



DOI: [10.29298/rmcf.v13i73.1249](https://doi.org/10.29298/rmcf.v13i73.1249)

Review article

Metamorfosis de la política forestal mexicana contemporánea y su impacto en el sector forestal

Metamorphosis of the contemporary Mexican forest policy and its impact on the forest sector

Miguel Caballero Deloya^{1*}

Fecha de recepción/Reception date: 25 de enero de 2022

Fecha de aceptación/Acceptance date: 23 de julio de 2022

¹Colegio de Postgraduados. Campus Montecillo. México.

*Autor para correspondencia; correo-e: mcaballero@colpos.mx

*Corresponding author; e-mail: mcaballero@colpos.mx

Abstract

Mexico is a nation endowed with a rich and diversified forest resource. This natural capital has been heavily exploited for long time. In 1926, a first forest law was decreed. Its main purpose was the preservation and protection of the forests. After this first forest legislation, seven more forest laws have been decreed in response to the evolution of society and the evolving perspective of the forest resource importance along the years. The most relevant policies have been: (a) Resource conservation; (b) Forest industry promotion; (c) Rural population and forest community development; and (d) Forest sustainable development. In the nation, every six years -the presidential period duration- a different forest policy is applied. Every federal government elaborates and implements a new National Plan for Development, which in turn, defines new sectorial public policies, as is the case of the forest sector. Since last and current century, 18 federal governments have established strategies for the preservation, management and use of the forest ecosystems. A historic analysis of applied public policies on forestry issues reveals fluctuations in objectives, priorities and implementation schemes. An assessment of policy results, based on the components effectiveness, efficiency and sustainability, provides evidence of limited achievements from the environmental, social and economic perspectives. Long run planning and effective policies are needed to face present and future challenges.

Key words: Federal government, forest legislation, forest policy, natural resources, forest service, common lands.

Resumen

México es una nación dotada de un rico y diversificado recurso forestal. Este capital natural fue severamente explotado por largo tiempo. En 1926, se decretó la primera ley forestal. Su propósito fundamental fue la preservación y la protección de los bosques. Después de esta legislación pionera, se han decretado siete leyes forestales en respuesta a la evolución de la sociedad y a la cambiante perspectiva de la importancia del recurso forestal a lo largo de los años. Las políticas más relevantes han sido: (a) Conservación del recurso; (b) Promoción de la industria forestal; (c) Desarrollo de la población rural y comunidades forestales; y (d) Desarrollo forestal sustentable. En la nación, cada seis años -la duración del periodo presidencial- se aplica una política forestal diferente. Cada gobierno federal elabora e implementa un nuevo Plan Nacional de Desarrollo, el que a su vez define nuevas políticas públicas sectoriales, como es el caso del sector forestal. A lo largo del siglo pasado y lo que va del actual, 18 gobiernos federales han establecido estrategias para la preservación, manejo y uso de los ecosistemas forestales. Un análisis histórico de las políticas forestales aplicadas revela fluctuaciones en objetivos, prioridades y esquemas de implementación. Una evaluación de los resultados de la política pública

en materia forestal, basada en los componentes de efectividad, eficacia y sustentabilidad, aporta evidencia de logros limitados desde las perspectivas ambiental, social y económica. Se precisa de planeación de largo plazo y políticas efectivas para afrontar los retos presentes y futuros.

Palabras clave: Gobierno federal, legislación forestal, política forestal, recursos naturales, servicio forestal, tierras comunitarias.

Introduction

Forest ecosystems are a resource of huge importance, from the environmental and development point of view of the country. They contribute to satisfy several demands of the population, in rural and urban areas, in agricultural, industrial, commercial, transportation and service activities, among others. However, this invaluable public good, from the versatility of its usefulness, has been subject to intense exploitation over time (INECC, 2007a). It was not until the second decade of the 20th century that the Federal Government formally adopted a forest public policy and established the first bases for its conservation, restoration, management and harvesting.

The 95th anniversary of the formal application of public forest policy in Mexico took place in 2021. Since the pioneering specification of what was contained in the first forestry law (1926), there have been 18 federal governments (without the current one), responsible in their historical moment for defining the course of the nation's forest sector. An analysis of this process reveals a diversity of visions and actions for the conservation, management and use of the resource. In Mexico, as in other nations, the viewpoint of the person holding the highest office of government has been determinative for the public forest policy. In addition to the internal factors and circumstances of the country, as a result of the historical process, variables

from the international environment were added, which have also had repercussions in this context.

Each country, from its history, culture, aspirations and resources, implements its own forest policy (FAO, 2010a). Thus, Mexico's forestry policy has been different from that of other countries. Several factors have affected its peculiarity, highlighting: (a) The diversified nature of the forest resource, (b) The role of forests in cultures and in society, (c) The collective feature of land ownership, (d) The political system, and (e) The particularity of a society resulting from a unique historical process.

Since pre-Hispanic times, practices were applied for the conservation of natural resources. During Colonial times, guidelines (ordinances and edicts) were proclaimed for the care and conservation of groves, wildlife, soil and water (Moncayo, 1979). It was not until the adoption of formal forest legislation that the foundations were laid to form a process for designing and applying the corresponding public policies. However, some circumstances -internal and external nature- outlined a continuous change in the direction of the national forest sector.

The aim of the analysis described below was to characterize the most significant trends and changes in forest public policy from five historical periods (1926 to 2018) in contemporary Mexico, in addition to addressing the circumstances that influenced their occurrence, to finally highlight its main impacts.

It seeks to delve into the errors of the past, as a feedback mechanism to improve the focus and efficiency of forest policies at present and future times.

Historical trend of forest policy in Mexico

Period I. 1926-1942: Regularization and protection of forests

In 1926 the first forest law was issued, and with it the first statements of public policy. The purpose of this law (Article 1) was: "to regulate the conservation, restoration, propagation and use of forest vegetation, as well as the training and organization of the technical personnel necessary to achieve this goal". The Law focused on the protection, conservation and restoration of forests. It reflected the vision of the so-called "Apostle of the tree", Miguel Ángel de Quevedo, who had an important participation in its elaboration (Simonian, 1999). The established purposes were not fulfilled because the right conditions did not exist.

Period II. 1943-1969: Drive towards a national forestry industry

A second forest policy approach emerged in 1943 from the decree of the second forest legislation. President Miguel Ávila Camacho (1940-1946) set out to promote a forest sector that would contribute to the national economy. The mechanism would be a persistent and continuous exploitation of the forests for the operation of an important industry. For this purpose, through Article 6 (Secretaría de Agricultura y Fomento, 1943) the creation of Industrial Forest Exploitation Units (UIEF, for its acronym in Spanish) was established.

The aforementioned strategy was consolidated over four decades, with an impact on the productive chain of the forestry sector. The timber harvest in the period 1943-

1969 showed an outstanding continuous growth (Caballero, 2017). In contrast, forest bans were decreed in non-concessioned forests. Moncayo (1979) highlighted that the 1926 legislation laid the legal foundations for Official Conservationism.

Period III. 1970-1981: Social policy and state interventionism

Until the presidency of Gustavo Díaz Ordaz (1964-1970), the prevailing public policy in Mexico was based on the "Stabilizing Development and Import Substitution" model (Montserrat y Chávez, 2003).

During the presidential periods of Luis Echeverría Álvarez (1970-1976) and José López Portillo (1976-1982), there was a high degree of state intervention, in support of agrarian communities. Parastatal organizations were created in the forestry sector, highlighting decentralized public organisms, state organisms, trusts, companies with state participation, etc. At the federal level, Mexican Forest Products (Proformex, for its acronym in Spanish), *Tarahumara* Forest Products (Profortarah, for its acronym in Spanish) and *Forestal Vicente Guerrero* stood out in the states of *Durango*, *Chihuahua* and *Guerrero*, respectively. At state level, the following operated Forest Products of *Michoacán* (Proformich, for its acronym in Spanish), Forest Harvesting of *Nayarit* (Aprofon, for its acronym in Spanish), and Forest Protector and Industrializer in the State of Mexico (ProTinbos, for its acronym in Spanish) (Caballero, 2000).

In 1971, the decentralized public body National Fund for *Ejidal* Development (Fonafe, for its acronym in Spanish) was created, which integrated community forestry companies to supply parastatal forest companies (Torres *et al.*, 2021).

In the six -year term of President Luis Echeverría, the National Dismount Program (Pronade) was implemented, with the purpose of achieving food self-sufficiency. The conversion of 24 599 ha of forests and forests to livestock and agricultural activity was raised. The project lasted 10 years (1972-1982) and caused deforestation of more than one million hectares (Limón, 2020). The General Directorate of Forest Development of the Forest Subsecretaria, as of 1973, began a formal process of support for community production and development. The governmental objective was far from achieving their purposes. The poor results relates to the lack of normative, operational and corporate criteria of public companies (Musalem, 1983).

Period IV. 1982-1999: Neoliberal policy in the forest sector

With President Miguel de la Madrid (1982-1988) the period of neoliberal politics began. It has been defined as “the liberation of individual entrepreneurial skill and freedom within an institutional framework characterized by strong private property rights and free markets and trade” (Harvey, 2007). The nationalization process of the previous six-year terms took a turn towards its disincorporation.

In 1982, the Ministry of Urban Development and Ecology was created (INECC, 2007b). In 1988, the General Law of Ecological Balance and Environmental Protection was enacted. The economic policy in the six-year term of President de la Madrid marked the beginning of commercial opening, by inserting Mexico in 1986 in the General Agreement on Tariffs and Trade, GATT (Peña, 1986).

With the signing of the North American Free Trade Agreement (NAFTA), during the presidency of Carlos Salinas de Gortari (1988-1994), the neoliberal policy was

consolidated. The doors to trade in forest products with the United States and Canada were opened. The Forest Law of 1986 gave way to new forest legislation in 1992, which canceled the regulations that had hindered the production, industrialization and marketing of forest products. As a result, the illegal exploitation of forests and the proliferation of clandestine sawmills were promoted.

During the presidency of Ernesto Zedillo (1994-2000), the forestry policy application framework was constituted by the Forestry and Soil Program 1995-2000. The fundamental purpose was "to increase the participation of the forest sector in the economy under a model of sustainable use of forest resources" (Secretaría de Gobernación, 1996). To this end, two lines of action were proposed, among others: (a) The promotion of commercial forest plantations, and (b) The design and implementation of direct, financial and fiscal support to promote productive investments (FAO, 2000). These lines were based on application, for the first time, subsidies in support of the forestry sector. The first economic support programs emerged: Prodefor (Forest Development Program), Prodeplan (Forest Plantation Development Program), Procymaf (Forest Resources Conservation and Sustainable Management Project) and Pronare (National Reforestation Program). Other programs were added later.

Period V. 2000-2018: Sustainable development, foundation of modern forest policy

The 21st century evidenced substantive changes in the environment and natural resources. Climate change and other adverse circumstances associated with the

environment (loss of biodiversity; air, soil, rivers and oceans pollution; deterioration of ecosystems) have had a global impact.

In the present century, the paradigm of sustainable or sustainable development broke in Mexico. The first forest antecedent is constituted by the Forestry Law of 1997. In this, the first article established the purpose of the new law "to promote sustainable development" (Secretaría de Gobernación, 1997).

During the presidency of Vicente Fox (2000-2006), the creation of the National Forest Commission (Conafor, for its acronym in Spanish) stood out. The public administration of the forestry sector reached the level of a decentralized public body with its own legal personality and assets (Article 1) (Semarnat, 2001). Its specific purpose was addressed in "developing, favoring and promoting productive, conservation and restoration activities in forestry, as well as participating in the formulation of plans and programs and in the application of sustainable forest development policy" (Semarnat, 2001).

In 2003, the General Law on Sustainable Forest Development was created. With a substantial budget increase for government forestry management, the national forest sector was significantly strengthened compared to previous public administrations. Of particular importance in the presidency of Vicente Fox was the consolidation and creation of new subsidy programs in support of the forest sector.

The government of Felipe Calderón (2006-2012) created *Pro Arbol*, an emblematic program of the six-year term, which mostly weighted strategies in favor of the environment and natural resources.

The government of Enrique Peña Nieto (2012-2018) highlighted the goal of increasing forest production through the ENAIPROS program (National Strategy to Increase Sustainable Production). An annual goal of eleven million m³r was programmed at the end of the six-year term. The maximum annual harvest achieved during the administration was 9.0 million m³r in 2017. The average annual

volume of this public administration was 7.0 million m³r (Semarnat, 2017). On June 5th, 2018, the most recent forestry law was decreed (Semarnat, 2018).

Factors that have affected the performance of public forest policies

In 95 years of application of forestry policy in Mexico, it has not been possible to consolidate a national forest sector that, within the framework of adequate conservation and good management of forests, is an important factor of social and economic development. Experience shows limitations that have held back such expectations:

I. Short and medium term political system. The six-year nature of the government system has been a factor of instability.

II. Forest policies emerged in different political schemes. Four economic-political systems stand out that have had a significant impact on the forest sector:

a) Stabilizing Development. 1950-1970 period. Its objective was to combine economic growth with economic and social stability within the framework of a mixed economy. Protectionism stood out (Aguilar, 1979).

b) Social policy with significant government interventionism. Public administrations of presidents Luis Echeverría and José López Portillo (1970-1982). Parastatal companies and other types of state organisms were promoted in the forest sector.

c) Neoliberal Policy. Free economy around a market system with a strong presence of the private sector and limited state intervention. From 1982 to 2018. Limited achievements in the forestry sector. Annual GDP below 1 %.

d) Current model: Market system and state control with a social focus. It favors an active participation of the State in branches of the economy that affect the social aspect.

III. Bureaucratized Forest Service, without continuity and in permanent restructuring. In accordance with the vision of each new public administration, this body continued to adopt various levels of government, structures and operating systems. Currently, the permanence of the *Comisión Nacional Forestal* over 20 years.

IV. Limited validity of forestry laws. Forest legislation has been closely associated with the short-term guidelines and policies of the governments in power. Eight forest legislations have been decreed in a period of 95 years. Three of these laws were reformed, which establishes 11 legal instruments in the indicated period.

V. Inefficient policies. Several forest policies emerged without due consideration of the necessary conditions for their successful implementation. FAO (2010a) highlights considering: execution procedures, responsibilities to be adopted, appropriate financing, and the alignment of legal frameworks to the policy considered.

VI. Absence of environmental culture in society. Due to the large timber exploitations during the 19th and 20th centuries, the first forest legislation (1926) had a focus basically on the preservation and restoration of forests (Secretaría de Agricultura y Fomento, 1926). As a result, over the years a social attitude of nonconformity to the felling of trees developed, which stopped government attempts to promote sustainable forest use (Beltrán, 1966).

Impact of public policy on the forest sector

A brief analysis of the current condition of the forestry sector in Mexico in relation to the three axes of sustainability can be considered an indicator of the effectiveness of the policy.

Economic Scenario

The national timber harvest showed a growing trend from the presidency of Manuel Ávila Camacho, with the creation of industrial forest exploitation units. The disappearance of these units led to a decline in the forestry sector in the economy. The efforts of recent governments to incorporate agrarian nuclei into timber production have been difficult. The annual timber harvest has remained practically stagnant, reaching its historical maximum during the presidency of Miguel de la Madrid, with an annual average over 9 million m³ (Caballero, 2010).

During the six-year terms of Presidents Zedillo, Fox, Calderón and Peña Nieto, the average annual value remained below 8 million m³, although in this last period a value close to 9 million m³ was observed (Caballero, 2010).

The historical contribution of the forest sector to the Gross Domestic Product (GDP) has been limited, showing a downward trend. From 2012 to 2016, this indicator recorded 0.2 % average (Semarnat, 2016). On the other hand, the annual behavior of the trade balance of forest products has shown a growing deficit; for 2018 it was US\$6 691 million.

Environmental Scenario

The growth of the rural population within forest ecosystems has had repercussions on them. Land use change continues to be the most important causal factor of deforestation. For the 2005-2010 period, an annual deforestation rate of 155 000 ha was calculated (FAO, 2010b). The policies aimed at its reduction do not show significant impacts. Added to this is the growing impact on forests due to the effect of pests, diseases and forest fires.

The degradation of forest ecosystems has affected biodiversity. The National Commission for the Knowledge and Use of Biodiversity (Conabio) has recorded more than 2 000 species of extinct plants and animals in the country. Five factors stand out that directly impact their survival: (a) Loss of habitats, (b) Introduction of invasive species, (c) Overexploitation of the resource, (d) Pollution, and (e) Climate change (Conabio, 2020).

Social Scenario

In Mexico, 55 % of the forest area is collective (Madrid *et al.*, 2009). Limitations of the agrarian nuclei in terms of organization, training, and financing privileged forest concessions of a private nature. In the 1970's, a policy of support for community

development was initiated. However, to date the success stories have had a local impact and little has transpired at the national level.

Most government programs aimed at community development have lacked continuity. Some factors that have influenced the success or failure of agrarian communities are: (a) Degree of organization and cooperation; (b) Nature of the natural resource and potential for exploitation, industrialization and commercialization; (c) Access to credits; (d) Support policies (subsidies, training, technical assistance, etc.); and (e) Intrinsic aspects of the communities. Most forest communities continue to live in conditions of poverty.

Achievements and Advances

Creation of an institutional structure

The forest legislation of 1926 (Secretaría de Agricultura y Fomento, 1926) established "the training and organization of personnel for the conservation, restoration, propagation and use of forest vegetation." It was the starting point towards the creation of a Forest Service in Mexico. A long period of institutional instability had to pass before the National Forest Commission (Conafor) was created in 2001. This dependency has survived three public administrations until its consolidation to date. Additionally, a set of institutions related to the sector has been formed, headed by Semarnat (Ministry of Environment and Natural Resources) and Conafor, including: INECC (National Institute of Ecology and Climate Change),

Conabio, Conagua (National Water Commission), Conanp (Protected Natural Areas National Commission), Sader (Ministry of Agriculture and Rural Development), Sedatu (Ministry of Agrarian, Territorial and Urban Development), Ministry of Welfare, and instances of state governments.

Consolidation of subsidy programs for the forest sector

In 1997, through a modification to the Forest Law of 1992, subsidies were established for the sector (Article 33). At present, the forest legislation confers on the Federation and States the design, development and application of economic instruments that encourage compliance with the objectives of the forest policy (Article 136) (Semarnat, 2018). The disorderly emergence of subsidy programs without proper planning limited their impact on the sector (Deschamps and Madrid, 2018).

Successful cases of community forest development

The efforts of the federal governments to promote community development have achieved different results. This is due in part to the heterogeneity of the agrarian nuclei. Some *ejidos* and communities have achieved success, sustainably exploiting their forests, giving added value to the wood and marketing the products. Madrid *et*

al. (2009) have provided information on ten forestry organizations that have stood out for their maturity.

A program cited for its significant repercussions on social issues was Procymaf. It has been highlighted that "the case of community forestry in Mexico represents a proven model of sustainable use of forest ecosystems that deserves greater attention and further analysis" (Segura *et al.*, 2016). The process of consolidation and improvement of forestry agrarian nuclei is still immersed in a set of problems and limitations.

Policy promoting sustainable forest development

After the global dissemination of the concept of Sustainable Development at the *Rio de Janeiro* Summit (ONU, 1992), Mexico adopted this paradigm. Supported by recent forest legislation, it has been promoting strategies towards its achievement.

Greater involvement of state governments

For decades, public forest policy in Mexico was generated, radiated and implemented at the state level by federal governments. The limited participation of the states was basically for coordination purposes. In recent years there has been a growing process of direct involvement of state governments in the conservation and

use of natural resources. Several states have a forestry and environmental law and program. It seeks to contribute to improving the condition of state forest sectors and greater attention to these ecosystems.

Growing citizen participation in forest policy

In the past, forest strategies emerged in government offices by planning specialists. Society lacked the opportunity to participate in this process. Article 6 of the Forest Law of 1992 (Secretaría de Gobernación, 1992) constitutes an important opening achievement, by assigning Semarnat the task of forming a National Forest Technical Advisory Council. This fact, among others, formally opened the participation of citizens in public forest policy in Mexico.

Formalization of medium and long-term policies

Throughout contemporary Mexico, public policy has been gestated for six years. The General Law of Sustainable Forest Development promulgated in 2003, established two aspects for the planning of forestry development (Article 36), the first relative to the constitutional periods of public administration, while the second corresponds to a long-term projection, 25 years or more (Secretaría de Gobernación, 2003).

Funding for forest research

The creation of the National Forest Research Institute in 1957 was an important boost to forestry research. Unfortunately, the budget limitation stopped its purpose. The creation of Conafor, and of the sectoral fund for forestry research, constituted an outstanding achievement for the promotion of such activity. The current approach to forestry research is fundamentally scientific in nature. Although Conafor and the state governments promote research towards problem solving, it remains secondary. The two approaches are necessary and complementary. A proper balance is required.

Consolidation of commercial forest plantations

During the 20th century, the need to promote commercial forest plantations in Mexico was stressed. The 1997 Forest Law, through the formalization of economic instruments in support of the sector (Article 33), allowed the creation of Prodeplan. For more than two decades, this program has remained a high priority forest strategy. Experience to date suggests that the program's budgeting, planning, goals, and operation and evaluation mechanisms must be improved for forest plantations to have a significant impact on forest production. Prodeplan has been limited by various circumstances pointed out by Torres *et al.* (2021).

Conclusions

For 95 years, Mexico has been formally applying public forestry policies. They have been short-lived and, in the best of cases, medium-term, which reveals instability, inconsistency, inefficiency, discretion and a response to six-year changes in public administration.

In 2001, the National Forest Commission published the Strategic Forest Program (PEF, for its acronym in spanish) 2025, with a long-term vision (Conafor, 2001). However, it never acquired the character of the guiding instrument of the country's forestry policy by the subsequent public administrations.

Since the first forest law (1926), the course of forest policy has frequently been redirected. The strategy towards the nation's forests varied from the perspective of resource conservation, to the promotion of the forest industry, to the promotion of community forestry development, and in recent years, to sustainable forest development.

The absence of valid evaluation mechanisms and historical indicators, or the scant reliability of those available on the achievements and failures of the forestry policy, canceled the opportunity to evaluate with certainty the effectiveness of the policy over nine decades. A review of the forestry sector, based on the axes of sustainability, provides evidence of the limited impact of public policy on forestry.

Mexico faces challenges and challenges never before experienced. The levels of contamination of water, soil, air and vegetation, the deterioration of forests and jungles, as well as the loss of biodiversity, have reached alarming levels. Added to this are the ravages of the SARS-Cov-2 pandemic and the greatest scourge in

history, climate change. Added to the environmental problem is the urgency of promoting social and economic development. For decades, most forest communities were absent from the economic benefits derived from forest exploitation. Efforts to achieve their claim have been limited in the national context. Although Conafor carries out a dynamic program in support of these social groups, there is uncertainty as to the duration and impact that the program may achieve, in an environment of political instability and limited support and resources (CCMSS, 2019).

Recommendations

Implement efficient and effective policies, short, medium and long term; implement intersectoral and interdisciplinary forest policies; intensify the incorporation of agrarian nuclei into the forest production chain; promote commercial forest plantations; responsibly resume prevention and care measures for mitigation and adaptation to climate change; reduce and simplify the forest management process; promote investment, financing and business vision to the Mexican forest sector; and professionalize the public service in this area.

Acknowledgements

The author thanks *Colegio de Postgraduados* for the support provided to carry out this study.

Conflict of interests

The author declares that there is no conflict of interest

References

- Aguilar D., J. 1979. La actividad forestal en el marco de la economía mexicana. In: Instituto Nacional de Investigaciones Forestales (INIF). Aspectos Económicos y Sociales de la Actividad Forestal. Publicación Especial Núm. 18. INIF. Coyoacán, D. F., México. pp. 17-29.
- Beltrán, E. 1966. Seis lustros de política forestal. In: Memoria de la III Convención Nacional Forestal. Subsecretaría Forestal y de la Fauna, Asociación Mexicana de Profesionistas Forestales y Cámara Nacional de las Industrias Derivadas de la Silvicultura. México, D. F., México. pp. 1-16.
- Caballero D., M. 2000. La actividad forestal en México. Vol. I. Universidad Autónoma Chapingo. Texcoco de Mora, EdoMéx., México. 275 p.
- Caballero D., M. 2010. La verdadera cosecha maderable en México. Revista Mexicana de Ciencias Forestales 1(1):6-16. Doi: 10.29298/rmcf.v1i1.647.
- Caballero D., M. 2017. Tendencia histórica de la producción maderable en el México contemporáneo. Revista Mexicana de Ciencias Forestales 8(43):4-26. Doi: 10.29298/rmcf.v8i43.63.
- Comisión Nacional Forestal (Conafor). 2001. Programa Estratégico Forestal para México 2025. Secretaría de Medio Ambiente y Recursos Naturales. Coyoacán, México D.F., México. 173 p.

Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (Conabio). 2020. ¿Por qué se pierden los bosques? <https://www.biodiversidad.gob.mx/biodiversidad/porque.html>. (16 de agosto de 2020).

Consejo Civil Mexicano para la Silvicultura Sostenible (CCMSS). 2019. El Presupuesto de Conafor 2013-2019. Subsidios asignados por la Conafor entre 2013-2019. <https://www.ccmss.org.mx/mapa/el-presupuesto-de-conafor-2013-2019/>. (9 de noviembre de 2020).

Deschamps R., P. y S. Madrid Z. 2018. Subsidios forestales sin rumbo. Apuntes para una política en favor de las comunidades y sus bosques. Consejo Civil Mexicano para la Silvicultura Sostenible, A. C. Álvaro Obregón, CdMx, México. 56 p.

Food and Agriculture Organization of the United Nations (FAO). 2010b. Global Forest Resource Assessment 2010: main report. FAO Forestry Paper 163. FAO. Rome, RM, Italy. 378 p.

Harvey, D. 2007. A brief history of neoliberalism. Oxford University Press. New York, NY, USA. 256 p.

Instituto Nacional de Ecología y Cambio Climático (INECC). 2007a. Capítulo III. La Conservación en Tiempos Desfavorables. México Independiente hasta la Revolución. Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT). <http://www2.inecc.gob.mx/publicaciones2/libros/118/cap3.html>. (1 de septiembre de 2020).

Instituto Nacional de Ecología y Cambio Climático (INECC). 2007b. II. Historia del INE. <http://www2.inecc.gob.mx/publicaciones2/libros/260/historia.html>. (12 de febrero de 2020).

Limón A., M. 2020. La nueva Ley General de Desarrollo Forestal Sustentable. Centro de Estudios Jurídicos y Ambientales A. C. http://www.ceja.org.mx/articulo.php?id_rubrique=29&id_article=127. (8 de abril de 2020).

Madrid, L., J. M. Núñez, G. Quiroz y Y. Rodríguez. 2009. La propiedad social forestal en México. *Investigación Ambiental* 1(2):179-196. <https://biblioteca.semarnat.gob.mx/janium/Documentos/Ciga/agenda/DOFsr/INVEA MB000016.pdf>. (12 de febrero de 2020).

Moncayo R., F. 1979. Relación de algunas cosas de los montes de México: un ensayo histórico del asunto forestal. Serie Premio Nacional Forestal Núm. 2. Subsecretaría Forestal y de la Fauna y Secretaría de Agricultura y Recursos Hidráulicos. México, D. F., México. 220 p.

Monserrat H., H. y M. F. Chávez P. 2003. Tres modelos de política económica en México durante los últimos sesenta años. *Análisis Económico* 18(37):55-80. <https://www.redalyc.org/pdf/413/41303703.pdf>. (20 de enero de 2022).

Musalem L., F. J. 1983. Las empresas públicas forestales. In: Instituto Nacional de Administración Pública. Memoria del Foro de Consulta Popular para la Planeación de la Empresa Pública. Instituto de Investigaciones Jurídicas–Universidad Nacional Autónoma de México. Coyoacán, CdMx, México. pp. 247-253.

Organización de las Naciones Unidas (ONU). 2022. *Conferencia de las Naciones Unidas sobre Medio Ambiente y Desarrollo, Río de Janeiro, Brasil, 3 a 14 de junio de 1992*. <https://www.un.org/es/conferences/environment/rio1992>. (9 de agosto de 2022).

Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO). 2000. Situación de la actividad forestal en México. Comisión Forestal para América del Norte. <http://www.fao.org/3/X4702S/X4702S.htm> (28 de abril de 2020).

Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO). 2010a. Elaboración de una política forestal eficaz. Una guía. Estudio FAO: Montes 161. FAO. Roma, RM, Italia. 94 p.

Peña A., R. 1986. Ventajas y desventajas del ingreso de México al GATT. *Comercio Exterior* 36(1):33-45.

<http://revistas.bancomext.gob.mx/rce/magazines/206/4/RCE4.pdf>. (15 de octubre de 2021).

Secretaría de Agricultura y Fomento. 1926. Ley Forestal. Diario Oficial de la Federación 24 de abril de 1926, edición matutina, Tomo 35, Núm. 45. México, D. F., México. 1031-1040 pp.
<https://www.dof.gob.mx/index.php?year=1926&month=4&day=24#gsc.tab=0>. (19 de enero de 2022).

Secretaría de Agricultura y Fomento. 1943. Ley Forestal. Diario Oficial de la Federación, 17 de marzo de 1943, edición matutina, Tomo 137, Núm. 13. México, D. F., México. pp. 1-9.
https://dof.gob.mx/index_111.php?year=1943&month=03&day=17#gsc.tab=0. (21 de enero de 2022).

Secretaría de Gobernación (Segob). 1992. Ley Forestal. Diario Oficial de la Federación, 22 de diciembre de 1992.
https://dof.gob.mx/nota_detalle.php?codigo=4705370&fecha=22/12/1992#gsc.tab=0. (23 de junio de 2022).

Secretaría de Gobernación (Segob). 1996. Decreto por el que se aprueba el programa sectorial de mediano plazo denominado Programa Forestal y de Suelos. 1995-2000. Diario Oficial de la Federación 02 de octubre de 1996.
https://www.dof.gob.mx/nota_detalle.php?codigo=4901644&fecha=02/10/1996#gsc.tab=0. (20 de marzo de 2020).

Secretaría de Gobernación (Segob). 1997. Decreto por el que se reforma la Ley Forestal de 1992. Diario Oficial de la Federación, 20 de mayo de 1997. México, D.F. México.
https://www.dof.gob.mx/nota_detalle.php?codigo=4880102&fecha=20/05/1997#gsc.tab=0. (20 de marzo de 2020).

Secretaría de Gobernación (Segob). 2003. Ley General de Desarrollo Forestal Sustentable. Diario Oficial de la Federación, 25 de febrero de 2003. México, D.F. México.

https://www.dof.gob.mx/nota_detalle.php?codigo=705172&fecha=25/02/2003#gsc.tab=0. (19 de marzo de 2020).

Secretaría de Medio Ambiente y Recursos Naturales (Semarnat). 2001. Decreto por el que se crea la Comisión Nacional Forestal. Diario Oficial de la Federación, 4 de abril de 2001. México, D. F. México. pp. 37-42. <http://www.conafor.gob.mx:8080/documentos/docs/4/302Decreto%20de%20creaci%c3%b3n%20de%20la%20CONAFOR.pdf>. (18 de marzo de 2020).

Secretaría de Medio Ambiente y Recursos Naturales (Semarnat). 2016. Anuario estadístico de la producción forestal 2016. Dirección General de Gestión Forestal y de Suelos. Coyoacán, CdMx, México. 228 p. <https://www.gob.mx/cms/uploads/attachment/file/282951/2016.pdf>. (21 de octubre de 2021).

Secretaría de Medio Ambiente y Recursos Naturales (Semarnat). 2017. Anuario estadístico de la producción forestal. Dirección General de Gestión Forestal y de Suelos. Coyoacán, CdMx, México. 284 p. <https://dsiappsdev.semarnat.gob.mx/datos/portal/publicaciones/2020/2017.pdf>. (21 de octubre de 2021).

Secretaría de Medio Ambiente y Recursos Naturales (Semarnat). 2018. Ley General de Desarrollo Forestal Sustentable. Diario Oficial de la Federación, 5 de junio de 2018. México, D. F. México. pp. 2-48. https://www.diputados.gob.mx/LeyesBiblio/ref/lgdff/LGDFS_orig_05jun18.pdf. (18 de octubre de 2020).

Segura, G., L. Merino-Pérez, D. B. Bray y A. Cárdenas J. 2016. Manejo forestal comunitario en México: Un modelo emergente de manejo sustentable de ecosistemas forestales. Consejo Civil Mexicano para la Silvicultura Sostenible (CCMSS). <https://www.ccmss.org.mx/manejo-forestal-comunitario-en-mexico-un->

modelo-emergente-de-manejo-sustentable-de-ecosistemas-forestales/. (24 de marzo de 2020).

Simonian, L. 1999. La defensa de la tierra del jaguar. Una historia de la conservación en México. Secretaría del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP), Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) e Instituto Mexicano de Recursos Naturales Renovables, A. C. (IMERNAR). Tlalpan, México, D. F., México. 352 p. http://centro.paot.org.mx/documentos/semarnat/defensa_jaguar.pdf. (1 de abril de 2020).

Torres R., J. M, V. E. Sosa C. y A. M. Fierros G. 2021. Reflexiones finales. In: Fierros G., A. M. (Comp.). Programa de Desarrollo de Plantaciones Forestales Comerciales. A 15 años de su creación. Comisión Nacional Forestal (Conafor). Zapopan, Jal., México. pp. 142-143.



Todos los textos publicados por la **Revista Mexicana de Ciencias Forestales** –sin excepción– se distribuyen amparados bajo la licencia *Creative Commons 4.0 Atribución-No Comercial (CC BY-NC 4.0 Internacional)*, que permite a terceros utilizar lo publicado siempre que mencionen la autoría del trabajo y a la primera publicación en esta revista.