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The conditions of the air pollution due to out of date vehicles

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Abstract

Vietnam Air Quality Report 2016 published recently by the Vietnam Union of Sustainable Energy shows that the overall picture of air in Hanoi is in an alarming state, air quality index (AQI) and PM dust concentration of 2.5 (dust with hoc2.5 mm kinetic diameter) exceeds the national and world standards. One of the causes of air quality degradation is due to the condition of old and worn motorcycles discharging air into the environment. Currently in big cities like Hanoi and Ho Chi Minh City, motorcycles account for 95% of the vehicles and consume 56% of gasoline, the hydrocarbon emissions account for 94%, carbon monoxide (CO) accounts for 87%. And nitrous oxide accounts for 57%. This shows that the air pollution caused by motor vehicles is increasing at an alarming rate. Currently in Vietnam, there are about 40 million motorbikes, of which there are vehicles operating from the 80s to 90s of the previous century but still circulating. Not only traffic insecurity, but in the process of operation, these "overly" vehicles also seriously affect the environment and people's health. These vehicles are used by outdated technology, so the ability to burn fuel is not exhausted, discharging into the environment many times more cars and most of toxic emissions are hydrocarbons, greatly affecting human health.

Keywords: air pollution, old vehicles, sustainable development

1. Introduction

Hanoi city has a policy of studying the plan to recover old and worn-out motorbikes, notensuring the standard, potentially high risk of traffic insecurity and environmental pollution. Although there are no specific regulations on technical inspection as well as the year of motorbike use, the basis for determining motorbikes is in the reclaimed area, but many believe that the recovery of worn-out motorcycles is necessary. Set and need a suitable route ... Because otherwise Hanoi and the big cities in our country will soon be faced with the risk of worn-out motorcycles into "urban garbage". This is also the main content mentioned in this series of Urban Transportation this week.

Called an old motorcycle, because there are almost no signs of what kind of car it is? There are only cars with iron frames rusted, the head is empty with tangled wires, no horns, no lights, turn signal lights, no mirrors. Even, many vehicles do not have a vehicle registration, no number plates, no exhaust pipes ... but still circulate daily on the road. According to Vietnam Register, there are about 40 million motorbikes in the whole country, among these are from 80-90 years of the last century but still circulated. Not only traffic safety is unsafe, but in the process of operating these "excess" vehicles also seriously affect the environment. These vehicles are used by outdated technology, so the ability to burn fuel is not exhausted, discharging into the environment many times more cars and most of toxic emissions are hydrocarbons, greatly affecting human health. To reduce traffic accidents, representatives of road safety experts and the Vietnam Automobile Manufacturers Association (VAMM), it is necessary to issue regulations on technical inspection. Motorbike means to provide a basis for motorcycle usage. On the side of the State Administration, the National Traffic Safety Committee also agreed with vehicles with a use period of more than 15 years should be more stringent regulation of the year and at the same time have to study the department Study, consult the opinions of people who are using motorcycles to promulgate promises to bring traffic safely. At the announcement of the results of traffic safety research in 2015 of

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the National Traffic Safety Committee and VAMM coordinate on August 4, according to Associate Professor, Dr. Chu Cong Minh, University of Technology, Ho Chi Minh City National University, among all accidents recorded by the survey of motorcycle ownership and use in Ho Chi Minh City, was conducted within six months (9/2015 to February 2016) showed that the number of vehicles with a period of use from 10 to 15 years accounted for 44.5%. Given the number of analysis from the study, Minh cited, with vehicles used from 6-10 years, the proportion of vehicles encountering different levels of accidents is relatively stable, respectively 38%, 43% 36%, 40%. In contrast, vehicles used from 1 to 5 years, the proportion of vehicles experiencing accidents gradually increased gradually, corresponding to 51%, 43%, 49%, 30%. Thus, new vehicles from 1-5 years can make the level of accidents less serious. Therefore, Mr. Minh proposed the policy of managing motorcycle use time and checking motorcycles periodically to increase safety factor when using the car. At present, the Government's regulation is that until January 1, 1818, all old motorbike used vehicles must be recovered. However, in reality, there are no documents regulating the useful life of motorcycles and mopeds. It is now necessary to issue a regulation on technical expertise of motor vehicles to provide a basis for the promulgation of regulations on motorcycle use. As a motorbike manufacturer and member of VAMM, Tseng Kuo Lung, Deputy General Director of SYM, said that the motorcycle market is still very active in the next few years. Vietnam is a dynamic motorcycle market because it is still the main means of people because of its usability and economy. According to Tseng Kuo Lung, manufacturers in VAMM are committed to constantly improve the technical quality, design new models in line with the market trend and propagate with the Agency about the waste product. According to the Decision No. 16/2015 / QD-TTg, manufacturers must organize the collection of disposed products that they have sold to the Vietnamese market and establish a point or system of waste disposal sites. Information from the Vietnam Register, the country has about 40 million motorbikes, this is the large number of cars, of which the car went into operation from the 80s and 90s of the previous century but still join the delivery. On the road. From 2015 onwards, there will be about 15,000 vehicles out of use each year, which should be eliminated, but the recall is very difficult because people are not self-conscious and often resell to remote customers. To recover capital. Old and worn-out motorcycles are essential to reduce environmental pollution and traffic accidents. In our country there are many old motorcycles, unsafe but still in circulation. However, it is not possible to equate these vehicles with other motorcycles at the same time, because of the different quality of the vehicles, more vehicles, fewer vehicles, and car owners. Maintain regular maintenance. Even vehicles are not in time to recover but due to poor maintenance, there is still potential danger of traffic safety, environmental pollution ... So, must base on the quality, safety not merely based on the expiry date. Over time, the Ministry of Transportation has proposed to regulate the use of motorcycles for 8 years or 100,000 km. However, when it comes to collecting opinions, there are many objections, suggesting that this will affect the majority of the poor. Our country has a high rate of poor people, often used cars and

many families use motorcycles as a means of earning a living every day. Most of the opinion that the need to recover vehicles such as motorcycles, car cars need to build legal basis is feasible to implement. Specifically, there must be an age limit. Based on that, the expired cars will be withdrawn, eliminated. Currently, only trucks, pickup trucks, passenger cars of 10 seats or more are subject to age restrictions.

There is no basis for knowing the vehicle has a usage date. With the number up to the millions of motorcycles, which forces do the accreditation? Motorbike bought and sold many times, not owner from province to province ... so how to test. If the lawfulness of the withdrawal does not get the support of the people, in addition, the arrangement of the depot is also not a simple problem. Thus, according to his management, Lien advocated limiting vehicles polluting the environment, not safe in traffic, threatening the lives of car owners and communities but parallel with that need to take People's opinions are new to practice. No matter expired electronic products or motorbikes are required to be withdrawn immediately. If the motorbikes are old but still work well, people still have the right to use, go to normal, no one forced them to hand over the product. There is no state agency to recall that product. The spirit of Decision 16 is to encourage businesses and producers to take the final responsibility for their products. That represents the corporate responsibility for society in protecting the environment. The reason is that so far there is no document that sets the date of use for motorcycles. In the immediate future, the registry is releasing a draft motor vehicle emission control regulation, which proposes to control vehicle quality through emission control.

2. Old vehicles in Vietnam

The atmosphere in Hanoi capital is thought to be more polluted than Saigon. This is an assessment made by the Ministry of Natural Resources and Environment in a report published in the middle of July. It is worth noting that although the population and transport in Hanoi are less than Saigon, the level of air pollution is worse. Specifically, according to the report of the Ministry of Natural Resources and Environment, the number of days in a year recording air quality in Hanoi is 237 days poor, the number of days of bad air quality is 21 and 1 day of harmful pollution. In the period from 2011 to 2015, benzene targets at most traffic air monitoring points in Hanoi exceeded the standards set by Vietnam and tended to increase. The reason for this phenomenon is explained by the increase in the number of vehicles and the use of petroleum fossil fuels. Statistics show that there are about 37 million motorbikes and 2 million cars nationwide. Hanoi alone has more than 5 million 300,000 and Saigon nearly 7 million 600,000 registered motor vehicles. Motorcycles account for 95% of vehicles in Hanoi and Saigon, consume only 56% of gasoline but emit 94% hydrogen carbon (HC), 87% carbon oxide (CO), 57% nitro oxide (Nox) ... of total emissions of motor vehicles. Besides, there are also current cars from other localities. Many used cars do not meet the emission standards for aging.

Vietnam Ministry of Natural Resources and Environment's report acknowledges that 70 to 90% of urban air pollution comes from transport-transport activities; industry and daily life account for only 10-30%.



Fig. 1: Old motorbike in using in Vietnam

However, for many years, people are not too difficult to be caught on the road many old cars are still used to transport. Violations often happen again in HCMC. Annually, the Motor Vehicle Register will have statistics on old cars and old motorbikes in HCMC to inform the owner as well as the authorities to review. If the vehicle is still defective for use or swap, there will be many dangers because the condition, technical conditions of operation cannot be guaranteed. While, the owner of the vehicle unfortunately, refresh it into a new car to continue circulation on the road. The expiry date of these vehicles is specified as follows:

At present, there are no documents regulating the use of motorcycles, motorcycles. The Transport Ministry has proposed to apply the term to motorcycles but met with opposition, mainly assuming that the poor will be affected, they will have to increase the cost of transportation and make a living. Currently, HCMC has a relatively small number of over-the-year automobiles, mostly passenger cars and passenger cars, and many bus routes are overdue. Have not changed the new car. Motorcycles have no regulations on the year so much traffic on the roads.

Accordance to the Motor Vehicle Register, by 1 January 2017, Viet Nam will remove 23,075 cars over the expiry date, including more than 3,000 passenger cars and more than 20,000 trucks. Since the implementation of the current car-age regulation (2009), Viet Nam has removed 139,000 vehicles. The localities with the highest number of cars were eliminated were Ho Chi Minh City with about 5,448 cars. Previously, on May 22nd, 2015, the Prime Minister issued Decision No.16/2015/QD-TTg which requires, from 01/01/2018 motorcycles, motorcycles and cars of all types, the expiry date will be revoked.

Since there is no legal document regulating motorcycle and motorbike life, there are many vehicles that have been used for too long and are still worth traveling on the roads in the whole country in general and in HCMC in particular.

At present, the environmental pollution in HCMC is getting worse. The main reason is the rapid population growth, poor planning of small roads ... and more specifically, the emissions of cars and motorbikes used by shippers. According to a report by the Registry in 2016, air pollution

is becoming more and more severe in large cities with dusty suspended road levels in large cities exceeding the permitted multiple times.

Particularly, the exposure of traffic participants, especially motorcyclists, exceeded the permissible limit of 2 - 3 times ... In which, 70-90% of urban air pollution from traffic activities. In the two largest cities, Hanoi and Ho Chi Minh City, motorcycles account for 95% of the total volume, consuming only 56% of the gasoline but emitting 94% of the carbon monoxide (HC); 87% of carbon monoxide (CO); 57% of NO_x (NO_x) ... in total emissions of motor vehicles. Motorcycles are the main source of most pollutants. Ho Chi Minh City has 8 million motorcycles in circulation, of which a large number of vehicles have expired. Many people have a habit of using the medium for a long time without the care and repair. While many of the vehicles are too old and out of date, many people use their vehicles to transport goods. Trampolines, self-made cars or unmotivated motorcycles, both in the chassis and in the engine, are still circulated on the road. Most people involved in traffic when encountering such means often have to give way to avoid "rush to the body". When introducing the use of such old vehicles as first, it is not safe for the second user to be unsafe for other traffic participants, and it is important that the emissions of these vehicles are significantly higher than those of the other users. With facilities in use. And when I see these cars I feel quite uncomfortable because if you have to stop after vehicles such as this will be very annoying. According to traffic experts, 70% of the pollutant emissions originate from vehicles. When vehicles use fuel to operate, the engine will emit a large amount of toxic gases that pollute the environment and affect human health.

Master Do Khac Son - Lecturer in the Department of Automotive Engineering - Hanoi University of Transport explained: Fuel that does not produce good emissions, in the exhaust gas contains many toxic components such as NO_x, carbon hydrocarbons, while there. These gases, especially carbon monoxide, which are released into the environment, react chemically to create a pyrogen-burning gas. The HCs produce toxic, toxic gases that cause people

to become poisoned. Choking. For diesel engines that cause dust when inhaled into humans, it is very toxic to the lungs and heart disease. The composition of this exhaust gas depends very much on the quality of the engine. The older the engine, the more backward the technology, the more the fuel burns down, the more toxic the exhaust is. During the operation, the means "overdue" emits toxic air emissions 2-4 times higher than the new vehicles, which are maintained periodically. On the other hand, if the vehicles are operating normally, the amount of gas emitted to the environment will be stabilized to the extent permitted, but when the vehicle operator regularly increases the gas,

restart the machine or especially use Motorbikes are too old, motorbikes are too old, the amount of gas emitted into the environment will increase. That is the reason at the crossroads, intersections, air pollution levels are higher than the other areas.

According to scientists, in the exhaust of vehicles, there are many harmful components such as nitrous oxide, hydrocarbon, CO, when discharged into the environment, there will be chemical reactions that create toxic gases, people who are poisoned, even suffocate. By burning fuel is the process of decomposing organic substances.

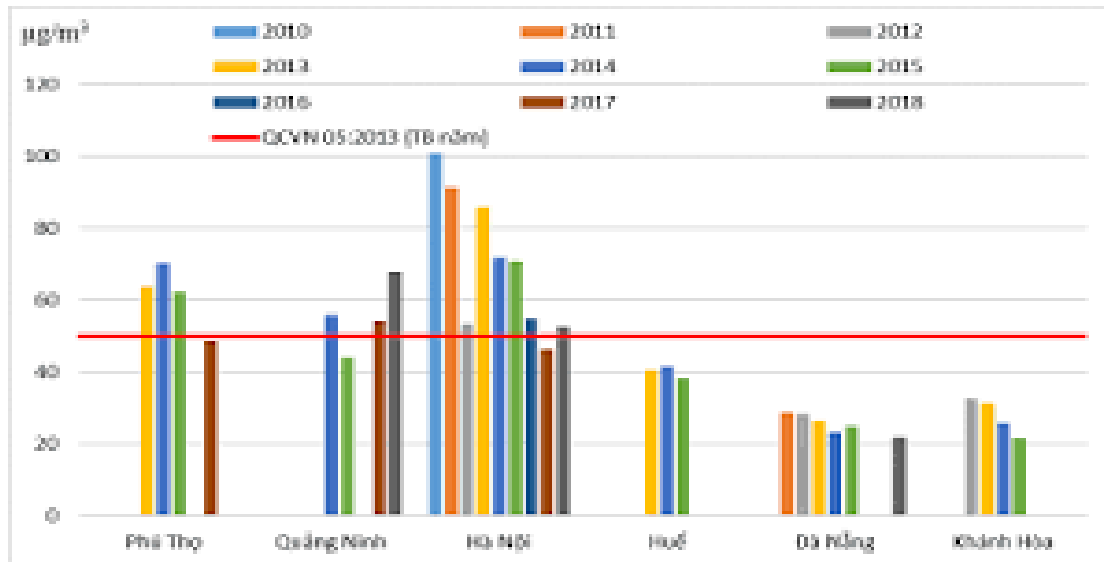


Fig. 2: Air pollution due to PM

This exhaust component is highly dependent on engine quality. The older the engine, the more obsolete the technology is, the more complete the burning of the fuel is, the more harmful the emissions are. In the process of operation, the "excessive" vehicles discharged into the environment a toxic gas emissions 2-4 times higher than new vehicles, periodically maintained. Not only at the air pollution problem, "excessively" have motorcycles still had the risk of traffic safety. The motorbikes are too old, many parts ensure traffic safety is no longer, but still circulate on the road.

It is a fact that in Vietnam, means of transport such as motorcycles, tricycles, and autonomous vehicles ... are often less or not checked regularly by registry agencies. That is, anyone who likes to use these types of vehicles will be able to control and limit it. This has increased the risk of higher levels of environmental emissions in urban areas, in addition to high emissions from other normal vehicles. Specifically, according to the Vietnam Registry, there are nearly 30 million motorbikes in the country, of which 60% are concentrated in large urban areas. Specifically, as in Ho Chi Minh City, the amount of waste such as PM10, CO, HC, NOx and gasoline additives such as benzene ... is very high, almost exceeding the permitted threshold many times. In addition, according to the Vietnam Register, around 2005, the Government issued standards on emissions for motor vehicles, but at that time the registry conducted a car inspection. As for motorbikes, although emissions are not officially controlled, according to the survey results, more than 50% of motorcycles currently in circulation are not up to standard. Specifically, according to the announced

standard of 4.5 CO and 1,500 HC (for vehicles using 4-stroke engines) and 10,000 HC (2-stroke engines), maybe 50% of motorbikes must be maintained, replacing some spare parts such as buckets, carburetors ... are allowed to circulate. From that, it can be seen that most of the motorbikes in our country are now discharging into the air more than allowed with a large number of toxic wastes. And of course, this is the cause of air pollution, dust pollution in big urban areas is increasing. In addition, according to some experts in the field of technology, maintenance and warranty of regular exhaust components in motorcycles will help reduce emissions significantly, up to 30 or 40% compared to when not maintenance. And that is the solution that can prevent and reduce this harmful emissions in big cities. However, in fact, this has not been done regularly and has not received good observance of the people. In addition, the Registry also proposed, for each type of vehicle that will have a specific age, the vehicle must be maintained and maintained in the registry. For example, if a motorbike has been used for more than 10 years, it must be registered and repaired, maintain some parts to ensure traffic safety and allowable emissions. It can be said that compared to other countries in the region such as China, Thailand, Singapore ... the emission control of the circulation vehicles in our country is quite slow and not really effective. This is the reason why the toxic gas emissions are higher and higher than before. And this also makes the living environment not only of humans but also other flora and fauna ecosystems in the city that are seriously threatened.

According to many environmental experts, there is a lot of risk of diseases that are mainly cancer that people suffer when they often have to inhale harmful emissions from vehicle waste. Accordingly, when gasoline is burned, there is often a lot of CO₂ released into the environment. On the other hand, according to many studies, automobile emissions are less toxic to human health than motorcycles. That is, in our country, the amount of motorbikes is still the main means of transport, the more their emissions are mixed into the environment, causing many different diseases. The first thing that can be most noticeable is respiratory disease when the lungs are the place to directly absorb these emissions. However, it is not the only disease that people can get if they regularly inhale motorcycle exhaust. Specifically, according to the doctors, the toxic emissions from gasoline burning can make people more susceptible to disorders of some hormones such as the nervous system and reproductive system. In addition, exhaust gas is a factor leading to some more dangerous diseases such as cancer or adversely affecting the pregnancy process of women, causing the babies born to suffer from some disorders.

3. Solution

The issue of environmental pollution and especially pollution from traffic vehicles and cars and motorbikes has been in the limelight for a long time. In order to handle and control the expired and expired motorized vehicles, the Prime Minister issued Directive 29/CT-TTg assigning specific responsibilities to the authority to strengthen inspection, Control and handle these objects; Requires the responsibility of heads of relevant agencies, units and localities to handle the expiration of the used vehicle in the area. However, up to now, the treatment of used vehicles in the area still faces many difficulties and problems. Although the Vietnam Register has built software alert and update the list of vehicles have expired but now HCM City and other provinces have not seriously carry out the review and statistics of the whole. The expired means of transport is under the direction of the Provincial People's Committee. According to the Transportation Vehicle Registration Center, it is impossible to thoroughly control the end-of-life vehicles by inspection because car owners usually do not take the vehicles for inspection since the end of their useful life. It is clear that the accrediting agency will collect the certificates of technical safety inspection and environmental protection of motorized road vehicles which have been issued if the vehicle is found dead. In particular, only important components such as chassis, chassis or machinery are tightly controlled, so many vehicle owners are free to dismantle and assemble other subassemblies on vehicles that are still in use. The registry is difficult to detect. In addition, many car owners exploit the limited capacity of human resources and vehicles to deliberately bring end-of-life vehicles to operate on small, remote, or internal routes. In some areas within the time frame the authorities do not arrange the patrol force ... making it difficult for the inspection.

In particular, according to Decision 16/2015/QĐ-TTg dated 22-5-2015 of the Prime Minister, by 1-12018 motorcycles, motorcycles and automobiles of all kinds will expire. Retrieve. Therefore, at present, the functional force only registers the registration certificate, the car control plate of the end of the year, only the property owner has the right to

decide the "fate" of the means after the settlement of the car the fine imposed on the result of the control of means of transport has not been tightened.

In order to overcome the difficulties in handling and controlling expired vehicles and overdue inspection, local authorities should take on higher responsibilities in line with the direction of the Prime Minister. Covering, in particular, will handle the responsibility of the head if the condition of the vehicle expires, the expiry of the accreditation for traffic accidents. Firstly, there should be more drastic instructions from the provincial people's committee to the district and commune level in reviewing and statistics of the end-of-life vehicles of the people in the area using the registration of off-shore control. From there, make a list of all vehicles which have expired registration period for control inside and outside the province and have the means owners being local people for functional forces to directly inspect and handle Units actively detect, handle in the course of duty, traffic guidance, patrol and control. Focusing on propaganda to communicate with functional forces directly inspecting and handling in the locality and local people in order to consciously realize that this is the danger of causing environmental pollution. And traffic accidents, thereby actively not buying, selling and using long-distance means of transport.

4. Conclusion

Vietnam, exactly a 'motor power' when owning this number of vehicles is ranked 2nd in the world. In 2016, statistics recorded the number of more than 45 million motorcycles and motorbikes running all over Vietnam roads. Currently, 85% of the Vietnamese population is using motorbikes as a means of transport as well as for daily living. Compared to the population, on average every 2 Vietnamese people will have 1 motorbike. In the world, this rate is only behind Taiwan (in 2015, people here own up to 15.09 million motorbikes, there are 7 motorbikes on average for every 10 people). In Vietnam, motorcycles are also the most popular means of transport. According to the survey to determine the proportion of vehicles in a vehicle line, up to 85.8% of vehicles are motorcycles, 12.3% are cars, 1.2% are trucks and buses only 0.7% . Since then, it is calculated that for example, in Hanoi, there will be 2,500 motorbikes running for 1km. Dust is the cause of reducing the quality of life of the city people seriously. Because there are many hazardous components in dust. The report stated that NO₂ concentration tends to increase in recent years; especially there are signs of pollution and a sharp increase in peak hours in the traffic area, especially in Hanoi, Ho Chi Minh City ... The concentration of CO also increased during rush hours at the traffic and impulse axes. Around industrial zones in urban areas. O₃ gas (ozone), which has recorded an abnormal increase in large cities, continues to increase. Particularly in Ho Chi Minh City, with more than 7 million motorbikes and more than 600,000 cars, every day emits a huge amount of smoke and dust. Accordingly, the more areas with high traffic density, the higher the level of pollution. For example, the area: An Suong crossroads, the area to go to Cat Lai port, Cong Hoa, Truong Chinh, Nguyen Huu Tho.

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