

Public Perceptions of Emission Testing as an Effective Strategy to Combat Air Pollution

Understanding Public Perceptions in the Jabodetabek Region
— February 2024



Acknowledgment

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Editor:

- Vivi S. Zabkie, S.Sos
- Chintya Imelda Maidir, MPP

Author and Researchers:

- Aini Devi Agustian, S.KM
- Aulia Mutiara Hatia Putri, S.KPm
- Nazmi Haddyat Tamara, S.Stat

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Contact:

Sumi Mehta

Vice President, Environmental and Climate Health

Vital Strategies

smehta@vitalstrategies.org

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Executive Summary

Emissions originating from an estimated 23 million two- and four-wheeled vehicles are the leading cause of air pollution in the Jabodetabek (Greater Jakarta) community, according to data from the Environmental Agency of DK Jakarta Province and a source apportionment study conducted in 2019 by the Bandung Institute of Technology and Vital Strategies. This poses a significant burden to the population's health and well-being. Ensuring compliance with vehicular emissions requirements is essential for reducing the contribution of current and future fleets to air pollution. Emissions testing is one of the most important strategies to ensure compliance.

In September and December 2023, Populix and Vital Strategies surveyed two phases to explore public perceptions of air pollution in the DKI Jakarta area and its surroundings and attitudes toward vehicle emissions testing.

The survey found that 97% of respondents own motorized vehicles. Of these, 50% own more than one motorcycle, 50% own cars, and of these, 19% own more than one car. Most of these motorized vehicles are four to ten years old, subjecting them to mandatory emissions testing.

Emission testing regulations have been enforced to ensure public compliance and collective efforts to improve air quality in Jakarta. In September 2023, the Jakarta Provincial Government implemented a policy of issuing tickets for vehicles that do not pass emissions tests. Owners of vehicles that do not pass the test are subject to fines, following the regulations outlined in Article 2 of Governor Regulation (Pergub) No. 66 of 2020 regarding Motor Vehicle Exhaust Gas Emission Testing.

Populix and Vital Strategies compiled this report, which describes the survey findings about knowledge, attitudes and practices of the Jakarta community and its supporting cities—Bogor, Bekasi, Depok and Tangerang—regarding air pollution and its impacts, the community's fuel usage habits, policies, and the implementation of Low-Emission Zones and Low-Emission Vehicles.

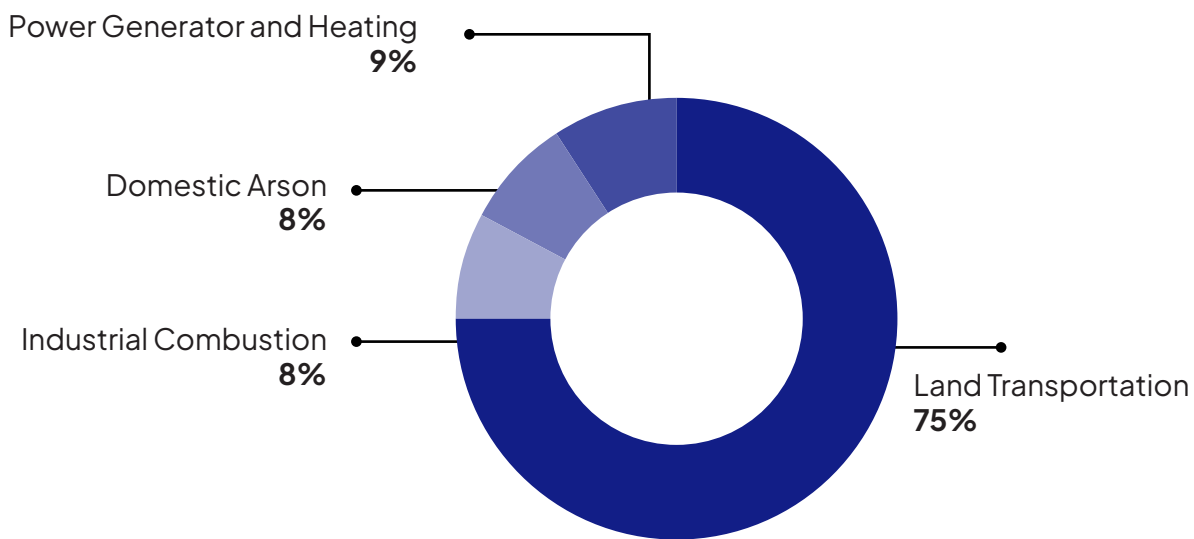




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Background

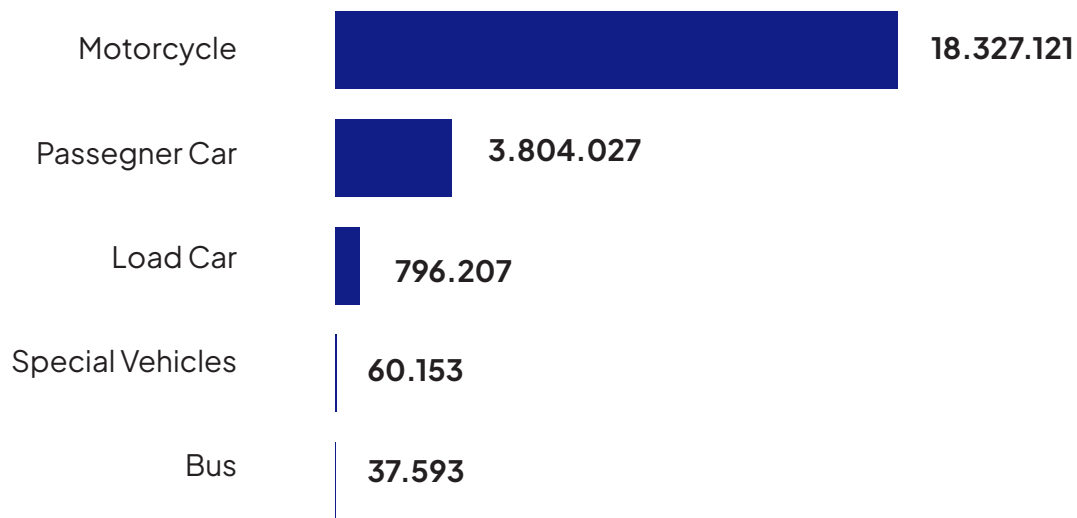
Air pollution in Jakarta and its supporting cities—Bogor, Bekasi, Depok and Tangerang—remains a serious concern. Declining air quality leads to various health issues for the residents in these areas. According to data from the Environmental Agency of DK Jakarta Province, land transportation is the primary source of air pollution in DK Jakarta and its surrounding areas. Mobile emission sources stem from the estimated 23 million two- and four-wheeled vehicles.



Graphic 1. Sources of Air Pollution in DK Jakarta

Source: Dinas Lingkungan Hidup Provinsi DK Jakarta

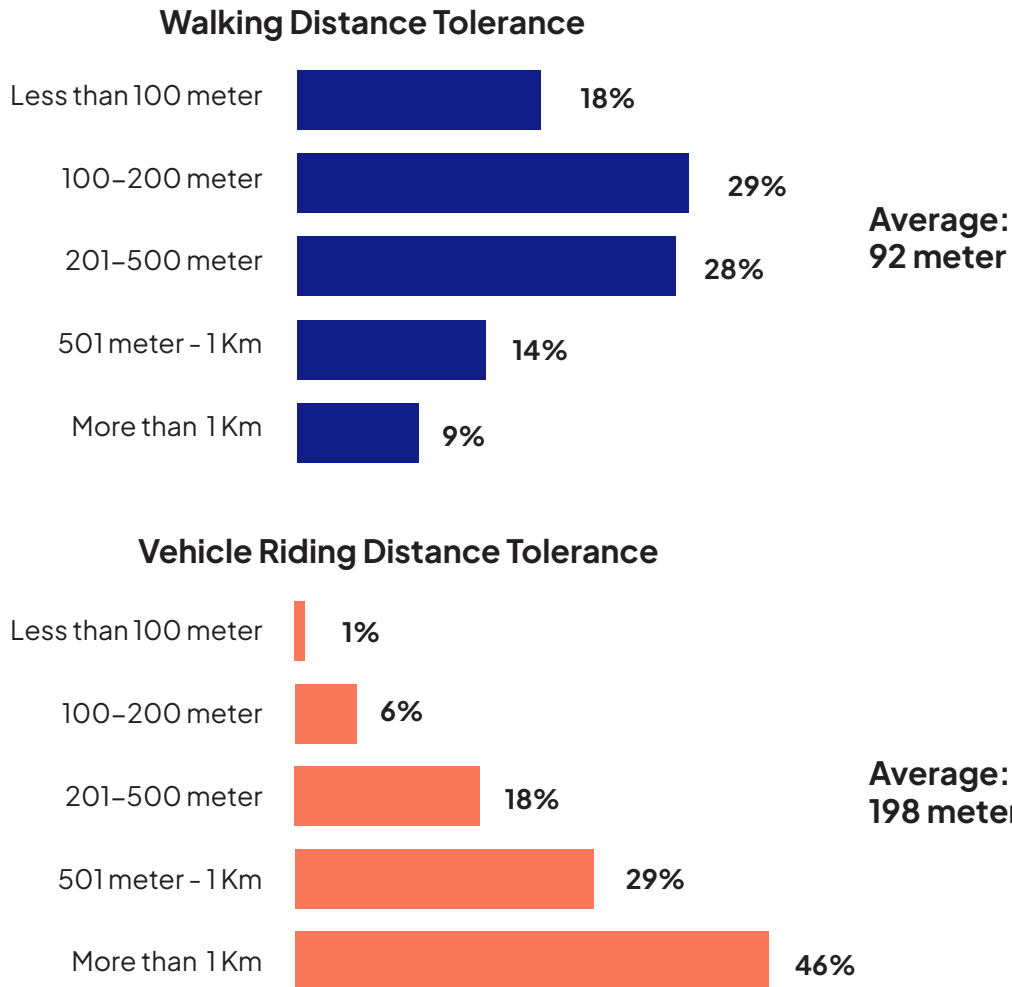
Based on data from the National Police of the Republic of Indonesia, the number of vehicles in DK Jakarta had reached 23.03 million units as of Aug. 17, 2023. Most of these vehicles are motorbikes with a total of 18.33 million (79.6% of total vehicles in the capital). The number of passenger cars in Jakarta was recorded at 3.8 million.



Graphic 2. Number of Motorized Vehicles in Jakarta, 2023

Source: National Police of the Republic of Indonesia

According to data from the Ministry of Environment and Forestry (KLHK), vehicles in Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) contribute significantly to the emission of carbon monoxide (CO). The transportation sector contributes 96.36%, equivalent to 28,317 tons per year, followed by power plants at 1.76%, accounting for 5,252 tons per year, and industry at 1.25%, reaching 3,738 tons per year. Data suggests that Jabodetabek residents are in the habit of using a motorized vehicle rather than walking, even for relatively short distances. According to the results of the second survey by Populix and Vital Strategies, 47% of respondents would only walk less than 200 meters before using a vehicle. One quarter (25%) would use a vehicle to travel 500 meters or less. Respondents cited feeling faster when using vehicles (69%) as a reason for not walking; 49% said they were too lazy to walk.



Graphic 3. Distance Tolerance for Walking and Vehicles

Source: Survey 2 Populix

Legal instruments and the enforcement basis for emission testing rules already exist both at the national and local levels. Laws at the national level include: Law Number 22 of 2009 concerning Traffic and Road Transportation; Government Regulation Number 22 of 2021 concerning the Implementation of Environmental Protection and Management; and the most recent regulation, from the Minister of Environment and Forestry (PERMEN LHK), No. 8/2023, dated Aug. 4, 2023, concerning the Implementation of Emission Standards for Motor Vehicles Categories M, N, O and L.

Meanwhile, at the regional level, particularly in DK Jakarta, the relevant law is Governor of DK Jakarta Instruction Number 66 of 2019 on Air Quality Control, Governor Regulation (Pergub) Number 66 of 2020 concerning Motor Vehicle Exhaust Gas Emission Testing, which is a revision of Governor Regulation Number 92 of 2007.

Vehicles that are older than 3 years are required to undergo emissions testing. Based on survey results, vehicles owned by people in the DK Jakarta area are 4 to 10 years old. Despite the mandate, awareness of emissions testing is low. Based on data on the ujjemisi.jakarta.go.id website, as of Sept. 7, 2023, just 1 million four-wheeled vehicles and 101,000 motorbikes have undergone emissions tests, representing just 30% of 4-wheel and 0.6% of two-wheelers.



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Methodology

This research aimed to determine the level of knowledge, attitudes, behavior and practices of vehicle users in Jabodetabek to inform future communication efforts about emissions testing.

The online survey was conducted in two rounds. The first round was conducted in September 2023 during the transition period of emission testing enforcement, prior to full enforcement with financial penalties. The second round was conducted in December 2023 during the full enforcement of emission testing sanctions in the Jabodetabek area.

Figure 4 Stages of Activity Implementation

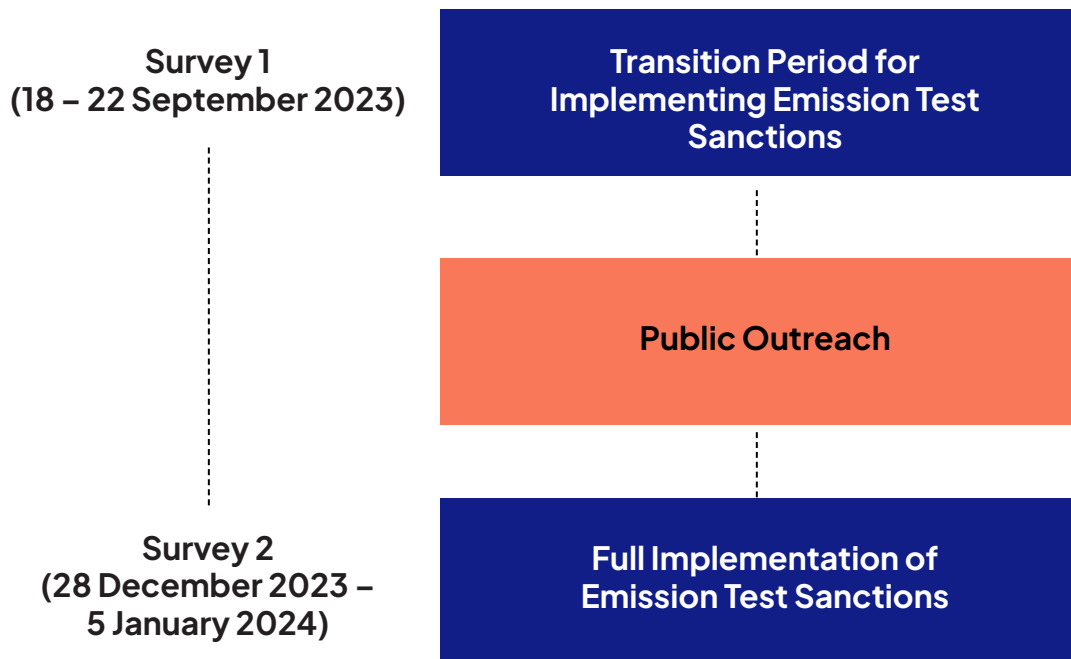


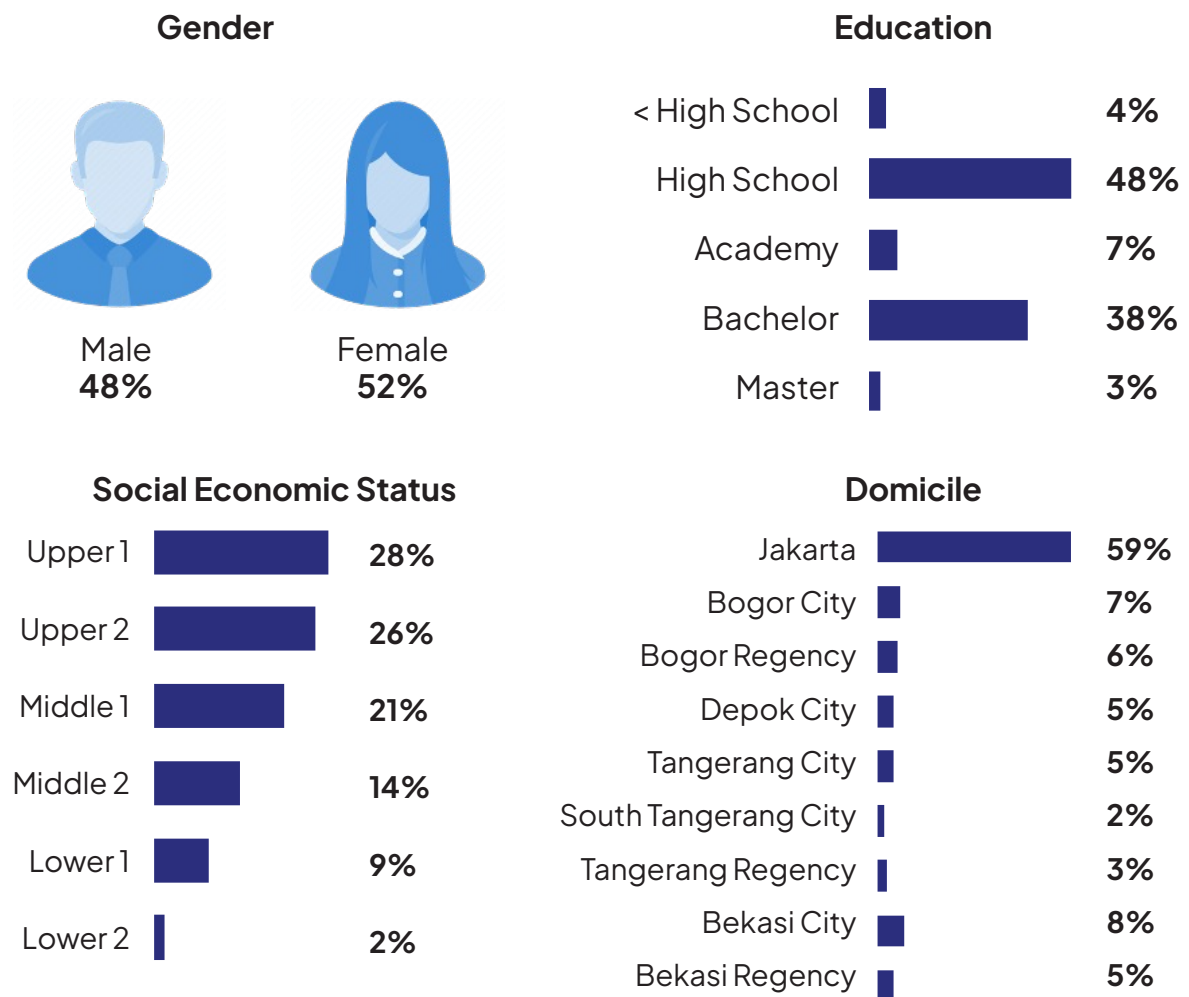
Figure 1. Stages of implementation

Source: Survey 2 Populix

The first round involved 604 respondents in the DK Jakarta area and its surroundings (Bogor, Depok, Tangerang and Bekasi). After the results of the first survey were analyzed, public outreach was conducted, presenting the survey results along with information about emission testing through Populix and the DK Jakarta Environmental Agency's social media. After the public outreach, at the beginning of the full implementation of the emissions test sanctions, Populix and Vital Strategies conducted the second round of the survey, reaching 622 respondents in the DK Jakarta area and its surroundings (Bogor, Depok, Tangerang and Bekasi).

This quantitative survey was conducted online, with non-probability sampling. Respondents were at least 18 years old and owned a motor vehicle (car/motorcycle). The respondent profile for the first survey and second survey are quite similar. Most respondents (52%) in the second survey were female and 48% were male. The plurality were millennials (age 28–43 years) at 42%, followed by Generation Z (17–21 years) at 32% and Generation X (44–60 years) at 26%.

Looking at the respondents' domiciles, 59% lived in DK Jakarta and 41% in the Bogor, Depok, Tangerang and Bekasi areas. The majority had graduated from high school. In terms of socioeconomic status (SES), most of the respondents were in the Lower 1 category.



Graphic 4. Respondent Profile in the Second Survey
Source: Survey 2 Populix



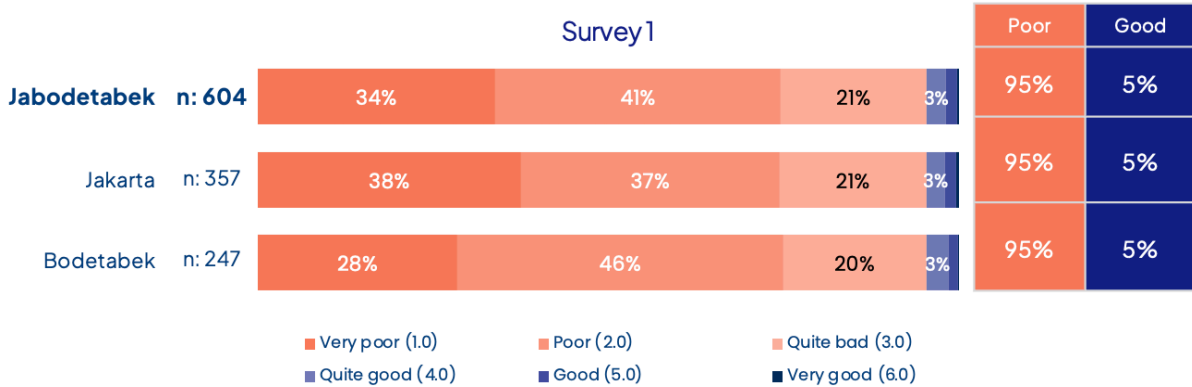


03

Knowledge, Attitudes and Perspectives on the Air Quality of Jabodetabek

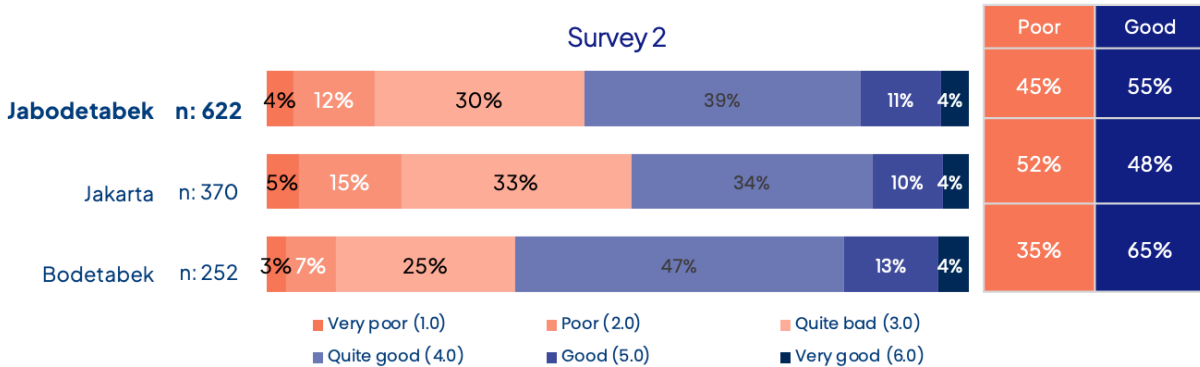
Air Quality

Respondents were asked to rate the air quality where they lived in each of the two rounds of the survey. In the first round, conducted in September 2023, 95% of respondents rated air quality as “slightly poor” or worse, with 95% evaluating it as very poor or poor.



Graphic 5. Air Quality Perspective
 “What do you think is the air quality around you right now?”
 Source: Survey 2 Populix

In contrast, the second-round survey conducted three months later, most respondents (55%) perceived that the air quality was “good.” This perception of good air quality was dominated by respondents living in the Bodetabek area (Bogor, Depok, Tangerang, and Bekasi), at 65%. Meanwhile, 48% of respondents in the DK Jakarta area perceived that the air quality had improved.



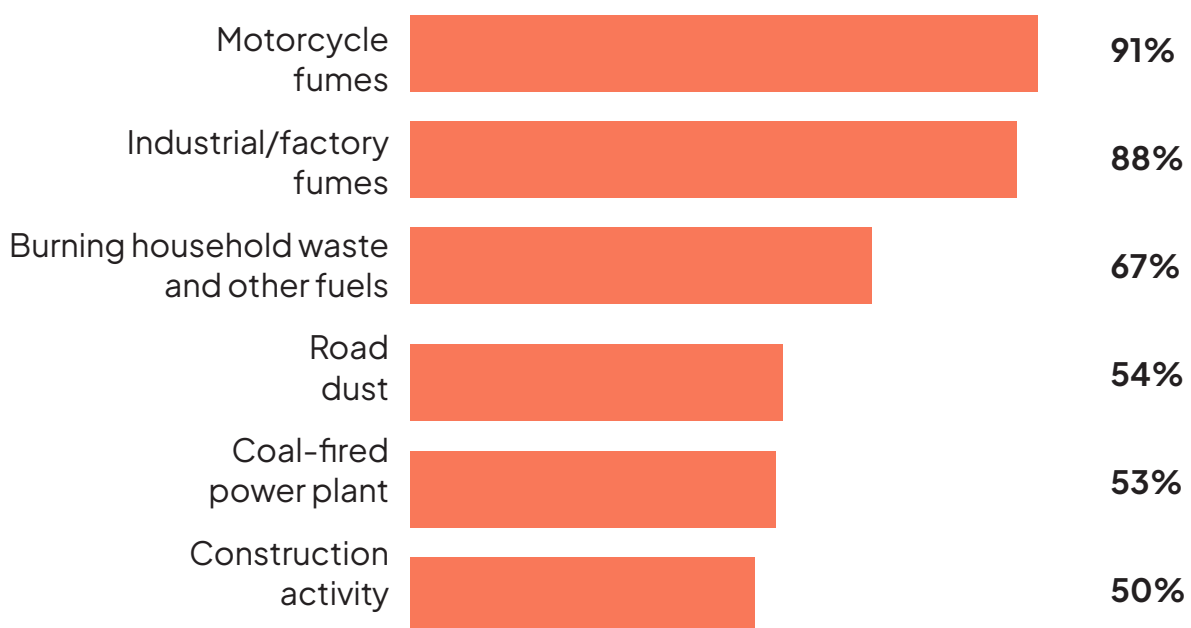
Graphic 6. Perception of Jabodetabek Air Quality in the Second Survey
 “What do you think is the air quality around you right now?”
 Source: Survey 2 Populix

The improved perception of air quality in the second survey corresponds to actual air quality monitoring results. The first survey, conducted in September 2023, took place during the dry season when Jakarta's skies often exhibited dark-colored haze, while the second survey was conducted as the rainy season began, in late December 2023, and haze had reduced.

Sources of Air Pollution

Since the emergence of air quality concerns in DK Jakarta and its surrounding areas, understanding the causes of pollution has become crucial for implementing appropriate policy measures. Government ministries/agencies have also voiced concerns about the impact of air pollution, with some attributing it to motor vehicles and others to factory or coal-fired power plant emissions. As noted above, previous studies have shown that motor vehicle emissions are the leading source of air pollution in the region.

The surveys asked respondents to agree or disagree with whether particular sources were important contributors to air pollution. Motor vehicle fumes were most frequently cited (91%), followed by industrial/factory emissions (88%), burning household waste and fuels (67%), road dust (54%), and coal-fired power plants (53%). These results align closely with statements made by the Central Government and the Jakarta Provincial Government.

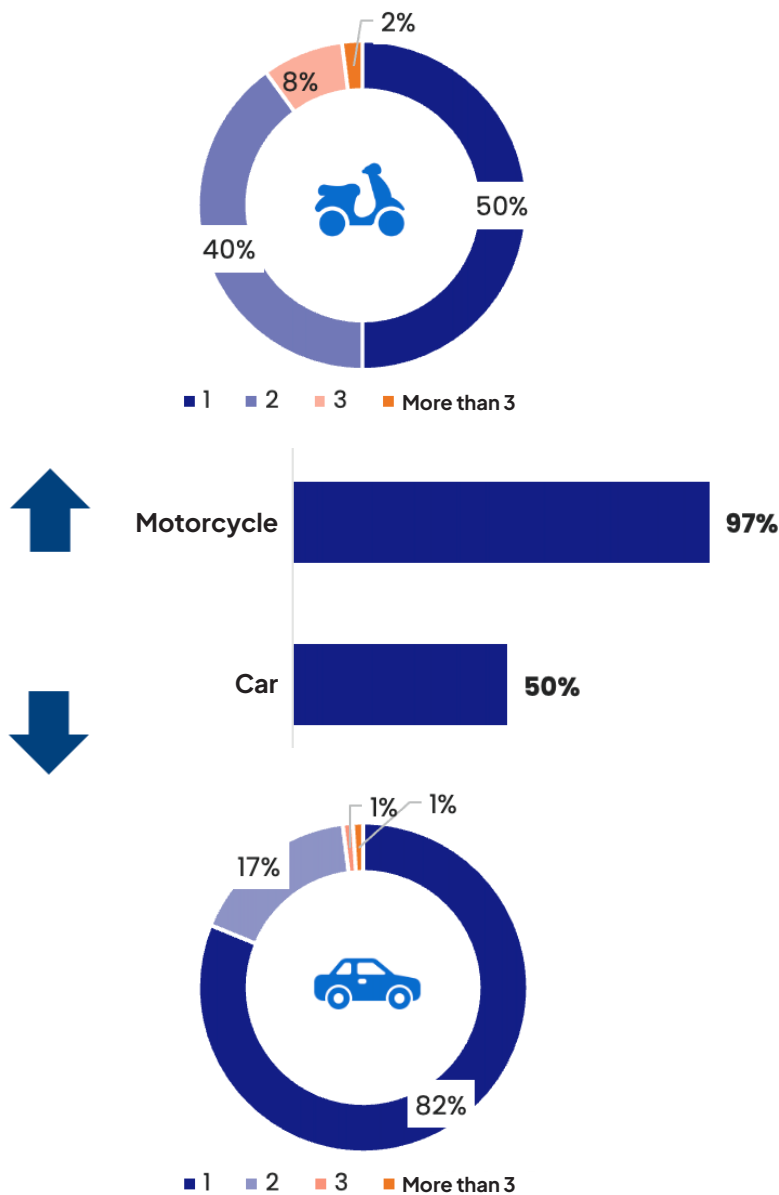


Graphic 7. Perception of the Causes of Jabodetabek Air Pollution
“In your opinion, what causes air pollution?”

Source: Survey 1 Populix

Vehicle ownership

The survey results also revealed that respondents were reasonably representative of the overall population with respect to vehicle ownership. Ninety-seven percent (97%) of respondents owned at least one motorbike, with half owning more than one. Half (50%) of respondents owned cars and 19% owned more than one car.



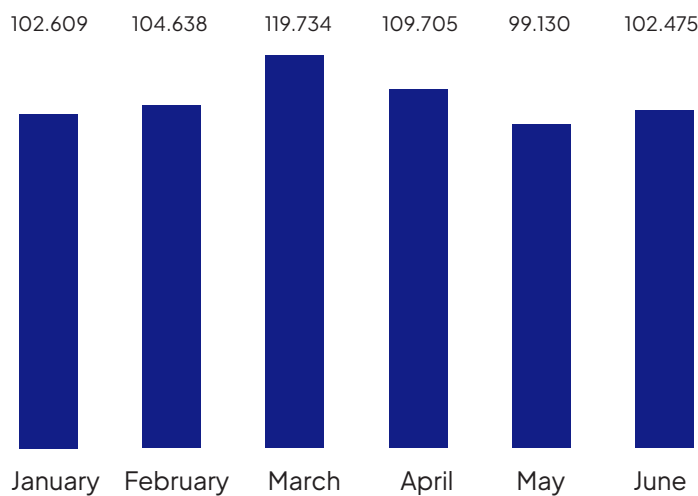
Graphic 8. Motor Vehicle Ownership

Source: Survey 2 Populix

The majority of the first, second and third motorcycles owned are four to 10 years old. Most of the first and second cars are four to 10 years old, meaning they are already at the age for mandatory emission testing.

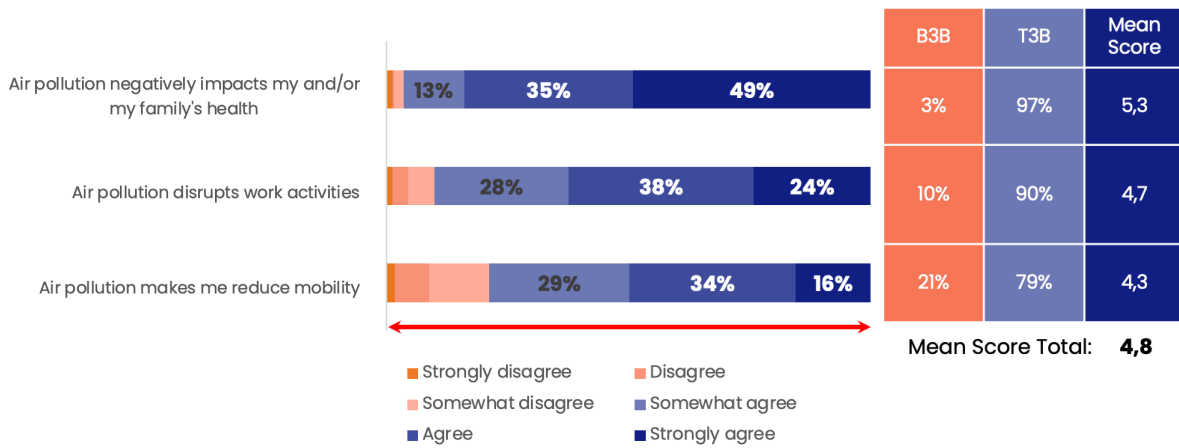
The Impacts of Air Pollution

The impact of air pollution is increasingly real for Jabodetabek residents. In December 2021, the number of ISPA cases in the Jabodetabek area was 166,238 cases. The number of ISPA cases increased by 19.4% to reach 206,311 cases in July 2022.



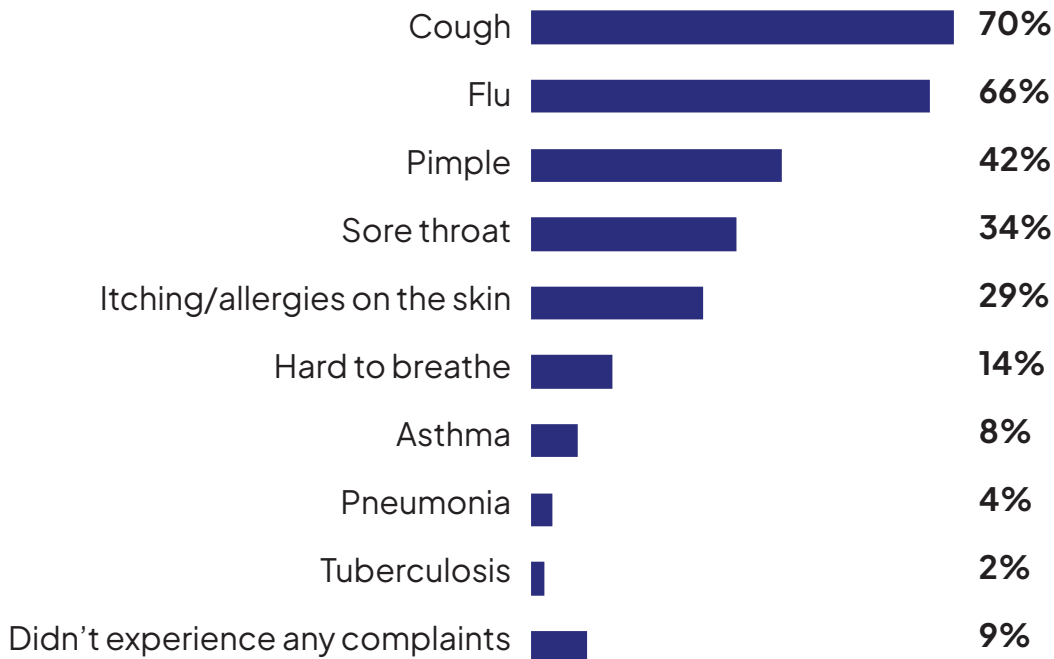
Graphic 9. The Development of Acute Respiratory Tract Infection Cases in 2023
 Source: Dinas Kesehatan (Dinkes) DK Jakarta, 2023

In the first round of the survey, 97% agreed with the statement that “air pollution has a negative impact on my health and/or my family”, with 49% strongly in agreement. Ninety percent (90%) agreed that “air pollution disrupts work activities”, with 24% strongly in agreement, and 79% agreed that “air pollution makes me reduce my mobility”, with 16% strongly in agreement.



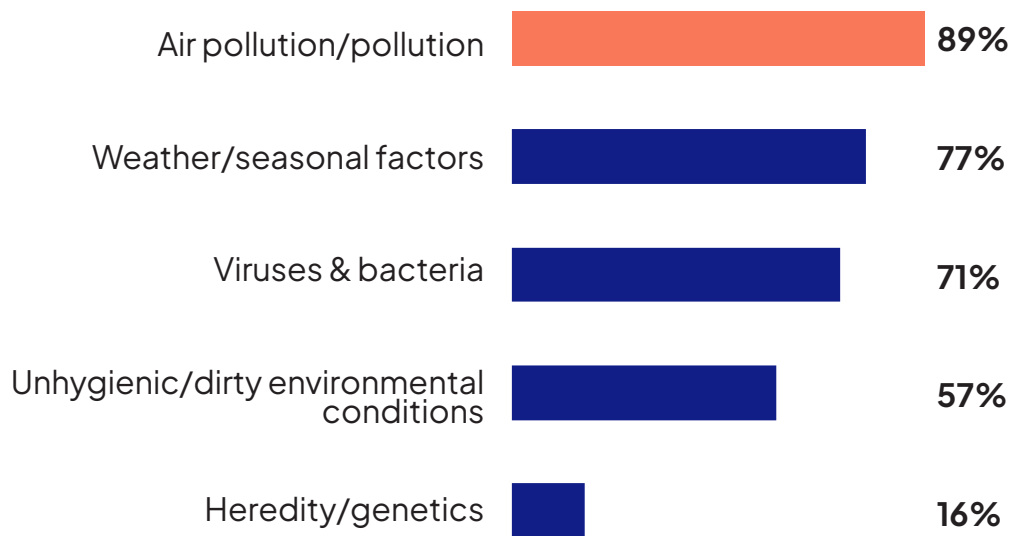
Graphic 10. Perception of the Impact of Air Pollution
 Please provide your assessment regarding the statement below
 Source: Survey 1 Populix

In the second round, additional questions were asked to explore the perceived impacts on the community in DK Jakarta and its surroundings. The survey results revealed that, in the previous six months, 70% of respondents experienced coughing and 66% experienced flu. Most of them believed that the cause was pollution/air pollution in Jabodetabek.



Graphic 11. Health Complaints From Jabodetabek Residents
 "In the last 6 months, have you experienced the following complaints?" [MA]
 Source: Survey 2 Populix

Flu and cough were the biggest health complaints cited. Other respiratory diseases mentioned include sore throat, shortness of breath, asthma, pneumonia and tuberculosis. The vast majority of respondents (89%) stated that they believe these complaints are caused by pollution or air pollution in Jakarta. These concerns are consistent with a vast body of epidemiologic literature that demonstrates air pollution’s direct and indirect association with a range of respiratory diseases, and allergy exacerbation.

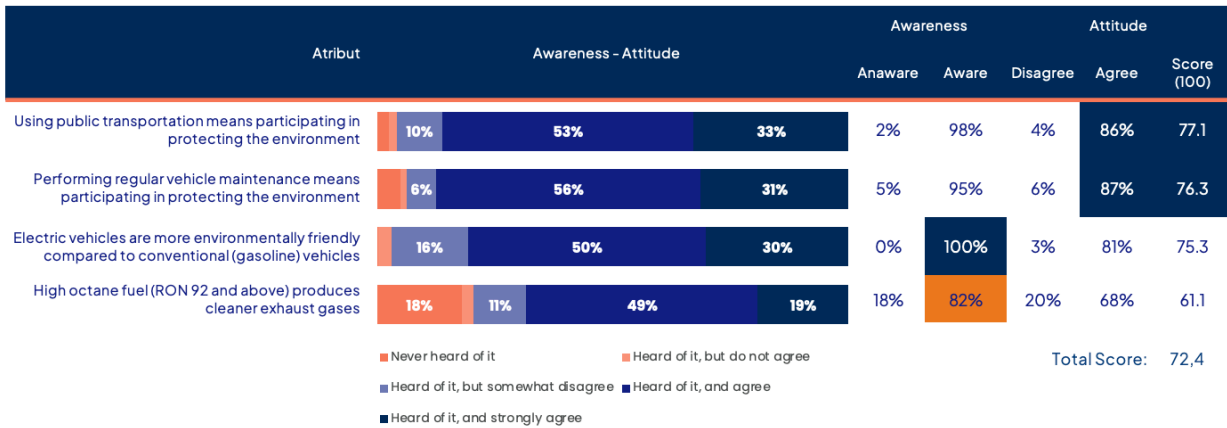


Graphic 12. Perception of the Causes of Respiratory Diseases
 “In your opinion, what are the causes of respiratory diseases?” [MA]
 Source: Survey 2 Populix



Knowledge and Attitudes Related to Protecting the Environment

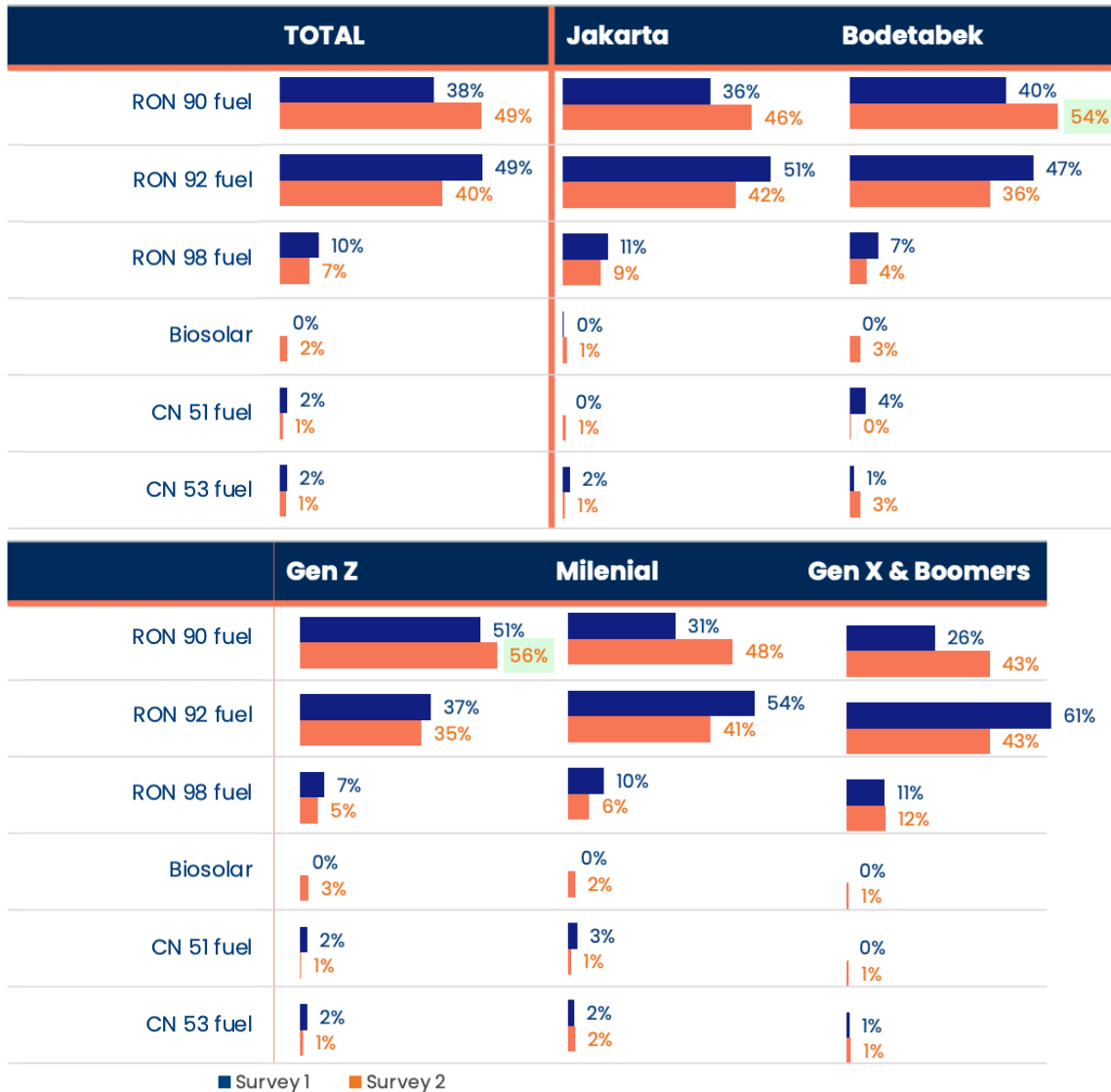
The majority of respondents indicated their agreement that there are several activities and behaviors that can contribute to environmental preservation. Generally, respondents have a good level of knowledge about efforts to maintain air quality, with awareness levels ranging from 82% to 100%, as shown in Figure 13. The attribute with the lowest awareness, compared to others, is “High-octane fuel produces cleaner exhaust gases,” although the percentage is still high at 82%.



Graphic 13. Respondents’ Knowledge Regarding Protecting the Air
 “Please provide your assessment regarding the following” [SA]
 Source: Survey 2 Populix

Vehicles failing emission tests can be caused by several factors, one of which is the use of fuel that does not meet the recommendations. Each vehicle has a recommended fuel with a specific octane rating, listed in the vehicle’s manual.

The survey found that nearly half of the respondents most often use RON 90 fuel, especially respondents in the Bodetabek area, Generation Z, and those with low socioeconomic status (SES). This means that in the DK Jakarta area and its surroundings, the use of high-octane fuel is still minimal.

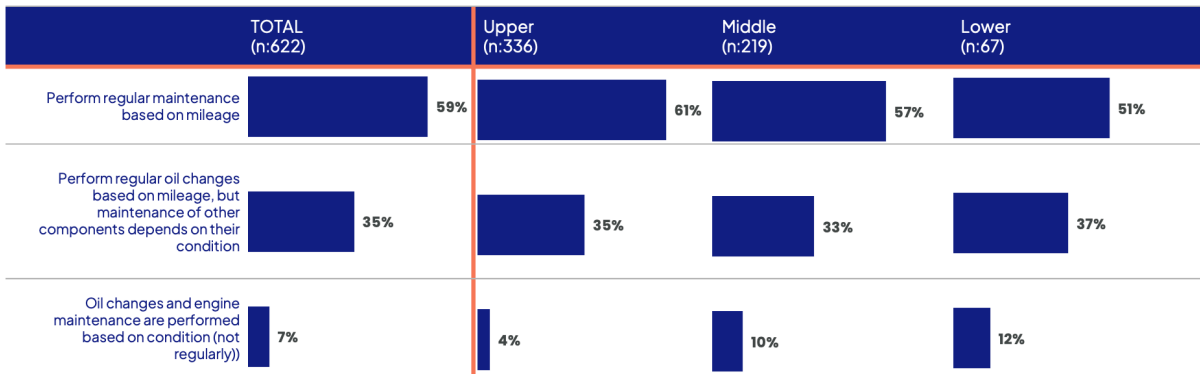


Graphic 14. Fuel Use by Generation and SES

Source: Survey 2 Populix

Respondents who already use high-octane fuel (minimum 92) said that using high-octane fuel makes vehicles more fuel-efficient, keeps the engine durable/less prone to damage, and improves the overall performance of the vehicle.

Vital Strategies together with Populix deepened knowledge and attitudes towards motorbike maintenance to understand people’s habits in caring for the environment. The results show that routine maintenance according to mileage (including oil changes, oil filter changes, spark plugs, filters, brakes, clutches, etc.) is something that is commonly carried out by all groups of respondents.



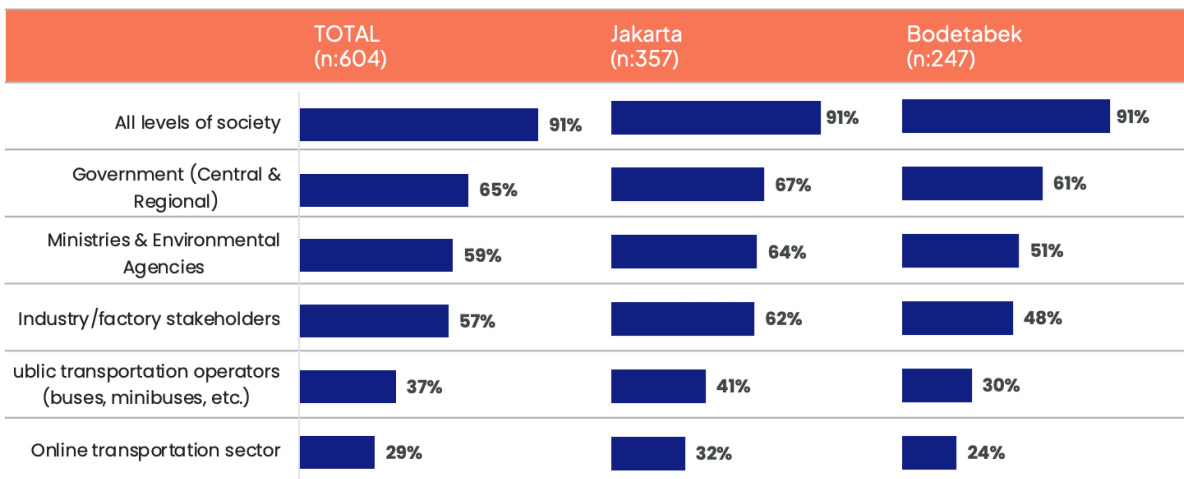
Graphic 15. Respondents’ Ways and Habits of Maintaining Vehicles

“Which of the following do you do to maintain your vehicle?” [MA]

Source: Survey 2 Populix

Who bears responsibility for environmental protection?

Most respondents (91%) said they believe all segments of society are responsible for environmental conservation. About two-thirds (65%) of respondents felt that the central and regional government had responsibility and 59% noted that the Environmental Agency (KLH/DLH) had responsibility. Little difference was noted by city of residence.



Graphic 16. Respondents’ Perceptions of Responsibility to Protect the Environment

“Who do you think is responsible for protecting the environment, especially air quality” [MA]

Source: Survey 1 Populix







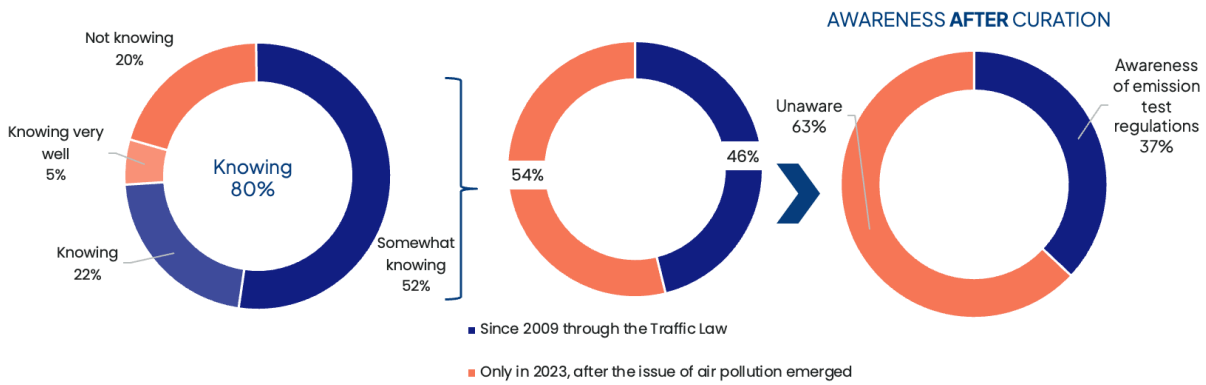
04

Knowledge and Attitudes About Policies to Reduce Air Pollution

Emission Testing

Emission testing is one strategy the local government is using to reduce air pollution caused by motorized vehicles in the Jabodetabek region. This testing also serves to assess a vehicle engine’s performance.

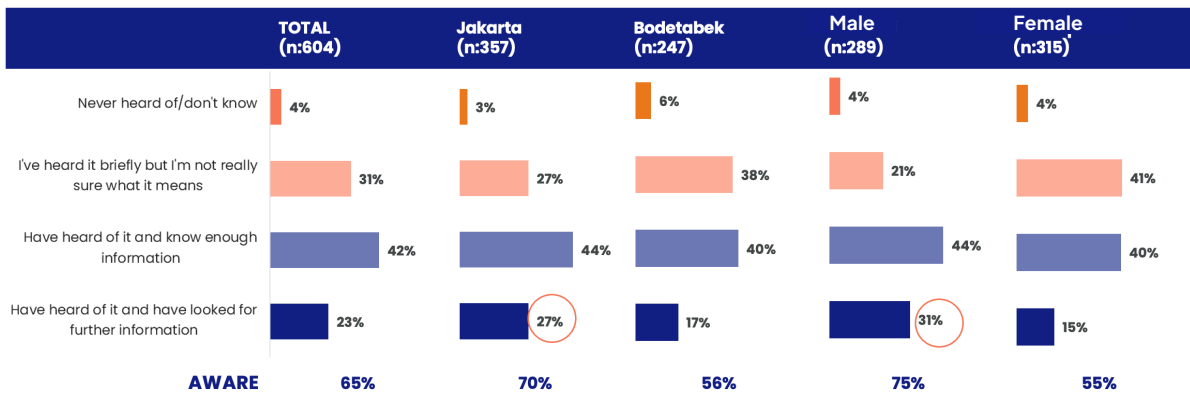
Based on the first survey conducted by Populix and Vital Strategies in September 2023, after the implementation of this regulation, 80% of respondents claimed to be aware of the emission test regulations, but only 46% of them answered correctly regarding the sanctions for these violations. Therefore, after curating the results, respondents’ awareness of emission test regulations was 37%.



Graphic 17. Awareness of Emission Test Regulations in the First Survey
 Source: Survey 1 Populix

Of the respondents who knew about emission test regulations, 65% said they found out about them from social media, especially Instagram.

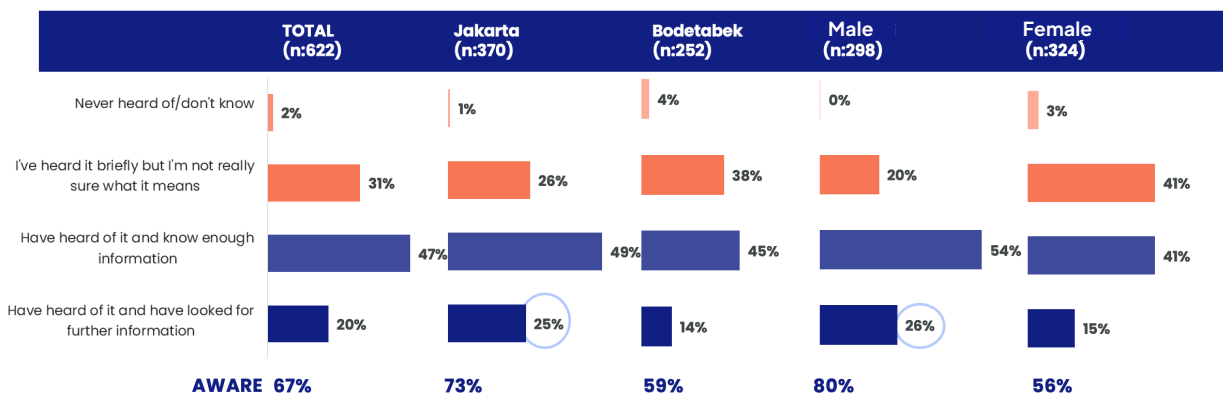
The first survey found that 42% of respondents said they “have heard of it and know enough information” about emissions tests. Of the total, 23% of respondents overall had sought further information.



Graphic 18. Awareness of Emission Tests in the First Survey
 “Have you ever heard/know what an emissions test is?” [SA]

Source: Survey 1 Populix

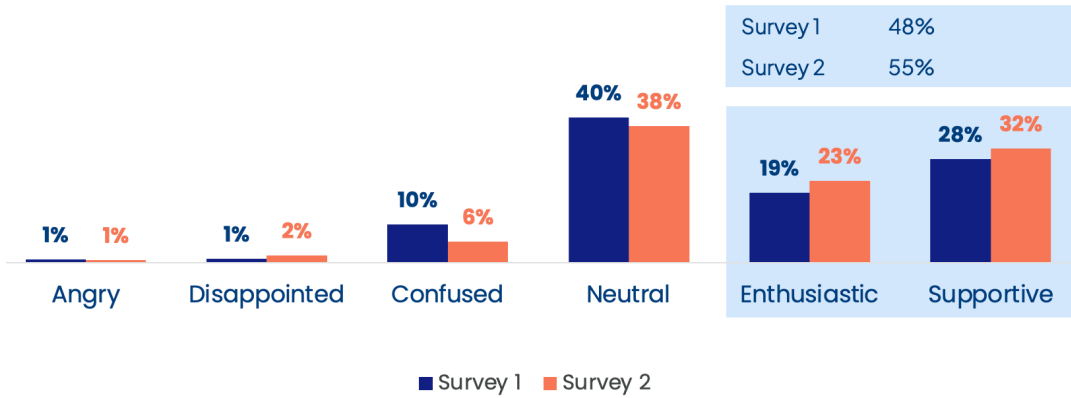
In the second round of the survey, conducted after the emission test regulations were implemented, almost half of the respondents (47%) said they “have heard of it and know enough information” about emission tests, a slight increase from the first survey. There were 25% who had sought further information, especially male respondents in the Jakarta area.



Graphic 19. Emission Test Awareness in the Second Survey
 “Have you ever heard/know what an emissions test is?” [SA]

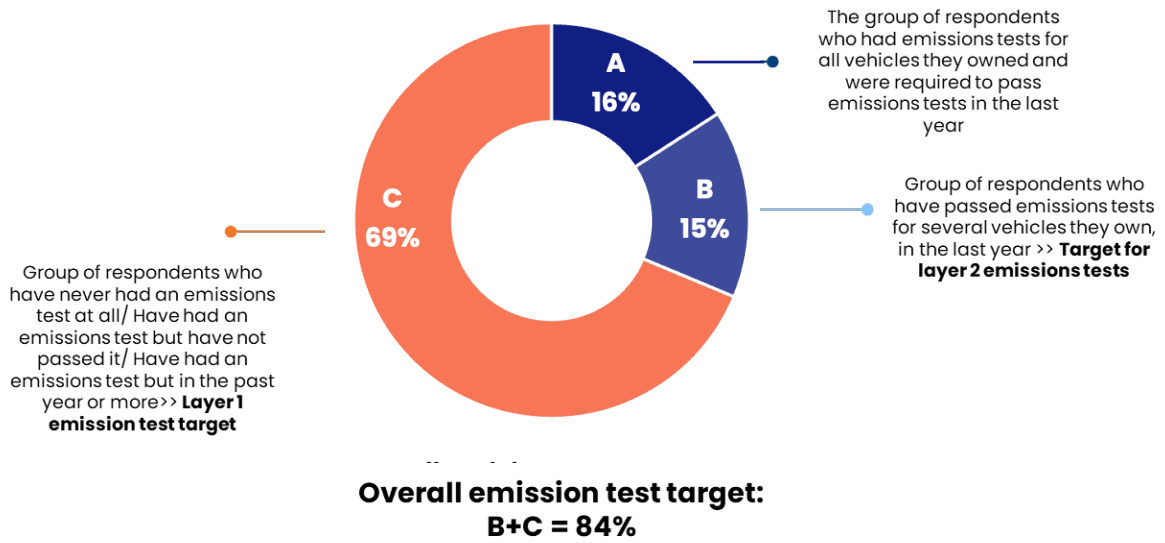
Source: Survey 2 Populix

Public attitude toward emission testing policies changed between the two surveys. In the first survey, 19% of respondents said their first response when they heard “emissions test” was enthusiasm; this figure increased to 23% in the second survey.



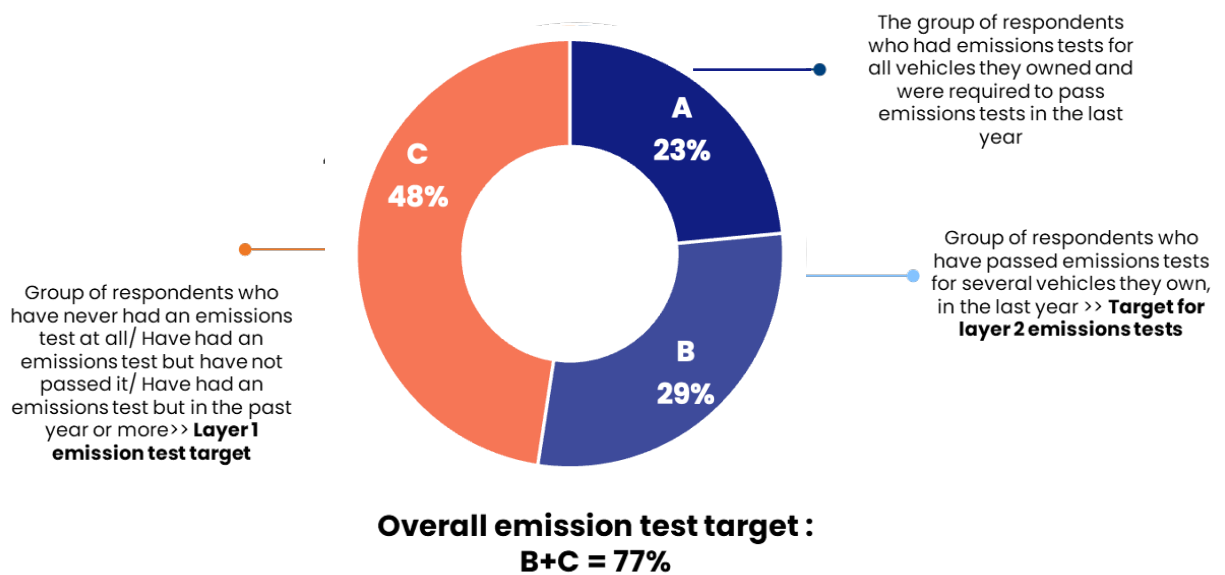
Graphic 20. Community Response to Emission Tests
 “When you hear the words emission test, what is your first response?” [SA]
 Source: Comparison of Survey 1 and Survey 2 Populix

Self-reported compliance with emission testing increased from the first to the second surveys. While 55% of respondents reported having conducted an emissions test, some of them did not pass, and only a few had tested all their vehicles. Further analysis revealed that 23% of respondents had fully complied with the emissions test regulations, meaning they had tested all required vehicles, passed the tests, and done so within the last year.



Graphic 21. Compliance with Emission Tests in the First Survey
Source: Survey 2 Populix

After various efforts and campaigns to promote emission testing, the results improved notably. In the second survey, the level of full compliance with emission testing increased to 23%, up from the previous 16%. The percentage of respondents in the second group, those who had partially complied, also increased to 29% from the previous 15%. However, nearly half (48%) still fell into the third group, those who were not in compliance for any of their vehicles.



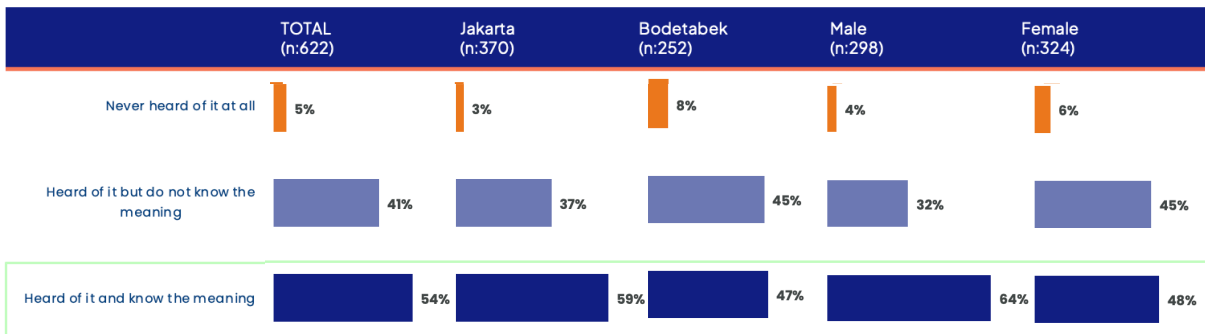
Graphic 22. Compliance with Emission Tests in the Second Survey
Source: Survey 2 Populix

Low-Emission Zones

A Low-Emission Zone is an increasingly popular intervention, implemented in cities such as London, Berlin, Milan and Seoul, that aims to reduce emissions from the transportation sector by carving out areas of the city where only lower-emission or emission-free vehicles may be driven.

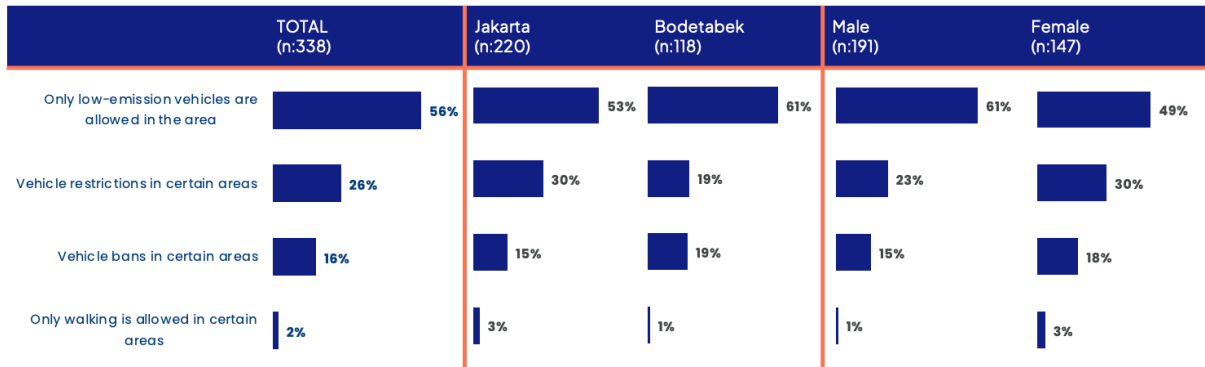
The DK Jakarta region established a Low-Emission Zone on Feb. 8, 2021, in Kota Tua, Jakarta, where only Transjakarta buses, cyclists and pedestrians were allowed to enter and move around the area bordered by Jalan Pintu Besar Utara, Jalan Lada and the front of the Mandiri Museum. This is a significant commitment by the Jakarta Provincial Government to continuously reduce emission levels in the capital by up to 26%, aligning with the central government’s policies.

The second round of the survey found that 54% of respondents were aware of the low emission zone and know what it means. There were significant differences by sex; 64% of male respondents and 48% of female respondents were aware of the LEZ.



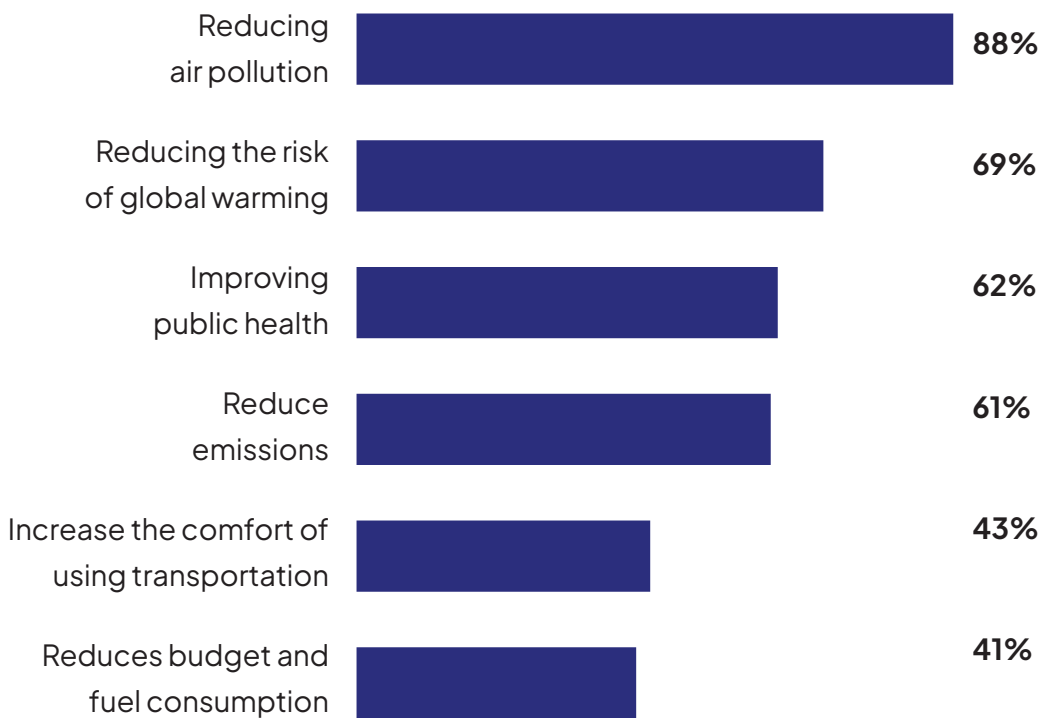
Graphic 23. Awareness of Low Emission Zones
 “Have you ever heard/know what a Low Emission Zone is?” [SA]
 Source: Survey 2 Populix

Most respondents correctly knew a low emission zone is a zone where only low-emission vehicles are allowed to enter. The remainder believed that the LEZ restricted (26%) or prohibited (16%) vehicles more generally, or meant pedestrians only (2%)



Graphic 24. Low-Emission Zone Knowledge
 “What do you know about Low Emission Zone (LEZ)?” [SA]
 Source: Survey 2 Populix

Overall, 88% of respondents said they believe that the implementation of the low emission zone will have an impact on reducing air pollution. In addition, respondents also said they believe that the low emission zone can reduce the risk of global warming (69%), improve public health (62%) and decrease emissions (61%).

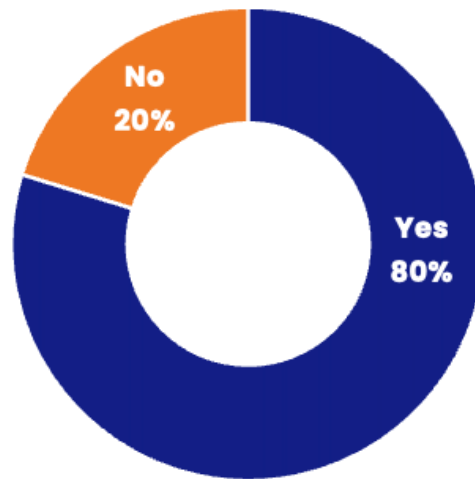


Graphic 25. Community Perception of the Impact of Low Emission Zone Implementation
 Source: Survey 2 Populix

Low-Emission Vehicles

Low-Emission Vehicles are those that have met the anti-pollution standards of the state of California, United States. The low emission vehicle standard involves a 50% reduction in hydrocarbons and a 50% reduction in nitrous oxides (NO) emissions from vehicles in 1995. The Low-Emission Vehicle status serves as a strong government strategy and policy to promote the implementation of low-emission vehicles.

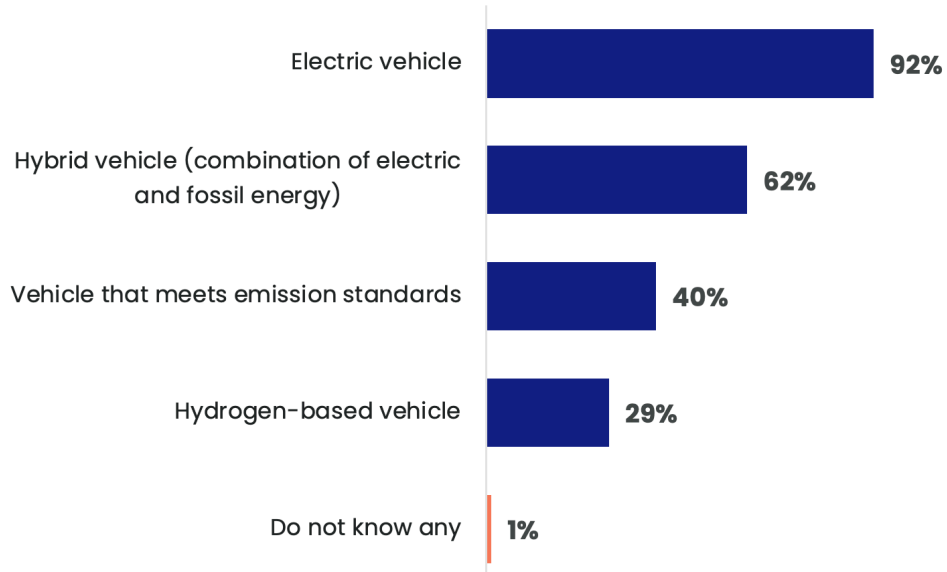
Based on the results of the second survey, 80% of respondents have heard or know about policies regulating Low-Emission Vehicle.



Graphic 26. Low Emission Vehicle Policy Awareness

Source: Survey 2 Populix

The majority of respondents (92%) knew that electric vehicles are low-emission vehicles and 62% knew that hybrid vehicles, which use a combination of electric energy and fossil energy, are considered low-emission vehicles. Only 1% of respondents did not know what a low-emission vehicle was.



Graphic 27. Perception of Low Emission Vehicles (LEV)

Source: Survey 2 Populix



05

Key Insights and Recommendations



Key insights from this research were prepared using the KAP (knowledge, attitudes and practices) model approach.

- On first survey, 95% of respondents considered Jabodetabek's air quality to be poor
- Meanwhile in second survey, only 45% still considered Jabodetabek's air quality to be poor
- The main sources of air pollution according to respondent perceptions are vehicle exhaust (91%) and industrial fumes (88%)
- The level of awareness of emission testing in the first survey was 65%, and in the second survey it was 67%

- 91% of respondents said that all levels of society were responsible for protecting the environment; in the next position were the central government (65%) and KLH/DLH (59%)
- Attitude towards air protecting behaviour is quite good, especially on public transportations usage and vehicle routine maintenance attributes
- On the first survey 1, 48% of respondents responded positively to emission tests (supporting & enthusiastic), and on the second survey, it increased to 50%

- The most frequently performed vehicle maintenance is oil changes according to mileage (84%) and routine servicing (81%)
- Treatment related to waste quality is only carried out by 33%-56% of respondents. Walking has not become a habit
- Walking has not become a habit, respondents are generally unwilling to walk more than 200m before resorting to motorized transit.
- Compliance rate on emission tests in the first survey was 16%, and in the second survey it increased to 23%.
- From the respondents who never have emission tests or those who have but did not pass, there is a potential of 31% to take the tests in 1-3 months ahead.

Summary and Recommended Next Steps

Knowledge

Both of the surveys show that many perceive the air quality in Jakarta as poor (Charts 5 and 6). The most concerning impact is on personal health, particularly respiratory diseases. A majority of respondents (91%) said they believe that vehicle emissions contribute to pollution, and 88% think it comes from industrial/factory emissions.

Respondents are aware that motor vehicle emissions are a major air pollutant, yet the majority own vehicles aged between four and 10 years, falling within the mandatory emission testing category. According to survey results, almost all respondents enthusiastically support emission testing, with a percentage of 93%, and most respondents say they “know enough” about emission testing.

Most respondents (92%) are aware that electric vehicles as low-emission vehicles, and 62% of the respondents know that low-emission vehicles include hybrids, combining electric and fossil energy. Only 1% of the respondents are unfamiliar with low-emission vehicles.

Therefore, a long-term campaign on the impact of air pollution is needed, emphasizing the personal aspects such as health, and promoting the implementation of the low emission zone.

Attitude

Most respondents (91%) said they believe all segments of society are responsible for environmental conservation, followed by the central government at 65%, and the Environmental Agency (KLH/DLH) at 59%. Industrial/factory burning is perceived as the primary source of pollution, followed by the land transportation sector, domestic waste incineration and power plants.

A total of 91% of respondents think that air pollution comes from vehicle fumes and another 88% of respondents think it comes from industrial factory fumes. The majority of respondents are aware that vehicle emissions contribute to

air pollution, but the impact is considered lower than industrial emissions. Another misconception is that motorbikes are considered to make the least contribution to air pollution. A follow-up campaign could be undertaken to correct this misunderstanding.

The majority of respondents are open to considering purchasing low-emission vehicles in the future. However, 10% of respondents have not considered this. Therefore, advocacy efforts should focus on emphasizing the importance of using electric vehicles.

Practice

Nearly half of the respondents most frequently use RON 92 fuel, especially in the Bodetabek area, among Gen Z respondents, and within the lower SES group. Therefore, advocacy efforts should involve promoting the use of high-octane fuel with themes such as “High-octane fuel keeps engines more durable” or “Low-octane fuel can reduce vehicle performance and cause engine damage, requiring frequent visits to the repair shop.” There could also be a campaign promoting regular vehicle filter maintenance.

Users of low-octane fuel generally make this choice due to price considerations and availability in the market. To encourage a shift to high-octane fuel, modifications in pricing or its availability in the market can be considered, aiming to redirect consumer choices toward high-octane fuel.

Policy to reduce air pollution



Emission Testing

Knowledge: 67%

Attitude: Emissions testing is considered to have a positive impact on both personal aspects (90–94%) and environmental health (89%).

Practice: The compliance rate for emissions testing was 16% in the first survey and 23% in the second survey.

Emissions testing is a process used to measure the amount of pollutants released by motor vehicles or specific engines into the atmosphere.

Emissions testing is important to determine whether a vehicle or engine needs repairs, adjustments, or even to be prohibited from operating if it does not meet the established standards.



Low Emission Vehicles

Knowledge: 80% for Low-Emission Vehicles, including:

- Electric vehicles (92%)
- Hybrid vehicles (62%) Vehicles meeting exhaust emission standards (40%)
- Hydrogen-powered vehicles (29%)

The government has taken various steps to provide subsidies and incentives to encourage the use of low-emission vehicles, particularly electric vehicles, including:

- Elimination or Reduction of Luxury Goods Sales Tax (PPnBM) as outlined in Government Regulation No. 73 of 2019
- Exemption from Import Duties Reduction of Motor Vehicle Tax (PKB)
- Direct Subsidies and Purchase Incentives



Low Emission Zones

Knowledge: 54%

Attitude: LEZ is considered to have an impact on reducing air pollution (88%), reducing the risk of global warming (69%), improving public health (62%), and lowering emissions (61%).

Low Emission Zones are one of the measures to reduce air pollution, vehicles that do not meet certain emission standards are either prohibited to entering or subject to additional charges. This concept has been implemented in various cities around the world, especially in Europe.

In Indonesia, the concept of low emission zones has been introduced and implemented in several major cities, such as Jakarta, and it needs to be expanded to other regions.

Next Step



Emission Testing

Aspect of Awareness/Knowledge:

- An emissions testing campaign should include a focus on personal or individual impacts, such as the risks associated with vehicles that do not undergo emissions testing, followed by a theme on the benefits of emissions testing for the environment.
- Campaign on information about the process and benefits of emissions testing

Aspect of Practice:

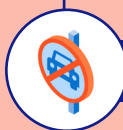
- Encouraging workshops to **include emissions testing in routine vehicle maintenance packages** so that consumers do not have to perform emissions testing separately.
- The cost of emissions testing needs to be standardized, taking into account a price that is acceptable to the public.
- Coordination between Jakarta and its surrounding areas (Bodetabek) is also expected to broaden the level of compliance with emissions testing.
- Partnering with ride-hailing companies to improve emissions testing compliance among their partners.
- From an enforcement perspective, fines have proven effective in increasing emissions testing compliance. The key to implementing fines is socialization, setting operational targets (never tested, failed emissions testing, or both), and Electronic Traffic Law Enforcement (ETLE) is more preferred by the public.



Low-Emission Vehicles

Aspect of Awareness/Knowledge:

- Campaign on the environmental impact of low-emission vehicles.
- Campaign to expand public knowledge about types of low-emission vehicles, **especially those under 10 years old and vehicles using high-octane fuel**, as current awareness is generally limited to electric vehicles.
- Campaign on the environmental impact of using low-octane fuel and older vehicles, serving as a bridge to promote regulations on vehicle age restrictions.



Low Emission Zones

Aspect of Awareness/Knowledge:

- Campaign on the overview of Low Emission Zones (definition, benefits, and requirements for entering LEZ)
- Campaign sharing examples of LEZ implementation in various countries.

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