Water Poverty and Sustainable Development in Mexico

La pobreza hídrica y el desarrollo sostenible en México

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https://doi.org/10.36105/mye.2025v36n2.02

Abstract

Sustainable development is a priority objective in contemporary societies. In this context, the un has established clear limits for the ecological footprint of countries. Mexico, with moderate and extreme water poverty levels, obtained a score of 57/100 points, positioning it as one of the most polluting countries in the world and moving away from the goals of the 2030 Agenda. This scenario requires nations, especially developed ones, to be more responsible in their investments in developing countries. The implementation of innovative technologies for water supply and sanitation, aligned with un proposals, is crucial to move towards a sustainable future and meet global commitments.

Keywords: water poverty, poverty line, ecological footprint.

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Reception: 11/09/2024 Acceptance: 21/11/2024

1. Introduction

A topic currently *in vogue* is the "sustainable development" of human societies and metropolises. Sustainable development is, among other things, about increasing the economic activities of a society while economizing the use of natural resources, ensuring that the ecological footprint does not exceed the UN recommendations. This ensures the preservation and recovery of natural resources that can be passed on to future generations for their use.

The ecological footprint is an instrument used to measure the consumption of natural resources and is obtained through the units of land *per capita* that are used to obtain resources, their transformation into goods and the management of the waste from these actions, allowing them to be recovered for new use. Its limitations as an indicator are that it is a static indicator, that it ignores the role of technological change in the use of resources, and that it does not consider the use of water resources, ocean resources, heavy and radioactive metals, or fuel reserves. We know that developed countries use far more resources than allowed *per capita*, due to their high industrialization and lack of ecological oversight, while developing countries have a suboptimal use, precisely because of the lack of industry. However, because of globalization, we can see that in developing countries we already have the effects on the ecosystem caused by the excessive use of natural resources by transnational industries. Therefore, no matter how much effort is made by the governments and citizens of these countries, we suffer from an unsustainable development.

It is a very important task for our generation to begin to carry out activities necessary for adequate sustainable development, with which an efficient metropolis can be achieved. Already developed cities have great difficulty in reversing their current consumption habits and methods and converting them to pure and sustainable energy consumption. However, this does not mean that it is impossible.

https://doi.org/10.36105/mye.2025v36n2.02

Considering a very current issue in our country, this paper will try to expose the relationship between ecological poverty and economic poverty in Mexico. Mainly mentioning water poverty as a determinant, applying it to one of the most polluted rivers in the country, which is located in the capital of the state of Puebla. Determining the degree of water poverty is very important since this has repercussions in all spheres of development: human, social, economic and environmental dimensions. Water poverty is considered as "a situation in which a nation or region cannot afford the cost of always bringing sustainable clean water to all people.

The road is long, and there is an intimate relationship between economic poverty and ecological poverty, so work must be done to overcome these challenges.

In the first part of the development of this work we will talk about the situation of economic poverty in the country, while in the second part we will touch on the issue of ecological and water poverty and the importance of the delay in the installation of clean energy due to current social policies and their impact on sustainable development. Finally, it will conclude with proposals to correct the above-mentioned situations, emphasizing that, in order to achieve adequate economic development in a country like Mexico, it is necessary to do so in a sustainable manner.

2. Development

2.1. Hard data on poverty in Mexico

In the years 2016, 2018, 2020 and 2022 the National Council for the Evaluation of Social Development Policy (CONEVAL) reported extreme poverty figures in Mexico at 7.2, 7.0, 8.5 and 7.1% respectively, while in moderate poverty they reported 36.0, 34.9, 35.4 and 29.3% respectively (see URLs). This reiterates the low acquisition that the minimum wage has on the National Price Index in the basic

https://doi.org/10.36105/mye.2025v36n2.02

food basket, denoting a state of poverty in a third of the country's inhabitants, not to mention that almost a tenth of these are in extreme poverty. The difference between both poverty lines is defined by: the capacity of the minimum wage to acquire the basic food basket (extreme poverty) and the capacity to acquire the expanded basic food basket (moderate poverty). The figures mentioned in this paragraph show an increase in the percentage value of the increase in the price index greater than the increase in the minimum wage. On the CONEVAL website and as shown in Table 1, there are reports of the food basket poverty line in the urban population when the monthly income per person is less than $2287.66 and in the rural population $1750.51. The poverty line for the basic food and non-food basket in the urban population is $4514.97 and in the rural population it is $3252.32 pesos per capita income. Both data as of March 2024 (see link).

Table 1. Poverty figures in Mexico

Indicators	Percentage				Millions of people				Average deficiencies			
	2016	2018	2020	2022*	2016	2018	2020	2022*	2016	2018	2020	2022*
Poverty												
Population living in poverty	43.2	41.9	43.9	36.3	52.2	51.9	55.7	46.8	2.2	2.3	2.4	2.6
Population in moderate poverty	36.0	34.9	35.4	29.3	43.5	43.2	44.9	37.7	2.0	2.0	2.1	2.3
Population living in extreme poverty	7.2	7.0	8.5	7.1	8.7	8.7	10.8	9.1	3.6	3.6	3.6	3.8
Population vulnerable to social deprivation	25.3	26.4	23.7	29.4	30.5	32.7	30.0	37.9	1.8	1.8	1.9	2.0
Population vulnerable by income	7.6	8.0	8.9	7.2	9.1	9.9	11.2	9.3	0.0	0.0	0.0	0.0
Non-poor and non-vulnerable population	24.0	23.7	23.5	27.1	28.9	29.3	29.8	34.9	0.0	0.0	0.0	0.0
Social privation												
Population with at least one social deprivation	68.5	68.3	67.6	65.7	82.7	84.6	85.7	84.7	2.1	2.1	2.2	2.3
Population with at least three social deprivations	20.0	20.2	23.0	24.9	24.2	25.0	29.2	32.1	3.5	3.5	3.5	3.6
Social deprivation indicators												
Educational backwardness	18.5	19.0	19.2	19.4	22.3	23.5	24.4	25.1	2.7	2.8	2.8	3.0
Lack of access to health services	15.6	16.2	28.2	39.1	18.8	20.1	35.7	50.4	2.7	2.7	2.8	2.9
Lack of access to social security	54.1	53.5	52.0	50.2	65.4	66.2	66.0	64.7	2.3	2.3	2.5	2.6
Lack of access to social security	12.0	11.0	9.3	9.1	14.5	13.6	11.8	11.7	3.1	3.2	3.4	3.6
Lack of access to basic services in the home	19.2	19.6	17.9	17.8	23.1	24.3	22.7	22.9	3.0	3.0	3.1	3.3
Lack of access to quality and nutritious food	21.9	22.2	22.5	18.2	26.5	27.5	28.6	23.4	2.6	2.6	2.7	2.9
Economic well-being												
Population with income below the extreme poverty line by income	14.9	14.0	17.2	12.1	18.0	17.3	21.9	15.5	2.5	2.5	2.5	2.9
Population with income below the poverty line by income	50.8	49.9	52.8	43.5	61.3	61.8	66.9	56.1	1.9	1.9	2.0	2.2

Source: CONEVAL estimations based on INEGI's ENIGH 2016, 2018, 2020 and 2022.
*For a better analysis of the 2022 information, consult the technical notes available at: National Council for the Evaluation of Social Development Policy (CONEVAL). Poverty measurement 2022 [Internet]. Mexico: CONEVAL; [cited 2024 Nov 4]. https://www.coneval.org.mx/Medicion/MP/Paginas/Notas_pobreza_2022.aspx

https://doi.org/10.36105/mye.2025v36n2.02

Some research has even considered poverty indicators based on the level of leisure and recreation of the Mexican population, finding that non-indigenous women are more likely to fall into poverty than indigenous women, and indigenous women are more likely to fall into poverty than men. It is deduced that this is due to the number of children and in general to the paid and unpaid work performed by women in Mexican households.

Going a little further in terms of poverty, there are also data that show the difference between the border municipalities in the north of the country and those in the southern border, evidencing a greater poverty in the latter. This is largely due to the greater development of industry and agriculture in the northern municipalities, as well as to greater transaction activity with the northern countries. However, even though northern border municipalities have a much higher income, poverty lines are not exceeded according to data obtained from CONEVAL and ENIGH in 2010. Mexico, being a large country, can present different types of poverty in its territory. Let us also remember that there are two lines of poverty, that of poverty by capabilities, which is obtained when an individual cannot reach with his salary the basic needs for the welfare of his family, and that of extreme poverty, which happens when an individual despite making every effort cannot comply with providing the minimum food required to keep his family out of a state of malnutrition.

It has been shown that the increase in a country's economic development has an adverse effect on the elasticity of poverty. There are even some studies in Mexico, which show the importance of redoubling efforts for economic growth if we want to considerably reduce poverty rates, but it is not enough to do it in an economic way only, but it is now necessary to carry it out through sustainable development.

2.2. Globalization, sustainable development and problems in the metropolis

The big cities in the world must already have a model of sustainable development, because, if we continue with the mega development

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of the cities without taking into account the ecological aspects, it will not be possible to achieve the economic surplus, as it is already described by the graphs of the inverted "U", besides that when damaging seriously the environment there is no possibility to go back for correction or it is much more difficult than the programming for the prevention of the damages. According to the definition, sustainable development refers to an economic development of a population that does not compromise the natural resources that will be passed on to future generations.

Globalization has an economic effect, that is, the ability to carry out transactions in any market in the world, we know that it has its pros and cons, and we could take examples of countries, regions, and even cities. An important example for the author of this paper is the one that took place due to the "globalization" of the city of Puebla. In previous state and municipal governments, a project was initiated to globalize the city of Puebla, which is the capital of the state of the same name and is located less than 200 km from Mexico City, the capital of the country. This project was intended to boost the economy and development of the city and the state to such a degree that it would be very attractive to visit, invest in or live in. It began in the nineties and had a period of remission at the end of this decade, to later resume in the middle of the 2010s, where the acting government at that time promoted the construction of luxury shopping centers, increased the security of the city and equated it in services with cities in developed countries, presenting it as a true city of economic development. However, consequently, the city began to redirect its growth towards the new part, beginning to exceed its municipal borders and "invade" those of the neighboring municipality of "San Andres Cholula", which was characterized by families with rural activity. This led to conflicts over the expropriation of ejido lands and their conversion into high-value residential land. Unfortunately the damage did not stop there, but given the high population growth of the district of San Andres Cholula, a high population density was generated in the same, with the consequent ecological

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problems that such a movement entails, such as water shortages and sanitation, and the lack of water in the wells of the communities of the "original peoples", which at the time were sufficient for their family and production needs, but due to the increase in population density of the district are no longer so. There has also been an increase in the rate of occupational migration of neighboring populations to the Atoyac River, which is the river that has traditionally divided the municipalities as a natural border, since agriculture and livestock as main activities are now not as profitable as before the "globalization" of the city and the formation of the binomial "Puebla-San Andres Cholula". This is one of the examples of unsustainable economic growth, as well as an example of how a city, country, region, etc., must grow with a sustainable development plan to avoid the medium and long term problems of the developed territory, such as the lack of communication and adequate services, and most importantly, the scarcity of access to clean water for domestic use and life maintenance.

In the entity of Puebla there are data from 2022, which show a moderate poverty of 49.7% and an extreme poverty of 12.7%, both above the data for the entire country. The same happens with the percentages of the determinant deprivations of poverty, all of them are above the national data. With a high degree of social marginalization and backwardness. 10.1% of the population does not have access to water (8). This is one of the great ecological poverties of Puebla, the poor access to pure water, which is also highlighted in the indices just mentioned. One of the main rivers supplying the city of Puebla and the state is the Atoyac River, which is extremely polluted, as has been discussed in previous works. Attempts have been made to clean up and clean up the river, but they have always ended up as unfinished political campaign promises. The inhabitants of the city, as well as those of the municipalities bordering the river, have become accustomed to the unhealthiness of the river and its emanations, its pollution, and have taken it as something that is part of the city itself, without taking into account that it is one of the

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main sources of water supply for the whole entity and for the neighboring entity: Tlaxcala. There are even works in which it is evident that leaving aside the economic capacity to contribute to a sanitation and water treatment project of such magnitude in the Atoyac River, it is the poor who are mostly interested in it. This is credible since it is the rural and primary work sector that depends directly on the conditions of the river for its subsistence. The estimated losses for 2005 due to the contamination of the Atoyac River reached $483,361,423 pesos.

With the above as a preamble, let us move on to talk about the ecological poverty of the country. The water poverty index was developed in the United Kingdom and considers both physical and socioeconomic factors related to water availability. In 2002 Mexico scored 57 points on this index, while the best evaluated country scored 78 and the worst 43. There is also a method for measuring water poverty, developed by Lawrence, Meigh and Sullivan, which considers five components with their respective subcomponents, which are developed below: *Resource*, which is divided into; obtaining water from subway or surface, *Access*, which is determined according to the amount of population that has access to water for domestic use, sanitation, and for irrigation, *Capacity*, according to the human development index, i.e. the efficiency of the population in water management, *Use*, divided into domestic use, industrial use and agricultural use, and finally, *Environment*, which is evaluated through scores in Land Use Change and Vegetation and Water Quality (Q) . López Álvarez's study emphasizes that water is a crucial link between the climate system, human society, and the environment. Other authors such as Molle and Mollinga classify water use into potable (U1), domestic (2), production (3), economic (4), and environmental needs (5), in order to compare them with water needs in a matrix, based on physical (S1), economic (2), management (3), and institutional and political (4) scarcity.

Poverty in general must be eradicated as part of the commitments established in the UN's 2030 agenda, as well as being part of the Sustainable Development Goals (SDGs).

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Water Poverty (Wp) is one of the indicators of poverty in general, since all individuals in a community, country or region must have access to drinking water and water sanitation. Although there are official international figures that show Mexico as a country without stress in terms of the availability of renewable water *per capita/year* (Falkenmark indicator), we can observe that in the country's large cities such results are not evident. One of the indicators that most closely resembles the reality we live in on a daily basis is *The Better Life Index*, which places Mexico in last place with respect to education and income and in second to last place with respect to the environment, in the list of oecd countries, of which Mexico has been a member since 1994. The above data together show that despite the wide water coverage according to the Falkenmark indicator, Mexico has a serious PH problem. The data obtained in the Olivas and Camberos study show that the factor that most affects the country's Water Poverty rating is precisely the socioeconomic factor, which establishes an important relationship between economic poverty and PH.

2.3. Ecology and economy

To begin talking about the relationship between ecology and economy, we cannot fail to comment on the importance of the transition to the so-called "clean" energies that consume renewable natural resources such as wind energy, which has proven to be a solution not only to produce domestic energy, but also for industries such as the steel industry that can benefit from it. Benefits have even been demonstrated in the coexistence of turbines for power generation and agricultural crops in developed countries that already have them. The latter is of great importance because one of the great detractors of wind energy is the use of vast territories exprofeso, however, when coexisting with crops, the latter benefit and even the rent paid to farmers for the use of the land gives them a second source of income, which sometimes "convinces" future generations that staying to work the land is still a good option, instead of the need to migrate to urban jobs.

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Studies have been generated due to the delay in the implementation of clean energy with foreign investment. This delay has attracted the attention of other countries and has been classified because of the country's current social policies, which consider that any private capital investment perpetuates social injustice. Countries such as Denmark and Uruguay produce 60% and 40% of their energy through turbines. The above examples are of importance as being the first European country with which Mexico is repeatedly sought to be equated by the nation's current president, and the second of these, a developing Latin American country, should set the tone for wind energy growth in the country. Between 2017 and 2019 there was an increase in wind energy of 50%, while with the new regulatory policies in renewable energy between 2019 and 2020 there was only a growth of 0.76 Gigawatt (GW). It is estimated that by 2032, 67 GW of generation will be required to meet total energy demand. By 2020, only 10% of total energy is produced by renewable energy sources, with photovoltaics being the largest producer. The installation of renewable energy sources is of crucial importance to modify climate change and to achieve the goals for sustainable development to which Mexico has committed itself by 2030.

Water scarcity on the planet occurs when the water sources are not able to maintain the needs of the community, being less the supply than the demand. In other words, although the planet's water capacity is still hundreds of thousands of times greater than the current world demand, not all this water can be easily obtained or converted into water for domestic use or production. Currently, many of the main rivers supplying large communities and metropolises have reached the limit of supply, so it is considered that other sources of drinking water must be sought, which is defined as scarcity of water as a resource. It should also be noted that not all water sources are renewable. Evidently, the planet's water is neither created nor destroyed, so the amount of water on the planet does not change, what changes is the speed with which we use the available water within our reach. Once we finish using surface water, this resource will not be renewable. The same will happen when the distribution

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of water from rivers exceeds the capacity to replenish. Of course, there are other methods for obtaining fresh water, such as desalination and wastewater treatment, but this is never enough, nor is it cheap enough for the growing demand of the population. Better alternatives must be sought, but above all, policies against the waste of this vital liquid must be applied.

2.4. Mexico's ecological footprint

Mexico is considered by some authors as one of the most polluting countries in the world, and its ecological footprint is very important in many areas, such as, for example: carbon footprint, crop land footprint, fisheries cover, forests, livestock, and as a global result of the aforementioned. In the block of countries known as MINT (Mexico, Indonesia, Nigeria and Turkey) it has been determined that the policies established for the reduction of ecological footprints due to pollutants are not being effective. Therefore, it is of vital importance to review these policies, as well as to implement reforms or renew them in order to promote sustainable development in these countries. In both studies mentioned above, the period of analysis of the data starts from 1961 to the present. Since the year 2000, energy demand in Mexico has increased by 25%, and in a period of 30 years, almost 90% of the energy consumed in our country is being provided by coal, oil and natural gas, all three non-renewable resources. Clean energy promotion policies in Mexico are apparently not being sufficient. As a developing country in which pollution is growing rapidly, non-restrictive and lax policies and practices that allow foreign direct investment in the country for its own economic development and incursion into globalization result in a "pollution paradise", that is, industries, which are the major polluters in Mexico and other developing countries, find it very easy to operate without having to look at or worry about the consequent ecological footprint. The Mexican government should encourage the generation of clean energy sources, to achieve sustainable development by attracting

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foreign investment from companies interested in entering or already using clean energy in their production, instead of continuing to try to "cheapen" the polluting energies of the past. We know that the federal entity with the largest economic footprint is Mexico City and in contrast the one with the smallest economic footprint is Tlaxcala. Obviously, the above data is due to the degree of industrialization of each state, thus demonstrating which are the most important sources of pollution in our country.

Globalization has brought great benefits to various economies, however the costs of globalization have also caused great damage to the world ecology to sustain the costs of exports, such as more fuel for export travel with greater emission of greenhouse gases and increased global warming, increase in the timber industry for the manufacture of furniture, which causes more deforestation and modification of ecosystems. Developing countries have based their economic growth on the consumption of fossil fuels such as coal and oil; however, if these countries, including Mexico, want to maintain a sustained and constant development in the new globalized economy, they must look at the development schemes of green economies to achieve sustainable development, so that they can develop without damaging resources for future generations. This does not exempt developed nations, who have a moral duty to change their energy sources to clean and renewable energies. It is also important to emphasize that according to several studies it has been shown that as economic development progresses there is first a decline in ecological development and then reaches a peak, which is followed by an inverse relationship. This has been called the inverse Kuznets curve. This formula can be used to review and rethink policies for sustainable development. Mexico has however benefited from Foreign Direct Financing industries, most of which have policies that are very sensitive to ecological damage and already operate under statutes to operate with a low ecological footprint. The aforementioned can be counted as one of the positive effects of globalization.

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2.5. Mexico and its commitments to the UN's Agenda 2030

Mexico has committed as a member of the oecd to achieve the objectives of the 2030 agenda, however, the results 6 years before its expiration are not very promising. Among the consequences of not achieving the Sustainable Development goals for 2030 are: greater extreme poverty and increased conflicts, perpetuated severe malnutrition, shortages in medicines and food, precarious education for children, gender inequality, with less pay for the same amount of work, less availability of employment, much less access to clean water and sanitation with the consequent increase in infectious diseases, increased pollution due to lack of energy produced cleanly with renewable natural resources, major setbacks in the economy and industry, leading to increased migration to countries with better job opportunities, marine and terrestrial life will have major repercussions as well as loss of biodiversity, and last but not least, lack of peace and strength of institutions with limited or no partnership between countries.

2.6. Sustainable development in the world

Considering three key concepts for sustainable development such as Biocapacity, Ecological Footprint and the difference between them manifested as deficit or surplus, it is concluded that our country is still far away from sustainable development. To this we can add that for decades the link between economic development and sustainable development has been ignored or minimized by both the public and economists, so it is not surprising that we continue with alarming figures of economic and ecological poverty, in a lag of sustainable development especially in comparison with the other countries that make up the oecd.

According to information provided by the Ecological Footprint Network, we are currently using 75% of the planet's resources in excess. In other words, we are using natural resources 75% faster

https://doi.org/10.36105/mye.2025v36n2.02

than the planet's regenerative capacity. This is called *ecological overshoot*. In the literature, the data show that among the three North American countries, Mexico has had an ecological deficit since the 1970s, which has been increasing until today. The same analysis was done with Canada and the United States, and it was found that Canada is the only country that still has an ecological reserve, which means that it does not consume more resources *per capita* than the land can regenerate, but even so, it shows a constant decrease over the years. Finally, the United States, since the 1960s, the decade in which figures began to be available, has had a very large ecological footprint, which has been maintained to the present day with fluctuations over the years. This shows that despite trade agreements and policies for sustainable development with the consequent advances in technology, efforts are still not sufficient, and emphasis should be placed on appropriate measures for the sustainable development of the countries mentioned.

Mexico City is among the world's megacities, which together represent only 2% of the Earth's occupation, however, in contrast, they also account for 70% of energy consumption and 60% of the production of greenhouse gases on the planet, so megacities will always be subject to study by environmentalists. As we mentioned before, cities or countries already developed will be difficult to revert to sustainable development, however, not impossible, besides they are important sources of data for the prediction and evaluation of the efficiency of the policies used and to be used for sustainable development.

As a final point, we write that through the application of multiple regressions it has been found that in megacities with higher rainfall there is less carbon footprint, as well as megacities with lower per capita income or greater inequality in it. An interesting fact is that the increase in tariffs on the use of electricity has led to a reduction in the carbon footprint in megacities, so it can be considered as an appropriate policy to reduce this footprint.

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3. Conclusions

It is evident that one of the necessary actions to improve the sustainability of Mexico and at the same time promote development, is to increase the training and education of people with respect to water resources, thus raising awareness so that society has a sustainable growth preserving clean water. Mexico already uses one of the world's renewable energies; photovoltaic, however, concern has recently been raised about the disposal of panels at the end of their useful life, threatening to disrupt ecosystems by the end of the first half of the century, which could discourage the production and use of this source of clean energy. Therefore, it is of vital importance to start regulating and establishing a recycling plan for this energy, which would increase the useful life of some raw materials and reinforce the use of photovoltaics, adding sustainability to this industry and strengthening the sustainable development of the country.

Studies show that Mexico is one of the least efficient countries in terms of green energy, and this has increased with the current social policies that have bet on a supposed efficiency of "dirty" and archaic energies, leaving aside the clean and renewable energy sources such as wind, increasing the lag in which our country is in terms of green energy. Therefore, it is urgent that in the next six-year term, clean energy projects are renewed, and foreign investments in this regard are reevaluated. It is also necessary to review and comply with the proposals of the mechanisms organized by the United Nations to determine future climate damage, ways to prevent it and establish organizations related to focus science to find safer ways for sustainable development, both for developing nations and those that are already developed, but all require strategies to build a better future for all.

To achieve the sustainable development goals that Mexico and other countries have committed to reach by 2030, many policies, social actions and above all resources are needed, which are some of the conditions that make it more difficult for developing oecd coun-

https://doi.org/10.36105/mye.2025v36n2.02

tries to meet their commitments. We must begin with the urgent issue of water access and sanitation, which not only affects Mexico City but also several important cities in the country and several rural territories.

It should also be noted that until 2019, not even the most developed countries, such as those of the Nordic peninsula, had managed to adopt a strategic plan for the real achievement of these goals. The UN has declared this decade as "the decade of restoration", proposing "living laboratories" where scientists, ecologists, and even outsiders and children are brought together so that everyone can learn from everyone else and ideas and programs for the restoration of ecosystems can be developed. Such laboratories could be implemented in our country to begin experimenting and develop solutions to reverse the relationship we have had so far with the ecological footprint.

We must start with small steps, such as ecological education in our homes and schools, without leaving behind internal ecological education policies in industries for the proper management of industrial waste per se, but also of waste generated by individual workers. We must create models to raise awareness about the scarcity of drinking water, especially in areas of high population density and show what happens in large metropolises to take it as an example and achieve better sustainable growth of developing cities.

The planet has a limit, and not only are we reaching it, but we are surpassing it. We must prevent ourselves from wiping out the planet and leaving nothing to our future generations. We must act as citizens of the world and make the developed countries support the less developed countries to establish their ecological projects for the future, it is useless for them to conserve their lands and their internal ecology if they are going to continue exploiting the developing countries by establishing industries in a "pollution paradise", and although if we consume in a territory more than double, triple or 7 times the ecological capacity, we are indirectly consuming the part of the planet that is being "conserved". The big economies, as well as

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some banks, have already been in the business of conserving drinking water for several years, which makes us think that in the future water will cease to be a free resource for man by right and will begin to be charged for scarcity, supply and demand.

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