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Assessing the Sustainable Development Dimensions of Environmental Public Policies for Protected Natural Areas in Mexico: A 1970-2018 Perspective

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Cover Page Footnote

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Assessing the Sustainable Development Dimensions of Environmental Public Policies for Protected Natural Areas in Mexico: A 1970-2018 Perspective

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Abstract: This abstract discusses the challenges and issues related to the implementation of Environmental Public Policies (EPP) for Protected Natural Areas (PNA) in Mexico from 1970 to 2018. EPPs aim to achieve sustainable development by balancing economic, environmental, and social dimensions while reconciling conservation and the use of natural resources with restrictions on their use and economic compensation to communities. However, the results of this study reveal that the establishment of PNA has been unilateral and without consensus, leading to limitations on communities' use of the environment without granting them economic compensation or productive alternatives. This has resulted in conflicts from the use of natural resources (CUNR). To address these issues, the paper recommends increasing the budget of programs that support productive activities for populations and building partnerships among the populations and public policies. This research highlights the importance of considering the socio-economic impacts of environmental policies to ensure their success and sustainability in the long term.

Keywords: Environmental Public Policy; Protected Natural Areas; sustainable development; political ecology; Sustainable Development Goals 2030.

Resumen: Este resumen discute los desafíos y problemas relacionados con la implementación de Políticas Públicas Ambientales (EPP, por sus siglas en inglés) para Áreas Naturales Protegidas (ANP) en México desde 1970 hasta 2018. Las EPP tienen como objetivo lograr el desarrollo sostenible equilibrando dimensiones económicas, ambientales y sociales, al mismo tiempo que concilian la conservación y el uso de recursos naturales con restricciones en su uso y compensación económica a las comunidades. Sin embargo, los resultados de este estudio revelan que el establecimiento de ANP ha sido unilateral y sin consenso, lo que ha llevado a limitaciones en el uso del entorno por parte de las comunidades

sin otorgarles compensación económica o alternativas productivas. Esto ha dado lugar a conflictos por el uso de recursos naturales (CUNR). Para abordar estos problemas, el documento recomienda aumentar el presupuesto de los programas que respaldan actividades productivas para la población y establecer asociaciones entre las poblaciones y las políticas públicas. Esta investigación resalta la importancia de considerar los impactos socioeconómicos de las políticas ambientales para garantizar su éxito y sostenibilidad a largo plazo.

Palabras clave: Política Pública Ambiental; Áreas Naturales Protegidas; desarrollo sostenible; ecología política; Objetivos de Desarrollo Sostenible 2030.

1. Introduction

There are over 100,000 protected areas that cover 12% of the Earth's land area (S. Chape, J *et al.* 2010), of which 28% (by area) are in the tropics. Several studies suggest that protected areas have reduced rates of deforestation, prevented species extinction, and conserved land and water resources (Brooks, *et al.* 2009).

Mexico has developed its own environmental policy system defined by Halfpter as the "Mexican biosphere reserve model" (Halfpter, 1984, pag.9). The Biosphere Reserve (BR), is a category derived from the Protected Natural Areas in Mexico, (PNS in advance), which integrates protected areas of terrestrial and/or coastal ecosystems, and seek a balanced relationship between their inhabitants and nature, to achieve sustainable development, along with the economic, environmental and social dimensions that blurs it (Foladori, 2002, pag. 622) and currently those are a key element of an Environmental Public Policy (EPP).

Among the objectives of these biospheres are to consider local populations in the management of these spaces. Therefore, the establishment of a BRs, entails achieving biodiversity conservation, but without losing sight of the communities that have used natural resources to survive and who, due to the limitations imposed on the use of the environment, must be rewarded with economic benefits in their favor.

After an area is declared as a PNA, economic benefits would be expected by communities. However, when the EPP only privileges biodiversity conservation, ignoring the interests, needs and economic benefits of populations, the relationship between populations and nature

is broken, leading to sustainable development not being achieved, by excluding its social dimension. Therefore, PNAs, while promoting conservation and development with their creation, has an outcome, readjusting the conditions under which communities have used their environment. This results into a unilateral EPP lacking consensus, which includes only the natural environment and its conservation, and not the social environment, for the populations in the management and management of the area.

Unfortunately, the practice that has prevailed when establishing Protected Natural Areas (PNAs) in Mexico has been characterized by unilateral Environmental Public Policies (EPP) lacking consensus. These policies impose limitations on the use of the environment without granting any economic compensation or offering alternative productive options to the communities. As a result, the communities residing within these PNAs do not feel the benefits of living in these areas. Several studies have highlighted that in Mexico, EPPs have been structured in a top-down manner, which contradicts the expected bottom-up development model for these areas. The development model should prioritize the participation and involvement of local populations in the conservation and use of natural resources within the PNAs, (CNDH y UNAM, 2019, pag. 23) Therefore, it is crucial for EPPs to consider the equal importance of conservation, the sustainable use of resources, and the active engagement of local populations with PNA institutions to ensure their voices are heard (Pinkus & Ortega-Rubio, 2014, pag. 106).

Pajares notes that the EPP must be aligned with political ecology, to address conflicts arising from the use of natural resources, together with the power relations of the actors involved, and that it should be oriented to sustainable development, in order to maintain a balanced relationship between socio-economic development, the use of the environment and the conservation of biodiversity (Pajares, 2008, pags. 22-23). In this way, an EPP focused on PNA aims to achieve sustainable development harmonizing its three dimensions: for the environment, seeking to achieve biodiversity conservation; for economic, the equitable

distribution of benefits arising from the use of natural resources; and for social, the inclusion of communities in the management of their zone through participation.

Therefore, when designing an EPP focused on PNA, it is necessary to consider their perspectives in the creation and management of these areas, as they have been economically dependent on them (Cao, Wang, Song, Chen, & Feng, 2010); ignoring this leads to conflicts arising from the use of natural resources (CAUNR).

In this regard, political ecology does not form a homogeneous and unified body of theories, Toledo (Toledo, 2019), points out that it is a hybrid discipline that studies conflicts, “the relations between nature and human beings with social relations themselves and especially with power relations” (pag. 37); that is, it studies conflicts and unequal power relations as a product of access, stripping and use of natural resources (Delgado, 2013, pag. 60). Tetreault identified “environmental, social movements,” which bring together marginalized sections of society (Tetreault, 2008, pags. 21 y 25), which Toledo named as “the other Zapatismo” in which the main actors turn out to be “people clearly descendants of some of The Distinctive Cultures of Mesoamerica” (Toledo, 1999, pag. 12), stressing that in the country, there are problems associated with biodiversity conservation and from which it is available to learn how indigenous peoples have been favorably related to their environment, balancing culture and nature (Toledo, 2015, pag. 50). Martínez-Alier, calls “popular ecologism” or “greening of the poor”, environmental justice movements in which indigenous peoples seek to curb the actions that deteriorate the environment and affect the use they usually give to their environment (Martinez, 2007, pag. 148).

Regardless of the different denominations mentioned above, political ecology is interested in the social aspects of environmental problems, such as conflicts arising from the use, distribution, and access to natural resources, arising from asymmetrical power relations, as is the case with the indigenous populations of PNAs to which, on the creation of these areas, restrictions are imposed on the use they have commonly given to their environment.

Carmona-Lara explains that CAUNRs disagree on access, control and use of the environment, which occur when policies are imposed without knowing or considering the situation of populations, regarding their knowledge and management of the environment (Carmona, 2015, pags. 29-31). Studies guided by Maldonado Ibarra, Chávez Dagostino and Bravo Olivás (Maldonado, Chávez & Bravo, 2020), revealed that many conflicts between these NPAs and communities surfaced due the lack of participation, and this led the rejection or little acceptance of the decrees of creation of the ANP.

Otherwise, by leaving the population of those spaces unrecognized or without the participation tools or a way to access them, there will be a disassociation from the PPA by excluding them (Maldonado, *et al.*, 2020, pag. 7).

GLEBEP looks the participation of PNA resident's by indicating in Article 158(II) that the Minister of Environment and Natural Resources (SEMARNAT) will seek agreements with indigenous peoples on the establishment, management and administration of such areas, and to provide advice on the sustainable use of natural resources (DOF, 2018).

All this leads us to address a problem the exclusion of the social dimension of sustainable development in the use of the environment, by the EPP focused on PNA, how have EPPs been to sustainable development at PNA from 1970-2018 in Mexico?

2. Materials and Methods

This work was based on documentary research focus on all the EPPs focused on PNA from 1970 to 2018 in Mexico, to address its components and the three dimensions the sustainable development has.

Documentary research, examines written documents, such as books, treatises, thesis, scientific reports, minutes of congresses and newspapers, etc. (Bernal, 2006, pag.110). Cortés-Rojas and García-Santiago, call it as give firsthand data (Cortés Rojas & García Santiago, 2003, pag. 21). The documents under analysis included main or primary sources,

to get firsthand information about authorities' motivation, which are considered institutional by nature. Also, those document records the history and diachrony of the authorities in the exercise of their duties (Cortés-Rojas, García-Santiago, 2003; Fernández, 2002). These documents therefore reflected diacritically how environmental and PNA matters have been addressed by public policies. The public policies sought were the government's actions established primarily in the Mexican Constitution, international instruments, legal codes, public administration structures and development plans and programs (Gil, 2007, pags. 82-83).

3. Results and Discussion

The analysis of the EPP focused on PNA Mexico has implemented from 1970-2018, can be deconstructed on 4 different stages.

3.1 1970-1988: The environment and its association to public health

The six-year terms of 1970-1976 led by Luis Echeverría Álvarez and that of José López Portillo from 1976-1982 founded the normative and organizational bases of the EPP focused on the PNA. These two periods were characterized by a public policy in environmental matters that was based on a vision of health and well-being. Likewise, the number of authorities that dealt with this sector was scattered.

Factors such as the absence of regulation in natural areas and the creation of environmental laws based on a sound environmental approach, together with the diversification of the authorities overseeing these areas, marked the beginning of the configuration of environmental policy in Mexico. In terms of the environmental dimension of sustainable development, the international trend focused on the conservation and elimination of pollution. For example, Resolution 2.313 of the Intergovernmental Programme for Men and

the Biosphere of the United Nations Education, Science and Culture (Organización de las Naciones Unidas para la Educación la Ciencia y la Cultura (UNESCO), 1970), jointly with the Report of the United Nations Conference on the Human Environment²⁹, emphasized the urgency of addressing the relationship between humans and nature in favor of conservation and pollution elimination.

Mexico joined this international tendency, first with the Federal Law to Prevent and Control Environmental Pollution in 1971 (Diario Oficial de la Federación, DOF, 1971), and secondly in 1982 with the Federal Environmental Protection Act³¹. These laws addressed pollution and biodiversity conservation from a sound environmental approach that incorporated the use of natural resources as a conservation strategy. The establishment of areas that needed protection, improvement, and restoration resulted in areas now known as PNAs.

There were several regulations regarding the use of natural resources, such as the Forestry Act of 1960, the Federal Fisheries Act of 1952, and the Federal Fisheries Promotion Act of 1972 (DOF, 1952; 1960; 1972b). However, these laws only superficially addressed PNAs and did not specifically address their structural problems. Land tenure within the PNAs was another important issue. When these areas were created, if the land was privately owned, the Executive Branch expropriated them for reasons of public utility and provided compensation (Diario Oficial de la Federación, DOF, 1936).

Regarding the institutionalization of the EPP for PNAs, it was noted that environmental competence was diversified. The Undersecretariat for Environmental Improvement, of the Ministry of Health and Assistance (MHA) (Diario Oficial de la Federación, DOF, 1972a), worked with three Ministries - Industry and Trade (MIT), Hydraulic Resources (MHR), and Agriculture and Livestock (MAL), to address air, water, and soil pollution, respectively (Diario Oficial de la Federación, DOF, 1985). Subsequently, new offices were created to address issues related to the use of natural resources and PNAs, such as the Directorate General of Reservations and Recreation Areas, the Secretariat of Agriculture and Hydraulic

Resources (MAHR before SAHR), and the General Office of Organization and Planning of National Parks for Recreation of the Ministry of Human Settlements and Public Works (MHSPW) which were responsible for the declaration of these zones and the National Park System (DOF, 1977a, 1977b; 1996a). However, there was not yet a single area fully responsible for environmental matters specific to PNAs.

The reference to the economic and social dimensions of sustainable development was evident in the Environmental Public Policies (EPP) during that period. The Global Development Plan of 1980-1982 highlighted the significant increase in financial, technological, and food dependency in Mexico, exacerbating the lack of competitiveness in the industry. Additionally, by the end of 1976, the country faced a severe economic recession and high inflation rates (Diario Oficial de la Federación, DOF, 1980, pag. 7). It is important to note that the existence of an EPP specifically linked to public policies was not explicitly stated during this time. The priority focus was on eradicating unemployment, rather than prioritizing sustainable development within the government's agenda.

A similar situation was observed in relation to the social dimension of sustainable development. Although there were some international initiatives, such as the Global Conservation Strategy, which emphasized the importance of engaging with local communities to achieve compliance with environmental regulations while ensuring appropriate compensation (Unión Internacional para la Conservación de la Naturaleza y de los Recursos Naturales (UICN), 1980), this approach was not replicated in Mexico's governmental agenda. Consequently, the inclusion of only the environmental dimension of sustainable development in the EPP of that period, framed within a public health perspective, indicated that the comprehensive development goals were not fully realized. This situation contributed to the emergence of conflicts over the use of natural resources (CAUNRs), as there was a lack of explicit consideration for community participation in resource utilization and equitable distribution of associated benefits.

3.2 1982-1994: Ecological balance and the configuration of PPE focused on PNA

The period from 1982 to 1988, under the leadership of Miguel de la Madrid Hurtado, marked a significant era in Mexico's Environmental Public Policies (EPP). Constitutional reforms, such as Article 25, which prioritized conservation (Diario Oficial de la Federación, DOF, 1983b), and the addition of Article 73(G)(XXIX), which established synchronized environmental competence among the Federation, States, and Municipalities 43, resulted in the creation of environmental legislation known as the General Law of Ecological Balance and Environmental Protection (GLEBEP). Similarly, the administration of Carlos Salinas de Gortari from 1988 to 1994 was notable for signing the North American Free Trade Agreement (NAFTA) on December 17, 1992, alongside Presidents George Bush of the United States and former Canadian Prime Minister Brian Mulroney (Diario Oficial de la Federación, DOF, 1993b).

The objective of NAFTA was to establish a free trade area in North America, comprising Canada, the United States of America, and Mexico. Within the treaty, there was a section titled "Investment, Services, and Related Affairs," which included Article 1114 on "Environmental Measures." This article stated that while the parties were not obligated to modify their environmental regulations, legal mechanisms were provided to enforce existing and applicable environmental legislation within each country's territory (Diario Oficial de la Federación, DOF, 1993b). Consequently, the recognition of each country's respective environmental laws also influenced the prevailing trends, as seen in the case of Mexico, where the focus was on the conservation and sustainable use of natural resources.

Furthermore, in addition to the main legislation of NAFTA, the North American Environmental Cooperation Agreement (NAECA) was established. NAECA aimed to address environmental cooperation resulting from trade activities among the involved

countries. It emphasized the protection and improvement of the environment for present and future generations, sustainable development, and the conservation of flora and fauna, among other objectives (Diario Oficial de la Federación, DOF, 1993a).

At the international level, in 1987, the Brundtland Report established that sustainable development must allow for the fulfillment of present needs without compromising the ability of future generations to meet their own needs (Organización de las Naciones Unidas, ONU, 1987a). Based on this principle, it was recognized that the use of natural resources should be limited to their regenerative capacity and the biosphere's ability to absorb waste. In 1992, the United Nations Conference on Environment and Development took place, leading to the establishment of various conventions and principles. These included the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change, as well as the Rio Declaration on Environment and Development and Agenda 21.

The CBD specifically addressed the use of natural resources in protected natural areas, aiming to reconcile and harmonize it with conservation efforts. It acknowledged the rights of states to utilize their natural resources in accordance with their respective Environmental Public Policies (EPPs), while avoiding environmental degradation and impacts on other countries beyond their territorial boundaries (Organización de las Naciones Unidas, ONU, 1992b). The United Nations Framework Convention on Climate Change highlighted the importance of considering coastal areas and ecosystems as part of nations' commitments to mitigating the effects of climate change (Organización de las Naciones Unidas, ONU, 1992a), thereby implying the association of protected natural areas with conservation strategies.

The Rio Declaration on Environment and Development focused on the intertwined nature of natural resource utilization and conservation, recognizing the right of countries to exploit their natural resources while ensuring environmental protection. It emphasized the need to

view these aspects holistically to achieve sustainable development (Organización de las Naciones Unidas, ONU, 1992c). Agenda 21, also aligned with this perspective, continued the trend by addressing conservation of biological diversity in Chapter 15. It emphasized the rational use of biological resources, conservation efforts, and the protection of ecosystems. States were encouraged to prevent activities within their territories from causing harm to the environment, including that of other nations (Organización de las Naciones Unidas, ONU, 1992d).

During this period, significant changes took place in Mexico, as the Environmental Public Policies (EPP) of the protected natural areas (PNA) aligned their regulatory and institutional framework with international trends. The focus was on conservation, pollution eradication, sustainable use of natural resources, and community participation (DOF, 1985; ONU, 1987a; 1987b). Amendments were made to Articles 4, 25, 27 (third paragraph), and 73 (fraction XXIX(G)) of the Mexican Constitution to establish criteria for conservation, ecological balance, combat environmental pollution, and ensure concurrent environmental jurisdiction at the federal, state, and municipal levels, as the main basis for conservation efforts (DOF, 1983b; Cámara de Diputados del H. Congreso de la Unión, 1983).

Furthermore, the General Law for Ecological Equilibrium and Environmental Protection (GLEBEP) was enacted to promote ecological balance. This legislation established guidelines for PNAs, sustainable development, and the promotion of community participation within these areas, with the aim of reconciling conservation with the use of natural resources for the benefit of communities residing in PNAs (Diario Oficial de la Federación, DOF, 1988).

The GLEBEP also introduced the concept of ecological policy for the first time within the EPP framework. It defined ecological policy as one that encompasses the preservation and restoration of ecological balance and environmental protection. In other words, it is a policy that recognizes the interdependence of environmental elements and aims to ensure the

existence and development of both human beings and other living beings [54. Through environmental jurisdiction, the decentralization of functions related to natural resource management was achieved by establishing coordination and concentration mechanisms among the federal, state, and municipal levels of government (Diario Oficial de la Federación, DOF, 1987).

During this period, a series of laws were issued concerning forestry, hunting, and fishing. These include the Forestry Act of 1960, later replaced by the 1986 Forestry Act, which was subsequently endorsed in 1992. Additionally, the Federal Fisheries Act of 1952, along with the Federal Fisheries Development Act of 1972, which were endorsed in 1986 under the 1992 law (Diario Oficial de la Federación, DOF, 1952, 1960, 1972b, 1986, 1992c, 1992d).

In the 1983-1988 National Development Plan and the National Ecology Programme (NEP) 1984-1988, an ecology section was introduced for the first time. This section aimed to address issues such as environmental pollution, natural resource management, and conservation, with a focus on the participation of PNA communities (Diario Oficial de la Federación, DOF, 1983a). As part of this initiative, the National Ecology Program 1984-1988 proposed the establishment of a National System of Protected Natural Areas (NSPNA) in various parts of the country (Diario Oficial de la Federación, DOF, 1984).

The 1989-1994 National Development Plan emphasized the conservation and sustainable use of natural resources, the preservation of natural resources was a key aspect of this program (Diario Oficial de la Federación, DOF, 1989, pags., 64-65)

In addition to the SNP, a specific environmental plan was introduced from 1990-1994, known as the National Environment Protection Programme (NEPP). This program was the first to emphasize the participation of rural communities in initiatives such as the establishment of educational facilities, improvements in healthcare services, and community development projects. Environmental concerns were addressed, and the need for a public policy

framework for sustainable natural resource management, benefiting present and future generations, was recognized (Diario Oficial de la Federación, DOF, 1990).

The National Environmental Protection Programme 1990-1994 placed its focus on the conservation and sustainable use of natural resources, aiming to achieve a balanced development that respects and preserves the environment. It aimed to break the destructive cycle where development becomes a source of exploitation and hinders the prospects of a better life for the population (Diario Oficial de la Federación, DOF, 1990, pag. 10). Protected Natural Areas (PNAs) were recognized as conservation strategies, essential for safeguarding species' genetic diversity. To this end, the National System of Protected Natural Areas (SINANP) was established, addressing challenges such as limited human, material, and financial resources for the effective operation of these areas.

Previously, the responsibility for environmental pollution eradication lay with the Ministry of Health and Assistance (MHA) from 1970 to 1982. The Ministry of Urban Development and Ecology (MUDE) took charge through the Directorate-General for Ecological Conservation of Natural Resources, specifically overseeing PNAs, ecosystem conservation, and the integration of the National System of Parks, Reserves, and Protected Ecological Areas. Additionally, the Directorate-General for Environmental Pollution Prevention and Control was responsible for pollution-related matters (Diario Oficial de la Federación, DOF, 1985). On May 25th, 1992, MUDE was transformed into the Ministry for Social Development (MSD), with all its functions transferred to the MSD (Diario Oficial de la Federación, DOF, 1992b).

Consequently, the MSD, through the National Institute of Ecology (NIE), assumed responsibility for environmental policy formulation, setting standards and criteria for the conservation and sustainable use of natural resources. The NIE played a crucial role in proposing the establishment of PNAs, their administration through SINANP, and the eradication of pollution (Diario Oficial de la Federación, DOF, 1992e).

The establishment of the National Commission for Biodiversity Knowledge and Use (NCB) played a crucial role in supporting biodiversity conservation efforts. The NCB was tasked with promoting studies, knowledge, and research concerning the country's biological resources and ecosystems (Diario Oficial de la Federación, DOF, 1992a). Additionally, the monitoring of environmental regulations and violations of the General Law of Ecological Balance and Environmental Protection (GLEBEP) was assigned to the Federal Attorney's Office for Environmental Protection (FAOEP) (Diario Oficial de la Federación, DOF, 1992e).

Regarding land tenure in Protected Natural Areas (PNAs), public utility expropriation, with corresponding compensation, continued until the issuance of GLEBEP on January 28, 1988. This law preserved land ownership within PNAs while imposing restrictions on the rights to utilize natural resources (Diario Oficial de la Federación, DOF, 1988).

However, despite important environmental advances during this period, such as constitutional reforms and the issuance of GLEBEP, the Environmental Public Policies (EPP) failed to provide sufficient support in terms of resource allocation and programs targeted at PNA populations (Diario Oficial de la Federación, DOF, 1990, pages. 13, 19). GLEBEP emphasized the participation of PNA inhabitants in the establishment of PNAs and in the sustainable use and conservation of flora and fauna. It also included a chapter on social participation, underlining the promotion of community involvement in the formulation of EPP and emphasizing the Ministry of Urban Development and Ecology's (MUDE) responsibility in advising on activities related to the rational use of natural resources (Diario Oficial de la Federación, DOF), 1988). In summary, while the EPP of this period made progress in the environmental and social dimensions of sustainable development, it lacked consideration for the economic dimension, as it failed to address economic benefits for PNA populations. This omission shaped the Comprehensive Area and Use Management Plans

(CAUNRs), which did not fully incorporate the human factor, their interests, needs, and economic benefits.

3.3 1994-2000: The institutionalization of the PNA-focused on EPP

Ernesto Zedillo Ponce de León's six-year tenure from 1994 to 2000 was marked by a concerted effort to solidify the Institutional Environmental Protection Program (EPP) through the establishment of the Ministry of Environment, Natural Resources, and Fisheries (MENRF). This ministry was tasked with overseeing the conservation, sustainable utilization of natural resources, and environmental safeguarding (Diario Oficial de la Federación, DOF), 1994). As a result, the responsibilities previously held by the Ministry of Urban Development and Ecology (MUDE), including the regulation of the EPP and the management of natural resources, such as the establishment of standards and the creation of Protected Natural Areas (PNAs) (Diario Oficial de la Federación, DOF), 1992b); were transferred to MENRF, later renamed as the Ministry of Environment and Natural Resources (MENR). This pivotal shift streamlined the management of natural resources and environmental concerns under a single department. On the global stage, the Kyoto Protocol emerged, aiming to curtail greenhouse gas emissions responsible for global warming while concurrently fostering sustainable development and mitigating the adverse impacts of climate change, such as environmental pollution (Organización de las Naciones Unidas para la Educación la Ciencia y la Cultura (UNESCO), 1998).

Subsequently, the Earth Charter of 2000 came into fruition. Originally a United Nations initiative, it was eventually shaped and finalized by civil society to advocate for a sustainable global society. The charter introduced a set of principles that underscored the significance of conserving natural resources, community engagement, and respect for ecological diversity. It also emphasized the intergenerational responsibility to ensure a prosperous future (La Carta

de la Tierra, 2000). Concurrently in 2000, the United Nations Millennium Declaration was promulgated, envisioning sustainable development as a means to preserve natural resources across generations by reshaping production and consumption patterns. This period saw the introduction of Program 21 and commitments related to the Convention on Biological Diversity (CBD), aimed at mitigating greenhouse gas emissions and fostering conservation and sustainable development in forests and ecosystems (Organización de las Naciones Unidas (ONU), 2000).

Within Mexico, the National Development Plan 1995-2000 included measures to counteract ecological degradation, emphasizing environmental preservation and sustainable growth through the EPP. Pertaining to PNAs, the plan encompassed elements like integrating tourism, certifying natural properties, and promoting wildlife species reproduction (Diario Oficial de la Federación, DOF, 1995, pags. 5, 8, 12, 91).

The Environmental Program 1995-2000 was a key facet of the plan, placing a strong emphasis on PNAs and their role in conserving and utilizing natural resources sustainably. These efforts sought to both protect the environment and engage society in conservation initiatives. Nonetheless, challenges emerged, including national parks not fulfilling their conservation mandates and their communities not reaping benefits. This underscored the need to align EPPs with regional development dynamics (Diario Oficial de la Federación, DOF, 1996a, pags. 6, 48, 55).

To address the limitations within Mexico's Protected Natural Areas Program 1995-2000, various strategies were deployed, such as promoting productive projects aligned with environmentally sensitive practices and regulating natural resource utilization. These measures aimed to foster sustainable resource management and community benefits , pags. 64, 83).

The 1996 reforms to the General Law on Ecological Balance and Environmental Protection (GLEBEP) were designed to promote sustainable development, uphold the public's right to

a healthy environment, define environmental policy, preserve biodiversity and PNAs, and facilitate community involvement. The revisions spanned 204 articles across 6 titles, realigning the PNA framework, expanding community engagement spaces, and specifying criteria for declarations and management programs (Diario Oficial de la Federación, DOF, 1996b).

Article 48 and 54 of the GLEBEP outlined considerations for declarations and management programs. They highlighted the integration of productive activities carried out by existing communities within Biosphere Reserves and areas protecting flora and fauna, provided these activities were compatible with the specified management plan. Declarations now encompassed resource use modalities and permitted or restricted activities (Diario Oficial de la Federación, DOF, 1996b).

Management programs were expected to detail the physical, biological, social, and cultural attributes of PNAs, outline actions such as research and sustainable resource use, and integrate community participation mechanisms based within PNAs (Diario Oficial de la Federación, DOF, 1996b).

Regarding forestry, hunting, and fisheries, the 1952 Federal Hunting Act, the 1992 Forestry Act, and the 1992 Fisheries Act continued to guide regulations. However, the Wildlife Conservation Management Units (WCMU) were introduced through the General Wildlife Law in 2000 (DOF, 1952; 1992c; 1992d), permitting landowners to implement wildlife conservation or exploitation activities in adherence to approved management plans under the auspices of MENRF (Diario Oficial de la Federación, DOF, 2000b).

Constitutional reforms also played a role, adding a fifth paragraph to Article 4 and revising Article 25 to incorporate sustainability within the framework of national development (Cámara de Diputados del H. Congreso de la Unión, 1999, pag. 31). Moreover, a 1999 amendment to Article 115 Constitutional granted municipalities the capacity to participate in

the creation and administration of territorial reserves, solidifying their involvement in PNA management (Diario Oficial de la Federación, DOF, 1999).

Further transformations occurred in 2000 when reforms were introduced to the Organic Law of the Federal Public Administration. This restructuring resulted in the evolution of MENRF into the Ministry of Environment and Natural Resources (MENR), which assumed the responsibilities of its predecessor (Diario Oficial de la Federación, DOF, 2000a), his marked a step toward institutionalizing environmental affairs, including the privatization of ERPs through entities like the National Commission of Protected Natural Areas (NCPNA). Consequently, specific regulations like the Regulations of the General Law on Ecological Balance and Environmental Protection were established to provide greater clarity and direction for the conservation and sustainable use of natural resources within protected areas (Diario Oficial de la Federación, DOF, 2000c).

In this way, the environmental category of sustainable development to be held by the EPP was significantly advanced; because the environmental issue managed to be enshrined not only at the level of a Secretariat of State, but also in a specific legal body. In this regard, it was noted that the 1994-2000 six-year period paid particular attention to ERPs as, through the events identified, they began to be considered in a concrete way by the EPP. Thus, the creation of a body (NCPNA) and regulations that were invoked to PNAs, is that the EPP focused on PNA, achieved for the first time its institutional and regulatory consolidation. Therefore, it was no surprise that in National Planning it was considered not only an environmental program, but also one for PNAs.

Now, as regards the economic category of sustainable development, the financial component, relating to programmes and supports, aimed at benefiting populations embedded in PNAs, continued to be absent. And regarding the social dimension of sustainable development, its inclusion in the EPP continued to be emphasized, as Community participation was present both at the international and national levels, for example, in the National Development Plan

1995-2000 and in the GLEBEP Regulations for PNAs. In this way, the inclusion of communities in the establishment of PNAs, together with their socio-economic and even cultural and historical interests and contexts, was contemplated to prevent the unilateral imposition of these spaces.

By this virtue, although the main EPPs analyzed were present in the environmental and social categories of sustainable development, the economic dimension remained absent, which led to the configuration of CAUNRs as, since they were not considered programmes and supports to benefit NNA populations, the economic dimension was lacking.

3.4 2000-2018: Towards a PNA-focused EPP, with a view onto sustainability

During the subsequent governmental periods of 2000-2006, 2006-2012, and 2012-2018, led by Vicente Fox Quesada, Felipe Calderón Hinojosa, and Enrique Peña Nieto respectively, sustainability was integrated into the Institutional Environmental Protection Program (EPP). This integration was evident in the National Development Plans for 2001-2006, 2007-2012, and 2013-2018, as well as the Environment and Natural Resources Program for 2001-2006, alongside other Conservation Programs and Strategies for Development (ONU, 2002; Secretaría del Convenio sobre la Diversidad Biológica, 2004).

On the global level, the concept of sustainability was reflected in international instruments like the World Summit on Sustainable Development in 2002 and the Work Program on Protected Areas, both of which advocated for policies enhancing economic activities for indigenous communities while ensuring the sustainable use of renewable resources and ecosystems (Organización de las Naciones Unidas, ONU, 2002, pag. 10). This approach emphasized the conservation of ecosystems and natural resources within Mexico, aligning economic benefits with sustainable development across its economic, environmental, and social dimensions.

Within Mexico's National Development Plan for 2001-2006, the environmental axis emphasized natural resource conservation and utilization. The plan balanced economic growth and poverty reduction with environmental protection, outlining strategies that incorporated Protected Natural Areas (PNAs), sustainable environmental management units, and efforts to combat environmental pollution (Diario Oficial de la Federación, DOF, 2001, pags. 41, 53, 74).

This plan also introduced the Environment and Natural Resources Program for 2001-2006, which aimed to achieve sustainable development objectives. The program aligned with the sustainability criteria of the national plan and focused on conservation strategies such as reforestation, protecting representative ecosystems, and expanding the scope of PNAs (Diario Oficial de la Federación, DOF, 2002, pags. 37, 41). The National Commission of Protected Natural Areas (NCPNA) also issued its 2001-2006 Work Program, which emphasized objectives for the conservation of Terrestrial Managed Protected Areas (TMPs), including the sustainable utilization of natural resources by indigenous communities (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2001, pag. 13).

In addition, the NCPNA launched the Conservation Strategy for Development in 2003, which targeted conservation, resource utilization, and community engagement. This strategy aimed to promote ecosystem conservation and biodiversity, while also benefiting local communities. Its purpose was to "promote sustainable community development based on PNAs" (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2003, pag. 18). addressing the challenge of integrating conservation and community development.

The subsequent National Development Plan for 2007-2012 continued to focus on conservation and sustainable resource use. This plan expanded the decreed Protected Natural Areas (PNAs), safeguarded endangered species, and integrated biodiversity conservation with socioeconomic (Organización de las Naciones Unidas, ONU, 2012, pag. 1) development, offering communities alternative productive options compatible with nature

(Diario Oficial de la Federación, DOF, 2007, pags. 100-101. The National Program of Protected Natural Areas for 2007-2012 emerged from this plan, aligning with strategies for biodiversity conservation and sustainable development, particularly through the Conservation Strategy for Development (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2007, pag. 22).

The introduction of the 2030 Agenda for Sustainable Development in September 2015 further emphasized sustainability objectives. This agenda highlighted the economic, environmental, and social dimensions of sustainable development. Mexico's National Development Plan for 2013-2018 integrated the conservation and use of natural resources (Organización de las Naciones Unidas, ONU, 2015, pag. 3), aiming to protect natural heritage while promoting economic opportunities for communities in PNAs (Diario Oficial de la Federación, DOF, 2013, pag. 91).

In 2013, Mexico's Ministry of Environment and Natural Resources (MENR) issued the Sectoral Environment and Natural Resources Program (SENRP). This program recognized that the conservation of Mexican biodiversity was at risk due to ecosystem loss and degradation, affecting sustainable resource use and community benefits (Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT, 2013, pag. 36). The National Commission of Protected Natural Areas's (NCPNA) 2040 Strategy focused on the conservation (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2013, pags. 63, 67) and use of natural resources, emphasizing strategies like biodiversity conservation, strengthening PNA management, and boosting productive activities to reduce poverty and conserve biodiversity in PNA communities (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2014, pag. 15). Several axes were articulated towards the conservation and use of natural resources, with strategies like biodiversity conservation, consolidation of PNA management, strengthening of its management programs, ecosystem restoration, and boosting productive activities (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2014, pags. 19, 21).

Reforms to the General Law on Ecological Balance and Environmental Protection in 2012 emphasized pollution prevention and wildlife protection within PNAs. Constitutional amendments in 2012 recognized the right to a healthy environment and established environmental concurrence across government levels (Cámara de Diputados del H. Congreso de la Unión, 2012, pag. 69).

Despite these efforts, challenges persisted. The National Human Rights Commission (NCHR) pointed out the lack of conservation and management programs for federal NPAs, affecting legal clarity on permitted activities within these areas (Comisión Nacional de los Derechos Humanos, CNDH, 2016, pag. 11). A proposal for the General Law on Biodiversity in 2016 raised concerns about indigenous consent and equitable benefit-sharing, drawing attention to the need for inclusive policies respecting traditional knowledge (Secretaría del Convenio sobre la Diversidad Biológica, 2011).

The NCPNA continued its oversight of PNAs and environmental monitoring through PROFEPA. The General Law on Climate Change led to the transformation of the National Institute of Ecology (NIE) into the National Institute of Ecology and Climate Change (INECC), coordinating climate change studies and research. Overall, the Environmental Protection Program demonstrated a shift towards sustainability, encompassing economic, environmental, and social dimensions. This was seen through the integration of sustainability principles in national plans, strategies to benefit local communities, and attempts to harmonize environmental conservation with economic development.

The initiative to establish the General Biodiversity Law raised concerns due to its provisions that seemingly allowed the government to authorize privatization without the genuine consent of indigenous communities. This undermined the principle of prior informed consent, as even a single person or community's agreement could potentially suffice to sign contracts with companies, disregarding collective rights (Cámara de Senadores del H. Congreso de la Unión, 2016). This lack of true consultation posed a challenge to adhering to

the Nagoya Protocol, as genuine consultation might not be guaranteed. Furthermore, the controversial initiative aimed to serve as a comprehensive law, superseding the General Wildlife Law and sections of the General Law on Ecological Balance and Environmental Protection, including the Second Title of Biodiversity that covers Protected Natural Areas (PNAs) (Cámara de Senadores del H. Congreso de la Unión, 2016). Critics voiced concerns that this initiative could allow transnational corporations to patent traditional knowledge without defining equitable sharing of economic benefits for indigenous communities.

The National Commission of Protected Natural Areas (NCPNA) retained its role in overseeing PNAs and environmental monitoring, collaborating with the Federal Attorney for Environmental Protection (PROFEPA). The 2006 regulations of the Ministry of Environment and Natural Resources (MENR) highlighted NCPNA's responsibility for promoting ecosystem conservation in PNAs and their surrounding areas, emphasizing community involvement and participation. The Directorate-General for Conservation for Development within NCPNA was entrusted with projects and programs aimed at conserving and sustainably using ecosystems, particularly focusing on marginalized PNA populations and promoting sustainable regional development (Diario Oficial de la Federación, DOF, 2006).

The introduction of the General Law on Climate Change led to the transformation of the National Institute of Ecology (NIE) into the National Institute of Ecology and Climate Change (INECC). INECC, as a decentralized agency within MENR, was assigned tasks related to coordinating studies and research on climate change, conservation, sustainable ecosystem use, and natural resources. INECC's functions also included conducting technical studies justifying the establishment of PNAs (Diario Oficial de la Federación, DOF, 2012).

Regarding the social aspect of sustainable development, the Institutional Environmental Protection Program (EPP) aimed to promote and support the National Development Plans for the years 2001-2006, 2007-2012, and 2013-2018, as well as the Environmental and Natural Resources Development Plans for 2001-2006. The program also focused on the Work

Programs and Conservation Strategies for Development of the National Commission for Natural Protected Areas (NCPNA) during the same periods, reflecting a growing recognition of the human element's importance in sustainable development. This involved efforts to understand the needs and interests of PNA communities and the promotion of economic alternatives that would generate income while preserving natural resources (Secretaría del Convenio sobre la Diversidad Biológica, 2011).

This approach was in line with international trends, including the Nagoya Protocol's emphasis on equitable benefit-sharing for genetic resources and traditional knowledge associated with genetic resources. Countries were required to ensure prior informed consent and equitable sharing of benefits for indigenous peoples' genetic resources. This initiative laid the groundwork for nations to recognize the value of local knowledge and to facilitate access to genetic resources and traditional knowledge in a way that respects indigenous communities (Secretaría del Convenio sobre la Diversidad Biológica, 2011).

In the economic dimension, programs such as the Sustainable Regional Development Programs (SRDP), also known as Conservation Programs for Sustainable Development (CPSD), and Temporary Employment Programs (TEP), were introduced from the beginning of this period. These initiatives aimed to combat poverty and marginalization in PNA communities (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2001, pag. 13). This marked a significant advancement in the care and integration of PNA populations, as these programs focused on generating economic benefits through projects related to conservation, natural resource use, and environmental sanitation, resulting in economic income for these communities.

While this qualitative analysis does not address the adequacy of program budgets, the intent was clear: to allocate economic resources for the benefit of PNA residents. This demonstrated how the content of the EPP was grounded in sustainability, encompassing all three dimensions: environmental, social, and economic. The program underscored the importance

of environmental regulation and institutionalization, community participation, and the implementation of income-generating programs to achieve comprehensive sustainability goals.

4. Conclusions. The Protected Natural Areas under the 2030 Agenda

Through a diachronic analysis spanning from 1970 to 2018, the evolution of the Environmental Protection Program (EPP) in the context of Mexico's Protected Natural Areas (PNAs) becomes apparent, gradually attempting to address all three dimensions of sustainable development: environmental, social, and economic. However, this progression has not been consistently linear or coherent.

Through a diachronic analysis spanning from 1970 to 2018, the evolution of the Environmental Protection Program (EPP) within the context of Mexico's Protected Natural Areas (PNAs) becomes evident, as it gradually strives to address all three dimensions of sustainable development: environmental, social, and economic. However, this progression has not been consistently linear or coherent.

First Conclusion:

During the initial period from 1970 to 1988, the Environmental Protection Program (EPP) primarily concentrated on environmental aspects linked to public health concerns. Although it included a regulatory framework addressing pollution, it did not specifically address Mexico's Protected Natural Areas (PNAs), their communities, their interests, needs, economic benefits, or participation in management. The economic and social dimensions received minimal attention.

In the second period (1982-1994), the EPP aimed to achieve ecological balance, incorporating conservation, natural resource utilization, and pollution control. This period witnessed constitutional reforms that recognized the right to health, conservation principles,

and cooperation between various levels of government for environmental protection. The General Law on Ecological Balance and Environmental Protection (GLEBEP) was introduced, leading to the emergence of an EPP with a focus on PNAs and community participation in policy formulation and environmental activities. Nonetheless, the economic dimension remained largely unaddressed.

Second Conclusion:

The period from 1994 to 2000 marked the institutionalization of efforts to focus on PNAs with the establishment of the National Commission of Protected Natural Areas (NCPNA). During this time, there was increased attention given to PNAs, regulatory frameworks, and greater involvement of PNA communities. Despite these advancements, the economic dimension remained largely unattended to. The concept of Conservation and Natural Resources Use Areas (CAUNRs), advocated by political ecology, remained relevant due to the EPP's failure to encompass all three dimensions of sustainable development.

Progress emerged in the period from 2000 to 2018, as the EPP aimed to address all dimensions of sustainability. The implementation of GLEBEP continued, NCPNA's focus on PNAs persisted, and programs (such as SRDP-CPSD TEP) were introduced to support PNA communities through financial assistance for conservation projects and environmental sanitation activities. Despite this progress, limitations persisted. Notably, only a small portion of PNAs had proper conservation and management programs. Budgetary constraints hindered effective implementation, with the per-hectare budget for PNAs significantly reduced over time (Comisión Nacional de Áreas Naturales Protegidas, CONANP, 2020, pag. 21). Therefore, these actions could not be considered sufficient and adequate to comply with general recommendation No. 26, (CNDH y UNAM, 2019, pags. 69, 72, 74),.

Third Conclusion:

Protected Natural Areas (PNAs) serve as intersections for all three dimensions of sustainable development. They contribute to environmental health, offer educational and research

opportunities, and provide essential ecosystem services such as economic revenue, water provisioning, carbon storage, and species preservation. PNAs are also connected to traditional knowledge and cultural heritage. However, challenges persist, including the lack of financial resources, insufficient attention to the economic dimension, and the need for stronger collaboration between authorities and PNA communities.

The 2030 Agenda for Sustainable Development, with its 17 Sustainable Development Goals (SDGs), provides a framework for addressing these challenges. The involvement of communities, the promotion of sustainable economic activities, and partnerships between institutions and local populations are crucial for achieving comprehensive sustainable development within PNAs.

In summary, the evolution of the Environmental Protection Program (EPP) with a focus on PNAs in Mexico reflects progress in addressing all three dimensions of sustainable development. However, challenges related to budget allocation, community engagement, and effective implementation still need to be addressed to fully unlock the potential of PNAs as centers for holistic sustainability.

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