

Social, Economic, Environmental and Cultural Approach

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Summary

There is a perverse cycle: the poverty-forest cycle that feeds autonomously and is related to the deterioration of natural resources. Rural areas vary greatly in size and characteristics, depending on the country and region. It is observed how these areas play an essential role in agriculture and the preservation of the natural environment. (World Bank, 2023). Approximately 250 million people reside in forest and savannah areas, these communities depend on forest products, goods and services for their survival and resilience during times of adversity. Globally, forests cover approximately 4.06 billion hectares, representing the largest area of forests on the planet. Corresponding to approximately 31% of the total surface of the Earth. (FAO, 2020). W. F. (2004) argues that three billion individuals, about half of the world's population, reside in developing rural areas of the world, and 1,500 million of these survive on less than 2 dollars a day. This area encompasses both native forests and tree plantations. In 2023, approximately 3.42 billion people lived in rural areas, accounting for about 42.66% of the total population. However, the distribution of forests is not homogeneous: more than half of the world's forests are located in just five nations: Russia, Brazil, Canada, the United States and China. It is fascinating to observe how these areas play an essential role in agriculture and the preservation of the natural environment. (FAO, 2020). In Durango, deforestation causes environmental damage, but it also increases the supply of agricultural land and generates income and rural employment, sometimes sustainable and sometimes not. There is a trade-off between poverty reduction and environmental protection. The objective is to analyze income and the consequences of poverty and natural resources. No methodology is presented due to the descriptive nature of the study

Keywords: Forest-poverty cycle, forest distribution, The world focusing on Durango analysis

1. Introduction

The vicious circle of poverty represented by excessive use of the environment, deforestation and degradation, caused by poverty, is a self-sustaining phenomenon with disastrous effects. W. F. (2004) argues that forests and rural poverty are an inseparable binomial.

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Even in developed countries such as the United States and Canada, there are many degraded forests, impoverished populations, and ethnic populations. In Mexico, it is no exception... it has a wooded area... it has poverty and a low development index.

Globally there are many asymmetries, production, The forest area of Europe has increased by 11 million hectares in recent years

While many regions of the world face deforestation, EU forests have grown by approximately 11 million hectares between 1990 and 2010

Ironically in Europe Eucalyptus, the tree that occupies the forests of northern Spain: "We cannot do without it"

In the map shared by Simon Kuestenmacher, a German geographer and demographer, it is clear how Europe has greened up if we compare the forest situation in 1900 with that of 2010. This is mainly due to the policy of the Member States, as there is no express mention of forests in the treaties and therefore the EU does not have a common forest policy. Despite this, the Union has formulated a European strategy for forests and supports many actions that have a significant impact.

There are currently only about three trillion trees on earth, half of what there were at the beginning of human civilization. CIFOR-ICRAF (2024), (FAO, 2020)

Human beings are part of ecology, the modifications they generate on their habitat affect them, especially the population in vulnerable conditions, which is exposed to pollution without the possibility of access to efficient health systems, and of changing jobs or places. (Estrada, 2007)

As explained by the EU, various actions have been implemented in favour of reforestation, allocating around 90% of forestry funds to the European Agricultural Fund for Rural Development (EAFRD). During the period 2007-2013, approximately €5.4 billion was allocated from the EAFRD to co-finance specific forest-related measures, and in the period 2014-2020, public expenditure of €8.2 billion was programmed, distributed in reforestation (27%), improving forest resilience (18%) and preventing damage (18%).

The relationship between poverty and the environment is complex and multifaceted, the condition of deforestation perpetuates poverty. This is a situation that occurs in Durango, Mexico's first conifer reserve with inequalities in its forested territory. (REDESMA, 2024)

There may be monetary wealth in the forests, but the poor in the forested areas do not see the benefits in their pockets. This seems to be exacerbated in Latin America, especially in Mexico and Durango. About 85% of localities in forest areas have a high or very high rate of marginalization. A documentary review was carried out based on the main idea: forests, poverty and their relationship in different parts of the world. It does not contain an analytical part, so the type of research is descriptive.

2. Bibliographic review

CONAFOR (2011) states that poverty is one of the causes of deforestation and forest degradation. Poor households are highly dependent on forest resources; the loss or degradation of these hampers their ability to maintain their livelihoods.

2.1 Indigenous peoples in Mexico and in the world

Indigenous peoples have an important presence in forest areas of Mexico. Indigenous households represent a large majority in 20% of communities or ejidos with more than 100 hectares, and are only a majority in 2% of ejidos without forests.

The origin of these data is found in the Global Forest Resources Assessment Report (FRA) of the Food and Forest Agency of the United Nations (FAO). This report is updated every five years and provides relevant information about the condition of forests globally.

In the same vein: Bourguignon F. (2022), and the World Bank (2022), argue that three billion people, almost half of humanity, live in rural areas of the developing world and 1,500 million of them live on less than \$2 a day. Forests are important resources for the rural poor, with more than 800 million people living in forests and wooded areas. However, global deforestation continues at an alarming rate, as forests are cleared for agriculture or cut down unsustainably. (REDESMA, 2024).

2.2 The countries with the highest forest cover in the world

The countries with the largest forest area in the world are:

1. Russia: More than 800 million hectares.
2. Brazil: Approximately 497 million hectares.
3. Canada: About 347 million hectares.
4. United States: About 310 million hectares.
5. China: 220 million.

However, it is replied that the inhabitants of the forested areas are the poorest.

2.3 Classification of forests in the world

According to the FAO (2020), there are 4,060 million hectares of forests globally, with 45% being tropical, 27% boreal, 16% temperate and 11% subtropical. Mexico ranks tenth in terms of wooded area, with 66 million hectares, of which 34.2 million (51.8%) are categorized as forests (temperate and mesophilic) and 30.0 million (45.6%) as jungles (tropical and subtropical); the remaining 2.6% corresponds to other vegetation classes (CONAFOR, 2018), cited by (Hernández, 2024).

Poverty is not everywhere, I will present the case of the United States and Europe, which have been successful in reforestation and use.

2.4 The case of the United States

Paradoxically, W. F. (2004) writes that the southern United States is home to the most technologically advanced forestry sector in the world. Forests cover 86 million hectares, or 55 percent of the southern U.S. landscape. They account for two percent of the world's total forests, including fifteen million hectares of plantations, or eight percent of the world's total. (USDA Forest Service, 2000).

In the 1990's, the same author: W. F. (2004), stated that the forests of the southern United States produced fifteen percent of the world's industrial timber crop. Most of its production supplied the South's fourteen thousand sawmills and countless manufacturers of the world's largest and most technologically advanced furniture, plywood, and pulp and paper. For example, at least 20 pulp and paper mills in the south exceed one million tons of annual capacity. Two components of the forestry industry, sawn timber, wood products, and paper and related products, combine to form the largest industry. That is, technology and large machinery allow us to stand out from this phenomenon of poverty.

2.5 *The case of Europe*

Ironically, in the map shared by Simon Kuestenmacher, a German geographer and demographer, it is clear how Europe has greened up if we compare the forest situation of the year 1900 with that of 2010. This is mainly due to the policy of the Member States, as there is no express mention of forests in the treaties and therefore the EU does not have a common forest policy. Despite this, the Union has formulated a European strategy for forests and supports many actions that have a significant impact. Europe's forest area has increased by 11 million hectares in recent years, writes in the newspaper *El debate* consulted in October 2025.

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2.6 *The forests of Mexico*

In the case of Mexico, they are located almost entirely on common properties (ejidos and indigenous communities); Its owners are among the poorest in the country.

In CONAFOR (2011), it is stated that the dilemma is between poverty reduction and environmental protection. In Durango, deforestation causes environmental damage, but it provides the area of agricultural land and generates income and rural employment.

In the state of Durango, forests cover approximately 46.56% of the state's surface. Scrub covers 20.84%, grasslands 14.66% and tropical rainforest 4.61%. (INEGI, 2023).

2.7 *Poverty in Durango*

Regarding poverty in the state of Durango, CONEVAL (2023), points out that 34.3 of the population of Durango (641,104 people) are in a situation of poverty. 6.3% of the population (117,753 people) is in extreme poverty. 62.5% of the population has at least one social deprivation, the lack of access to security is the most prevalent, affecting 862,500 people. 45.7% of the population faces deficiencies in terms of quality of spaces and housing space. 51.1% of the population has an income below the poverty line.

In the municipality of Mezquital, Durango, the situation of poverty is quite worrying. Its inhabitants live from the forest and it is quite deforested and degraded. According to CONEVAL (2023), 89% of the

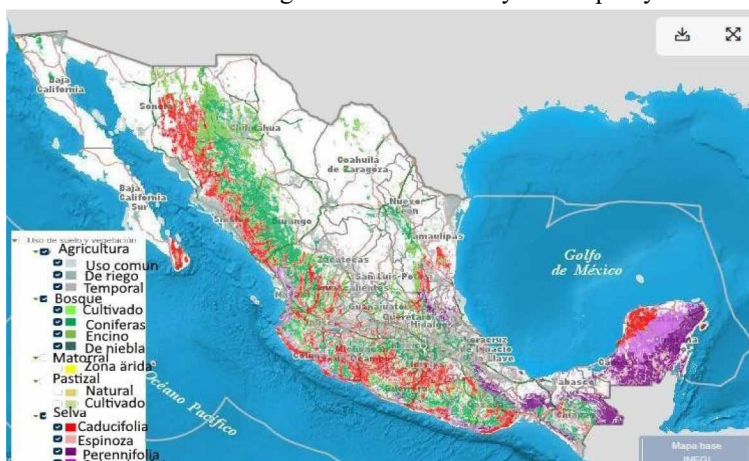
forest's population is in poverty and 66% in extreme poverty. Social deprivations have been accentuated in recent years, especially during the health emergency. (CONEVAL, 2023).

2.8 Public policies and forests.

Classifying and defending land and forest tenure is one of the main challenges of public policies in the world.

Figure 1.

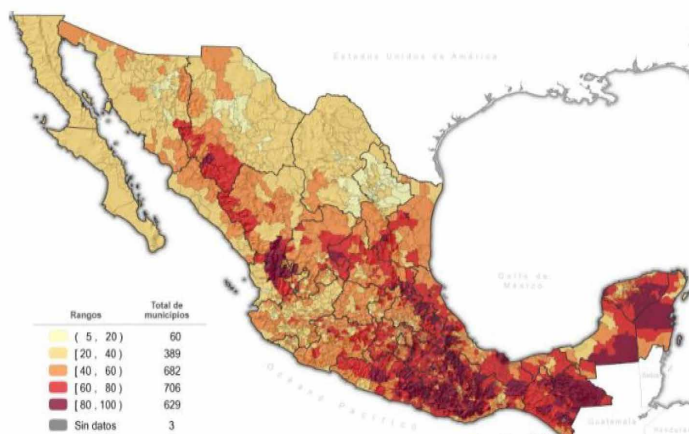
Land use and vegetation in Mexico by municipality



Source: INEGI, 2020

Figure 2.

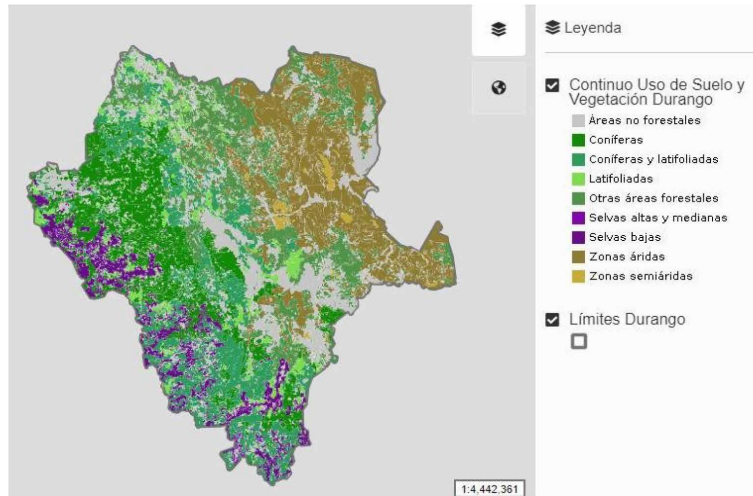
Map of poverty in Mexico



Source: INEGI, 2020

Figure 3.

Land use and vegetation in the state of Durango

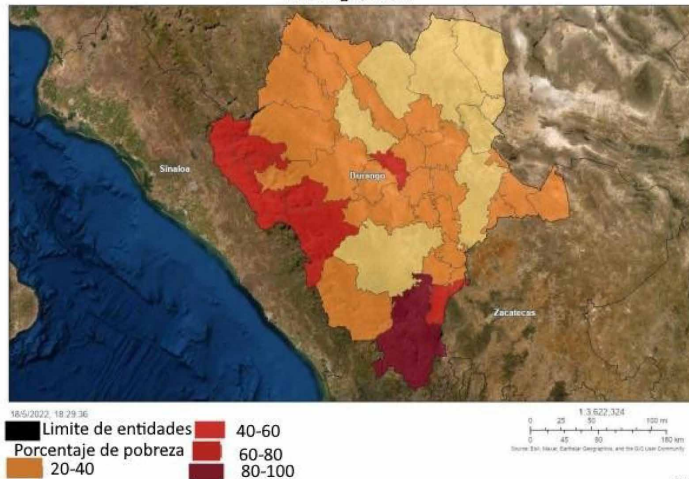


Source: INEGI, 2020

Figure 4.

Poverty by municipality of Durango

Porcentaje de población en situación de pobreza en los municipios de Durango, 2020*



*Para la creación del mapa se utilizó el Sistema de Información Geográfica de Pobreza 2020. Para más información, véase el Anexo A2.

Fuente: elaborado por el CONEVAL con base en el MEC del MCS-ENIGH 2020 y la muestra del Censo de Población y Vivienda 2020, INEGI.

Source: INEGI, 2020

If we transpose maps 1 and 2, and 3 and 4, we see that the poverty and extreme poverty indices are on the forests and jungles of Mexico... The theory of forests and poverty is fulfilled (INEGI, 2020), (W. F. 2004), (FAO, 2022).

Thousands of people live with limited or insecure rights to trees and land, unable to take advantage of forest resources and without any motivation to preserve them. Another challenge is to recognize the environmental externalities associated with forest management, they do not recognize that the use is carried out in fragile ecosystems and without reforestation. Communities at all levels, from local watersheds to the entire planet, must find ways to reward forest owners whose actions benefit others, such as Durango, which supplies water to the Lagunera region, Sinaloa, and Nayarit, without remuneration.

2.9 The case of Guatemala

In Guatemala, land use change from forest to farmland is significant and unsustainable. It is concluded that the strengthening of the non-agricultural sector and the formation of human capital are key elements to avoid this practice of converting forest areas into agricultural areas.

The origin of these data is found in the Global Forest Resources Assessment Report (FRA) of the Food and Agriculture Organization of the United Nations (FAO). This report is updated every five years and provides comprehensive information on the condition of forests globally. Loening and Markussen (2003), in their article, investigated the causes of deforestation and loss and biodiversity in Guatemala, concluding that the change of land use from forest to farmland is related to deforestation.

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2.10 Global deforestation

In the last two decades, almost 100 million hectares of net forest area were lost in the world, 80% of which are poor countries. Global forest cover decreased from 31.9% in 2000 (4,200 million hectares) to 31.2% in 2020 (4,100 million hectares). Agricultural expansion is the direct driver of nearly 90 percent of global deforestation (cropland accounts for 49.6 percent and grazing land for 38.5 percent). The oil palm harvest alone accounted for 7% of global deforestation between 2000 and 2018. (United Nations, 2023)

In the United Nations text (2023), in the same report on the Sustainable Development Goals, it states that, if current trends continue, 575 million people will continue to live in extreme poverty and only a third of countries will have halved their national poverty levels by 2030. Many of the world's vulnerable groups, including the young and the elderly, are still not covered by mandatory social protection programmes. The share of public spending on essential services, such as education, health, and social protection, is significantly higher in advanced economies than in emerging and developing economies. To deliver on the crucial commitment to end poverty and leave no one behind, it is essential. At that time, there were the regions of Africa, Asia and Latin America, brimming with natural resources, which were depleted in exchange for development.

Forests and trees provide essential ecosystem goods and services, but they are undervalued in economic systems. FAO 2022.

Figure 5.

Critical places in forests and jungles



Source: Hansen and DeFries 2004 (hotspots); FAO 2001b

2.11 Social and environmental aspects

Chomitz (2023) defines environmental issues as social issues and society may be faced with intervening if one person's land-use decisions significantly affect the well-being of other people. The impacts, which operate through different channels and depend on the location of deforestation, for example:

- The most widespread impact – and arguably the one that produces the most costly damage – is the effect of forest loss on climate change due to CO₂ emissions.
- There is considerable global demand for the prevention of species extinction and other biodiversity losses, and a growing understanding of where biodiversity is richest and most threatened.
- The impacts of forest loss on flooding, smoke pollution, and water availability and quality are important in some places, but local conditions and land-use changes are specific. Protection in local watersheds is important to maintain urban water quality.
- The direct economic benefits of forest conservation – such as pollination and pest control – are likely to be greatest in mixed-use areas, but have not been well quantified in physical and economic terms.

Conclusions

Complex problems require complex solutions. The Sustainable Development and Environment Network REDESMA (2024) argues that in order to address the challenges of poverty and the environment, public policies with a sustainability approach are required. Degradation, overexploitation of resources and climate change affect the availability and quality of these resources.

Poor people who live in areas prone to natural disasters, such as floods, droughts, or landslides. In addition, the loss of mangroves can aggravate the effects of natural disasters, causing even greater economic and social damage. People in poverty do not have access to basic services, such as clean water.

Poverty and environmental degradation are often associated with patterns of inequality. They have less access to resources and opportunities to adapt to or mitigate environmental impacts. Lack of resources and opportunities can lead to unsustainable practices that harm the environment, while environmental degradation can further deplete resources and affect the livelihoods of poor communities and vice versa.

The solution of many problems with forests requires mediation between those who have conflicting interests in them. 1) The identification and defense of land and forest ownership is a key policy challenge. 2) Millions of people live with limited or insecure rights, live off trees and land, and are unable to take advantage of forest resources and have no motivation to preserve them. 3) Another challenge is to recognize the environmental externalities associated with forest management, an almost impossible solution.

Lack of resources and opportunities can lead to unsustainable practices that harm the environment, while environmental degradation can further deplete resources and affect the livelihoods of poor communities and vice versa. International financing of carbon services could defray the direct opportunity costs of forest conservation, silvicultural development, and alleviate pressures on protected forests. This is a long-term vision, but it could stimulate short-term institutional strengthening that would benefit forests and their inhabitants (BBVA, 2024).

Recommendations

An alternative on the global timber trade side is to reduce demand for forest products by purchasing countries.

Another option is the transfer of money to forested countries in exchange for the care of natural resources. Transfer, machinery and equipment to reforest, and under *contract reforestation* give work and beat deforestation.

Forests, being public goods, do not have efficient legislation, and moreover it is unfeasible, due to the steepness of the mountains. But it is possible to reinforce the guard houses and reduce the traffic of wood.

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