E-LEADER Conference in Tokyo
Eco-Drive mind and IoT

ASUA, Inc.
Hiroshi Maji
Kaito Kanatani
Company Profile

Company name: ASUA, Inc.
CEO: Hiroshi Maji
Established in: 15th January 1994
Head office: 1-11 Koganedori, Nakamura-ku, Nagoya
Tokyo Head office: 5-9-8 Ginza, Chuo-ku, Tokyo
Capital: 30 million yen
Line of Business: Consulting

Education of managers and drivers in Logistics
Eco-Drive Support project (for government, municipality and company)
Development of messages by Big Data analysis

Number of Employees (entire group): 226 (as of 1st July 2018)
Eco-Drive Business

Develop Eco-Drive for ordinary companies and logistics companies

Ordinary companies
1,800

Logistics companies
1,200

Proven consultation for 3000 companies in Japan
Eco-Drive Business

Entrusted Business

- Ministry of the Environment
  - Eco-Drive Contest Bureau
  - Eco-Drive Promotion Bureau
- Ministry of Economy, Trade and Industry
  - Eco-Drive Support project for municipality
- TOKYO TRUCKING ASSOCIATION
  - Green Eco Project
- Eco-Mo Foundation
  - Eco-Drive Activity Concours
Result of Eco-Drive Education

Fuel Efficiency
Improve 8.7% ※ P<0.01

Traffic Accidents
Reduce 51% ※ P<0.01

※Wilcoxon signed-rank test

Presented by Hiroshi Maji, Nobuyo Kasuga, Taro Ishi, and Yasuhiro Daisho at Automotive Engineers Meeting on 25th May 2006
Eco-Drive has a meaning in expanding to the world
UN Eco-Drive Conference

Eco-Drive Declaration
Eco-Drive to the World

We held UN Eco-Drive Conference
at UN headquarter on 17th Nov 2014

Host: WAFUNIF    Co-host: ASUA
Supported: JAMA・AAM
Ministry of the Environment
UN Eco-Drive Conference at Nagoya on 20th Oct 2015
Host: WAFUNIF
Co-host: ASUA
Supported: JAMA etc...
Ministry of the Environment
UN Eco-Drive conference in Paris
On 4th December 2015
Host : WAFUNIF
Co-host : ASUA
Supported : JAMA, ASEA, AAA
Venue : COP21 side event
Grand Palais
UN Eco-Drive Conference

29th November 2016
UN Eco-Drive conference
Host: WAFUNIF
Co-host: ASUA
Supported: Permanent Mission of Japan to the United Nations
JAMA・AAM・ACEA
MOE・METI
WAFUNIF
THE WORLD ASSOCIATION OF FORMER UNITED NATIONS INTERNES AND FELLOWS

WAFNIF is organized by interns, trainees from UN counties which join all over the world. In 1978, it was established at UN headquarter beyond the bureau and organization. It is only one organization to dispatch staff and developing country in the world through other organization. Especially, focuses on "Education". Therefor, held Eco-Drive and aware importance of environmental measures and Eco-Drive education.

Dr. Hassan
president of WAFUNIF
What is Eco-Drive?
Eco-Drive is mindset and method when you drive. Enhancing Eco-Drive to the world, changes people is mind beyond difference of culture, creates fun to drive, improves fuel consumption, reduces air pollution and car accident. The point is, Eco-Drive is 21th century driving style. Eco-Drive is not only method, but also one of the tools that helps us from personalities, have kindness, and make good relationship with drivers sharing the road.
Improvement by Eco-Drive

Accelerating gently and driving slowly According to Eco-Drive, reduce fatigue and stress and make people peacefulness. As a consequence, we can drive safely and calm, and which leads to improve fuel consumption and reduce CO2 emission and car accident. Eco-Drive fosters conscientious driving by educating and encouraging motorists to engage the better part of their human nature when driving a vehicle. In order to succeed our mother earth to next generation, promoting Eco-Drive nurtures our heart living on the earth.
We developed an Eco-drive declaration that can overcome borders, race and economic disparity barriers.

Eco-Drive to the world!
Preamble

Driving is an indispensable part of daily life for many in the world. Through motorization, living standards improved in large and small ways. Cars can be the key that unlocks freedom, mobility and convenience, but motorization has also created major problems with far reaching implications:

◆ There are over 1.2 billion cars in the world, which emit substantial amounts of Carbon Dioxide (CO2) into the atmosphere, causing far-reaching negative effects on the environment and quality of life.

◆ Automobile accidents abound; the World Health Organization reports that traffic accidents caused 1,250,000 deaths in 2010 (latest year available).

Automobile manufacturers continue to develop technological improvements to address those issues. These solutions include Next Generation vehicles, which use alternative fuel sources as well as vehicles equipped with Advanced Driver Assistance Systems (ADAS).

In order to further reduce emissions globally, more efficient systems should be used. This integrated approach should cover all elements effecting emissions on roads – enhanced fleet renewal, improved vehicle technology, infrastructure investment and how the car is used. We believe that drivers can participate in the global solution as well by their driving behavior. That is the idea of “EcoDrive”.

The practice of EcoDrive is based on good driving principles. In general, it’s about smart, relaxed, fuel-efficient and safe driving. Among other things, it teaches driving fuel-efficient with smart acceleration and deceleration, and keeping a vehicle’s momentum. Our research shows that merely adding those three small driving tips gain 10% improvement in fuel efficiency for city driving.

More importantly, responsible and smart driving (one of EcoDrive) changes the way we drive collectively with positive impact for the environment and road safety. As it encourages healthy and safe driving habits, the EcoDrive mindset inspires a culture of social responsibility. With EcoDrive, drivers learn to keep calm even when the situation is not optimal; for example, they learn to smartly plan with time to spare which leads to a more relaxed motoring - a healthier choice, both mentally and physically as this behavioral change reduces stress.

Please note: to successfully participate in EcoDrive, cultural boundaries must be respected. Therefore, small aspects have to be adjusted for each country acc. to cultural specifics.

Scope

EcoDrive is a lifestyle change that can become a lifestyle evolution. Our vision consists of three pronged approach:

1. Governmental regulations and policies are adopted with the aim of encouraging lower emissions, healthier and safer driving. This should focus not only on improving the environmental performance of the vehicles, but also stimulating policies to better use of cars and better use of infrastructure.

2. Responsible driving is helping to reduce CO2 emissions, which is a commonly shared policy supported by Governments and industry.

3. Drivers, mindful that they can directly shape a better world through their actions, contribute with a smart driving behavior modification through EcoDrive including avoiding distracted driving such as texting while driving.

Target Outcome

EcoDrive is an easy and effective solution to establish. When promoted globally, EcoDrive can make a significant difference in CO2 reduction; fuel efficiency; traffic congestion reduction; and accident prevention. EcoDrive techniques also encourage a cultural shift that inspires social responsibility to balance, consider needs of other road users, and a respectful use of resources. In summary, EcoDrive is a substantial contribution to greener and safer driving that can multiply into an enormous positive global effect.
Guiding Principles of EcoDrive:

1. Reduces CO2 levels, which positively contributes to our future.
   The earth is warming and CO2 is a reason. By practicing EcoDrive, CO2 emissions can be reduced significantly (up to 15%, 2015 TML Study “Integrated approach to reducing CO2 emissions of passenger cars”), which will help improve the future of the earth.¹

2. Saves lives by reducing accidents.
   The World Health Organization reports that traffic accidents caused 1,250,000 deaths in 2010 (latest year available). EcoDrive counters this issue; professional drivers who apply the EcoDrive technique have fewer traffic accidents than other professional drivers.

3. Preserves fuel resources.
   EcoDrive conserves fuel, no matter the form (i.e. electric, hydrogen, petrol, etc.). Even though technology greatly increased fuel efficiency, the fuel efficiency of the best “eco car” still depends on how you drive it. EcoDrive maximizes the driving experience, potentially increasing the intelligent use of natural resources.

4. Makes driving safer, more relaxed and convenient.
   Resisting “jack-rabbit” starts and avoiding the need to “hit the brakes” makes driving safer, more relaxed and convenient for everyone on the road. Caring about the experience of others leads to prudence, care, caution and planning. This is the cornerstone of mindfulness and respect – and we firmly believe that mindfulness and respect leads to a more peaceful world.

5. EcoDrive lowers stress, which improves health.
   When a human being is stressed, the heart rate rises and the blood pressure increases – and over time, this causes negative health effects. Further, stress can trigger a seizure or stroke for a person with an underlying health problem – and if this happens while driving, the consequences can be dire. The skill set developed through EcoDrive reinforces a calm and conscious mindset which encourages the skill set developed through EcoDrive – this is a satisfying stress-management feedback loop that inspires “grace under pressure” when behind the wheel of an automobile.
Guiding Principles of EcoDrive:

1. Reduces CO2 levels, which positively contributes to our future.

2. Saves lives by reducing accidents.

3. Preserves fuel resources.

4. Makes driving safer, more relaxed and convenient.

5. EcoDrive lowers stress, which improves health.

6. EcoDrive encourages courtesy and culture of respect, which strengthens a feeling of well-being among all of us.

7. EcoDrive can be done anytime, anywhere and by anyone.

6. EcoDrive encourages courtesy and culture of respect, which strengthens a feeling of well-being among all of us.

Education and respect are the foundation of good behavior. EcoDrive encourages drivers to behave respectfully on the road, which translates to patient and thoughtful driving. Courtesy is catching! This includes avoiding all forms of distracted driving such as improper use of mobile devices. It is recommended that drivers refrain from taking their eyes off of the road.

7. EcoDrive can be done anytime, anywhere and by anyone.

EcoDrive changes the way we drive. These simple changes encourage an important shift in the driver's mindset and behavior on the road — globally. They remember that they are their own precious cargo and outside the vehicle are partners. They learn to “let go” because they understand that even when things are not optimal, a calm driver is a safe driver.

EcoDrive promotes safer driving; limits stress; and improves comfort; students of the technique evolve into patient and considerate drivers. Further, the good new habits learned through EcoDrive can be practiced and perfected by any driver in any vehicle on any road, anywhere in the world.

EcoDrive is cultivated in the small space between the engine and the trunk, yet it's effect expands throughout the world.

1See for example TML study: http://www.tmleuven.be/project/accucars/home.htm
Methodology:

1. Accelerate Gently.

2. Maintain a steady speed and keep a safe distance to the car in front.

3. Slow down by releasing the accelerator.

4. Make appropriate use of air conditioner.

5. Do not idle the engine while standing still.

6. Plan your trip to avoid congested route.

7. Check the tire pressure regularly.

8. Avoid unnecessary loads to reduce weight.


10. Monitor the Fuel Efficiency.

1. Accelerate gently.
When speed is increased at a relaxed pace, it boosts fuel efficiency by 10%. Aim for a speed of 20km/h in 5 seconds, which is a gentle acceleration that contributes to safer driving. Using lowest possible engine speed (rpm) helps improving fuel efficiency; especially low rpm driving at steady speed saves fuel and reduces CO2.

2. Maintain a steady speed and keep a safe distance to the car in front.
Maintain a steady speed because tailgating leads to unnecessary acceleration/ deceleration, resulting in 2-6% better fuel efficiency (or: lower fuel consumption) measured in urban and suburban areas.

3. Slow down by releasing the accelerator.
Rather than engaging the breaks, release the accelerator to slow down at traffic lights, stops signs and gridlock; this behavior corresponds with a 2% gain in fuel efficiency.

4. Make appropriate use of your air conditioner.
The AC function is for cooling and dehumidifying only so select the temperature wisely. Please note that the continuous use of AC function at 25°C (77°F) when outside temperature is 25°C results in a 12% loss of fuel efficiency.

5. Do not idle the engine while standing still.
When waiting or loading/unloading, make a habit of turning your engine off rather than let it idle. Ten minutes of engine idling with the AC off wastes 130cc of fuel.

6. Plan your trip to avoid congested routes.
Check traffic information to avoid congested areas and save time and fuel. Ten minutes of unnecessary driving in a one-hour trip results in a 17% drop in fuel efficiency.

7. Check the tire pressure regularly.
Driving on tires that have air pressure lower than 50kPa (0.5kg/cm3) could decrease the fuel efficiency by 2% in urban areas and 4% in suburban areas. Additionally: underinflated tyres are a safety risk. Timely replacement of motor oil, oil filters, etc. also contributes to improved fuel efficiency.
Methodology:

1. Accelerate Gently.
2. Maintain a steady speed and keep a safe distance to the car in front.
3. Slow down by releasing the accelerator.
4. Make appropriate use of air conditioner.
5. Do not idle the engine while standing still.
6. Plan your trip to avoid congested route.
7. Check the tire pressure regularly.
8. Avoid unnecessary loads to reduce weight.
9. Respect parking rules and regulations.
10. Monitor the fuel efficiency.

8. Avoid unnecessary loads to reduce weight.

Weight is a key factor in fuel efficiency performance. Driving with 100kg of unnecessary weight causes a 4% loss in fuel efficiency. Another factor is aerodynamic drag, which can be reduced by removing exterior rack equipment when not used.

9. Respect parking rules and regulations.

Illegal or imprudent parking causes traffic congestion, which leads to lower fuel efficiency, increased emissions and a higher risk of accidents.

10. Monitor the fuel efficiency.

If possible, monitor fuel efficiency with vehicle's onboard equipment. Otherwise, calculate fuel efficiency at the time of refueling to full tank with this equation: Distance driven (km) + Refueled amount (Liter) = fuel efficiency (km/L).

Please note: to successfully participate in EcoDrive, cultural boundaries must be respected. Therefore, small aspects will be adjusted for each country.
Recent case of Eco-Drive (utilizing IoT)
Recent case of Eco-Drive (utilizing IoT)

- Insurance companies

**Aioi Nissay Dowa Insurance Co., Ltd.**

Insurance discount depending on Safe driving score (max 80% discount) ※

<Main Function>
- Safe driving score
- Safe driving advice
- Drive report map
- Confirm operation of Prevention safety device etc..

**Sompo Japan Nipponkoa Insurance Inc.**

Insurance discount depending on driving diagnosis (max 20% discount) ※

<Main Function>
- Approach Alarm/Notice
- Safety drive diagnosis/score
- Sudden Behavior Alarm/Drive recorder/Travel history etc..

**Sony Assurance Inc.**

Insurance discount depending on diagnosis (max 20% discount) ※

<Main Function>
- Recording sudden start/stop
- Sudden behavior Sound notice function
- Counting smooth start/stop etc..

※please confirm each insurance discount information by yourself

More insurance company (Mitsui Sumitomo Insurance Company, Limited, Tokio Marine & Nichido Fire Insurance Co., Ltd. and more.) take actions on the service for safety drive support
# Recent case of Eco-Drive (utilizing IoT)

## - Automakers

### TOYOTA

<table>
<thead>
<tr>
<th>MyTOYOTA for T-Connect</th>
<th>&lt;Main Function&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Check condition of own car (engine oil, brake oil and more)</td>
</tr>
<tr>
<td></td>
<td>Indicate the location of own car in the map</td>
</tr>
<tr>
<td></td>
<td>Diagnose our driving from safety and eco point of view automatically</td>
</tr>
<tr>
<td></td>
<td>Recording driving history etc…</td>
</tr>
</tbody>
</table>

### Nissan

<table>
<thead>
<tr>
<th>NissanConnect</th>
<th>&lt;Main Function&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicate the location of own car in the map</td>
</tr>
<tr>
<td></td>
<td>Indicate driving data between engine start to stop per day and month</td>
</tr>
<tr>
<td></td>
<td>Info massage about car inspection, discount etc…</td>
</tr>
<tr>
<td></td>
<td>Set destination only speaking with operator</td>
</tr>
</tbody>
</table>

### HONDA

<table>
<thead>
<tr>
<th>internavi</th>
<th>&lt;Main Function&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Searching a route</td>
</tr>
<tr>
<td></td>
<td>expect leaving and arrival time</td>
</tr>
<tr>
<td></td>
<td>Searching parking area</td>
</tr>
<tr>
<td></td>
<td>Drive note (look back own driving history)</td>
</tr>
<tr>
<td></td>
<td>Fuel efficient history etc…</td>
</tr>
</tbody>
</table>
Recent case of Eco-Drive (utilizing IoT)

- Smartphone Apps
  Separate from smartphone apps by automakers and insurance companies as previously stated, there are drive recording apps and managing fuel efficient apps.

<Reference : Drive Recorder Apps> ※Reference: https://matome.response.jp/articles/1117

<Reference : recording fuel efficient app>
Recent case of Eco-Drive (utilizing IoT)

- Utilizing IoT Devices (OBD II · GPS · Acceleration sensor)

**OBD II**

- ORIX
- Danger behavior notice mail
- Monthly report (driving data)
- Indicating danger behavior spot
- Rental car reservation
- Daily report automatic creation

**GPS**

- UNISYS
- 無事故プログラム DR®
- Safety driving support service for manager combination of drive recorder and telematics.
- Share the video of danger driving to manager

**Acceleration sensor**

- SmartDrive Families
- Monthly aprx. ¥3,000〜/car※
- On time location system
- Visualization of own driving behavior
- Driving history, daily report, etc...

※please confirm each fee of insurances by yourselves
- Utilizing telematics  
  (Sangetsu Corporation)  

34 offices / 1,256 employees / 475 vehicles

Mounting “Orix e-telem” on all vehicles from 2014  
(Monthly aprx. ¥3,000/car)

Confirm driving route and driving behavior (acceleration, brake, over speed, Idling time)  

By setting goal for each driving behavior and managing progress each office by telematics, this 4 types of driving behavior (figure on the right) improved dramatically in 2017  

Fuel Efficiency : Improving aprx. 23% (compared with 2014)  
Accident : Decreasing aprx. 55% (compared with 2013)

<setting goal of telematics>

1. Over Speed: over 110 km  
2. Sudden Acceleration: over 0.3G  
3. Sudden Braking: over 0.4G

On average  
Under 0.1 time in a month
Collect operation information transmitted automatically from car navigation system, and provide “Monthly Report” which analyzes safe driving characteristics.

If your driving is safe and Eco-Drive, you will get insurance discount.

-Safe driving score
-Insurance discount
A score that accumulated vehicle operation information for each month. In the insurance fee column, the insurance premium for the relevant monthly run is displayed. Driving premium discount amount based on safe driving score is also displayed and you can realize the result.

Monthly Report
Display detailed advice guided from driving data in one month’s generated Advice individually according to the driving characteristics of each subscriber.
We apply those success TOYOTA and AIOI to other industries as a ...

IoT Communication Business

BIG DATA $\times$ Massage $\rightarrow$ Behavior change

It’s not uniform massage. It’s "Personal Message" to encourage behavior change.
人との「つながり」をより良くする会社。

Human Relations Company
Corporate Message

動機を動かせ。明日を動かせ。

Good Motivation for Tomorrow
Eco-Driving Promotion by Eco-Mo Foundation

Hirotugu Maruyama
General Manager

Dec. 7, 2018
What is Eco-Mo Foundation

HISTORY

• In 1994, Minister of Transport approved the establishment of the Foundation for Promoting Amenities of Transport.

• In 1997, renaming of the organization to "Foundation for Promoting Personal Mobility and Ecological Transportation" was approved by Minister of Transport.

• In 2012, the Prime Minister accredited and transitioned to the Public Interest Incorporated Association.

MISSION

• Better life for all people through sustainable mobility with less CO2 and no barrier
National level Committee

Academic Experts
- Professors
- Researchers
- Specialists

Government
- Ministry of Transport
- Environment
- Economy
- Police

Eco-Mo

MLIT, MOE, METI, NPA
10 Projects of Environmental Transport Promotion Division

Certification
- Green Management
  - 1/20 of ISO 14001
  - 2003-
- Eco-Commuting
  - Free
  - 2009-
- Eco-DcIVING
  - Free
  - 1997-
- Carbon Offset
  - Free
  - 2009-

Ecological Mobility
- Environmentally Sustainable Transport
  - 2006-
- Green Slow Mobility
  - 2016-
- Smooth Mobility for Foreign Tourists
  - 2017-

Awareness Rise
- Mobility Management Education
  - 2002-
- Reference Book
  - Transport and Environment in Japan
  - 2004-
- Eco-Pro Exhibition
  - 2004-
History of the Earth

Birth 4.6 BYrs Ago

Monkey (60 MYrs ago)

Dinosaur (250 MYrs ago)

Human (200 Kyrs ago)

1769 Steam Engine (Industry 1.0)
1908 Ford Model T (Mass production)
2018 COP24 (North-South; $ € ¥ £)

XXXX
Factors Contributing of CO$_2$ Reduction by Integrated Approach

Main factors to reduce CO2 in the road transport sector in Japan.

- **Passenger cars**
  - Improved vehicle fuel efficiency
  - Improved traffic flow (reduced congestion)

- **Trucks**
  - Improved load efficiency in truck use

- **Trucks**
  - Eco-driving
  - Improved traffic flow

Current status

Source: JAMA
Eco-Driving Promotion Platform

Government Liaison Committee
Since 2003

Ministry of Environment
Ministry of Economy
Ministry of Transport

National Police Agency

Private Council
Since 1997

EcoMo JBA JATA JAMA JAF SONPO

10 Tips for Eco-Driving (Since 1998)
Eco-Driving Special Month: November
10 Tips for Eco-Driving

1) Accelerate gently
2) Maintain a steady speed
3) Decelerate by earlier accelerator release
4) Limit the use of your air conditioner
5) Don’t idle your engine
6) Provide your itinerary
7) Check your tire pressure regularly
8) Reduce your load
9) Don't make congestion by parking
10) Note your fuel economy regularly

Source: Government Liaison Committee on eco-driving promotion
Fuel at each Drive Event

City Driving

Rural Driving

Source: ECCJ
1) Accelerate gently

The acceleration time from 0 to 20 km/h: 5 sec
2) Maintain a steady speed
3) Decelerate by earlier accel. release

- Keep speed
- Foot break
- Earlier accelerator release

Speed vs. Distance graph showing the relationship between speed and distance.
4) Limit the use of your air conditioner

Fuel consumption (cc/km)

Ambient 25°C
- A/C OFF: Rec AUTO, 124 cc/km
- A/C ON: Rec AUTO, 141 cc/km (14% increase)

Ambient 35°C
- A/C ON: Fresh AUTO, 177 cc/km (4% increase)
- A/C ON: Rec MAX, 195 cc/km (14% increase)

Room Temp.: 24°C
City drive: 4.2km

Source: ECCJ
5) Don’t idle your engine

<table>
<thead>
<tr>
<th></th>
<th>Normal</th>
<th>No Idling</th>
</tr>
</thead>
<tbody>
<tr>
<td>City trip</td>
<td>100</td>
<td>87</td>
</tr>
</tbody>
</table>

Fuel addition for re-start: 1.05cc

Minimum time of No-idling compensating fuel of re-start:

$$1.05 \div 0.221 = 5 \text{ (sec)}$$

Fuel at idle: 0.221cc/sec

Source: ECCJ
6) Provide your itinerary
9) Don't make congestion by parking
7) Check your tire pressure regularly

Fuel consumption change of 25% tire pressure down (%)

<table>
<thead>
<tr>
<th>Location</th>
<th>Fuel Consumption Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>2.5%</td>
</tr>
<tr>
<td>Rural</td>
<td>4.3%</td>
</tr>
<tr>
<td>Highway</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

Source: ECCJ
8) Reduce your load

Fuel consumption change (%)

City
- +110kg: 3.4%
- +270kg: 8.3%

Rural
- +110kg: 5.4%
- +270kg: 10.6%

Highway
- +110kg: 3.3%
- +270kg: 6.2%

Source: ECCJ
Extra) Proper Engine Warm Up

Fuel consumption (cc/km)

- No Warm up: 144 cc/km
- 5 min. Warm up: 128 cc/km
- 10 min. Warm up: 122 cc/km

Source: ECCJ
Eco-Driving Certification

◆ Certification for training programs of Eco-driving educational organizations (Truck manufacturers, Sales dealers, Local truck associations and Driving schools)
◆ Certification for education completion of students
Students realize real effect of 10 to 30% fuel economy improvement through their own eco-driving practice on road.

### Fuel Economy

### Measured Data

### Each Event FE

### Gas Pedal Angle

### CO2 Emissions
Eco-Driving Certification

• Number of Certified Organization (Mar 31, 2017)

<table>
<thead>
<tr>
<th></th>
<th>Truck and bus</th>
<th>Passenger cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>17</td>
<td>230</td>
</tr>
</tbody>
</table>

• Accumulated Number of Certified Drivers

![Graph showing the accumulated number of certified drivers for passenger vehicles and trucks from 2007 to 2016. The graph indicates a steady increase in the number of certified drivers over the years, with a significant rise in the number of certified drivers in 2015 and 2016.](image-url)
# Eco-Driver Activity Competition

## Call for Competition

<table>
<thead>
<tr>
<th>Company</th>
<th>Offices</th>
<th>Employees</th>
<th>Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>682</td>
<td>35,442</td>
<td>26,354</td>
</tr>
<tr>
<td>General</td>
<td>485</td>
<td>59,453</td>
<td>10,648</td>
</tr>
<tr>
<td>Non-fleet</td>
<td>44</td>
<td>11,130</td>
<td>3,058</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,211</strong></td>
<td><strong>106,025</strong></td>
<td><strong>40,060</strong></td>
</tr>
</tbody>
</table>
EcoDrive Declaration

2014~2016
ASUA, WAFUNIF, JAMA, Auto Alliance, ACEA

Guiding Principles of EcoDrive:

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7. Check the tire pressure regularly.
8. Avoid unnecessary loads to reduce weight.
10. Monitor the Fuel Efficiency.

http://www.asua.ne.jp/conference/declaration.pdf
Value of Eco-Driving

- Fuel
- Repair
- Insurance

- Climate Change
  - Air Pollution
  - Noise

- Self Control
- Mindset
- Happiness

- Accident
- Delivery
- Hospitality
Thank You