

## IMPLEMENTATION OF LAW NUMBER 22 OF 2009 CONCERNING ROAD TRAFFIC AND ROAD TRANSPORTATION IN AN EFFORT TO REDUCE AIR POLLUTION IN THE MEDAN CITY

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**Abstract:** Air pollution caused by the transportation sector can reach 60%. The high level of air pollution in the transportation sector affects air quality. Motor vehicles emit various gases and particles containing organic, inorganic and high molecular weight compounds that can be inhaled directly through the nose and affect people on the road and nearby. Exhaust gases from motor vehicles pose a problem for people in the vicinity as they cause air pollution problems as well as health impacts from the daily accumulation of air pollution. Many studies have shown a close relationship between high levels of urban air pollution and the occurrence of respiratory diseases.

This research will examine by studying and reviewing the scope and resources of laws and regulations relating to environmental management and laws and regulations relating to road management and road transportation.

This air pollution needs serious attention from the government, especially in big cities like Medan City. To anticipate this, the government issued Law No. 22/2009 on Road Traffic and Road Transportation. The implementation of this law in Medan City plays an important role in reducing air pollution due to motor vehicle emissions.

### INTRODUCTION

Environmental management problems cannot be separated from the neglect of the environment which causes environmental pollution, namely chemicals, energy or other components that enter the environment that are detrimental, environmental pollution that harms or harms living things and ecosystems. Environmental pollution occurs in various media such as air, water and soil, and is often caused by human activities. Environmental pollution and damage as a side effect (negative effect) due to the use of technology in industry, and the low quality of behavior (some people) in society, there will be no problems in life that face it. life. Achieving sustainable development to improve people's living standards is the goal of environmental management, so it must be prevented and

controlled. The provisions of Article 1 Point (3) of Law Number 32 of 2009 concerning Environmental Protection and Management states that sustainable development is a smart and planned process that takes into account environmental, social, and economic aspects in development strategies to ensure the sustainability of the environment and ensure the security, energy, welfare and quality of life of present and future generations.

Among the many impacts of environmental pollution, air pollution is the most deadly. Some exposures to air pollution can occur immediately, within minutes or hours of exposure, including burning eyes, burning nose and throat, shortness of breath, coughing, and worsening conditions such as asthma attacks and chest pain. and other disease risk factors and pollutant exposures influence the human response to air pollution.

The large number of motorized vehicles causes serious traffic problems on many roads in major cities in Indonesia. It is no wonder that these cities are the biggest entry points for air pollution emissions. Motor vehicle exhaust gases are environmental pollutants. The most important air pollution is caused by motor vehicle exhaust gases, which are increasing rapidly every year. Air pollution caused by the transportation sector reaches 60%. The high level of air pollution from the transportation sector has an impact on air quality.

Motor vehicles emit various gases and particles containing various organic, inorganic and high molecular weight compounds, which can be inhaled directly through the nose and affect people on the road and surrounding areas. In addition, the exhaust gas of motor vehicles directly enters the road environment, and other road users are exposed to exhaust emissions comparable to those from high-rise industrial chimneys. Therefore, people who live or work on heavily trafficked roads, such as drivers, pedestrians, traffic police, and food vendors, are exposed to motor vehicle fumes containing pollutants.

Air pollution must certainly receive serious attention from the authorities, especially those caused by motorized vehicles because it occurs in many big cities such as Medan City. To anticipate this, the government issued Law Number 22 of 2009 concerning Road Traffic and Road Transportation, which the author refers to the scope of its implementation and the steps needed to reduce air pollution.

## **RESEARCH METHODS**

This research will examine by studying and reviewing the scope and resources of laws and regulations relating to environmental management and laws and regulations

relating to road management and road transportation.

While the research method used is qualitative research method, which is a research method that emphasizes the depth of aspects of the problem, compared to examining problems for general research, an in-depth analysis method is used, namely examining the problem case by case, because qualitative methods believe that the nature of a problem is different from the nature of other problems. This is because the data collected is primary data and secondary data.(Soekanto 2014)

## **RESULTS AND DISCUSSION**

Air pollution refers to pollution that occurs in the air, most of the pollutants are air or suspended particles. For example: carbon dioxide (CO<sub>2</sub>), carbon dioxide (CO) and others. Soil pollution refers to pollution that occurs in the earth environment, usually from household and industrial waste.

Along with the increasing number of motorized vehicles, motor vehicle exhaust gas as a source of air pollution in urban areas is also increasing. Currently, its contribution has reached 60-70%. Part of this quantity is the actual air pollution ratio. Other pollution sources, such as industrial smoke, are also common, only 10-15%, the rest comes from other heat sources such as household smoke pollution, garbage burning, forest fires, and others.(Ir. Ika Warakasih Puspitawati MT. 2014)

Many studies have shown a close relationship between high levels of urban air pollution and the occurrence (prevalence) of respiratory diseases. In many cities, people experience road and air problems, as well as the health effects of air buildup on a daily basis. Health problems include cancer of the lungs or other organs, acute or chronic throat diseases, and conditions caused by the impact of pollution on other organs such as the nervous system.

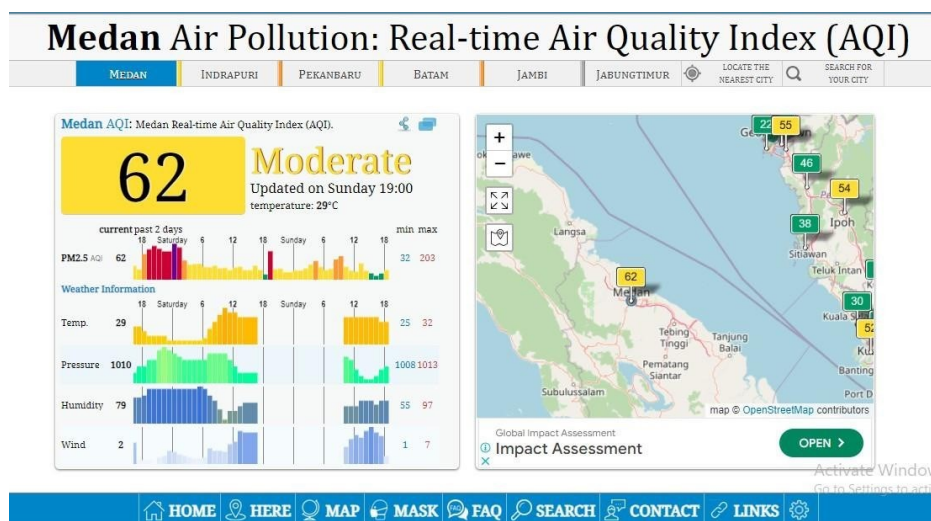
Pollution in cars is usually caused by a lack of combustion in the engine, meaning that all the fuel entering the engine has not been burned completely, which is where the fuel remains unburned. This unburned fuel is released into the open air along with the exhaust gas. The unburned gases contain CO, NO<sub>x</sub> and SO<sub>2</sub> gases. These gases are not good for breathing as they are toxic and harmful to humans, animals and plants. Engine stalling occurs due to a lack of engine control due to routine maintenance, such as faulty spark plugs, dirty air filters, low gasoline quality, poor drive system, and others.(Jainal Abidin 2019) The following Index Values for air quality of an area are based on numerical

counts, namely :

Tentang Pengukuran Kualitas dan Polusi Udara:	
Tentang Tingkat Kualitas Udara	
Nilai Indeks Kualitas Udara (AQI)	Tingkat Kekhawatiran Kesehatan
0 - 50	Baik
51 - 100	Moderat
101-150	Tidak Sehat untuk kelompok orang yang sensitif
151-200	Tidak sehat
201-300	Sangat Tidak Sehat
300+	Berbahaya

Gambar 1 Tabel Nilai Indeks Pengukuran Kualitas Udara  
 Sumber : <https://aqicn.org/map/medan/id/> (tanggal akses : 25 Agustus 2024)

Based on the quality index of Medan City for the last 3 months, the figures can be seen from the following chart:



Gambar 2 Medan Air Pollution : Real-time Air Quality Indeks (AQI)  
 Sumber : <https://aqicn.org/map/medan/id/> (tanggal akses : 25 Agustus 2024)

From the figure above, it can be concluded that the air pollution index of Medan city is 62 in the last 3 months. This means that it is entering the transitional phase. or the second category for air quality categories that are still good. Of course it is not clean. What we need to worry about, this category is currently above 50, meaning that we need to be aware in the future so that this number does not increase again.

### 1. Some Forms of Implementation of Law Number 22 Year 2009 in Medan City

The problem of air pollution has been a concern of the government. To reduce the higher level of air pollution index, the government since 2009 has approved legislation for the management of road vehicles. Law No. 22/2009 on Road Traffic and Road Transportation is one of the major laws in Indonesia that regulates traffic and road traffic.

The implementation of this law in Medan City will play an important role in reducing air pollution due to motor vehicle emissions.

Why are motor vehicles and the rising air pollution index a major concern? Visually, the exhaust fumes of oil-fueled cars are always visible, but they are not visible in gasoline-fueled cars. Green gases from motor vehicles in the form of nitrogen, carbon dioxide and water vapor are not harmful gases, but in addition to these gases, motor vehicle emissions are also known as carbon monoxide (CO), hydrocarbon compounds (HC), nitrogen oxides (NO<sub>x</sub>). Sulfur oxides (SO<sub>x</sub>) and dust particles including lead (Pb). According to the Ministry of Environment and Natural Resources (2005), motor vehicles are the main source of air pollution in urban areas, contributing 70% of NO<sub>x</sub> emissions, 52% of VOC emissions, and 23% of particulate matter.(Yusrianti 2015)

Some important aspects of the implementation of Law Number 22 Year 2009 on Road Traffic and Road Transportation carried out by the Medan City Government, in an effort to reduce air pollution, include:

#### 1. Regulation of Motor Vehicle Emissions :

One of the main points of this law is the regulation of motor vehicle exhaust emissions. The implementation of regular and strict emission tests is an important step to ensure that motor vehicles in Medan City meet the emission standards that have been set.

The Medan City Government through the Medan City Environmental Agency (DLH) again held a free emission test of motorized wheeled vehicles, which was held from 22 to 24 May 2023, in an effort to reduce pollution as well as air pollution caused by motor vehicle exhaust gases, which is a form of implementation of Law Number 22 of 2009 concerning Road Traffic and Road Transportation. (<https://portal.pemkomedan.go.id/berita/>, tanggal akses 25 Agustus 2024)

#### 2. Public Transportation Development:

The law also encourages the development of more environmentally friendly public transportation. The Medan City government can take advantage of this regulation to improve and expand public transportation services that can reduce the number of private vehicles on the road and, ultimately, reduce carbon emissions. As part of the implementation of this law, the Medan City government has introduced electric inter-city buses, which are free of charge for the initial stage of travel for a limited period of 3 months.

### 3. Use of Technology and Innovation :

The use of environmentally friendly technologies such as electric vehicles and alternative fuels can also be encouraged through policies derived from this law. The provincial government can provide incentives for users and manufacturers of more environmentally friendly vehicles. Including the implementation of this law, the Medan City Government has begun to implement electric public transportation buses.

The implementation of Law No. 22/2009 on Road Traffic and Road Transportation in Medan City in an effort to reduce air pollution requires a strong commitment from the local government, strict law enforcement, and active participation from the community. With these measures, it is expected that air quality in North Sumatra can continue to improve and have a positive impact on public health.

## **2. Implementation of Car Free Day (CFD)**

Car Free Day (CFD) is a policy that prohibits the use of motorized vehicles in certain areas at certain times. The aim is to reduce air pollution, reduce greenhouse gas emissions and other pollutants associated with climate change and respiratory problems, reduce traffic and encourage healthy lifestyles through walking and cycling. The implementation of Car Free Day is usually done in city centers, main roads, or tourist attractions. Car Free Day is a small but important step in the effort to create a better and healthier urban environment.

The Car Free Day program was first introduced in Medan in 2008 as part of efforts to reduce air pollution and improve public health. Encouragingly, cities around the world have implemented similar programs. Medan, the fourth largest city in Indonesia, faces a major environmental challenge due to the large number of motorized vehicles that drive by every day. The event, held every Sunday, means that many of the city's main roads are closed to motorized vehicles, allowing residents to walk, cycle and do various activities without disrupting traffic. (Alifah Salsabila n.d.)

The Car Free Day program in Medan has a huge impact on the community and the environment. With fewer cars driving for a few hours a week, air pollution levels in Medan have decreased. This helps reduce the risk of respiratory diseases and improves air quality. Medan City residents recognize the importance of maintaining health through exercise. Car Free Day is an opportunity for people to exercise in a safe and pollution-free environment. Car Free Day activities also improve social relations among citizens, many local communities utilize car-free days to gather, interact and share information and

experiences.

## CONCLUSION

To maintain air quality, there needs to be cooperation from both the authorities and the public. This means that the authorities need to take action and do things like and the public should also be careful to test their cars for leaks to ensure they are safe. this,

Some of the ways of pollution are entrepreneurs and the vehicle-owning public, and activities such as: emission testing of motor vehicles, looking at the age of the vehicle, especially for public transportation, and thinking of a solution, because cars will be the main cause of pollution. cars will. Old cars, especially cars that are not properly maintained, are more likely to be exposed to pollutants in the air. The main sources of motor vehicle pollution are roads and hills. Therefore, traffic regulations, signs and countermeasures against traffic violations can help solve traffic problems and reduce air pollution.

In addition to the support of the government in socializing Law No. 22 of 2009 concerning Road Traffic and Transportation, there is also a need for strong community support and participation to reduce vehicle emissions by saving vehicle use or improving vehicle engines to achieve fuel efficiency.

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