

No.6 The criticism of motor vehicle traffic system -1

The automobile is the symbol of the modern civilization which consumes energy by using fossil fuel daily. There is no such animal that possesses a wheel in the natural world. Nature is meant to undergo environmental changes, and not suited to be run with a wheel. Imagine moving with a wheelchair. The road has to be smooth in order to travel with the wheelchair, and it is difficult to advance when there is 15cm difference in road level. Also, it takes much more time to change directions in comparison to the walking and is impossible to move quickly. (Tatsuo Motokawa 1993) The wheelchair moves by turning a felloe with the hand, thus relatively easy to handle, but it requires tremendous force if manually supplying power to the axle to move a car. Probably it's impossible to do so. In other words, the energy efficiency of the system like the automobile that supplies power to the axle to make wheels drive is very poor. This transferring method is so inefficient that is not suited for the creature which pursues rationality. On the other hand, the automobile makes such inefficient movement possible by consuming large quantities of fossil fuels.

Following is a list of problems can be caused by the motor vehicle traffic system.

1) Exhaust gas

The number of motor vehicles registered in Japan is about 88.6 million (1999), which is the second largest volume to the United States with 200 million. While the number of commercial vehicles such as trucks and buses has been declining since 1990, the passenger cars have grown remarkably, hence accounting for over 60 million of registered vehicles at present. It is approximately two automobiles per household of four family members on average. (As a matter of fact, 84% of household possesses an automobile, and 35% owns two or more.) The fact that about 88.6 million automobiles are in use indicates that about 34 million kilo liter gasoline and 8 million kilo liters of light oil are consumed annually. (About 10 million automobiles are manufactured every year.) To produce one small car generates approximately 884 kg of carbonic dioxide gas and 650 kg for use per year (Hirofumi Uzawa 1995). Therefore, when 88.6 million automobiles are in use, approximately 78 million tons of carbon dioxide in total is considered to be excreted every year. Especially, the SUV which is recently popular is inferior to the sedan in terms of the fuel efficiency per mile, thus leading a larger carbon dioxide emission.

According to the Ministry of environment, an average household of father, mother and

two children generates two tons of carbon dioxide, of which 36% is due to car use.

Besides carbon dioxide other air pollution gases which are excreted from the car, like CO, HC, NOx, SOx, SPM and so forth, not only induce global warming (Greenhouse effect) but also significantly influence the health of human being. Surely, the automobile is considered to be the main cause of the atmosphere environment destruction.

2) The traffic accident

The number of traffic accidents caused by the automobile is incredibly high in comparison to other transportations. In 1999 850 thousand traffic accidents occurred, killing 9,006 people (10,372 died within 30 days) and injuring 1.05 million. Every year approximately 10 thousand people dies and a million people get wounded, in which the casualties is as severe as the Great Hanshin Earthquake's occurs 1.5 times a year. 17.5% of those who died due to automobile accidents are young, and 35% are senior people, and it is a serious issue that there is a high death rate in either people under 25 years of age or the old generation. Additionally, traffic crimes have been increasing rapidly.

Equal to or more than 88 % of new criminal law offenders are related to traffic crimes. Of 740 thousand unintentional manslaughters in 1999, most were caused by traffic accidents. Also, the number of people who are newly put in prison for violation of the Road Traffic Act exceeds one million. 90% of juvenile offenders are because of traffic crimes, thus the automobile brings a significant influence over young people. As the number of automobiles increases, so these accidents and crimes related to traffic are expected to grow.

3) The destruction of nature by the road development

The automobile does not perform efficiently without a smooth road. Therefore, as far as we depend on the automobile traffic system, we continue to make a road. The road development to promote tourism is the main cause of the destruction of nature in Japan. The Japanese road extension of 1999 was executed for 1.15 million kilometers, which is 476 meters at the country soil of 1 square km, and therefore Japan became the country of the third road density in the world. Since there are many mountains in Japan, the road addition is indeed 1300 meters (3 times larger than mentioned above) per 1 square km of the area where people can reside. Accordingly, it is evident that the road system

is heavily crowded in Japan. Japan is the only country that built a roadway close to the top of Mt. Fuji, the world famous beautiful mountain, and that has been destroying nature.

The automobile requires the parking facilities in addition to the road. By taking up some space, the parking lot makes residential area much smaller. As 88.6 million motor vehicles owned in 1999, supposing that 1 *tubo* (about 3.3 square-meter) space is necessary to park one car, so the space around 88.6 million *tubo* will be occupied by automobiles.

From old days the Japanese traditional house had a garden even if small, where there were plants and a pond, and it was a small living planet (biotope). Originally, Japanese people like a life that harmonizes with "nature ". However, the current housing condition clearly proves that most of the garden space is used as a parking lot. Not only the residential parking but also a workplace, supermarket, other stores, recreation facilities and so on in fact need parking space. Therefore, if including business space, it will be much larger than the previous calculated 88.6 million *tubo*.

4) The waste

There is also a problem with the disposal of waste after scrapping a car. While the scene that massive scrapped cars piled up is often seen in the United States, those are being scattered in a small space all over the place in Japan. Although the situation has been improved, for processing of CFC alternatives which is used for air conditioner (800g per set), and of the other pollution gas, asbestos and heavy metal, it is a growing threat to the environment.

As mentioned above, every process of production, use and disposing, the motor vehicle pollutes the air, which in turn destroys the balance of nature itself. In other words, the motor vehicle is harmful to the life of many creatures including human.

It is certain that our lives had been improved because of the invention of the motor vehicle traffic system. However, we have been endangering the environment of our future generation as a result of pursuing the convenience. In reality, only 12% of the world population of 6 billion is enjoying automotive benefits.

The comparison between the express train and motor vehicle (Shinkansen1967-71
Toumei-meishin Expressway 1968-71); Data by Hirofumi Uzawa, 1995

	The Shinkansen	Toumei-Meishin
Distance	515km	536km
The amount invested	379 billion yen	457billion yen
Transporting capacity	26,700 million passenger-kilometers	27 million passenger-kilometers
# of death by accident	0	17000

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