

Open Schools Journal for Open Science

Vol 3, No 3 (2020)



Planet Earth is screaming. Will you listen?

M. Palla, H. Bethani, L. Mourtou, P. Argyri

doi: [10.12681/osj.23362](https://doi.org/10.12681/osj.23362)

Copyright © 2020, M. Palla Maria, H. Bethani, L. Mourtou, P. Argyri



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/).

To cite this article:

Palla, M., Bethani, H., Mourtou, L., & Argyri, P. (2020). Planet Earth is screaming. Will you listen?. *Open Schools Journal for Open Science*, 3(3). <https://doi.org/10.12681/osj.23362>

Planet Earth is screaming. Will you listen?

M. Palla¹, H. Bethani¹, L. Mourtou¹, P. Argyri²

¹11th Grade, Evangeliki Model High School of Smyrna, Nea Smirni, Athens, Greece

²Mathematician, Evangeliki Model High School of Smyrna Nea Smirni, Athens, Greece

Abstract

The problem we are trying to solve is associated with air pollution caused by the use of unsustainable energy sources, especially by cars. Our aim is to inform people about the problem of air pollution and motivate them. As a solution, we are presenting the use of sustainable energy sources. The main goal of our project is to create the environmentally ideal city (based on the city we live in, New Smyrna), in which only sustainable energy sources will be used. Firstly, our project aims to make people understand the problem by presenting the consequences of the use of unsustainable energy sources through videos, researches, statistics and even games, to promote sustainable energy sources and make the advantages of them known to the people and to create a city that runs completely on sustainable energy sources, as well as the presentation of the city in a model.

Keywords

Air pollution, environment, car, renewable energy sources, fossil fuels, carbon dioxide



Introduction

Although humans have lived on Earth for thousands of years, only in the last few centuries since the Industrial Revolution have significant carbon dioxide levels accumulated in the atmosphere, which is the key factor causing the greenhouse effect [1]. Regarding the causes that brought out the widespread disturbance to the ecosystem, it is often argued that human activity is generally responsible for the ecological disaster that is expected to result in an increase of at least 2 degrees Celsius (or 4 degrees Celsius, according to a more pessimistic scenario) of the average temperature of the Earth in this century [2].

Another popular opinion on the ecological problem is that we all have equally contributed in the creation of the crisis, while the effects of the greenhouse effect affect everyone the same, regardless of economic class and country of origin. In fact, as recent World Bank reports show, the poorest 37% of the world's population is responsible for 7% of carbon emissions, while 15% of the population living in developed countries produces about 50% of emissions. These results are expected, as energy consumption per person is ten times higher in rich countries than in the least privileged. At the same time, the main victims of the ecological crisis are found in the poorest countries (Africa and Southeast Asia) and the lower social strata within Western societies (New Orleans case. In the US on August 29, 2005, Cyclone Katrina destroyed New Orleans and New Orleans at least 1,800 people) [3]. The US government has been trying for years to suppress every global effort to prevent the greenhouse effect. But after the flood of New Orleans, the debate has returned in the most dramatic way.

The dominion of the private car

Nowadays the private car seems to be the most widespread means of transport, making fossil fuels the most used energy source. In 2016, more than 280 million vehicles were on the roads of the European Union, whereas most of them used diesel gasoline as an energy source. Furthermore, more than 90 million of those vehicles were not equipped with diesel particulate filters, contributing to the increase of the air pollution levels worldwide [4]. Particularly in Greece, researches show that there has been a raise regarding the use of fossil fuels from cars, especially octane unleaded petrol and diesel oil (www.statistics.gr, n.d.). This is something that has to be changed in order to improve air quality. Due to this fact, many car factories, such as Volkswagen, were forced to withdraw some extremely polluting car models, as there have been many attempts to control the amount of harm a car will cause to the environment through programs that testify the construction plan of a car before the production starts. Although those actions were beneficial, there are still a lot to be done in order to actually make a big difference.



The problem

We knew that the degradation of public transport in favor of the private car causes air pollution, congestion, social inequality and other suffering [5]. Now we have learned that the lack of public transport is literally killing us [6]. The car has caused significant and unforeseen impacts on city life and has become a major contributor to their environmental, social and aesthetic problems. Driving in the city:

- Kills the vitality of the streets
- Isolates people
- Encourages sprawl
- Poses a threat to other road users
- Tarnishes the beauty of the city
- Annoys people with the noise it causes
- Causes air pollution
- Kills thousands of people every year
- Worsens global warming
- Wastes energy and natural resources
- Makes nations poorer

Our challenge is to remove cars and trucks from cities while improving mobility and reducing its overall cost.



Survey

One of our actions as a team is the creation of a survey (link: <https://helenbethani.typeform.com/report/rC57yl/0LIJsb3TVjgvCKr>), through which we are collecting real data about how environmentally friendly our local community is. The participants were our classmates, all between the ages of 15-16. The questions we asked and the results we got are the following:

1. Do you use any form of renewable energy source? (63% answered yes, 37% answered no)
2. Would you participate in a march about the environment? (55% answered yes, 44% answered no)
3. What would you prefer to use as an energy source for your house? (59% answered solar energy, 18% answered electricity, 11% answered other, 7% answered natural gas, 3% answered diesel, 0% answered wind energy)
4. Which means of transportation are you most likely to use? (40% answered driving, 37% answered public transportation, 7% answered other, 7% answered walking, 3% answered riding a bike, 3% answered taking the bus)
5. From 0-9, how eco-friendly do you think you are? (7% answered 0, 0% answered 1, 3% answered 2, 7% answered 3, 11% answered 4, 3% answered 5, 37% answered 6, 11% answered 7, 11% answered 8, 7% answered 9)

Conclusion

On the one hand, we can comprehend easily the amount of awareness, disinterest and apathy that is dominated in today's adolescents. As shown above, most of the students are very skeptical about approaching environmental problems through the participation in a demonstration. Many students do not seem to be keen on the usage of renewable energy sources. This information reveals that nor do they nor their families follow eco-friendly energy sources. As a result, we conclude that "green" energy sources need to be brought up to the spotlight immediately before it's too late for humanity to act.

However, on the other hand, a great percentage of teenagers uses public transportation. Furthermore, most of them are aware of their inactivity. So, in the end, we ask ourselves, what prevents them from using a renewable energy source for their houses? Many factors could be responsible. For example, an area could not support eco-friendly house programs, or the cost is too high.





Graphs:

Renewable and Non Renewable Energy Sources Survey

27 responses



Do you use any form of renewable energy source?

27 out of 27 answered



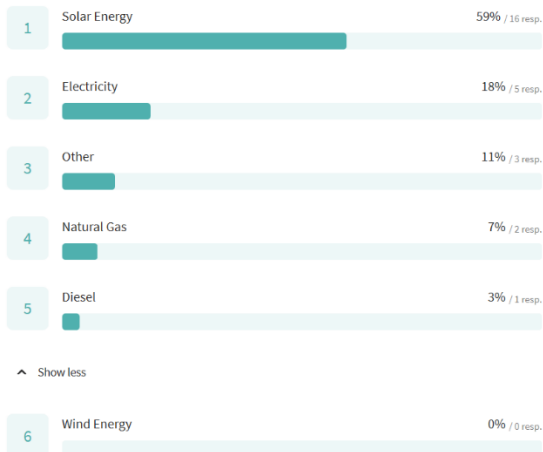
Would you participate in a march about the enviroment?

27 out of 27 answered



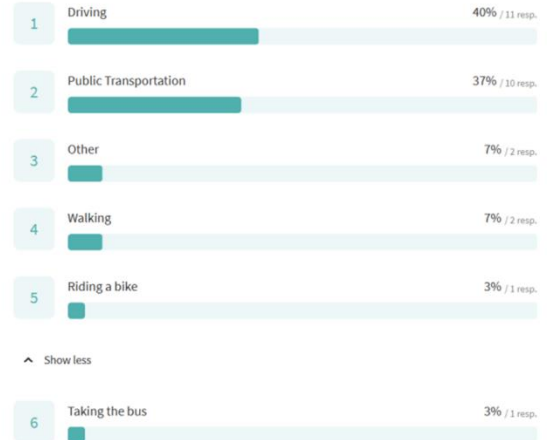
What would you prefer to use as an energy source for your house?

27 out of 27 answered



Which means of transportation are you most likely to use?

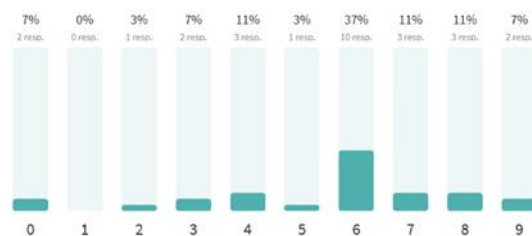
27 out of 27 answered



How eco-friendly do you think you are?

27 out of 27 answered

5.5 Average rating



The solution

City driving can only be displaced if a better alternative is available. What if we designed a city that could function without a car? Would anyone want to live in such a city? Is this feasible from a social, economic, and environmental point of view? Is it possible to get rid of cars while maintaining the fast and comfortable mobility it once offered?

Public transportation is usually considered a nasty and slow substitute for the car. It should be a more enjoyable experience and obtain the average speed of a car driving in favorable traffic conditions. This can be achieved using proven technology, but high-density neighborhoods are a prerequisite for fast commuting and economical public transport. Fortunately, densely populated cities can also offer a better quality of life.

We need to build more cities without cars. Venice, the greatest existing example, is liked by almost everyone and is an oasis of peace even though it is one of the most densely populated urban areas in the world. We can also convert other existing cities to the model of a city without a car over a period of several decades [7].

Design goals

The design of cities serves three main requirements:

- High quality of life
- Effective use of resources
- Fast transport of people and goods

Meeting these requirements imposes the following design standards:

Fast transport:

Quick access to all parts of the city should be provided. In a city of one million people it should be possible to go anywhere in less than an hour. Passengers should not be transported more than once.

Nearby stations

For both time and limited mobility reasons for young children, the elderly and the weaker, it is necessary to have short stops. The design template is a five-minute walk.

Nearby green parks

Green parks should exist practically within a five-minute walk of each front door.



Economic freight transport

The economy of cities depends on fast and economical freight transport. A city that intends to keep lorries out of its streets should envision operating modes for freight.

Going without a car

The city without a car can take place. Venice is enough proof. The construction of the city allows people to transport without cars. They often use bikes or prefer to walk, whereas mostly tourists use gondolas or carriages.

The four million people in the developing world seem eager to adopt Western standards in car use. They should be aware of the costs and encouraged to think of better solutions. Can the planet bear the environmental cost? Developed countries cannot deny developing countries the use of technology and resources used by more developed countries. Since most cars in the world are in developed countries, it is they who should take the initiative to design and build cities without cars.

Car-free cities should become the dominant model by the end of the 21st century due to energy constraints. We must now begin to prepare for change, which is an opportunity to build an urban environment greater than what we have ever known.

Conclusion – Recommendations

Have you ever wondered how routine changes contribute to the sustainability and salvation of planet Earth? You can help too. It is time citizens do something about what has been our home for so many millennia. By means of using public transport instead of cars, the reduction of gaseous pollutants is achieved. When you can, use the means of transport in your city, because it reduces pollution and helps protect the planet. For short distances, try not to use your car but public transport or even bicycle. In addition, you can walk to the destination you want by simultaneously exercising. This will not only reduce the emissions of cars, but traffic in the city will no longer be a problem.

In addition, everyone can participate in local and international programs associating with the protection of the planet. Through their work they have the opportunity to discuss, organize events and propose solutions for the protection of the environment and sustainable development. In this way "their voice will be heard" and their action can even motivate governments.



References

[1] Arwen Armbrecht (2016). What would your city look like without cars? [online] World Economic

Forum. Available at: <https://www.weforum.org/agenda/2016/01/city-without-cars/>.

[2] Sanchez-Lugo (n.d.). Global Climate Report - Annual 2019 | State of the Climate | National Centers for Environmental Information (NCEI). [online] www.ncdc.noaa.gov. Available at: <https://www.ncdc.noaa.gov/sotc/global/201913>.

[3] The EU's response to the "dieselgate" scandal Briefing Paper, European Court of Auditors February 2019. On line available: https://www.eca.europa.eu/Lists/ECADocuments/BRP_Vehicle_emissions/BRP_Vehicle_emissions_EN.pdf

[4] CNN, B.P., for (n.d.). Do anti-pollution car bans actually work? [online] CNN. Available at: <https://edition.cnn.com/PIROLm/travel/article/paris-pollution-car-ban/index.html> [Accessed 20 May 2020]

[5] Reality Check Team, (2019). How polluting are idling cars and buses? BBC News. [online] 12 Mar. Available at: <https://www.bbc.com/news/science-environment-47525885> [Accessed 20 May 2020]

[6] WHO. (n.d.). WHO | WHO Health and Climate Change Survey Report: Tracking Global Progress. [online] Available at: <https://www.who.int/globalchange/publications/country-profiles-global-report-2019/en/> [Accessed 20 May 2020].

[7] World Bank and Institute for Health Metrics and Evaluation (2016). The Cost of Air Pollution. Worldbank.org. [online] Available at: <https://openknowledge.worldbank.org/handle/10986/25013>

