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### **Declassified Environmental Guide for the Concerned Citizen of the Metropolitan Zone of the Valley of Mexico**

Regardless the imminent global emergency, people on keep moving forward to pursuit their needs, and very sadly, climate keeps on suffering dramatic changes. Day by day we are facing new and more complicated environmental challenges due to the lack of the concern of citizens, governments, and industries. Society needs to switch to renewable energies and we need to have a more informed opinion related to the environment before everything is lost. This is a very difficult task to accomplish in a country that is still developing.

The Metropolitan Zone of the Valley of Mexico (MZVM) or *Zona Metropolitana del Valle de México* in Spanish is the name that is often used to describe the area of Mexico City and some suburban communities in the Estado de Mexico. This area harbors 15.2% of the total population of Mexico (About 18,308,583 people) and 0.18% of the continental territory, more than half of it being urban zones (INEGI, 2015). This means that there is a high concentration of people in a very little space in comparison with other metropolitan zones.

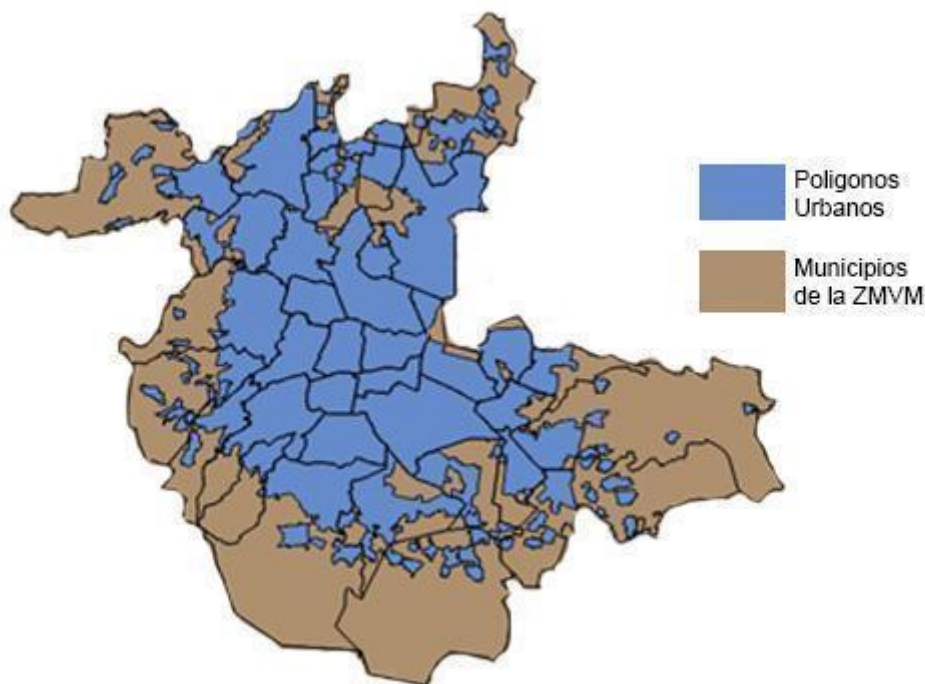


Fig. 1 Morales, Carlos. Urban Polygons of MZVM. Taken from the original map *Marco Geoestadístico 2010 versión 4.3* provided by Instituto Nacional de Geografía y Estadística. INEGI. Image that shows was adapted for presentation purposes. June 4 2019.

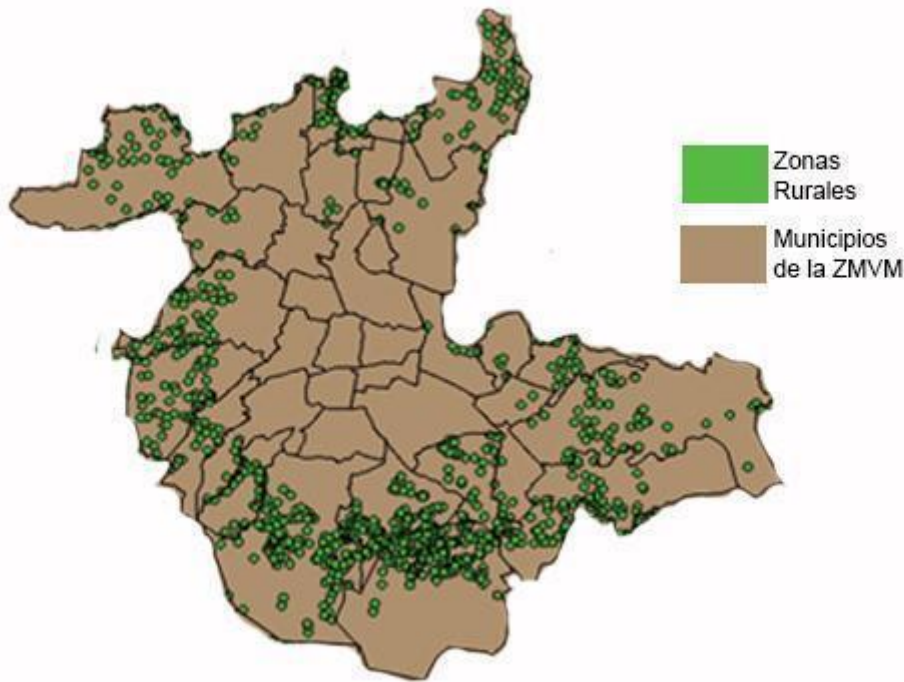


Fig.2 Morales, C. Rural Areas of MZVM. Taken from the original map *Marco Geoestadístico 2010 versión 4.3* provided by Instituto Nacional de Geografía y Estadística. INEGI. Image that shows was adapted for presentation purposes. June 4 2019

MZVM is also the most important metropolis in Mexico with the highest economic activity and an expenditure of more than 91,505,086 thousand dollars (INEGI, 2008). Most of the industrial activity of the country takes place in this area.

Due to its megalopolis status, MZVM is vital for all kinds of economic activities. In Mexico City, almost every family (99.8%) has access to water, electricity and sewage and an average of 3 people per home. In the suburban communities of Estado de Mexico there is a similar percentage with 97% of families having access to water, electricity and sewage in their home and an estimate of 4 people per household (INEGI, 2014).

The average families in Mexico earn between \$4.63 dollars up to \$27 dollars a day. Families also have access to healthcare which fee is calculated depending of the age of the person. This fee goes from \$203 dollars for people within the range from 0 to 19 years and up to 562 dollars for people over 80. (IMSS, 2019) More than 40% of the population in MZVM depends on this healthcare.

Education on the other hand is free and with one of the highest percentages in the country of people over 15 years old with at least high school education. (25%) Also almost every family that inhabits the MZVM has access to the bare necessities of a household but there are not enough public services like roads and local markets, which generates a lot of inconformity. Many roads have not been paved in many years due to bad management of resources. (INEGI, 2015)

Due to the fact that MZVM is one of the most populated metropolis worldwide there are a lot of urban/society needs that have to be fulfilled, therefore demographic explosion is a constant issue that generates new demands every day. More places to live, more means of transportation, more roads to access more places, more commodities.

MZVM is one of the most polluted places in the world and many think that the actual government is not really concerned about the environmental challenges that we are facing and that little is done to address this big problem.

Environmental threats to our community are worsening every single day, for example: in May 2019, we had one of the most critical air pollution crises that the MZVM has ever experienced. Due to a series of increased wildfires added to our daily contamination, activities had to be suspended for almost a week as we were approaching health threatening levels of pm. 25/m3.

The counter measures that are provided by the government are clearly ineffective and not up to the task. The new administration led by Lopez Obrador has only shown a clear lack of understanding and interest. For example: As soon as he assumed his term he made a lot of cuts to subsidized ministries such as *Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT). This institution is in charge of (amongst many other things) of the preservation of natural and animal life and sustainable development. The cuts were around 32.1% and this budget was passed onto other ministries, such as *Secretaría de Energía* (SENER) that is in charge of energy. The money will be used to finance a project to build a new petrol refinery in the home state of the president; Tabasco. (Políticomx, 2018).

Even before he started his term, and during most of his campaign, he announced he would create a new project named *Tren Maya* (or Mayan Train translated). This is a project with a specific focus to boost tourism in the area, but with no intention to take care of the environment. The creation of this train will destroy hundreds, if not thousands of hectares of wildlife that live in the states of Tabasco, Chiapas, Campeche, Quintana Roo and Yucatan. He also dismantled the Temporal Job Program which trained firefighters (between other jobs) to combat wildfires.

Because of the MZVM geographical location there is very few rain and clear skies during spring and winter, and big heavy clouds with a lot of rain in summer and autumn. (It must be stated that before the industrialization and demographic explosion the whole area used to be a big lake where more lakes poured into). Every year more than 700 hectares of agricultural fields are lost, this, plus the big climate change issue the world is experiencing, leads to more extreme temperatures which lead an important role in the urban and rural activities of MZVM.

Human activity in the area leaves a massive ecological footprint. For example: There are 16,486,550 tons of garbage picked up daily (INEGI, 2014), as big as that number seems to be, we need to take into account that there is also a big unknown percentage that is not picked up. If you live in a less privileged area you constantly see garbage dumped everywhere. Of course it is natural that the garbage collecting services can't always supply the needs of °the megalopolis but, also some people don't help a lot with this problem. When garbage is not picked up it usually ends in street sewages and clogs them. And when it rains the whole city floods.

The main problem is not the need of society to keep moving forward. The main problem is the lack of concern almost everybody including the government has shown and the solutions that government has offered are not effective. For example: *Procuraduría General y del Ordenamiento Territorial de la CDMX* (PAOT) is a government ministry that acts almost the same way as *SEMARNAT* but only for Mexico City. The solutions they offer are very limited, they host meetings with communities to hear their problems and they guide them to the corresponding institutions to complain about environmental abuses they see. (PAOT, 2019) personally, I don't think this is enough.

I think that as a society that inhabits not only MZVM but the world, we need to stand against environmental challenges by any means we are capable of. Addressing the problem is not enough anymore, we have been addressing the problem for more than 40 years and nothing has truly changed. The environment needs us as much as we need it. I would like to propose a simple and yet helpful guide that any inhabitant of MZVM could be capable of following.

I think it could be geared to people all ages, anyone that is actually concerned and willing to do something. I think that by acting locally and even in the simplest ways we could generate true change. This guide could be used everywhere, and could be understood by everyone. For example, Switzerland, in spite of being one of the biggest garbage producers in Europe with an estimate of 706 kg of waste per habitant yearly (Eurostat, 2019) has developed a more concerned vision related to garbage disposal; because of this, each citizen recycles 217 kg of waste per year. This means that the average Swiss citizen recycles more than 30% of the garbage produced per person yearly, and even if there is still a big number that can't be recycled (inorganic wastes) the way they are doing things at this moment has given them a better way of tackling the issue.

In the MZVM there is approximately 890 kg of waste per citizen yearly with no precise statistic related to recycling. I think that anyone can start changing his habits towards a more concerned and informed environmental attitude, but some just need a slight push.

Learning nowadays has become a very visual process, and due to my personal interests in graphic design, digital art and digital animation I thought that creating a guide and help spread the word with some posters, can be a start to a solution. The most important step to give is to educate our people and start by the younger ones. The guide could be distributed online at schools and have a big impact in the near future. 63.9% of the total population in Mexico has access to internet.

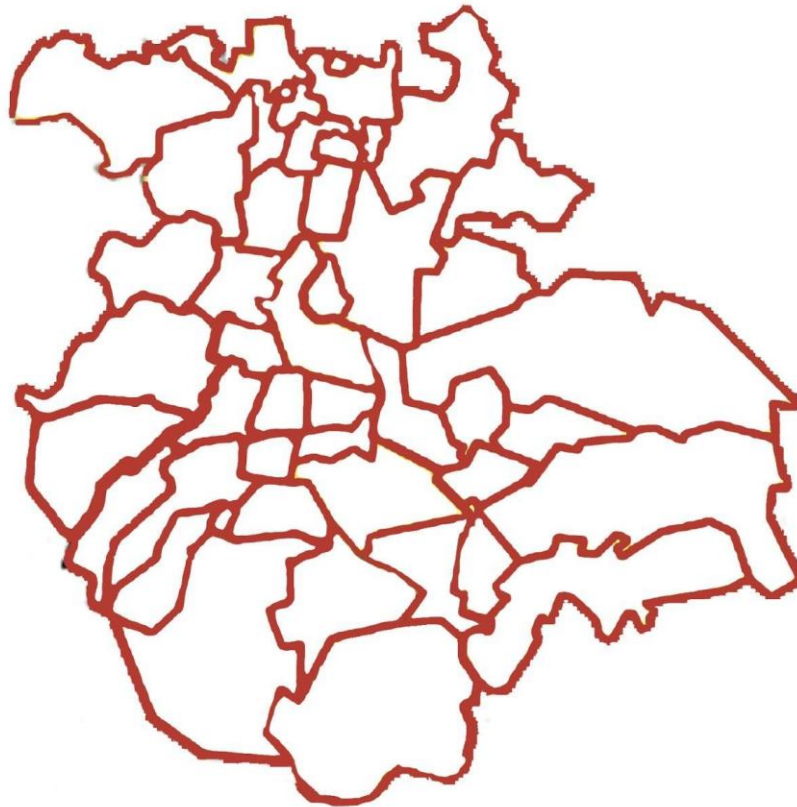
I would like to start with a project within my own school. The guide will be accessible through a QR code and a link. The guide is pretty simple and straightforward in spite of having a lot of research behind it. The goal is to make the citizen feel empowered again so he can start generating change. The posters which are planned to accompany the publicity of the guide will be eye-catching with real images of what is happening right now in MZVM to raise interest

To wrap everything up, as I have previously mentioned, MZVM is going through an environmental crisis as the rest of the world. The thing is that all my life I have seen insufficient solutions from the government but that is not an excuse anymore. At the point in which we are we can't let that to be "the" excuse anymore. We have to act and generate change at once. Giving power back to the citizens in the simplest way, make people realize that there are no excuses. We must start helping and generate a better educated society, generate an environmental culture, and awkwardly enough, this can start by doing the simplest things. I think this solution can be adapted to any other part of the world, the solution may look kind of obvious but as I investigated I started realizing that people don't actually know what to do or even how to do it, there is a lot of unclear information when you talk about environment in Mexico and this is why I realized this guide and changing simple habits can have a big impact. I think this is the way we can save our future.

GUIDE. (Due to the size of the file images had to be taken down, every visual support will be provided when the presentation takes place and will not affect whatsoever the guide and its contents)

**DECLASSIFIED**

ENVIRONMENTAL GUIDE FOR  
THE CONCERNED CITIZEN OF  
MZVM



We are not looking for a sustainable future anymore but for a future at all.

## I. DISPOSE THE DISPOSABLES

Plastic bags are used for an average of 12 minutes and last more than 500 years until they degrade.

The most “eco-friendly” way to help is to invest in reusable bags and even reusable plastic food containers (for food or water). It is awful to think about carrying everything with you when you go out but it isn’t as bad as it seems. At the end of the day you are more in control of what you are consuming daily and save lot of money. Cutting down totally or partially the use of disposables is a big step towards smarter living and consuming habits.

## II. THIS WAY WITH WASTE

In MZVM, workers that collect trash need to stop a lot of time separating the trash where it should actually be already divided. This slows routes, generates traffic and reduces the capacity of workers to pick up more trash. And even if since July of 2017 it is mandatory to separate waste in 4 (Organic, Non-Organic that can be recycled, Non-Organic that can’t be recycled and special handling/bulky quantities), this does not happen. (SEDEMA, 2017)

The most simple solution is to start separating waste . And to facilitate the operation, you can put some kind of note on top of each bin. This helps not only the way you organize trash but actually could be able to help the efficiency of the people that pick up the trash.

## III. LITTERING

It is a constant living in the MZVM to see trash just dumped on the street, not even in a bin or near one. It is gross, it smells bad and most importantly it pollutes and is one of the biggest factors of flooding in the metropolis. (Ramírez, 2018)

You can help by picking it up and just dropping it in the correct and closest bin. I know it sounds disgusting and that it is not even your trash, but if you are able to pick it up and then throw it to where it should belong, you would help a lot.

## IV. LESS CAR, MORE LIFE

There are more than 16 million personal vehicles registered in the MZVM and that number is not counting the vehicles that are not registered here and yet circulate in

the area (INEGI, 2016) An average car produces 4.6 metric tons of carbon dioxide per year. The average citizen spends 5 years of their life stuck in traffic. (Hello Df, 2014)

Try walking or using a bike when possible. Everyday there are new, safer and less depending ways of transport that don't rely on fossil fuels. There is no way everybody could just cut their means of transport (personal vehicles) but we could try to use a bit less of fossil fuels transport.

## V. ACT LOCALLY, BUY LOCALLY

Convenience supermarket chains have got us used to access through aisles of products from all over the world by just grabbing them. But there are huge amounts of fossil fuel energy that need to be consumed for those products to be where they are.

Local markets offer a lot of things that are overpriced in the supermarket big chains. You could save money in means of transportation and in products. Local markets are way more accessible and nicer than you rather think and you could get almost everything that you are looking for. By shopping in the local markets you are encouraging local economy and potentially spending less in a lot of ways.

## VI. GIVE TO RECEIVE

Most of the people are used to stack things in their house until one day there is no room to walk.

Try donating or reselling items you don't need any more, this not only extends the lifetime of the products, but could potentially provide people who need them with such. This way there is less need to keep buying things.

## VII. SMART USE OF WATER

Water is one of the most important components for life. But also water is one thing we lack the most in MZVM. And sometimes cuts of water by the government leave hundreds of thousands of families without it and obviously water pipes are crazy expensive. (Expansión Política, 2018)

Cut the use of water by having a shower in the less time possible. Use a bucket of water to store some while it gets warm. You don't need new and expensive technologies to start saving water and helping.

## VIII. PROPER ENERGY MANAGEMENT

In our society energy is one of the most important things and has even become vital to some people. Internet, food, communication are just some of the things that we rely energy on. But energy is not cheap and actually burns more energy that we are able to control.

Conservation of it is easier than how it sounds like. Turning off lights and appliances that you're not using, unplugging cables from ports if you are not going to use them, opening windows to let air instead of using the fan, etc. It is pretty logic and straight forward, if you don't need something, unplug it until you are going to use it.

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