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Does the environment really benefit from the vehicle verification program?... truth or utopia

Rivera A ^{1,*} and De Ita-Valencia A ²

¹ *Institute of Science, Benemérita Universidad Autónoma de Puebla, México.*

² *Doctorate in Research and Health Education (DIES), Institute of Science, Benemérita Universidad Autónoma de Puebla, México.*

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Abstract

Regarding the objective raised here in relation to the analysis of the situation of the programs involved with vehicle verification, its implications and especially if there is a benefit to the environment, it is perceived that the situation of environmental pollution is an issue that should involve everyone the actors of society, that is, the population itself must contribute with its obligations and educate from home to guarantee harmony in relation to public policies related to the care of the environment. The role of schools, at their different levels, must also be an essential driving force to contribute to the education received at home and thus reinforce knowledge in future generations, which will bring socio-environmental benefits. What can we say about the role of governments that have an effective participation in the promotion of programs that benefit the environment and consider the research that is developed in educational institutions at the undergraduate and graduate levels to implement it for the benefit of the environment. Since mitigating the effects of pollution and public health must always be a priority.

Keywords: Verification; Programs; Viability; Contamination; Strategies

1. Introduction

During the last decades (1990-2020) the United Mexican States have experienced a marked change in the political parties that have been “governing” the different cities and their respective provinces, where electoral campaigns have been characterized by promises that involve the improvement of environmental conditions, because of population growth and everything that this sociodemographic phenomenon entails. Unfortunately, failure to fulfill campaign promises has been the common denominator of the political proposals, since overseeing the government, these promises fade, it is important to highlight that the negative environmental conditions are not mitigated, getting worse over time. In this way, the environmental quality situation has been affected at the soil, water, air, biodiversity, and public health levels, with the ecological footprint becoming more marked day by day [1-3].

The issue of mitigating the effects of pollution is complex, since aspects related to the sources of pollution, their anthropogenic and/or natural nature, the frequency of emissions, the willingness of the population to participate in environmental improvement and propose government programs to help mitigate the effects of pollution [4].

Recently, the feasibility and certainty of how effective the programs aimed at improving air quality are in several cities in our country have been put into consideration; it seems that vehicle verification programs have become an answer to “reduce” emissions of pollutants into the air and improve its quality, but we must not forget that in addition to this source of pollution, there are also industrial parks and other sources that contribute to emissions into the atmosphere.

* Corresponding author: Rivera A.

Given the above, the objective of this work was to analyze the situation of these programs related to vehicle verification, their implications and, above all, if there is a benefit to the environment.

2. Methodology

A search was carried out in different databases (SciELO, Redalyc, PubMed) with the intention of obtaining information regarding the issue of vehicle verification in the different states of the country where these government programs are carried out; temporality was not included in the search. Information search. Search engines related to the following topics were used: “vehicle verification”, “pollutant emission”, “atmosphere”, “air quality”, “government programs”. This selection of terms allowed access to documents and studies related to the topic in question.

Due to the nature of the research, other sources of information were considered (interviews, conferences and journalistic notes, the latter of relevance since it is a topic that implies interest to the population). In this way, link◀◁▷▶feedback was carried out with the information obtained from scientific databases and the information published in the media, the above to support what was analyzed in this research.

Results and discussion

The information obtained from scientific databases and the information published in the media was analyzed separately and in a second stage linkage◀◁▷▶feedback was carried out with the purpose of giving certainty to what was discussed by the sectors (government and the population to whom it is directed) involved in the topic of this research (Figure 1).



Figure 1 Scientific data search host

2.1. Vehicle verification collection does not reach environmental programs

The government of Jalisco reported that the income from vehicle verifications would be distributed between the company providing the technology, the owners of the verification centers and the Environmental Fund. It should be noted that all the money has been to pay the technology provider and for expenses, as reported by Transparency by the Legal Directorate of the Trust of the State Fund for Environmental Protection of Jalisco (Fepaj). Regarding the Fund, it was promised that the money raised would be to promote plans in favor of the environment. Even in 2022, it was estimated that 110 million pesos would be raised for these programs.

According to data provided by Transparency, between 2021 and 2023, 231 million 299 thousand pesos of Fepaj resources have been granted to the technology provider of the vehicle verification program, as well as 11 million 112 thousand pesos for operating expenses [5].

2.1.1. The government of Puebla collects 20 million pesos for the vehicle verification fee

Resources of 20 million pesos have been collected by the government of the state of Puebla for the vehicle verification program, which began in October 2022, as reported by the Ministry of the Environment, Sustainable Development and Territorial Planning.

During his appearance before the deputies who make up the Environmental Commission of the local Congress, it was detailed that the cost of 628 pesos is the fourth cheapest in the Megalopolis, after that of the capital of the country, the State of Mexico and Tlaxcala, for which ensured that it is below the national average.

During 2022 before local legislators, it was commented that the vehicle verification program, which is mandatory as of this year, aims to improve air quality because 80 percent of pollutants come from “mobile sources” such as vehicles. .

When asked about the cost of vehicle verification, it was mentioned that the state administration does not keep the 628 pesos, since a percentage of that amount is allocated to the equipment used in the verification centers, which are of quality and not “spells”, as well as the monitoring center that monitors the operation of these centers.

In that sense, it was mentioned that “the amount raised will be invested in improvements for the environment,” noting that last year 102 million were allocated to improvement studies, recovery of natural resources and updating the analysis known as “Proaire”.

As of December 31, 2022, 14,680 vehicles had completed the process, of which 36,000 are public transportation units, including traditional taxis and platform taxis. Likewise, he indicated that 80 percent of these units passed the review, that is, they do not pollute.

It has been questioned when the checkpoints will begin operating in the interior of the state, since it has been analyzed that drivers spend up to a thousand pesos to travel to the state capital. In response to the authorities, it has been said that once the call for bidding has been issued and the companies that will be in charge of the establishments have been chosen, they are already in the construction stage and their operation will begin shortly since only technical tests need to be carried out [6].

2.1.2. Non-governmental organization asks to analyze differentiated vehicle verification for farmers in Puebla

The International Union of Independent Human Rights Defenders (Uniddhi) asked the Puebla Environment Secretariat to analyze a different vehicle verification by region, since “not all of them pollute the same” and in some, farmers cannot afford to purchase vehicles. trucks that pass this test; He also asked Finance to explain how the proceeds are spent.

In an interview, the member of this organization (Uniddhi) pointed out that the agreement of the Ministry of the Environment in which the verification process was announced is for the benefit of this matter, however, that is not only the care of the air, but also rivers and other items that are an integral part of ecosystems.

“The metropolitan area does not contaminate the entire state. So, people who live in the Sierra Norte, who for their work must travel to the capital, there are not as many there as here and then because they are forcing them to verify equally, it should be different in these regions,” he explained.

In addition to the fact that in several areas of the state there are people who have their vehicles for many years, who use them for the countryside, which do not pass the verification, a situation that would have to be considered in this process or, where appropriate, that help them renew their units.

This, because he stated that there is no real measure to avoid measuring pollution, nor is it known how much the industry contributes, nor what is done with the money collected or if it has been allocated to the protection of the environment or if there are actions for this purpose.

He said that in a request he made to the agency (Secretariat of Environment, Sustainable Development and Territorial Planning), in which he asked to report how the calculation of the 628 pesos that the service costs was made, which is for stationery and holograms. However, he believed that this is not credible, since a study should have been done on the amortization of the cost, the equipment, so it seems that it is more for collection purposes, since there are two verifications a year.

He assured that citizens do not have enough information about the destination of the money collected for vehicle verification, since it is collected through the Secretariat of Planning and Finance (SPF), which keeps 30 percent, and the rest goes to the companies that have the concessions.

Faced with this situation, the representative of the (Uniddhi) insisted that the verification should be suspended or that it not be mandatory, because maintaining it does not contribute as much to the care of the environment, if the rivers are not cleaned, the plants are rehabilitated. treatment, as well as a reforestation of “millions of trees” was carried out [7].

2.1.3. The real challenge of vehicle verification in Puebla

This State Government program establishes the modalities applicable to the circulation of motor vehicles, with the objective of preventing, minimizing, and controlling the emission of pollutants; However, it had been suspended since 2020, under the argument that all verification centers, at that time, did not comply with official standards, or at least those recognized by the Environmental Commission of the Megalopolis (CAME). So, it is worth reflecting, if these verification centers did not comply with official standards, were all those automobiles that they verified before 2020 well evaluated and did not emit pollutants? Now we must ask ourselves if today's verification centers “comply with the standards.” Or it is just a collection program, and they make a certain population believe that pollution is being mitigated. And the question goes further, what do they do with all the money collected? A considerable and statistically significant sample of the population does not know where those 628 pesos that pay for the verification go, and the most serious thing is that no programs are received. rescue to the environment.

It was in mid-October of last year that the agreement to resume the program and issue mandatory verification was published in the Official State Newspaper, which began in this sense for the concessionaires of public transportation and digital platforms, who They had to carry it out in the period from October to December 2022. However, according to the Ministry of the Environment, Sustainable Development and Territorial Planning, in that period they only verified 14,680 units of the more than 36,000 that have registered the Secretary of Mobility and Transportation of the State.

Likewise, it is important to point out that there are currently only 16 verification centers (January 25, 2023) throughout the entire state of Puebla, nine of which are in the city of Puebla. This is a great challenge for the logistics of the program, given that, according to the Statistics of Registered Motor Vehicles in Circulation, generated by the National Institute of Statistics and Geography (INEGI) and published in 2020, in the Puebla entity there were approximately one million 164 thousand 392 units.

Beyond these challenges for the program, there is also the fact that, among the new provisions in force, starting this month, vehicles with foreign license plates that circulate in the entity must complete the mandatory “Tourist Pass” process, a special permit. to make the verification of other entities valid or process it in Puebla [8].

The projected scope of the vehicle verification programs has been documented, as well as their actual limits based on the cars circulating in the entities and the lines so that everyone enters the strategy. It even seems that leaders prefer to blame car owners over industries and other sources of excessive pollution.

Well, this program has been marred by a series of irregularities that should raise awareness among citizens, according to an expert from the Association of Workshops for Vehicle Emissions and Repairs. In addition, the company WEP, winner of the tender to provide the verification lines, benefited by acquiring the contract over companies with greater experience and capacity.

Despite all this, the mandatory verification has arrived and, with it, the warning that there will be vehicles that will not pass the test and must be taken out of circulation, regardless of their mechanical conditions, model, or brand.

It is true that the verification process is not that complicated, but if the outcome is that you eventually get fined, the program takes on a greater dimension.

But if, even with the tune-up, your vehicle does not pass, they will give you a badge indicating that your unit is not verified, although it will have a one-year “grace period” for you to repair it.

The latter is important, making it clear that there is no interest in caring for the environment, since there will be thousands of cars that will remain polluting for a long time with “permission” from the government.

For example, and if this were not enough, according to articles 384 and 385 of the New Mobility Law of Jalisco, if your car does not pass the verification after that “grace period” of one year, it is most likely May your vehicle end its days in the deposit.

Collection or not, today thousands of citizens say they are concerned about this responsible verification program, since the motorists themselves recognize that their units will not easily pass the verification, which could imply that they lose their means of transportation or work, and at the same time, hit their pockets, because they will have to find a way to get a recent model car that does pass the verification.

The conclusion of these groups is that they do not seek to care for the environment, and they will end up affecting the economy of the people who have the least, because it is difficult for their old cars to pass the test and they do not have the resources to get a newer model car [9].

What has already been stated is valuable information from the “Vox populi”, but in order for this work to have conclusive information regarding the relevance of the verification program, a link ◀◁▷▶ feedback was made with the information obtained from scientific works. , which by the way in Mexico are rare, in other latitudes there is joint work between universities, industries and government for the benefit of the environment, as analyzed below.

Urban mobility conditions environmental effects at a global level, most of them related to the use of motorized transport, road construction, noise, and atmospheric pollution. Such is the case of San Luis Potosí, Mexico, where a study was carried out and it was identified that motorized mobility contributes to 56% of emissions, making it relevant to follow up on the analysis of air quality and promote true monitoring and control policies. and minimization of air pollution (10). We cannot deny that the pollution problem exists, the issue is that verification programs do not mitigate the pollution problem. Therefore, the response focuses on analyzing other proposals where the population's economy is not affected and that are truly effective and beneficial to the environment.

In response to what was stated, several works related to the analysis of traffic light synchronization were documented, which allows establishing the existence of initiatives, in addition to having the technological development to evaluate the efficiency of synchronized chains using general parameters such as cycle time, intervals of green, phase shift and bandwidth, considering the minimization of user delays, using the Synchro software (11).

In various cities around the world, the “Smart City” paradigm is being chosen, which proposes that automation can optimize services to make them more efficient and functional. In a particular case, the use of hardware resources is mentioned to simplify the synchronization of traffic lights, implementing the concept of IoT (Internet of Things) and focusing on the new paradigm of smart cities. But there is a difficulty that the traffic light clocks do not change their schedules, and all remain with the correct and uniform time despite the climatic variations that usually affect their operation. To avoid clock contingencies, it is proposed to perfect their synchronization, and to achieve this, the use of a wireless sensor network (WSN) is proposed for the interconnection of the nodes (traffic lights). With this network, communication between nodes is sought, facilitating the setting of clocks, and thus avoiding changes in traffic regulations. With the coordination of traffic lights there would be a “green wave” that speeds up traffic and mitigates vehicular traffic jams (12-14).

In Europe it has been shown that air and noise pollution are responsible for hundreds of deaths. Situation that has motivated scientists to propose models that allow calculating the effect of vehicular traffic on air pollution and thus be able to mitigate the effects of pollution. In Kuwait, a study was carried out on the effect that speed bumps have on air pollution. The data obtained showed that sulfur dioxide levels are increased by light and heavy vehicles, and that the increase in PM10 particles is related to heavy vehicles. As speed bumps are a trigger for environmental pollution, when reaching a speed limit, 10 times more nitrogen oxides, three times more carbon monoxide and 25% more carbon dioxide are emitted, not to mention that fuel consumption increases by 21% (15). Added to this city factor is the presence of potholes, which generates noise pollution when braking and accelerating. And if you add the long lines and considerable times in the verification process, which implies the emission of gases that contribute to pollution (Figure 2).

For its part, urban freight transportation is considered an important source of pollutants, with the lack of driving cycles in freight transportation being evident. In response to this situation, it has been proposed to develop a driving cycle for light cargo vehicles and compare it with international reference cycles. The results showed that the international reference driving cycles applied in Mexico underestimate pollutants such as NO_x and CO by more than 22% and 48%, respectively. This suggests that the different vehicle classes and transportation systems should be considered since they present significantly different driving cycles (16), which allows us to corroborate the minimum commitment of governments in the area of pollution mitigation, which is an area of global importance and that there is no perceived interest in establishing government strategies that can be carried out and that are not only subject to a six-year term.

In relation to the work where the energy consumption and CO₂ emissions of motor transportation in Mexico and mitigation scenarios were studied, it is presented that in 2012 transportation represented 39% of carbon dioxide

emissions, associated with production and use of energy, where motor transportation contributed 92%. Based on possible scenarios for carbon dioxide mitigation, the improvement in fuel efficiency in vehicles and the replacement of private transport trips with public transport as a mitigation measure is analyzed (17), here we must ask ourselves and the security situation, efficiency and quality of public transport service will be guaranteed.



Figure 2 Other city elements that contribute to air pollution.

The authors also suggest that to achieve a significant decrease in the growth rate of emissions, the vehicle fleet must be reduced, which is complex to achieve. It seems that we are facing six-year speeches. Personally, I suggest programs that promote control of the population growth that in the medium and long term will be reflected in the quality of life of the population (17).

In the article on air pollution control in the metropolitan area of the Valley of Mexico, the air pollution control mechanisms were analyzed, mentioning the public policy cycle to examine the program to improve air quality (Proaire), identifying the limitations in its design and implementation. Interesting, however, there is still much to do, that is, moving from environmental policy to actions by both the government and society itself (18).

The process by which the emissions measurement system in operation was formed over the last two decades, its regulations, its infrastructure, and its operation, has also been reviewed. Allowing us to see that this system has not been efficient, compared to other countries. Since here in Mexico there is no continuity in the processes based on which the emissions measurement systems are formed, since in each succession of government there are changes in environmental policies which only become a “flag” to make believe society to work for the benefit of the environment and public health (19,20).

3. Conclusion

In regions outside our country there are real programs to mitigate environmental pollution, where technologies are applied in traffic light processes, roads in optimal condition (absence of potholes and speed bumps). It being evident that air pollution at a global level implies public health problems, that is why the creation of programs in our country to improve air quality and that are effective and real is so important, since society does not know the destination. end of the proceeds. In addition, there is an absence of programs to benefit the environment and public health.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that they have no competing interests.

Author's contributions

All authors contributed equally to the conception and development of the work.

References

- [1] Hans von Storch, Stehr N. Climate research: the case for the social sciences. *Ambio* 1997; 26: 66-71.
- [2] Rivera TJA. Environment and health. *An Med Asoc Hosp ABC* 2003; 48(4): 223-227.
- [3] Epstein PR. Health and climate. *Science* 1999; 285: 347-348.
- [4] McMichael AJ. Integrated assessment of potential health implications. *Environ Model Assess* 1997; 2: 129-137.
- [5] <https://www.informador.mx/jalisco/Verificacion-vehicular-lo-recaudado-no-llega-a-los-programas-ambientales-20230709-0033.html>
- [6] <https://www.lajornadadeoriente.com.mx/puebla/recauda-el-gobierno-20-mdp-por-el-cobro-de-verificacion-vehicular/>
- [7] <https://www.angulo7.com.mx/2023/06/04/ong-pide-analizar-verificacion-vehicular-diferenciada-en-puebla/>
- [8] <https://www.angulo7.com.mx/2023/01/25/el-verdadero-reto-de-la-verificacion-vehicular-en-puebla/>
- [9] <https://udgtv.com/noticias/verificacion-obligatoria-un-programa-contra-el-bolsillo--un-ano-de-gracia-para-contaminar/60790>
- [10] Hernández CCN, Avila GA, Cerda ADG. Impact of urban mobility on air quality in the metropolitan area of San Luis Potosí, Mexico. *Journal of Environmental Sciences (Trop J Environ Sci)* 2023; 57(1): 1-27.
- [11] Alba MML, Hernández MO. Analysis of traffic light synchronization using the Synchro program. *Road Infrastructure Magazine/LanammeUCR* 2020; 22(39): 1-11.
- [12] Let's fight for life-Non-Governmental Organization (<http://luchemos.org.ar>).
- [13] Cardoso EE, Moreno VV. Analysis and design of software for the synchronization of traffic light intersections. *RIELAC* 2012; 33(1): 16-24.
- [14] Ruiz VA, Alpizar AE. Plan synchronization method in a traffic light controller. *RIELAC* 2014; 35(1): 50-56.
- [15] Alkheder S. The effect of traffic at speed bumps in residential areas on noise and air pollution. *Environmental Science and Pollution Research* 2023; 30: 80945-80962.
- [16] Salazar SOA, Betanzo QE. Determination of truck driving cycles and polluting emissions. *Rev Int Contam Ambie.* 2023; 39: 105-115.
- [17] Solis AJC, Sheinbaum PC. Energy consumption and CO2 emissions from motor transportation in Mexico and mitigation scenarios. *Rev Int Contam Ambie* 2016; 32(1): 7-23.
- [18] Navarro AA. Control of air pollution in the metropolitan area of the Valley of Mexico. *Demographic and Urban Studies* 2019; 34(3): 631-663.
- [19] Ugalde V. Vehicle verification in Mexico City: a look at its implementation. *Demographic and Urban Studies* 2020; 35(3): 573-597.
- [20] González-Díaz SN, de Lira-Quezada CE, Villareal-González RV, Canseco-Villareal JI. Environmental pollution and allergy. *Allergia México Magazine* 2022; 69 (Suppl 1):s24-s30.