

FY2014
Feasibility Studies on Joint Crediting Mechanism
Projects towards Environmentally Sustainable
Cities in Asia

Feasibility Study on “Eco-Auto Lease Scheme
for Low Carbon Vehicle”

Report

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PricewaterhouseCoopers Aarata
(PwC Japan)

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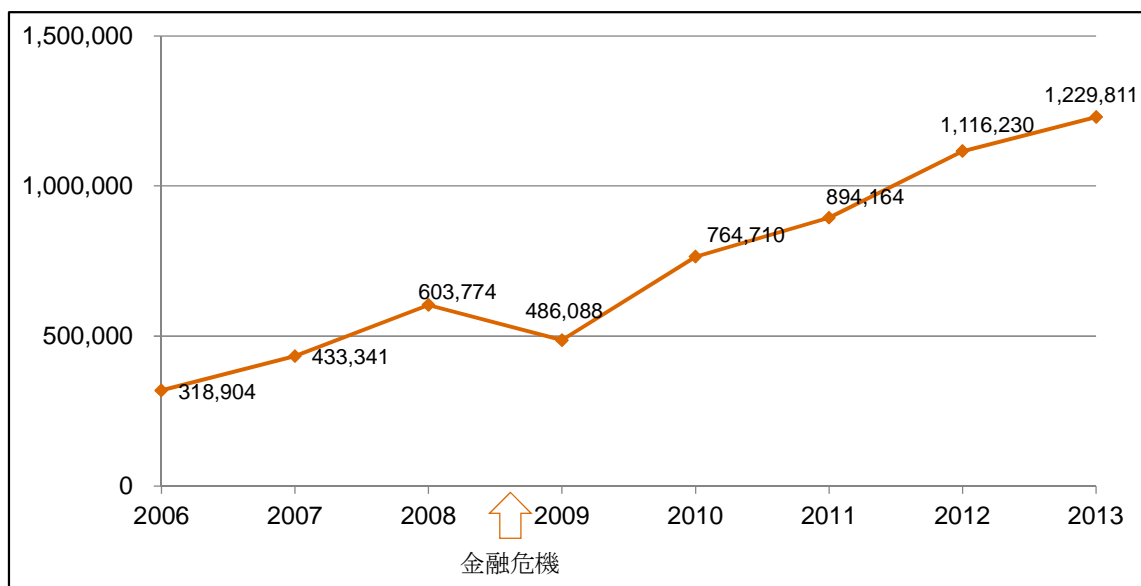
1. Introduction

1-1 Background of this Survey

Jakarta, the capital of Indonesia, faces serious automobile pollution, such as traffic jams and exhaust gas. Due to inadequate mass public transport systems, such as subways and monorails, Jakarta is troubled by constant traffic jams, serving as an obstacle to human movement and logistics. In terms of the country's sustainable development, it has been increasingly important to take measures against traffic accidents, exhaust gas of nitrogen oxides (NOX) and particulate matter (pm), and carbon dioxide (CO₂) emissions.

Domestic auto sales in 2013 amounted to 1.23 million units, an increase of 10.2% year-on-year (source: Indonesia Automobile Manufacturers Association GAIKINDO), indicating an increasing trend. Accordingly, energy consumption in the transport sector has been increasing year by year in line with an increase in the number of automobiles.

Figure: Trends in development of auto sales



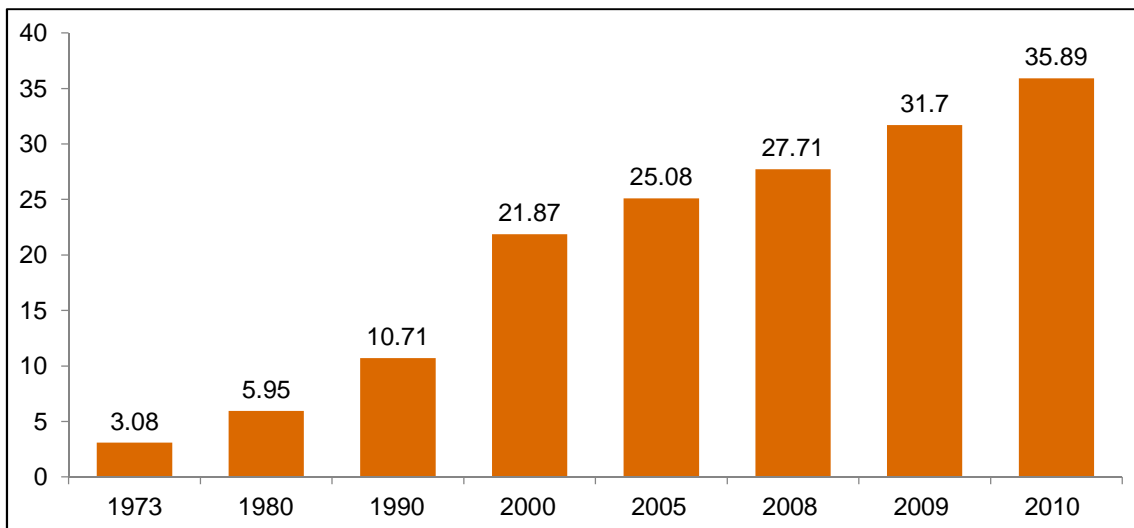
Source: GAIKINDO

In addition, small multi-purpose vehicles (MPV: Multi Purpose Vehicle) priced around 130 million rupiah are selling well in the Indonesia automotive market. The hot-selling models include “Avanza” of Toyota and “Xenia” of Daihatsu. Behind the popularity of these MPVs in the Indonesian market, there is an inherent Indonesian culture placing

importance on family and its satisfaction in consumption and purchasing behavior. This is the reason why 7-seater cars are mostly popular in that they can be used for transport of their large family members or return to native homes with large luggage. Automakers also identify the Indonesian market as a very unique market having a preference for three-row-seat cars. On the other hand, middle- and high-income earners prefer middle to large MPVs like “Kijang Innova” of Toyota, and middle-to-large luxury sport-utility vehicles (SUVs), such as “Pajero” Mitsubishi. “Yaris” of Toyota, Small hatchback autos, such as “Yaris” of Toyota and “Jazz” of Honda, attract young middle- and high-income earners in urban areas.

In respect of commercial vehicles, since no large trucks are allowed in Jakarta City, small trucks are often used as delivery vehicles to retail stores. In addition, when people launch business, light and pickup trucks are utilized in Jakarta as well as other areas in Indonesia. Thus, Japanese autos have strong popularity in many segments in the Indonesian market.

Figure: Trends in development of energy consumption (oil equivalent) in transportation sector



Source: OECD/IEA Energy Balances of Non-OECD Countries 2012

On the other hand, since fuel is cheap and low fuel consumption vehicles are expensive, currently, the private sector has no incentive to eagerly address energy saving measures. Therefore, Indonesia has not advanced measures of reduction of CO₂ and exhaust gas.

JCM's feasibility studies on large-scale projects in achieving low-carbon societies in Asia in FY2013 (hereinafter referred to as the "FS Survey") presented two proposals on measures energy saving and CO2 reduction, etc. in the automotive transport sector. Specifically, they are a proposal on eco-lease for the introduction of low-carbon vehicle (low fuel consumption vehicle) to promote the reduction of CO2 emissions as well as energy saving of commercial vehicles consisting of passenger autos, trucks and buses (Mitsubishi UFJ Lease & Finance Co., Ltd.), and a proposal on popularization of digital tachometer as eco-drive support equipment (DENSO Corporation).

The results of the FS Survey in FY2013 reveal that low fuel consumption vehicles and digital tachometer are not to be regarded as effective low-carbon technologies and products to be widely popularized in the Indonesian market, in that they are extremely expensive with a large burden of initial investment. Currently, we consider that the utilization of the JCM Facilities Support Project provided by the Ministry of the Environment will help taxi, bus and truck businesses owning large number of commercial vehicles introduce the relevant vehicles with reduced burden of initial costs. Since end users introduce vehicles by 100 or 1,000 units, it should not be realistic to organize a project with vehicles and on-board equipment (OBE) in such units in order to implement measurement, reporting and verification (MRV) in terms of time and efforts required. Therefore, we consider it is an urgent task to create new a system or scheme with financial support structure concurrently allowing for reduction of initial investment costs as well as for credit issuance/management in massive products for popularization of large units. These are behind this Survey implemented this time (hereinafter referred to as this "Survey").

Additionally, in August 2013, Indonesian and Japanese governments entered into a bilateral document on the bilateral credit system. This document includes the following three agreements.

- i) For the promotion of low-carbon growth partnership between Japan and Indonesia, the two countries will establish a bilateral credit system (hereinafter referred to as "the System") and set up a joint committee in order to operate the System.
- ii) Both countries mutually recognize that any emission reduction or absorption under the System may be used as part of each effort internationally expressed as greenhouse gas mitigation efforts.
- iii) To avoid double counting of emission reductions or greenhouse gases, neither

party shall use the mitigation projects registered under JCM for purposes of other international climate mitigation systems

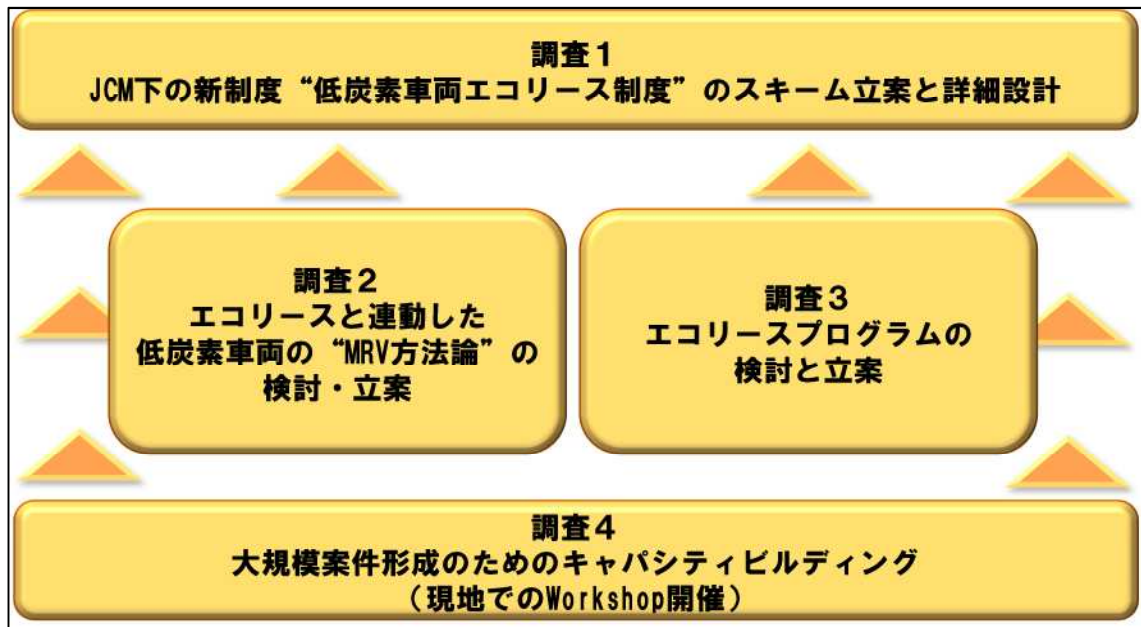
This agreement between the two countries contributed to the implementation of JCM projects in Indonesia, including “low-carbon vehicle eco-lease system (hereinafter referred to as referred to “Eco-Auto Lease System” or “this System”) that is subject to this Survey.

1-2 Purposes of this Survey

In order to enhance the effectiveness of promoting measures on energy saving and reduction of CO₂ and emissions in the automotive transport sector in Indonesia, it is necessary to reduce barriers on initial investment for the introduction of fuel-efficient vehicle which is effective in low-carbon. This Survey will discuss a creation of eco-lease system for fuel-efficient vehicles (hereinafter referred to as “Eco-Auto Lease System” or “this System”) serving as a new funding system of JCM system to promote fuel-efficient vehicles in large-scale in Indonesia, with the aim of exploring a system scheme design, MRV methodology and lease program towards the establishment of this System.

1-3 Details of this Survey and the Methodology

In this Survey Project consisting of four surveys, Survey 1 serves as a basic skeleton, and Survey 2 and 3 examine the details. In addition, we also conducted capacity building assistance in parallel with this Survey to ensure that key stakeholders (Indonesia Finance Service Association and Indonesia Automobile Manufacturers Association, etc.) related to the specific system management could cooperate with the discussions with the aim of building the system.



Survey 1: Planning and detailed design survey of “Eco-Lease System on Low-Carbon Vehicles,” a new system under the JCM

As a scheme to make the project on popularization of low carbon vehicle in Indonesia on a large-scale, we envisaged the Eco-Lease System with subsidies, and designed the details on implementation system, subsidies and leases procedures required for the system.

Survey 2: Examination and planning of MRV methodology on low-carbon vehicles in conjunction with Eco-Lease

We examined a computation method of reducing fuel and CO2 emissions on fuel reduction of low-carbon vehicles and eco-drive support vehicle units, and formulated a credit issuance and MRV methodology in conjunction with eco-lease contract.

Survey 3: Examination and planning of eco-lease program

We developed a model design for Indonesia on product eco-lease program targeting low-carbon vehicles and eco-driving support vehicle units, and identified tasks on the program design.

Survey 4: Capacity building assistance for the creation of large-scale project

We made examination through workshop with relevant stakeholders, and obtained the

points on operational challenges. The participating stakeholders in Indonesia were the financial point of view, Indonesia Finance Services Association (APPI: “APPI”) in light of finance aspects, and The Association of Indonesia Automotive Industries Gabungan Industri Kendaraan Bermotor Indonesia: GAIKINDO, hereinafter referred to as “GAIKINDO”) from the perspective of the automotive industry. Workshop was held three times, in June 2014, November 2014 and February 2015. We developed examinations step-by-step each time.

Purpose and goals of each workshop ¹



1-4 Structure of this Survey

PricewaterhouseCoopers Aarata (PwCJapan) had the primary responsibility on this Survey and managed and executed the overall matters of this Survey in cooperation with Mitsubishi UFJ Lease & Finance Co., Ltd. (hereinafter referred to as “Mitsubishi UFJ Lease”) and PwC Indonesia as cooperative partners.

Mitsubishi UFJ Lease, a cooperative partner, attended the eco lease workshop held in Indonesia. Mitsubishi UFJ Lease presented the Japanese system (Eco-lease) and participated in the discussions regarding the introduction and the system design, including eco-lease program. Mitsubishi UFJ Lease also participated as one of the members of JCM eco lease workshop (in Japan), and provides opinions and information

¹ In Indonesia, the term “workshop” is closely associated with a presentation in front of the majority of the audience. Therefore, we held the review sessions in the name of “meeting” to make discussions with the stakeholders in Indonesia.

regarding design of eco-lease program and this System from the position of eco-lease advocate and financial institution.

PwC Indonesia took the roles of reviewing and identifying tasks on subsidies management, delivery of subsidies and procedures, etc. in lights of Indonesia local regulations and business practice with respect to the system design discussed in Survey 1 above. In Survey 2, PwC Indonesia was engaged collecting data applicable in Indonesia and in Jakarta, regarding default values on MRV methodology, their computation method and monitoring and others. In Survey 3, through interviews with leasing companies, PwC Indonesia assessed the actual situation of auto lease companies in Indonesia. In Survey 4, PwC Indonesia arranged and accompanied us for interviews with local auto manufacturers, leasing companies and lease users. At workshops and interviews with stakeholders, PwC Indonesia served as a facilitator of communication between Japan and Indonesia.

APPI and GAIKINDO participated in local eco lease workshops. They provided opinions and information on eco-lease program and system design, from each position representing the leasing and industry and automotive industries, respectively. The both organizations offered utmost cooperation with the understanding that the Eco-Auto Lease System will contribute not only to finance services and automotive industries, but also to the society as a whole.

Surveys were conducted involving each stakeholder in Indonesia

	Workshop方式 GAIKINDO & APPI	Stakeholder 1 自動車メーカー	Stakeholder 2 リース会社各社	Government Policy Maker
スキーム設計	3回の Workshopを通じて、建設的議論	<ul style="list-style-type: none"> ニーズの把握 制度設計のポイント 	<ul style="list-style-type: none"> ニーズの把握 制度設計のポイント 	JP✓
事業の効果・便益		✓	✓	ID✓ <ul style="list-style-type: none"> 燃料補助金削減 (MOF, MOI)
MRV方法論		<ul style="list-style-type: none"> 燃費計測方法 	<ul style="list-style-type: none"> モニタリング手続きの負担 	<ul style="list-style-type: none"> 計測・試験のあり方 (BPPT)

At the beginning of this Survey, we considered inviting and discussing with auto manufacturers, leasing companies and auto lease user companies as workshop members. However, PwC Indonesia suggested that it should not appropriate to adopt this way in Indonesia for the purpose of achieving outspoken comments, given the tendency that the exchange of opinions in the presence of representative of competitors or industry organizations is not necessarily favored in Indonesia. As a result, we interviewed individually with each of auto manufacturers, leasing companies and auto lease user companies in order to achieve open-minded comments and have constructive discussions,.

View of Indonesia's local stakeholders



Source: Pictures taken by PwC

View of workshop



Source: Pictures taken by PwC

2. Identifying Potential Acceptability of “Eco-Auto Lease System”

2-1 Potentiality Raised by the Preliminary Survey on FS Survey in FY2013

In the fiscal year 2013, Mitsubishi UFJ Lease and others implemented the “Feasibility study on financing scheme development project for promoting energy savings in Jakarta, Indonesia,” which served as a background of this Survey. In this prior survey, the expanding demand for vehicles and the high utilization rate of sales finance in Indonesia suggests that there is a potential opportunity for popularization of fuel-efficient vehicles through combination of auto and lease finance.

As discussed in Background of this Survey at the beginning, Indonesia’s economy and income has grown steadily while the automobile market is expanding. ² In 2012, Indonesia’s domestic sales of new cars exceeded one million units for the first time. As a result, Indonesia is the second largest market in Southeast Asia, next to Thailand. Given that the population of Indonesia is slightly more than four times as large as that of Thailand, it is likely that the Indonesian auto market will be the largest market in Southeast Asia exceeding Thailand.

Additionally, sales finance for vehicles (corporate auto leasing and consumer auto loans) is very popular in Indonesia. It is estimated that approximately 70% to 80% of sales of new vehicles (both two and four-wheel motorcycles) are purchased through finance. For the purpose of achieving the promotion of fuel-efficient vehicles, it is considered effective to provide assistances (subsidies) to financial ways and means that have been utilized in the majority or more at the time of purchase. In particular, in Indonesian, the rupiah lending rate is in a high level exceeding 10% per annum, which is a great burden for both corporate and individual users. For this reason, if fuel-efficient vehicles are subject to subsidies, there would be a large room to subsidize the interest rate. Therefore, it is considered to be likely that the selection of fuel-efficient vehicles will be motivated by reduction of lease payments as acquisition cost of fuel-efficient vehicles through subsidies to the interest rate.

According to the field survey conducted in the fiscal year 2013, through interviews with APPI, we received an opinion that support of eco-autos in addition to LCGC (Low Cost Green Car) should help raise the environmental consciousness of consumers that is now improving, and providing assistance to leasing companies could be deemed

effective as specific means.

In addition, the awareness of energy saving is still low in Indonesia. Therefore, in order to improve the awareness of energy saving, it is essential to focus on the target subject(s) in which Indonesian people think it necessary to promote energy saving and low-carbon. Vehicles are mostly purchased based on the demand and motivation for riding and transport. In general, when making a decision to purchase a fuel-efficient vehicle, vehicle buyers do not place emphasis on the idea of recovering the additional costs or price difference from non-environmentally friendly vehicles by improving fuel efficiency. Therefore, it can be acknowledged that there is some room to make vehicle buyers select fuel-efficient vehicles without recognizing a burden on recovering investment for “energy saving.” In order to promote energy-saving in a country where the idea of “eco” or “energy saving” is not widely recognized, it would be easier to encourage buyers to select environmentally friendly vehicles which they are eager to buy with the most basic objective other than other purposes, than to make investment in the vehicles with “energy saving” as the main purpose.

As a result, it is estimated that the selection of lower fuel consumption cars will be successfully encouraged by presenting consumers incentives of reduced acquisition costs when they replace with new ones. On that basis, we examined the Eco-Auto Lease System that will be utilized from the potential needs after the establishment. Additionally, we believe that the potential possibility of Eco-Auto Lease System can be supported by the fact that we could successfully achieve a written agreement regarding the cooperation with this Survey from APPI.²

2-2 Analyzing Potential Acceptability of Proposed Eco-Auto Lease System

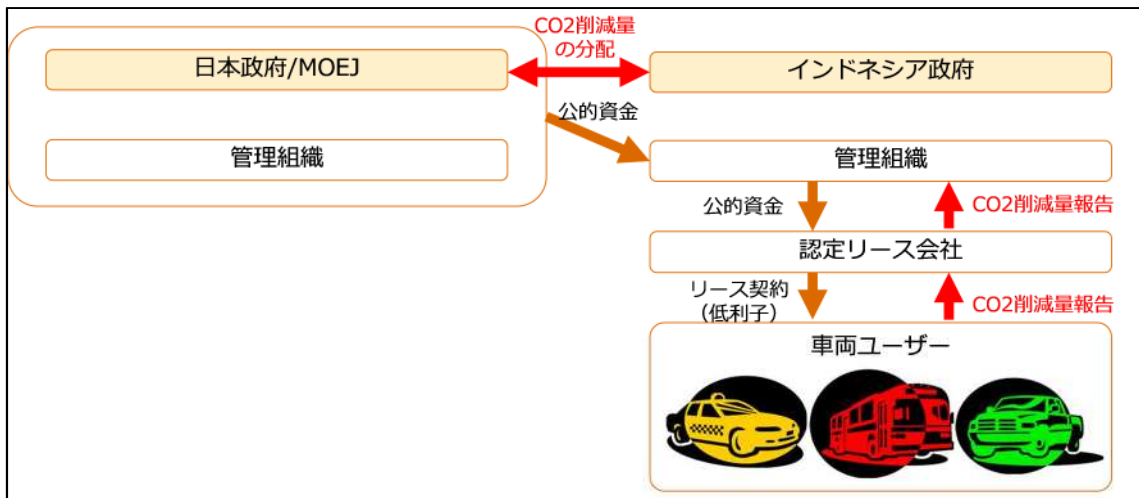
The FS Survey in the fiscal year 2013 reveals that fuel-efficient vehicles and digital tachometers are not low-carbon technologies and products that can be widely popularized in the Indonesian market. On the other hand, auto lease business is very popular in Indonesia with approximately 80% of sales of new vehicles purchased through finance.³ There are no lease services in which public funds are subsidized or granted for the purpose of promotion of low-carbon society or environment-friendly equipment.

² Written agreement regarding the cooperation with this Survey is included in Appendix.

³ According to interviews with leasing companies, the ratio of operation lease is extremely low, and installment and finance leases are mostly used as financial means.

For the reason above, when assessing the potential acceptability to the local stakeholders, we considered it important to exchange opinions with them after having them grasp a rough image of Eco-Auto Lease System. For promoting the stakeholders to understand the image of this System, we presented the proposal on lease fee mitigation scheme using JCM subsidies at the time of interviews. We stressed that this proposal scheme should be just an image and not yet finally determined at each meeting, with the greatest care so as not to cause them have misunderstanding. During the time when describing the scheme image, we explicitly explained that the public funds from the Japanese government would be provided through the leasing company, etc., to each user's vehicle (the following figure, shown as brown arrow), and that each user should be required to report CO2 reduction amount through the leasing company, etc. to the Japanese government (following figure, shown as red arrow).

Figure: Scheme image of Proposal on Eco-Auto Lease System

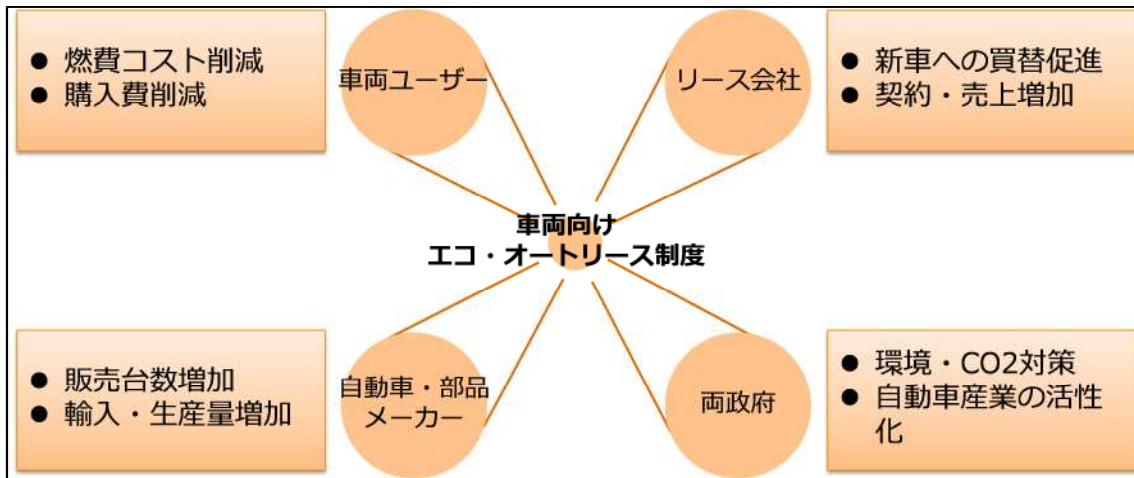


Source: Prepared by PwC

Four points of this System

- i) One of the measures to reduce CO2 emissions and traffic pollution by automobiles that have been increasingly serious in Indonesia;
- ii) The low interest rate lease (= Eco-Auto Lease) will facilitate Indonesian companies to purchase new low-carbon vehicles (including passenger autos for business, trucks, buses, etc.);
- iii) Users are required to report the amount of CO2 reduction in exchange for the benefits of low interest costs obtained;
- iv) The Japanese government (MOEJ) will contribute public funds to distribute CO2 reduction effect of low carbon vehicles (reduction amount) in consultation with the Indonesian government.

Figure: Benefits attainable (estimated as of FS Survey commenced)



Source: Prepared by PwC

2-3 Assessing Demand of Stakeholders and Operability

2-3-1 Overview of interviews with stakeholders

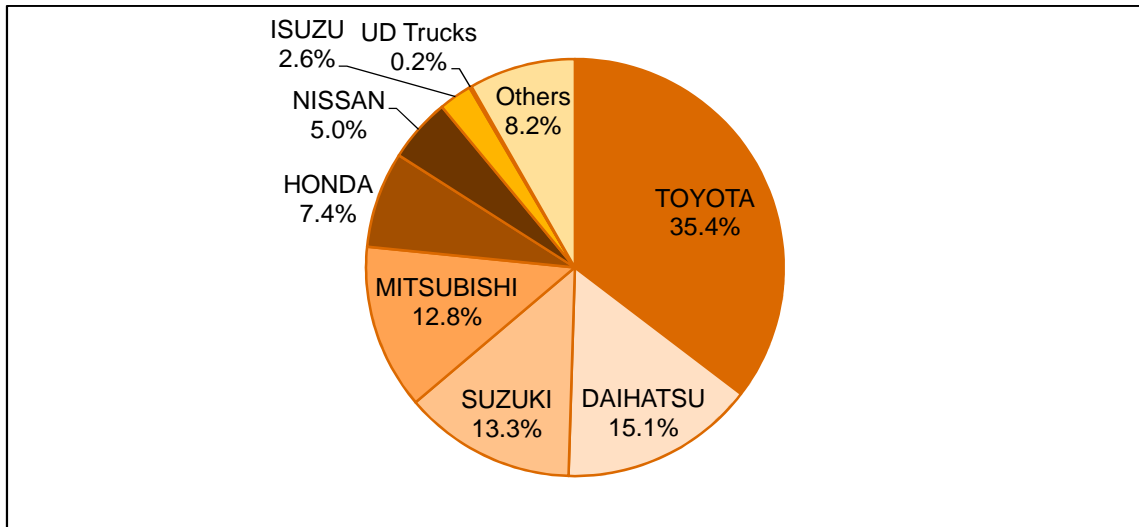
i) Automakers

The Indonesian auto market is predominantly dominated by the Japanese auto manufacturers, which accounts for more than 90% of auto sales. Also for Japanese automakers, Indonesia is one of the most important markets among ASEAN countries along with Thailand. According to the Nikkei Asian Review,⁴ sales in Indonesia from January to September 2014 amounted to 932,943 units, by far exceeding 648,410 units in Thailand.

In view of the characteristics of this market, we interviewed with several subsidiaries of leading Japanese auto manufacturers in Indonesia.

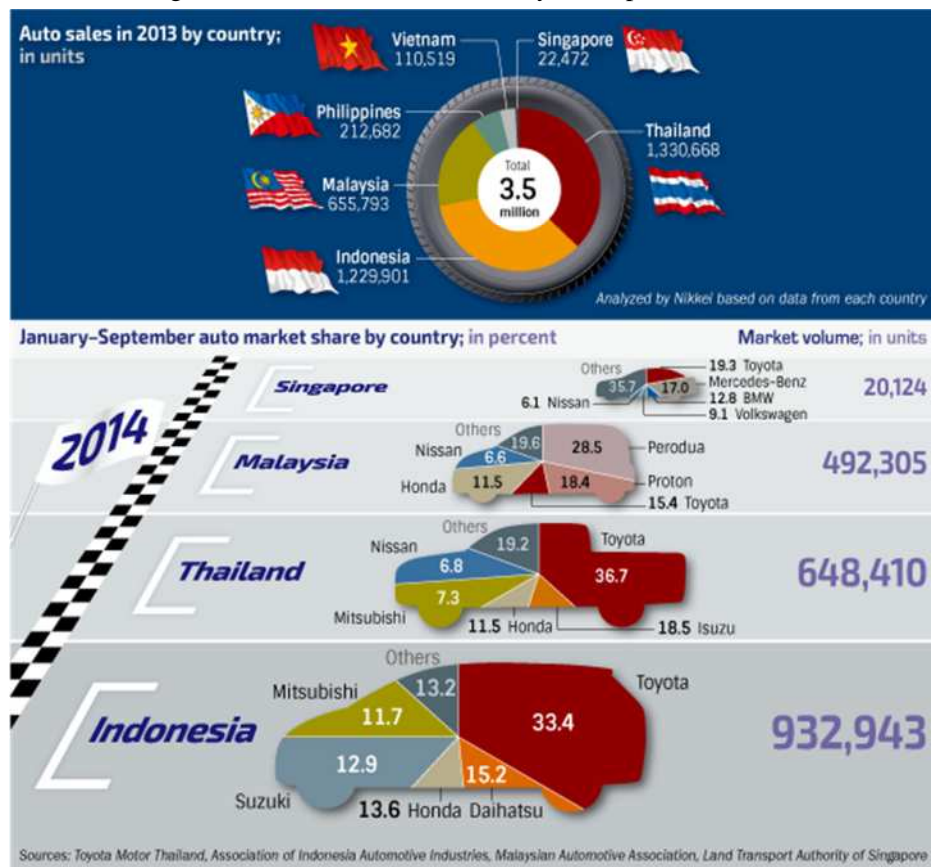
⁴ The Nikkei Asian Review November 13, 2014, "Southeast Asia's auto industry maturing"

Figure: Market shares in Indonesia by auto manufacturer



Source: Astra International Source: Astra International

Figure: Unit sales from January to September 2014



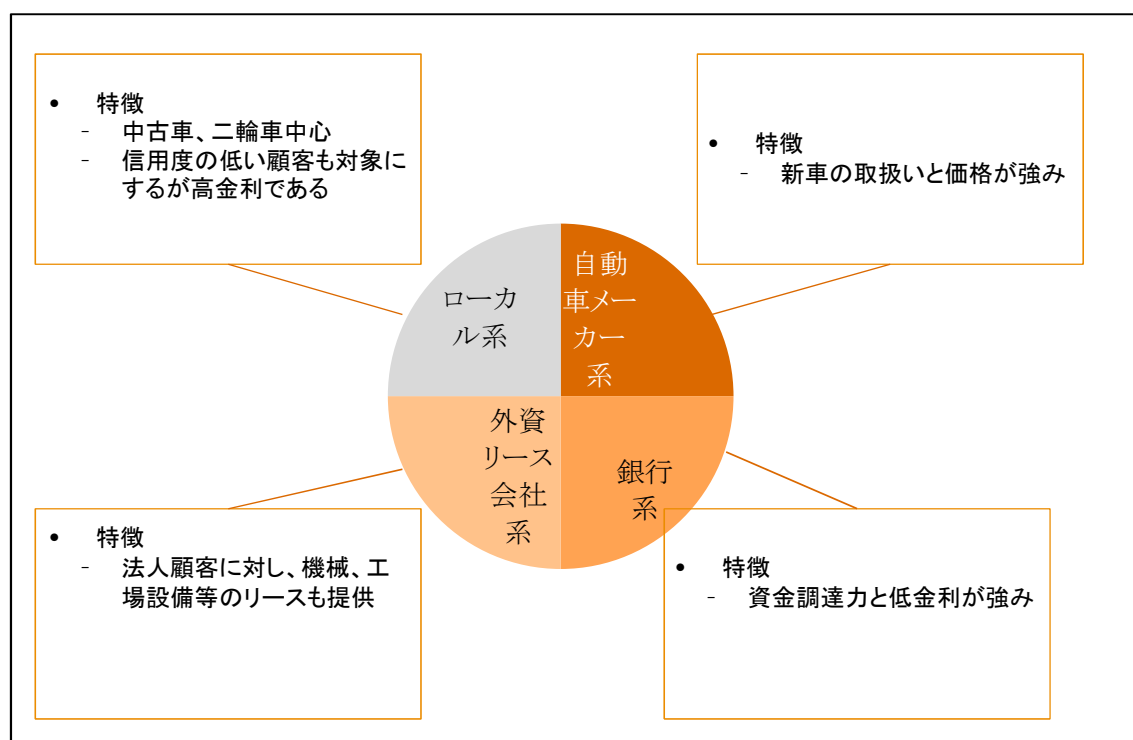
Source: Nikkei Asian Reviews

ii) Leasing companies

According to APPI, there are approximately 200 finance companies in Indonesia, of which, 170 companies, representing approximately 85%, are members of APPI.⁵ APPI explains that finance companies dealing with auto leasing in Indonesia can be classified into automaker-affiliated leasing companies, bank-affiliated leasing companies, foreign leasing companies and local leasing companies, each of which has the feature shown in the following diagram.

The Eco-Auto Lease System targets corporate contractors for new four-wheeled vehicles. Out of the four classifications as discussed above, APPI advised us to interview with automaker-affiliated leasing companies, bank-affiliated leasing companies and foreign leasing companies. Accordingly, we interviewed with several leasing companies representing these three types.

Figure: Finance companies in Indonesia



Source: Prepared by PwC based on discussions with APPI

⁵ The Financial Services Authority of Indonesia (OJK: Otoritas Jasa Keuangan) responsible for supervising finance service industry in Indonesia is requesting all financial services companies to participate in the APPI.

iii) Lease users

In fact, lease users who make use of vehicles for transport of people and goods include taxi companies, logistics companies and business companies that provide company-owned vehicles for the transport of executive officers as well as commercial vehicles. Since the awareness of energy saving and fuel consumption is still low In Indonesia, we interviewed with several subsidiaries of global logistics companies located in Indonesia with high environmental consciousness that could become a pioneer user of this System.

These companies officially published CO₂ emissions reports as one of global approaches. For this purpose, they set the KPI (Key Performance Indicators) on fuel consumption and monitor the situations. They also check CO₂ and gas emissions when selecting eligible trucking subcontractors, and have the subcontractors report the status on a continuing basis after the conclusion of the agreement. Given that the interviewee companies replace vehicles on a 5 to 10 year and that they have a good customer base including advanced Indonesian companies and global enterprises, it is considered to be likely that, at the time of establishment of the Eco-Auto Lease System, the initial use of fuel-efficient vehicles by these companies will lead to the popularization of fuel-efficient vehicles in Indonesia.

2-3-2 Understanding of needs and feasibility

We could successfully obtained general support from the auto manufacturers with which we interviewed. With regard to the popularization of fuel-efficient vehicles, the interviewee automakers have the policy to take steps to evoke an awareness of fuel consumption on the basis of fuel consumption measurement mode after the mode is widely recognized in Indonesia. The fuel with subsidies prices were raised from 4,500 rupiah per liter to 6,500 rupiah per liter in June 2013, and then raised to 8,500 rupiah per liter in November 2014. In January 2015 and beyond, the subsidy amount is fixed with the result that the fuels with subsidies prices are to be fluctuated in accordance with the market prices.⁶ Against the background of the reduction of the fuel subsidies, consumers are expected to have more interest in fuel consumption.

⁶ The subsidized fuel prices were raised in November 2014, and it was announced that the subsidy amount will be fixed in January 2015. In this report, we will discuss the development in June to August 2014 when we made interviews with the stakeholders.

In general, automakers have high expectations for Eco-Auto Lease System. An automaker expressed an opinion to the effect that, if the Eco-Auto Lease System is established, they would like to formulate a de facto standard of vehicles meeting the Eco-Auto Lease System using Japanese technologies. There was another proposal from an interviewee company, to the effect that Japanese auto makers' superiority on small-sized vehicles should be highlighted positively together with the cutting-edge technologies, such as hybrid and electric vehicles, with the aim of popularizing low fuel consumption vehicles widely in Indonesia.

In addition, in Indonesia, the exhaust gas regulations are expected to migrate from the current EURO2 to EURO4.⁷ Since the prices of vehicles meeting EURO4 should be higher in comparison with those meeting EURO2, there are concerns that consumers' temporary buying restraint could prevent the popularization of vehicles meeting EURO4. However, there is a strong expectation that the Eco-Auto Lease System is likely to play the role of reducing lease payments serving as incentives to drive the mitigation to more fuel-efficient vehicles.

An interviewee company mentioned that, in order to make the Eco-Auto Lease System provide benefits to both Japan and Indonesia and other three parties consisting of automobile manufacturers, leasing companies and lease users, it is important to draw up a scenario that Indonesia will be a winner. Discussion included that the popularization of optimal fuel-efficient vehicles as well an increase in local production will contribute to the creation of employment, which will bring about advantages not only to the needs of automakers, but also to Indonesian nation.

GAIKINDO declared its support to provide cooperation and assistance to us, in the light that the Eco-Auto Lease System is most likely to contribute to the development of Indonesia's automotive industry. If the Eco-Auto Lease System is established, GAIKINDO makes commitment that it will assume the role of serving automobile manufacturers.

⁷ LMC Automotive, an automotive research firm, announced that the migration will be made in 2016 or afterwards. Interviewee companies mentioned that it would be in 2016 or afterwards, or in 2020 or afterwards.

Figure: Indonesia's Winning Scenario Example



Source: Prepared by PwC based on discussions with automobile manufacturers

On the other hand, as for the feasibility of Eco-Auto Lease System, auto manufacturers expressed concerns as to the decision-maker for the method of fuel consumption measurement and the threshold to be set. Their concerns stem from the experience that it took 1 year or more to determine the method of fuel consumption measurement at the establishment of Low Cost Green Car (LCGC) System.⁸

Furthermore, the Indonesia's automobile market has a scale of 1,200,000 units. In this regard, automakers are interested in how large the financial supports will be obtained to the Eco-Auto Lease System from the public funds. Given the market scale, if the advantage from low interest costs is just a few percent of the unit sales, automakers have the opinion that it would be difficult to popularize fuel-efficient vehicles in Indonesia.

Leasing companies with which we interviewed, also expressed supports on the Eco-Auto Lease System itself. Leasing companies and APPI expressed specific opinions to the effect that it should be necessary to achieve approximately 10% of low interest benefits would be necessary for the purpose of encouraging consumers to select fuel-efficient vehicles in consideration of the Indonesian interest rate level.

In the Eco-Auto Lease System, a leasing company will enter into a lease agreement at low interest costs with a corporate lease contractor who is a vehicle user. The leasing company will assume the role of reporting the mileage and fuel use reported from the user to the management organization.

⁸ LCGC System is to be discussed in detail in Chapter 4.

The interviewee leasing company expressed its request to the effect that they prefer simple procedure that can be conducted even in local branch offices because they are engaged in leasing operations all over the nation. Simplicity is an important point in lights of preventing users from finally selects a vehicle not subject to the Eco-Auto Lease System due to the time-consuming procedure, and avoiding sales representatives from giving up concluding a lease agreement not subject to the Eco-Auto Lease System due to the cumbersome procedure.

The largest concern from leasing companies and APPI is a reporting obligation of mileage and fuel use. A bank-affiliated leasing company expressed an outspoken comment to the effect that it is impossible to record a mileage and fuel use manually for the reporting purposes.

The largest bank-affiliated leasing company showed reluctance to impose thorough reporting requirements on users who will have solely connected with monthly payments with the company after the conclusion of lease agreement. At the same time, we could exchange positive discussions with the company with a clear image of specific customers. For example, the company expressed a positive idea, to the effect that, if the users are large corporate customers with sales representatives assigned or and Auto Ownership Program,⁹ it would be easier to ensure thorough reporting from the users. In addition, there are some cases where a leasing company is entrusted to select auto models from large companies who purchase a quantity of vehicles at one time. In such cases, leasing companies are required to select an auto model and offer lease price. In such a tender business model, a leasing company mentioned that they would like to propose a fuel-efficient auto if the conditions are met.

While the details are discussed in Chapter 4 “MRV Methodology,” leasing companies and APPI representing leasing industry have the opinion that it should be realistic to record and report the mileage and fuel consumption not manually but using on-board equipment (OBE) and gasoline card records in light of practical possibility.

Users mentioned that they would not select fuel-efficient vehicles solely for reason of lowering of lease payments, since they have several selection criteria, such as vehicle prices (lease payments), fuel efficiency, running costs and load capacity. However, if

⁹ A program leasing company-owned cars for executives for customers, mainly for leading companies in Indonesian and subsidiaries of foreign companies located in Indonesia.

there is a relatively advantage, they expressed an outspoken opinion to the effect that they want to select fuel-efficient vehicles. If fuel-efficient vehicles are selected under the circumstance that operating costs are reduced, a qualitative effect would be expected as an appeal point to auto owners in operating activities that are working on sustainability in the global market. With respect to trucking subcontractors, lease users also express concrete image of utilizing the Eco-Auto Lease System, to the effect that they would like to include this System in the criteria for the selection of suppliers if it is possible to reduce the prices by utilizing the Eco-Auto Lease System.

On the other hand, a lease user thoroughly familiar with the actual situations of Indonesian companies expressed an outspoken opinion, to the effect that Indonesian companies have difficulty in fulfilling the reporting obligation of mileage and fuel use, except those whose internal operating processes include such recording and reporting.

3. Examining Proposed Design of Eco-Auto Lease System

3-1 Proposed Design of this System (5 patterns) and Examination Results

3-1-1 Proposed design of this System and image of schedule

At the time when this Survey started, we formulated the schedule image of this System as shown in the following figure, based on the subsidy model at the time of proposal. We shared the image with local stakeholders at the workshop held in June 2014.

At the start of this Survey, following this Survey in the fiscal year 2014, we planned to organize the procedure, manage the controlling organization and formulate lease procedures lease procedures in the fiscal year 2015, through small-scale trial and demonstration projects assuming 100-200 units. Then, in the fiscal year 2016 fiscal year and beyond, we envisaged a schedule scenario, as a full-scale introduction and promotion phase, to familiarize approximately 30,000 units of fuel-efficient vehicles or a 2-3% of annual sales.

Figure: Schedule scenario of this System

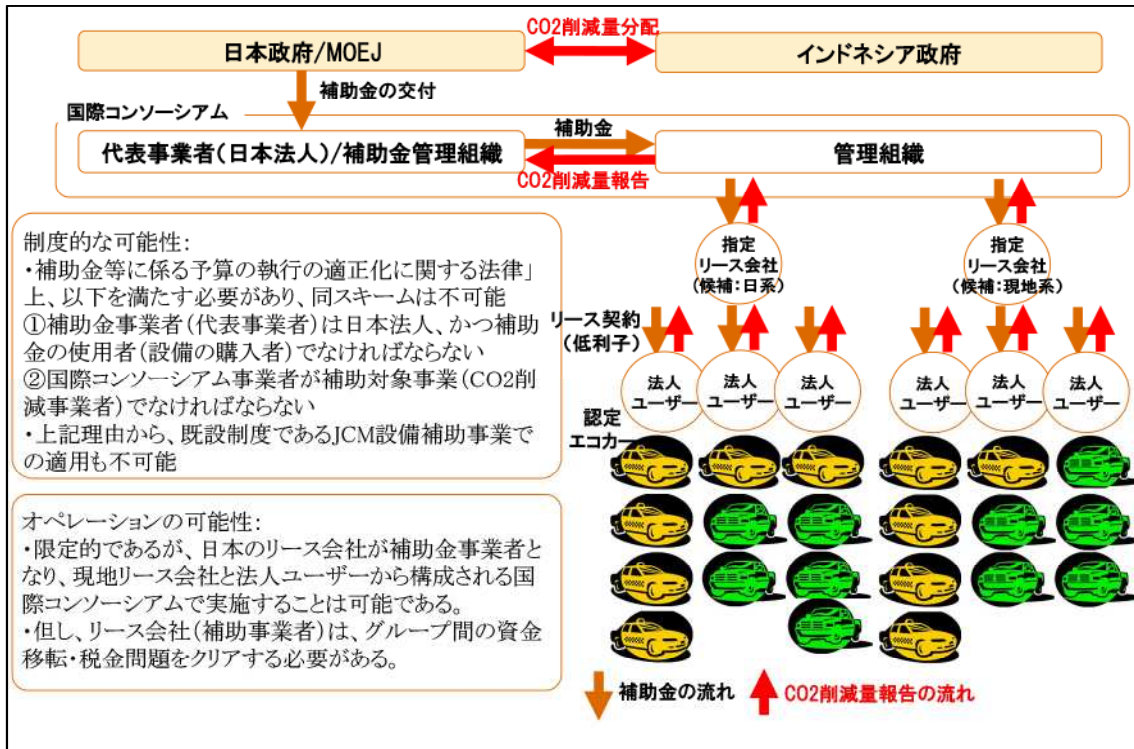


Source: Prepared by PwC

3-1-2 Proposed Design of this System (5 patterns) and Examination Results

In the course of the consultation with the Ministry of the Environment, since the middle stage of this Survey, we found it difficult to implement the subsidy model, which had been studied since the proposal stage. Then, we examined five patterns of design proposals on this System. First, we will organize the challenge of the subsidy model.

Figure: Subsidy model



Source: Prepared by PwC

In the subsidy model, a representative operator of international consortium (Japanese entity) will serve as a subsidized operator, and a management organization¹⁰ will serve as an indirect subsidized operator and consortium member. We nominated the Indonesian Finance Association as a candidate for the management organization. However, because of Indonesian institution, it could not meet the requirements of Japanese entity. We receive the explanation from the Ministry of the Environment, to the effect that a subsidized operator is confined to a Japanese entity with the aim of ensuring the collection of funds in the event of any violation, pursuant to the practical interpretation of Article 3 of the Act on Regulation of Execution of Budget Pertaining to Subsidies, etc. (Act on Regulation of Subsidies). In addition, it should be noted that any local subsidiaries of Japanese companies are not deemed as a Japanese entity.

According to the Ministry of the Environment, a leasing company exist between a subsidized operator or indirect subsidized operator who has received a subsidy, and the relevant equipment (in this case, they are corporate users using fuel-efficient vehicles), but this composition is unlikely to be accepted since the involvement of multiple organizations or corporations will make a collection of funds difficult.

¹⁰ We nominated the Indonesian Finance Association as a candidate.

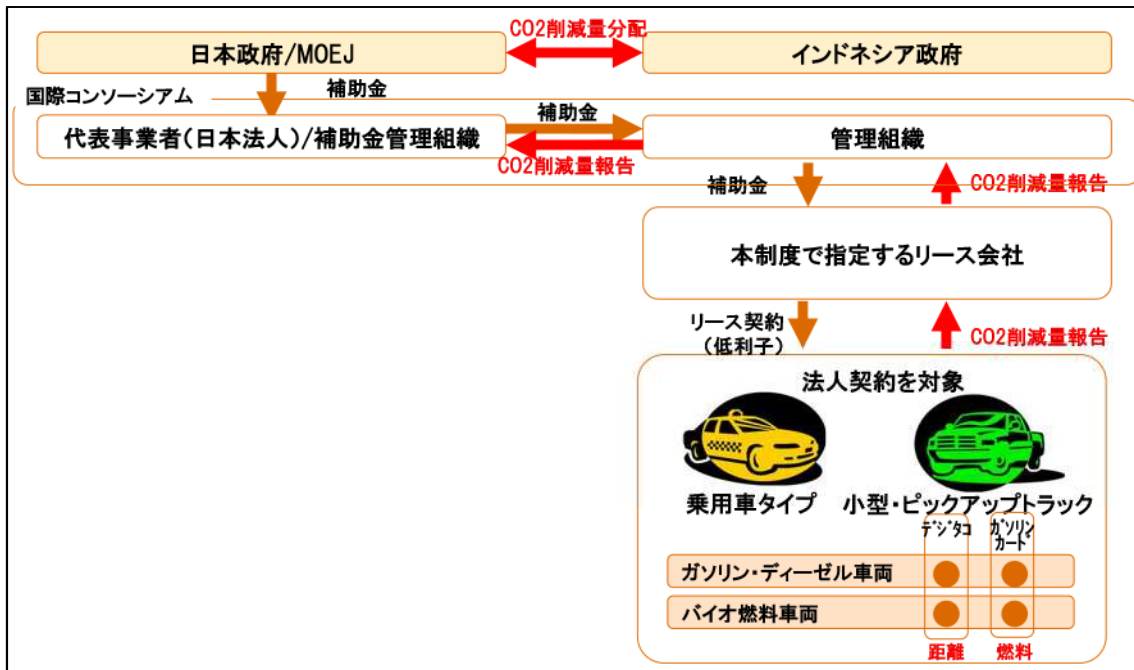
In addition, the Ministry of the Environment recognized to some extent that an equipment subsidy project is suitable for manufacturers and EPC (Engineering, Procurement, Construction), but not for leasing companies in that leasing services are not compatible with equipment subsidy project. However, it is also regarded that the subsidy model is similar to JCM's equipment subsidy project. Accordingly, despite the existence of an existing equipment subsidy project, it is very difficult to create a new equipment subsidy project for lease, the Ministry of the Environment stressed.

Next, based on the points identified from the interviews with the Ministry of the Environment and other ministries as well as with expert of these schemes, we will summarize the institutional and operational challenges on both parties.

- i) Equipment subsidy projects (herein after referred to as "Equipment Subsidy Project") using the credit system between the two countries
- ii) Provision of subsidy on interest rate from a Japanese bank's head office to a local leasing company
- iii) Provision of subsidy on interest rate from a Japanese bank's local branch to a local leasing company
- iv) Investment and loan by a public-private investment fund
- v) Institutional financing by Japan Bank for International Corporation (JBIC)

① Equipment Subsidy Project

Figure: Equipment Subsidy Project (Japanese business management organization serves as a representative operator)



Source: Prepared by PwC

Figure: Equipment Subsidy Project (Japanese leasing company serves as a representative operator)



Source: Prepared by PwC

Two patterns are assumed with respect to the “Equipment subsidy projects using Joint Crediting Mechanism (JCM)”¹¹: one is the case where a Japanese business management organization serves as a representative operator; and the other is the case where Japanese leasing company serves as a representative operator. In the former case, a business management organization located in Japan serves as a representative operator, and a subsidy management organization and a leasing company located in Indonesia become consortium members. A business management organization located in Japan receives a subsidy from the Japanese government, and a local leasing company, through the Indonesian subsidy management organization, makes a contract with users at low interest rate.

On the other hand, the Indonesian subsidy management organization is responsible for compiling the user reports regarding CO2 reductions received by each leasing company and reporting them to the business management organization in Japan. In the latter case, after the Japanese arm of a leasing company has received a subsidy as a representative operator, a local leasing company receiving the subsidy enters into a leasing contract with a lease user at a low interest rate. Through several consultations with the Ministry of the Environment, we examined challenges of the Eco-Auto Lease System utilizing the Equipment Subsidy Project, from the points of the Ministry of the Environment as well as the private sector operator.

In the Equipment Subsidy Project, the Ministry of the Environment suggested that we should pay attention to fund management organizations, such as “XXX Finance Association,” which is not an organization authorized to be an international consortium as a subsidized operator. If an association conducts a JCM project as an operation, the association should be responsible for the collection of funds. However, since the association entrusts other organizations to purchase the equipment without purchase any equipment by itself, the association cannot be a representative operator. This is the basic reason.

In addition, even if it is possible to technically meet the requirements of the Equipment Subsidy Project, there are many challenges on the operations. We have come

¹¹ They are projects initiated by the Ministry of Environment with the aim of promoting the introduction of low-carbon technologies through supports on the implementation of low-carbon equipment introduction projects in developing countries, reducing greenhouse gas (GHG) in developing countries, and contribute to GHG emissions in Japan through Joint Crediting Mechanism (JCM).

to understand that even if verification is possible with a few autos, it is extremely difficult to carry out a large scale.

First, the Ministry of the Environment pointed out that, in the case where Equipment Subsidy Project operations are implemented, the Japanese arm of a leasing company serving as a representative company needs to purchase the leased equipment. When it comes to the Eco-Auto Lease System, the Japanese arm of a leasing company needs to purchase a fuel-efficient vehicle directly from an Indonesian automobile dealer or through the local leasing company. Also, in view of practical operations of a leasing company, this commercial distribution is not realistic.

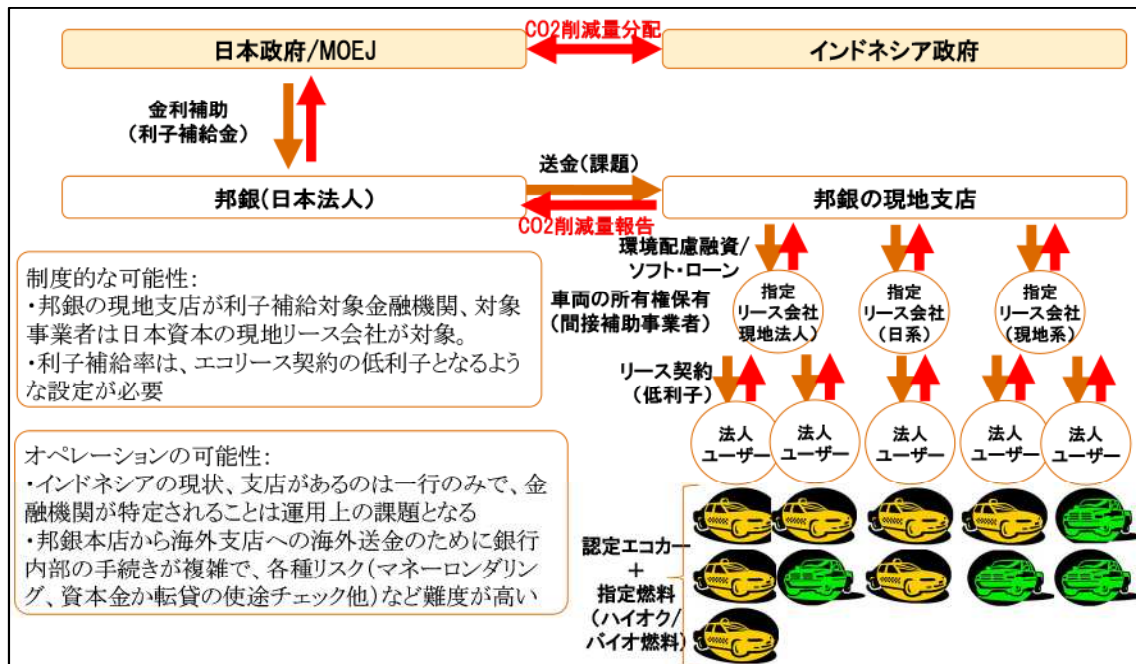
Second, we envisaged the case where corporate users who actually use a vehicle are included in the consortium members. In trial verification operations in a small scale, it could be possible to invite leasing companies and corporate users in advance as consortium members. However, it is not realistic to be involved after the full-scale operation. According to interviews with the local leasing companies, the average lead time from user's application, through credit screening to the conclusion of lease agreement is approximately two weeks. On the other hand, public solicitation of the Equipment Subsidy Project has been implemented annually or semi-annually. Accordingly, if a user missed the timing of public solicitation, it is forced to wait for the next public solicitation after 6 months to 1 year. It would be considered impractical to take procedure of leasing agreement for a few months to achieve the advantage of low interest costs, while the procedure is normally completed in two weeks.

Third, we envisaged the case where the Japanese arm of a leasing company is a representative operator and the leasing company is a consortium member. In this case, the member should be usually a headquarters and subsidiary of the same leasing company. It is difficult to imagine that a Japanese leasing company would practically form a consortium with a local leasing company other than its own local subsidiary. As discussed in Chapter 2, there are auto leasing companies performing a lease contract on four-wheel of new autos for corporate users, which are categorized into three types, consisting of automaker-affiliated leasing companies, bank-affiliated leasing companies and foreign leasing companies. However, it is estimated that the number of leasing companies who can use this System would be limited, which would make it difficult to lead to the popularization of fuel-efficient vehicles and the large-scale project. In

addition, even if it is limited to a Japanese entity and its local entity of the same leasing company, in terms of responsibility and role in the JCM project, the Ministry of the Environment showed reluctance that the Japanese arm of a leasing company is representative operator.

- ② Provision of subsidy on interest rate from a Japanese bank's head office to a local leasing company

Figure: Provision of subsidy on interest rate from a Japanese bank's head office to a local leasing company



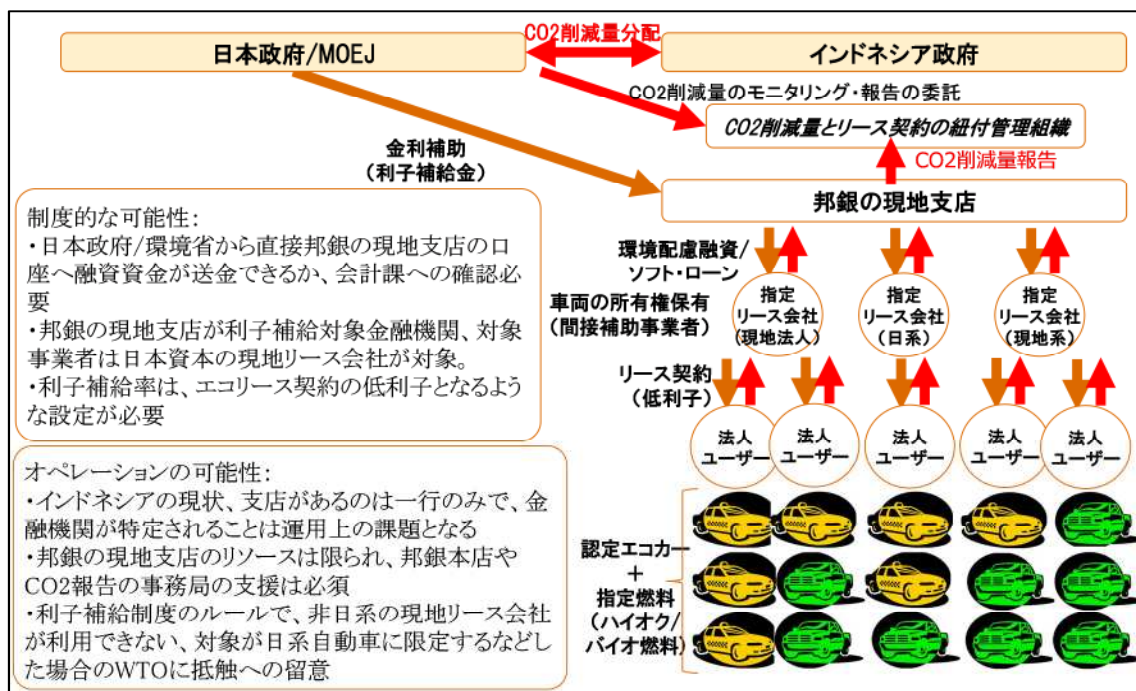
Source: Prepared by PwC

This is a scheme where a Japanese bank's head office receives an interest subsidy from the Japanese government and remits it to its local branch, then the local branch provides environmentally friendly loans and/or soft loans to a local leasing company, and finally the local leasing company executes a loan agreement to a lease user at low interest costs. The local branch of the Japanese bank is to aggregate the reporting of CO2 reduction received from users through each leasing company, to report it to the Japanese bank's head office. Furthermore, the Japanese bank's head office is to report the CO2 reduction to the Japanese government. As for this pattern and provision of subsidy on interest rate from a Japanese bank's local branch to a local leasing company as discussed later, we interviewed with the expert of loan products using environmental and energy-related interest subsidy system provided by the Japanese government. Based on the discussions with him, we summarizing tasks to be addressed.

For the purpose of providing subsidy on interest rate from Japanese bank's head office, we learned some institutional requirements to the effect that the low-interest loan must be a two-step loan through a local financial institution, and that it is possible for a Japanese bank to lend money to the Japanese entity of a Japanese leasing company to sublease the money to the local entity whose parent must be a Japanese company. In terms of operational aspects, three major problems were detected. First, from the position of Japanese banks, it is easy to lend money to Japanese leasing companies, but difficult to lend money to local leasing companies. Second, Japanese bank's head office has difficulty in overseas remittance for the purpose of providing subsidy on interest rate, in particular, for make remittance to its local branch. Third, regardless of whether it is a local affiliate of Japanese leasing company or a local leasing company, if they have a bank account in Japan, lending and settlement could be possible. However, it is difficult to open an account of non-residents.

③ Provision of subsidy on interest rate from a Japanese bank's local branch to a local leasing company

Figure: Provision of subsidy on interest rate from a Japanese bank's local branch to a local leasing company



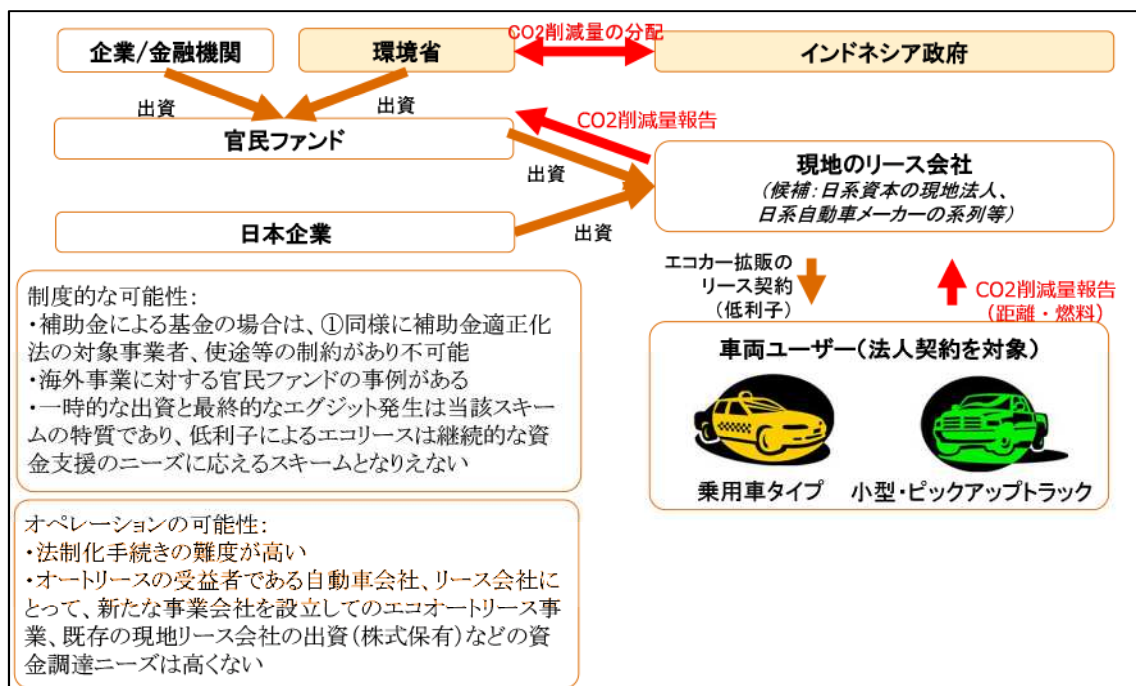
Source: Prepared by PwC

This is a scheme where a local branch of a Japanese bank received interest subsidy from the Japanese government, then the local branch provides environmentally friendly loans and/or soft loans to a local leasing company, and finally the local leasing company executes a loan agreement to a lease user at low interest costs. The local branch of the Japanese bank is to aggregate the reporting of CO2 reduction received from users through each leasing company, to report it to the Japanese government.

The Japanese bank recognizes that it would be a risky business that a local branch receives subsidies directly from the Japanese government to lend money to a local leasing company without involvement of its head office. Accordingly, the expert mentioned that they would not accept this scheme in practice taking such risk.

④ Investment and loan by a public-private investment fund

Figure: Investment and loan by a public-private investment fund



Source: Prepared by PwC

This is a scheme where a public-private investment fund is established by the Japanese government and private companies, and then the fund invests in a special purpose company (SPC) in the local site. With regard to the investment and loan by a

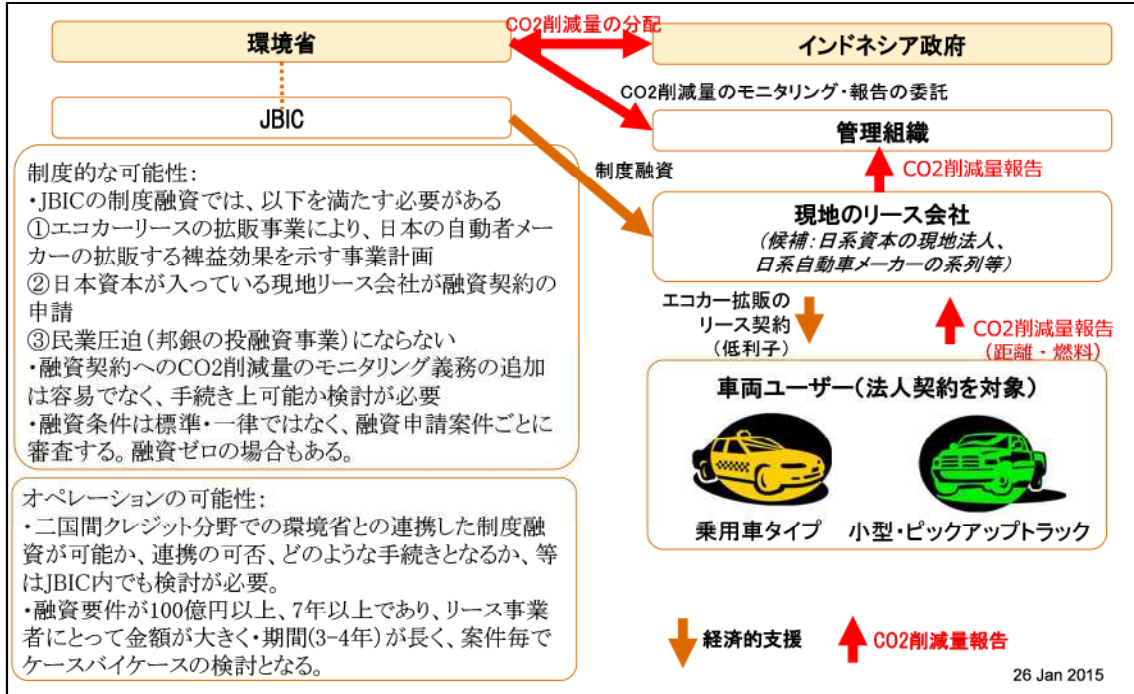
public-private investment fund, we interviewed with persons of other ministry who had experiences with involving the establishment of public-private investment funds. As a premise of the investment and loan by a public-private investment fund, we learned from the persons that, since the Japanese government cannot invest directly in companies, the investment and loan through a public-private investment fund is required.

As institutional issues in investment and loan by a public-private investment fund, legislation for an establishment of the fund is required. As an example of public-private fund and its legal system of other ministries, Cool Japan Fund Inc. (overseas demand development support mechanism) was established by the Ministry of Economy, Trade and Industry Co., Ltd. pursuant to the Law of Cool Japan Fund Inc., and Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (infrastructure export fund) was organized by the Ministry of Land, Infrastructure, pursuant to Japan's Overseas Transport and City Development Support Service Stock Corporation Act.

As an operational issue, in the case of investment by the Fund, the return is required consistent with the risk. We learned from the stakeholders involved in public-private fund that the required return is approximately 10%, given the exit by the sale of shares, etc.

⑤ Institutional financing by Japan Bank for International Corporation (JBIC)

Figure: Institutional financing by Japan Bank for International Corporation (JBIC)



Source: Prepared by PwC

This is a scheme where JBIC provides low-interest loans to local leasing companies through syndication with Japanese banks. The local leasing companies provide lease services to vehicle users at low interest costs based on low-interest loans. The reporting of CO2 reductions by vehicle users will be aggregated to the local management organization, and the Ministry of the Environment monitors CO2 reduction submitted by the management organization.

JBIC is allowed to provide loans to leasing companies as a framework of “investment finance.” However, with regard to cooperation between the Ministry of the Environment and the JBIC on the premise of JCM, it is necessary to discuss between them specifically. JBIC has no function to aggregate the reporting of CO2 reductions. Therefore, it is necessary to build systems, e.g. the Ministry of the Environment to entrust the reporting and aggregation operations to business operators.

Each loan to a leasing company by JBIC will be determined on a case-by-case basis as operations of JBIC, there is a possibility that this scheme will not be consistent with

the framework as subsidy projects by the Ministry of the Environment. Also, when considering lending money to a business engaging in eco-auto, JBIC will make a decision separately, based on whether extending the loan will bring about benefits to the sales strategy of the relevant local Japanese automaker or not, or on the basis of creditworthiness of the relevant leasing company that would become a borrower. Since the loan interest rate will depend on the creditworthiness of the borrower, it will not bring about a uniform cost reduction, like a subsidy project. Since JBIC's credit to leasing company is limited to Japanese leasing companies, it is anticipated that a full-scale development is unlikely.

In addition, when it comes to JBIC's credit to a leasing company subject to consideration, it should be a large sized loan with a longer period (e.g. 10 billion ten for loan period of 7 years and longer. Therefore, it should be noted that JBIC will make a decision individually whether or not it will provide a loan to a business engaging in a small-sized auto-lease with shorter period (e.g. for 3 years or so),.

3-2 Estimated Effect against Global Warming of the Spillover Effects from Eco-Auto Lease System

① Estimated effect against global warming

Assumed values are set as follows with respect to “before the purchase of eco-auto” (reference) and “after the purchase of eco-auto” (project).

Reference case	Vehicle type: Gasoline car Fuel type: Gasoline with subsidies (6,500Rp/L) Annual mileage: 20,000km/year Fuel consumption (default value): 15km/L * measuring method: BPPT PTMP
Project case	Vehicle type: Certified eco-auto (Gasoline car) Fuel type: Gasoline without subsidies (10,900Rp./L) Annual mileage: 20,000km/year Fuel consumption: 19km/L * measuring method: BPPT PTMP Vehicle purchase cost: 158,000,000Rp.

If a user of a gasoline car with subsidies replaces it for a gasoline car without subsidies, CO2 reduction per vehicle can be estimated as follows:

<p>Reference emission level =</p> $\text{Annual mileage (km/year)} \div \text{Fuel consumption (km/L)} \times \text{Emission factor of fuel (kgCO}_2\text{/L)} \div 1000$ $20,000 \text{ (km/year)} \div 15 \text{ (km/L)} \times 2.32 \text{ (kgCO}_2\text{/L)} \div 1000$ $= 3.44 \text{ (tCO}_2\text{/year)}$
<p>Project emission level =</p> $\text{Annual mileage (km/year)} \div \text{Fuel consumption (km/L)} \times \text{Emission factor of fuel (kgCO}_2\text{/L)} \div 1000$ $20,000 \text{ (km/year)} \div 19 \text{ (km/L)} \times 2.32 \text{ (kgCO}_2\text{/L)} \div 1000$ $= 2.72 \text{ (tCO}_2\text{/year)}$
<p>CO2 reduction = 0.72 (tCO2/year)</p>

If a user of a gasoline car with subsidies replaces it for a Bio-fuel eco-auto, CO2 reduction per vehicle can be estimated as follows: (* Since the fuel consumption level of Bio-fuel eco-auto is not available, it is assumed as if the fuel consumption level of Bio-fuel eco-auto were the same as that of Gasoline car).

<p>Reference emission level =</p> $\text{Annual mileage (km/year)} \div \text{Fuel consumption (km/L)} \times \text{Emission factor of fuel (kgCO}_2\text{/L)} \div 1000$ $20,000 \text{ (km/year)} \div 15 \text{ (km/L)} \times 2.32 \text{ (kgCO}_2\text{/L)} \div 1000$ $= 3.09 \text{ (tCO}_2\text{/year)}$
<p>Project emissions =</p> $\text{Annual mileage (km/year)} \div \text{Fuel consumption (km/L)} \times (1 - \text{Biodiesel mixing ratio}) \times \text{Emission factor of fuel (kgCO}_2\text{/L)} \div 1000$ $20,000 \text{ (km/year)} \div 19 \text{ (km/L)} \times (1 - 0.075) \times 2.76 \text{ (kgCO}_2\text{/L)} \div 1000$ $= 2.44 \text{ (tCO}_2\text{/year)}$
<p>CO2 reduction =</p> <p>Reference emissions – Project emissions + biodiesel alternative CO2 reduction</p> $0.65 \text{ (tCO}_2\text{/year)} + (\text{Annual mileage (km/year)} \div \text{Fuel consumption (km/L)} \times (1 - \text{Biodiesel mixing ratio}) \times \text{Emission factor of fuel (kgCO}_2\text{/L)} \div 1000)$ $0.65 \text{ (tCO}_2\text{/year)} + 0.53 \text{ (tCO}_2\text{/year)}$ $1.07 \text{ (tCO}_2\text{/year)}$

We also estimated the effect against global warming in the case where this Eco-Auto Lease System is implemented as JCM on a large scale with the assumed introduction scale as indicated below.

Introduction scale of Eco-Auto Leasing (for 1 year)	Equivalent to 21,000 passenger autos Equivalent to small pickup truck 10,500 units Total 31,500 units
Gasoline with subsidies reduction effect	Fuel economy improvement: Approximately 8,842kL/year Alternative fuel: Approximately 829kL/year Total: Approximately 6,300kL/year
CO2 reduction effect	Passenger autos 13,676tCO ₂ /year Small pickup trucks: 11,240tCO ₂ /year Total 24,916tCO ₂ /year

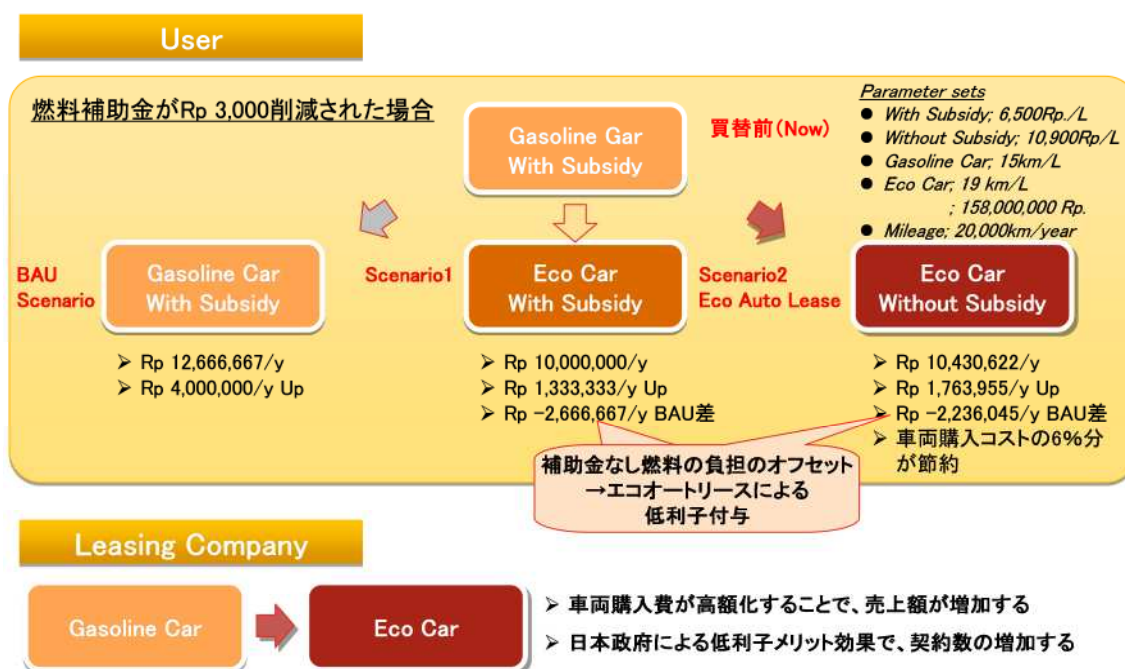
② Economic benefits to users and leasing companies (market spillover effect)

In this paragraph, we will estimate the economic benefits (advantages) for quantitative evaluation in the case where a user switches from a fuel gasoline car with subsidies.

The Indonesian government has taken a policy to reduce the fuel subsidies, which has boosted fuel costs. We made a scenario analysis on the assumption that the price of gasoline per liter increase by 3,000Rp.

In the following figure, we made comparison of annual fuel costs and an increase in fuel costs in the following cases: (i) where a gasoline car is used as usual (left side in the figure); (ii) where an eco-auto is used together with gasoline with subsidies (center in the figure); and (iii) where an eco-auto is used together with gasoline without subsidies.

Even in the case where the project requires the replacement for an eco-auto and the use of gasoline without fuel subsidy, the fuel cost can be reduced by 2,236,045Rp. (2,236 yen, converted at ¥ 1 = 100Rp.), as compared to BAU (business as usual). The above analysis suggests that, although the benefit of fuel subsidies has become smaller for Indonesian civilians or corporations, they will be able to achieve economic benefits while they switch to the eco-auto to secure subsidy benefit on the purchased vehicle while accepting the conditions without fuel subsidies.



Moreover, if leasing companies, who are engaged in sale of auto lease contracts, receive orders for replacement for eco-autos with annual sales of several ten thousand units through introduction of Eco-Auto Lease System, leasing companies will be able to achieve the effects on revenues, since the sales of eco-autos per unit is higher. The leasing industry also will be able to secure economic benefits. .

③ The Indonesian government's economic benefits (related to fiscal and environmental policies)

Amid increasing consumption of fossil fuel in Indonesia with social and economic developments, the Indonesian government has increasingly faced multiple problems, such as fiscal pressure due to fuel subsidies, as well as air pollution and CO2 emissions problems arising from trade deficits in fossil fuels and automobile pollution.

If the Eco-Auto Lease System is introduced as proposed by this Survey together with the promotion of purchase of eco-autos, the following macro-level effects are expected.

Introduction scale of Eco-Auto Leasing (for 1 year)	<p>Equivalent to 21,000 passenger autos (or 2,500,000 yen/unit)</p> <p>Equivalent to small pickup truck 10,500 units (or 4,000,000 yen/unit)</p> <p>Total: 31,500 units</p> <p>In the case of low-interest subsidy of 10% worth of vehicle purchase prices, economic assistance from the</p>
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	Japanese government of Japan is approximately 9,450 million yen.
Gasoline with subsidies reduction effect	Fuel economy improvement: Approximately 8,842kL/year Alternative fuel: Approximately 829kL/year
CO2 reduction effect	Passenger autos 13,676tCO2/year Small pickup trucks: 11,240tCO2/year Total 24,916tCO2/year
Fuel subsidy burden reduction effect	Approximately 38,905 million Rp. Approximately 389 million yen (Translated at ¥ 1 = 100Rp)
Air pollution reduction (Subsidiary benefit)	8,842kL worth of gasoline emissions reduction effect 32,328kL worth of high-octane effect

4. Examining and Planning MRV Methodology

4-1 Reviewing the Definition of Eco-Auto

For the purpose of defining a compatible auto model (hereinafter referred to as “Eco-Auto”), in view of the purpose of large-scale deployment, we examined the ideas of the two criteria below.

Criteria 1: To avoid overlapping with any existing system implemented by the Indonesian government or through collaboration by the Japanese government

Criteria 2: To avoid too high difficulty in technical conditions

Due to the criteria 1, vehicles subject to LCGC (Low Cost Green Car) system implemented by the Indonesia were excluded from the scope of Eco-Auto. We will discuss this system in the next paragraph.

Due to the criteria 2, natural gas vehicles, electric vehicles (EV), hybrid vehicles were excluded from the scope of ECO-Auto. This is because natural gas and electric vehicles are required to be developed together with the infrastructure, such as supply stations for natural gas vehicles and charging stations for electric vehicles. As of 2012, there are just 14 supply stations for natural gas vehicles in Jakarta City. In addition, natural gas vehicles¹² are limited to small tricycle taxis called Transjakarta bus and Bajaj, a public transportation in Jakarta City.

As for CNG (Compressed Natural Gas) vehicles, Toyota Tsusho Corporation, Toyota Motor Corporation and Toho Gas Engineering Co., Ltd. are carrying out the “current analysis on construction possibilities of gas supply infrastructure toward the popularization of compressed natural gas (CNG) vehicles” as a basic research project of NEDO (New Energy and Industrial Technology Development Organization) in 2014-2015. This project targets official vehicles of the government with potentially high advertising effects to users as well as transportation trucks circulating in industrial park. Demonstration project will be implemented in the operating area with installation and operations of Japanese CNG station.

¹² Although repair kits for natural gas vehicles are sold around 500-700 dollar equivalent, repair vehicles are excluded from the scope of Eco-Auto.

Photo: Transjakarta bus



Source: Pictures taken by PwC

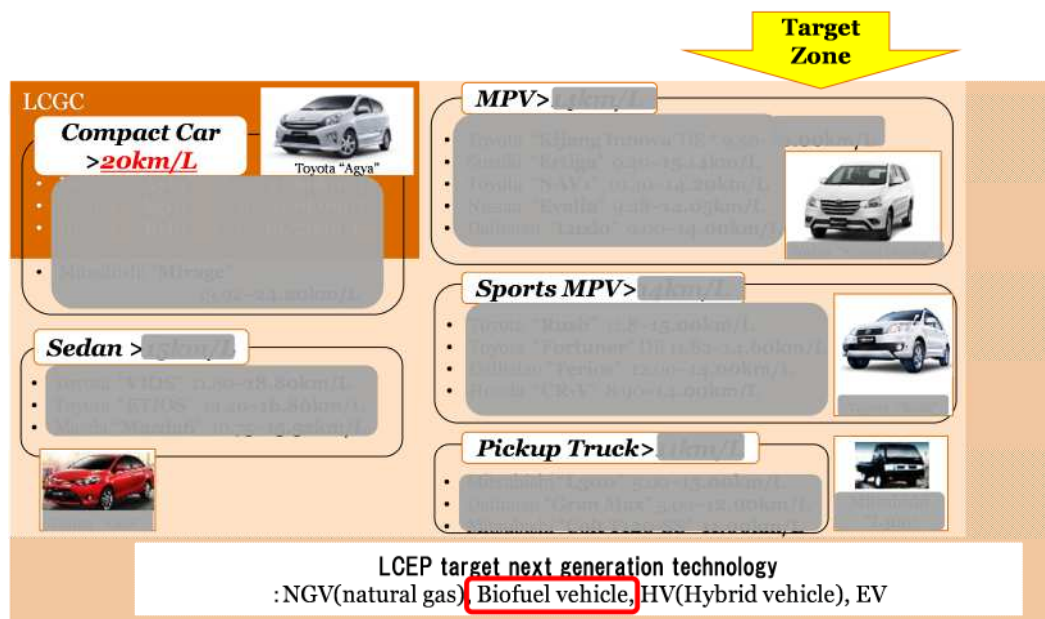
Bio-fuel vehicles are included within the scope of Eco-Auto, since there is a strong demand from the Indonesia's Ministry of Finance to promote the use of fuel that can be produced at home, given that Indonesia has become a fuel importing country with serious trade deficit. With regard to the supply of bio-fuels, diesel fuels with mixing of bio-fuel (5%) made from palm oil are sold under the name of Bio Solar at gas stations of PT Pertamina, a state-owned oil company.

With regard these criteria, we have exchanged several discussions through workshops with GAIKINDO and APPI, the local stakeholders in Indonesia. Along the criteria, we examined the eligibility requirements consisting seven points below and the definition of Eco-Auto.” The first point defines the necessity of replacing an existing vehicle for a new one.” This is based on the premise that the Eco-Auto Lease Systems should aim to encourage consumers to select lower fuel consumption vehicles than those held before the replacement or those they want to buy for their replacement demand, rather than just to increase the number of new auto sales. The second point defines the requirement of “corporation contracts with leasing company with the conditions of a certain minimum number of vehicles” in light of traceability. In the beginning of the examination of the Eco-Auto Lease System, the Indonesia stakeholders proposed us to include lease contracts with individual users in light of extensively popularize fuel-efficient vehicles. However, given the thoroughness of the reporting requirements up to 2020, including after the termination of lease contracts, lease contracts were determined to be confined to corporate contracts. The third point stipulates the requirement of “fuel-efficient vehicles (gasoline) as defined under this System” in light of low fuel consumption effect. The fourth point stipulates the requirement of “bio-fuel vehicles” in light of

alternative fuel effect. Definition of specific “Eco-Auto” will be described later in the paragraph of Definition of Eco-Auto and conformance test. The fifth point stipulates the requirement of “fuels to be used that shall be confined to bio-fuel or gasoline without subsidies having potential effect on the reduction of air pollution (octane number 92 or higher)” in light of CO₂ reduction and secondary benefit effects. With respect to the use of gasoline without subsidies, there was a strong demand from GAIKINDO to include the eligibility requirements in order to achieve low fuel consumption. The sixth point stipulates the requirement of “introducing digital tachometer (operation control assisting OBE) and payments by gasoline card for convenience of monitoring mileage and fuel consumption” for simplification of monitoring. From the standpoint of leasing companies with accountability of fuel consumption and mileage, APPI expressed its request not only for simplified monitoring but also for electronic and automated monitoring in terms of accuracy and reliability. The seventh point defines the requirement of “operational maintenance performed on a regular basis” so as to maintain the fuel consumption at the time of new purchase. This was also requested from GAIKINDO, with the expectation of provoking users’ awareness to fuel consumption as well as fuel costs as the effectiveness of the implementation of the periodic maintenance.

Then, for the definition of Eco-Auto, we examined the following five definitions. The first point was to establish the “fuel efficiency standards of Eco-Auto (fuel consumption threshold)” on this System by the Japanese government (Ministry of the Environment). At this step, the Japanese government is to introduce some of the ideas of the Japan’s top runner system, and set fuel consumption standards as the definition of “Eco-Auto with good fuel economy” to promote the popularization of Eco-Auto in Indonesia. The second point was to exclude LCGC (Low Cost Green Car) within the scope of “Eco-Auto.” This step was considered with the aim of avoiding the overlapping with vehicles subject to the Eco-Auto tax incentives provided by the Indonesian government, which could cause an increase in auto ownership rate of Indonesian people and the resulting increase in fuel consumption. The third point was to make the term “Eco-Auto” address the largest volume zone of passenger autos and light trucks as target vehicle type. This is because these types of vehicles account for more than 80% of annual sales, which require pressing fuel reduction measures. The fourth point was to target fuel-efficient vehicles (gasoline) exceeding the fuel economy standards. The fifth point was to target bio-fuel vehicles.

Figure: Criteria to consider the Definition of Eco-Auto



Source: Prepared by PwC

4-2 Identifying Popularization Trends of Eco-Autos and Fuel Consumption Information

4-2-1 Trends in Popularization of Eco-Auto

① Preferential policies on Low Cost Green Car (LCGC)

In Indonesia, the preferential policies on low cost green cars (LCGC: Low Cost Green Car) were enacted pursuant to the government rules No. 41 in 2013. In this system, the Luxury Tax is exempt if the following conditions are met.

	Gasoline cars	Diesel vehicles
Displacement	1,200CC or less	1,500CC or less
Fuel consumption	Gasoline mileage of 20km/L or more	Gasoline mileage of 20km/L or more
Emission gas standards	EURO2	EURO2
Price	IDR100 million or less	IDR100million or less

Source: PwC Customs, GSI/IISD Indonesia Energy Subsidy Briefing, GAKINDO

The tax benefits are primarily under the jurisdiction of Indonesia's Ministry of

Finance. However, the requirements relating to the detailed requirements and the production are defined by Indonesia's Ministry of Industry Rules No. 33 in 2013.¹³ Fuel consumption, wheel's turning radius, metrics, prices and institutions in general primarily under the jurisdiction of Indonesia's Ministry of Industry.

The Indonesia Government aims to foster the industry through introduction of LCGC for further auto popularization by launching models whose prices are within the reach of middle-income consumer.¹⁴ GAIKIDO also expressed the reason for setting the fuel efficiency standards of LCGC at 20km/L. It was partly because the Indonesian automotive industry aimed to grow as auto exporter, after unification of ASEAN in 2015, not just coping with the domestic demand.

As of December 2014, six auto models are being sold in Indonesia. They are: Toyota "Agia," Daihatsu "Ayla," Honda "Brio Satya," Nissan Datsun "GO + Panca" and "GOPanca", and Suzuki "KARIMUN WAGON R." Among them, Toyota "Agia" and Daihatsu "Ayla" are siblings models. In the recent 11 months from January to November 2014, 160,000 units of LCGC segment vehicles are sold, which accounted for approximately 14% of domestic sales of approximately 1.13 million units in the same period.

¹³ Ministry of Industry Regulation No. 33/2013 which regulates a more detail requirements for LCGC which covers fuel efficiency and vehicle price
MoI Regulation No. 33/M-IND/PER/7/2013 concerning the Production Development of Low Energy and Affordable Four Wheel Vehicle.
Directorate General of Technology Based Manufacturer Regulation No. 25/IUBTT/PER/7/2013 year 2013 concerning Technical Guidelines for The Implementation of the Production Development of Low Energy and Affordable Four Wheel Vehicle.

¹⁴ According to the Doshisha Commerce "Identifying the logic of the Indonesian automotive market expansion" (written by Hiroshi Shio-chi), there are not so many car models whose prices are 1 million yen or less in Indonesia. Since Japanese manufacturers account for 95% or more of the Indonesian market, the quality of a certain level or higher is required. That's the reason why low-priced vehicles are not so easily marketed in the Indonesian market.

LCGC segment vehicles

Toyota Agya



Daihatsu Ayla



Source: Pictures taken by PwC

Honda Brio Sataya



Source: Pictures taken by PwC

LCGCs are designed based on the use of fuels without subsidies (RON 92), but the users do not necessarily use of fuels without subsidies (RON 92). This situation has been taken up as problems by automotive manufacturers, etc. Through interviews with automobile manufacturers and leasing companies, we received the comment that purchasers of LCGCs in Indonesia are similar to those of light cars in Japan. Many users decide to buy LCGC due to low vehicle prices rather than low fuel consumption costs. Sometimes, such users make use of fuels with subsidies (RON88) for reason of cheap fuel prices. Accordingly, it cannot be necessarily said that fuel-efficient autos have become popular due to the LCGC system,

② Fuel efficiency metrics of LCGC and conformance testing procedure

According to the explanation of GAIKINDO, the new European Driving Cycle (NEDC: New European Driving Cycle) is used at the time of certification of a motor vehicle by the Ministry of Transport. At the time of conformance testing of LCGCs, The conditions of the NEDC were partially modified to reflect the driving conditions of Indonesia. The comparison between the NEDC and Indonesia standards is shown below. A change from NEDC is solely in a speed limit on expressway. In accordance with the Indonesia's rule, the max speed is 80 kilo meters per hour instead of 120 kilo meters per

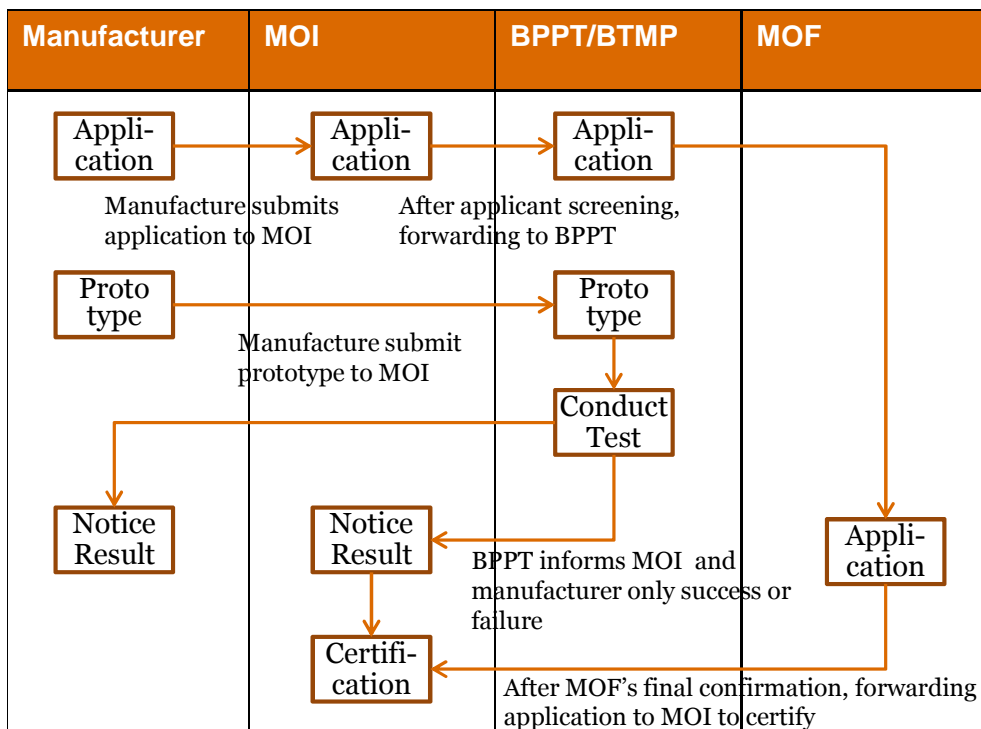
hour.

NEDC	Indonesia's criteria
4 times slow speed urban	4 times slow speed urban
1 times high speed highway	1 times high speed highway
Average speed: 33.6 km/h	Average speed: 33.6 km/h
Max speed: 120km/h	Max speed: <u>80</u> km/h

The conformance testing is performed at BTMP (Balai Termodinamika Motor Propulsi – Propulsion Engine Thermodynamic Testing Centre) which is located within BPPT (Badan Pengkajian dan Penerapan Teknologi – Agency for the Assessment and Application of Technology), a subsidiary body of Indonesia's Ministry of State for Research and Technology (RISTEK: Kementerian Riset Dan Teknologi).

The test is completed in approximately one week at the shortest. As for the result of the test, only acceptance to 20km/L is notified without any disclosure of the actual value of the fuel consumption. The test costs are borne by automakers. During this Survey, we interviewed with the Secretary of BPPT, and asked whether the conformance testing of Eco-Auto can be implemented at BTMP or not. The Secretary gave a ready consent to us and promised to introduce us to BTMP.

Flow of certification process of LCGC



Note: MOI(Ministry of Industry, BPPT(Badan Pengkajian dan Penerapan Teknologi - Agency for the Assessment and Application of Technology) , BTMP(Balai Termodinamika Motor Propulsi – Propulsion Engine Thermodynamic Testing Centre), MOF(Ministry of Finance)

Source: Prepared by PwC based on the results of interview with GAKINDO

③ Low Carbon Emission Program (LCEP)

In May 2013, LCEP was also enacted pursuant to the government rules No. 41 in 2013. This LCEP targets hybrid vehicles, electric vehicles and alternative energy vehicle. In this system, the Luxury Tax is exempt depending on the fuel consumption level.

Target vehicles	Hybrid vehicles, electric vehicles, and alternative energy vehicles
Tax benefits	Fuel consumption cost of 20 - 28 km/L: 25% tax-exempt Fuel consumption of 28 km/L or more: 50% tax-exempt
Price requirements	None

Source: GAKINDO

GAIKINDO proposed this system and intends to develop it actively in 2015.

④ Popularization of Eco-Auto, etc.

In Indonesia, automakers are not obliged to disclose any fuel consumption information. In addition, no fuel efficiency metrics are defined by the Indonesian government. In addition, there was a litigation filed a user against an automaker, complaining that there was a discrepancy between the fuel consumption data announced by the automaker and the actual fuel consumption. Accordingly, manufacturers are very cautious about the disclosure of fuel consumption data.

However, there are some signs that some users have become well familiar with autos and use fuels without subsidies in consideration of all in all fuel costs not to mention of engine care and payments of fueling each time. In Jakarta Motor Show in 2014, “low fuel consumption” and “low emissions” were introduced as a breakthrough technology. Some auto manufacturers began to advertise and highlight low fuel consumption as an appealing point to consumers. Mitsubishi Motors describes in the catalog the fuel consumption of 24.20km/L, which was measured in cooperation with the University of Indonesia in “Mirage,” a compact car. Volkswagen posts the measurement fuel consumption result of 17.2km/L in compliance with EC Directive 715/2007 in the catalog of “Polo.”

Catalogues with description of fuel economy

Mitsubishi Motors Mirage



Source: Each company's website

Volkswagen Polo

WORLD CAR OF THE YEAR
WORLD CAR AWARDS 2010

World Car of the Year 2010.
Packing all the safety and quality features of a larger vehicle, it's no wonder that the 5th generation Polo has been voted as World Car of the Year 2010 and European Car of the Year 2010.

DSG - Dual Clutch Transmission.
Enjoy an unparalleled driving experience as the powerful engine and first in class 7-speed Dual Clutch Gearbox deliver exhilarating performance. It is fully fledged automatic gearbox based on the dual clutch principle. DSG consist of two partial gearboxes which are independent of one another.

1.4 MPI Engine.
The Polo is rare breed. A purposeful and impressive car made for urban living that's excellent in space, safety and design. The Polo 1.4 engine has class-leading fuel economy of 17.2 km/litre* and lower emission. Acceleration from 0 -100 kmh in 11.9 seconds with top speed 177 km/h, enough to zip around safely, stylishly and comfortably.

*Disclaimer: Fuel consumption figures listed have been established in accordance with the measuring method stipulated (EC directive 715/2007 which is currently valid).

Source: Each company's website

Against these movements, GAIKINDO shows a caution stance to the effect that these case examples are driving test results on the basis of individual manufacturers' standards and they are not the standards to be defined by the Indonesian government.

4-2-2 Identification of fuel economy information

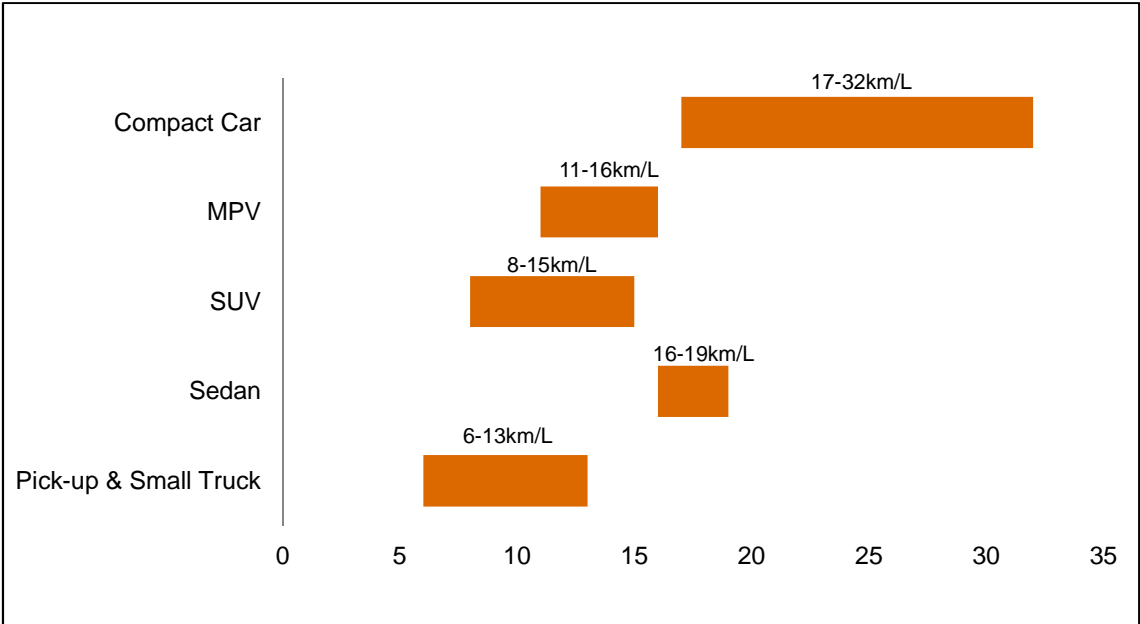
As mentioned above, automobile manufacturers in Indonesia are not obliged to disclose any fuel consumption information. It is quite rare for automakers to voluntarily describe fuel consumption information on the catalogue, like "Mirage" of Mitsubishi Motors or "Polo" of Volkswagen. Accordingly, it is difficult to collect the information from product catalogues at the time of this Survey envisaged. We grasped the fuel consumption information from the two sources consisting of Press Test and User Test.

Press Test	<ul style="list-style-type: none"> ● Press Test is mainly announced by auto media at the time of new auto sale ● Press Test is carried out usually at urban area, highway, outside of urban area, suburbs and their combination. ● At the time of testing, the vehicle is fully fueled and then the measurement is made on how much fuel is consumed in each route. ● Representative auto media include Otomotif and autobild.
User Test	<ul style="list-style-type: none"> ● This is an online site in which auto fans discuss autos. ● Users disclose fuel economy information mainly on the same model. In addition, more fuel-efficient autos, etc. also discussed ● The moving method of User Test is similar to that of Press Test. However, since the road conditions are not specified, there are some variances, especially along the-determined conditions, there are some variances. ● Representative auto user sites are Kaskus, Kompas.com, and Serayamotor.com etc.

We collected fuel consumption information on key models Press test that are sold in Indonesia using Press Test and User Test and then organized the information by body type. It is obviously identified that the volume zone of MPVs are concentrated around 11-16km/L. Compact autos are better positioned (17 to 32 km/l) to the other models

since the suitability requirements of LCGC are set at 20 km/L.

Figure: Identification of fuel economy information



Source: Summarized by PwC using data of Press Test and User Test

Photos: Major models marketed in Indonesia



Source: Pictures taken by PwC

SUV



Source: Pictures taken by PwC

Van



Source: Pictures taken by PwC

4-2-3 Fuel subsidies and their reduction

① Fuels with subsidies and trends in development thereof

In Indonesia, fuel subsidies and their reduction should be noted when examining the fuel economy. Fuel subsidies were introduced by the Sukarno regime for the first time in order to protect the public from the rapid rise in fuel prices, and they are still continuing.

Distribution of fuels with subsidies is limited to Pertamina (state-owned enterprise), whereas private companies (e.g. Shell) handle only fuels without subsidies.¹⁵

With or without subsidies	Pertamina Product Name	Supplement
With subsidies	Premium	Octane number: 88
Without subsidies	Pertamax	Octane number: 92
Without subsidies	Pertamax Plus	Octane number: 95
With subsidies	Bio-Solar	Diesel fuels containing bio-fuel (5%) made from palm oil

¹⁵ Shell handles Shell Super (octane number 92) and Shell V Power (octane number 95).

Price indication of fuels with subsidies(2014/8)



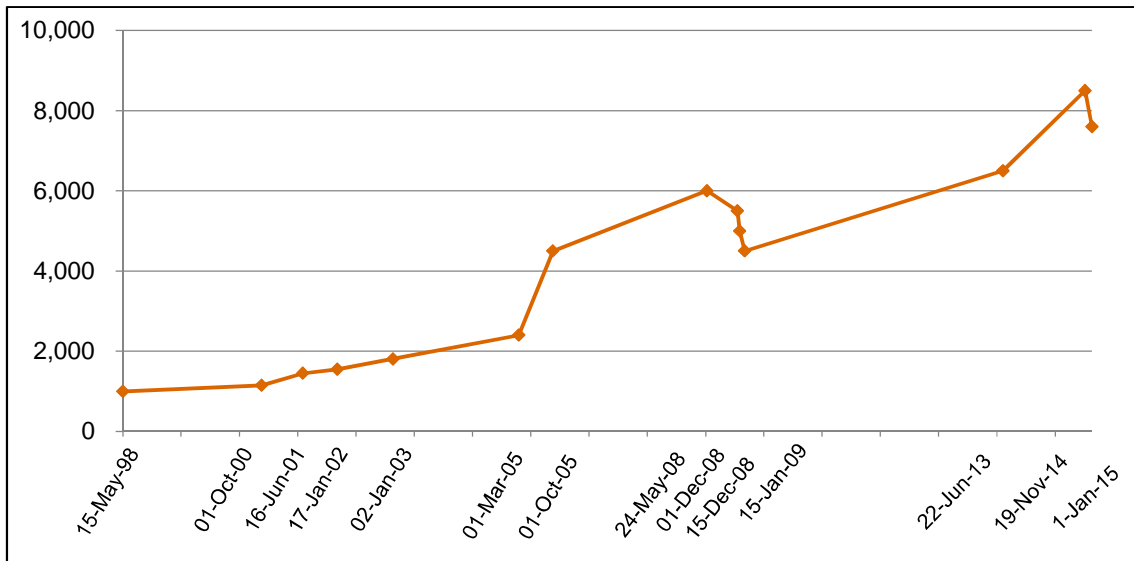
Source: Picture taken by PwC

Price indication of fuels with subsidies(2015/2)



Source: Picture taken by PwC

Figure: Trends in development of prices of fuels with subsidies



Source: The Indonesian Government statistics

Fuel subsidies accounted for approximately 17% of the Indonesian government's budget in 2014, which is one of the factors of expanding financial deficit, due mainly to on, has become one of the expansion factors of the budget deficit, due mainly to an increase in fuel imports and fuel consumption. The Indonesian government has reduced the subsidies several times. During this Survey period, on November 19, 2014, the Indonesian government raised the price of fuel with subsidies from 6,500 rupiah per liter to 8,500 rupiah per liter. In addition, on December 31, 2014 the government announced that it would fix the value of subsidy and determine the distribution value according to the market fluctuations.

Up to now, every time the Indonesian government reduced the subsidy, large-scale anti-government demonstrations occurred. As a result, in some cases, the government cut down the reduction. Many of the demos were initially developed by college students, NGO organizations and labor unions of drivers of public transportation systems. Later workers in industrial areas and local areas developed demos to demand higher wages for the compensation for fuel price hike. In line with the aim of the reduction of subsidies, a fuel price hike usually has brought about the effect of an increase in utilization of public transportations.

Against the subsidy reduction in November 2014, the opposition party repeatedly requested President Joko to disclose how much of the budget deficit can be cut down by

the subsidy reduction and what items will be covered by the budget which has been used for fuel subsidies. At the time of subsidy reduction in November 2014, the support rate of President Joko was down to 44% from 64% immediately after the election.

The subsidy reduction was announced on November 18 and enforced on the next date of November 19. For this reason, a huge number of people rushed to gas stations and waited in a line for refueling until midnight of November 18, with the result of big traffic jams in Jakarta City.

Consumers rushing to a gas station in a line



Source: Jakarta Post Source: Jakarta Post

Through several mass media, GAIKINDO announced that a reduction in fuel subsidies could bring about the effects as shown below.

- ① Decrease in approximately 10-15% of auto sales
- ② Support for popularization of natural gas vehicles for commercial use
- ③ Increase of two-wheeled vehicles
- ④ Increase in sales of LCGCs

At this time when approximately 2 months has passed since the price hike in November 2014, it is difficult to identify a change in users' behavior. On the other hand, looking at discussions of social media, there are some moves trying to shift fuels with subsidies (octane number 88) to fuels without subsidies (octane number 92). This is because the price difference between fuels with subsidies (octane number 88) and fuels

without subsidies (octane number 92) has narrowed to approximately 1,000-1,500 rupiah/L (from 8 cents to 12 cents in the US dollar).

② Subsidies out of fuel price

The Indonesian government uses FOB mean price of Platts Singapore of petroleum products announced by Platts (MoPS) and Indonesian crude oil price (ICP) as a benchmark. MoPS is an average value of international crude oil prices per barrel (average). The annualized average value is 102 to 105 dollars/barrel. Indonesia crude oil price (ICP) is an annualized value of crude oil price in Indonesia. When computing ICP, foreign exchange rate for 1 year applicable to crude oil prices is also taken into consideration. The annualized average price year is 80 dollars/barrel.

The Indonesian government uses MoPS as the highest value of benchmark, for the purpose of computing an economic value of fuels with subsidies as compared to the cost of fuel purification. The average value of the computation results (average) is the basis for budgeting of fuel subsidies at the beginning of the fiscal year. Accordingly, in the case where there is a change in Indonesian oil price (ICP), the price difference will be compensated by subsidies. By reference to MoPS, the economic price of fuel with subsidies can be computed as 10,500 rupiah/L. In addition, the price before the subsidy reduction was 6,500 rupiah/L. Accordingly, the Indonesian government granted a subsidy with the value of 4,000 rupiah/L. If the price of fuel with subsidies is 8,500 rupiah/L, the government would grant a subsidy of 2,000 rupiah/L.

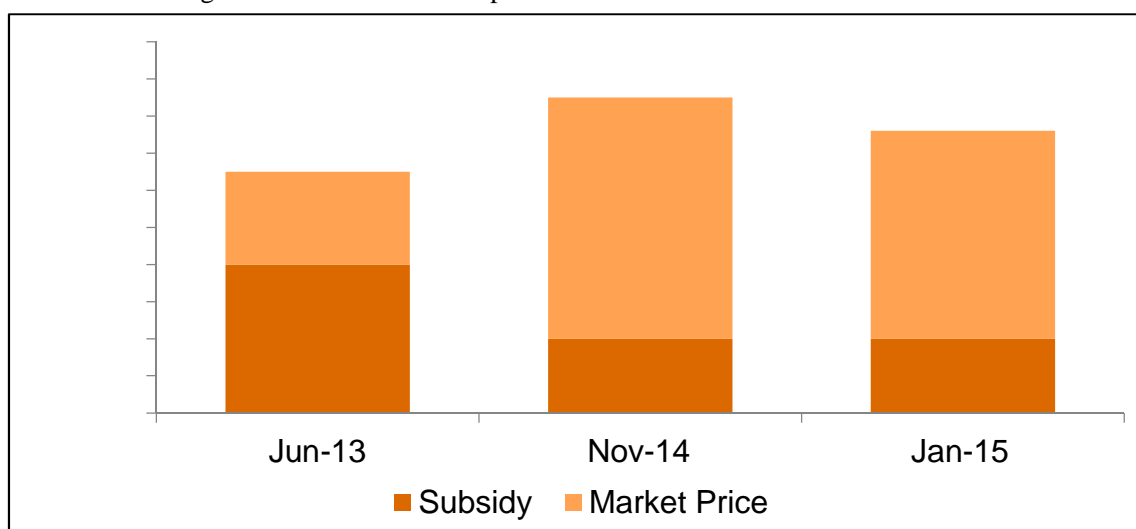
Figure: Comparison of ICP, MoPS and fuel with subsidies



Source: Analyzed by PwC on the basis of the price of ICP and MoPS

Furthermore, the Indonesian government announced that, from January 2015, the subsidy will be fixed and the prices of fuel with subsidies will be reviewed every two weeks in accordance with the market conditions. As a result, in January 2015 the price declined from 8,500 rupiah/L to 7,600 rupiah/L. Since it takes only a short time after the introduction of variable price, we cannot identify the users' behavior sufficiently.

Figure: Trends in development of subsidized amount for fuels



Source: Analysis by PwC based on presentation materials

4-3 Examining and Planning MRV Methodology

The Eco-Auto Lease System proposed by this Survey aims at encouraging Indonesian consumers to purchase new auto vehicles with excellent fuel efficiency. At the same time, it also targets contributing to the global environmental measures to energy saving and CO₂ reduction as well as at achieving a market activation of Indonesia's domestic auto industry. Additionally, for the purpose of making the Eco-Auto Lease System develop on a large-scale as JCM project, it is necessary to define eligibility requirements.

With reference to the results of this Survey we have so far achieved and the stakeholders' opinions through workshops, we propose to define the following requirements.

Requirement 1	It is only applicable when a user replaces an existing vehicle for a new one
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The situation must be the case where a user replaces an existing vehicle for a new fuel-efficient Eco-Auto, and it is not applicable when a user continues to use the existing car.

When a user is going to purchase a new Eco-Auto for the first time with no experience of using any car, he/she will be excluded due to the absence of use track record being used as reference.

Requirement 2	Corporation contracts with leasing company with the conditions of a certain minimum number of vehicles [Achievement of traceability]
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The annual sales volume of auto vehicles in Indonesia exceeds 120 million units, and the ratio of general public users and corporate users is 7 to 3. If the JCM project is applicable to general public users (mass) accounting for the majority of the market, it would be difficult to implement monitoring, reporting and verification (MRV) in practice. In the case of corporate users, it is possible to systematically manage a series of procedures, including measurement, collection, recording and reporting of data. However, even in the case of corporate users, a series of monitoring, reporting and verification (MRV) is acknowledged to have considerable procedure costs and workload, the eligible scope should be narrowed down to corporate contracts with a certain minimum number of vehicles.

Requirement 3	Fuel-efficient vehicles (gasoline) as defined under this System [low fuel consumption effect] Or bio-fuel vehicles [Fuel substitution effect]
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As described in the section above, the definition is to be provided as to the criteria of Eco-Auto regarding gasoline cars with high fuel efficiency and bio-fuel vehicles (diesel vehicles) as an institution supported by the Japanese government.

Eligible gasoline cars and bio-fuel vehicles are to be certified through driving tests made by BTMP, an Indonesian testing agency, etc. as to whether they comply with the Eco-Auto criteria as defined in this System or not.

Requirement 4	Fuels to be used that shall be confined to <u>bio-fuel</u> or <u>gasoline without subsidies having potential effect on the reduction of air pollution (octane number 92 or higher)</u> [CO2 reduction and secondary benefit effect]
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It is desirable that the popularization of fuel-efficient Eco-Auto should aim at a project contributing to measures against global warming, including reduction of fossil fuel and CO2 reduction, as well as to measures against exhaust gas problem arising from increasing automobile vehicles.

In Indonesia, the subsidy is applicable to lower octane number gasoline, and in fact a lot of people use gasoline with subsidies. Higher octane number gasoline has good durability of fuel efficiency and engine, leading to measures against gas emissions. However, due to higher price without subsidies, higher octane number gasoline is confined to the use by limited number of users, such as auto lovers.

JCM project requirement imposes an obligation to use gasoline without subsidies (octane 92 or more) or bio-fuels, serving as conditions allowing for contribution to measures against gas emissions. In addition, this System must be designed to secure economic benefits even if fuel costs increase to a certain extent.

Requirement 5	Introduction of digital tachometer (operation control assisting OBE) and payments by gasoline card for convenience of monitoring mileage and fuel consumption [Simplification of monitoring]
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When the Eco-Auto Lease System develops on a large-scale as JCM project, it becomes important to properly measure and record fuel consumption and mileage on a large number of vehicles in a uniform level and common manner. In this respect, it is acknowledged that effectiveness will be improved by introducing a digital tachometer (digital tachometer) and a gasoline card to each vehicle as monitoring means.

As a general rule, a digital tachometer is to be used to measure mileage of each vehicle. When applicable to measurement of fuel consumption, depending on the vehicle technical environment, a digital tachometer may be used for measurement and recording of both mileage and fuel consumption. A gasoline card can be used as a monitoring support tool, since it will allow for assessment of more detailed and precise data by fuel type and consumption, like “gasoline with subsidies,” “gasoline without subsidies” or “bio-fuel.”



Gasoline card is not so widely popularized in Indonesia as in Japan. However, gasoline cards are expected to be introduced strongly through cooperation with leasing and credit card companies as well as with the aid of JCM for monitoring costs.

Requirement	Operational maintenance performed on a regular basis
6	

According to GAIKINDO, due to the absence of legal car inspection system, Indonesia is generally indifferent to the importance of auto vehicles, leaving cars not inspected. When the Eco-Auto Lease System develop on a large-scale as JCM project, it will also lead to an opportunity to popularize the implementation of maintenance. Accordingly, GAIKINDO proposed us to add the requirement to impose an obligation to implement the maintenance.

In light of safety of automobiles as well as fuel economy and durability management, users applicable to the requirements of Eco-Auto are obliged to undergo a regular maintenance of auto vehicle.

1.プロジェクトの要件をどのように設定するか？

適格性 基準	● 既存の自動車を <u>新車</u> に切り替える場合とすること			
	● 一定台数以上のリース会社との <u>法人契約</u> であること【 <u>トレサビリティ確保</u> 】			
	● 本制度が定める <u>低燃費車(ガソリン)</u> であること【 <u>低燃費効果</u> 】 あるいは、 <u>バイオ燃料車</u> であること【 <u>燃料代替効果</u> 】			
	● 燃料は、大気汚染削減効果に貢献する <u>補助金なしガソリン(オクタン価92以上)</u> か、 <u>バイオ燃料</u> のいずれかを使用すること【 <u>CO2削減と副次便益効果</u> 】			
	● 距離および燃料使用量のモニタリングため、 <u>デジタコ(運行管理支援車載器)</u> とガソリンカードによる支払を導入すること【 <u>モニタリングの簡便化</u> 】			
	● 定期的なメンテナンスを実施すること			
	1.種類	2.燃料	3.モニタリング項目	4.モニタリングツール
	乗用車	補助金無しガソリン (オクタン価92以上)	購入燃料種別 燃料使用量 走行距離	車載器 ガソリンカード
	1ton以下の小型・ピックアップトラック	バイオディーゼル	同上	同上

4-3-2 Proposal for definition and certification process of Eco-Auto (reposted in part)

① Definition of Eco-Auto

Definition of Eco-Auto in this System will focus on fuel efficiency. However, since the Indonesian government has no systems and mechanisms that define the fuel economy standards and fuel consumption measurement method, it is necessary to determine the definition and certification process under this System.

This Survey intends to propose the definition and certification process of Eco-Auto as described below. In addition, until the commencement of the actual system, it is considered important to achieve authorization from stakeholders (Indonesian government agencies, automakers and industry associations) through discussions and coordination with them.

② Certification process (conformance testing of Eco-Auto)

Indonesia, especially Jakarta, faces one of the largest traffic jam problem in the world. Since roads and sewer infrastructure can not keep up with the development of motorization, there are several places in the urban areas where auto vehicles cannot run smoothly even during normal times. During rush hour and a few hours in rainy weather, traffic jams occur everywhere. Thus, it is not easy to measure and record the mileage and fuel consumption while the traffic does not flow smoothly due to the traffic jam. Fuel consumption values are important when deriving a car in the metropolitan urban areas, such as Jakarta with frequent traffic jams, or when moving between the suburbs

and cities. In particular, it is important to define default criteria and reference values of fuel economy on Eco-Auto.

According to environmental and safety experts of GAIKINDO, it should be desirable to classify the measurement test of fuel economy performance into three types: (i) simulation-based fuel consumption measurement by automobile manufacturer; (ii) driving test made by BTMP, an Indonesian testing agency, etc., and (iii) running test on the actual road in the city.

Accordingly, it is essential to define scientific and reasonable measurement methodologies through opinion exchanges with auto manufacturers, scientists, and experts belonging to administrative test agencies, taking into account the local conditions such as Indonesia and Jakarta.

In addition, it is likely that the Eco-Auto Lease System does not go smoothly if JCM project operators, automakers and other private companies are responsible for all expenses related to the actual implementation of Eco-Auto certification exam as well as the works to define the measurement and certification process in the development of MRV methodology. Therefore, it is also necessary to provide a public aid to reduce the workload and cost of “development work of Eco-Auto certification process for MRV methodology” and “implementation of certification exams for Eco-Auto certification”.

2.どのようにエコカーを定義し、認定するか？

エコカー の定義

- 日本政府(環境省)が本制度上の「エコカーの燃費基準(燃費閾値)」を設定する。
- 日本のトップランナー制の考え方を一部導入し、「燃費の優れているエコカー」の定義として燃費基準を設定し、インドネシアでのエコカーの普及を促進する。
- LCGC(Low Cost Green Car)は対象外とする。
- インドネシア政府のエコカー税制優遇策対象と重複するため。また、国民の自動車余裕率増加、燃料増加の助長につながるため。
- 車両タイプは、乗用車と小型トラックの最大ボリウムゾーンを対象とする。
- 年間販売台数の8割超の割合を占め、燃料削減対策が喫緊の課題となっているガソリン・ディーゼルの乗用車、小型トラック。
- 本制度が定める燃費基準以上の低燃費車(ガソリン)を対象とする
- バイオ燃料車を対象とする

適合試験

- 日本政府が定めた「エコカーの燃費基準」に適合しているか、公的機関で適合試験を受ける。
- インドネシア研究技術省(RISTEK)の傘下の技術評価庁(BPPT)を想定。
- 燃費測定方法は、LCGCで採用された欧州の燃費測定法を採用する(推奨案)。
- 適合試験を合格した車種は、エコカー適合車と証明される。
- 燃費値は公表は義務づけない、エコカーのシールを貼ることができる。

4-3-3 Computation methods of fuels and CO2 emissions

① Basic concept of computation methods of CO2 emission reductions in this project

Computation method of project emission

CO2 project emission is to be computed as annual fuel consumption of newly purchased Eco-Auto running for 1 year, multiplied by the CO2 emission factor caused by fossil fuels.

Computation method of reference emissions

Reference emissions is to be computed as annual fuel consumption of ordinary auto vehicle marketed in Indonesia before the replacing it for Eco-Auto running for 1 year with the same conditions as the newly-purchased Eco-Auto, multiplied by the CO2 emission factor caused by fossil fuels.

For the purpose of computing the reference emissions, it is very troublesome to collect reference data, including of fuel economy of currently used car, annual fuel consumption, accrual mileage and other performance data. For this reason, for the purpose of computing reference emissions, fuel economy of an ordinary automobile marketed should be developed through adoption of setting the “default values” with the aim of providing a simplified process to reduce the workload of leasing companies or corporate users participating in this System.

Computation method of CO2 emission reductions

CO2 emission reductions are to be obtained from the difference between the reference emissions and project emissions.

② Three computation method


Three approaches are envisaged in terms of gasoline and diesel vehicles, and data acquisition method with regard to fuel consumption and mileage. Therefore, it is desirable to develop MRV methodology so that project participants (leasing companies and corporate users) will be able to select an approach.

Computation method A (Gasoline car)	Reference emissions = Default value (fuel consumption of gasoline car marketed) ×annual mileage (actual) by digital tachometer ×CO2 emission factor Project emissions = Annual fuel consumption (payment record of gasoline card) ×CO2 emission factor of fuels
Computation method B (Gasoline car)	CO2 reduction = {Fuel consumption of Eco-Auto – Fuel consumption of the previous vehicle before the replacement}

	$\times \text{annual mileage (actual) by digital tachometer} \times \text{CO2 emission factor}$ * Submission of payment record of gasoline card
Computation method C (Bio-fuel car)	Reference emissions = Default value (fuel consumption of bio-fuel car marketed) \times annual mileage (actual) by digital tachometer \times CO2 emission factor Project emissions: A Annual fuel consumption (payment record of gasoline card) \times (1- bio-fuel mixing ratio/100%) \times CO2 emission factor of fuels

3.燃料・CO2の算定方法

算定方法	算定方法A (ガソリン車)	リファレンス排出量: デフォルト値(上市するガソリン車の燃費) \times デジタコによる年間走行距離実績 \times 燃料のCO2排出係数 プロジェクト排出量: 年間燃料使用量(ガソリンカードの支払記録) \times 燃料のCO2排出係数
	算定方法B (ガソリン車)	CO2削減量: [エコカーの燃費—買替前の車両の燃費] \times デジタコによる年間走行距離実績 \times 燃料のCO2排出係数 ※ガソリンカードの支払記録の提出
	算定方法C (バイオ燃料車)	リファレンス排出量: デフォルト値(上市する車の燃費) \times デジタコによる年間走行距離実績 \times 燃料のCO2排出係数 プロジェクト排出量: 年間燃料使用量(ガソリンカードの支払記録) \times (1- バイオ燃料混合率/100%) \times 燃料のCO2排出係数

リファレンス (Before)	燃費改善	プロジェクト (After)
車種: 買替前の車両		車種: エコカー適合車
燃料: 補助金付きガソリン		燃料: 補助金なしガソリン
距離: 不明 → プロジェクトと同値		距離: 20,000m (車載器)
燃料使用量: 推計値		燃料使用量: 2,800 L (ガソリンカード)
燃費: 1) デフォルト値(燃費基準値) か 2) 上市する車両の燃費値		燃費: 適合試験で計測した燃費値(非公表扱い)

4-3-4 Monitoring methods and procedures

① Roles and responsibilities for the purpose of reliable and appropriate monitoring methods

If this Eco-Auto Lease System is introduced on a full scale, this system aims to a large scale increase of new purchases of Eco-Auto or participants in this System by several ten thousand (units) per year. For the purpose of monitoring Eco-Auto in a large quantity of vehicles, it is most important to implement monitoring in an appropriate and reliable manner. Accordingly, this Eco-Auto Lease System is to introduce a method that can be implemented by a uniform means systematically (tool) for measurement,

recording, collection and reporting procedures of monitoring data.

Each organization	Roles and responsibilities
Corporate users to buy Eco-Auto	Fuels subject to project requirements are to be used. Fuel consumption is to be recorded once a month based on fuel purchase slip and gasoline. Mileage is to be recorded once a month from on-board equipment (OBE).
Leasing companies	Records of annual mileage (data from on-board equipment (OBE)), annual fuel consumption and the target fuel consumption shall be collected from users.
Roles of intermediate organization (Implemented as commissioned business)	Records of annual mileage (data from on-board equipment (OBE)), annual fuel consumption and the target fuel consumption shall be collected from leasing companies Annual monitoring statement is to be prepared by vehicle and linkage with leasing company. Annual CO2 emission reduction is to be entered in a predetermined computation format, which shall be submitted to financial institutions (the Japanese government).

② Introduction of digital tachometer as monitoring tool

Effectiveness is to be improved by introducing a digital tachometer (commonly called “digitacho”; OBE) and a gasoline card to each vehicle as monitoring means (tools).

According to DENSO, a digital tachometer manufacturer and domestic workshop member of this Survey, a digital tachometer is generally used to measure mileage of each vehicle. However, when applicable to measurement of fuel consumption, depending on the vehicle technical environment, a digital tachometer may be used for measurement and recording of both mileage and fuel consumption, DENSO says. In addition, while smartphone type and OBE type are commercialized in Indonesia and Southeast Asia, they are not so used for commercial use by taxi/bus companies and logistics companies. Therefore, the penetration rate is not so high.

However, JCM project for introduction of digital tachometer for logistics companies in Vietnam, was adopted by equipment subsidized project at the Ministry of the Environment for fiscal year 2014. If the project develops and approves a MRV methodology, including measurement and recording of mileage, running speed and fuel consumption using the digital tachometer, it may also be helpful to this System.

③ Introduction of gasoline card as a monitoring tool

Gasoline card is also called refueling card. In Japan, oil companies, credit companies and auto leasing companies, etc. issue gasoline cards, which allow for identification of fuel consumption and fuel cost without cash. Several advantages, e.g. point reduction and discount methods, are available to users and they are widely used.



Gasoline cards are not so widely popularized in Indonesia. However, on the occasion of the introduction of fuel consumption monitoring tool under this System, we propose that they will be distributed to corporate users in cooperation with leasing, credit card and auto lease companies. Specifically, they should be used to assess more detailed and precise data by fuel type and consumption, like “gasoline with subsidies,” “gasoline without subsidies” or “bio-fuel.”

4.燃料・CO2のモニタリング方法・手続

報告の流れ

モニタリング

モニタリング項目	下記のとおり
法人ユーザーの責務	プロジェクト要件である対象燃料を使用する。 燃料購入伝票、ガソリンカードから、月1回の燃料使用量を記録しておく。 車載器から、月1回、走行距離を記録しておく。
リース会社の責務	ユーザーから、年間走行距離(車載器のデータ)、年間燃料使用量、対象燃料使用の記録を回収する。
中間組織の役割 (委託事業として実施)	リース会社から、年間走行距離(車載器のデータ)、年間燃料使用量、対象燃料使用の記録を回収する。 車両毎、リース会社のデータを紐つけて年間モニタリング実績表を作成する。 年間CO2排出削減量が算定できる所定算定様式に入力し、金融機関(日本政府)に提出する。

1.種類	2.燃料	3.モニタリング項目	4.モニタリング頻度	4.モニタリングサポートツール
 乗用車	補助金無しガソリン (オクタン価92以上)	購入燃料種別 燃料使用量 走行距離	月1回	車載器 ガソリンカード
 1ton以下の小型・ ピックアップトラック	バイオディーゼル	同上	月1回	同上

5. Reviewing Proposed Eco-Lease Procedure

5-1 Current State of Auto-Lease Procedure

Through cooperation by Mitsubishi UFJ Lease and Finance Co., Ltd. and interviews with local leasing companies, we overviewed the general procedure of auto leasing in Indonesia. Details may vary among leasing companies, but the following process is expected in general.

From the examination phase to the final conclusion, the initial steps include “credit evaluation of user,” “preparation of estimate on lease (based on the creditworthiness)” and “customer confirmation procedure and approval procedure in leasing company.” The steps at the conclusion of contract include “conclusion of lease contract” between the user and the leasing company, “issuance of vehicle purchase order to dealer, and entrustment of vehicle registration,” “buying movable insurance on vehicle,” “inspection acceptance, and payment of vehicle proceeds to dealer.” After the start of lease contract, the management process during the lease period include “billing and collection of periodic lease payments,” “maintenance of vehicle” and “termination and expiration of the lease agreement, and disposal of the vehicle.”

In the lease process above, items that will directly affect the case of receiving monetary subsidies include “estimate of lease (inclusive of subsidies after checking of the subject model),” “conclusion of lease agreement (with the Eco-Lease conditions attached)” and “billing and collection of lease payments (inclusive of subsidies),” and “disposal of vehicle (pursuant to the conditions of Eco-Lease).”

5-2 Reference to Japan’s Eco-Lease System Procedure

Next, let us overview the procedure of Eco-Lease under Eco-lease Promotion Project for household and business” (Operator: the Japan Association of Energy Service Companies (hereinafter referred to as “JAESCO”)), which has been implemented in Japan as commissioned project by the Ministry of the Environment.

Prior to the conclusion of the lease contract, at the examination phase, as a preliminary procedure, the leasing company as applicant prepares and applies for a “subsidy application form” in a dedicated WEB page of JAESCO. Within 60 days from

the issuance of “subsidy application acceptance notice” by JAESCO to the applicant (the leasing company), the leasing company concludes a lease agreement with the user, and prepares and applies for a “subsidy grant application form” in the WEB page of JAESCO. After receipt of the application form, JAESCO issues a “subsidy grant decision notice.” After the acceptance inspection of lease vehicle, the leasing company prepares a “subsidy performance report” in the WEB page of JAESCO, and sends it together with documents, e.g. acceptance deed for lease contract, to JAESCO. JAESCO reviews the documents, such as subsidies performance report, issues a “definite notice” and make the payment of subsidies to the leasing company.

In respect of this Eco-Lease Promotion Project in Japan, several conditions are defined on the lease contract subject to subsidies. Accordingly, it is recognized that the application to autos in Indonesia as the same conditions as in Japan would be difficult. Therefore, it seems necessary to set the subsidies target conditions in line with the local situation and auto-lease. Additionally note that, from the application procedure above to the grant of subsidies, since it is required to cope with the leasing company’s practical operations on auto lease, it seems necessary to design a flexible process while ensuring a procedure to secure proper application.

5-3 Proposal on lease procedures for the Eco-Auto Lease System

Local leasing company that received an institutional loan from JBI is to execute an auto lease contract at low interest cost to target corporate users. However, it is estimated that the procedure of the lease contract is almost the same as the current auto lease procedures described above.

On the other hand, with regard to the reporting of CO2 reduction, the mileage and fuel consumption data are recorded by each corporate user using on-board equipment (OBE), gasoline card record and other monitoring support tools. Then, each corporate user reports it to the leasing company on a monthly basis. The leasing company is responsible for receiving the reporting from each corporate user and reporting it to the management organization. The management organization is to organize and aggregate reporting results from each leasing company, and report it to the Japanese side. Each organization’s work process, system and forms will be surveyed and verified in fiscal year 2015 through the case study experimental project in 2015 fiscal year.

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