Thereof, and for Other Purposes. http://www.denr.gov.ph/policy/basicpol/envcode/ra6969.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

Annex II

Country Reports

9. Republic of Korea

Country：	Republic of Korea

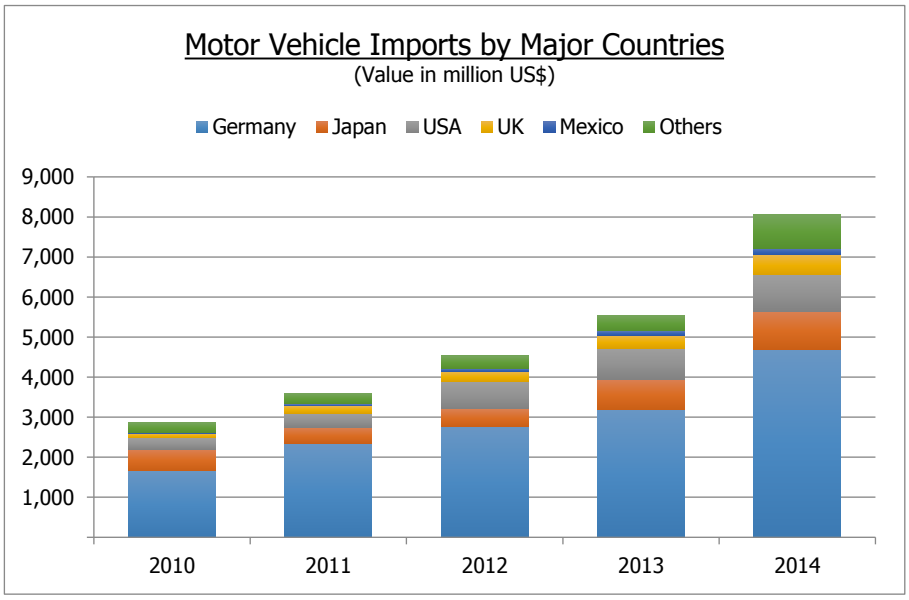
1. Current status of automobile recycling in the targeted countries

(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows Korea's automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Germany, Japan, and USA. The total value of import was over US$8,000 million in 2014.

Figure A-IX.1: Korea's Automobile Imports



UK = United Kingdom, USA = United States of America.

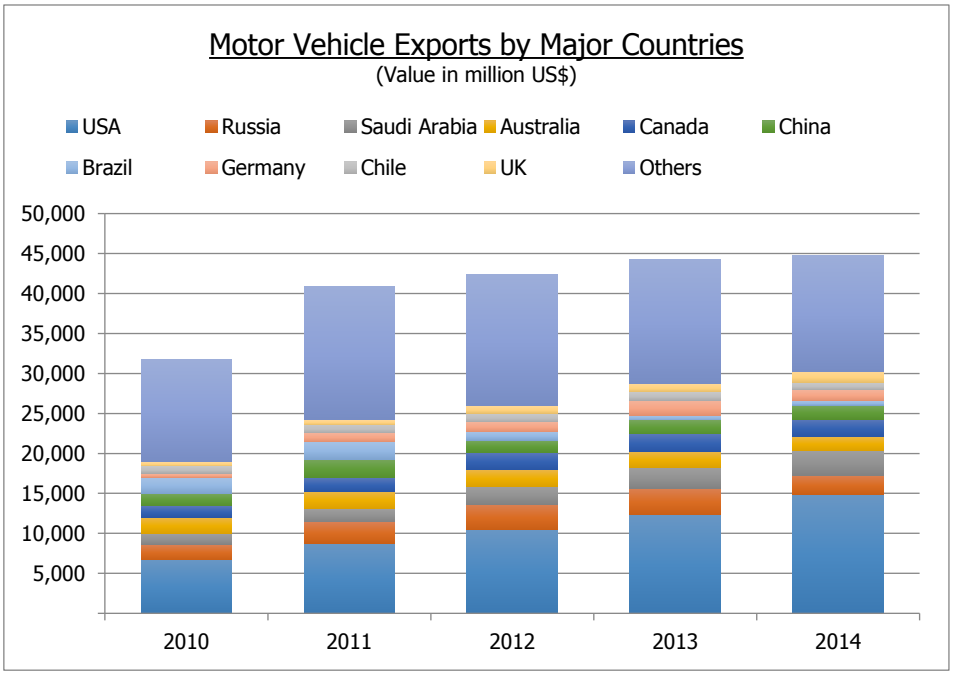
Source: UN Comtrade Database.

Country :	Republic of Korea

Export

The volume of motor vehicle exports from Korea was larger than that of its import volume due to the presence of globally competitive automobile makers in the country. The main destination of the vehicles was USA. In addition to the USA, there were other countries importing Korean vehicles.

Figure A-IX.2: Korea's Automobile Exports



UK = United Kingdom, USA = United States of America.

Source: UN Comtrade Database.

Reference

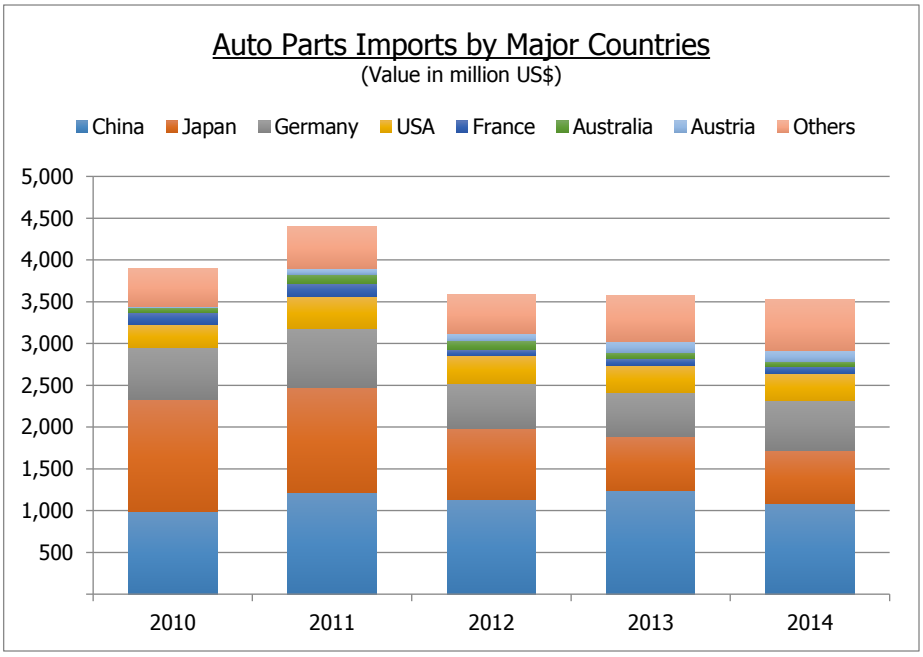
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts, including used parts, for 2010-2014.

Country :	Republic of Korea

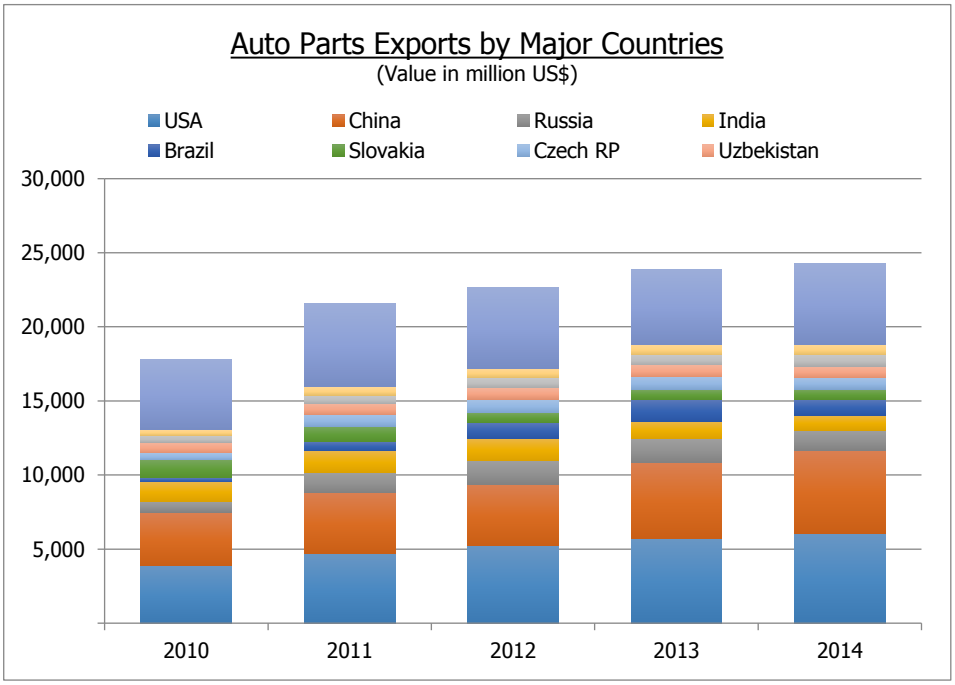
Figure A-IX.3: Korea's Auto Parts Imports



Source: UN Comtrade Database.

Country :	Republic of Korea

Figure A-IX.4: Korea's Auto Parts Exports



USA = United States of America.
Source: UN Comtrade Database.

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Tariffs:

- Passenger vehicles are assessed and applied a tariff rate of eight percent. The applied tariff rate for commercial vehicles is 10 percent.
- Per the 1998 Memorandum of Understanding (MOU), the Korean Government agreed to notify the World Trade Organization (WTO), within 30 days of entry into force of the MOU, that it would lower its bound tariff rate on passenger vehicles from 80 percent

to its current applied rate of eight percent, constraining the Korean Government's ability to raise this tariff rate in the future.

- The applied tariff rate for most automotive parts and components is eight percent or lower.

Taxes:

The government imposes eight different taxes on passenger cars, which are assessed on the cost, insurance, and freight (CIF) value of the vehicle plus the eight percent tariff. Three of the taxes are based on engine displacement. The Korean engine displacement taxes are currently applied such that a disproportionate financial burden falls on vehicles with larger engines (over 2,000 cubic centimetres).

- Taxes Levied at the Purchase Stage:
    1. Special consumption tax (a percentage of the CIF value of the vehicle plus duty, based on engine displacement)
    2. Education tax (30 percent of the special excise tax)
    3. A 10 percent VAT
- Taxes Levied at the Registration Stage:
    4. Registration tax (five percent of the retail price before VAT)
    5. Acquisition tax (two percent of the retail price before VAT)
    6. Subway bond (based on engine displacement)
- Taxes Levied at the Ownership Stage:
    7. Annual vehicle tax (based on engine size)
    8. Annual vehicle education tax (30 percent of the annual vehicle tax)

Bias Against Imported Products:

- In the past, pervasive anti-import sentiments limited marketing opportunities and intimidated potential customers of foreign vehicles in Korea.
- Also in the past, the Korean government practised measures that discouraged the purchase of imported products. For example, in December 1996 and early 1997, the National Tax Office (NTO) engaged in broad action directed at lessees of imported autos. Though withdrawn after complaints by foreign governments, the threat of tax audits for lessees of imported cars had a chilling effect on sales of imported vehicles.

Country： **Republic of Korea**

- In recent years, these problems have been dramatically reduced and Korean consumers' acceptance of imported vehicles is on the rise. Nevertheless, fear of the resurgence of economic recession in the future remains a concern.
- Since 1998, however, the government has been trying to relax its anti-importation policy and discrimination against foreign motor vehicles. The Korean Government has also engaged in public activities to promote the equal treatment of foreign and domestic motor vehicles, through such means as direct outreach to civic groups, in an attempt to improve the environment for sales of foreign motor vehicles.

Table A-IX.1: Duties and Taxes for Automobile Parts

Bodies, parts, and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10	Kg	16%
- Other:	8707.90	Kg	13 - 16%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	8708	Kg	13%

HS = Harmonised system, kg = kilogram.

Source: Korea Customs Service.

References

Korea Customs Service. http://english.customs.go.kr/kcshome/site/index.do?layoutSiteId=english (accessed September 2015).

United States Department of Commerce International Trade Administration Office of Transportation and Machinery. *Compilation of Foreign Motor Vehicle Import Requirements.* http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

The Automobile Management Act of Korea specifies the registration of new, change, transfer, and attachment of registration of vehicles, the assignment of registration numbers and licence plates, the markings of vehicle identification numbers, the safety standards and self-

certification, the correction of manufacturing deficits, the operation restriction and enforcement, the vehicle inspection and automobile management business for the purpose of improving public welfare through the security of performance; and the safety of vehicles as well as the efficient management of vehicles.

Chapter II of the Act provides for the registration of automobiles. An automobile shall not be operated unless it is registered. This is managed by the Mayor/District Office Governor. Registration applies to new vehicle registration (owned, assembled, manufactured and imported); modification; transfer of ownership; cancellation, and seizure.

Reference

Motor Vehicle Management Act.

http://elaw.klri.re.kr/eng_service/lawView.do?lang=ENG&hseq=8827 (accessed September 2015).

(5) Handling of imported used cars and/or accident status quo cars

Importers of used automobiles are required to self-certify that the car has met the safety criteria under the Automobile Management Act. This procedure is called the Self-Certification System. Used cars also need to satisfy environmental tests under the Clean Air Conservation Act. Tariff on both new and used imported passenger cars (HS8703) is 8 percent. In Seoul, registration is conducted by the district office, whereas in other parts of Korea, it is conducted by automobile registration offices. The Korea Insurance Development Institute runs a website called CarHistory (www.carhistory.com) that can trace a used car's history for a fee of W5,000 (US$4.80).

Janganpyeong is the centre of Korea's biggest used car market.

Country：	Republic of Korea

Abandoned cars, including accident status quo cars, are dismantled at the dismantler's' expense in case the owner is unknown or he is unable to dispose the car. When abandoned cars are dealt for free, automakers collect and pass them to dismantlers without abandoners' cost.

References

IDE-JETRO. *Kensyu Sosho No.570 Recycling in Asia.*

JETRO, Japan. https://www.jetro.go.jp/world/qa/04A-001226.html (accessed September 2015).

Korea Joongang Daily. *Used car dealers say not to worry.* http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2891150 (accessed September 2015).

(6) Volume, distribution, flow, model years, sale prices, processing situation, check items on trading and resources: end-of-life vehicle

Volume

In 2011, 2.32 million second-hand cars were sold.

In 2012, 660,000 cars (4.5 percent of all passenger cars in Korea) were imported. Of those, 400,000 were estimated to be second-hand.

Model years

The average vehicle lifespan on the road is 11.3 years.

Country：	Republic of Korea

Price

The average price of used cars is W7 million.

Distribution

The most common way of buying second-hand imported cars is from used-car websites (19 percent), followed by individual trade websites (12 percent).

Processing situation

Abandoned cars are dismantled at the dismantler's expense in case the owner is unknown or he is unable to dispose the car. The Motor Vehicle Management Act defines 'scrapping car' as dismantling an automobile and then compressing, crushing or cutting the devices of the automobile so that they cannot maintain their performance set forth in the Ordinance of the Ministry of Construction and Transportation; or compressing or smelting an automobile without dismantling. Manufacturers are responsible for collecting and dismantling tires and lubricant oils. ASRs will be sent to the disposal plants and buried. The Enforcement Decree of the Wastes Control Act sets the regulations on ASRs.

Other

The most popular second-hand car market at SK Encar, the biggest used car dealer in Korea, is the Grandeur TG. Here, a 2.7-liter model made in 2009 sells for around W17 million, roughly 40 percent cheaper than its original asking price three years ago.

References

IDE-JETRO. *Kensyu Sosho No.570 Recycling in Asia.*

Country：	Republic of Korea

Motor Vehicle Management Act.
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(7) Volume, distribution, flow, model years, sale prices, processing situation, check items on trading and resources: recycled parts

In Korea, the Ministry of Land, Infrastructure and Transport, formerly called the Ministry of Construction and Transportation, has been in charge of handling disused vehicles. One of the issues the government has been concerned about is the increasing number of vehicles being abandoned without being sent to dismantlers by the owners themselves. In 1989, only 3.3 percent of ELVs (around 3,300 vehicles) were abandoned. In 1999, the number increased to 69,000.

In case an abandoned vehicle gets found, the government, with the help of the police, orders its owner to have it dismantled. However, if the owner is missing or it is difficult to order him/her to take care of the abandoned car, the vehicle is sold to dismantlers as potential commodities.

The government now treats ELVs or abandoned vehicles as a source of recycled parts, but the county used to have negative policies on recycling and reusing auto parts. Since 1990, the Ministry of Commerce, Industry and Energy has started promoting recycle and reuse of used auto parts, which has resulted in the reuse of all auto parts except the hydrobak, the master cylinder, and some gears possible.

Country :	Republic of Korea

Reference

IDE-JETRO. *Kensyu Sosho No.570 Recycling in Asia.*

(8) Volume, distribution, flow, model years, sale prices, processing situation, check items on trading and resources : steel and non-ferrous metals

Korea has been relying on land filling of wastes for a long time. In 1995, 72.3 percent of municipal solid wastes were land filled and 23.7 per cent were recycled. However, with the help of the government's promotion of recycling in 2007, 57.8 percent were recycled and 23.6 percent were land filled. Furthermore, in 2007, 81.1 percent of the total waste was recycled.

Under the Waste Control Act, the Korean Government promotes the 'Extended Producer Responsibility' (EPR) system in which certain manufacturers are required to reduce the amount of waste. As of 2006, 1,275 companies were subjected to this system.

The results in 2004 showed 7.7 kilograms of waste reduction per 1 ton, which was caused by the major waste reduction in the metal and electronic industry.

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Annex II

Country Reports

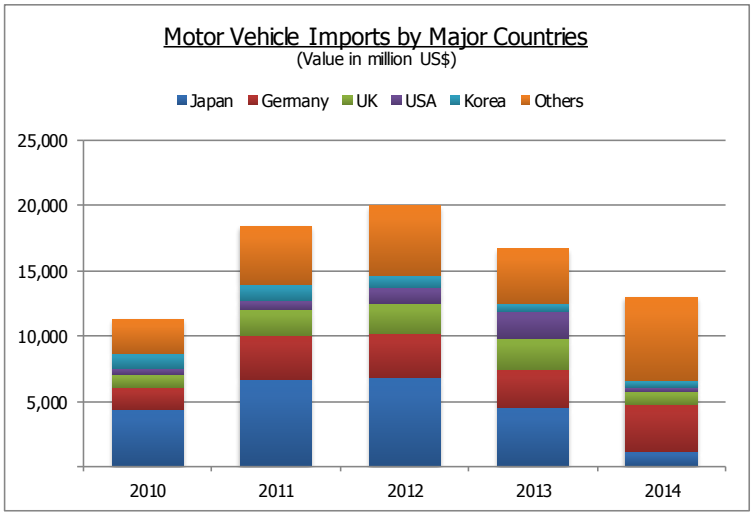
10. Russia

Country :	Russia
1. Current status of automobile recycling in the targeted country	
(1) Imports and exports from Japan and other countries: used cars	

Import

The following graph shows Russia's automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Japan and Germany. However, the share of Japan in 2014 decreased remarkably by about 75 percent. The total import in value was over US$1,300 million in 2014.

Figure A-X.1: Russia's Automobile Imports



UK = United Kingdom, USA = United States of America.

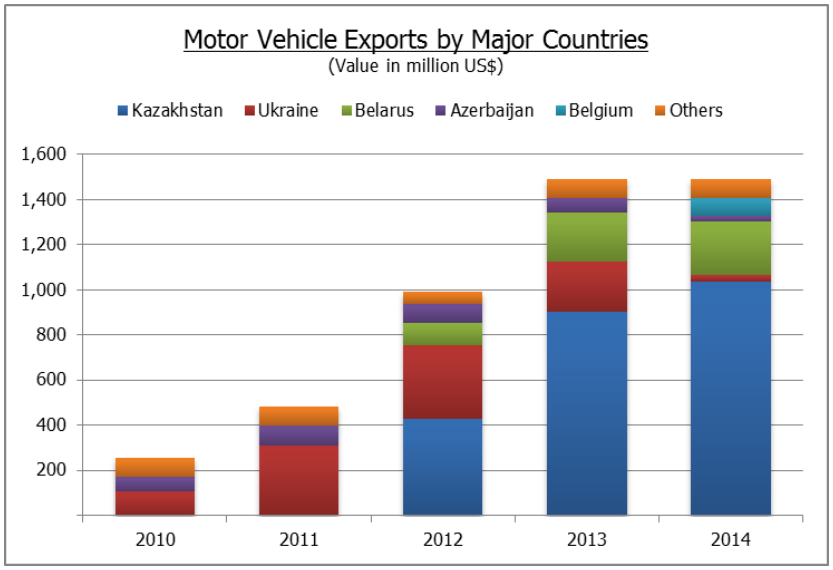
Source: UN Comtrade Database.

Country :	Russia

Export

The volume of export of motor vehicles from Russia was smaller than that of its import volume. Destinations of the vehicles were mainly Kazakhstan, Ukraine, and Belarus.

Figure A-X.2: Russia's Automobile Exports



Source: UN Comtrade Database.

Reference

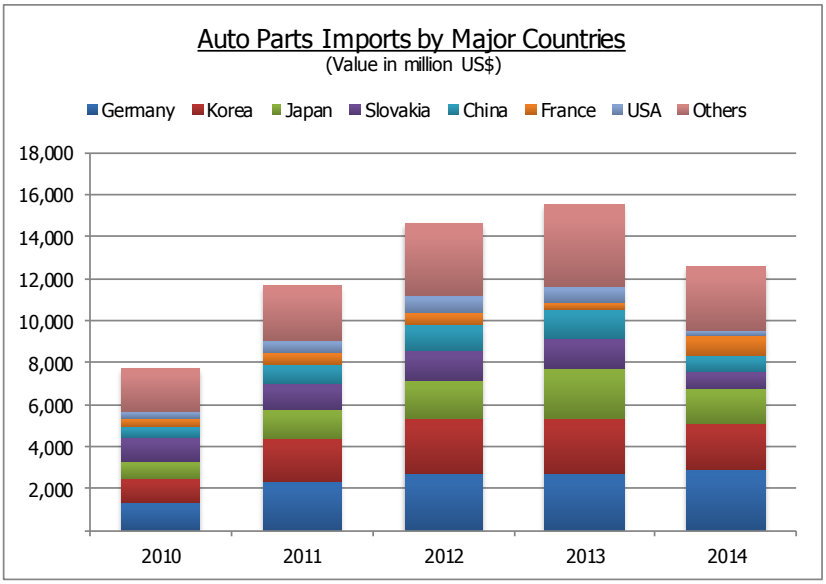
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major importers and exporters of auto parts, including used parts, for 2010-2014.

Country :	Russia

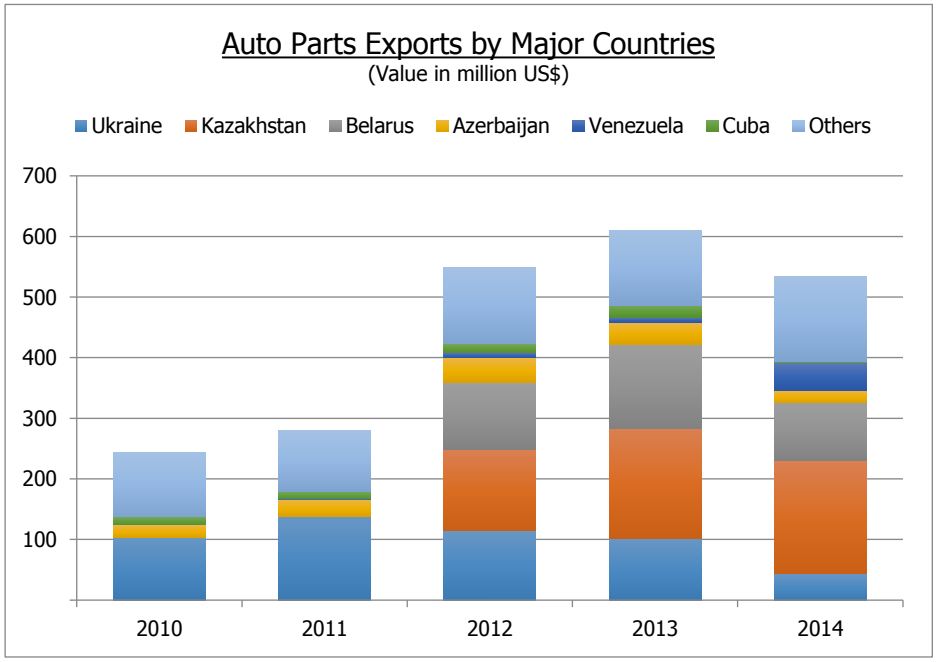
Figure A-X.3: Russia's Auto Parts Imports



USA = United States of America.

Source: UN Comtrade Database.

Figure A-X.4: Russia's Auto Parts Exports



Source: UN Comtrade Database.

Country：	Russia

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import

Trade Control

Tariffs:

- The customs duty on new cars is currently 30 percent.

Taxes:

- Imported vehicles must also pay an 18 percent VAT which is calculated on the sum of the CIF value plus the tariff.
- In 2009, the Russian Government introduced new prohibitive import taxes on used cars and trucks. As a result, the sales of used vehicles in Russia drastically reduced and currently constitute a little fraction of what it used to be before 2009.

Other:

- Russia has maintained for several years an auto-industry investment incentive program (Decree 166), which grants Customs preferences on imported auto components in exchange for investors' commitment to meet certain local content and vehicle output targets. As a result of these incentives, many foreign original equipment manufacturers (OEMs), including Ford, General Motors, Hyundai, Nissan, Peugeot-Citroen, Renault, Suzuki, Toyota, and Volkswagen, have established manufacture or assembly operations in Russia. However, in December 2011, Russia introduced a revised incentive program that exceeds Decree 166 in scope. It significantly increased the number of automobiles that each manufacturer must produce annually in Russia (from 25,000 to 350,000), raising the local content requirement from 30 percent to 60

percent. It also cited an array of specific value-added assemblies (e.g. power trains) that must be included in the local content in order to benefit from the tariff privileges.

- The Ministry of Industry and Trade is responsible for negotiations with potential investors in component projects.

Duties and Taxes

Russia implements a rather odd system of tariff for vehicles, which are determined not solely by the Customs price but also by the engine displacement. The smaller of the two regulations are applied. Temporary import for private use is exempt.

Table A-X.1: Import Duties and Taxes for Automobiles

Passenger vehicles	Unit	Import Rate
Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 87.02), including station wagons and racing cars.		
automobiles, specially meant for medical purposes	Kg	5%
vehicles operating more than 7 years after release from manufacturing plant	cc	1.4 - 3.2 EURO / cc *According to cylinder capacity
Other		25%

Cc = cubic centimetre, Kg = kilogram.

Source: Federal Customs Service.

Table A-X.2: Duties and Taxes for Automobile Parts

Bodies, parts and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- car bodies for transportation vehicles of commodity item 8703:	8707.10		
- - for industrial assembly	8707.10.100	Kg	0%

Country :	Russia		
- - Other:	8707.10.900	Kg	15%
- Other:	8707.90		
- - for industrial assembly	8707.90.100	Kg	15%
- - Other:	8707.90.900	Kg	15%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
for industrial assembly:		Kg	0%
Other:		Kg	5%

HS = Harmonised system, kg = kilogram.

Source: Federal Customs Service.

References

Federal Customs Service. http://eng.customs.ru/index.php?option=com_content&view=article&id=1690&Itemid=1913 (accessed September 2015).

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United States Department of Commerce International Trade Administration Office of Transportation and Machinery. *Compilation of Foreign Motor Vehicle Import Requirements*. http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

Country：	Russia

(4) Plans and regulations relating to vehicle registration

New Car Registration

MOTOTRER (МОТОТРЭР), the State Road Traffic Safety Inspectorate, is responsible for car registration in Russia as determined by Regulation No.938 on 'State Registration of Motor Transportation Means and Other Means of Automotive Vehicles in the Territory of the Russian Federation' in 1994. According to a news report, the annual expense for car registration in Moscow is around RUB80,000. Cars which are brought in temporally are exempt from customs duty, but they must be registered to customs. The Certificate of Transport Means Import (UVTS), issued by the Customs Service, is required to drive foreign registered cars.

Transfer of Registration

Both the previous owner and the new owner have to be present during deregistration as the mechanics compare the numbers of the engine and the chassis with those written in the car's record card or passport, the Pasport Transportnogo Sredstva (PTS) / Паспорт Транспортного Средства (ПТС), which holds all the information about a car and its owner.

After deregistration, a 'For Sale' (Dlya Prodazhi / Для продажи) notice is put on the PTS card. The car receives transit licence plates valid for a certain period and this fact is also incorporated in the PTS, together with the number of the transit plates, the date of receiving them and the term of validity. All these must be signed and stamped by the traffic police officer.

It is possible that this procedure may be carried out by the previous owner in advance and the car already has transit plates. In this case, the new owner should request from the previous owner the completed PTS card. The new owner will need to carefully check the numbers on the plates and in the paper.

In case the transfer of a car takes place between individuals, it is usual for the new owner to ask for the proof of identity and check the person's name against the name in the PTS. If the person is not the owner of the car, then the person has to have an authorised General Power of Attorney to certify his or her right to sell the car.

Country：	Russia

The next step is to make an agreement for selling and buying the car, the Dogovor kupli-prodazhi (DKP)/договор купли-продажи (ДКП). For this, the completed PTS is needed as well as identification of both the seller and the buyer. For foreign nationals, a notarised translated copy of the passport is also required, along with a visa and/or residence permit (and the Power of Attorney, if applicable).

The agreement can be made by the buyer and seller themselves or by a commission autoshop or desk, a service offered by most car dealers (komissionnyi avtomagazin/комиссионный автомагазин) where the agreement will be drawn and certified against a commission. Both the seller and the buyer should be present. After this, the PTS card is updated with the information of the new owner, the date of sale, and the DKP. Then, the PTS is signed by both seller and buyer.

After all these procedures, money can be now exchanged and the ownership of the car is transferred to the new owner. The car has transit numbers with a certain period of validity. Even for the transit period, immediate civil liability insurance (polis OSAGO/полис ОСАГО) with a term of validity of one year is necessary in order to drive the car. This can be obtained in the registration office of MOTOTRER. Before the transit term expires, the car has to be registered by the new owner and permanent Russian registration plates need to be obtained so that the car can be driven legally.

Deregistration

The owner, whether an individual or a dealer, needs to deregister the car in local offices of the State Road Traffic Safety Inspectorate called MOTOTRER.

Inspection

In January 2012, a new federal law No.170 was brought into force, regulating technical inspections for the roadworthiness of a vehicle. For cars older than three years, the technical card issued after this test is required for the compulsory OSAGO insurance policy. Cars under three years old are not required to have this test or card to arrange insurance.

Technical inspections are carried out by commercial companies, known by the law as an ‘operator of technical inspection.’

Country：	Russia

Components tested in these inspections include:

•Emission measurements;

•Steering wheel regulations;

•Head lights and fog lights;

•Windshield wipers;

•Brake systems, including the parking brake; and

•Availability of compulsory equipment: first aid kit, fire extinguisher, emergency triangle sign and a neon reflective vest.

There is no law making snow tires mandatory in Russia in winter.

If something is found that is not within the norm, the driver has 20 days to fix the problem and submit the car for another inspection, which is limited to checking only the requested issues. The price of this inspection differs depending on the individual administrative areas of Russia.

Documents required for the inspection are:

•Proof of identity of the vehicle owner; and

•Vehicle registration document, or the technical passport of the car (PTS).

After the inspection, the operator issues the technical card for the vehicle. For passenger cars older than three years but not over seven years old (including the year of manufacture), inspection is required every 24 months. For cars older than seven years (including the year of manufacture), the inspection must be carried out every 12 months. When buying a new or used car, the new owner is obliged to carry out the first technical inspection within 30 days after registration.

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Country：	Russia

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(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

When importing a motor vehicle across the Russian border, the importer must pay a deposit to Moscow's Customs in advance. The amount of the deposit depends on year of manufacturing and the engine volume in cubic centimetre.

- Cars over three years old with an engine volume of lower than 2,500 cubic centimetres - €1,500
- Cars over three years old with an engine volume of over 2,500 cubic centimetres - €3,500
- Cars under three years old with an engine volume of lower than 2,500 cubic centimeters - €7,000
- Cars under three years old with an engine volume of over 2,500 cubic centimetres - €15,000.

Used cars that are two or more years old and are imported by companies are assessed a 40 percent tariff instead of 46 percent tariff, plus excise tax, plus VAT. Individuals importing used cars pay the same tariff of about $4 per cubic centimetre of engine displacement.

Country：	Russia

Other

In the past, old cars more than 10 years old were typically left on the ground after taking out the spare parts. The periodic implementation of the 'cash for clunkers' program, is expected to help collect ELVs. The latest one started in September 2014, with more than RUB10 billion budget. In the latest round, at least RUB40,000 of subsidy was given by bringing used cars aged more than six years.

References

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Annex II

Country Reports

11. Taipei

Country :	Taipei

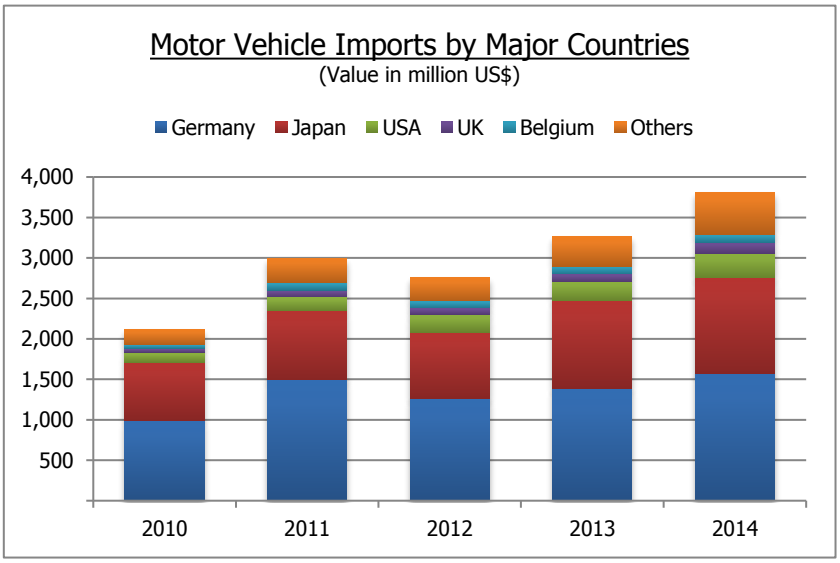
1. Current status of automobile recycling in the targeted country

(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows Taipei's automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Germany and Japan. The total import in value was over US$3,800 million in 2014.

Figure A-XI.1: Taipei's Motor Vehicle Imports



UK = United Kingdom, USA = United States of America.

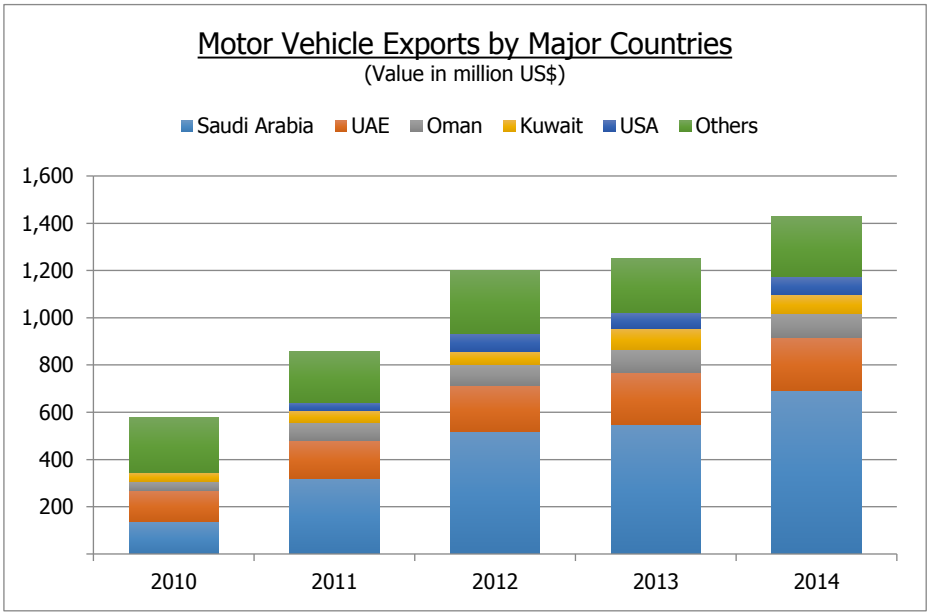
Source: Customs Administration, Ministry of Finance, Taiwan.

Export

The volume of export of motor vehicles from Taipei was smaller than that of its import volume. Destinations of the vehicles were mainly Saudi Arabia and UAE.

Country :	Taipei

Figure A-XI.2: Taipei's Motor Vehicle Exports



UAE = United Arab Emirates, USA = United States of America.
Source: Customs Administration, Ministry of Finance, Taiwan.

Reference

Ministry of Finance, Customs Administration, Taiwan.
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(3) Plans and regulations relating to import regulations

Trade Control

Even after the World Trade Organization (WTO) somewhat loosened accession, Taiwan still implements tough import barriers on cars.

Duties and Taxes

Cars costing more than $20,000 must obtain permission from the Board of Foreign Trade. Taxes charged are: import duty of 17.5 percent; commodity tax of 25 percent for ~2,000 cubic

centimetre and 30 percent for 2,001~ cubic centimetre; business tax of 5 percent; and trade promotion service fee of 0.04 percent. Cars exceeding in value above TWD 1,945,000 (2,000 cubic centimetre and under) or TWD 1,870,000 (2,001 cubic centimetre and above) would be charged specially selected goods and services tax of 10 percent. For used cars, Customs values are calculated using the method specified by Customs Administration.

Table A-XI.1: Duties and Taxes for Automobile Parts

Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	87.07.10	Kg	15%
- Other:	87.07.90	Kg	2.5 - 15%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- Bumpers and parts thereof:	8708.10	Kg	12.5%
- Other parts and accessories of bodies:	8708.20	Kg	2.5 - 15%
- Brakes and servo-brakes; parts thereof:	8708.30	Kg	5 - 15%
- Gear boxes and parts thereof:	8708.40	Kg	0%
- Drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof:	8708.50	Kg	2.5 - 15%
- Road wheels and parts and accessories thereof:	8708.70	Kg	5 - 15%
- Suspension systems and parts thereof (including shock- absorbers):	8708.80	Kg	15%
- Other parts and accessories:	8708.90	Kg	2.5 - 25%

HS = Harmonised system, Kg = kilogram
Source: Customs-Port-Trade Single Window, Customs Administration.

References

CPT Webpage. http://portal.sw.nat.gov.tw/PPL/ (accessed September 2015).

The Customs Administration, Ministry of Finance. http://eweb.customs.gov.tw/ct.asp?xItem=44745&ctNode=6493 (accessed September 2015).

Country：	Taipei

(4) Plans and regulations relating to vehicle registration

New Car Registration

Obtaining a Taiwan licence plate requires registration at the Motor Vehicle Office where a car inspection fee is charged.

Transfer Registration

The transfer of ownership must be completed at a local Motor Vehicle Office in the presence of both the previous owner and the new owner of a vehicle. Documents needed in the procedure are as follows:

•Proof of identity of both the previous and the new owner

•Driving licence

•Proof of insurance

•Copy of the licence plate registration certificate.

There is also a fee to be paid for the procedure.

Most sellers expect a deposit to be paid before transferring ownership.

Cars over ten years old and motorcycles over five years old must undergo a Provisional Inspection for Transfer of Vehicle Ownership at any Motor Vehicle Office.

Inspection

Vehicle inspection is placed under the control of the Ministry of Transport and Communications (MOTC).

Vehicles aged between five and ten years must be inspected annually. Private vehicles under five years are not subject to inspection unless they are going through a change of ownership, or have been recovered after being stolen. Private cars that are more than 10 years old must be inspected twice a year.

Commercial vehicles or those using liquid petroleum gas (LPG) or compressed natural gas (CNG)

Country：	Taipei

must also undergo an annual inspection if less than five years old and twice a year if over five years old.

The inspection must be arranged within one month before or after the due date. One can be fined if the inspection occurs after the due date and the number plates will be suspended if the time exceeds one month. The licence plates are cancelled if the inspection has not been carried out after six months from the due date.

Checks include:

•Brakes

•Lights

•Wheel alignment

•Emissions

•Specification.

Documents required:

•Vehicle Registration Licence

•Motor insurance certificate (valid for at least 30 days)

•Fee.

References

Angloinfo Webpage. http://taipei.angloinfo.com/information/transport/vehicle-ownership/importing-a-vehicle/ (accessed September 2015).

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Angloinfo Webpage. http://taiwan.angloinfo.com/transport/vehicle-ownership/vehicle-inspection/ (accessed September 2015).

Country：	Taipei

(5) Handling of imported used cars and/or accident status quo cars

Imported Used Cars

Since 2002, used vehicles manufactured in WTO countries can be imported into Taiwan. However, the car should have been manufactured in accordance with Taiwanese regulations.

Requirements are not limited to, but include:

•The vehicle meeting EUR 4 emissions standards

•The car being left-hand drive

•The car having a metric speedometre.

Imported used vehicles are subject to import duty and other levies, including commodity tax, business tax, and trade promotion service fee, as explained below.

- Customs value = FOB + F (freight) + I (insurance)
- Import Duty = Customs value × 17.5 percent
- Commodity Tax = (Customs value + Import Duty) × Commodity Tax Rate (25 percent for cars of 2,000 cubic centimetre and below; 30 percent for cars of 2,001 cubic centimetre and above)
- Business Tax = (Customs value + Import Duty + Commodity Tax) × 5 percent (Business Tax Rate)
- Trade Promotion Service Fee = Customs value x 0.04 percent (Trade Promotion Service Fee Rate).

References

Angloinfo Webpage. http://taiwan.angloinfo.com/transport/vehicle-ownership/importing-a-vehicle/ (accessed September 2015).

Country：	**Taipei**

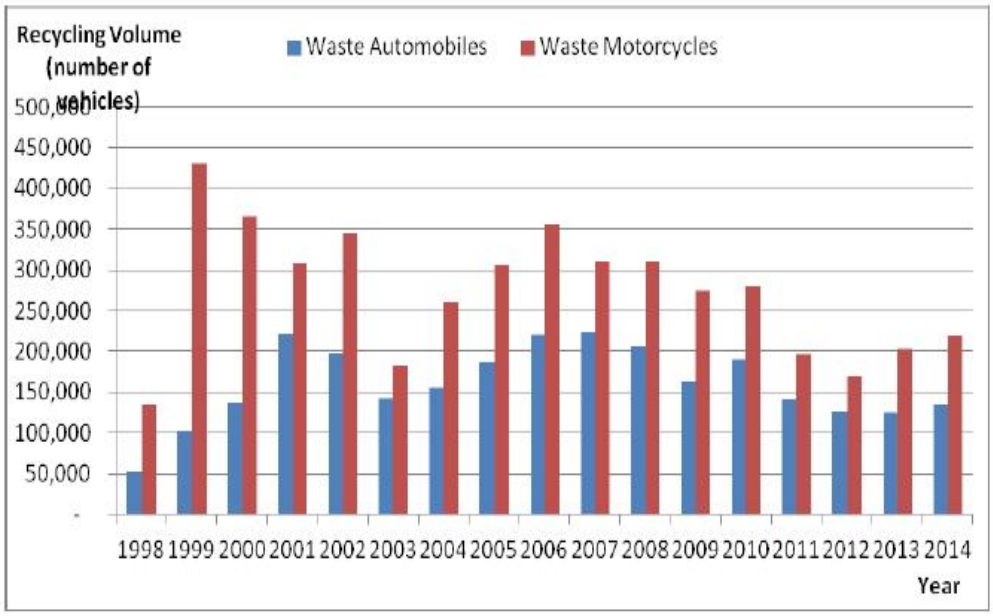
Customs Administration, Ministry of Finance. http://eweb.customs.gov.tw/ct.asp?xItem=44745&ctNode=6493 (accessed September 2015).

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

According to the Environmental Protection Administration, about 125,000 cars were recycled in 2013. The resource collection rate of waste motor vehicles in 2013 was about 65.39 percent.

Figure A-XI.3: Number of Inspected and Certified Waste Motor Vehicles Recycled



Source: Environmental Protection Administration.

The above figure describes the number of inspected and certified waste motor vehicles recycled over the past 17 Years.

Country：	Taipei

Distribution

Yulon, the largest automaker in Taiwan, plans to set up at least 30 such sales points throughout Taiwan, making MyCar the largest used car distribution mechanism on the island within the coming two years. It has an estimate annual transaction volume of over 20,000 second-hand automobiles.

Flow

Taiwan has more than 200 scrap car dismantling yards and five crushing plants. ELVs are collected through public, police, and car repair shops. In the yards, batteries, oils, and tires are taken out to avoid pollution. These materials are separately treated. The remaining body would be pressed to take out valuable metals. ASR generated is then sent to a separation factory in which iron and non-ferrous metals are recovered.

Sales Prices

Toyotas are able to command relatively high prices in the used-car market, amounting to about 70 percent of the original price for a three-year-old car. (The level is similar for another Japanese brand, Honda).

Used cars with less than one year of usage are priced at 80 percent of the new car equivalent, and an extra five percent discount is given for every additional year of usage.

Processing Situation

The 4-in-1 recycling program promoted by the EPA since January 1997 is a system that uses recycling, clearance, and disposal fees collected from manufacturers and importers to establish a recycling fund, which is then used to subsidise the recycling disposal system and extend the responsibility of these enterprises. This system provides adequate economic incentives to encourage the development of recycling and reuse industries, and to create output value and employment opportunities.

Other

Taiwan has a ‘car recycling incentive’ scheme that is similar to the ‘cash for clunkers’ programs practiced in other countries. The collection of ELVs is conducted in an organised way, equipped

with web-based reporting system for recycle businesses.

According to the statistics provided by the Recycling Fund Management Board of Taiwan, there are 303 ELV recycling operators in Taiwan and five shredding and sorting plants throughout the country.

Most of automotive companies in the Taiwan market have had similar certified-quality used-car programs known as certified pre-owned (CPO) systems.

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(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

Around 100,000 tons of tires have been recycled each year from 1999 to 2013. In 2013, the collection rate of waste tires was 62.26 percent.

Country：	Taipei

Figure A-XI.4: Volume of Inspected and Certified Waste Tires Recycled

Source: Environmental Protection Administration.

The above figure describes the volume of inspected and certified waste tires recycled over the past 17 years.

Flow

Lead-acid battery wastes are initially divided into those for machine crushing or for manual cutting. Machine crushing refers to the dismantling process where the entire lead-acid battery wastes are inserted into an equipment for crushing. The pieces will then be processed by a sorting machine to recycle the lead and plastic parts. Manual cutting involves placing the entire lead-acid battery waste on a mechanical cutting machine, then the battery's upper cover will be cut manually and the lead plate will be taken out. The plastic shell will be crushed into plastic pieces by a crushing equipment, whereas the recycled lead-containing materials will be sent to separators or refining furnaces and made into lead ingots. The lead ingots can be sold to lead-acid battery manufacturers or other metal enterprises as a raw material; and the plastic pieces can be sold to plastic manufacturers, who will reprocess them into plastic pellets as a raw material for making plastic products. The waste battery acid collected in the dismantling process will be processed by sewage treatment facilities.

The principal handling method for waste tires is to crush them into pieces or powders, which will then be reused in cogeneration plants, cement plants, paper mills as auxiliary fuels, or pyrolysis materials in some cases. By heating them and adding cement agents, rubber powders

Country：	Taipei

can also be pressed into grass planting tiles, wood protecting tiles, rubber mats, rubber trail tiles, heat (sound) insulating mats, parking bumpers, corner protector strips, hanging seats, and other crush-proof facilities. Apart from renewable products, waste tires can also be used as additives for making synthetic rubber or other rubber products.

Processing Situation

The recycling of lead-acid batteries have increased in Taiwan, reaching more than 50,000 tons in 2011-2013. The resource collection rate for lead-acid battery wastes in 2013 was 81.72 percent.

Reference

Recycling Found Management Board. http://recycle.epa.gov.tw/Recycle/en/index.html (accessed September 2015).

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading and resources: steel and non-ferrous metals

1) Steel

Volume

From 2010 to 2014, the average annual recycling volume of iron reached 55,783 tons.

Flow

After removing the paint, waste iron containers are sent to steel smelting plants as a mixed material for the smelting process, to be reused in different types of steel products.

Other

In April 2005, the motor vehicle industry took over the responsibility for crushing, sorting, and disposing waste iron containers.

Country：	Taipei

2) Non-ferrous Metals

Volume

The recycling volume of aluminum containers decreased from 4,404 tons in 2009 to 4,627 tons in 2014. The average annual certified recycling volume was 6,248 tons over the last five years.

Table A-XI.2: Recycling Volume of Waste Metal Containers over the Years

Year	Waste Iron Containers Unit: Tons	Waste Aluminum Containers Unit: Tons
2000	53,557	9,393
2001	61,489	11,295
2002	55,514	15,090
2003	43,381	12,892
2004	19,500	12,271
2005	8,589	10,669
2006	43,642	7,914
2007	41,913	6,112
2008	46,313	6,073
2009	59,454	4,404
2010	48,149	6,116
2011	64,094	5,892
2012	61,488	7,182
2013	52,497	7,422
2014	52,686	4,627

Source: Environmental Protection Administration.

Flow

The reuse method for waste aluminum containers is to smelt them first and transform them into aluminum ingots or aluminum-magnesium composite ingots, which will then be processed to make products like auto rims, and aluminum doors and windows for households.

Country：	Taipei

Other

Though quantities are unknown, the recovery of steel and non-ferrous metals in Taiwan is advanced, using metal separation equipment. Pressed car scraps are crushed by crushers. The metal dust would be separated by wind and later by magnetic separation processes. Recovered metals would be sent to respective metal plants.

References

Recycling Found Management Board. http://recycle.epa.gov.tw/Recycle/en/index.html (accessed September 2015).

Recycling Found Management Board. http://recycle.epa.gov.tw/Recycle/index2.aspx (accessed September 2015).

Annex II

Country Reports

12. Thailand

Country :	Thailand

1.The current status of automobile recycling in the targeted countries

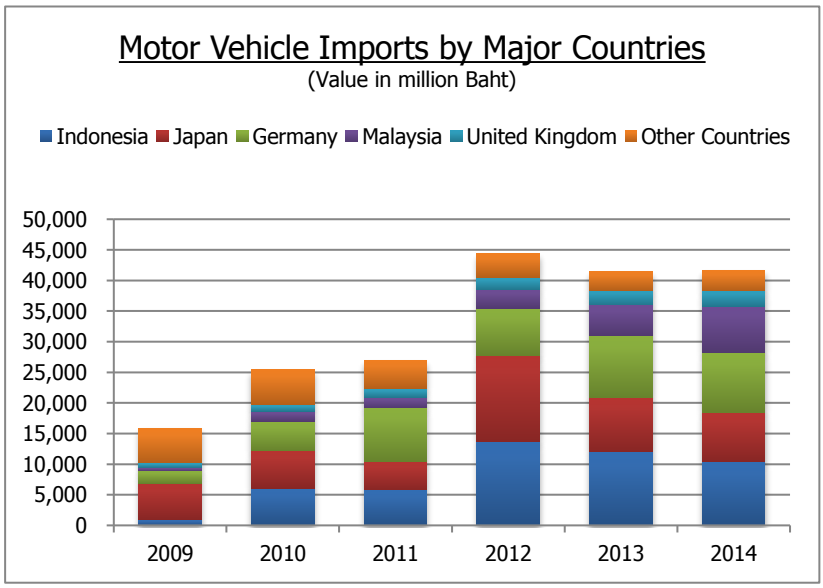
(1) Imports and exports from Japan and other countries: used cars

Import

The importation of used cars in Thailand is strictly regulated. Used/second-hand vehicles need to obtain an import permit from the Foreign Trade Department of the Ministry of Commerce. For vehicles that weigh less than 3,500 kilograms, the importer needs to obtain an import permit from the Industrial Standard Institute as well.

The cumulative bar graph shows automobile (HS code: 870321 - 870390) imports, including used cars, for 2009 - 2014. The total volume of imports in 2012 grew by 16 percent from the previous year due to the Thai Government's incentive program for first-time car buyers.

Figure A-XII.1: Thailand's Automobile Imports



Source: Thailand Ministry of Commerce.

Country :	Thailand

Table A-XII.1: Number of Used Passenger Motor Cars Exported from Japan

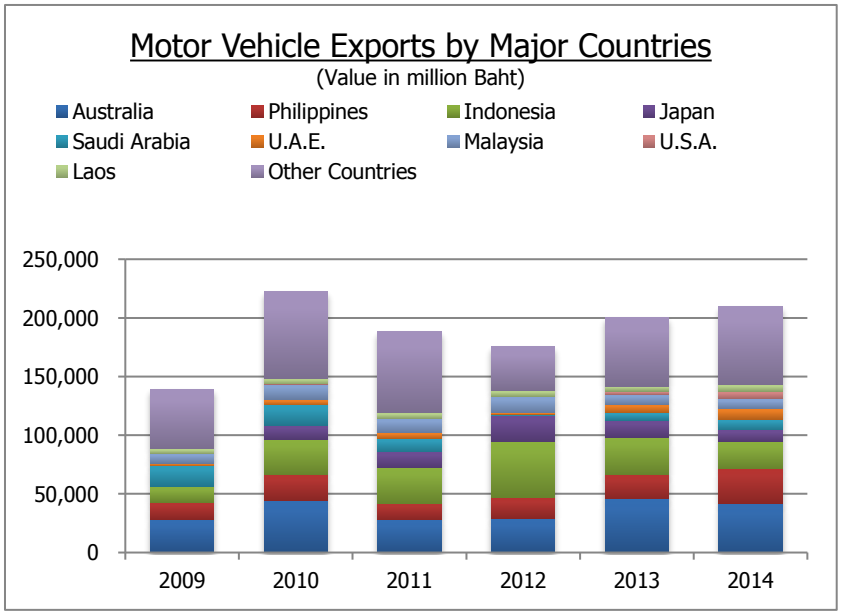
Year	2010	2011	2012	2013	2014
Thailand	11,656	9,016	5,787	5,775	7,222
World	672,627	699,881	830,703	947,990	1,059,617
Share of Thailand	1.7%	1.3%	0.7%	0.6%	0.7%

Source: Trade Statistics of Japan, Ministry of Finance.

Export

The major destinations of Thailand's automotive exports were Australia, Philippines, and Indonesia, which has accounted for about 50 percent of exports worldwide during 2012 to 2014.

Figure A-XII.2: Thailand's Automobile Exports



UAE = United Arab Emirates, USA = United States of America.

Source: Thailand Ministry of Commerce.

Country :	Thailand

References

Ministry of Commerce, Thailand. http://www2.moc.go.th/main.php?filename=index_design4_en (accessed September 2015).

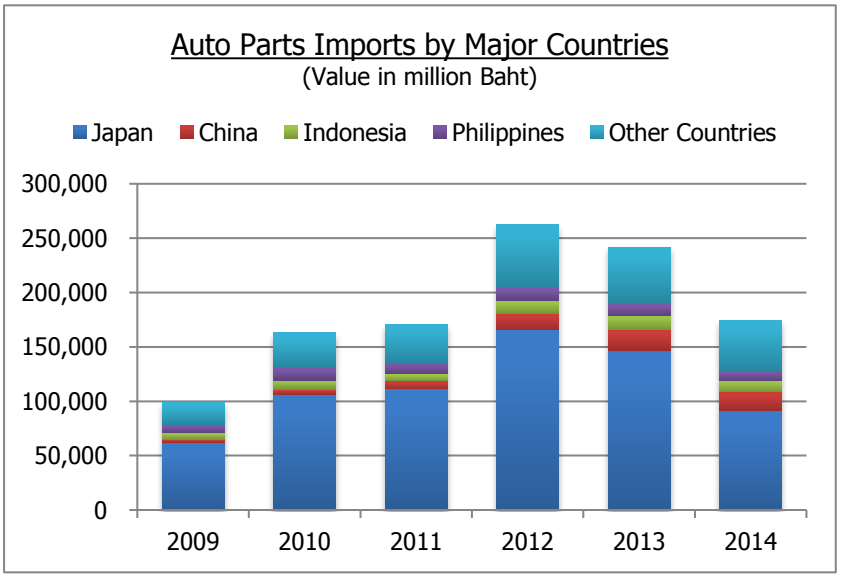
Trade Statistics of Japan Ministry of Finance. http://www.customs.go.jp/english/index.htm (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

Import

Thailand prohibits the importation of used tires, used engines, and used parts for motorcycles. The importation of used diesel engines requires an import permit. Thailand imports many half-cuts and used parts from other countries, mainly from Japan. Many used parts recyclers/traders dismantle half-cuts. Some used parts are domestically used and others are exported. For example, some diesel engines are exported to Dubai.

Figure A-XII.3: Thailand's Auto Parts Imports



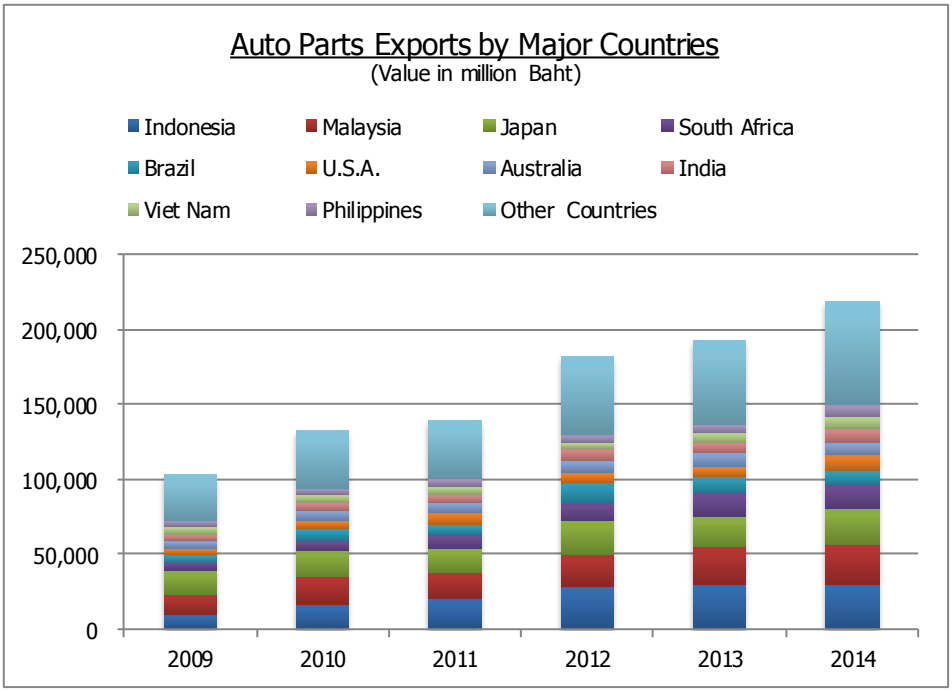
Source: Thailand Ministry of Commerce.

Country :	Thailand

Majority of Thailand's automotive parts exports are original equipment manufacturer (OEM) parts, comprising almost 75 percent of all exports. During the period, Japan was the biggest supplier, which accounted for a little over 60 percent of its global vehicle imports on average. In 2012, the Japanese trade value increased 150 percent from the previous year, largely due to the abolition of import duty on 80 auto parts under the Japan-Thailand Economic Partnership Agreement.

Export

Figure A-XII.4: Thailand's Auto Parts Exports



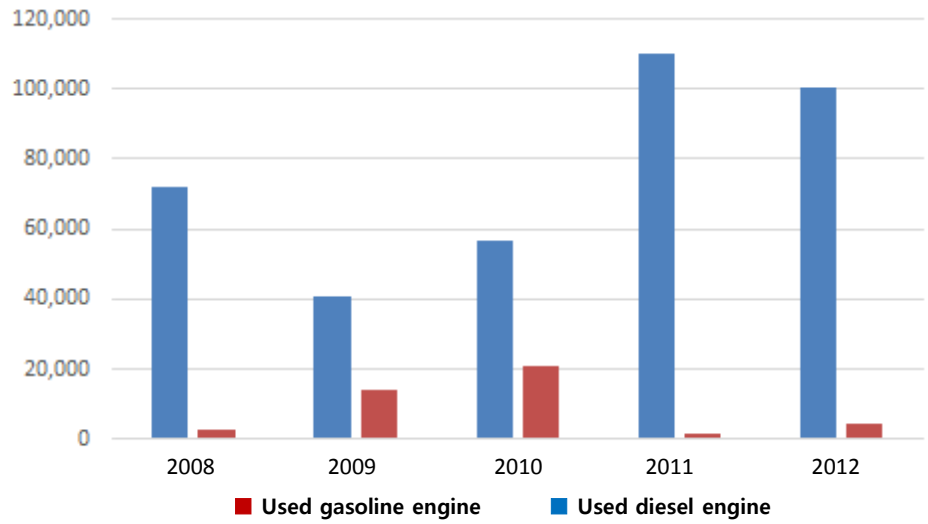
USA = United States of America.

Source: Thailand Ministry of Commerce.

The two graphs below show the import and export of used engines in Thailand for 2008-2012.

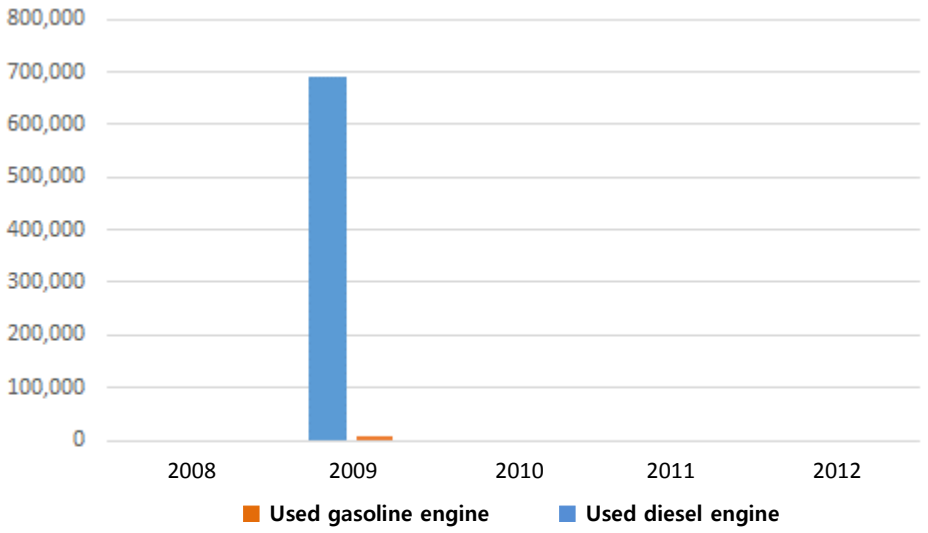
Country :	Thailand

Figure A-XII.5: Import of Used Engines



Source: United Nations Commodity Trade Statistics Database.

Figure A-XII.6: Export of Used Engines



Source: United Nations Commodity Trade Statistics Database.

Country：	Thailand

References

Ministry of Commerce, Thailand. http://www2.moc.go.th/main.php?filename=index_design4_en (accessed September 2015).

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.* Field Survey of the Study Team.

(3) Plans and regulations relating to import regulations

Trade Control

Permanent Import of Personal Vehicles

New vehicles of all types that have not yet been registered abroad are allowed to be imported without applying for an import permit from the Ministry of Commerce. However, for vehicles that weigh less than 3,500 kilograms, the importer has to obtain an import permit from the Industrial Standard Institute.

Importers of used/second-hand vehicles need to obtain an import permit from the Foreign Trade Department of the Ministry of Commerce before the arrival of the vehicles, otherwise he/she shall be liable to a fine equal to 10 percent of the price of the vehicle but not less than B1,000 or more than B20,000. For vehicles that weigh less than 3,500 kilograms, the importer needs to obtain an import permit from the Industrial Standard Institute as well.

Criteria for Permanent Import of Used/Second-hand Vehicles

- An importer is eligible to import only one used/second-hand vehicle for personal use.
- If the importer is a non-resident, he/she is required to stay in Thailand for at least one year and to present a non-immigrant visa issued by the Immigration Bureau and the National Police Office, together with a work permit issued by the Ministry of Labor and Social Welfare at the time of importation.

- If the importer is a Thai resident marrying a foreigner, he/she is required to present documentary evidence of marriage and proof of change of residence to Thailand. The importer has to own and possess the imported vehicle for at least one-and-a-half-years while staying abroad, from the date of transferring the ownership to the date of arrival in Thailand.
- If the importer is a Thai resident, he/she is allowed to import a vehicle only when such vehicle is accompanied by the owner on the change of residence and he/she has owned and possessed the imported vehicle, together with the valid driving licence for at least one-and-a-half years while staying abroad.

Duties and Taxes

According to the Customs Department of Thailand, import duties and taxes are due when importing auto vehicles to Thailand, whether by a private individual or a commercial entity. The valuation method used is the Cost, Insurance and Freight (CIF) method, which means that the import duties and taxes payable are calculated on the complete shipping value, which includes the cost of the imported vehicles, the cost of freight, and the cost of insurance. In addition to duty, imports are subject to sales tax (VAT), and in some cases, to excise tax, interior tax, and surcharge. Goods imported to Thailand are subject to a 7 percent VAT, calculated over the CIF value plus any applicable duty.

Table A-XII.2: Import Duties and Taxes for Automobiles

Vehicle Type		Import Duty	Excise Tax	Interior Tax	VAT
Passenger vehicles	Below 2,400cc	80%	35%	10%	7%
	2,400cc - 3,000cc	80%	41%	10%	7%
	3,000cc and above Or 220+ horsepower	80%	48%	10%	7%
Off-road vehicles		80%	33%	10%	7%
Pick-up trucks		60%	33%	10%	7%

Cc = cubic centimeter, VAT = Value Added Tax.

Source: The Customs Department.

Country :	Thailand

As shown in the table on Import Duties and Taxes for Automobiles, the high duty imposed on auto vehicles remains an impediment to access the Thai auto market. Ad valorem tariffs can be as high as 80 percent for imports that compete with domestically produced automobiles and parts. In addition, excise taxes on automobiles in Thailand are based on various vehicle characteristics such as engine size, weight, and wheelbase. The tax calculation remains complex and heavily favors domestically manufactured vehicles. Regarding excise taxes on automobiles, the Thai Government started taxing vehicles based on carbon dioxide (CO_2) emission rather than engine size from 1 January 2016.

Import duties and taxes on used parts and accessories are as high as used vehicles. The ad valorem rate varies from 60 percent to 80 percent. However, the following rates are variable or reduced to 0 percent, depending on economic agreements between Thailand and foreign countries

Table A-XII.3: Duties and Taxes for Automobile Parts

Bodies, parts, and accessories of the motor vehicles	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.	8707	Kg	80%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	8708	Kg	60%

HS = Harmonised system, kg = kilogram.

Source: The Customs Department, Thailand.

Other

Thailand has prohibited the importation of used vehicles and parts to protect and promote its own motor industries, as have other developing countries.

References

Hello Bangkok Thailand. http://hellobangkokthai.com/ (accessed September 2015).

Pitney Bows Global Trade Solutions. http://www.dutycalculator.com/country-guides/Import-

Country：	Thailand

duty-taxes-when-importing-into-Thailand/ (accessed September 2015).

The Customs Department. http://igtf.customs.go.th/igtf/en/main_frame.jsp (accessed September 2015).

The Customs Department. http://www.customs.go.th/wps/wcm/connect/custen/individuals/importing+personal+vehicle/importingpersonalvehicle (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

The Department of Land Transport under the umbrella of the Ministry of Transport is in charge of new car registration, transfer or selling of licences, re-registration, suspension, and deregistration.

New Car Registration

In Thailand, all types of vehicles must be registered. The Department of Land Transport (f) is in charge of car registration and inspects vehicles in the following manner:

- Private inspection stations authorised by the Department of Land Transport (DLT) carry out inspections of vehicles registered under the Motor Vehicle Act (MVA), i.e. motorcycles and taxis.
- Car owners have to pay Road Tax.
- Compulsory insurance is also required.

DLT administers two relevant pieces of legislation:

- The Motor Vehicle Act (MVA): smaller vehicles, including cars, pick-ups, and motorcycles, taxis, and so on.
- The Land Transport Act (LTA): heavy-duty diesel vehicles, including buses and trucks.

A motor vehicle shall be registered at a Land Traffic Office that has jurisdiction over the car owner's registered address. If the owner mostly wants to use the vehicle at some other area, he/she may have it registered at the Land Traffic Office with such jurisdiction.

Country：	Thailand

The tax fee for the registration depends on the type and age of the vehicle. Typically for a motorbike, it is around B300 - B400. For a car, it starts at around B1,000 (for engines up to 2,000 cubic centimetres). The average price is about B2,000 but it can go up to B6,000 to B7,000 for a 4-door pick-up and similar vehicles. The fee is the same each year for the first five years, then it is reduced by 10 percent every year up to a maximum of 50 percent.

At present, motorcycles and cars aged more than five and seven years respectively must be inspected before their motorcycle registration can be renewed. The registration system relies on a log book which is tied to the vehicle or motorcycle.

Transfer or Selling of Licence

Car owners are required to transfer of registration in case of change of ownership, colour and engine.

Re-registration

Registration of cars are required every year and the car owner has to propose certifications of automobile tax, inspection, and compulsory insurance at the time of registration.

Suspension

In case of suspension of use of a registered car over 15 days, the car owner is required to submit an application.

Deregistration

Deregistration is obliged within 15 days after the owner has stopped using the vehicle. If a car owner does not pay the registration fee for more than three years, the car will be automatically deregistered.

Inspection

Responsibilities for periodic inspection of in-use vehicles are divided as follows:

- DLT inspects vehicles regulated under the LTA;
- Private inspection stations authorised by DLT carry out inspection of vehicles registered under the MVA, i.e. motorcycles and taxis.
- The Ministry of Industry supported the improvement of automotive testing centres,

Country :	Thailand

enabling the testing centres to conduct testing according to international standards as well as testing related to non-tariff measures to trade e.g. ELV management and Volatile Organic Compounds.

- DLT established the privately operated system of inspection stations in 1994. There are 225 centres in the Bangkok Metropolitan Region (BMR) — 169 centres in Bangkok, with a further 56 in the surrounding provinces that make up the balance of the BMR. About 70 percent of the centres also repair vehicles.

Personal vehicles are required to undergo inspection every year after seven years from new registration. Commercial vehicles have to take an inspection every year after registration.

DLT has 13 staff in Bangkok who are responsible for monitoring the quality of inspections but each station is only monitored, on average, three times per year. There is no centralised reporting.

Penalties

Based on the Protection for Motor Vehicle Accident Victims Act B.E. 2535, any person who fails to subscribe to compulsory insurance or to renew the insurance in case of expiration shall be liable to a fine of B10,000 to B50,000.

Any person who drives a motor vehicle without a proper driver's licence is subject to imprisonment not exceeding one month or a fine not exceeding B1,000.

Other

Three organisations have responsibility for on-road enforcement of vehicle emissions standards. These are: The Police, under the Ministry of Interior; DLT under the MOTC; and the Pollution Control Department (PCD).

References

Motor Vehicle Act, Thailand. http://driving-in-thailand.com/motor-vehicle-act/ (accessed September 2015).

Country：	Thailand

Vehicle Registration and Inspection in Thailand.

http://infofile.pcd.go.th/air/DIESEL2_Vehicle%20Registration%20and%20Inspection.pdf?CFID=804176&CFTOKEN=86882656 (accessed September 2015).

(5)Handling of imported used cars and/or accident status quo cars

The transactions on used cars are conducted in so called 'Tents' or small retail used car dealers. Person-to-person dealing is common.

Dismantlers and used car parts dealers buy damaged cars, putting an advertisement on the web.

Accident cars and used cars are sold by auction. There are three major auction areas in Bangkok: Manheim, Apple, and Union. Some of the used cars are actually moved and shown in auction areas. For ELVs that cannot be moved, photos are shown to buyers.

Some auctions for used cars have bid prices of B294,000 and B510,000.

Reference

Yano Research Institute. *ASEAN Automobile Recycling 2014.* Field Survey of the Study Team.

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

The number of ELVs in 2014 was 163,577.

The number of used car distribution in 2013 was about 2 million.

Yano Research Institute forecast the estimate of the number of ELVs below:

Country：	Thailand

Table A-XII.4: Forecast of the Number of ELV in Thailand

Year	2013	2014	2015	2016	2017	2018	2019	2020
# of ELVs	164,934	163,577	195,214	233,902	272,002	326,282	378,430	411,596

ELV = end-of-life vehicle.
Source: Yano Research Institute.

Model years

One sample of the model year of the ELV brought to a dismantler is 1990.

Price

The price range of used cars is from B300,000 to B800,000.

Used cars ranging from B350,000 to B400,000 are popular.

According to the field survey conducted by EX Research Institute, the purchase price of ELVs range from B3,000 to B8,000.

Distribution

In Thailand, drivers continue to use old types of used cars. When used cars become older and older, they are likely to be resold from urban to rural areas or from Thailand to neighbouring countries such as Myanmar, Lao PDR, and Cambodia. Therefore, ELVs are seen in rural areas.

In most cases, used parts recycler/traders run the dismantling business. Although there are few dismantlers in the urban area, they buy old cars through the WEB advertisement or on a person-to-person basis. The old cars are dismantled and the dismantled parts are sold to end users or repair shops. Steel scraps are also sold to the scrap trading companies in the neighbouring areas.

Some of the industrial scrap trading companies are considering introducing shredders, however the amount of generation is not enough to introduce shredders for ELVs.

Processing situation

Country :	Thailand

Domestic and imported ELVs are dismantled in dismantling companies. Dismantling is conducted mainly by hand and waste oils and CFCs are not properly treated, which threatens labour safety.

Steel scraps generated in the process of dismantling are sent to recyclers and mufflers, including rare metals, which are sold to recyclers.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Volume

Used parts are imported as half-cuts or parts. According to a company interviewed by the study team, they import around 10 to 15 40-feet containers annually. EX Research Institute estimates the import of used engines to be over 100,000 units annually in 2011 and 2012.

Flow

There are huge hubs of used parts trade in Thailand. Thailand imports many half-cuts and used parts from other countries, mainly from Japan. Many used parts recyclers/traders dismantle half-cuts. Some of the used parts are used domestically and the others are exported.

Areas where used parts dealers gather are dotted in Thailand. Small-scale dealers conduct their business in those areas. There are dealers that specialise in an item and they deal with used parts coming from both inside and outside the country. These dealers send their dismantling skilled staff to dismantling workplaces in Japan and then import used parts from Japanese dismantling sites where their staff work.

Country：	Thailand

In addition, automotive repairers, parts brokers, and end users purchase parts from these used parts recyclers/traders.

As previously mentioned, the used parts could be re-exported. Thailand allows dealers to import only those which can be sold as parts if they are valuable as resources.

Sale Prices

According to the interview conducted by the field study team, some used parts are sold as follows:

- Half-cuts: Procured at B35,000 and sold at about B80,000;
- Engines: Sold at about B20,000 if the brand new part is B100,000; and
- Handles: Price with airbag is B1,200 and without airbag is B4,500 to B5,000.

Used Parts Market

Taxi companies maintain their taxis by themselves. For repair, they select new genuine parts, imitation parts, and used parts in consideration of quality and price. Used parts are used for expensive parts such as gear boxes, compressors, and the like. Imitation parts are made in China and Taiwan. An example of the price range is as follows: new genuine parts B100, imitation B30, used parts B30. For engines, people use used parts. For new model cars, there are not so many used parts available. Therefore, people use new genuine parts first and then use imitation parts after one year, and then use used parts after two or three years. Used parts shops provide two-year warranty. Recently, most used parts imported from Japan cannot be used. There is minor difference of specification between the same model sold in Thailand and Japan.

Taxi cars are allowed to be used for a maximum of nine years. After nine years, two of ten cars are stored as sources of parts for repair and the others are sold to used car dealers. Sometimes, taxi drivers buy them at low prices. Taxi drivers use them by themselves or sell them to other owners. Many of these cars are automatic and therefore the parts are not easy to utilise as second-hand.

Country：	Thailand

Used tires are sold to used tire dealers. Airbags started to be installed from 2014.

Industry Association

Thailand's Used Car Association promotes the cooperation among used car dealers by improving their marketing potential and standard of products and services to be recognised internationally.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.*
http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sale prices, processing situation, items on trading and resources: steel and non-ferrous metals

1) Steel

Steel scraps are recycled in steel manufacturing companies. Steel scraps are sent to scrap trading companies and then sold to steel manufacturing companies.

A certain level of quality must be maintained during the sorting process as the mixture of the steel and other materials causes quality deterioration. Steel scrap is subject to component analysis.

Table A-XII.5: Volume of Steel Scrap Generation in Thailand

Year	2008	2009	2010	2011	2012
Steel Scrap (ton)	2,583	2,617	3,321	2,996	2,283

Source: Nikkan Shikyo Tsushin sya.

Country：	Thailand

There are about 20 scrap recycling mills such as TATA, G Steel, GJ Steel, Siam Yamato Steel, and Triumph Steel in the country according to the Iron and Steel Institute of Thailand. The sector has a healthy appetite for steel scrap. However, the field study found that domestically generated scrap can only meet half of its overall demand of six million tons. Therefore, the sector needs to depend on foreign imports. The domestic generation comes from two sources — mill and industrial scrap generated from the manufacturing process; and post-consumer scrap including steel cans or old steel products including construction and demolition materials. The ratio seems to be 3:7 according to an industry source.

Table A-XII.6: Electric Furnace Companies in Thailand (1,000 tons per year)

Company	Crude steel: converter	Crude steel: electric furnace	Slab	Billet	Bloom
Tata Steel	500	1,480		1,480	
G steel (include GJ steel)		3,300	3,300		
Siam Yamato Steel		1,330		1,350	
others		2,380		2,380	
Total	500	8,490	3,300	5,210	0

Source: JFE Techno Research.

2) Non-ferrous Metals

Non-ferrous metals such as rare metals and copper are recycled in manufacturing companies. Non-ferrous metals are also sent to scrap trading companies and sold to manufacturing companies.

The volume of automobile catalyst generated, including that of commercial vehicle, was estimated to be about 600 tons in 2011.

For aluminum scrap, Daiki Aluminium Industry is one of the major aluminum recycling

companies and is located in Amata Nakorn Industrial Estate, Chonburi. Its production is over 5,000 tons per month. In addition to the company, there are about 100 local small companies in Thailand.

References

EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015).

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Iron and Steel Institute of Thailand. *Thailand economic and steel industry development.* http://www.oecd.org/industry/ind/50494696.pdf (accessed September 2015).

Walter J. Foley, General Manager, Federal Relations Steel Recycling Institute. *Recycling Steel Automatically-Through Resource Recovery.* http://www.seas.columbia.edu/earth/wtert/sofos/nawtec/nawtec05/nawtec05-06.pdf (accessed September 2015).

Wikrom Vajragupta, President, Iron and Steel Institute of Thailand (ISIT). *Investment Opportunity in Iron and Steel, Petrochemical and Food Processing Industry.* https://www.giz.de/fachexpertise/downloads/2012-en-wikrom-pep-informationsworkshop-thailand-eneff.pdf (accessed September 2015).

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Processing Situation

Dismantlers break used cars into parts. Waste oils and CFCs are not recycled.

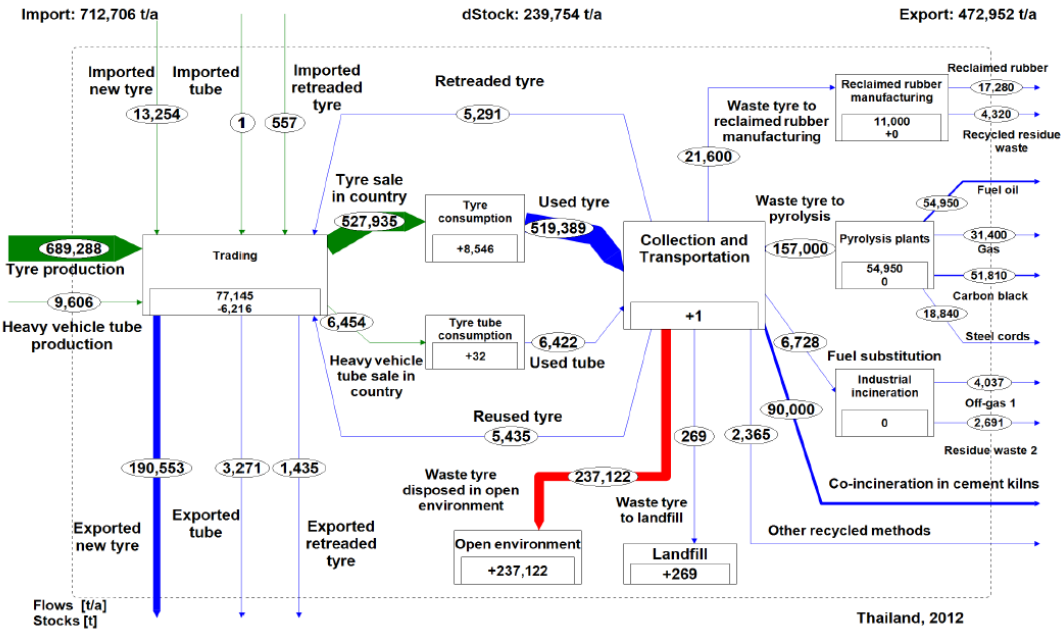
Plastics from ELVs are collected and pelletised. Plastic scraps are sold to plastic manufacturing companies or traders.

Batteries are collected by the informal sector, recycling companies (e.g. T.K. Metal Trading

Limited Partnership), and trading companies, among others. Some of the collected batteries are recycled domestically and the others are exported, mainly to China.

Approximately 529,000 tons of used tires are collected annually. Nearly 50 percent of waste tires generated go into the open environment without proper collection and treatment, while very less is recycled as reclaimed rubber. Energy contained in the tire is recovered by co-incineration and pyrolysis processes. Cement kilns are identified as one of the potential industries to utilise waste tires as fuel substitutes in their energy-intensive cement production processes.

Figure A-XII.5: Tire Recycling in Thailand



Source: Tasawan Suparat. Waste Tire Management in Thailand: A Material Flow Analysis Approach, 2013.

Waste oils and CFCs are not recycled. Waste oils and CFCs that are not properly treated may cause soil and air pollution. However, the polluter handling over 20 litres of the waste oil recycle or burn it. In some cases, waste oils are sold to collectors as valuable material.

Country :	Thailand

References

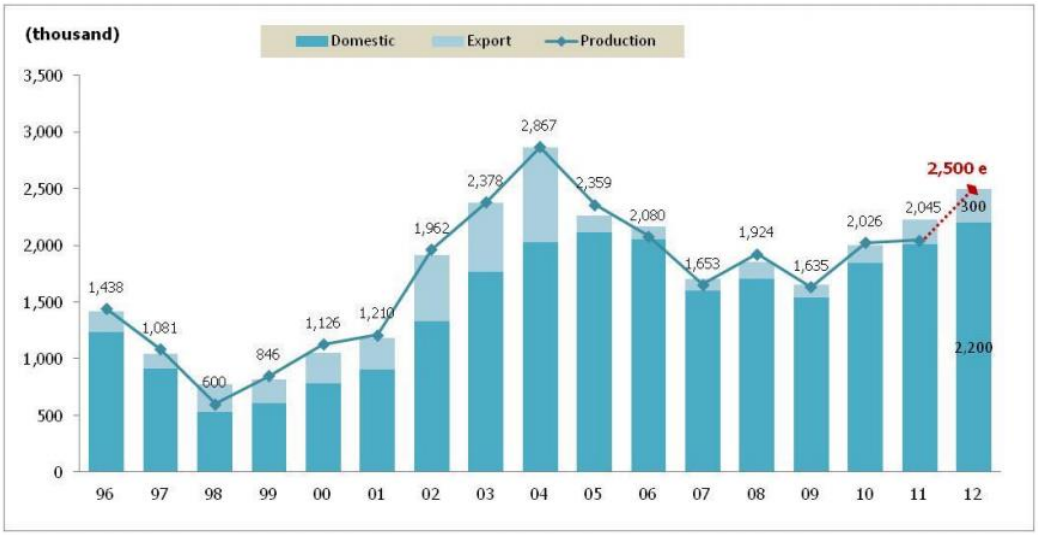
Tasawan Suparat. *Waste Tire Management in Thailand: A Material Flow Analysis Approach, 2013.* http://faculty.ait.ac.th/visu/public/uploads/images/pdf/2013/tasawan.pdf (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(10) Factual survey of end-of-life two-wheeled vehicles

Motorcycle production in Thailand is in line with automobile production. Production was on the rise after the economic crisis. In 2004, production peaked at 2.9 million units. Nonetheless, the production significantly decreased in 2005. Importers such as Viet Nam, which previously imported motorcycles from Thailand, started their own motorcycle assembly factories. They reduced their import of complete build-up units from Thailand and switched to complete knock-down units. Since 2005, motorcycle production has been stable at 2.0 million units, primarily for domestic sales. Demand is mainly for replacement of ELVs as shown in the figure below.

Figure A-XII.6: Motorcycle Production, Domestic Sales, and Exports of Thailand



Source: TAI (Thailand Automotive Institute), 2012.

Country：	Thailand

There is no reliable estimate of generation of end-of-life motorcycles. End-of-life motorcycles are sent to junk shops and parts are taken out and recycled as steel.

Reference

TAI, 2012. http://www.thaiauto.or.th/2012/ (accessed September 2015).

(11) Type of operation and number of recycling-related companies

Dismantlers

It is common for dismantlers to offer to buy damaged automobiles and ELVs at the same time they sell imported used parts and brand new parts. Dismantling seems to be conducted mainly by hand. Waste oils and CFCs are not properly treated, so these may cause soil and air pollution.

In Thailand, recyclers collect wastes from people bringing ELVs to recyclers nearby or brokers bringing them to recyclers.

Dismantlers and used parts traders who import half-cuts and used parts are located in specific areas such as Bang Na, Ptathumwang, Phaholyothin and Frontage Road. Originally, these dismantlers and used parts traders were mainly located in Ptathumwang, which is a real estate owned by Churalongkorn University. Churalongkorn University rent apartments at very cheap prices so these people come to gather in this area. In 1990, the contract between the dismantlers and used parts traders and Churalongkorn University expired. The dismantlers left Ptathumwang and moved to Bang Na and Phaholyothin Frontage Road and other areas.

Shredders

There are about 10 shredders in Thailand. Some of the industrial scrap trading companies are considering introducing shredder and guillotine shears, but the amount of ELVs generated is not enough to make the introduction of shredders and guillotine shears viable.

Country：	Thailand

Downstream Recycling Companies

After separating recyclable wastes and processing them, recyclers sell processed waste to steel plants and plastic recyclers. The precise number of dealers is unknown because special registration or permission is not required when running an automotive business. However, permission for antiquary is required when selling used parts.

Regarding battery, AP Honda is now collecting batteries from used motorcycles and sending them to T.K. Metal Trading Limited Partnership.

As for lead battery recycling, the following companies are listed on the webpage of 'Lead Battery Recycling World':

- Batterybocter, Year Established: 2000
- BNR Co., Ltd, Year Established: 2003. This company is an importer of lead batter scrap and buys 500 by 500 tons on a monthly basis.
- Thai Non-ferrous Metal Co., Ltd., Year Established: N.A
- Full Success Energy Inter-Trade Co. Ltd., Year Established: N.A.
- Krun Thai Scrap Limited, Year Established: N.A.
- Dream Town General Trading LLC Dubai UAE, Year Established: N.A.

Other Related Companies

Examples of tire recycling companies in Thailand are in the following table:

Country：	Thailand

Table A-XII.7: Types of Recycling Companies

Type of recycling	Companies
Waste tire disposal in co-incineration in cement kiln	The Pollution Control Department (PCD) reported that there are three cement plants that have the potential to use waste tires for co-processing — Asia Cement, SCG cement, and TPI Polene.
Reclaimed rubber manufacturing	According to PCD records, there are six rubber manufacturing industries, e.g. the Union Commercial Development Co., Ltd.
Tire pyrolysis plant	According to PCD and the field visit, there were 30 tire pyrolysis plants being operated in Thailand.
Used/waste-based invention factory	No official statistics.

Source: Tasawan Suparat. *Waste Tire Management in Thailand: A Material Flow Analysis Approach 2013*.

Waste tire disposal — co-incineration in cement kiln:

- Company: Siam City Cement Public Company Limited (SCCC)
- Location: 99 Moo 9 Mitrapab Rd., Tabkwang, Kaengkoi, Saraburi 18260, Thailand.

SCCC is Thailand's second largest cement producer. It is located at 99 Moo 9 Mitrapab Road, Tambon Tabkwang, Amphor Kaengkoi, Saraburi Province, Thailand. The main process used is clinker production, which requires a high temperature of up to 1,450 degrees centigrade to produce clinker from mineral ores.

The plant contains six rotary kilns of various kiln capacity. Kiln Numbers 1 and 2 can produce clinkers at 4,000 tons per day and 3,500 tons per day respectively. Kiln Numbers 3 and 4 are 5 metres in diametre by 85 metres in length, with clinker capacity of 5,500 tons per day each, and the other two biggest kilns, Numbers 5 and 6, are 6 metres in diametre by 96 metres in length, can produce 10,000 tons per day of clinker each.

Waste tires were also utilised in kiln Number 5 at the time of the first field visit, which accounted for around 0.6 percent of the total energy used in that kiln. They consumed around 150 tons per month.

Country：	Thailand

SCCC stopped using tires as alternative fuel as it caused several problems. Initially, the company used to burn whole tires of all kinds (car, truck, heavy vehicle tires) in the kiln. Though the smaller tires have no issues when they are burned, the larger tires have steel cords/metallic threads, which could not be burned completely and require high amount of oxygen for complete burning. Thus, the burning process was inefficient and the cement quality was affected. With this problem, the cement company manually removed the steel cords before burning. In addition, the tires contained high sulphur which caused high alkali-chlorine/sulphur ratio and blocked was the kiln system. Therefore, there is a need to further search for appropriate technology for waste tire disposal.

Reclaimed rubber manufacturing:

- Company: The Union Commercial Development Co., Ltd. (UCD)
- Location: Samut Prakan Province, Thailand
- Duration: 1969-present
- Funding: Bank of Thailand.

Objective of the plant:

To recycle used tires in order to reduce waste tires and protect the environment, while contributing to natural resources conservation and cost reduction in related industries.

To manufacture and supply products that meet ASTM International standards.

The main resources for reclaim rubber production are scrap trucks and bus tires. There are many suppliers that collect the waste tires for the company. The suppliers are the locals and the people from other provinces. They buy the waste tires from garage, car care shops, and tire shops. Some suppliers collect the waste tires from road sides.

Some are big suppliers that can collect big amounts of waste tires that they can separately sell to recycle companies. The suppliers cut the steel chords from the sidewalls of the tires and chop the tires into two to four pieces before delivering them to the recycled plant. The one-

half to one-quarter forms increase the transportation capacity and storage capacity.

The other resources for the reclaim rubber production include various chemicals for the de-vulcanizing process and calcium carbonate to prevent the pieces of reclaim rubber products from sticking to each other. It has no negative effect on the quality or selling price of the product. In the later processing of the reclaim rubber resource into final products such as tires, tubes, hoses, and coating, among others, calcium carbonate is generally added in a greater or lesser amount as a filler to reduce resource costs and to control moisture content.

The main resources for the production of rubber goods in the affiliated manufacture are the self-made reclaim rubbers as well as the various raw synthetic rubbers and natural rubbers. Further resources depend on the final product but might contain chemicals for vulcanizing the product as well as other materials such as fine metals, plastics, and fabrics.

The rubber recycling process produces reclaimed rubber in the form of sheets that are approximately 80 centimetres long, 40 centimetres wide and 4 to 6 centimetres thick. As mentioned above, the sheets are covered with calcium carbonate to counter the distinctive stickiness of the product. Furthermore, rubber powder and rubber granulates are produced and sold for further workmanship. The intra-corporate plant to manufacture rubber goods produces rubber-based products such as fenders, flooring tiles, rubber sheets for various applications, speed bumpers, and hoses, among others.

Tire pyrolysis plant:

- Address: Plaengyao District, Chachoengsao, Thailand 2419
- Duration: 2010 – present
- Funding: Bank of Thailand.

This pyrolysis plant was established in 2008 and is located in Plaengyao District, Chachoengsao Province. Initially, the owner sold pyrolysis reactors. However, the suppliers did not know the efficiency of the machines and they did not know the market for selling pyrolysis products. As a result, they did not want to invest in this business. So, the owner started to produce and sell pyrolysis products on his own.

The pyrolysis process produces fuel oil, carbon black, and steel wires from used tires. This

Country：	Thailand

company is registered with the Department of Industrial Works (DIW) and is certified to ISO 9001:2008. The company started operating and selling products in April 2010.

Used/waste based invention factory:

- Company: Somnuek Kanyang
- Address: Thachang, Chaleumprakiet, Nakhonratchasrima, Thailand
- Duration: 1991-present
- Total labor: 2 people.

Somnuek Kanyang, a tire recap shop, was established in 1970. The owner indicated that his father is the first person who created and invented the creative products from the waste tire, and sold the product in 1981. He also taught people who wanted to learn and be in this business. They produce waste bins, basins, flower pots, furniture, and swings.

From 1981 to 2002, the waste bin was the most famous product. The main customer was a municipality that distributes the waste bins to households to increase the amount of waste collection. This factory also sold waste bins and other products to many other provinces in the country such as Chiang Mai, Ubonratchathani, Kalasin, Bangkok, Surat Thani, Loei, and others. Moreover, the owner also exported the product to other countries.

From 2002 up to the present, the demand for waste bins decreased because the municipality preferred to use the plastic waste bins than the waste tire bins which are heavier. Moreover, the waste tire has a high price because the demand for waste tires has increased.

Shredded rubber manufacturing:

- Address: Plaengyao District, Chachoengsao, Thailand 2419
- Duration: Rayong, Thailand 21180
- Period: 2010-present
- Description: This plant buys all types rubber wastes, performs a size reduction process, and sells shredded rubber and rubber powder.

Country :	Thailand

The plant has been producing plastic pellets from plastic wastes such as PP, PE, and PVC. The company started this business in 2009. The company is interested in the rubber waste business because there are few people that know and do this business. The company also wants to learn more about the rubber recycling business. Moreover, the company changed from plastic pelletising business to rubber recycling business because that business is widely known and highly competitive.

This plant buys all types of rubber from various industries. This plant also buys damaged tires or residue rubber from tire manufacturing. Rubber processing is easier than tire processing because rubber is homogeneous. This factory produces shredded rubber in many sizes depending on consumers' requirements.

References

Lead Battery Recycling World. http://www.lead-battery-recycling.com/lead-recycler/thailand.html (accessed September 2015).

Tasawan Suparat. *Waste Tire Management in Thailand: A Material Flow Analysis Approach 2013*. http://faculty.ait.ac.th/visu/public/uploads/images/pdf/2013/tasawan.pdf (accessed September 2015).

Yano Research Institute. ASEAN Automobile Recycling 2014.

(12) Management situation of recycling-related companies

Most scraps, including valuable ELV metals, are being utilised as raw materials for recycling by billet companies through their electric-arc furnace. However, most of the scraps in Thailand are imported from neighbouring countries since the volume of scrap in Thailand is not sufficient for recycling. Currently, there are 20 steel companies with induction furnace utilising scrap as raw materials for recycling. Each company has a capacity from 100,000 tons to 1 million tons per year of scrap materials.

The recycling-related companies interviewed by the study team have about 800 employees. However, companies of this scale are exceptional. The majority of local companies have only

Country：	Thailand

several people.

The revenue of the companies interviewed by the study team varied from B30 million to B8,200 million, depending on the size and domain of the business.

Reference

Field Survey of the Study Team.

2. Current challenges and consideration in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent situations at final disposal sites, dismantling technology, safety, efficiency, and recycling rates).

There is no general regulation on ELVs in Thailand. Although there is an inspection system, the rigorous implementation of the system is not assured and this leads to the circulation of old used cars. Using old cars threatens people's safety and the environment.

Dismantling operators have to acquire a licence (DIW Code 105 and 106) under the Notification of MOI No. 15 B.E. 2544 (2001). Under the regulation, they are required to introduce appropriate pollution prevention measures. The municipalities regularly monitor the status of their implementation of the above-mentioned measures.

The dismantling business in urban areas is not expected to expand because the center of generation of ELVs is in the rural areas. Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity. Environmental measures such as the prohibition on illegal dumping of wastes and collection of CFCs and the like are insufficient. The occupational health of ELV recyclers involved in the dismantling process and downstream recycling is also a challenge. Some ELV recyclers work in bad conditions.

For the recycling technology and dismantling infrastructure, there are some local companies that have the facility to shred automobile scraps and there are rooms for improvement or sophistication of recycling technology.

Country：	Thailand

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(2) Trend in vehicle recycling policies and related automobile recycling laws, and the enforcement, presence, and details of related institutions.

There is no specific legislation on ELVs. Various environmental regulations are imposed for controlling ELV recycling. These include:

- Enhancement and Conservation of National Environmental Quality Act, B.E. 2535 (1992)
- Pollution Prevention and Mitigation Policy (1997-2016) – includes management, investment, legal, and supporting guidelines to address:
  - Water Pollution
  - Air Pollution
  - Noise and Vibration Pollution
  - Pollution from Solid Waste and Night Soil
  - Pollution from Hazardous Materials
  - Pollution from Hazardous Wastes
- Environmental Standards:
  - Water Quality (2009)
  - Air Quality and Noise (2007)
  - Soil Quality (2004).

a)The status of institutional system collateral for improper processing of three designated recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

Country：	Thailand

Due to the lack of processing facilities, CFCs are released into the atmosphere without being properly recovered.

Airbags

Currently, the proper treatment of airbags is not regulated. Cars from Japan are imported without airbags. The prices of cars with airbags are higher than those without airbags as people prefer to deal with cars with airbags.

For repair shops, cars with airbags do not lead to serious safety problems.

Automobile Shredder Residues

Advanced technologies like guillotine shears and shredders are installed in scrap trading companies in Thailand. However, there are only 10 shredders in Thailand. During shredding, the steel scraps are generated and sent to Japanese or Thailand electric furnaces. The disposal situation of ASRs generated during the shredding process is uncertain.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies (including local governments).

Most ELVs generated in Thailand are exported to neighbouring countries such as Myanmar, Lao PDR, and Cambodia. The current roles of the stakeholders under the current ELV recycling regulations are as follows.

- Importers – subject to Customs formalities (e.g. required documents, fees, re-export, and registration), depending on the type of vehicle importation (temporary or permanent)
- Manufacturers – subject to design/technical standards and regulations, vehicle registration, and taxes
- Users – compliance with transport regulations and standards (e.g. emission standards and periodic inspection, among others)
- Government agencies
    - Ministry of Commerce – issuance of permit for vehicle importation

Country：	Thailand
	○ Department of Land Transport – registration and inspection of vehicles ○ Pollution Control Department – emission testing and waste management ○ Department of Industrial Works – licensing and standard setting for wastes emanating from factories ○ Department of Energy – guidelines on fuels for vehicles ○ Police – inspection of in-use vehicles. **References** EX Research Institute. *Survey on recycling law and business in Asia 2014.* http://www.meti.go.jp/meti_lib/report/2015fy/000344.pdf (accessed September 2015). Field Survey of the Study Team. Yano Research Institute. *ASEAN Automobile Recycling 2014.*
(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban) Thailand is in its early stages of starting the ELV recycling system and considering ELV recycling regulations. The following regulations stipulate general waste management in Thailand: Enhancement and Conservation of National Environmental Quality Act, B.E.2535: The Act regulates the environmental protection plan, standards, and monitoring of industrial wastes and infectious wastes. The Act also regulates the Environmental Impact Assessment (EIA) to be applied for the industrial waste treatment facility. • The owner of the facility for treatment of polluted air, equipment or instrument for the control of the discharge of polluted air or other pollutants, or the wastewater treatment or waste disposal facility shall have the duty to collect statistics and data, and to make detailed notes thereof to be kept as recorded evidence; and shall submit a report summarising the functioning results of the facility, equipment or	

instrument to the local official of the locality at least once a month.

- The local official gathers the reports received and sends them to the pollution control official, who has jurisdiction over that locality, on a regular basis at least once a month. In doing so, the local official may make comments for consideration of the pollution control official.
- Any person who renders services for wastewater treatment or waste disposal without licence shall be punished by imprisonment not exceeding one year or fine not exceeding B100,000 or both.

Factory Act B.E. 2535:

The relevant rules of the Factory Act stipulate safe transportation, container, storage site, and so on, of the hazardous materials. The Authority, the person appointed by the Minister for the execution of this Act, has the following powers:

- To enter a factory or building, place or vehicle suspected to engage in a factory business, to inspect the condition of the factory, building, place or vehicle, the condition of the machines or any act that may violate the provisions of this Act.
- To take the specimens of products suspected of their quality in a reasonable quantity for inspection of their quality together with relevant documents.
- To inspect, search, detain, seize or attach the products, containers, books of accounts, documents or any relevant articles where there is reasonable ground to suspect that the business engagements of the factory may cause harm to the people or property in the factory or its vicinity, or an offence under this Act has been committed.
- To summon in writing any person to testify or to submit any document or object for consideration.

Any person obstructing or failing to facilitate the Authority who performs the duties mentioned above shall be subject to an imprisonment not exceeding one month or a fine not exceeding B20,000 or both.

Country :	Thailand

Hazardous Substances Act B.E. 2535:

The Act stipulates the rules and standards on importation/exportation, production, transportation, use, and disposal of the hazardous substances. The competent official, the person appointed by the responsible Minister for the execution of this Act, shall have the following powers:

- To enter into the place of business that is relevant to the hazardous substance, the place of production or storage of hazardous substance, or any other place suspected to be used as that place; or to enter into the vehicle carrying or suspected of carrying hazardous substance in order to inspect hazardous substance, container of hazardous substance, books of accounts, documents or other things relating to hazardous substances.
- To take hazardous substances or substances suspected to be hazardous in a reasonable amount as specimen for inspection.
- To search for, detain, seize or attach hazardous substances, containers of hazardous substances, books of accounts, documents or relevant things if there is a reasonable ground to suspect that an offence under this Act has been committed.
- To summon any person in writing to give a statement or to submit any document or thing for consideration.

A person who fails to render the appropriate facility to the competent official in the performance of his/her duty shall be liable to imprisonment for a term of not exceeding one month or to a fine not exceeding B10,000.

Industrial Estate Authority of Thailand Act B.E. 2522:

The Act regulates the authority of industrial estates on the treatment method of industrial wastes and hazardous wastes.

The competent official, the person appointed by the Minister for the execution of this Act, shall have the power to enter any place of an industrial entrepreneur, trader or business entrepreneur which is beneficial to, or connected with, an industrial undertaking or commerce located in an industrial estate; or to examine any document or object which relates to a

Country :	Thailand

business undertaking by any person presenting at that place as necessary. In this case, such entrepreneur shall render appropriate facilities. If the competent official is going to enter the place, the Governor or the person entrusted by the Governor shall have a written notification to the industrial entrepreneur, trader or business entrepreneur not less than 24 hours in advance, provided that the Governor or the person entrusted by the Governor is of opinion that it is urgent.

Whoever fails to render facilities to the competent official or obstructs or fails to render facilities to the competent official shall be liable to a fine not exceeding B5,000.

The Notification on treatment of industrial waste (2005):

This Notification is published based on the Factory Act. The Notification classifies the hazardous waste and lists the hazardous waste relating to ELV in the classification.

The following table lists the wastes defined by the Notification relating to the ELV. Any waste whose six-digit code is marked with 'HA' (Hazardous waste – Absolute entry) or 'HM' (Hazardous waste – Mirror entry) is a hazardous waste according to characteristics. However, the 'mirror entries' cover wastes that have the potential to be either hazardous or non-hazardous, depending on their actual composition and the concentrations of 'dangerous substances' within the waste. Therefore, for waste that is marked 'HM', analysis should be performed according to the criteria prescribed to demonstrate whether or not waste is hazardous according to this Ministerial Notification.

Country :	Thailand

Table A-XII.8: Hazardous waste list of The Notification on treatment of industrial waste

Code	Type	Hazardous Wastes
1301	HA	Waste hydraulic oils
1302	HA	Waste engine, gear and lubricating oils
1307	HA	Wastes of liquid fuels
1406	HA	Waste organic solvents, refrigerants and foam/aerosol propellants
1601		End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 1606 and 1608)
160103		End-of-life tires
160104	HM	End-of-life vehicles
160106		End-of-life vehicles, containing neither liquids nor other hazardous components
160107	HA	Oil filters
160108	HM	Components containing mercury
160109	HA	Components containing PCBs
160110	HA	Explosive components (for example air bags)
160111	HM	Brake pads containing asbestos
160112		Brake pads other than those mentioned in 160111
160113	HA	Brake fluids
160114	HM	Antifreeze fluids containing dangerous substances
160115		Antifreeze fluids other than those mentioned in 160114
160116		Tanks for liquefied gas
160117		Ferrous metal
160118		Non-ferrous metal
160119		Plastic
160120		Glass
160121	HM	Hazardous components other than those mentioned in 160107 to 160111 and 160113 and 160114
160122		Components not otherwise specified
160180	HA	Radiator coolant fluids containing dangerous substances such as glycol
160181		Radiator coolant fluids other than those mentioned in 160180
160199		Wastes not otherwise specified
1606		Batteries and accumulators
160601	HA	Lead batteries
160602	HA	Ni-Cd batteries
160603	HA	Mercury-containing batteries
160604		Alkaline batteries (except 160603)
160605		Other batteries and accumulators
160606	HA	Separately collected electrolyte from batteries and accumulators
1608		Spent catalysts
160801		Spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 160807)
160802	HM	Spent catalysts containing dangerous transition metals (transition metals are scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron nickel, zinc, zirconium, molybdenum and tantalum) or dangerous transition metal

Country :	Thailand	
		compounds
160803		Spent catalysts containing transition metals or transition metal compounds not otherwise specified
160804		Spent fluid catalytic cracking catalysts (except 160807)
160805	HM	Spent catalysts containing phosphoric acid
160806	HA	Spent liquids used as catalysts
160807	HM	Spent catalysts contaminated with dangerous substances

HA = Hazardous waste – Absolute entry, HM = Hazardous waste – Mirror entry, HS = Harmonised System, PCB = Poly Chlorinated Biphenyl.
Source: The Notification on treatment of industrial waste (2005).

The Notification also covers the following management method of waste:

- Landfill: There shall be a lining system, a leakage detection system, a gas ventilation system, and a leachate treatment system appropriate for type and characteristic of wastes without adverse effects on the environment. It must also be approved by the Department of Industrial Works.
- Incineration of non-hazardous wastes shall be done so that stack emission is in compliance with the Notification of Ministry of Science Technology and Environment regarding the emission standard for solid waste incinerators dated 17 June 1997 (B.E. 2540). Incineration of hazardous wastes is not allowed unless it is approved by Department of Industrial Works.

Reference

Yano Research Institute, *ASEAN Automobile Recycling 2014.*

Annex II

Country Reports

13. United Arab Emirates

Country :	United Arab Emirates

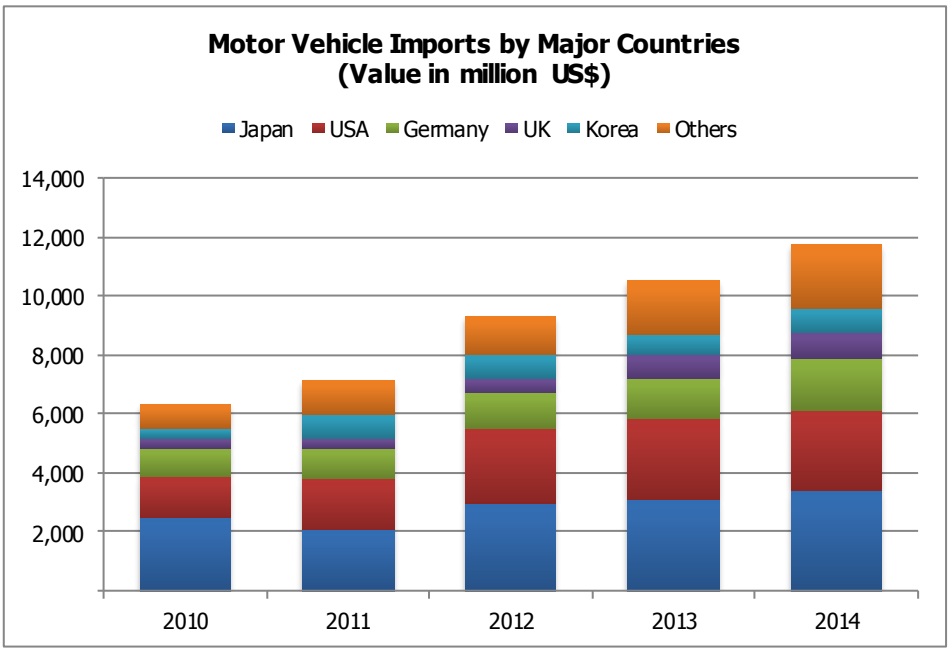
1. Current status of automobile recycling in the targeted country

(1) Imports and exports from Japan and other countries: used cars

Import

The following graph shows United Arab Emirates (UAE) automobile imports, including used cars, for 2010-2014. The big suppliers during this period were Japan, USA, and Germany. The total import in value was over US$11,700 million in 2014.

Figure A-XIII.1: UAE's Automobile Imports



UAE = United Arab Emirates, UK = United Kingdom, USA = United States of America.

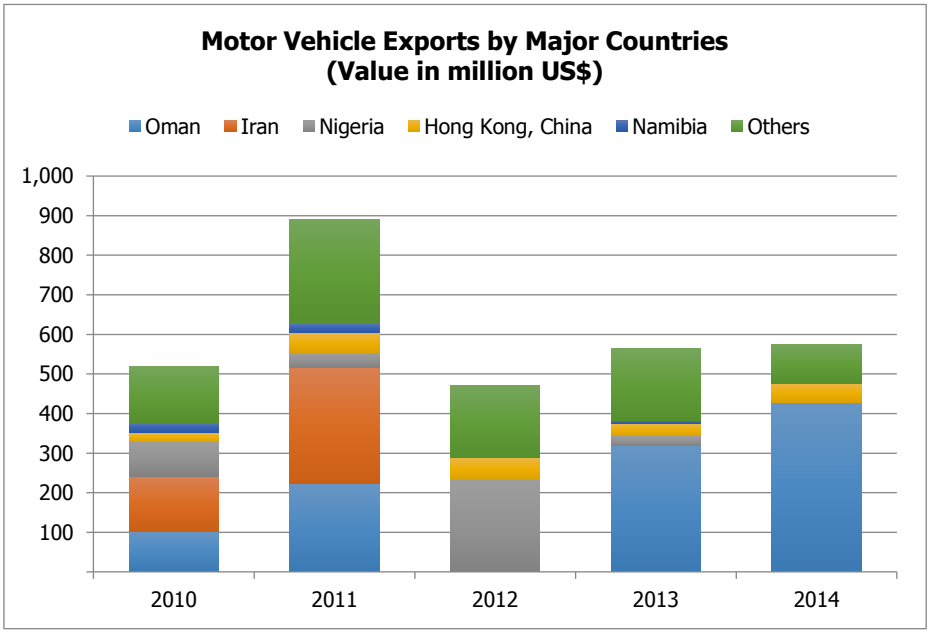
Source: UN Comtrade Database.

Country：	United Arab Emirates

Export

The volume of export of motor vehicles from UAE is basically smaller than that of its import volume. The destination countries varied, depending on the year. For 2014, Oman was the top importer, reaching about US$430 million.

Figure A-XIII.2: UAE's Automobile Exports



UAE = United Arab Emirates.
Source: UN Comtrade Database.

Reference

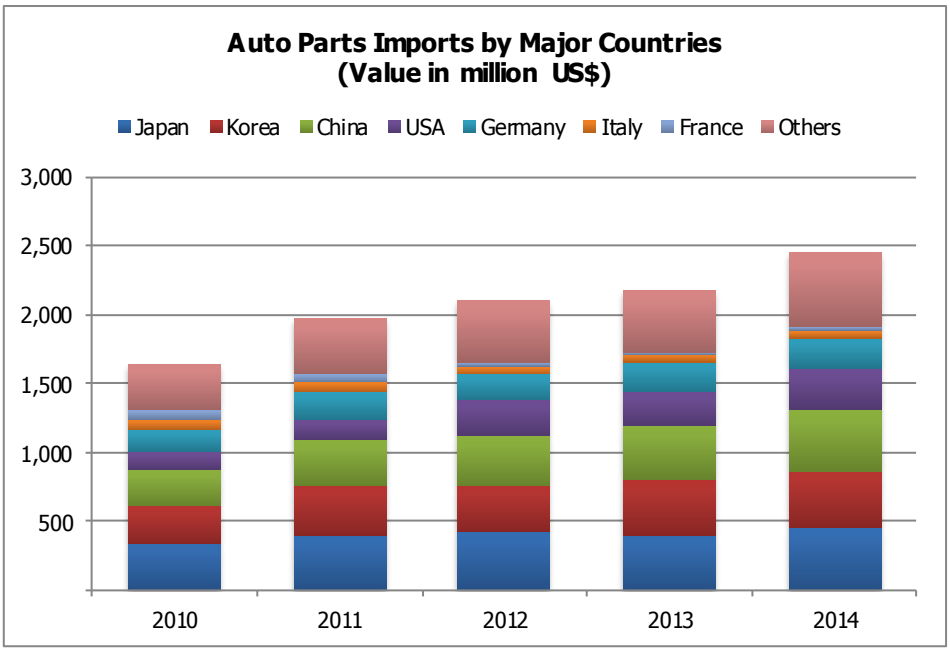
United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

The two graphs below show major UAE's importers and exporters of auto parts, including used parts, for 2010-2014.

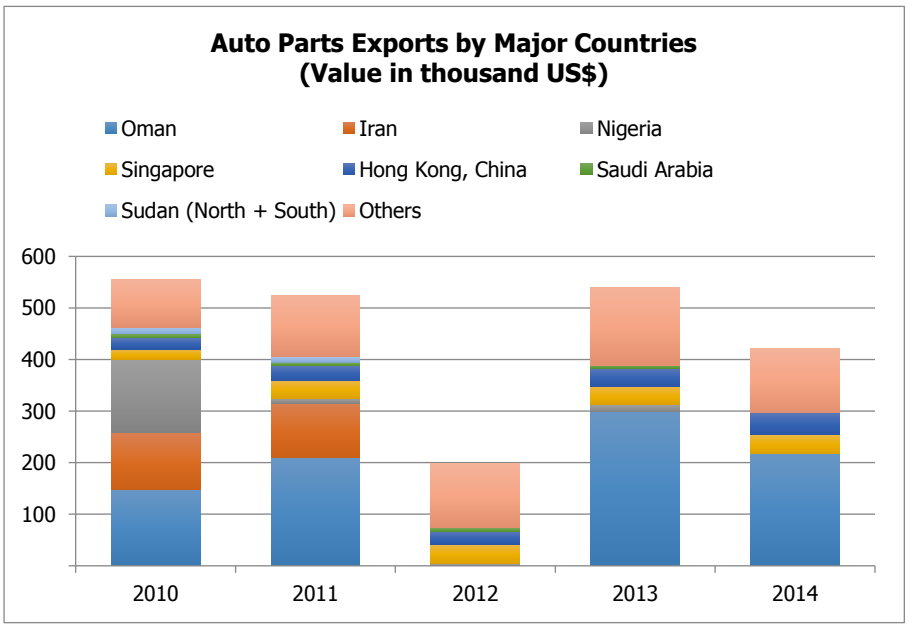
Country :	United Arab Emirates

Figure A-XIII.3: UAE's Auto Parts Imports



UAE = United Arab Emirates, USA = United States of America.
Source: UN Comtrade Database.

Figure A-XIII.4: UAE's Auto Parts Exports



UAE = United Arab Emirates.
Source: UN Comtrade Database.

Country：	United Arab Emirates

Reference

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(3) Plans and regulations relating to import regulations

Trade Control

Tariffs:

- The tariff applied to cars is five percent (five percent Customs duty on the value of the vehicle + one percent insurance + cost of the shipment).
- The tariff applied to trucks is 12 percent.
- The tariff for auto parts (HTS 8407-08 and 8708) is four percent (Customs duty at four percent on total CIF value. However, Customs may charge different increased percentages according to commodities).

Taxes:

- No VAT
- Special tax depending on fuel type – N.A.
- Luxury tax – N.A.
- Special Consumption tax – N.A.

Import Restrictions:

- The vehicle must conform to the State standards and the steering wheel must not be modified.
- There must be no damages on the vehicle's outer body. If damage occurs at the arrival port, a certificate from the competent authorities is required to be submitted accordingly.

Country：	United Arab Emirates

- Vehicles that have been subject to accidents such as drowning, fire, collision, rollover, and the like are not allowed to be imported.
- Vehicles used as taxicabs or by the police force are not allowed to be imported.
- The importer's residence authorisation (residency) must be valid if the importer is not a citizen of any of the GCC States.
- It is permissible to import more than one vehicle per year if the importer does not have a commercial registration legalising business activity in vehicle sale and import.

Procedure:

- Submit the required documents including the certificates issued by the traffic department from the country of export and shipping documents to Customs.
- Pay Customs duties.
- Customs will view the vehicle to ascertain that the value given in the export declaration is correct. If the value is inconsistent with that of the invoice, the importer will have to pay the duties based on the Customs estimation.
- After paying the Customs duty, the importer will be given a certificate of registration addressed to the Traffic and Licensing Department.
- Approach the Traffic and Licensing Department to register the car locally.

References

Abudhabi e-government.
https://www.abudhabi.ae/portal/public/en/business/international_trade/import_and_export/gen_info92?docName=ADEGP_DF_175900_EN&_adf.ctrl-state=16qc3fxq36_4&_afrLoop=14109981087310913#%40%3FdocName%3DADEGP_DF_175900_EN%26_afrLoop%3D14109981087310913%26_adf.ctrl-state%3D106sxihbpq_9
(accessed September 2015).

Dubai Customs.

Country：	United Arab Emirates

http://www.dubaicustoms.gov.ae/en/eServices/ServicesForIndividuals/Pages/ClearanceOfPersonalEffects.aspx (accessed September 2015).

United States Department of Commerce, International Trade Administration Office of Transportation and Machinery. *Compilation of Foreign Motor Vehicle Import Requirements.* http://trade.gov/static/autos_report_tradebarriers2011.pdf (accessed September 2015).

(4) Plans and regulations relating to vehicle registration

The Traffic Law in UAE stipulates the need to inspect and register vehicles before these vehicles are allowed to be used on the road, in accordance with the approved technical standards and specifications.

There are general requirements for vehicle registration and licensing set by the Licensing Agency of RTA. There are special conditions that vary depending on specific requirements of each vehicle type.

General Requirements:

1. A traffic file must be created under the name of the person or entity.
2. Vehicle registration is available for UAE citizens, GCC citizens, and residents if they meet all requirements for opening a traffic file. For registering company vehicles, the company trade licence must be issued from the Emirate of Dubai.
3. The vehicles must pass technical inspection, which includes light vehicle inspections from other Emirates.
4. Vehicle Insurance.
5. Colour and engine changes or any additions to the vehicle are to be approved by the technical inspection department at the service centres.

New Car Registration

In Abu Dhabi, an imported car must be registered at the Traffic and Licensing Department. The certificate of registration issued by Customs is required.

Country：	United Arab Emirates

The Customs certificate and other documents are required for car registration at the RTA.

Re-registration

Motor vehicle licences in Dubai need to be renewed annually. When buying a new car or motorcycle, the formalities of initial registration are generally dealt with by the dealership. Thereafter, the car can be re-registered through selected insurance companies or by visiting an RTA Customer Centre or approved testing facility.

There are eight insurance companies approved to offer registration renewal services to their insurance policy holders: AXA Insurance, Fujairah Insurance, National General Insurance, Noor Takaful, Oman Insurance, Orient Insurance, RSA Insurance, and Salama Insurance.

Owners of new vehicles that do not need testing and vehicles that have already been tested can renew their registration through the RTA website and over the phone.

Transfer Registration

The service is provided to nationals of Gulf Cooperation Council (GCC) nationals or residents of UAE.

In Abu Dhabi, the process will cost Dh200 for light vehicles and Dh300 for vehicles heavier than 3 tons but less than 12. In Dubai, it will cost Dh430 for new number plates.

Unlike other emirates, Dubai will not provide export number plates to transport the vehicle from Dubai. The new owner must arrange for lorry transport to the new location, which costs Dh400 to Dh600.

Deregistration

Owners can take a step of de-registration with their Export Insurance Certificate along with your vehicle registration card, driving licence, and your number plates (that you should be carrying with you). Owners might also need additional documents such as a mortgage release letter if that is applied.

Inspection

New cars and motorcycles are exempt from the yearly vehicle inspection for the first three years. All vehicles over three years old must undergo an annual roadworthiness test. Vehicle

inspections and licence renewals can usually be done at the same time. A list of test centre locations can be found on the websites above and on the RTA website.

In Dubai, vehicle testing can be completed at RTA Customer Centres or at an Eppco, Shamil, or Wasel testing facility.

Many drivers bring their vehicles to the inspection facilities themselves. Additional options include hiring a company to collect and return the car or arranging for a call out inspection with Wasel Vehicle Testing. For those attending in person, a time of approximately 30-45 minutes is quoted for the testing process, subject to a testing bay being available on arrival.

The annual vehicle inspection includes checks on brakes, wheel alignment, emissions, electrics, lights and general bodywork. If vehicle registration has lapsed for two years or more, the RTA may decide to write off the car.

Environmental Control

Vehicle inspection system is in place, however, there is no indication that emissions testing is included. Around 50 parts per million (ppm) in Dubai city commenced with the introduction of Euro IV buses in 2009.

References

Abudhabi e-government. https://www.abudhabi.ae/portal/public/en/business/international_trade/import_and_export/gen_info92?docName=ADEGP_DF_175900_EN&_adf.ctrl-state=16qc3fxq36_4&_afrLoop=14109981087310913#%40%3FdocName%3DADEGP_DF_175900_EN%26_afrLoop%3D14109981087310913%26_adf.ctrl-state%3D106sxihbpq_9 (accessed September 2015).

Angloinfo. http://dubai.angloinfo.com/information/transport/vehicle-ownership/vehicle-registration/ (accessed September 2015).

Country：	United Arab Emirates

(5) Handling of imported used cars and/or accident status quo cars

As import restrictions for vehicle emission standards, the vehicle must conform to State standards and the steering wheel must not be modified. There must be no damages on the vehicle's outer body. Vehicles used as taxi cabs or used by the police are not allowed to be imported. It is permissible to import more than one vehicle per year if the importer does not have a commercial registration legalising business activity in vehicle sale and import.

Reference

UNEP. *Status of Fuel Quality and Vehicle Emission Standards: Middle East West Asia (MEWA).* http://www.unep.org/transport/PCFV/PDF/Maps_Matrices/MENAWA/matrix/Vehicles/MEWA_VehicleMatrix_Jan2012.pdf (accessed September 2015).

Annex II

Country Reports

14. Viet Nam

Country：	Viet Nam

1. Current status of automobile recycling in the targeted country

(1) Imports and exports from Japan and other countries: used cars

Import

The total number of imported cars was 17,692 in 2013.

The total number of cars imported from Japan was 115 in 2012 according to the Japanese Ministry of Finance. However, Viet Nam statistics show 1,353 cars.

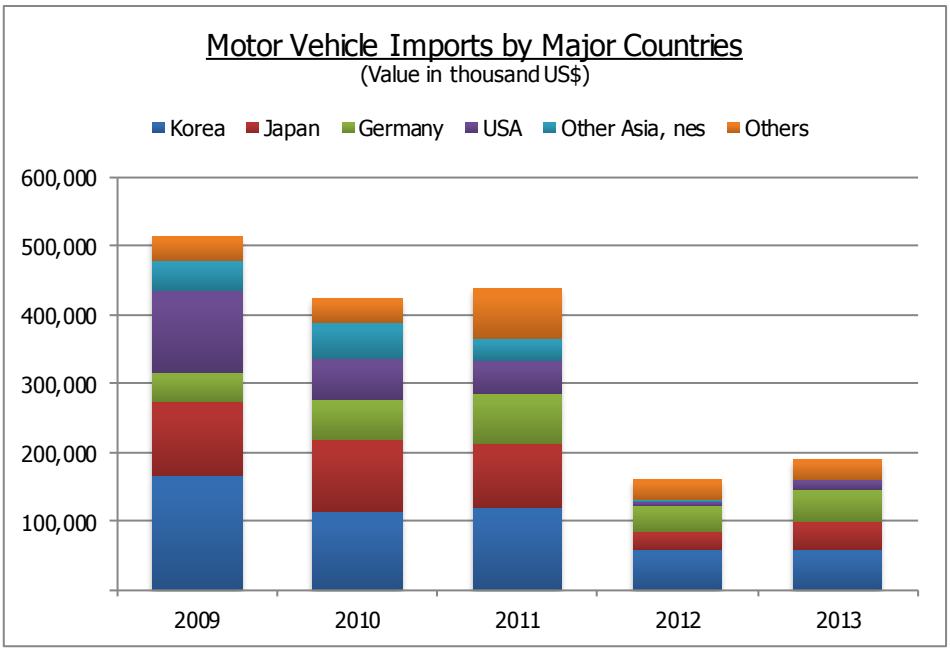
Because the trading data in Viet Nam does not separate categories into used cars and new cars, the accurate number of total used cars imported could not be confirmed. However, we were able to estimate the rough number by adding the number of used cars exported to Viet Nam from over 32 countries, including Japan, which was about 8,725 cars. The ratio of Japanese cars was 1.3 percent.

Thus, it could be concluded that the number of imported used cars is scarce because it is technically impossible to import used cars for business. On the other hand, considering the data that there are certainly a few used cars exported from Japan to Viet Nam and from other countries, we cannot deny the possibility that there might be some illegal used car imported.

The following graph shows Viet Nam's automobile (HS code: 870321 - 870390) imports, including used cars, for 2009-2013.

Country :	Viet Nam

Figure A-XIV.1: Viet Nam's Automobile Imports



USA = United States of America.
Source: UN Comtrade Database.

Table A-XIV.1: Number of Used Passenger Motor Cars Exported from Japan

Year	2010	2011	2012	2013	2014
Viet Nam	5	1	1	10	2
World	672,627	699,881	830,703	947,990	1,059,617

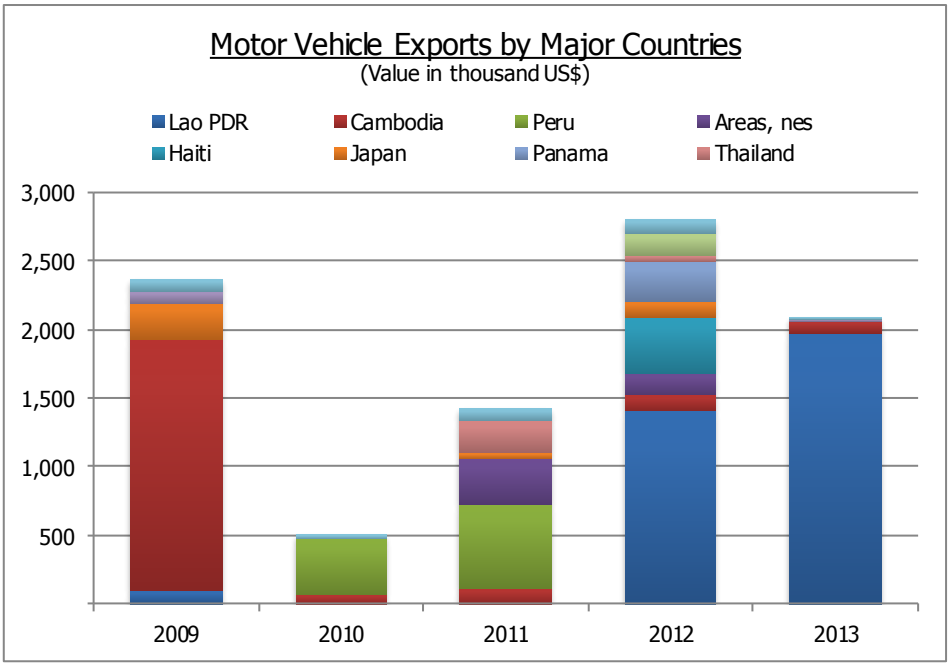
Source: Trade Statistics of Japan Ministry of Finance.

Export

According to the Vietnamese trading statistics, the number of new and used cars exported in 2012 was 110. The limited number of distribution in its own country might be the explanation for this number.

Country :	Viet Nam

Figure A-XIV.2: Viet Nam's Automobile Exports



Source: UN Comtrade Database.

References

Trade Statistics of Japan Ministry of Finance. http://www.customs.go.jp/english/index.htm (accessed September 2015).

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(2) Imports and exports from Japan and other countries: used parts

Import

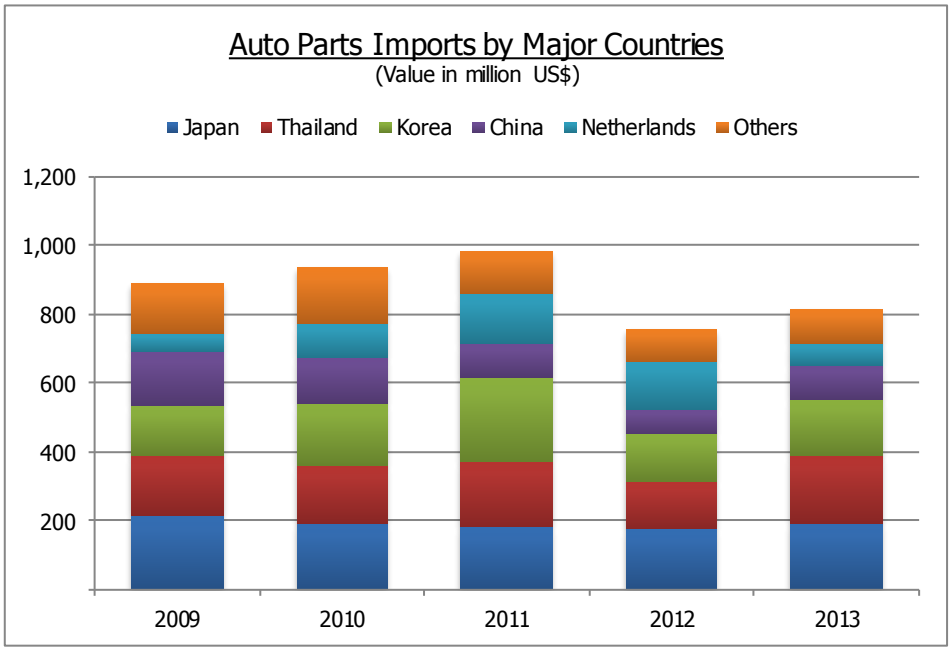
In Viet Nam, the importation of used parts is prohibited by the trading system rules (Decree 12/2006/ND-CP).

Assuming there are not so many used parts distributed within the country because of the regulation stated above, there should not be a lot of exportation of used parts going on in Viet Nam.

Country :	Viet Nam

On the other hand, according to the trade statistics of Japan, the importation of used parts from Japan is ¥25,555 million.

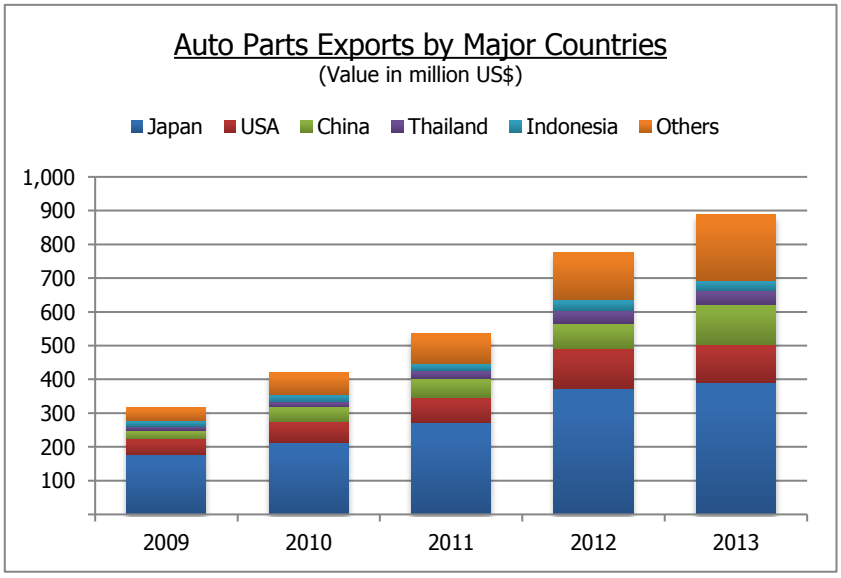
Figure A-XIV.3: Viet Nam's Auto Parts Imports



Source: UN Comtrade Database.

Export

Figure A-XIV.4: Viet Nam's Auto Parts Exports



USA = United States of America.
Source: UN Comtrade Database.

Country：	Viet Nam

References

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(3) Plans and regulations relating to import regulations

Trade Control

A used automobile may be imported to Viet Nam but the import duties are high and the procedure is a complicated one. The present owner of the vehicle must be the original owner. If the automobile has changed ownership since the original title was issued, the vehicle cannot be imported into Viet Nam. The vehicle must have been legally registered in the owner's home country for at least six months, have a minimum mileage of 10,000 kilometres, and cannot be more than five years old.

Vehicles may enter the country through one of its four ports: Cai Lan in Ha Long City, Hai Phong, Danang, or Ho Chi Minh City. Vietnam Customs is in charge of the importation of any vehicle into Viet Nam. Two- or three-wheeled vehicles of 175 cubic centimetres and above are required to have an import licence.

Types of vehicles banned from import, according to Decree No. 12/2006/ND-CP, dated 23 January 2006, by the government include:

· Right-hand drive vehicles including converted drive vehicles or disassembled vehicles, except for special purpose vehicles with right-hand drive operating in a small area such as: crane lorries, breakdown lorries, road sweeper lorries, spraying lorries, rubbish lorries, passenger buses at airports, pick-up trucks, concrete-mixer lorries, and vans working in parks and golf courses.

· Second-hand vehicles including:

- Engines, frames, inner tubes, tires, accessories, and suspensions of cars, tractors, and two-wheel and three-wheel vehicles

- Under-carriage frames of motorised cars and tractors (including new underframes with second-hand motion and/or second-hand underframe with new motion)

- Motorised two-wheel and three-wheel vehicles

- Ambulances

- All types of cars with structures and functions altered from the original design.

Duties and Taxes

Table A-XIV.2: Duties and Taxes for Automobile Parts

Parts and accessories of the motor vehicles of headings 87.01 to 87.05.	HS code	Unit	Import Rate
Bodies (including cabs), for the motor vehicles of headings 87.01 to 87.05.			
- For the vehicles of heading 87.03:	8707.10	Kg	28 - 30 %
- Other:	8707.90	Kg	10 - 28 %
Parts and accessories of the motor vehicles of headings 87.01 to 87.05.			
- Bumpers and parts thereof:	8708.10	Kg	15 - 20 %
- Other parts and accessories of bodies (including cabs):	8708.20	Kg	15 - 20 %
- Brakes and servo-brakes; parts thereof:	8708.30	Kg	10 - 20 %
- Gear boxes and parts thereof:	8708.40	Kg	10 - 20 %
- Drive-axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof:	8708.50	Kg	5 - 20 %
- Road wheels and parts and accessories thereof:	8708.70	Kg	15 - 25 %
- Suspension systems and parts thereof (including shock- absorbers):	8708.80	Kg	5 - 20 %
- Other parts and accessories:	8708.90	Kg	10 - 20 %

HS = Harmonised system, Kg = kilogram.
Source: General Department of Viet Nam Customs.

References

General Department of Vietnam Customs.

http://www.customs.gov.vn/Home.aspx?language=en-US (accessed September 2015).

Vietnam Trade Promotion

Agency.http://www.vietrade.gov.vn/en/index.php?option=com_content&view=section&layout=blog&id=21&Itemid=172 (accessed September 2015).

Country：	Viet Nam

(4) Plans and regulations relating to vehicle registration

There are three types of Vietnamese automobile registration. These are: new registration, changing registration, and erasing registration. The system is regulated by Circular 06/2009/TT-BCA-C11 issued by the Minisry of Public Security, based on the Road Transportation Law. In Viet Nam, cars used for business intentions has a limited amount of years in use: 25 years for private cars; and 22 years for commercial cars.

New Car Registration

New car registration needs to be done within 10 days of purchase. The owner would get a number plate and a registration certificate with the owner's name, address, car number, and other details.

Any vehicle, purchased or imported, is required by law to be registered at the designated local police traffic office. All required documentation, including the Certificate of Vehicle Inspection, the Vehicle Registration Declaration, proof of insurance, and the owner's valid passport, visa, and work permit is required for registration. Registration fee ranges from 12 percent to 15 percent of the purchase price in Viet Nam.

Transfer or Selling of Licence

Whenever the owner of the car changes, the changing of registration is required within 30 days from the change. Also, the transfer registration would be necessary when the owner moves out from the municipalities of Viet Nam. Change of registration is also necessary when the car colour is changed, the number plate is damaged and a new one needs to be reissued, and the owner loses the registration certificate or number plate.

Re-registration

The renewal of vehicle registration certificates is required under the following cases: converted vehicles; changed paint colours; definite-term extension of vehicle registration certificates; faded or ragged vehicle registration certificates; vehicles being a common asset of spouses which have been registered under the husband's or the wife's name but now the spouses wish to register it as their common asset; and number plates are faded, broken or damaged.

Country：	Viet Nam

Deregistration

Disposal registration is necessary when a car is being scrapped for the following reasons: involved in an accident, engine or chassis has been removed, fixed years have been exceeded, owner lost the car, and many more. Apart from those, automobiles temporarily imported to Viet Nam in order to export it to another country would need to register for this as well.

Documents required for this registration are: disposal application, registration certificate, number plate, and disposal certificate in case the car was stolen. After receiving complete documents for revocation of vehicle registration certificate and number plate, agencies in charge of revocation shall grant certificates of revocation of vehicle registration and number plates to vehicle owners.

The cars exceeding the year limits will be notified by the inspection department and would not be able to pass the inspection system, and the registration would automatically be disposed.

Inspection

All vehicles in Viet Nam are required to undergo regular vehicle inspections. There are no required roadworthiness tests for motorcycles. Conditions to satisfy the requirements for roadworthiness are different for private cars and for commercial vehicles that are used to transport goods or passengers.

Under the direction of the Ministry of Transport, the Viet Nam Register is the government department in charge of administering quality and safety tests for all vehicles as well as the issuing authority for certificates of roadworthiness.

The rules governing vehicle inspection are set forth in the Ministry of Transport Circulation No. 07/2014/VBHN-BGTVT and Circular No. 22/2009/TT-BGTVT.

Non-commercial cars must be tested for roadworthiness the first time that they are registered in a city or province. Any imported car must be tested at the time of its initial registration, and any car that is produced in Viet Nam will need to be tested after it has been in use for 30 months. Any vehicle that has been bought or sold will require testing as part of the requirements for a new registration. Following the initial testing, vehicles need to be inspected every 18 months. Any inspection required after the initial certification can be done at an

authorised inspection centre in Viet Nam.

Passenger cars that are more than 15 years old must be inspected every three months, as well as trucks that are more than 20 years old. Cars licensed for commercial use need to be inspected at the time of the initial registration. They must be re-inspected after the vehicle has been in use for 24 months, and every 12 months thereafter.

Tax

The special consumption tax (SCT) is a form of excise tax that applies to the production or importation of specific goods and certain services. The current SCT rates on automobiles with fewer than nine seats range from 45 percent to 60 percent, depending on engine capacity.

Insurance

All vehicles driven in Viet Nam are required to be insured. Having a civil liability insurance policy is compulsory and complies with the requirements of the law. Uninsured drivers may be fined and are at risk of having their vehicles confiscated.

The process of insurance is the same for Vietnamese and foreign residents. To obtain insurance, applicants need to present their personal identification and valid documents such as passport, visa, or identity card.

Additional insurance coverage may be purchased to augment the compulsory civil liability insurance. Policies are available to cover the following eventualities:

- Physical damage insurance covers the damage to a vehicle in case of an accident. The cost for this coverage is generally 1.5 percent of the vehicle's value.
- Insurance to cover the medical expenses of the driver or passengers if the vehicle is involved in an accident.
- Insurance that insures the goods within a vehicle in case of accident.

Discounts are available for drivers who have had no accidents or claims in Viet Nam in the previous year. However, having no claims or accidents while driving in other countries is not taken into consideration when calculating premiums.

Penalty

Country：	Viet Nam

According to the Road Traffic Law, the car owner not compliant with the car registration requirement is liable to a fine of D6 to D10 million.

The car owner who does not take out insurance is liable to a fine D400,000 to D600,000.

References

Angloinfo. http://hcmc.angloinfo.com/information/transport/vehicle-ownership/vehicle-roadworthiness/ (accessed September 2015).

Ministry of Public Security. http://www.mps.gov.vn/web/guest/vanbanphapquy/-/vlegalcontent/sses/116133/0/0 (accessed September 2015).

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(5) Handling of imported used cars and/or accident status quo cars

In case cars cannot be repaired, parts are removed and bodies are sold as scraps to recycling villages such as Te Lo. Cars are usually brought in by the car owner or car dealer to the recycling village.

In some cases, dismantlers and used car parts dealers buy damaged cars, putting an advertisement on the web.

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(6) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: end-of-life vehicle

Volume

The total number of ELVs was estimated at 6,000 in 2014.

Country：	Viet Nam

The table below shows the forecast of Yano Research Institute of the number of ELVs in Viet Nam.

Table A-XIV.3: Forecast of the Number of ELVs in Viet Nam

Year	2013	2014	2015	2016	2017	2018	2019	2020
# of ELVs	6,000	6,000	6,000	6,000	6,000	6,000	6,000	8,000

ELV = End-on-life vehicle.
Source: Yano Research Institute.

Model year

In Viet Nam, cars are generally used for a long time. However, cars used for business intentions have an expiration period for use — 25 years for private cars and 22 years for commercial cars.

Price

According to a dismantler located in Te Lo Village, they buy ELVs at about D10,000 per kilogram.

Distribution

In Viet Nam, the penetration rate of vehicles is low. Drivers tend to use their vehicles until they are broken. Therefore, the number of ELVs is low. ELVs are broken into parts informally and sold as parts. Some resources from ELVs are recycled. Automobile recycling business is mainly conducted in areas such as Te Lo Village. Operators who collect ELVs bring ELVs to these areas where they are broken into pieces by hand.

About 30 percent of parts taken by dismantlers are sold as valuables. Steel scraps are sent to scrap traders or electric furnaces located in neighbouring areas and other parts are sold to specialised recyclers such as engines, tires, plastics and so on.

Waste disposal and recycling is conducted in ‘Craft Villages’ or industry integrated areas mainly located in the Red River Delta and South Central Coast region in Viet Nam. Craft villages tend to deal with one type of item in industrial clusters, such as Datien Village for tires, Mansart or Kuando Village for aluminum.

Processing Situation

Country：	Viet Nam

Dismantling is being done by the informal sector in recycling villages such as Te Lo, and components and scraps are circulated to the informal route. Vehicle dismantling is mainly conducted by small low-technology units such as gas burners with low yield and capacity. Environmental measures such as prohibition on illegal dumping of wastes and collection of CFCs, and the like are insufficient. Dismantling of ELVs is done manually, causing adverse effects on worker's health.

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(7) Volume, distribution, flow, model years, sale prices, processing situation, items on trading, and resources: recycled parts

Distribution and Flow

Many used parts shops are located in Cho Gioi. They are mainly trading used parts imported from other countries. Used parts from Te Lo are too old to be utilised. Therefore, used parts dealers do not often sell used parts from Te Lo.

The demand for automobile parts are met because, in addition to imitation parts made in China, the number of cars itself is low in Viet Nam. Therefore, in many cases, used auto parts are used in agricultural machinery.

In Viet Nam, there are remanufacturing companies dealing with car parts such as drive shafts, alternators, starters, compressors, and so on. They provide one- to two-year guaranty for their products.

Prices

According to several interviewees during the field study, imitation parts imported from China are priced about 50 percent, used parts are priced at 50 to 70 percent, and remanufacturing parts are priced at about 70 percent of brand new parts.

Country：	Viet Nam

References

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(8) Volume, distribution, flow, model years, sales prices, processing situation, items on trading and resources: steel and non-ferrous metals

Viet Nam is importer of the steel scrap. The import is mainly from Japan and USA. Most Steel makers such as Hoa Phat and Southern Steel rely on the import for procurement of raw materials.

Table A-XIV.4: Import of Steel Scrap in Viet Nam

Year	2008	2009	2010	2011	2012	2013
Steel Scrap (thousand ton)	853	1,830	1,889	1,451	2,169	2,195

Source: World Steel Association, Steel Statistical Yearbook 2014.

Steel is brought to areas where relatively modern large-scale steel plants are integrated. For instance, Tisco Steel in Thai Nguyen has a large furnace. However, majority of the receivers of steel scraps are small household businesses. In many cases, steel scraps are sent to this type of business located in recycling villages. For instance, there are many small-scale steel plants in Da Hoi Village. They process steel for construction materials from steel scraps by small electronic furnace. Small-scale steel plants do not have appropriate pollution prevention equipment there to cause air pollution.

According to the interview during the field study, steel scrap is sold at D6,000 per kilogram.

Recycling of non-ferrous metals is carried out in craft villages that are specified for metals or resources. Like other wastes, after sorting the metals brought by collectors manually, they are refined. As for circuit boards, since there are no facilities that can deal with rare metals, the substrate is exported to China without doing anything.

There are also many household manufacturings for recycling non-ferrous metals such as

alminium. In Bac Giang, there is an area where many such companies gather. Workers here do not work with appropriate equipment such as masks. Therefore, there might be potential of occuupational health risk.

As for circuit boards, since there are no facilities that can deal with rare metals, the substrate is exported to China without doing anything.

There are also some recylcers of copper. However, the volume is low compared to that of aluminium.

Plastics from ELVs are collected and pelletised. Plastic scraps are sold to plastic manufacturing companies or traders.

References

Field Survey of the Study Team.

World Steel Association, Steel Statistical Yearbook 2014.
https://www.worldsteel.org/dms/internetDocumentList/statistics-archive/yearbook-archive/Steel-Statistical-Yearbook-2014/document/Steel-Statistical-Yearbook-2014.pdf
(accessed September 2015).

Yano Research Institute, *ASEAN Automobile Recycling 2014*

(9) Distribution volume, flow, model years, sale prices, and processing methods during dismantling (batteries, tires, and waste fluids, among others)

Decision 50/2013/QD-TTg, issued by the Prime Minister, prescribes that enterprises producing waste products are responsible for the retrieval and disposal of discarded products, which include hazardous substances such as batteries from 1 January 2015. Before the decision was promulgated, discarded products were manually dismantled and no CFC collection facilities were there and no waste oils were collected.

Batteries:

Batteries are collected and dismantled by small household manufacturing businesses that are

mainly from the informal sector. Batteries are cut by spaces without appropriate pollution prevention measures. In many cases, sulfuric acid is discharged into rivers without treatment. Also, occupational health risk is a huge problem because workers cut battery without masks and gloves. Workers face a potential of lead poisoning.

Used tires:

Used tires are collected by small companies, mainly from the informal sector. Used tires are cut manually. After being cut into small parts, used tires are sold to traders or companies that use them as fuels for manufacturing.

Waste oils:

There are many cases where small-scale waste oil collectors dump the waste oil into sewers, rivers or soil without proper treatment.

Reference

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(10) Factual survey of end-of-life two-wheeled vehicles

The number of two-wheeled vehicles produced in 2013 was about 3.7 million. The import and export values of motorbikes in the same year were US$48 million and US$372 million respectively.

Table A-XIV.5: Number of Assembled Motorbikes Produced (in thousand pieces)

Year	2009	2010	2011	2012	2013
# of motorbikes	3091.5	3506.6	4070.2	3634.5	3682.5

Source: General Statistics Office of Viet Nam.

Country：	Viet Nam

Table A-XIV.6: Import/Export of Motorbikes (in million US$)

Year	2009	2010	2011	2012	2013
Import Value	135	124	94	72	48
Export Value	32	60	108	187	372

Source: UN Comtrade Database.

In Viet Nam, motorbikes and vehicles are dismantled in recycling villages. In Te Lo Village, there are motorcycle dismantlers and traders. Used motorcycles are collected, some of which are sold as second-hand motorcycles or dismantled by taking out the available parts and selling the scraps.

Steel scraps and aluminum generated in the dismantling process are sold to electric furnace companies. Tires and plastics are sent to specialised traders. Tires are recycled into asphalt and sandals.

A dismantler dealing with motorbikes interviewed by the Study Team treats 10 to 30 units per month.

References

Field Survey of the Study Team.

General Statistics Office of Vietnam. http://www.gso.gov.vn/default_en.aspx?tabid=779 (accessed September 2015).

United Nations Comtrade Database. http://comtrade.un.org/data/ (accessed September 2015).

(11) Type of operation and number of recycling-related companies

Dismantlers

Among all disposal wastes, the volume of automotive parts to be treated is low. Various wastes, including home appliances, are dismantled and sorted manually. Then, the metals retrieved in

Country：	Viet Nam

the process go to other craft villages which speciliases in the item.

In Te Lo Village, there are more than 200 used parts dismantlers and traders. The dismantlers mainly dismantle commercial vehicles. There are only two or three dismantlers of private vehicles.

Scrap Trading Companies

In Van Mon Village in Bac Ninh Province, there are scrap trading companies. The village collects various metals such as steel, copper, aluminum, and the like. Vehicles are being dismantled by gas burners. Most of the resources can be sold, however, some companies illegally dump invaluable materials on the roadsides.

Downstream Recycling Companies

Van Loi company conducts aluminum recycling business. The company exports filter tube cartridge aluminum connectors, or filter tubes from Taiwan, and lading goods from Viet Nam.

Other Related Companies

Batteries:

Upon the initiative of the Vietnamese Government, recycling facilities of batteries and lead were established. There are seven permitted battery recycling facilities in Viet Nam with capacity of around 100 tons per day. One of them is Thye Ming Company.

Thye Ming Company is located in My Phuoc 2 Industrial Park, Lot C-8A-CN & C-3A-CN, NA5 St., Ben Cat Dist., Binh Duong. The company is one of the largest lead recycling smelters that leads the standard in Viet Nam.

Other companries dealing with batteries in Viet Nam include:

- Thang Long Metals Co., Ltd.
- Cong ty tnhh ngoc thien
- Ngoc Thien Co.,Td.
- Eni-florence Vietnam Co., Ltd.

Country：	Viet Nam

Dismantling is mostly conducted by the informal sector but reclamation of lead isconducted by the above-mentionned companies.

Tires:

Used tires are collected by small companies, mainly by the informal sector. After being cut into small parts, used tires are sold to traders or companies that use them as fuels for manufacturing companies, e.g. cement companies.

Waste oils:

There are 23 permitted facilities in Viet Nam with capacity of around 10 tons per day, besides other illegal recycling facilities. One of them is Long Hung Company.

Their characteristics are as follows:

- Oil distillation (fractional distillation and simple distillation)
- Oil water separation by mechanical method (centrifugation) and heat
- Simple distillation technology (simple equipment, easy to manufacture, install and operate, and low investment)
- Fractional distillation technology (produce diesel oil).

References

Do Tien Doan. Hazardous Waste Management Division, Waste Management and Environment Improvement Department, Vietnam Environment Administration. *Introduction on ELV Management in Vietnam. (Presentation material of WG expert).*

Field Survey of the Study Team.

Yano Research Institute. *ASEAN Automobile Recycling 2014.*

(12) Management of recycling-related companies

The number of employees of the recycling-related companies interviewed by the Study Team range from 2 to 100. The former is from a household business entity and the latter from an aluminum recycling company.

Country：	Viet Nam

Their revenues vary, depending on the size and domain of the business. For example, the annual revenue of a scrap trading company interviewed by the Study Team is D500 million to D700 million.

Reference

Field Survey of the Study Team.

2. Current challenges and considerations in automobile recycling laws and institutional systems in vehicle recycling

(1) Challenges in the vehicle recycling system (illegal dumping, inappropriate processing of waste, stringent final disposal site, dismantling technology, safety, efficiency, and recycling rates)

While the Environmental Protection Law of 2005 broadly delegates the responsibility of recovering expired or discarded means of transport to owners (Art. 67, 1.a/), there is still no existing regulation specific to the management of ELVs and/or vehicle recycling.

Other related challenges include:

- No legal document specialised for e-waste
- Poor separation at source
- Lack of a large-scale centralised treatment complex for industrial solid wastes and hazardous wastes
- Recycling is small-scale, spontaneous, difficult to control, and technologically unsophisticated.

In Viet Nam, dismantling is done by the informal sector, and components and scraps are circulated through the informal route. Vehicle dismantling is mainly conducted by small low-technology units with low yield and capacity. Dismantling of ELVs is done manually, and is causing adverse effects on workers' health.

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Environmental measures such as prohibition on illegal dumping of wastes and collection of CFCs and the like are insufficient. Although proper waste oil recyclers are present, a mechanism that ensures the flow of waste oils to proper waste oil recyclers, not to the informal sector, is still not well established.

Due to the lack of processing facilities, CFCs are released into the atmosphere without being properly recovered.

References

Field Survey of the Study Team.

Law on Environmental Protection (No. 52/2005/QHl I).
http://faolex.fao.org/docs/pdf/vie64190.pdf (accessed September 2015).

Pham Thi Nguyet Nga. Vietnam Environment Administration, Vietnam Ministry of Natural Resources and Environment, *Mapping Needs and Activities on Waste Management in Vietnam.*
http://www.unep.org/ietc/Portals/136/Events/ISWM%20GPWM%20Asia%20Pacific%20Workshop/Vietnam_Presentation.pdf (accessed September 2015).

(2) Trend in vehicle recycling policies and related automobile recycling law, and the enforcement, presence, and details of related institutions.

Decision No. 16-2015 QD TTg on the extended producer responsibility (EPR) principle was issued by Prime Minister in August 2013.

The Decision requires manufacturers and importers to take back and treat their sold products.

The Circular to guide this Decision is being drafted to:

- Not require the percentage of the product to be taken back
- Apply to household levels only, not for manufacturing facilities
- Guide the reporting responsibility of manufacturers and importers.

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Decision No. 16-2015 QD TTg covers the following waste types related to vehicles. As indicated in the table, the take back scheme of automotive products is considered under the Decision.

Table A-XIV.7: Waste Types of EPR Target

No	Waste type	Effective time
I	Battery	01/01/2015
II	E-waste	—
1	Fluorescence lamp	01/01/2015
2	Computer, printer, camera, camcorder, cell phone, scanner	01/01/2015
3	Photocopier, TV, air conditioner, refrigerator, washing machine	01/01/2016
III	Waste oil	01/01/2015
IV	Expired chemicals (used in medical care, plant protection, aquaculture)	01/01/2015
V	Tire	01/01/2016
VI	Vehicle (motor, car)	01/01/2018

EPR = Extended Producer Responsibility.
Source: Decision 50/2013 on extended producer responsibility.

a) Status of institutional system collateral of improper processing of three Designated Recovery items (fluorocarbons, airbags, and ASRs)

Fluorocarbons

During the repair of an air conditioner, R134a is used. However, collected CFCs are released into the atmosphere.

In general, due to the lack of processing facilities, CFCs are released into the atmosphere without being properly recovered.

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Airbags

Normally, damaged airbags are not repaired due to low awareness of safety. The repair of airbags cost D10 million.

Automobile Shredder Residues

There is no official vehicle shredder location.

b) Demarcation of roles (obligation and economic burden) among production officers (manufacturers and importers), related operators, vehicle users, and government agencies (including local governments)

The following are the demarcation of roles in the vehicle type approval/conformity system in Viet Nam:

- Manufacturers (applying for Type Approval Certificate)
  - Preparation of sample motor vehicles for technical service testing
  - Submission of information package (Information folder + Test report)
  - Sales, pre-delivery inspection, and mass production (upon certification)
- Importers (applying for Certificate of Conformity)
  - Secure required documents for import of vehicles
  - Submit imported vehicle for testing
  - Finish the Customs formalities (upon certification)
- Users
  - Comply with road transport regulations (licence, periodic inspection for technical safety, environmental protection, and roadworthiness)

•Government Agencies

- Ministry of Natural Resources and Environment (MONRE)
  - Approving authority
  - Check documents

Country：	Viet Nam

- Carry out waste mangement
- Issue certificates

- Vietnam Environment Administration (VEA)
- Sub-organisation of MONRE
- Approve lincence
- Carry out waste management

- Ministry of Transport (MOT)
- Approving authority
- check documents
- Carry out vehicle tests
- Issue certificates

- Vietnam Register (VR)
- Approving authority
- Conduct periodic vehicle inspection

- Vietnam Motor Test Center (VMTC)
  - Test motorcycles

- National Emission Testing Center (NETC)
  - Test motorcycles

- Police
  - Inspect licence plates.

Reference

Do Tien Doan, Hazardous Waste Management Division, Waste Management and Environment Improvement Department, Vietnam Environment Administration, *Updates of Regulation and*

Country：	Viet Nam
Control Activities to Implement the Basel Convention in Vietnam. http://www.env.go.jp/en/recycle/asian_net/Annual_Workshops/2014_PDF/Day1_S1_08_Vietnam.pdf (accessed September 2015).	

(3) Presence or absence of environmental regulations (such as landfill and incineration ban, and heavy metals use ban)

Viet Nam is in the process of introducing legislation to control ELV recycling and making preparations for the introduction of an ELV legislative management system.

Viet Nam has a number of existing environmental regulations such as the following:

Environmental Protection:

- Decree No. 59/2007/NĐ-CP, dated 9 April 2007 of the government, promulgating the regulation on solid waste management activities, and the right and duty of the person related to solid waste management.
- Decree No. 81/2006/NĐ-CP, dated 9 August 2006 of the government, promulgating the sanctions against administrative violations in the field of environmental protection (replacing Decree No. 121/2004/NĐ-CP).
- Decree No. 80/2006/NĐ-CP, dated 9 August 2006 of the government, detailing the implementation of the law on environmental protection.
- Law on Environmental Protection, dated 29 November 2005, took effect on 1 July 2006 (replacing the Environmental Protection Law 1993).
- Decision No. 64/2003/QĐ-TTg, dated 22 April 2003 by the Prime Minister, approving the plan for managing the establishments causing serious environmental pollution.

Solid and Hazardous Wastes:

- Decision No. 23/2006/QĐ-BTNMT, dated 26 December 2006 of MONRE, promulgating the list of hazardous wastes.
- Circular No. 12/2006/TT-BTNMT, dated 26 December 2006 of MONRE, on instructions on the condition, documentation, registration, and code of hazardous

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waste management.

- Decree No. 23/2005/CT-TTg, dated 21 June 2005 of the Prime Minister, strengthening the activities on solid waste management in urban areas and industrial zones.
- Decree No. 13/2003/NĐ-CP, dated 19 February 2003 of the government, prescribing the commodities that are dangerous/toxic and their transportation via roads.
- Decision No. 60/2002/QĐ-BKHCNMT, dated 8 August 2002 of the Ministry of Science, Technology and Environment (MOSTE), guiding the implementation of hazardous waste burying technique.
- Circular No. 02/2001/TT-BKHCNMT, dated 15 February 2001 by MOSTE, on instructions on the treatment of special wastes that encourage investment.
- Decision No. 155/1999/QĐ-TTg, dated 16 July 1999 of the Prime Minister, promulgating the regulation on hazardous waste management.
- Inter-Ministerial Circular No. 1590/1997/TTLT/BKHCNMT-BXD, dated 17 October 1997 of the Ministry of Construction and MOSTE, giving instructions to implement Directive 199/TTg by the Prime Minister on urgent measures on the management solid wastes in urban areas and industrial zones.

Circular 12/2011/TT-BTNMT stipulates that ELVs are in the hazardous waste list. In this Circular, the recycling and treatment facilities must possess hazardous waste management permits:

- Treatment of waste oils and batteries must have hazardous waste management permits. However, tires are not required to have a permit.
- Vehicles must manage the hazardous wastes in case the hazardous waste components are not separated.

Under Circular 12/2011/TT-BTNMT, the VEA is competent to grant and revoke hazardous waste management licences to entities operating in areas covering two or more provinces or centrally run cities. Provincial-level people's committees or natural resources and environment departments empowered by provincial-level people's committees are competent to grant and revoke hazardous waste management licences to entities operating in areas within their

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respective provinces.

DONRE requires e-waste generators to transfer wastes to licensed collectors, transporters, and treatment facility operators. Those generators, collectors, and treatment operators will need to report to MONRE and DONRE every six months regarding the control situation of their facility.

Decision No.16-2015 QD TTg of the Prime Minister on the retrieval and treatment of end-of-life products:

- Waste oils: 2015
- Batteries: 2015
- Tires: 2016
- Vehicles: 2018

The Decision is being revised and the guidance to implement the Decision will be developed.

In the Decision, the following items are stipulated:

- Setting up of points for the retrieval and disposal of discarded products.
- Receiving the discarded products which have been sold in Viet Nam.
- Transporting and disposing the discarded products.
- Notifying MONRE about the retrieval locations and facilities for disposal of discarded products.
- Annually reporting the quantity of products produced or imported, which have been sold in Viet Nam; and the results of retrieval and disposal of discarded products in accordance with MONRE guidelines.

Recycling：

- Decision No. 03/2004/QĐ-BTNMT, dated 2 April 2004 of MONRE, on importing wastes as materials for domestic production.
- Official Letter No. 1146/BKHCNMT-MTg, dated 6 May 2002 of MOSTE, approving the national action plan for cleaner production.

Country：	Viet Nam

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