

The Micro Mobility and future development

Feb.2013

Ministry of Land, Infrastructure, Transport and Tourism
Japan

The concept of Micro Mobility

- One / Two-passenger vehicle which is more compact and flexible than conventional vehicle, superior environmental performance, and convenient regional transportation.
- Advantage as Reduce CO2 emission, Regional / Tourism Promotion, New transport mode compliment public transportations and movement support for families with small children and elderly people

Effectiveness of Micro Mobility

For Low Carbon society by Lower energy consumption than Conventional vehicle

Create a new auto market
As a New category vehicle

Reduce CO2

New Market

Regional / Tourism Promotion

transportation support

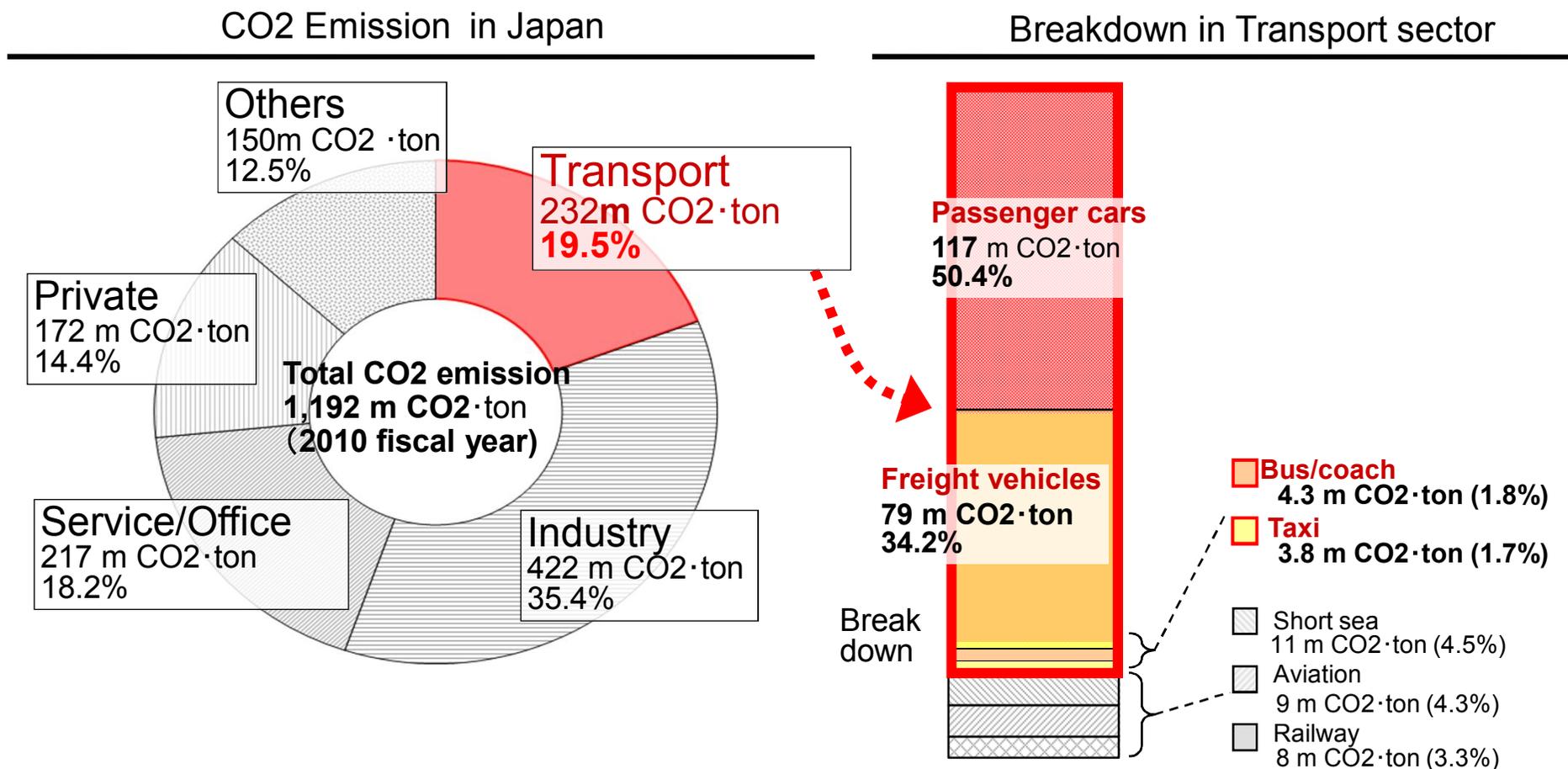


For sightseeing and Regional Activity

Increase opportunity of going out by elderly people and families

CO2 Emission from transport sector in Japan

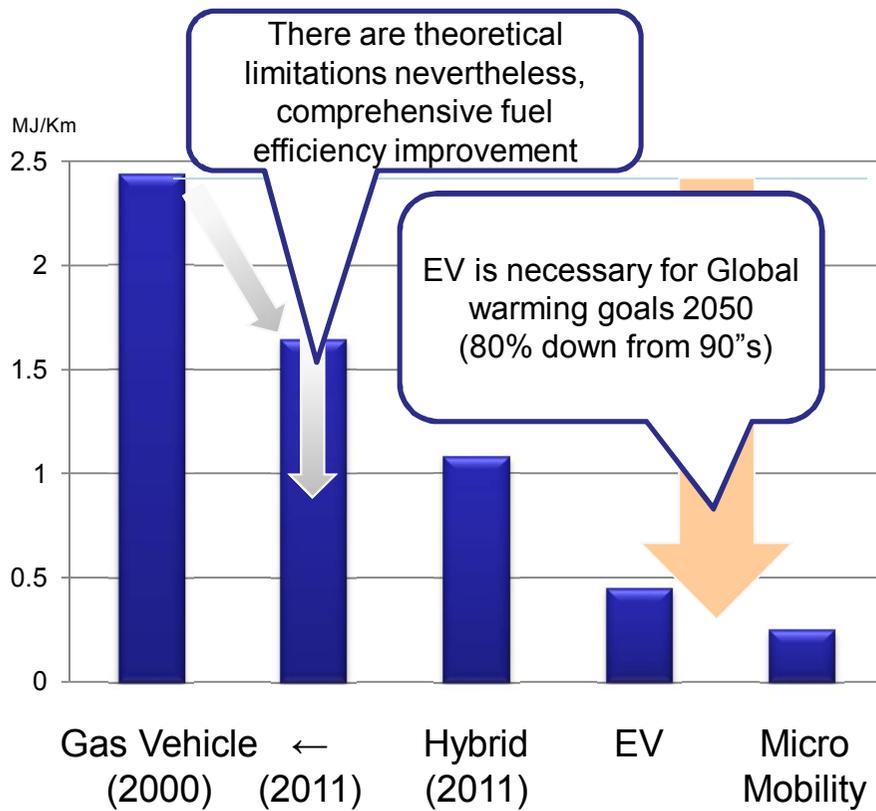
CO2 Emission from transport sector is about 20% of total emission in Japan.
Road transport emits 88% of transport emission.



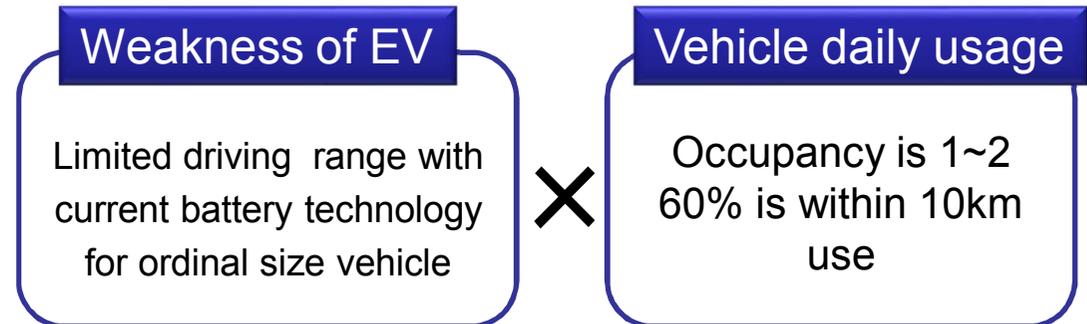
※ Emission from electric generation and thermal generation are distributed to final demand sectors according to amount of consumption of each sector.

※ Developed by MLIT referring to “Japanese GHG Inventory report “

- EV diffusion and Drastic fuel efficiency improvement are necessary for Mid-Long term promote energy conservation.
- Introduce New Category Vehicle (= Micro Mobility) which fit daily usage, and Making Best Practice which show EV's innate value(Zero emission, quiet, buck up power source etc.) is important For EV diffusion.



Energy consumption Comparing



Drastically compact and light 'New Category' vehicle which has 1~2 occupant and optimize daily use, Make Drastic fuel efficiency improvement without compromise freedom of movement and economic activity

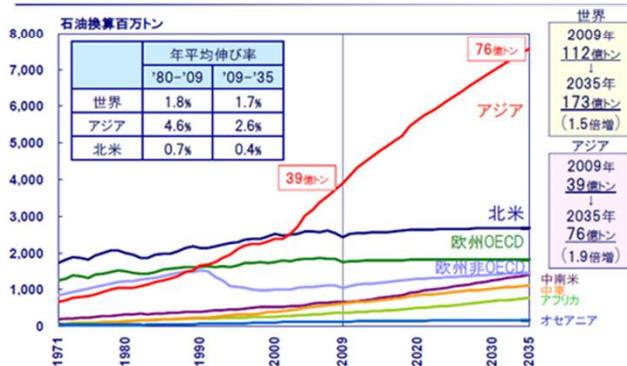
Automotive Monozukuri's creative innovation and regulation reform

Introduce Micro Mobility

- potential exploding world energy demand (or energy supply shortage) with emergent countries development, and jump up auto fleet number make Asian country drawing up strong energy saving policy.
- Not only Japan but also China, Korea and other countries face aging society with fewer children.
- Private analysis show micro mobility market growth and become main market of EV in the world.

Exploding world energy demand and jump up auto fleet number

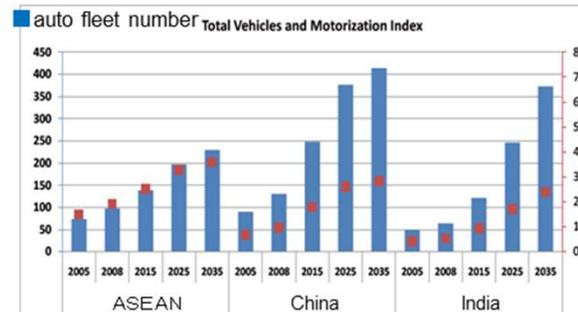
Energy demand of 2035 is one and a half times the current.



財団法人日本エネルギー経済研究所

Strong energy saving policy is political issue for Financial burdens of fuel subsidy with Increasing auto fleet number

Asian auto fleet number

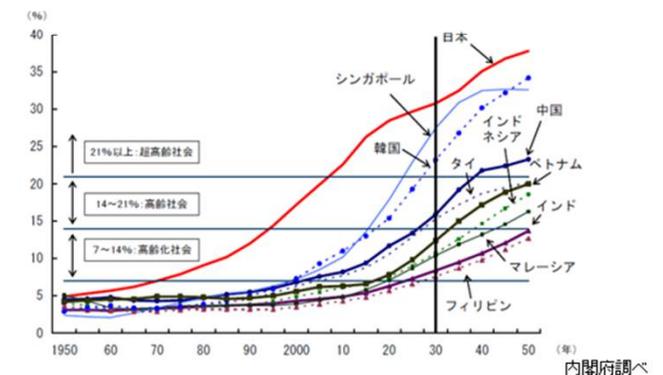


Asian Development Bank and Clean Air Initiative for Asian Cities. 2009.

Acceleration of aging rate

Japan China Korea facing aging society

Prediction of population aging rate in the world



内閣府調べ

◎ market growth potential of micro mobility which is high quality and fit for aging people as convenient in daily usage

Japan as ahead of facing challenges country establishes solution by the creative innovation like Micro Mobility, revitalize auto market by create new demand and take a next generation standard in advance.

Micro Mobility make lots of benefit like transportation support and tourism promotion

Tourism promotion

- ◎ Increase stopover spot by inviting narrow street and nice streetscape with comfortable migration
- ◎ Increase charm of the sightseeing area by discovering new tourist attractions, and awaking natural ambience like brook etc.

Affinity for pedestrian

- ◎ Create nice atmosphere for pedestrian by making enough space between pedestrian and COMPACT Micro mobility
- ◎ Create new communication between Driver and Pedestrian and change the relationship



Convenient and New Transportation For daily life and small lot logistics



Transportation support

- ◎ Increase of the going out opportunity and communication of all age include elderly people
- ◎ support for daily transportation of child care generation



Small lot logistics more efficient

- ◎ improve service level by rationalize transport path and method
- ◎ efficient freight handling at narrow space in downtown, overcrowded area

※ 用途イメージは、トヨタ車体HPより

Example of Micro Mobility in Japan



Q-CONCEPT
(2011 Tokyo Motor show)



Micro Commuter concept
(2011 Tokyo Motor show)



PICO
(2011 Tokyo Motor show)

Under development

Demonstration in MLIT



COMS



Winglet



New mobility concept

Positioning of New Mobility

Rated Output (Electric Vehicle)		0.6kW and less	Exceeding 0.6kW
Engine Capacity		50cc or less	from 50cc to 660cc
Three/Four Wheeled Vehicle	<p>Wheeled Walking Aids (No license required)</p> <ul style="list-style-type: none"> • 6 km/h, or less • No Vehicle Inspection • Overall Length; 1,200mm • Overall width: 700mm • Overall Height: 1,090mm 	<p>Quadricycle</p> <ul style="list-style-type: none"> • Overall length: 2,500mm • Overall width: 1,300mm • Overall Height: 2,000mm • 1 passenger • Driving on a highway not allowed 	<p>Mini-sized Vehicle</p> <div style="border: 2px dashed red; padding: 5px; background-color: red; color: white; border-radius: 15px;"> <p>New Mobility</p> <ul style="list-style-type: none"> • Rated Output: 8kW* and less (or 125cc or less) • 2 passengers or less (or, driving seat and of two CRSSs) • Driving on a highway not allowed  </div> <ul style="list-style-type: none"> • Overall length: 3,400mm • Overall width: 1,480mm • Overall Height: 2,000mm • Vehicle Inspection • 4 passengers • Allowed its driving on a highway 

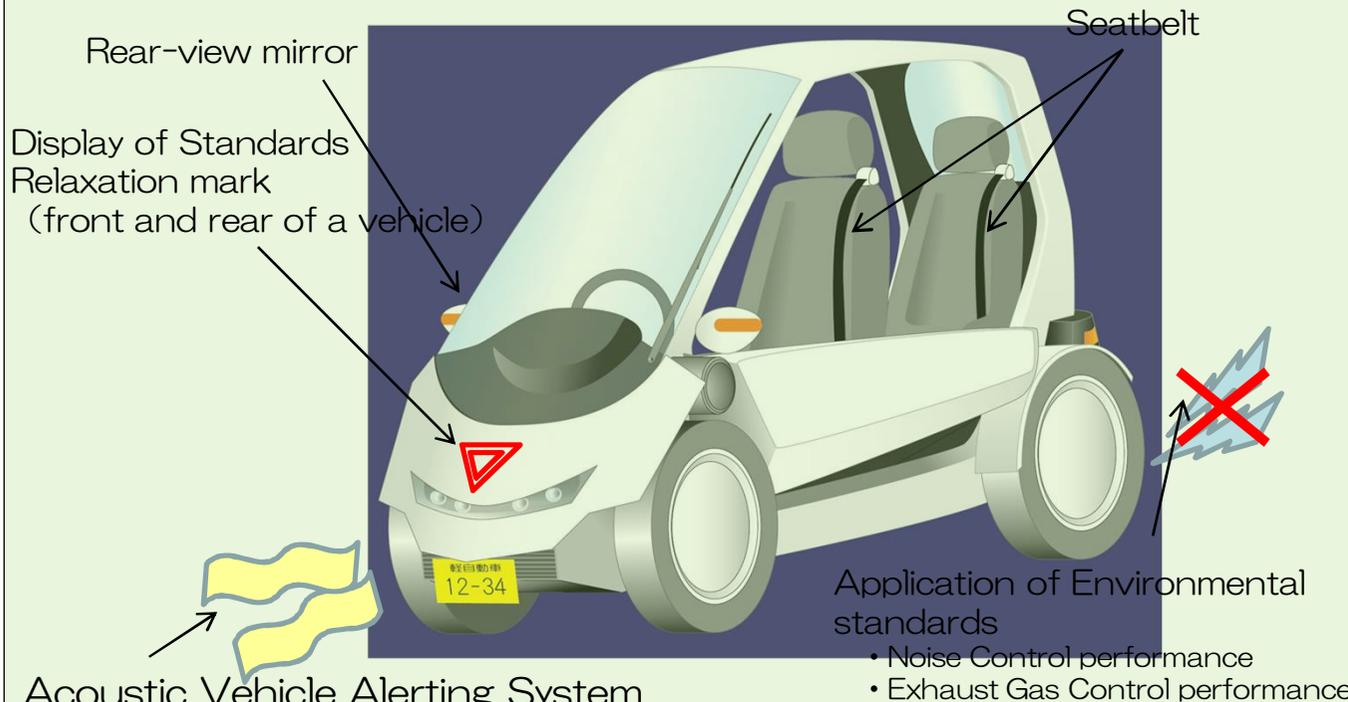
* Japan's Rated Output 8kW is equivalent to Maximum Continuous Rated Power 15kw of Category L7

Main concepts of Safety Standards

- Giving the top priority to the securement of safety, some safety standards may be relaxed, provided that ① a vehicle does not drive on highways, and ② drives only in the area where the safety of traffic is secured .
- Main safety standards to be applied will be as follows.

Main standards to be applied as normal

Passive safety performance (Conformance to the structural requirement)



Acoustic Vehicle Alerting System

* the device that emits the sound automatically during driving in order to let pedestrians recognize the approach of a highly silent EV

Main Standards that could be relaxed

It is possible to relax the following standards, provided that a vehicle drives only in the safe area and not on highways

- Installation Strength of seat
- Impact absorbing performance of seatback
- Installation Strength of seatbelt
- Space and sizes of seating
- Child Restraint System (ISO-FIX)

Main Standards that could be relaxed subject to the conditions

Vehicle of 1,300 mm or less in the width

Following standards could be relaxed since it could be regarded as having characteristic of two-wheeled vehicle

- Fire retardant Interior finishes

[Device to which two-wheel vehicle standards will be applied]

- Lamps
- Brake
- Locking Devices

Vehicle drive only on the roads with the maximum speed of 30km/h or less

Since there are very few fatality accidents on such roads, the following standards could be relaxed, too.

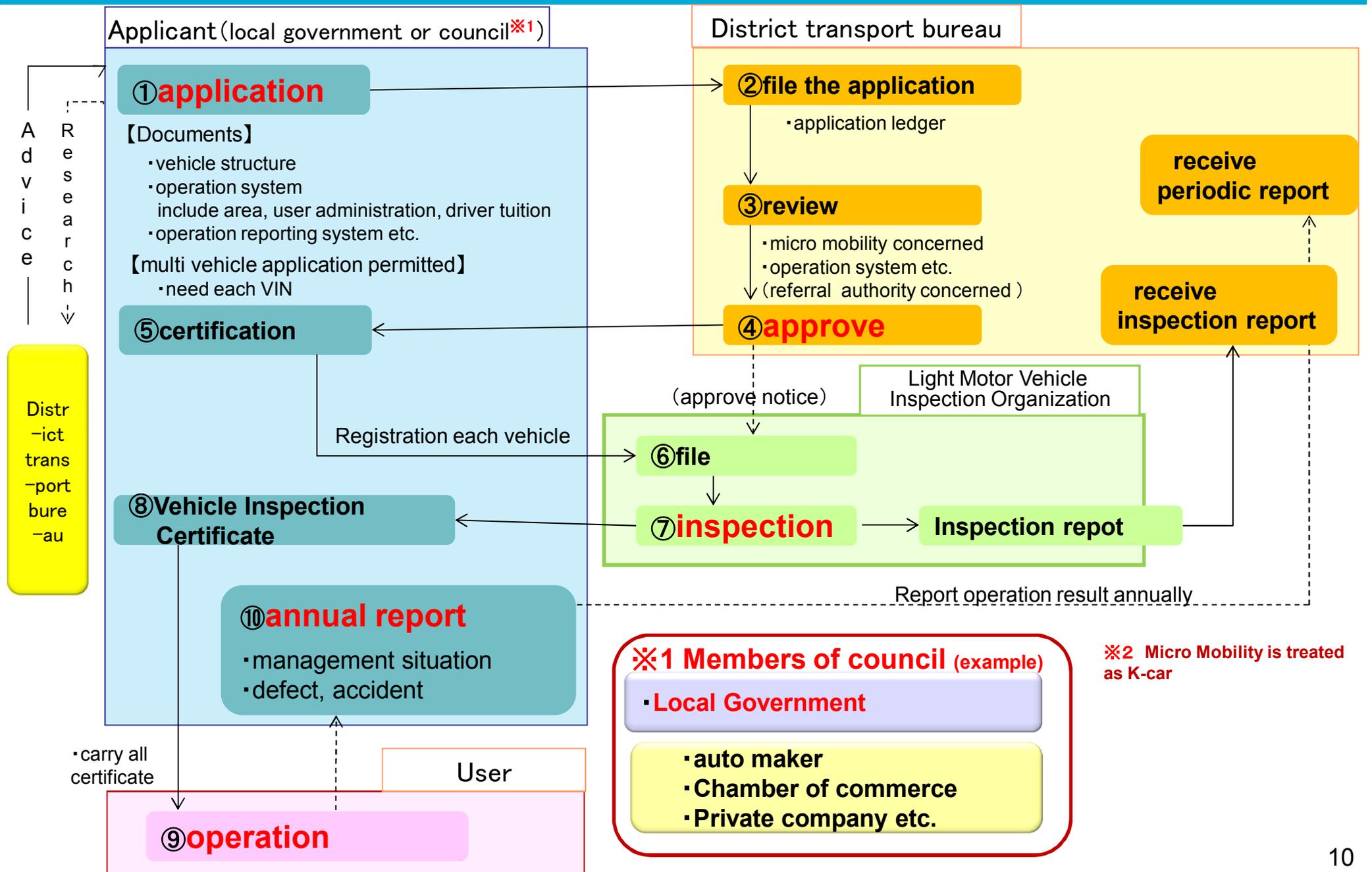
- Equipment strength of seatbelt
- The other requirement for crash worthiness

Schedule

22 November 2012 : Start asking for P.C.

31 January, 2013 : Enforcement

Procedure of special handling system for Micro Mobility



Suggestion of the creative innovation for aging society / population decline



Nissan New Mobility Concept

Micro Mobility:
Compact than normal car, one – two passenger, convenient local transportation
(Energy comparison is 1/6 than normal car)
(1/2 than electric car)

Effect prospective by micro mobility

- ① contribution to energy saving, low carbon society
- ② New transportation in the daily life, Create new transport demand and market
- ③ Movement support for families with small children and elderly people
- ④ local promotion through the activation of tourism spots and the local activities

Regulation reform: introduce a special handling to enable to use it on public road

Acceleration of the trial introduction by local government or tourism / delivery company
(with intensive support to superior project which maximum utilize of the characteristic of micro mobility)

Best practice

Maximum utilizing characteristic of the micro mobility

Opportunity to reconsider Life and Move style

Gain public understanding for Micro Mobility

**Review of legal systems include regulations,
accelerate Community Renovation and development**

Outline of Promotion of Micro Mobility

Subsidies for superior micro mobility introduce project which is abound in ingenuity and combined energy saving city/ house planning

2012 supplementary budget : 380 mil yen
2013 budget : 200 mil yen

Presuppose passing the budget bill through the Diet

First dedline:20 Feb

Accept: District transport bureau

Detail

http://www.mlit.go.jp/jidosha/jidosha_fr1_000043.html

project implementing organization

Local government

Council

Private company

Subsidies for expense $\frac{1}{2}$ ※※ of cost of

Planning cost

Vehicle cost※

validation cost

※ basically subsidies up to 500,000

※※in case of private company 1/3

Micro Mobility introduce project which trigger another introduction

Solidarity with other national (or local) project of city/house energy saving project or local revitalization project

Contribution to vitalize tourism or regional promotion

Relationship with environmental program

Role-sharing and combination of related parties

basis for evaluation

Break the ice

- ◎ **Create a vision, get leadership**
- ◎ **Provide an occasion of micro mobility experience**

Take initiative to introduce

- ◎ **Introduce to public service / regional transport service**
- ◎ **Subsidy from local government**

Applicant of Micro Mobility approval

- ◎ **Establish operation system**

Improvement of usage / new life style

- ◎ **Create regional activity, revitalize local industry, rediscover local tourism asset**
- ◎ **Create all age mutual cooperation environment**
- ◎ **Improvement urban space in which pedestrian bicycle micro mobility pass through comfortably**

Community Renovation by Micro Mobility

introduction image & effect

Daily transportation in short distance (within 5km)

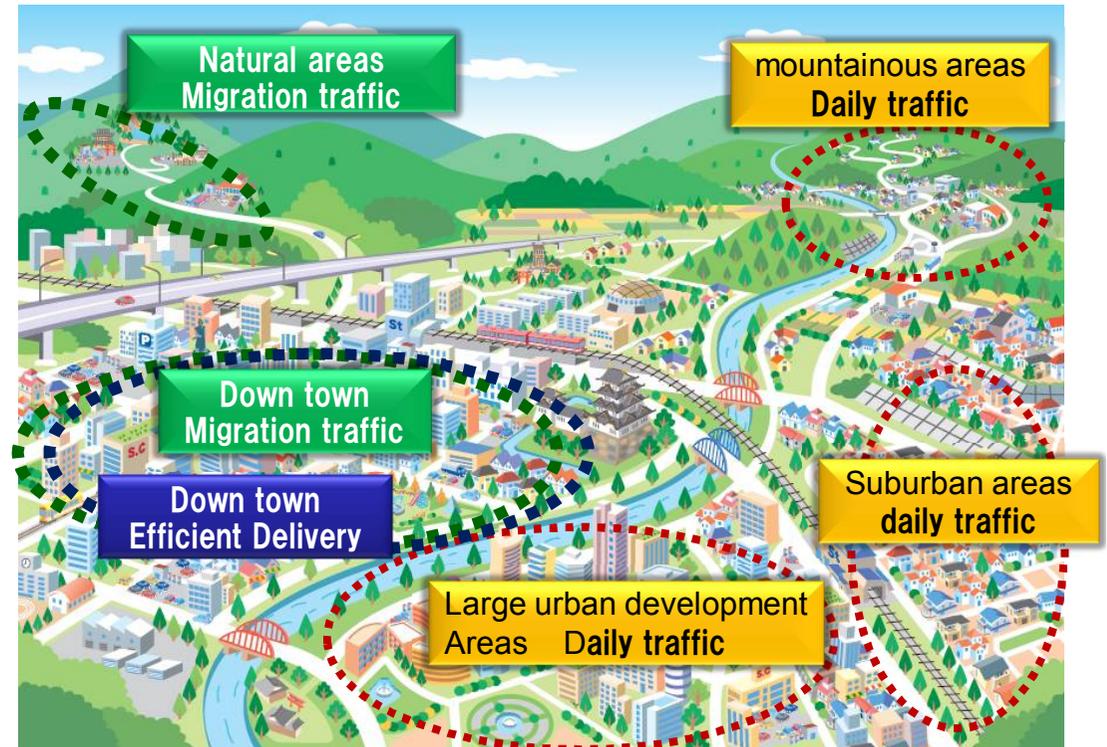
- "New transportation mode " " Transportation support " for daily life as Shopping, Local activities, Commute
- "Revitalize community" by people move and facilitate exchange
- "Optimization of transportation system" as feeder transportation which connect public transportation

Migration transportation in Down town / tourism area

- "rediscovery of local attractions" by more view spot by micro mobility
- "Attraction" in tourism area
- "Local value improvement" by harmony with natural environments and sustainable town

Small delivery or porter service

- "Improvement of freight handling parking problem"
- "Efficiency of small lot/area distribution "
- "Service Improvement" by small lot delivery



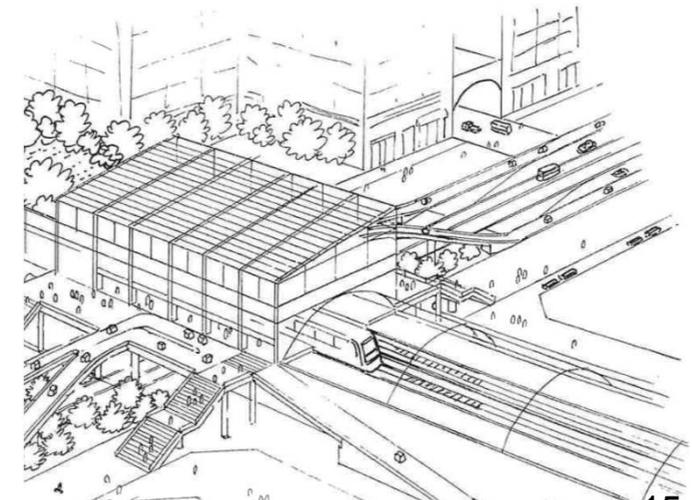
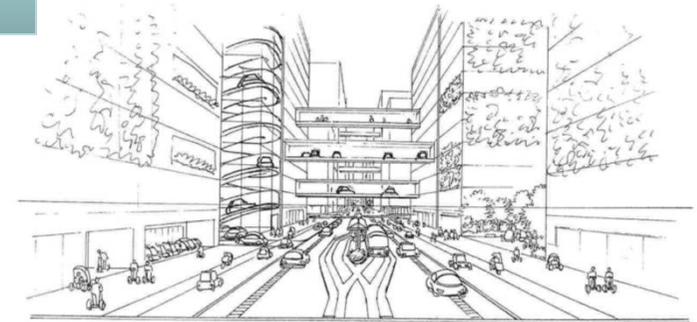
Community Renovation by Micro Mobility

- EV and Micro Mobility contribute to make low-carbon society a reality and fit transportation mode for compact city which mach for Ageing society and population decline. Ministry of Land, Infrastructure and Transport promote diffusion Micro Mobility and Community Renovation in an integrated manner

Car, City and People's Life Style should evolve toward sustainable and vital society with harmony in future

committee to discuss of New Style City
as EFV progress (2010)

- expansion of road space, and change the relations between building and road by Vehicle's electrification and downsizing .
- Universal society where everyone include difficulties can participate social activity by Combination of micro mobility and public transport, fun walk road environment, the seamlessness traffic node
- With the progress of technologies, migration is more safe and comfortable
- The role of vehicles is changing by the connection to a smart grid



Key word for next generation technology / service

- ◎ "combination of innovative technique and/or idea"
- ◎ "Products ,services which provide new value and/or contribute to creation of new premium and high added-value business"
- ◎ "Something which can deal flexibly, for Personal taste and trend of the times"

Let's bring up rapport innovation of daily activity, house-city planning by taking a cue from reimagining personal movement .

- citizen-hometown company-centered platform which create new innovation is a serious matter for attractive and competitive city formation
- How drawing civic strong-will which create regional economic development model and improvement of life quality
- provide a new view point to company by keeping all age / all business in the loop
- Companies watch for opportunities to try there innovative technology / service