Submission

[IJEEP] Submission Acknowledgement

Ilhan OZTURK <ijeep@econjournals.com> 5 Juni 2019 11.21
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Ari Purwadi:

Thank you for submitting the manuscript, "URBAN AIR POLLUTION CONTROL CAUSED
BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW
PERSPECTIVE" to International Journal of Energy Economics and Policy. With
the online journal management system that we are using, you will be able to track its progress through the editorial process by logging in to the
journal web site:

Manuscript URL:
https://www.econjournals.com/index.php/ijeep/author/submission/8337
Username: aripurwadi

If you have any questions, please contact me. Thank you for considering this
journal as a venue for your work.

Ilhan OZTURK
International Journal of Energy Economics and Policy

Editor, IJEEP
http://www.econjournals.com/index.php/ijeep

Ari Purwadi <aripurwadi.uwks@gmail.com> 7 Juli 2019 13.34
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear editor,

We would like to ask about the progress of our article.
We have not received any information from you for more than two months.

Looking forward to hearing from you soon.

Regards

Ilhan OZTURK <ijeep@econjournals.com> 10 Juli 2019 21.13
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Dear author,

Thank you for emailing us.
Your paper is currently under external review, and we are awaiting replies from anonymous peer reviewers.
This usually takes about 4 to 12 weeks.
We will inform you as soon as the reviewers have finished their work.

Best Regards

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

Lampiran

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Ari Purwadi
Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia
aripurwadi.fhuwks@gmail.com

Suhandi
Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia
suhandifh@gmail.com

Umi Enggarsasi
Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia
umienggarsasinohan@gmail.com

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation.

Keywords: air pollution, public policy, pollution control

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)

	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent, while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133).

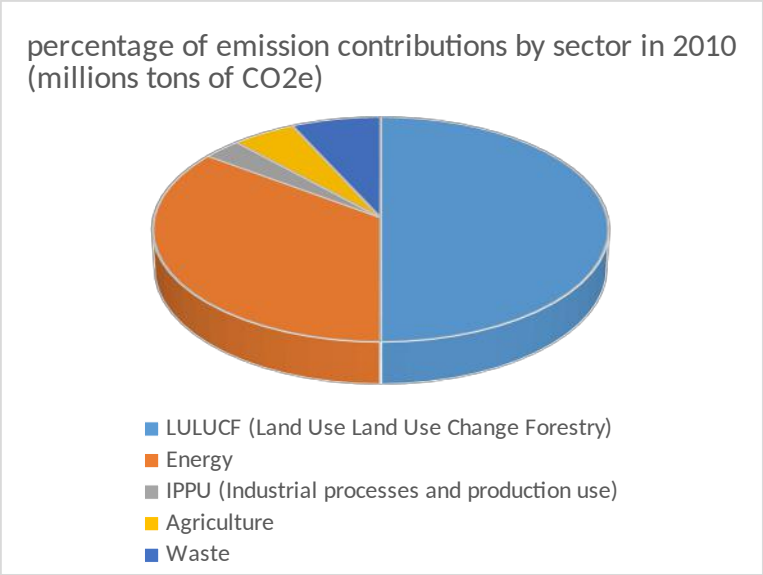
3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	
Energy	453	35%	
Power generation			42
Transportation			30

Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid

media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is:

1. that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and
2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws.

First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).

Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions,

whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely:

1. the issue gain broad attention or at least foster public awareness;
2. there is a perception or view of the community that some actions need to be taken to solve the problem;
3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it.

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental	National	Plan for protection	Plans for protection

Planning	environmental protection and management plan.	and management of the provincial environment	and management of the regency/city living environment of the Regency/City
Strategic Environmental Assessment	Strategic Environmental Assessment for national policies, plans and/or programs.	Strategic Environmental Assessment for provincial policies, plans and/or programs	Strategic Environmental Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been

provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

6. Conclusion

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are

a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and
b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Reference

Anderson, James E. *Cases in public policy-making*. New York: Praeger, 1976.

Brunekreef, Bert, and Stephen T. Holgate. "Air pollution and health." *The lancet* 360, no. 9341 (2002): 1233-1242.

Cho, Hee-Sun, and Mack Joong Choi. "Effects of compact urban development on air pollution: Empirical evidence from Korea." *Sustainability* 6, no. 9 (2014): 5968-5982.

Cobb, Roger W., and Charles D. Elder. *Participation in American politics: The dynamics of agenda-building*. Johns Hopkins University Press, 1972.

Dye, Thomas R. *Top-Down Policy Making*. London: Chatham House Publisher, 2001.

International Gas Union (IGU). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA, 2015.

Islamy, Irfan. *Dasar-dasar administrasi publik dan manajemen publik*. Malang: Universitas Brawijaya 2003.

Jiao, Kaishan, Mengjia Xu, and Meng Liu. "Health status and air pollution related socioeconomic concerns in urban China." *International Journal for Equity in Health* 17, no. 1 (2018): 1-11.

Kahn, Matthew E., and Joel Schwartz. "Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet." *Journal of Urban Economics* 63, no. 3 (2008): 775-787.

Lisdiyono, Edy. "Environmental legislation: A study of the shift of spatial policy in local regulation." *International Journal of Environmental and Science Education* 12, no. 4 (2017): 597-605.

Lisdiyono, Edy. "Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia." *Journal of Legal, Ethical and Regulatory Issues* 21, no. 4 (2018): 1-10.

Marzuki, Peter Mahmud. *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group, 2016.

Matzarakis, A., H. Mayer, and P. Sczepanski. "Urban air pollution and forests." *WIT Transactions on Ecology and the Environment* 37 (1999).

Oliveira, Jose A., Christopher NH Doll, José Siri, Magali Dreyfus, Hooman Farzaneh, and Anthony Capon. "Urban governance and the systems approaches to health-environment co-benefits in cities." *Cadernos de Saúde Pública* 31 (2015): 25-38.

Salmond, J., Sabel, C. E., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, *6*(1), 14.

Sihombing, B. F. "The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia." *International Journal of Energy Economics and Policy* 8, no. 6 (2018): 331.

Sitompul, Mukti. "Implementasi kebijakan publik: Pengalaman masa lalu." *Jurnal Harmoni Sosial* 1, no. 1 (2006): 47-49.

Supriadi. *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika, 2010.

Susilo, Agus Budi. "Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik." *Jurnal Hukum dan Peradilan* 4, no. 1 (2015): 133-152.

Veetil, Dr Suhas P. "Air Pollution: Sources and effects in urban areas and how it affect the investment and economy." *Envirocities Emagazine* 3, no. 5 (2012).

Yudha, Satya Widya. (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Peer Revie Process

Gmail Ari Purwadi <aripurwadi.uwks@gmail.com>

[IJEEP] - Revision after Peer Review

Ilhan OZTURK <ijeep@econjournals.com> 9 Agustus 2019 23.56
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Ari Purwadi:

Thank you for your interest in publishing your work in International Journal of Energy Economics and Policy (IJEEP).
Your manuscript has now been peer reviewed and the comments are accessible in Word format.
Any revision should be made on the attached manuscript.
We would be grateful if you could address the comments of the reviewers in a revised manuscript and answer all questions.

Manuscript URL:
https://www.econjournals.com/index.php/ijeep/author/submission/8337
Username: aripurwadi

If you have any questions, please contact me. Thank you for considering this journal as a venue for your work.

Look forward to receiving your revised manuscript as soon as possible.

Ilhan OZTURK
International Journal of Energy Economics and Policy

Editor, IJEEP
http://www.econjournals.com/index.php/ijeep

4 Lampiran

IJEEP8337_Reviewer 1 comments.docx
56K

IJEEP8337_Reviewer 2 comments.docx
60K

Author Guidelines.docx
21K

IJEEP8337_Manuscript for revision.docx
53K

Ari Purwadi <aripurwadi.uwks@gmail.com> 11 Agustus 2019 10.31
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear editor,

Thank you for your e-mail.
We will revise accordingly and send it back to yo as soon as possible.

Sincerely yours,
Ari

[Kutipan teks disembunyikan]

Ari Purwadi <aripurwadi.uwks@gmail.com> 23 Agustus 2019 15.48
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear editor,

Thank you for your assistance with our articles, and valuable reviews from anonymous reviewers.
We have completed the revision to our article.
We also answer all of the reviewers' comments in a separate file.

We are willing to revise again if needed.

Sincerely yours,
Ari

[Kutipan teks disembunyikan]

---

4 Lampiran

IJEEP8337_Response_Reviewer 1 comments.docx
56K

IJEEP8337_Response_Reviewer 2 comments.docx
60K

IJEEP8337_Revised Manuscript.docx
62K

Ilhan OZTURK <ijeep@econjournals.com> 27 Agustus 2019 21.27
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Dear author,

We have received a revised manuscript from you, and responses to reviewers.
If further revisions are needed we will inform you.

Sincerely,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

[Kutipan teks disembunyikan]

Ari Purwadi <aripurwadi.uwks@gmail.com> 28 Agustus 2019 03.34
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear editor,

Thank you for your kind information.
We are looking forward to hearing from you.

Sincerely yours,
Ari

[Kutipan teks disembunyikan]

Lampiran

AUTHOR GUIDELINES

International Journal of Energy Economics and Policy (IJEEP) publishes original, unpublished studies related to all energy economics related issues and energy policy. Each paper has to have a certain format in order to be published in the journal.

All submission will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to two independent expert reviewers to assess the scientific quality of the paper. Reviewers are expected to respond in 30 days. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final.

- All papers must be submitted by online submission
- Authors should follow the format of the journal.
- All correspondence should be directed to the editor.
- There is no submission fee.
- Publication fee for each accepted article is $590 USD, which is not refundable. There is no additional costs.

The following style of instructions should be followed in the manuscripts submitted for publication in the International Journal of Energy Economics and Policy.

1. All submitted manuscripts must be original work that is not submitted to another journal or under consideration for publication in another form, such as a monograph or chapter of a book. Authors of submitted papers are obligated not to submit their paper for publication elsewhere until an editorial decision is rendered on their submission.

2. The text of the manuscript should be prepared in 11 pt type with 1 inch margins. The text should be single spaced.

3. The title page shall contain the title of the manuscript, an abstract of not more than 200 words, 2-6 Keywords and 2-4 **JEL Classifications codes**.

The title page should also include the names of the authors, their affiliations and email addresses. Corresponding author should be clearly indicated.

4. Footnotes should appear at the bottom of the page on which they are referenced

5. Tables and Figures must be numbered with Roman numerals and should be placed in the appropriate place in the main text. Tables can be single spaced and

the font size should be 10 pt. Each table and figure must have a title followed by a descriptive legend.

6. Equations must be numbered consecutively on the right margin. Please submit math equations as editable text and not as images.

7. References appear at the end of the paper. They should be single spaced and 11 pt font size. APA reference and citations format should be used. Ensure that All references mentioned in the Reference List are cited in the text, and vice versa.

8. **All citations in the text should refer to:**

1. *Single author:* the author's name (without initials, unless there is ambiguity) and the year of publication;
2. *Two authors:* both authors' names and the year of publication;
3. *Three or more authors:* first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.
Examples: 'as demonstrated (Ozturk, 2000a, 2000b, 1999; Ozturk and Acaravci, 1999)…. Or, as demonstrated (Ozturk, 1999; John, 2000)… Ozturk et al. (2010) have recently shown …'
List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

The complete list of references should be as follows:

Reference to a book:

Grossman, G.M., Helpman, E. (1991), *Innovation and Growth in the Global Economy.* Cambridge MA: MIT Press.

Reference to a chapter in an edited book:

Pesaran H.M., Shin, Y. (1999), Autoregressive distributed lag modelling approach to cointegration analysis, in: S.Storm (Ed.) Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium, chapter 11, Cambridge University Press.

Reference to a journal publication:

Ozturk, I., Acaravci, A. (2010), *CO2 Emissions, Energy Consumption and Economic Growth in Turkey.* Renewable and Sustainable Energy Reviews, 14(9), 3220-3225.

Kula, F., Aslan, A., Ozturk, I. (2012). Is per capita electricity consumption stationary? Time series evidence from OECD countries. *Renewable and Sustainable Energy Reviews*, *16*(1), 501-503.

Reference to a website:

Cancer Research UK, 1975. Cancer statistics reports for the UK. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/ (accessed 20 May 2013).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. https://doi.org/10.17632/xwj98nb39r.1.

9. Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor.

10. **English Language Editing Service**

Ensure that your work is written in **correct scientific English before submission**. If not, **Enago** will handle the language editing and make sure that your paper is free of grammatical, spelling, and other common errors.

Enago website: http://www.enago.com

There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, and Conclusions

Papers that do not follow these guidelines will be returned to the authors by the Editorial Assistant.

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation.

Keywords: air pollution, public policy, pollution control

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent, while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning,

fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

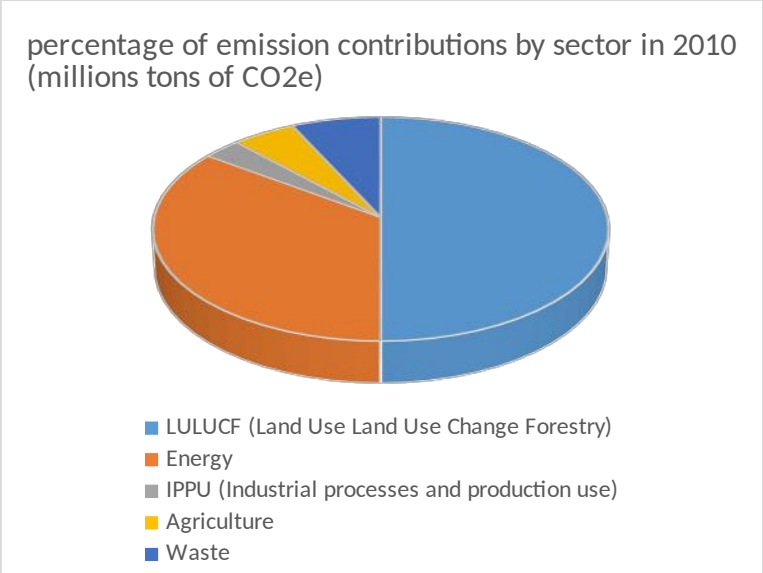
This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133).

3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	
Energy	453	35%	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is:

1. that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and
2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws.

First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).

Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy

makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely:

1. the issue gain broad attention or at least foster public awareness;
2. there is a perception or view of the community that some actions need to be taken to solve the problem;
3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it.

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental Planning	National environmental protection and management plan.	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the Regency/City
Strategic Environmental	Strategic Environmental	Strategic Environmental	Strategic Environmental

Assessment	Assessment for national policies, plans and/or programs.	Assessment for provincial policies, plans and/or programs	Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

6. Conclusion

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are

a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and
b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Reference

Anderson, James E. *Cases in public policy-making*. New York: Praeger, 1976.

Brunekreef, Bert, and Stephen T. Holgate. "Air pollution and health." *The lancet* 360, no. 9341 (2002): 1233-1242.

Cho, Hee-Sun, and Mack Joong Choi. "Effects of compact urban development on air pollution: Empirical evidence from Korea." *Sustainability* 6, no. 9 (2014): 5968-5982.

Cobb, Roger W., and Charles D. Elder. *Participation in American politics: The dynamics of agenda-building*. Johns Hopkins University Press, 1972.

Dye, Thomas R. *Top-Down Policy Making*. London: Chatham House Publisher, 2001.

International Gas Union (IGU). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA, 2015.

Islamy, Irfan. *Dasar-dasar administrasi publik dan manajemen publik*. Malang: Universitas Brawijaya 2003.

Jiao, Kaishan, Mengjia Xu, and Meng Liu. "Health status and air pollution related socioeconomic concerns in urban China." *International Journal for Equity in Health* 17, no. 1 (2018): 1-11.

Kahn, Matthew E., and Joel Schwartz. "Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet." *Journal of Urban Economics* 63, no. 3 (2008): 775-787.

Lisdiyono, Edy. "Environmental legislation: A study of the shift of spatial policy in local regulation." *International Journal of Environmental and Science Education* 12, no. 4 (2017): 597-605.

Lisdiyono, Edy. "Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia." *Journal of Legal, Ethical and Regulatory Issues* 21, no. 4 (2018): 1-10.

Marzuki, Peter Mahmud. *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group, 2016.

Matzarakis, A., H. Mayer, and P. Sczepanski. "Urban air pollution and forests." *WIT Transactions on Ecology and the Environment* 37 (1999).

Oliveira, Jose A., Christopher NH Doll, José Siri, Magali Dreyfus, Hooman Farzaneh, and Anthony Capon. "Urban governance and the systems approaches to health-environment co-benefits in cities." *Cadernos de Saúde Pública* 31 (2015): 25-38.

Salmond, J., Sabel, C. E., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, *6*(1), 14.

Sihombing, B. F. "The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia." *International Journal of Energy Economics and Policy* 8, no. 6 (2018): 331.

Sitompul, Mukti. "Implementasi kebijakan publik: Pengalaman masa lalu." *Jurnal Harmoni Sosial* 1, no. 1 (2006): 47-49.

Supriadi. *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika, 2010.
Susilo, Agus Budi. "Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik." *Jurnal Hukum dan Peradilan* 4, no. 1 (2015): 133-152.
Veetil, Dr Suhas P. "Air Pollution: Sources and effects in urban areas and how it affect the investment and economy." *Envirocities Emagazine* 3, no. 5 (2012).
Yudha, Satya Widya. (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation.

Keywords: air pollution, public policy, pollution control

JEL Classifications:

Commented [U1]: The abstract should be rewritten.

Commented [U2]: 2-4 JEL Classifications codes must be added

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Commented [U3]: The introduction is intended to prov an introduction to the topic of the article and explain the purpose of the study. When writing the introduction, the author should first state the general topic of the research Next, it is necessary to reveal the theoretical and practica significance of the work and describe the most authoritat and accessible to the reader publications on the topic und consideration. In the introduction, the author also identif the problems that have not been solved in previous studi which this article is intended to solve.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent,

while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and

public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

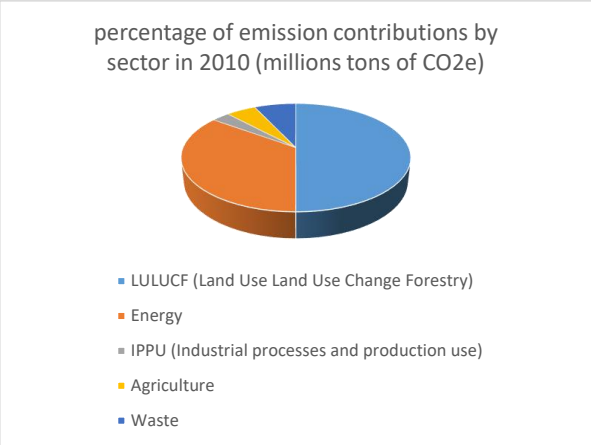
This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133).

3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	
Energy	453	35%	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is:

1. that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and
2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

Commented [U4]: Please rewrite and make it in one paragraph

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws.

First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).

Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Commented [U5]: Please rewrite and make it in one paragraph

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats)

must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely:

1. the issue gain broad attention or at least foster public awareness;
2. there is a perception or view of the community that some actions need to be taken to solve the problem;
3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it.

Commented [U6]: Please rewrite and make it in one paragraph

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental Planning	National environmental protection and management plan.	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the Regency/City

Strategic Environmental Assessment	Strategic Environmental Assessment for national policies, plans and/or programs.	Strategic Environmental Assessment for provincial policies, plans and/or programs	Strategic Environmental Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

6. Conclusion

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are

a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and
b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Commented [U7]: The conclusion contains a brief formulation of the study results. It repeats the main ideas the main part of the work in a concise form. It is better to formulate any repetitions of the material presented with new phrases, new formulations that differ from those expressed in the main part of the article

Commented [U8]: please rewrite and make it in one paragraph

Reference

Anderson, James E. *Cases in public policy-making*. New York: Praeger, 1976.

Brunekreef, Bert, and Stephen T. Holgate. "Air pollution and health." *The lancet* 360, no. 9341 (2002): 1233-1242.

Cho, Hee-Sun, and Mack Joong Choi. "Effects of compact urban development on air pollution: Empirical evidence from Korea." *Sustainability* 6, no. 9 (2014): 5968-5982.

Cobb, Roger W., and Charles D. Elder. *Participation in American politics: The dynamics of agenda-building*. Johns Hopkins University Press, 1972.

Dye, Thomas R. *Top-Down Policy Making*. London: Chatham House Publisher, 2001.

International Gas Union (IGU). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA, 2015.

Islamy, Irfan. *Dasar-dasar administrasi publik dan manajemen publik.* Malang: Universitas Brawijaya 2003.

Jiao, Kaishan, Mengjia Xu, and Meng Liu. "Health status and air pollution related socioeconomic concerns in urban China." *International Journal for Equity in Health* 17, no. 1 (2018): 1-11.

Kahn, Matthew E., and Joel Schwartz. "Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet." *Journal of Urban Economics* 63, no. 3 (2008): 775-787.

Lisdiyono, Edy. "Environmental legislation: A study of the shift of spatial policy in local regulation." *International Journal of Environmental and Science Education* 12, no. 4 (2017): 597-605.

Lisdiyono, Edy. "Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia." *Journal of Legal, Ethical and Regulatory Issues* 21, no. 4 (2018): 1-10.

Marzuki, Peter Mahmud. *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group, 2016.

Matzarakis, A., H. Mayer, and P. Sczepanski. "Urban air pollution and forests." *WIT Transactions on Ecology and the Environment* 37 (1999).

Oliveira, Jose A., Christopher NH Doll, José Siri, Magali Dreyfus, Hooman Farzaneh, and Anthony Capon. "Urban governance and the systems approaches to health-environment co-benefits in cities." *Cadernos de Saúde Pública* 31 (2015): 25-38.

Salmond, J., Sabel, C. E., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, *6*(1), 14.

Sihombing, B. F. "The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia." *International Journal of Energy Economics and Policy* 8, no. 6 (2018): 331.

Sitompul, Mukti. "Implementasi kebijakan publik: Pengalaman masa lalu." *Jurnal Harmoni Sosial* 1, no. 1 (2006): 47-49.

Supriadi. *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika, 2010.
Susilo, Agus Budi. "Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik." *Jurnal Hukum dan Peradilan* 4, no. 1 (2015): 133-152.
Veetil, Dr Suhas P. "Air Pollution: Sources and effects in urban areas and how it affect the investment and economy." *Envirocities Emagazine* 3, no. 5 (2012).
Yudha, Satya Widya. (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Commented [U9]: Reference style does not conform to journal guidelines

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation.

Keywords: air pollution, public policy, pollution control

JEL Classifications:

Commented [U1]: Abstract is a source of information independent from the article. It is written after the main t of the article is finished. It includes description of the mai subject, problems, object, work purpose and its results. It indicates what is new in this document compared to othe related to the subject and purpose.

Commented [U2]: Keywords at least consist of 4-5. Plea add specific keywords.

Commented [U3]: Please add 2-4 JEL Classifications co

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent,

while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and

public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133).

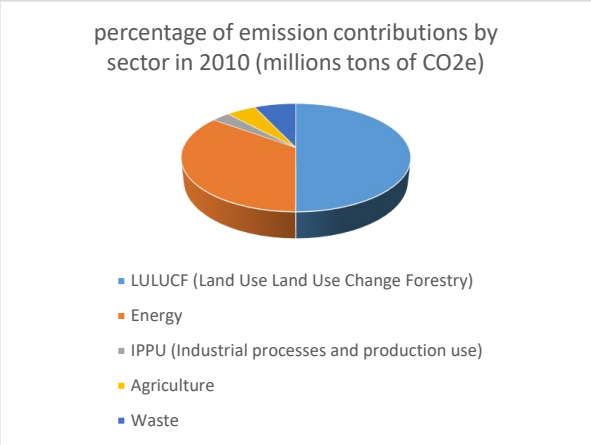
Commented [U4]: This section describes the research sequence and substantiates the choice of methods used. should allow the reader to evaluate the correctness of thi choice, reliability and argumentativeness of the obtained results

3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	
Energy	453	35%	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is:

Commented [U5]: Explain more about this Blue Sky program and what its purpose is.

1. that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and
2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws.

First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).

Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats)

must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely:

1. the issue gain broad attention or at least foster public awareness;
2. there is a perception or view of the community that some actions need to be taken to solve the problem;
3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it.

Commented [U6]: This can be further explained and ho the offer from previous studies on this issue. For example how the views of an expert can be discussed here.

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental Planning	National environmental protection and management plan.	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the Regency/City

Strategic Environmental Assessment	Strategic Environmental Assessment for national policies, plans and/or programs.	Strategic Environmental Assessment for provincial policies, plans and/or programs	Strategic Environmental Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

6. Conclusion

Commented [U7]: This is quite interesting even though some countries have implemented it. Please explain more about this idea and how it might have an effect.

Commented [U8]: The author's conclusions do not bea any information. Rewrite!
The conclusion is a statement based on critical analysis of the results obtained by the author. A summary of the resu should not be given in this section. You may also specify t direction for future studies.

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are

a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and
b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Reference

Commented [U9]: Please organize your references according to the journal guidelines

Anderson, James E. *Cases in public policy-making*. New York: Praeger, 1976.

Brunekreef, Bert, and Stephen T. Holgate. "Air pollution and health." *The lancet* 360, no. 9341 (2002): 1233-1242.

Cho, Hee-Sun, and Mack Joong Choi. "Effects of compact urban development on air pollution: Empirical evidence from Korea." *Sustainability* 6, no. 9 (2014): 5968-5982.

Cobb, Roger W., and Charles D. Elder. *Participation in American politics: The dynamics of agenda-building*. Johns Hopkins University Press, 1972.

Dye, Thomas R. *Top-Down Policy Making*. London: Chatham House Publisher, 2001.

International Gas Union (IGU). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA, 2015.

Islamy, Irfan. *Dasar-dasar administrasi publik dan manajemen publik.* Malang: Universitas Brawijaya 2003.

Jiao, Kaishan, Mengjia Xu, and Meng Liu. "Health status and air pollution related socioeconomic concerns in urban China." *International Journal for Equity in Health* 17, no. 1 (2018): 1-11.

Kahn, Matthew E., and Joel Schwartz. "Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet." *Journal of Urban Economics* 63, no. 3 (2008): 775-787.

Lisdiyono, Edy. "Environmental legislation: A study of the shift of spatial policy in local regulation." *International Journal of Environmental and Science Education* 12, no. 4 (2017): 597-605.

Lisdiyono, Edy. "Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia." *Journal of Legal, Ethical and Regulatory Issues* 21, no. 4 (2018): 1-10.

Marzuki, Peter Mahmud. *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group, 2016.

Matzarakis, A., H. Mayer, and P. Sczepanski. "Urban air pollution and forests." *WIT Transactions on Ecology and the Environment* 37 (1999).

Oliveira, Jose A., Christopher NH Doll, José Siri, Magali Dreyfus, Hooman Farzaneh, and Anthony Capon. "Urban governance and the systems approaches to health-environment co-benefits in cities." *Cadernos de Saúde Pública* 31 (2015): 25-38.

Salmond, J., Sabel, C. E., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, *6*(1), 14.

Sihombing, B. F. "The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia." *International Journal of Energy Economics and Policy* 8, no. 6 (2018): 331.

Sitompul, Mukti. "Implementasi kebijakan publik: Pengalaman masa lalu." *Jurnal Harmoni Sosial* 1, no. 1 (2006): 47-49.

Supriadi. *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika, 2010.
Susilo, Agus Budi. "Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik." *Jurnal Hukum dan Peradilan* 4, no. 1 (2015): 133-152.
Veetil, Dr Suhas P. "Air Pollution: Sources and effects in urban areas and how it affect the investment and economy." *Envirocities Emagazine* 3, no. 5 (2012).
Yudha, Satya Widya. (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Reviewers 1

Response

Dear reviewer,

Thank you for your valuable comments for our article.

We have revised the article according to your comments.

The changes we made are highlighted in a light color.

Points from your comments are below along with responses and revisions.

We also provide a revised version of the manuscript.

We are willing to revise again if needed.

Sincerely,

Reviewers Comments	**Author response**
The abstract should be rewritten.	**Abstract** The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality. **Keywords:** air pollution, public policy, pollution control, urban management

2-4 JEL Classifications codes must be added	JEL Classifications: Q52, Q53, K32
The introduction is intended to provide an introduction to the topic of the article and explain the purpose of the study. When writing the introduction, the author should first state the general topic of the research. Next, it is necessary to reveal the theoretical and practical significance of the work and describe the most authoritative and accessible to the reader publications on the topic under consideration. In the introduction, the author also identifies the problems that have not been solved in previous studies, which this article is intended to solve.	The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011: 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.
Please rewrite and make it in one paragraph	Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1.that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.
Please rewrite and	The regulation of air pollution control is not only regulated in

make it in one paragraph	laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018). Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.
Please rewrite and make it in one paragraph	An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. the issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, pPublic policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law. Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth, the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has

	the authority to force the community to obey it (Sitompul, 2006).
The conclusion contains a brief formulation of the study results. It repeats the main ideas of the main part of the work in a concise form. It is better to formulate any repetitions of the material presented with new phrases, new formulations that differ from those expressed in the main part of the article	Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.
please rewrite and make it in one paragraph	Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.
Reference style does not conform to journal guidelines	**Reference** Anderson, J. E. (Ed.). (1976). *Cases in public policy-making*. New York: Praeger. Brunekreef, B., & Holgate, S. T. (2002). Air pollution and health. *The lancet*, *360*(9341), 1233-1242. Cho, H. S., & Choi, M. (2014). Effects of compact urban development on air pollution: Empirical evidence from Korea. *Sustainability*, *6*(9), 5968-5982. Cobb, R. W. Charles D. elder (1972). *Participation in American Politics. The Dynamics of Agenda-Building*. John Hopkins University Press. Dye, T. R.(2011). *Top-Down Policy Making*. London: Chatham House Publisher. International Gas Union (IGU) (2015). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA. Islamy, I. (2003). Dasar-Dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya. Jiao, K., Xu, M., & Liu, M. (2018). Health status and air pollution related socioeconomic concerns in urban China. *International journal for equity in health*, *17*(1), 1-11. Kahn, M. E., & Schwartz, J. (2008). Urban air pollution progress

despite sprawl: the “greening” of the vehicle fleet. *Journal of Urban Economics*, *63*(3), 775-787..

Lisdiyono, E. (2017). Environmental legislation: A study of the shift of spatial policy in local regulation. *International Journal of Environmental and Science Education*.

Lisdiyono, E. (2018). Legal Idealism and Implementation: An Analysis of the Gap Between Environmental Policy and the Local Regulation in Indonesia. *Journal of Legal, Ethical and Regulatory Issues*.

Marzuki, P.M. (2016). *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., & Sczepanski, P. (1999). Urban air pollution and forests, In: *Air pollution VII.* WIT Press.

Oliveira, J. A., Doll, C. N., Siri, J., Dreyfus, M., Farzaneh, H., & Capon, A. (2015). Urban governance and the systems approaches to health-environment co-benefits in cities. *Cadernos de saude publica*, *31*, 25-38.

Salmond, J., Sabel, C., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, 6(14):1-4.

Sihombing, B. F. (2018). The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia. *International Journal of Energy Economics and Policy*, *8*(6), 331-338.

Sitompul, M. (2006). Implementasi Kebijakan Publik: Pengalaman Masa Lalu. *Jurnal Harmoni Sosial 1*(1).

Supriadi. (2010). *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika.

Susilo, A. B. (2015). Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. *Jurnal Hukum dan Peradilan*, *4*(1), 133-152.

Veetil, S. P. (2012). Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. *Envirocities eMagazine*: 4-8.

Yudha, S.W (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Reviewers 2

Response

Dear reviewer,

Thank you for your valuable comments for our article.

We have revised the article according to your comments.

The changes we made are highlighted in a light color.

Points from your comments are below along with responses and revisions.

We also provide a revised version of the manuscript.

We are willing to revise again if needed.

Sincerely,

Reviewers Comments	**Author response**
Abstract is a source of information independent from the article. It is written after the main text of the article is finished. It includes description of the main subject, problems, object, work purpose and its results. It indicates what is new in this document compared to others related to the subject and purpose.	**Abstract** The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality. **Keywords:** air pollution, public policy, pollution control, urban management
Keywords at least consist of 4-5. Please	**Keywords:** air pollution, public policy, pollution control, urban management

add specific keywords.	
Please add 2-4 JEL Classifications codes	JEL Classifications: Q52, Q53, K32
This section describes the research sequence and substantiates the choice of methods used. It should allow the reader to evaluate the correctness of this choice, reliability and argumentativeness of the obtained results	This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133). To solve this problem using references from primary legal material, namely legal material that is authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.
Explain more about this Blue Sky program and what its purpose is.	Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1.that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control. The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. the creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.
This can be further explained and how the offer from	. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy

previous studies on this issue. For example how the views of an expert can be discussed here.	issue)to be included in the systemic agenda, namely: 1. the issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, pPublic policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law. Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth, the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006). Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role.
This is quite interesting even though some countries have implemented it. Please explain more about this idea and how it might have an effect.	Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars. Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as a) a tree must be planted along the road that is not easily broken but leaves are dense. b) granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. c) limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is

	greater. d) traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. e) carry out periodic emission tests for public and private vehicles. f) dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.
The author's conclusions do not bear any information. Rewrite! The conclusion is a statement based on critical analysis of the results obtained by the author. A summary of the results should not be given in this section. You may also specify the direction for future studies	Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.
Please organize your references according to the journal guidelines	**Reference** Anderson, J. E. (Ed.). (1976). *Cases in public policy-making*. New York: Praeger. Brunekreef, B., & Holgate, S. T. (2002). Air pollution and health. *The lancet*, *360*(9341), 1233-1242. Cho, H. S., & Choi, M. (2014). Effects of compact urban development on air pollution: Empirical evidence from Korea. *Sustainability*, *6*(9), 5968-5982. Cobb, R. W. Charles D. elder (1972). *Participation in American Politics. The Dynamics of Agenda-Building*. John Hopkins University Press. Dye, T. R.(2011). *Top-Down Policy Making*. London: Chatham House Publisher. International Gas Union (IGU) (2015). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA. Islamy, I. (2003). Dasar-Dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya. Jiao, K., Xu, M., & Liu, M. (2018). Health status and air pollution related socioeconomic concerns in urban China. *International journal for equity in health*, *17*(1), 1-11. Kahn, M. E., & Schwartz, J. (2008). Urban air pollution progress despite sprawl: the “greening” of the vehicle fleet. *Journal of Urban Economics*, *63*(3), 775-787.. Lisdiyono, E. (2017). Environmental legislation: A study of the

shift of spatial policy in local regulation. *International Journal of Environmental and Science Education*.

Lisdiyono, E. (2018). Legal Idealism and Implementation: An Analysis of the Gap Between Environmental Policy and the Local Regulation in Indonesia. *Journal of Legal, Ethical and Regulatory Issues*.

Marzuki, P.M. (2016). *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., & Sczepanski, P. (1999). Urban air pollution and forests, In: *Air pollution VII.* WIT Press.

Oliveira, J. A., Doll, C. N., Siri, J., Dreyfus, M., Farzaneh, H., & Capon, A. (2015). Urban governance and the systems approaches to health-environment co-benefits in cities. *Cadernos de saude publica*, *31*, 25-38.

Salmond, J., Sabel, C., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, 6(14):1-4.

Sihombing, B. F. (2018). The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia. *International Journal of Energy Economics and Policy*, *8*(6), 331-338.

Sitompul, M. (2006). Implementasi Kebijakan Publik: Pengalaman Masa Lalu. *Jurnal Harmoni Sosial 1*(1).

Supriadi. (2010). *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika.

Susilo, A. B. (2015). Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. *Jurnal Hukum dan Peradilan*, *4*(1), 133-152.

Veetil, S. P. (2012). Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. *Envirocities eMagazine*: 4-8.

Yudha, S.W (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality.
Keywords: air pollution, public policy, pollution control, urban management

JEL Classifications: Q52, Q53, K32

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase

in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent, while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a

global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011: 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133). To solve this problem using references from primary legal material, namely legal material that is authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.

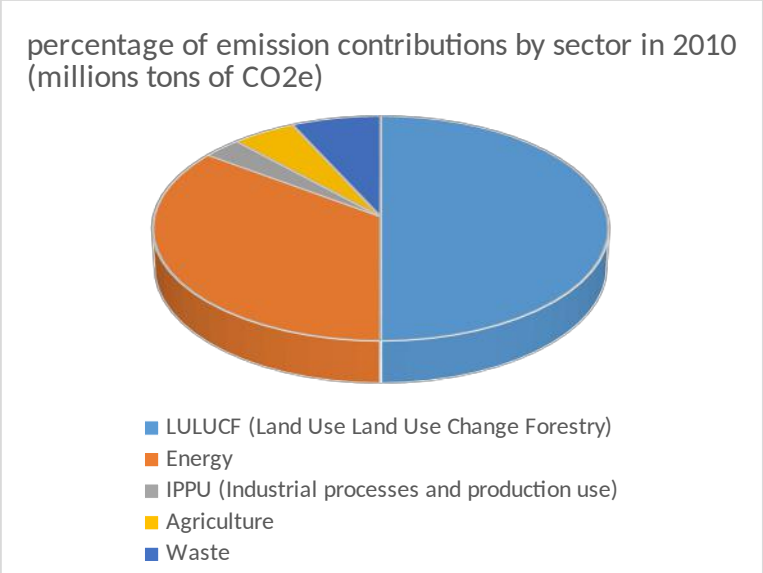
3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	

Energy	453	35%	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that

come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1.that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. the creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018). Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and

prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. the issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, pPublic policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law.

Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth, the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006).

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The

discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental Planning	National environmental protection and management plan.	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the Regency/City
Strategic Environmental Assessment	Strategic Environmental Assessment for national policies, plans and/or programs.	Strategic Environmental Assessment for provincial policies, plans and/or programs	Strategic Environmental Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants:

CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as a) a tree must be planted along the road that is not easily broken but leaves are dense. b) granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. c) limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is greater. d) traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. e) carry out periodic emission tests for public and private vehicles. f) dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.

6. Conclusion

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of

air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Reference

Anderson, J. E. (Ed.). (1976). *Cases in public policy-making*. New York: Praeger.

Brunekreef, B., & Holgate, S. T. (2002). Air pollution and health. *The lancet*, *360*(9341), 1233-1242.

Cho, H. S., & Choi, M. (2014). Effects of compact urban development on air pollution: Empirical evidence from Korea. *Sustainability*, *6*(9), 5968-5982.

Cobb, R. W. Charles D. elder (1972). *Participation in American Politics. The Dynamics of Agenda-Building*. John Hopkins University Press.

Dye, T. R.(2011). *Top-Down Policy Making*. London: Chatham House Publisher.

International Gas Union (IGU) (2015). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA.

Islamy, I. (2003). Dasar-Dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya.

Jiao, K., Xu, M., & Liu, M. (2018). Health status and air pollution related socioeconomic concerns in urban China. *International journal for equity in health*, *17*(1), 1-11.

Kahn, M. E., & Schwartz, J. (2008). Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet. *Journal of Urban Economics*, *63*(3), 775-787..

Lisdiyono, E. (2017). Environmental legislation: A study of the shift of spatial policy in local regulation. *International Journal of Environmental and Science Education*.

Lisdiyono, E. (2018). Legal Idealism and Implementation: An Analysis of the Gap Between Environmental Policy and the Local Regulation in Indonesia. *Journal of Legal, Ethical and Regulatory Issues*.

Marzuki, P.M. (2016). *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., & Sczepanski, P. (1999). Urban air pollution and forests, In: *Air pollution VII*. WIT Press.

Oliveira, J. A., Doll, C. N., Siri, J., Dreyfus, M., Farzaneh, H., & Capon, A. (2015). Urban governance and the systems approaches to health-environment co-benefits in cities. *Cadernos de saude publica*, *31*, 25-38.

Salmond, J., Sabel, C., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, 6(14):1-4.

Sihombing, B. F. (2018). The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia. *International Journal of Energy Economics and Policy*, *8*(6), 331-338.

Sitompul, M. (2006). Implementasi Kebijakan Publik: Pengalaman Masa Lalu. *Jurnal Harmoni Sosial 1*(1).

Supriadi. (2010). *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika.

Susilo, A. B. (2015). Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. *Jurnal Hukum dan Peradilan*, *4*(1), 133-152.

Veetil, S. P. (2012). Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. *Envirocities eMagazine*: 4-8.

Yudha, S.W (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017.* Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Evaluation

Gmail Ari Purwadi <aripurwadi.uwks@gmail.com>

[IJEEP] Evaluation after revision

Ilhan OZTURK <ijeep@econjournals.com> 5 September 2019 20.35
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Ari Purwadi:

We have received final evaluation of your article from reviewers.
Evaluations from reviewers can be found in the attached files.
You'll get a decision from the editorial board in the next few days.

Manuscript URL:
https://www.econjournals.com/index.php/ijeep/author/submission/8337
Username: aripurwadi

Ilhan OZTURK
International Journal of Energy Economics and Policy

Editor, IJEEP
http://www.econjournals.com/index.php/ijeep

3 Lampiran

IJEEP8337_Evaluation from_1.docx 24K

IJEEP8337_Evaluation from_2.docx 25K

IJEEP8337_Manuscript.docx 53K

Ari Purwadi <aripurwadi.uwks@gmail.com> 6 September 2019 16.44
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear editor,

Thank you for your kind information.
We are looking forward to hearing from you.

Sincerely yours,
Ari

[Kutipan teks disembunyikan]

Lampiran

Reviewer 1

Evaluation after revision	
Manuscript Title:	URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Evaluation to the editor					
Criteria	**Evaluation**				
	acceptable			currently not acceptable	
	very good	good	small weaknesses	great weaknesses[1)]	absolutely insufficient
1. The relevance of the research problem for the discipline.	☐	☑	☐	☐	☐
2. Introduction (research aims and contribution, relevant literature, etc.)	☑	☐	☐	☐	☐
3. Conceptual quality (framework, thoeory, hypotheses, etc.)	☐	☐	☑	☐	☐
4. Methodological quality (design, sample, measurement, method, etc.)	☐	☐	☑	☐	☐
5. Results (novelty, interpretation, discussion flow, etc.)	☐	☑	☐	☐	☐
6. Discussion (quality and novelty of conclusions and suggestions, etc.)	☐	☑	☐	☐	☐
7. Readability	☐	☑	☐	☐	☐

[1)] The manuscript does not meet the standards of the journal but can potentially be revised in order to meet the standards.

Overall evaluation (Please mark the respective box)				
☑1	☐2	☐3	☐4	☐5
acceptable for publication without changes	acceptable for publications after minor revisions	acceptable for publication after major revisions	not acceptable for publication, but author(s) should be en-couraged to resubmit	reject

Reviewer 2

Evaluation after revision	
Manuscript Title:	URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Evaluation to the editor					
Criteria	**Evaluation**				
	acceptable			currently not acceptable	
	very good	good	small weaknesses	great weaknesses[1)]	absolutely insufficient
1. The relevance of the research problem for the discipline.	☒	☐	☐	☐	☐
2. Introduction (research aims and contribution, relevant literature, etc.)	☒	☐	☐	☐	☐
3. Conceptual quality (framework, thoeory, hypotheses, etc.)	☐	☐	☒	☐	☐
4. Methodological quality (design, sample, measurement, method, etc.)	☐	☐	☒	☐	☐
5. Results (novelty, interpretation, discussion flow, etc.)	☐	☒	☐	☐	☐
6. Discussion (quality and novelty of conclusions and suggestions, etc.)	☐	☒	☐	☐	☐
7. Readability	☐	☒	☐	☐	☐

[1)] The manuscript does not meet the standards of the journal but can potentially be revised in order to meet the standards.

Overall evaluation (Please mark the respective box)				
☒1	☐2	☐3	☐4	☐5
acceptable for publication without changes	acceptable for publications after minor revisions	acceptable for publication after major revisions	not acceptable for publication, but author(s) should be en-couraged to resubmit	reject

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality.

Keywords: air pollution, public policy, pollution control, urban management

JEL Classifications: Q52, Q53, K32

1. Introduction

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef & Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

Table 1. Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source : BPS, 2015

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase

in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70 percent, while the contribution of exhaust gases from industrial chimneys ranges from only 10-15 percent, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015: 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3; Figure 1).

Table 2. Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source : BPS, 2015

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a

global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011: 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011: 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

2. Method

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016: 133). To solve this problem using references from primary legal material, namely legal material that is authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.

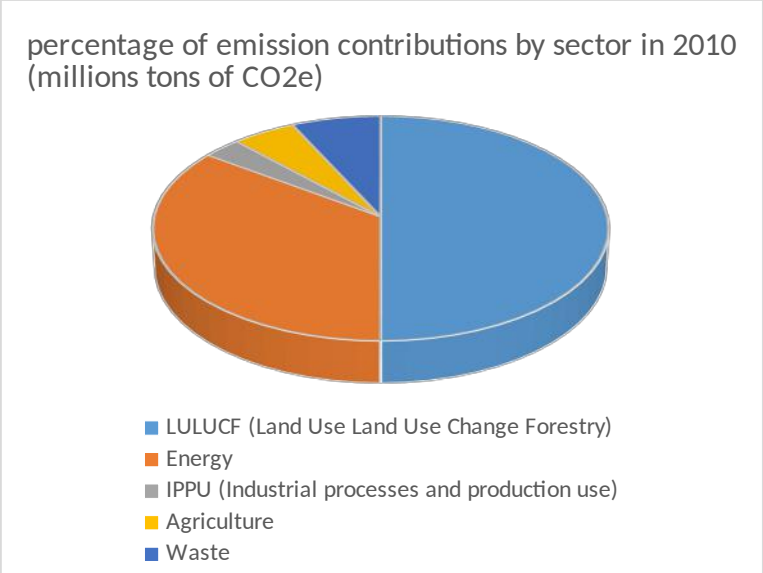
3. Environmental Pollution

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012: 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017). Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009: 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Table 3. Emission contributions by sector in 2010 (millions tons of CO2e)

Contributors	**Quantity (millions tons of CO2e)**	**percentage**	**Percentage of Energy emission**
LULUCF (Land Use Land Use Change Forestry)	647	50%	

Energy	453	35%	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7%	
IPPU (Industrial processes and production use)	36	3%	
Agriculture	66	5%	



Source: Yudha, S.W (2017).

Figure 1. Emission contributions by sector in 2010

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: sources of emissions that are moving or not fixed somewhere that

come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1.that air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. that in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. the creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.

4. Environmental Public Policy

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018). Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and

prevention of negative impacts on the environment due to the use of space (Lisdiyono, E. (2017; Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Thomas R. Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public". In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. the issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, pPublic policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law.

Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth, the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006).

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The

discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. Policy on air pollution control

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

Table 4. Strategy for Pollution Control and/or Environmental Damage

Sub Division	Central government	Provincial government	Regency/City Government
Environmental Planning	National environmental protection and management plan.	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the Regency/City
Strategic Environmental Assessment	Strategic Environmental Assessment for national policies, plans and/or programs.	Strategic Environmental Assessment for provincial policies, plans and/or programs	Strategic Environmental Assessment for district/city policies, plans and/or programs
Pollution Control and/or Environmental Damage	Prevention And Recovery Of Pollution And/Or Environmental Damage Across Provinces And/Or Across National Borders.	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province.	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants:

CO, NOx, and VOC (Veetil, 2012: 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn & Schwartz, 2008: 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et. Al., 2018: 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et.al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018: 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015: 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as a) a tree must be planted along the road that is not easily broken but leaves are dense. b) granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. c) limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is greater. d) traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. e) carry out periodic emission tests for public and private vehicles. f) dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.

6. Conclusion

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of

air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

Reference

Anderson, J. E. (Ed.). (1976). *Cases in public policy-making*. New York: Praeger.

Brunekreef, B., & Holgate, S. T. (2002). Air pollution and health. *The lancet*, *360*(9341), 1233-1242.

Cho, H. S., & Choi, M. (2014). Effects of compact urban development on air pollution: Empirical evidence from Korea. *Sustainability*, *6*(9), 5968-5982.

Cobb, R. W. Charles D. elder (1972). *Participation in American Politics. The Dynamics of Agenda-Building*. John Hopkins University Press.

Dye, T. R.(2011). *Top-Down Policy Making*. London: Chatham House Publisher.

International Gas Union (IGU) (2015). *Case Studies In Improving Urban Air Quality*. Fornebu Norway: Office of the Secretary General c/o Statoil ASA.

Islamy, I. (2003). Dasar-Dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya.

Jiao, K., Xu, M., & Liu, M. (2018). Health status and air pollution related socioeconomic concerns in urban China. *International journal for equity in health*, *17*(1), 1-11.

Kahn, M. E., & Schwartz, J. (2008). Urban air pollution progress despite sprawl: the "greening" of the vehicle fleet. *Journal of Urban Economics*, *63*(3), 775-787..

Lisdiyono, E. (2017). Environmental legislation: A study of the shift of spatial policy in local regulation. *International Journal of Environmental and Science Education*.

Lisdiyono, E. (2018). Legal Idealism and Implementation: An Analysis of the Gap Between Environmental Policy and the Local Regulation in Indonesia. *Journal of Legal, Ethical and Regulatory Issues*.

Marzuki, P.M. (2016). *Penelitian Hukum*. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., & Sczepanski, P. (1999). Urban air pollution and forests, In: *Air pollution VII.* WIT Press.

Oliveira, J. A., Doll, C. N., Siri, J., Dreyfus, M., Farzaneh, H., & Capon, A. (2015). Urban governance and the systems approaches to health-environment co-benefits in cities. *Cadernos de saude publica*, *31*, 25-38.

Salmond, J., Sabel, C., & Vardoulakis, S. (2018). Towards the Integrated Study of Urban Climate, Air Pollution, and Public Health. *Climate*, 6(14):1-4.

Sihombing, B. F. (2018). The Perspectives of Legal System on the Policy of Unifying Fuel Pricing in Indonesia. *International Journal of Energy Economics and Policy*, *8*(6), 331-338.

Sitompul, M. (2006). Implementasi Kebijakan Publik: Pengalaman Masa Lalu. *Jurnal Harmoni Sosial 1*(1).

Supriadi. (2010). *Hukum Lingkungan di Indonesia Suatu Pengantar*. Jakarta: Sinar Grafika.

Susilo, A. B. (2015). Makna dan kriteria diskresi Keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. *Jurnal Hukum dan Peradilan*, *4*(1), 133-152.

Veetil, S. P. (2012). Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. *Envirocities eMagazine*: 4-8.

Yudha, S.W (2017). Air pollution and its implications for Indonesia: Challenges and imperatives for change. *Air Quality Asia High-Level Session 20 April 2017*. Retrieved from http://pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf

Acceptance and Invoice

Gmail Ari Purwadi <aripurwadi.uwks@gmail.com>

[IJEEP] - Acceptance and Invoice

International Journal of Energy Economics and Policy 9 September 2019 00.48
<ijeep@econjournals.com>
Kepada: aripurwadi.uwks@gmail.com

Dear Ari Purwadi, Suhandi,

I am happy to inform you that your paper entitled "URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE" has been accepted for publication in IJEEP for the next issue. Your paper will be send to you for final proof check very soon after payment received.

Thus, I would like to remind you to pay 520 USD publication fee as soon as possible to the following account:

Name of account holder:: Kıbrıs İktisat Bankası Ltd.
Address: İktisat Kule, 151, Bedreddin Demirel Caddesi, Lefkosa, Mersin 10, TURKEY.
Bank account NO (IBAN): : TR19 0001 5001 5804 8014 6767 84
Bank name: TURKIYE VAKIFLAR BANKASI T.A.O.
SWIFT: TVBATR2A

VERY IMPORTANT: Please add following explanation in payment document:

"Econjournals publication fee"

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

Ari Purwadi <aripurwadi.uwks@gmail.com> 9 September 2019 12.12
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear Editor,

Thanks much for your acceptance
We will pay the fee as soon as possible.

Best regards,

Ari Purwadi
[Kutipan teks disembunyikan]

Ari Purwadi <aripurwadi.uwks@gmail.com> 13 September 2019 12.33
Kepada: International Journal of Energy Economics and Policy <ijeep@econjournals.com>

Dear Editor,

We have completed payment for our article in your journal.
The proof is attached.We hope you will respond to this payment soon after it was received.
We have added the important notes of Econjournals publication fee.

Best regards,

Ari Purwadi
[Kutipan teks disembunyikan]

20190913_122423.jpg
4502K

International Journal of Energy Economics and Policy 19 September 2019 23.44
<ijeep@econjournals.com>
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Dear author,

We have received your payment.
Your article is currently in the queue at the production desk.

Regards,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

[Kutipan teks disembunyikan]

Ari Purwadi <aripurwadi.uwks@gmail.com> 3 Oktober 2019 10.33
Kepada: International Journal of Energy Economics and Policy
<ijeep@econjournals.com>

Dear Editor,

Please send the galley file for checking before publication.

Regards,

[Kutipan teks disembunyikan]

International Journal of Energy Economics and Policy 4 Oktober 2019 23.44
<ijeep@econjournals.com>
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Dear author,

We will send it soon.

Regards,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

[Kutipan teks disembunyikan]

Ari Purwadi <aripurwadi.uwks@gmail.com> 6 Oktober 2019 09.42
Kepada: International Journal of Energy Economics and Policy
<ijeep@econjournals.com>

Noted with regards

Ari

[Kutipan teks disembunyikan]

Galley proof

Gmail Ari Purwadi <aripurwadi.uwks@gmail.com>

[IJEEP] - Galley proof

International Journal of Energy Economics and Policy 8 Oktober 2019
<ijeep@econjournals.com> 17.00
Kepada: aripurwadi.uwks@gmail.com

Dear author,

Please reply the questions arised in your paper and send me your answers.

Regards,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

IJEEP 8337 purwardi okey_20191004_v0.pdf
679K

Ari Purwadi <aripurwadi.uwks@gmail.com> 9 Oktober 2019 14.13
Kepada: International Journal of Energy Economics and Policy
<ijeep@econjournals.com>

Dear Editor,

We would like to send the revised paper.
The paper is attached.

Best regards,

Ari Purwadi

[Kutipan teks disembunyikan]

REV-IJEEP 8337 purwardi okey_20191004_v0.pdf
790K

International Journal of Energy Economics and Policy 11 Oktober 2019 23.44
<ijeep@econjournals.com>
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Dear author,

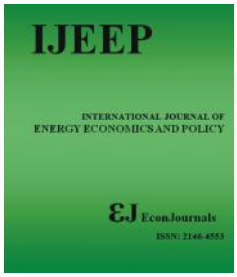
We have received a correction for the galley from you.
Your article will be scheduled to be published in the issue of Vol 10, No. 1 January, 2020.

Regards,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

[Kutipan teks disembunyikan]

Lampiran



International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2020, 10(1), 1-6.

Urban Air Pollution Control Caused by Exhaust Gas Emissions in Developing Country Cities in Public Policy Law Perspective

Ari Purwadi*, Suhandi, Umi Enggarsasi

Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia. *Email: aripurwadi.uwks@gmail.com

Received: 05 July 2019 **Accepted:** 20 September 2019 **DOI:** https://doi.org/10.32479/ijeep.8337

ABSTRACT

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality.

Keywords: Air Pollution, Public Policy, Pollution Control, Urban Management
JEL Classifications: ???

1.INTRODUCTION

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef and Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1, while Table 2 presented the number of land transportation in Surabaya city.

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70%, while the contribution of exhaust gases from industrial chimneys ranges from only 10 to 15%, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there

Table 1: Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
Total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source: BPS, 2015

Table 2: Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
Total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source: BPS, 2015

are many air pollutants that need to be watched out, but the WHO (World Health Organization [WHO]) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015. p. 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO_2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3 and Figure 1).

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011. p. 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011. p. 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

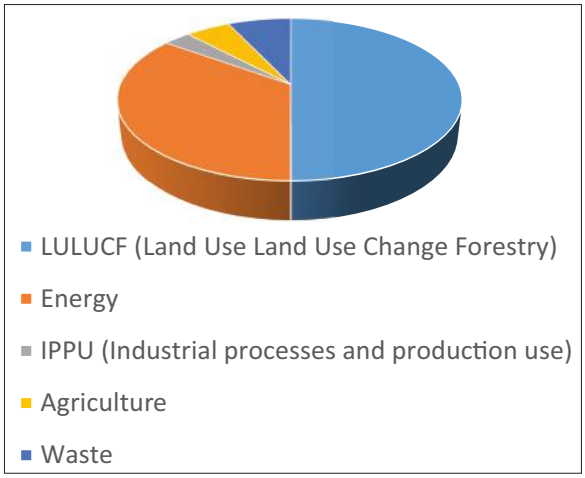
2. METHOD

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016. p. 133). To solve this problem using references from primary legal material, namely legal material that is authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.

Table 3: Emission contributions by sector in 2010 (millions tons of CO_2 emissions)

Contributors	Quantity (millions tons of CO_2 emissions)	Percentage	Percentage of energy emission
LULUCF (Land Use Land Use Change Forestry)	647	50	
Energy	453	35	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7	
IPPU (Industrial processes and production use)	36	3	
Agriculture	66	5	

Figure 1: Emission contributions by sector in 2010



Source: Yudha (2017)

3. ENVIRONMENTAL POLLUTION

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012. p. 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO_2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017)." Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husen, 2009. p. 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: Sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1. That air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. That in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. The creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/ Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.

4. ENVIRONMENTAL PUBLIC POLICY

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, (2017); Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public." In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. The issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, Public policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law.

Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth,

the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006).

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. POLICY ON AIR POLLUTION CONTROL

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012. p. 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn and Schwartz, 2008. p. 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et al., 2018. p. 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018. p. 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015. p. 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out

Table 4: Strategy for pollution control and/or environmental damage

Sub division	Central government	Provincial government	Regency/City government
Environmental planning	National environmental protection and management plan	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the regency/city
Strategic environmental assessment	Strategic environmental assessment for national policies, plans and/or programs	Strategic environmental assessment for provincial policies, plans and/or programs	Strategic environmental assessment for district/city policies, plans and/or programs
Pollution control and/or environmental damage	Prevention and recovery of pollution and/or environmental damage across provinces and/or across national borders	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area

to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as (a) a tree must be planted along the road that is not easily broken but leaves are dense. (b) Granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. (c) Limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is greater. (d) Traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. (e) Carry out periodic emission tests for public and private vehicles. (f) Dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.

6. CONCLUSION

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

REFERENCES

Anderson, J.E., editor. (1976), Cases in Public Policy-making. New York: Praeger.

Brunekreef, B., Holgate, S.T. (2002), Air pollution and health. The Lancet, 360(9341), 1233-1242.

Cho, H.S., Choi, M. (2014), Effects of compact urban development on air pollution: Empirical evidence from Korea. Sustainability, 6(9), 5968-5982.

Cobb, R.W., Elder, C.D. (1972), Participation in American Politics. The Dynamics of Agenda-Building. Baltimore: John Hopkins University Press.

Dye, T.R. (2011), Top-down Policy Making. London: Chatham House Publisher.

International Gas Union. (2015), Case Studies in Improving Urban Air Quality. Fornebu Norway: Office of the Secretary General c/o Statoil ASA.

Islamy, I. (2003), Dasar-dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya.

Jiao, K., Xu, M., Liu, M. (2018), Health status and air pollution related socioeconomic concerns in urban China. International Journal for Equity in Health, 17(1), 1-11.

Kahn, M.E., Schwartz, J. (2008), Urban air pollution progress despite sprawl: The "greening" of the vehicle fleet. Journal of Urban Economics, 63(3), 775-787.

Lisdiyono, E. (2017), Environmental legislation: A study of the shift of spatial policy in local regulation. International Journal of Environmental and Science Education, 12, 597-605.

Lisdiyono, E. (2018), Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia. Journal of Legal, Ethical and Regulatory Issues, 21, 1-10.

Marzuki, P.M. (2016), Penelitian Hukum. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., Sczepanski, P. (1999), Urban air pollution and forests. In: Air Pollution VII. Southhampton: WIT Press.

Oliveira, J.A., Doll, C.N., Siri, J., Dreyfus, M., Farzaneh, H., Capon, A. (2015), Urban governance and the systems approaches to health-environment co-benefits in cities. Cadernos de Saude Publica, 31, 25-38.

Salmond, J., Sabel, C., Vardoulakis, S. (2018), Towards the integrated study of urban climate, air pollution, and public health. Climate, 6(14), 1-4.

Sihombing, B.F. (2018), The perspectives of legal system on the policy of unifying fuel pricing in Indonesia. International Journal of Energy Economics and Policy, 8(6), 331-338.

Sitompul, M. (2006), Implementasi kebijakan publik: Pengalaman masa lalu. Jurnal Harmoni Sosial, 1(1), 47-49.

Supriadi, S.H. (2010), Hukum Lingkungan di Indonesia Suatu Pengantar. Jakarta: Sinar Grafika.

Susilo, A.B. (2015), Makna dan kriteria diskresi keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. Jurnal Hukum dan Peradilan, 4(1), 133-152.

Veetil, S.P. (2012), Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. Envirocities eMagazine. pp4-8.

Yudha, S.W. (2017), Air Pollution and its Implications for Indonesia: Challenges and Imperatives for Change. Air Quality Asia High-level Session 20 April 2017. Available from: http://www.pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf.

Author Queries???
AQ1:Kindly provide the author full name
AQ2:Kindly provide the JEL classifications
AQ3:Kindly provide the author in the reference list
AQ4:Kindly check and confirm the table value and separation of table value for table 1 and 2

Correction for galley

Author Queries???

AQ1:Kindly provide the author full name
Ari Purwadi*, Suhandi Suhandi, Umi Enggarsasi

AQ2:Kindly provide the JEL classifications
JEL
Classifications: ???
Q52, Q53, K32

AQ3:Kindly provide the author in the reference list

(Boediningsih, 2011. p. 120). The
This is the reference for this citation. See in reference list.

Boediningsih, W. (2011). Dampak kepadatan lalu lintas terhadap polusi udara kota surabaya. Jurnal fakultas hukum, 20(20), 119-137.

(Husen, 2009. p. 44).
The correct for this citation is
(Husen, 1995)

This is the reference:
Husein, H.M. (1995). Lingkungan Hidup (Masalah, Pengelolaan dan Penegakan Hukumnya). Jakarta: Bumi Aksara.

AQ4:Kindly check and confirm the table value and separation of table value for table 1 and 2
We have checked this number and found that the presented number is correct
Table 1: Number and type of motorized vehicles
Table 2: Data on the number of motorized vehicles in Surabaya city by type

Other corrections

- Please delete the redudancy of words of ",controlling, and controlling.." change to only: and controlling

International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2020, 10(1), 1-6.

Urban Air Pollution Control Caused by Exhaust Gas Emissions in Developing Country Cities in Public Policy Law Perspective

Ari Purwadi*, Suhandi, Umi Enggarsasi

Faculty of [illegible] Kusuma Surabaya, Indonesia. *Email: aripurwadi.uwks@gmail.com

Received: 05 July 2019 **Accepted:** 20 September 2019 **DOI:** https://doi.org/10.32479/ijeep.8337

ABSTRACT

The increase in air pollution in cities generally comes f[illegible] The purpose of this paper is to an[illegible] the city government through public policy to control ai[illegible] pollution control with legislati[illegible] air capacity, negative impacts on the environment due[illegible] haust emission threshold. Interr[illegible] actions can lead to significant reductions in pollutants [illegible] licy regarding air pollution co[illegible] accommodated by the application of the principle of de[illegible] centralization through regulation. The city government formulate[illegible] ability of the community to avoid air pollution and red[illegible] damage to public health caused by air pollution, as well as [illegible] controlling, and controlling air environmental policy p[illegible] vironmental quality.

Keywords: Air Pollution, Public Policy, Pollution Control, Urban Management

JEL Classifications: ???

Please delete the redudancy of words of ",controlling, and controlling.."

change to only: and controlling

Suhandi Suhandi

Q52, Q53, K32

1.INTRODUCTION

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef and Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollu[illegible] is it realized that those who have a larg[illegible] emitted by motorized vehicles. Ironi[illegible] vehicles is increasing, as with the incr[illegible] vehicles, the more advanced and pros[illegible] Data on the number of motorized vehi[illegible] to 2014 are seen in Table 1, while Ta[illegible] of land transportation in Surabaya ci[illegible]

To cite the table 1 and table 2 in separate discussion, please rearrange this sentence to: Table 1 show data on the number of motorized vehicles in Indonesia from 2010 to 2014. Furthermore, in municipal case of Surabaya, the number of land transportation in Surabaya city was rapidly increasing from 2009 to 2015 (Table 2).

New model vehicles are produced [illegible] with market demand, while old vehi[illegible] because of their affection and needs. T[illegible] motorized vehicles follows the calcul[illegible] prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70%, while the contribution of exhaust gases from industrial chimneys ranges from only 10 to 15%, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there

Table 1: Number and type of motorized vehicles

Types	Quantity (units)			
	2011	2012	2013	2014
Passenger c	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	68.839.341	76.381.183	84.732.652	92.976.240
Total	85.601.351	94.373.324	104.118.969	114.209.266

Source: BPS, 2015

We have checked this number and found that the presented number is correct

Table 2: Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and t	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wa	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and th	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
Total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source: BPS, 2015

We have checked this number and found that the presented number is correct

are many air pollutants that need to be watched out, but the WHO (World Health Organization [WHO]) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015. p. 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO_2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3 and Figure 1).

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011. p. 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting [illegible]es which are chemical elements in fr[illegible]tural content can reduce free air quali[illegible]. p. 124). The purpose of this paper is to analyz[illegible]e air pollution control arrangements and the role of city government [illegible]n regulating air pollution control as public policy. Therefore, form[illegible]ulated legal issues and public policies are what can be done by the [illegible]city government in regulating air pollution control as public policy[illegible]

This is the reference for this citation. See in reference list.

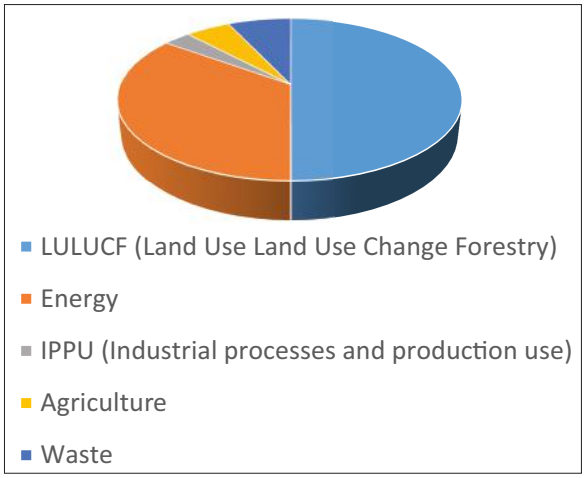
Boediningsih, W. (2011). Dampak kepadatan lalu lintas terhadap polusi udara kota surabaya. Jurnal fakultas hukum, 20(20), 119-137.

This paper is legal res[illegible]s a statutory approach. The statute a[illegible]y examining all forms of legislatio[illegible]legal issues (Marzuki, 2016. p. 13[illegible]this problem using references from primary legal material, namely legal material that is authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.

Table 3: Emission contributions by sector in 2010 (millions tons of CO_2 emissions)

Contributors	Quantity (millions tons of CO_2 emissions)	Percentage	Percentage of energy emission
LULUCF	647	50	
(Land Use Land Use Change Forestry)			
Energy	453	35	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7	
IPPU	36	3	
(Industrial processes and production use)			
Agriculture	66	5	

Figure 1: Emission contributions by sector in 2010



Source: Yudha (2017)

3. ENVIRONMENTAL POLLUTION

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric plants, 13% of volatile evaporation, 3% of solid waste disposal and 7% of various sources others (Veetil, 20[illegible] According to Satya Widya Yudha that "land transport[illegible]ation contributes around 12% of the total national CO_2 emissions[illegible] of urban air pollution (CO, HC, NOx, SOx, P[illegible], O3), 90% of transportation emissions comes from road transp[illegible]ortation, 70% of city pollution comes from the transportation sect[illegible]r (Yudha, 2017)." Government policy settings in creating environm[illegible] the promulgation of the first regulat[illegible]on governing the environment, namely Law Number 4 of 1982 c[illegible]ncerning Basic Provisions for Environmental Management, whic[illegible] was then replaced with Law No. 23 of 1997 concerning Envi[illegible]nagement. Life, which was subsequently replaced [illegible]mber 32 of 2009 concerning Environmental Prote[illegible]nt. The Environmental Law functions as a[illegible] to protect the environment and does not specific[illegible] of air pollution (Husen, 2009. p. 44). T[illegible] Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

AQ3 The correct for this citation is (Husen, 1995)

This is the reference: Husein, H.M. (1995). Lingkungan Hidup (Masalah, Pengelolaan dan Penegakan Hukumnya). Jakarta: Bumi Aksara.

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: Sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1. That air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of other living beings; and 2. That in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. The creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/ Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.

4. ENVIRONMENTAL PUBLIC POLICY

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, (2017); Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public." In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. The issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, Public policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies, but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law.

Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth,

the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006).

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. POLICY ON AIR POLLUTION CONTROL

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012. p. 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn and Schwartz, 2008. p. 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et al., 2018. p. 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018. p. 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015. p. 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out

Table 4: Strategy for pollution control and/or environmental damage

Sub division	Central government	Provincial government	Regency/City government
Environmental planning	National environmental protection and management plan	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the regency/city
Strategic environmental assessment	Strategic environmental assessment for national policies, plans and/or programs	Strategic environmental assessment for provincial policies, plans and/or programs	Strategic environmental assessment for district/city policies, plans and/or programs
Pollution control and/or environmental damage	Prevention and recovery of pollution and/or environmental damage across provinces and/or across national borders	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area

to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as (a) a tree must be planted along the road that is not easily broken but leaves are dense. (b) Granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. (c) Limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is greater. (d) Traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. (e) Carry out periodic emission tests for public and private vehicles. (f) Dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.

6. CONCLUSION

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

REFERENCES

Anderson, J.E., editor. (1976), Cases in Public Policy-making. New York: Praeger.

Brunekreef, B., Holgate, S.T. (2002), Air pollution and health. The Lancet, 360(9341), 1233-1242.

Cho, H.S., Cho[illegible] (2014), Effects of compact urban development on air pollution: Empirical evidence from Korea. Sustainability, 6(9), 5968-5982.

Cobb, R.W., Elder, C.D. (1972), Participation in American Politics. The Dynamics of Agenda-Building. Baltimore: John Hopkins University Press.

Dye, T.R. (2011), Top-down Policy Making. London: Chatham House Publisher.

International Gas Union. (2015), Case Studies in Improving Urban Air Quali[illegible] Secretary General c/o Statoil AS[illegible]

Islamy, I. (2003[illegible] dan Manajemen Publik. Malang: U[illegible]

Jiao, K., Xu, M[illegible] and air pollution related socioecon[illegible] urban China. International Journal for Equity in [illegible]

Kahn, M.E., S[illegible] lution progress despite sprawl: The "greening" of the vehicle fleet. Journal of Urban Economics, 63(3), 775-787.

Lisdiyono, E. (2017), Environmental legislation: A study of the shift of spatial policy in local regulation. International Journal of Environmental and Science Education, 12, 597-605.

Lisdiyono, E. (2018), Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia. Journal of Legal, Ethical and Regulatory Issues, 21, 1-10.

Marzuki, P.M. (2016), Penelitian Hukum. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., Sczepanski, P. (1999), Urban air pollution and forests. In: Air Pollution VII. Southhampton: WIT Press.

Oliveira, J.A., Doll, C.N., Siri, J., Dreyfus, M., Farzaneh, H., Capon, A. (2015), Urban governance and the systems approaches to health-environment co-benefits in cities. Cadernos de Saude Publica, 31, 25-38.

Salmond, J., Sabel, C., Vardoulakis, S. (2018), Towards the integrated study of urban climate, air pollution, and public health. Climate, 6(14), 1-4.

Sihombing, B.F. (2018), The perspectives of legal system on the policy of unifying fuel pricing in Indonesia. International Journal of Energy Economics and Policy, 8(6), 331-338.

Sitompul, M. (2006), Implementasi kebijakan publik: Pengalaman masa lalu. Jurnal Harmoni Sosial, 1(1), 47-49.

Supriadi, S.H. (2010), Hukum Lingkungan di Indonesia Suatu Pengantar. Jakarta: Sinar Grafika.

Susilo, A.B. (2015), Makna dan kriteria diskresi keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. Jurnal Hukum dan Peradilan, 4(1), 133-152.

Veetil, S.P. (2012), Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. Envirocities eMagazine. pp4-8.

Yudha, S.W. (2017), Air Pollution and its Implications for Indonesia: Challenges and Imperatives for Change. Air Quality Asia High-level Session 20 April 2017. Available from: http://www.pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf.

Husein, H.M. (1995). Lingkungan Hidup (Masalah, Pengelolaan dan Penegakan Hukumnya). Jakarta: Bumi Aksara.

Boediningsih, W. (2011). Dampak kepadatan lalu lintas terhadap polusi udara kota surabaya. Jurnal fakultas hukum, 20(20), 119-137.

Author Que[illegible]
AQ1:Kindly [illegible]ne
AQ2:Kindly [illegible]ssifications
AQ3:Kindly [illegible]r in the reference list
AQ4:Kindly [illegible] confirm the table value and separation of table value for table 1 and 2

Published

Gmail Ari Purwadi <aripurwadi.uwks@gmail.com>

[IJEEP] Published Issue

Ilhan OZTURK <ijeep@econjournals.com> 3 Januari 2020 23.27
Kepada: Ari Purwadi <aripurwadi.uwks@gmail.com>

Ari Purwadi:

Your article is now published. Please click the link below:

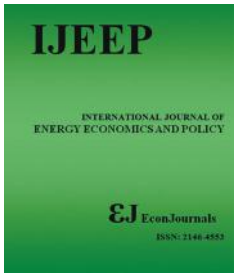
Vol 10, No 1 2020:
http://www.econjournals.com/index.php/ijeep/issue/view/150

Your article:
http://www.econjournals.com/index.php/ijeep/article/view/8337

Regards,

--
Prof.Dr. Ilhan OZTURK
Editor, International Journal of Energy Economics and Policy
email: ijeep@econjournals.com
http://www.econjournals.com/index.php/ijeep
http://ideas.repec.org/e/poz20.html

Lampiran



International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2020, 10(1), 31-36.

Urban Air Pollution Control Caused by Exhaust Gas Emissions in Developing Country Cities in Public Policy Law Perspective

Ari Purwadi*, Suhandi Suhandi, Umi Enggarsasi

Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia. *Email: aripurwadi.uwks@gmail.com

Received: 05 July 2019 **Accepted:** 20 September 2019 **DOI:** https://doi.org/10.32479/ijeep.8337

ABSTRACT

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, and controlling air environmental policy programs that lead to achieving environmental quality.

Keywords: Air Pollution, Public Policy, Pollution Control, Urban Management
JEL Classifications: Q52, Q53, K32

1. INTRODUCTION

Air pollution in several big cities, such as Jakarta, Surabaya, Semarang and Medan has been very alarming. Several studies on air pollution with all the risks have been published, including the risk of blood cancer and asthma (Brunekreef and Holgate, 2002). But, it is rarely realized, how many thousands of city residents die indirectly from air pollution, which is a reported respiratory tract infection. In the next ten years, it is estimated that there will be a significant increase in pulmonary and respiratory disease sufferers. Not only acute respiratory infections which now rank first in disease patterns in various major cities, but also increase the number of people with asthma and lung cancer. The high risk targets for air pollution are mainly school children who are exposed to air pollution every morning and afternoon due to the activities of leaving and returning to school, as well as workers, passengers and drivers of public transportation and other public road users. The main culprit for the increase in air pollution is motor vehicle emissions. So far, many people suspect, that the biggest contribution of urban air pollution is from industry. Rarely is it realized that those who have a large share are gas and particles emitted by motorized vehicles. Ironically, the number of motor vehicles is increasing, as with the increasing number of motorized vehicles, the more advanced and prosperous the community lives. Data on the number of motorized vehicles in Indonesia from 2010 to 2014 are seen in Table 1 show data on the number of motorized vehicles in Indonesia from 2010 to 2014. Furthermore, in municipal case of Surabaya, the number of land transportation in Surabaya city was rapidly increasing from 2009 to 2015 (Table 2).

New model vehicles are produced in large quantities in line with market demand, while old vehicles are difficult to destroy because of their affection and needs. The increase in the number of motorized vehicles follows the calculation series, while pollution prevention efforts still follow a series of measures, and even then it is not maximized. In large cities, the contribution of motor vehicle exhaust gas as a source of air pollution reaches 60-70%, while the

Table 1: Number and type of motorized vehicles

Types	Quantity (units)				
	2010	2011	2012	2013	2014
Passenger car	8.891.041	9.548.866	10.432.259	11.484.514	12.599.138
Bus	2.250.109	2.254.406	2.273.821	2.286.309	2.398.846
Freight cars	4.687.789	4.958.738	5.286.061	5.615.494	6.235.136
Motorcycle	61.078.188	68.839.341	76.381.183	84.732.652	92.976.240
Total	76.907.127	85.601.351	94.373.324	104.118.969	114.209.266

Source: BPS, 2015

Table 2: Data on the number of motorized vehicles in Surabaya city by type

Types	Quantity (units)						
	2009	2010	2011	2012	2013	2014	2015
Sedan and the like	51.610	50.555	48.258	47.459	50.164	53.024	56.046
Jeep and the like	29.022	29.601	28.312	29.635	31.324	33.110	34.997
Station wagon and the like	183.645	198.960	199.360	217.686	230.094	243.209	257.072
Bus and the like	2.064	2.279	2.304	2.486	2.628	2.777	2.936
Trucks and the like	86.987	89.530	92.238	100.809	106.555	112.629	119.049
Motorcycle and the like	1.129.870	1.213.457	1.274.660	1.402.190	1.482.115	1.566.595	1.655.891
Heavy equipment and the like	73	71	80	150	159	168	177
Total	1.483.271	1.584.453	1.645.212	1800,415	1.903.039	2.011.512	2.126.168

Source: BPS, 2015

contribution of exhaust gases from industrial chimneys ranges from only 10 to 15%, the rest comes from other combustion sources, such as households, waste burning, fires forest and others. Actually there are many air pollutants that need to be watched out, but the WHO (World Health Organization [WHO]) specifies several types of pollutants that are taken seriously. Air pollutants that are harmful to human health, animals and easily damage property are particulates that contain particles of hydrocarbons, sulfur dioxide, nitrogen oxides. All of this is emitted by motorized vehicles passing by on the highway. Outdoor air pollution is one of the most significant environmental threats to human health. According to WHO, air pollution contributes 3.7 million premature deaths every year. The current world population is around 7.3 billion people, with only more than half in urban areas. As more people move to cities around the world, deaths from urban air pollution will increase substantially. By 2050, the world population is expected to grow to more than 9 billion, and the share of the population living in cities is projected from 50 to 70% - up to 6.3 billion people. The rapid growth of urban population, the demand for energy and transportation will increase. As a result, the OECD projects that if there are no policy changes, deaths from outside air pollution will double from current levels in 2050 (IGU, 2015. p. 4). Urban growth has caused many environmental problems, especially urbanization which leads to the loss of green open space and increased traffic and energy consumption. Air pollution is one of the main environmental problems associated with urbanization. This has led researchers to ask whether cities are densely populated or do not contribute to reducing air pollution (Cho and Choi, 2014). The data from Yudha (2017) revealed that Indonesia is 4th largest emitter in the world with land transportation accounts for around 12% of total national CO_2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3) (Table 3 and Figure 1).

The most serious impact on other urban pollution is the impact on the ozone earth (global warning/greenhouse effect). Damage to the ozone layer of the earth has an impact on climate change, so natural disasters often occur. Analysis of the relationship between natural disasters and air pollution is indeed rather complicated, because the link is not very transparent, in contrast to the relationship between natural disasters and soil pollution, land reclamation, deforestation, water police or the breakdown of a giant reservoir. However, many facts show that air pollution can be an indicator of the ongoing disruption of atmospheric harmonica as a result of exceeding the limits of ecological tolerance of air by various types of contaminants, which ultimately lead to natural disasters. Air pollution which has the potential to cause a global environmental crisis, namely depletion of the ozone layer, global warming and decreased atmospheric oxidation capacity. The three threats have a mutually supportive relationship, the existence of one threat strengthens the presence of other threats, causing the atmosphere to suffer damage that continues to worsen. Air pollution causes a decrease in health and the environment. The health problems range from respiratory, nerve, cancer, heart disease and IQ decline, while environmental disorders are visibility damage, acid rain, crop and building damage, and weather changes (Boediningsih, 2011. p. 120). The impact of traffic density in the city of Surabaya raises air pollution, besides that it also causes noise pollution by exhausting emissions from motor vehicles which are chemical elements in free air that exceed the longer natural content can reduce free air quality (Boediningsih, 2011. p. 124). The purpose of this paper is to analyze air pollution control arrangements and the role of city government in regulating air pollution control as public policy. Therefore, formulated legal issues and public policies are what can be done by the city government in regulating air pollution control as public policy.

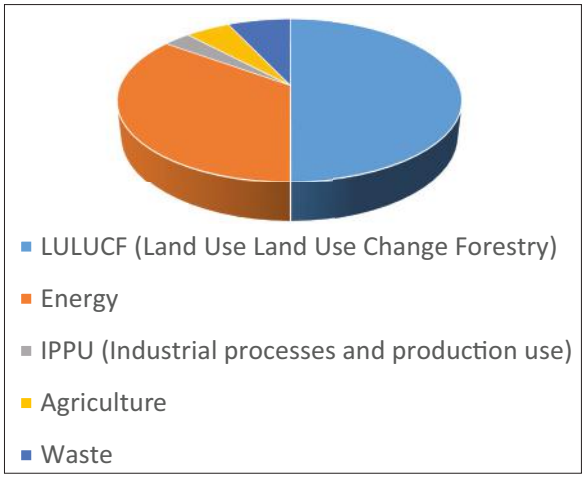
2. METHOD

This paper is legal research. As legal research, it uses a statutory approach. The statute approach is a research activity by examining all forms of legislation and regulations relating to legal issues (Marzuki, 2016. p. 133). To solve this problem using references from primary legal material, namely legal material that is

Table 3: Emission contributions by sector in 2010 (millions tons of CO_2 emissions)

Contributors	Quantity (millions tons of CO_2 emissions)	Percentage	Percentage of energy emission
LULUCF (Land Use Land Use Change Forestry)	647	50	
Energy	453	35	
Power generation			42
Transportation			30
Industry			22
housing			7
Waste	88	7	
IPPU (Industrial processes and production use)	36	3	
Agriculture	66	5	

Figure 1: Emission contributions by sector in 2010



Source: Yudha (2017)

authoritative means that has the authority in the form of legislation. In addition, references are taken from publications relating to public policy studies.

3. ENVIRONMENTAL POLLUTION

Environment as a resource is an asset that can be needed for the welfare of society (Supriadi, 2010). According to the world an average of 49% of air pollution is produced by transportation, 28% of fuel is fueled by factories and electric planets, 13% of volatile evaporation, 3% of solid waste disposal, and 7% of various sources others (Veetil, 2012. p. 5). According to Satya Widya Yudha that "land transportation contributes around 12% of the total national CO_2 emissions, and almost 90% of urban air pollution (CO, HC, NOx, SOx, PM, O3), 90% of transportation emissions comes from road transportation, 70% of city pollution comes from the transportation sector (Yudha, 2017)." Government policy settings in creating environmental balance are actualized by the promulgation of the first regulation governing the environment, namely Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, which was then replaced with Law No. 23 of 1997 concerning Environmental Management Life, which was subsequently replaced with Law Number 32 of 2009 concerning Environmental Protection and Management. The Environmental Law functions as a framework law to protect the environment and does not specifically regulate the prevention of air pollution (Husein, 2009. p. 44). The Environmental Law affirms that everyone has equal rights to a good and healthy environment. This means that every Indonesian citizen, both men and women, adults and children, poor and rich, are all entitled to good and healthy air. Therefore, clean and healthy air is absolutely necessary.

Even the importance of a good and healthy environment for the welfare of Indonesian citizens is further strengthened by the inclusion of these provisions in the second amendment to Article 28 of the 1945 Constitution. Air is always available cleanly and healthily, emissions from the road transportation sector which is one source of air pollutants need to be controlled. Air is an environmental medium which is a basic human need so it needs to get serious attention. Based on Article 1 number 14 of Act Number 32 of 2009, environmental pollution is the entry or inclusion of living things, substances, energy, and/or other components into the environment by human activities so as to exceed the prescribed environmental quality standards. Growth in urban development such as industry, transportation, offices and housing also has a negative impact, one of which is air pollution and increased ambient air pollution in various areas or environment. Ambient air in Government Regulation Number 41 of 1999 concerning Air Pollution Control is defined as free air on the surface of the earth in the troposphere which is within the jurisdiction of the Republic of Indonesia that is needed and affects the health of humans, living things and other environmental elements.

According to Government Regulation No. 41 of 1999 pollutant sources are defined as every business and/or activity that emits pollutants into the air which causes air to function improperly), among others: Sources of emissions that are moving or not fixed somewhere that come from motorized vehicles. Specific mobile sources come from trains, airplanes, ships and other heavy vehicles, sources of emissions that remain at a place, immovable sources originating from forest fires and burning of waste, pollutant sources that use air or solid media for distribution. From various sectors that have the potential to pollute the air in urban areas, the transportation sector generally plays a very large role compared to other sectors. Anticipating the impact of air pollution in accordance with the application of Government Regulation Number 41 of 1999 concerning Air Pollution Control related to the Blue Sky Program. The consideration of the stipulation of Government Regulation Number 41 of 1999 is 1. That air as a natural resource that affects the lives of humans and other living creatures must be maintained and maintained for the preservation of its function for the maintenance of human health and welfare and protection of

other living beings; and 2. That in order for air to be as beneficial as possible for the preservation of environmental functions, air must be maintained, maintained and guaranteed quality through air pollution control.

The Blue Sky Program is regulated by the Decree of the Minister of Environment No. KEP-15/MENLH/4/1996, which in Article 3 stated that the objective of the Blue Sky Program is: 1. The creation of a working mechanism in the control of air pollution that is efficient and effective; 2. control of air pollution; 3. achieving ambient air quality that is needed by the health of humans and other living things; and 4. the realization of environmentally conscious human behavior. The Blue Sky program at the central level is coordinated by the Minister and as the person in charge of the activities of the Blue Sky Program is the Head of Bapedal (Article 4). Article 5 states that: 1. The blue sky program is carried out in the Level II District/Municipality in each Province; 2. The Province of the Blue Sky Program is determined by the Minister, and 3. The procedure for proposing the Blue Sky Program Province to Ministers is determined by the Head of the Environmental Impact Management Agency.

4. ENVIRONMENTAL PUBLIC POLICY

The regulation of air pollution control is not only regulated in laws and regulations relating to the environment, but is regulated by some Laws. First, Law No. 22 of 2001 concerning Oil and Gas, which is regulated concerning fuel oil and certain processed products that are marketed domestically to meet the needs of the community must meet the standards and quality set by the government (Sihombing, 2018).Second, Law No. 25 of 2004 concerning the National Development Planning System, which regulates in Article 1, affirms that planning is a process for determining appropriate future actions, through a sequence of choices, taking into account available resources, Article 2(4) stated that the objectives of the national development planning system are to support coordination between development actors; guarantee the creation of integration, synchronization and synergy between regions, between spaces, between times, between government functions and between the Central and Regional Governments; guarantee the linkages and consistency between planning, budgeting, implementing and monitoring; optimize community participation; and guarantee the achievement of efficient, effective, equitable and sustainable use of resources. While the definition of planning and objectives of the national development planning system above, there is actually an opportunity to direct the national development plan to take into account the capacity of air.

Third, Law No. 26 of 2007 concerning Spatial Planning, which regulates in Article 3 states, that the implementation of spatial planning aims to create a safe, comfortable, productive, and sustainable national territorial space based on national resilience by the realization of harmony between the natural environment and the artificial environment; the realization of integration in the use of natural resources and artificial resources by paying attention to human resources; and the realization of protection of space functions and prevention of negative impacts on the environment due to the use of space (Lisdiyono, (2017); Lisdiyono, 2018). While the purpose of spatial planning as above, there is an opportunity to control pollution through spatial planning. Law No. 22 of 2009 concerning Road Traffic and Transportation, which regulates in Article 48 requires that every motorized vehicle operating on the road to meet technical requirements and roadworthiness. One of the roadworthiness requirements is the measurement of exhaust emissions. Meanwhile, the exhaust emission threshold is determined by the Minister of Environment as stipulated in Article 127 of Government Regulation Number 44 of 1993 concerning Vehicles and Drivers, Article 8 Government Regulation Number 41 of 1999, and Article 7 paragraph (3) Decree of the Minister of Industry and Trade No: 275/MPP/Kep/6/1999.

Dye (2001) states that public policy is whatever the government chooses to do or not to do. The definition is included in the classification of policies as a decision because the definition focuses on the government as an actor who has the authority to make decisions, whether the decision to do something or not do something. Public policy definitions like this have the following implications. Public policy is in the form of a choice of government actions, and Government actions are allocated to the entire community so that they are binding. The actions of the government have certain objectives, and Government actions are always oriented towards fulfilling public interests (Susilo, 2015). The focus of the study on public policy is the public interest. Therefore, in this context "public policy and its policy makers (bureaucrats) must have an orientation on strong public interests or Islamy (2003) call it with the spirit of the public." In a democratic legal state, the administration of government is always carried out through public policy. Good government performance must begin with good policy, and good policy can only be achieved through a good policy process.

Policy issues are important to observe with some considerations. First, that the process of making public policy in any political system usually departs from the existence of a certain level of awareness of a particular problem or issue. Second, the degree of openness, namely the relatively democratic level or not of a political system, among which can be measured by the way the mechanism of the issue of issues becomes a government policy agenda, and ultimately becomes public policy. An issue will tend to get a response from policy makers, to be a public policy agenda if it meets certain criteria as stated by Cobb and Elder (1972), there are three prerequisites for the policy issue)to be included in the systemic agenda, namely: 1. The issue gain broad attention or at least foster public awareness; 2. there is a perception or view of the community that some actions need to be taken to solve the problem; 3. there is a common perception from the public that the problem is a legitimate obligation and responsibility of the government to solve it. Anderson (1976) put forward some characteristics of the policy. First, Public policy is purposive, goal-oriented behavior rather than random or change behavior. Every policy must have a purpose. That is, the making of a policy may not only be of origin or because there is an opportunity to make it. If there is no purpose, there is no need for policy. Second, public policy consists of course of action - rather than separate, discrete decision or actions - performed by government officials. That is, a policy does not stand alone, separate from other policies,

but is related to various policies in society, and is oriented to the implementation, interpretation and enforcement of law.

Third, the policy is what the government does - not what they say will do or what they intend to do. Policy is what the government does, not what the government wants or intends to do. Fourth, the public policy may be either negative or positive. Policies can take the form of negative or prohibit and can also be directed to implement or advocate. Fifth, the public policy is based on law and is authoritative. Policy is based on law, because it has the authority to force the community to obey it (Sitompul, 2006).

Public policy is an action taken by the Government in controlling its government. In the implementation of regional government, public policy and law have an important role. The discussion of the law can cover two aspects, namely: First, the aspect of justice concerns the needs of the community for fairness in the midst of many dynamics and conflicts in the community. Second, this legal aspect involves what is called positive law, namely a rule stipulated by a state power that is legitimate and in its enforcement can be imposed in the name of law. Therefore, public policy generally must be legalized in the form of law, and basically a law is the result of public policy.

5. POLICY ON AIR POLLUTION CONTROL

The issue of air pollution control policies in the regions was also carried out by Law No. 23 of 2014 concerning Regional Government as amended by Law No. 2 of 2015 concerning the Establishment of Government Regulations in lieu of Law No. 2 of 2014 concerning Amendments to Law No. 23 of 2014 concerning Regional Government into Law and amended by Act Number 9 of 2015 concerning the Second Amendment to Law No. 23 of 2014 concerning Government, that the authority to control the environment as a compulsory government matter is not related to basic services based on the principle of decentralization to regional governments (Article 12 paragraph (2)). The division of concurrent government affairs between the central government and the provincial and regency/city regions in the environmental field relating to pollution control as stipulated in the Attachment to Law No. 23 of 2014 concerning Regional Government as seen in Table 4.

The first step to controlling the problem of air pollution is to identify the source of pollution. Monitoring of large pollutants and small pollutants must be established in all regions. Once problems are identified, reducing pollutant emissions can be done through the use of cleaner fuels and installation of pollution reduction technologies. The development of new technologies must contain innovations in reducing emissions from power plants, industries, and motor vehicles. One emission technology found in all modern cars in the United States is a catalytic converter, which is used to reduce and oxidize three pollutants: CO, NOx, and VOC (Veetil, 2012. p. 6). Private vehicle emissions are the biggest contributors to carbon monoxide (CO) and volatile organic compounds (VOC), and the main contributors to nitrogen oxides (NOx) (Kahn and Schwartz, 2008. p. 776).

It is interesting to see Chinese research on health status and air pollution related to socio-economic problems in urban China conducted by Kaishan Jiao, Mengjia Xu and Meng Liu have concluded that air pollution has the greatest impact on the health of lower socio-economic groups. With the increase in socio-economic status, the effects of air pollution on health declined. Therefore, it is very important for the government to immediately formulate public policies to improve the ability of lower socio-economic groups to avoid air pollution and reduce health damage caused by air pollution (Jiao et al., 2018. p. 10). The formation of urban forests is very good for getting clean air as research conducted by Matzarakis et al. (1999) in Germany, concluded that the average level of O3 which concentrates higher near city forests can be considered an indication of clean air. Providing greater green space has the potential to reduce mortality due to beneficial effects on exercise and stress, better air quality, and reduce urban heat (Salmond et al., 2018. p. 2).

Various planning actions and interrelated arrangements, when handled together, can lead to significant reductions in climate change pollutants (Oliveira et al., 2015. p. 29). Some policies to reduce air pollution can be done, among others, by regulating motorized vehicles, for example by making areas free of motorized vehicles within a certain radius in crowded areas such as schools, market centers etc. Passenger vehicles are not permitted to enter the ban area so that the passengers are forced to walk several tens of meters to leave the vehicle to go to the school or the market/crowd. In addition to reducing the density of vehicles, congestion can force the passengers to exercise on foot. In addition, it is also to expand the road by prohibiting parking vehicles on the roadside, but parking in places that have been provided specifically and opening alternative roads to reduce congestion. Prohibit certain

Table 4: Strategy for pollution control and/or environmental damage

Sub division	Central government	Provincial government	Regency/City government
Environmental planning	National environmental protection and management plan	Plan for protection and management of the provincial environment	Plans for protection and management of the regency/city living environment of the regency/city
Strategic environmental assessment	Strategic environmental assessment for national policies, plans and/or programs	Strategic environmental assessment for provincial policies, plans and/or programs	Strategic environmental assessment for district/city policies, plans and/or programs
Pollution control and/or environmental damage	Prevention and recovery of pollution and/or environmental damage across provinces and/or across national borders	Prevention and recovery of pollution and/or environmental damage across regencies/cities in 1 (one) province	Prevention, prevention and recovery of pollution and/or environmental damage in the district/city area

types of vehicles such as trucks/cars for passing a road at certain hours which are only for private cars.

Use of private cars by distinguishing police plate numbers, for example odd dates for odd number plates, even dates for even number plates. Indeed this is rather annoying but it turns out to be quite effective in reducing the number of private vehicles operating on the highway. In Jakarta, there had been an idea of prohibiting driving a car with a certain year entering the city, for example, the age of more than 10 years had to go through the periphery, but many were protested, which eventually failed. What needs to be done correctly is the vehicle emission test, the period every year in the implementation of the vehicle for public transportation. The solution to overcome air pollution is not only aimed at improving the traffic control system, the feasibility of vehicles also by promoting reforestation, especially in areas that are crowded with vehicles, including by some strategies such as (a) a tree must be planted along the road that is not easily broken but leaves are dense. (b) Granting permits for small types of public transport vehicles is more limited, while mass transit vehicles such as buses, trains are multiplied. (c) Limit the age of vehicles, especially public transport vehicles, because the older the vehicle is, the more untreated the potential for producing air pollution emissions is greater. (d) Traffic regulation by reducing congestion or congestion of vehicles that accumulate by regulating the spread of vehicles through the creation of alternative roads and providing special parking lots. (e) Carry out periodic emission tests for public and private vehicles. (f) Dismantling buildings made on improper roads which slow down the vehicle so that the vehicle's smoke emissions become high in that location.

6. CONCLUSION

Increasing urban development activities will reduce the carrying capacity of the environment. Efforts to prevent a decrease in environmental carrying capacity in the form of air pollution have been regulated by the Environmental Law and other related laws. Public policy for improving air quality in urban areas through regional government through activities of planning, controlling, and controlling and making air environmental policy programs that lead to the achievement of environmental quality is a mandatory regional affairs. Recommendations that can be given are a. legislation regarding the control of air pollution is felt to be sufficient, but what needs to be strengthened is the aspect of law enforcement and b. the need for increased regulation by local governments in the framework of making air environmental policy programs that lead to achieving environmental quality.

REFERENCES

Anderson, J.E., editor. (1976), Cases in Public Policy-making. New York: Praeger.

Brunekreef, B., Holgate, S.T. (2002), Air pollution and health. The Lancet, 360(9341), 1233-1242.

Boediningsih, W. (2011), Dampak kepadatan lalu lintas terhadap polusi udara kota surabaya. Jurnal Fakultas Hukum, 20(20), 119-137.

Cho, H.S., Choi, M. (2014), Effects of compact urban development on air pollution: Empirical evidence from Korea. Sustainability, 6(9), 5968-5982.

Cobb, R.W., Elder, C.D. (1972), Participation in American Politics. The Dynamics of Agenda-Building. Baltimore: John Hopkins University Press.

Dye, T.R. (2011), Top-down Policy Making. London: Chatham House Publisher.

Husein, H.M. (1995), Lingkungan Hidup (Masalah, Pengelolaan dan Penegakan Hukumnya). Jakarta: Bumi Aksara.

International Gas Union. (2015), Case Studies in Improving Urban Air Quality. Fornebu Norway: Office of the Secretary General c/o Statoil ASA.

Islamy, I. (2003), Dasar-dasar Administrasi Publik dan Manajemen Publik. Malang: Universitas Brawijaya.

Jiao, K., Xu, M., Liu, M. (2018), Health status and air pollution related socioeconomic concerns in urban China. International Journal for Equity in Health, 17(1), 1-11.

Kahn, M.E., Schwartz, J. (2008), Urban air pollution progress despite sprawl: The "greening" of the vehicle fleet. Journal of Urban Economics, 63(3), 775-787.

Lisdiyono, E. (2017), Environmental legislation: A study of the shift of spatial policy in local regulation. International Journal of Environmental and Science Education, 12, 597-605.

Lisdiyono, E. (2018), Legal idealism and implementation: An analysis of the gap between environmental policy and the local regulation in Indonesia. Journal of Legal, Ethical and Regulatory Issues, 21, 1-10.

Marzuki, P.M. (2016), Penelitian Hukum. Jakarta: Kencana Prenada Media Group.

Matzarakis, A., Mayer, H., Sczepanski, P. (1999), Urban air pollution and forests. In: Air Pollution VII. Southhampton: WIT Press.

Oliveira, J.A., Doll, C.N., Siri, J., Dreyfus, M., Farzaneh, H., Capon, A. (2015), Urban governance and the systems approaches to health-environment co-benefits in cities. Cadernos de Saude Publica, 31, 25-38.

Salmond, J., Sabel, C., Vardoulakis, S. (2018), Towards the integrated study of urban climate, air pollution, and public health. Climate, 6(14), 1-4.

Sihombing, B.F. (2018), The perspectives of legal system on the policy of unifying fuel pricing in Indonesia. International Journal of Energy Economics and Policy, 8(6), 331-338.

Sitompul, M. (2006), Implementasi kebijakan publik: Pengalaman masa lalu. Jurnal Harmoni Sosial, 1(1), 47-49.

Supriadi, S.H. (2010), Hukum Lingkungan di Indonesia Suatu Pengantar. Jakarta: Sinar Grafika.

Susilo, A.B. (2015), Makna dan kriteria diskresi keputusan dan/atau tindakan pejabat publik dalam mewujudkan tata pemerintahan yang baik. Jurnal Hukum dan Peradilan, 4(1), 133-152.

Veetil, S.P. (2012), Air Pollution: Sources and Effects in Urban Areas and How it Affect the Investment and Economy. Envirocities eMagazine. pp4-8.

Yudha, S.W. (2017), Air Pollution and its Implications for Indonesia: Challenges and Imperatives for Change. Air Quality Asia High-level Session 20 April 2017. Available from: http://www.pubdocs.worldbank.org/en/183201496935944434/200417-AirQualityAsia-Air-Pollution.pdf.

INTERNATIONAL JOURNAL OF ENERGY ECONOMICS AND POLICY

URBAN AIR POLLUTION CONTROL CAUSED BY EXHAUST GAS EMISSIONS IN

DEVELOPING COUNTRY CITIES IN PUBLIC POLICY LAW PERSPECTIVE

Ari Purwadi, Suhandi Suhandi, Umi Enggarsasi

ABSTRACT

The increase in air pollution in cities generally comes from motor vehicle emissions. The purpose of this paper is to analyze the regulation and role of the city government through public policy to control air pollution. The regulation of air pollution control with legislation has regulated fuel standards, air capacity, negative impacts on the environment due to the use of space, and the exhaust emission threshold. Interrelated planning and regulatory actions can lead to significant reductions in pollutants that change the climate. Public policy regarding air pollution control by the city government is accommodated by the application of the principle of decentralization through regulation. The city government formulates public policies to improve the ability of the community to avoid air pollution and reduce damage to public health caused by air pollution, as well as carry out activities in planning, controlling, and controlling air environmental policy programs that lead to achieving environmental quality.

Keywords: air pollution, public policy, pollution control, urban management

JEL Classifications: Q52, Q53, K32

DOI: https://doi.org/10.32479/ijeep.8337

FULL TEXT:

PDF

REFBACKS

- There are currently no refbacks.

Document type
Article

Source type
Journal

ISSN
21464553

DOI
10.32479/ijeep.8337

International Journal of Energy Economics and Policy • *Open Access* • Volume 10, Issue 1, Pages 31 - 36 • 2020

Urban air pollution control caused by exhau emissions in developing country cities in pu policy law perspective

Purwadi A. , Suhandi S., Enggarsasi U.

Save all to author list

Faculty of Law, Universitas Wijaya Kusuma Surabaya, Indonesia

Abstract

The increase in air pollution in cities generally comes from motor vehicle emissions. Th this paper is to analyze the regulation and role of the city government through public p air pollution. The regulation of air pollution control with legislation has regulated fuel s capacity, negative impacts on the environment due to the use of space, and the exhaust threshold. Interrelated planning and regulatory actions can lead to significant reductio that change the climate. Public policy regarding air pollution control by the city govern accommodated by the application of the principle of decentralization through regulatic government formulates public policies to improve the ability of the community to avoi and reduce damage to public health caused by air pollution, as well as carry out activiti and controlling air environmental policy programs that lead to achieving environmenta

Author keywords

Air Pollution; K32; Pollution Control; Public Policy; Q53; Urban Management JEL (Q52

Reaxys Chemistry database information

Substances

{"fill-opacity":"1","color-rendering":"auto","color-interpolation":"auto","text-

View details

Powered by Reaxys

SciVal Topics

Metrics

References (23)

View in sear

All

Export Print E-mail Save to PDF Create bil

1 Anderson, J.E.
(1976) *Cases in Public Policy-Making*. Cited 19 times.
editor, New York: Praeger

2 Brunekreef, B., Holgate, S.T.
Air pollution and health

(2002) *Lancet*, 360 (9341), pp. 1233-1242. Cited 2668 time
http://www.journals.elsevier.com/the-lancet/
doi: 10.1016/S0140-6736(02)11274-8

View at Publisher

3 Boediningsih, W.
Dampak kepadatan lalu lintas terhadap polusi udara kota s
(2011) *Jurnal Fakultas Hukum*, 20 (20), pp. 119-137. Cited

4 Cho, H.-S., Choi, M.J.
Effects of compact Urban development on air p
Empirical evidence from Korea (Open Access)

(2014) *Sustainability (Switzerland)*, 6 (9), pp. 5968-5982. Ci
http://www.mdpi.com/2071-1050/6/9/5968/pdf
doi: 10.3390/su6095968

View at Publisher

5 Cobb, R.W., Elder, C.D.
(1972) *Participation in American Politics. the Dynamics of*
Building. Cited 1115 times.
Baltimore: John Hopkins University Press

6 Dye, T.R.
(2011) *Top-Down Policy Making*. Cited 58 times.
London: Chatham House Publisher

7 Husein, H.M.
Lingkungan Hidup (Masalah
(1995) *Pengelolaan Dan Penegakan Hukumnya)*
Jakarta: Bumi Aksara

8 (2015) *Case Studies in Improving Urban Air Quality*. Cited
Fornebu Norway: Office of the Secretary General c/o Statoi

9 Islamy, I.
(2003) *Dasar-Dasar Administrasi Publik Dan Manajemen P*
Universitas Brawijaya

10 Jiao, K., Xu, M., Liu, M.

Health status and air pollution related socioecc concerns in urban China (Open Access)

(2018) *International Journal for Equity in Health*, 17 (1), art times.
http://www.equityhealthj.com/home/
doi: 10.1186/s12939-018-0719-y

View at Publisher

11 Kahn, M.E., Schwartz, J.

Urban air pollution progress despite sprawl: Th the vehicle fleet

(2008) *Journal of Urban Economics*, 63 (3), pp. 775-787. Ci
doi: 10.1016/j.jue.2007.06.004

View at Publisher

12 Lisdiyono, E.
Environmental legislation: A study of the shift of spatial pc regulation
(2017) *International Journal of Environmental and Science* 597-605. Cited 6 times.

13 Lisdiyono, E.

Legal idealism and implementation: An analysi between environmental policy and the local reg Indonesia

(2018) *Journal of Legal, Ethical and Regulatory Issues*, 21 (S 5 times.
https://www.abacademies.org/articles/Legal-Idealism-and-an-analysis-of-the-gap-between-environmental-policy-and regulation-in-Indonesia-1544-0044-21-SI-216.pdf

14 Marzuki, P.M.
(2016) *Penelitian Hukum. Jakarta: Kencana Prenada Media*

15 Matzarakis, A., Mayer, H., Sczepanski, P.
Urban air pollution and forests
(1999) *Air Pollution VII*. Cited 6 times.
Southhampton: WIT Press

16 de Oliveira, J.A.P., Doll, C.N.H., Siri, J., Dreyfus, M., Farzan
Urban governance and the systems approaches environment co-benefits in cities (Open Access)

(2015) *Cadernos de Saude Publica*, 31, pp. S25-S38. Cited
http://www.scielo.br/pdf/csp/v31s1/0102-311X-csp-31-s1-(
doi: 10.1590/0102-311X00010015

View at Publisher

17 Salmond, J., Sabel, C.E., Vardoulakis, S.
Towards the integrated study of urban climate, and public health (Open Access)

(2018) *Climate*, 6 (1), art. no. 14. Cited 8 times.
http://www.mdpi.com/2225-1154/6/1/14/pdf
doi: 10.3390/cli6010014

View at Publisher

18 Sihombing, B.F.
The perspectives of legal system on the policy
pricing in Indonesia (Open Access)

(2018) *International Journal of Energy Economics and Poli*
338. Cited 2 times.
http://www.econjournals.com/index.php/ijeep/article/dowr
doi: 10.32479/ijeep.7049

View at Publisher

19 Sitompul, M.
Implementasi kebijakan publik: Pengalaman masa lalu
(2006) *Jurnal Harmoni Sosial*, 1 (1), pp. 47-49.

20 Supriadi, S.H.
(2010) *Hukum Lingkungan Di Indonesia Suatu Pengantar*.
Jakarta: Sinar Grafika

21 Susilo, A.B.
Makna dan kriteria diskresi keputusan dan/atau tindakan p
dalam mewujudkan tata pemerintahan yang baik
(2015) *Jurnal Hukum Dan Peradilan*, 4 (1), pp. 133-152. Ci

22 Veetil, S.P.
(2012) *Air Pollution: Sources and Effects in Urban Areas ar*
Investment and Economy. Envirocities Emagazine, pp. 4-8
pp

23 Yudha, S.W.
Air Pollution and its Implications for Indonesia: Challenges for Change
(2017) *Air Quality Asia High-Level Session 20 April 2017*
http://www.pubdocs.worldbank.org/en/183201496935944AirQualityAsia-Air-Pollution.pdf

Purwadi, A.; Faculty of Law, Universitas Wijaya Kusuma Surabaya, email:aripurwadi.uwks@gmail.com