Changes in Forestry Policy, Production, and the Environment in Northern Mexico: 1960--2000

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In the last four decades of the past century Mexico created increasingly more comprehensive policies for forest management. Yet, mismanagement and environmental degradation continued with no great improvement in production or efficiency. Some of the reasons include poor enforcement of existing laws and regulations, an unwieldy and centralized bureaucracy, regulations that favor short-range plans and investments, and an economy that cannot support sufficient budgets for high-minded plans and utopian ideologies. The results of this pattern of forest management have been damage to the environment, inadequate forest production, an impoverished indigenous and rural people, and a poor export economy.

The general subject of this paper has been addressed in other places. First, there is an examination of the failed World Bank loan for the improvement of forestry in the Sierra Madre Occidental in the decade after the mid-1980s (Weaver 1994). That effort alerted me to the policy environment that included multiple laws, regulations, and agencies that impacted the condition and practice of forestry in northern Mexico (Weaver 1996). The approach that governs my orientation has been political economy, a perspective that looks at the causes and results of the unequal distribution of resources. Other elements related to this concern involve looking at different units or regions involved using a world-system perspective and identifying the articulatory mechanisms that move value from one region to another. This framework has been explored in two papers (Weaver 1996, 2001) and will not be specifically addressed here. This essay examines the changes in policy, agency structures, production, and the environment in the Chihuahua Sierra Madre Occidental.

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Some of the observations and conclusions can be applied to other forested regions in Mexico.

The Bases for Forest Policy in Mexico

It was not until 1884 that Mexico began to formulate policies governing its forests. This was during the thirty-year presidency of Porfirio Diaz. This was a period of attempts to modernize Mexico by encouraging foreign investment and policies that allowed the exploitation of Mexico's natural resources. Concessions were made to large US corporations who constructed large capacity sawmills, built much of the network of forest roads that exist today, and cut a large proportion of the old growth timber in Chihuahua and Durango (World Bank 1995: 31). Forestry production for most of the twentieth century was carried out under liberal governmental concessions. Permits were easily acquired, and always subject to political influence and corruption. The lack of regulation led to diminished resources and environmental degradation (World Bank 1989). Whatever policy has existed since then has been overridden by laws concerned with land tenure and the nation's economy. The effect has been the gross underutilization and mismanagement of Mexico's forestlands.

Current forestry policy is based on Articles 25, 26, and 27 of the Mexican constitution of 1917. The Laws and regulations of 1926, 1942, 1947, 1948 were attempts to reduce the overexploitation of forests and environmental deterioration, and placed responsibility for forestry service in the hands of professional foresters, but with little consideration for the interests of owners and logging companies. As one forestry lawyer concluded: "This permitted the irresponsible disposition of forest products for the benefit of the professionals and to the detriment of the natural resources and the interests of the owners and residents, who saw their resources reduced and from which their only gain was symbolic" (Moguel Santaella 1994: 27). The 1926 Forest Law, Forest Protection Zones and National Parks was the first to address conservation. However, this goal was undercut by land reform that valued crop and livestock production on non-forested lands.

The support for the US by Mexico during World War II meant improved relations between the two countries and improved economic conditions for Mexico in face of the demand for natural resources, including forest products, and labor by the war effort in the US. The movement of these products and services into the US and to Latin America had commenced as early as 1939. This, however, only lasted for the duration of the war, after which labor strife disoriented production and it reached new lows. The second Ley Forestal was created in 1942 during the Second World War, with regulations following in 1947, 1948, and 1950. The 1942 Law gave control over forestlands to *ejidos* and communities and created government parastatals that controlled management and production (De Los Santos Valadez 1989:22; World Bank 1995:34). Stipulations included placing responsibility with the *Secretaría de Agricultura y Fomento* (Secretary of Agricultural Development, whose name is later changed to *Secretaria de Agricultura y Recursos Hidraulicos*-- and Water Resources) for organizing agencies and personnel to conduct scientific studies, and administer and maintain vigilance over all forestry services. Forestry technicians, trained and registered with the *Secretaría*, were charged with creating regulations, and plans and projects to maintain balance between preservation and the lucrative exploitation of the nation's forests.

The agencies created included *Unidades Industriales de Explotación Forestal* (UIEF) and *Unidades de Ordenación Forestal* (UOF). These parastatals regulated the

industrialization of forestry, provided for inventorying resources, and promoted conservation and technical services. It was not until after the War in 1947 that the first UIEF was brought into existence. Eventually nineteen were created; in 1989 only four remained. The amendment of 1948 placed responsibility for forestry professionals under the *Dirección General Forestal y de Caza* (The General Directorate for Forestry and Hunting). The major contribution of the new law was to take a more holistic vision, incorporating variations in climate, other species, and plants; in short it promoted an ecological and regional perspective. This plan was not placed into action until the 1950s (De Los Santos Valadez 1994: 22-23).

In 1952 Mexico instituted a policy to increase road construction and expand electrical power service into remote mining areas (Bernstein 1965: 260-261). The 1950s was also a period of increased investment by US corporations in this industry almost reaching the previous high point in 1929 and 1936 (Bernstein 1965: 263). The Korean War from 1950 until 1953 represented a boost to mining production. Related activity, especially road building, facilitated the exploitation of forestry that was driven by the increased need for lumber products as mine props and for worker housing. The character of forestry was to continue changing with new laws and regulations promulgated after the 1960 and periodically during the remainder of the twentieth century.

Policy in the 1960s and 1970s

In 1960 Mexico passed its first comprehensive forestry law to try to contain the devastation of one of its most important natural resources. Changes in the law included an emphasis on the regionalization of forestry services, first mandated in 1948, with objectives of maintaining more control over conservation, marketing, and profitable exploitation of forest resources (De Los Santos Valadez 1994). Finally, the issue of decentralizing services and agencies by placing them at the local level and assuring the presence of better-trained foresters in the field was accentuated. It was believed that this could be done while assuring productivity and industrial efficiency (World Bank 1989: 6-8, Moguel Santaella 1994: 28-31, Subsecretaria Forestal 1991).

The widespread examination and revamping of laws and regulations regarding forestry production, resources, and the environment continued in the 1980s and the 1990s. This included additional reorganization of forest service units and the creation of national agencies with overall responsibility for management, production, and protection of forests and the environment. The period was characterized by a political ideology that supported privatization, a free market economy, globalization, and the encouragement of foreign investment. The new economic orientation was reflected in several international agreements. GATT (The General Agreement on Taxes and Tariffs) was signed by Mexico in the 1980s. NAFTA (The North American Free Trade Agreement) approved in 1994 over widespread objection in the US, especially by labor groups, has had differing interpretations as to its success. Some claim that NAFTA has exacerbated labor and environmental problems, and income distributions. Others claim it has presented enormous advantages for both Mexican and US economic profiles (Governments of Canada et al 1992; Josling 1992; Lustig et al 1992; Office of US Trade Representative 1992a, 1992b). Agrarian laws passed in 1992, effective in 1994, permitted privatization of communal lands and this may have a negative affect on indigenous groups (Weaver 1994, Gobierno de México 1992).

The latest Mexican regulations on forestry are contained in three main instruments: the Forestry Law of 1986, the National Forestry and Jungles Program (PRONABOSE) of 1984-1988, and the General Law of Ecological Equilibrium and Environmental Protection of 1988. These policies provide regulations and guidelines for management plans for harvesting, environmental protection and restoration, pollution control, environmental impact assessment, and sustained economic development. Provisions also include improved employment and living standards for workers, and financing for forestry development through various federal funds. It decentralizes conservation responsibility to the state and municipal level. Few of these governments, however, have the necessary budgets to implement this opportunity (Pastor 1993:53-61; World Bank 1989:6-8).

Forest Service Units

Forest service agencies have evolved through a series of policy changes over the past half-century. The agencies (as mentioned above) in 1942 included *Unidades Industriales de Explotación Forestal* (UIEF) and *Unidades de Ordenación Forestal* (UOF), and were supposed to bring coordination between forestry corporations and owners of the resource (De Los Santos Valadez 1994: 24). The service units varied in different parts of the country depending on local conditions and ranged from government sponsored entities with services paid for by member *ejidos* to privately managed and owned systems (Weaver 1994). Changes described in what follows made these units increasingly responsible for matters related to management plans, the environment, and production.

Under the 1960 law that created ARIC (*Asociacion Rural Con Intereses Colectivos*) some of the private forest corporations were allowed do their own forest management by hiring private foresters instead of contracting with the forest service units. In 1969 the inception of PROTINBOS in the state of Mexico, decentralized parastatals with the purpose of providing services at the local level, and was hailed as a breakwater event in forest conservation (Sánchez Mejorada 1990: 192). PROTINBOS-like agencies were created throughout Mexico, with PROFORMEX in Durango, Nayarit, and Guerrero, PROFORMICH in Michoacan, and PROFORTARAH (*Programas Forestales de la Tarahumara*) in Chihuahua. These local independent agencies were privately managed and owned businesses that performed services paid by member *ejidos* (Ediciones Delma 1995, Garcia Luna 1990, Weaver 1994). They were given responsibility by the Mexican President for researching, protecting, and assisting in the commercialization of the forest products in their assigned regions (Weaver 1994).

PROFORTARAH was established for the Tarahumara indigenous region in 1972 after the expropriation of a large landed estate of over 256,000 hectares belonging to Bosques de Chihuahua, S.A. This estate made forested land available to indigenous *ejidos* and required management teams. The agency with the duty to assure compliance with rules and regulations was the Secretariat for Agriculture and Hydraulic Resources (SARH). PROFORTARAH units were supposed to assist forest *ejidos* manage production and profit. Their operation engendered dependence as the sevice unit became brokers through direct purchase of ejidal products and fixing prices. The unit foresters were said to cooperate with private lumber companies to the general disadvantage of the forest *ejidos*. Unfortunately, the distrust of agencies such as PROFORTARAH by ejidal members was transferred to private service affiliates that eventually replaced them. Perhaps this was because the succeeding agency was staffed by the same foresters (Weaver 1994).

In 1977 the idea of UAFs (*Unidades de Aprovechamiento Forestal*, Forest Development Units) was diffused to other regions of the country (De Los Santos Valadez 1994: 24-25). UAFs, like PROFORTARAHs, were supervised technical offices in charge of preparing management plans for fees charged to users of their services. Not all forest regions had access to these services, in which case they were covered by SFF (Subsecretariat for Forestry and Fauna). In 1978 PROFORTARAH-like units were replaced in some places by ARIC and in turn by UAF. In Chihuahua PROFORTARAH was replaced by UAFs and UCODEFOs (*Unidades de Conservacion y Desarrollo Forestal*, Forest Development and Conservation Units) (World Bank 1989: 5-8).

The Forestry Law of 1986 (the first major revision of the 1960 Law) replaced the state forest parastatals with private groups (Moguel Santaella 1994: 30-31). There were ten UCODEFOs in number nationally. The creation of UCODEFOs involved agreements among SARH, SCT (Secretariat for Roads and Transportation), *ejidos*, and local communities for the protection and production of forest products. The new service units were responsible for conducting basic studies of forest conditions using mapping, computer techniques, and on-the-ground surveys, selecting and marking trees for cutting, generating management plans, oversight of operations, preventing illegal logging, and providing related services. UCODEFOs were given strict requirements for producing environmental impacts as part of the management plans. UCODEFOs were supported by fees paid by subscribing *ejidos*. The director was hired and paid by SARH and SCT, to whom he was legally responsible for assigned duties (World Bank 1989: 3-5, Weaver 1994, 1996). The 1992 Law allowed producers to contract privately for trained professionals, thus reducing costs for management plans, although UCODEFOs continue in some areas in a transitional stage. This law also deregulated transportation, eliminated the necessity for permits for timber felling, and allowed UCODEFOs to operate without geographic restrictions (World Bank 1995: 71).

In the early 1990s the World Bank team evaluating a loan for improving forestry production in Chihuahua and Durango heard complaints from *ejido* members about the foresters working in the UCODEFOs. The complaints sounded somewhat like those leveled at the prior units called PROFORTARAH. Foresters were mostly from out of the region, usually from Mexico City, and appeared out of sympathy with local cultures. They were accused of looking down their noses at “rustic” rural Mestizos, unsophisticated urbanites, and Indians. They were said to support each other “since they come from the same school [at Chapingo, the only forestry school until recently when one was established in Chihuahua]” and seldom went to the field (Weaver 1994). Forestales were called “*diablos*,” reported a forest ranger, because “*saben que existen, pero nadie los ve*” (everyone knows they exist, but no one sees them) (Weaver 1999b). Absence in the field was undoubtedly related to poor budget allocation, but the ruggedness of field conditions with mostly dirt roads, no hotels, and few restaurants made urban life considerably more attractive.

On occasion foresters were accused of having been corrupted by private lumber companies, who paid them to mark easily accessible and larger trees than permitted by law. One *ejido* complained that the UCODEFOs enforced environmental laws by requiring them to clear smaller trees to encourage growth; the smaller trees brought less profit. Other *ejido* members complained that after felling and trimming logs they were asked to lay the small trimmed branches crosswise on the slope to help prevent erosion. They felt this represented the displacement of the cost of enforcing environmental laws from the government to the local communities. UCODEFOs were also accused of not providing

information regarding forest management and environmental protection to indigenous *ejidos* (Weaver 1992, 1994).

Some INI (National Indigenous Institute) representatives and other observers, particularly local human rights groups (Guerrero 1991; Dibildox Martínez et al 2000), supported these accusations, but SARH officials denied that UCODEFOs were neglectful. Although many complaints were heard about the inattention to indigenous needs in Chihuahua and Durango (Weaver 1992, 1994, 1996) favorable reports about these units came from Oaxaca and Quintana Roo (Castilleja 1993: 33). By 1994 most of the parastatals had been completely privatized, and with the new law in 1996 private service groups (called *Prestadores de Servicios* -- Service Providers) replaced UCODEFOs.

Federal Institutional Change

Changes in the nature of forest service agencies were not the only forest policy revisions with widespread impact. Institutional changes undertaken in 1986 included the creation of vehicles responsible for supervision and enforcement of forestry laws and regulations. The Secretariat for Agriculture and Water Resources (SARH), through a Subsecretariat for Forestry (SFF), was made responsible for forest service parastatals and conservation as well as for monitoring compliance with forestry regulations (World Bank 1989: 5-8). The 1986 Law continued the government regulation of environmental matters through management plans. Most of the small budget was allocated to reforestation and fire control, leaving little funding for the presence of foresters in the field. This corresponds with the complaints heard by World Bank teams in 1992 that foresters rarely were seen in the field (Weaver 1994; World Bank 1995: 35). The National Indian Institute was given responsibility for the support of indigenous forest *ejidos* and communities.

In Mexico a restructuring of departments and bureaus generally accompanies new presidential administrations. Changes in 1982 were not surprising given that this was a year of political change. That year the administration of wildlife and protected areas, generally referring to the nation's forests, was transferred to the newly created Secretariat for Urban Development and Ecology (SEDUE). Mexico, thus, became one of the first nations to establish a ministry dedicated solely to environmental protection. In June 1993, right before the arrival of a new presidential regime, SEDUE was disbanded and most of its functions transferred to the Secretariat for Social Development (SEDESOL) with responsibilities for regulating the use of renewable natural resources and environmental impact assessment.

After the change in the national administration in 1995 a new Secretariat for the Environment, Natural Resources and Fishing (SEMARNAP) succeeded SEDESOL in Mexico's constant struggle to resolve problems through the creation of new bureaucracies. For the first time the 1995-2000 National Development Plan gives priority to sustainable economic development, environmental protection, and natural resource management. It does this without neglecting economic growth while addressing the problem of unemployment and poverty among indigenous and rural populations (Nahmad et al 1993, Carabias Lillo 1995: 49). The new policy requires coordination among involved secretariats, local and regional groups, and non-governmental environmental associations. It fulfilled this obligation by consulting with grass roots organizations and forming four Regional Consultative Councils with representatives from a broad range of academic, non-governmental, and governmental organizations. Preventing environmental degradation called for an increase in the number of protected natural areas including the possibility of

establishing trusts involving multilateral contracts among communities, communal land owners, local businessmen, academic groups and government (Carabias Lillo 1995: 54).

In some sense, recent environmental laws are stronger than those of the United States. For example, where the US only required environmental impact assessments on projects that contained federal funding, Mexico obligated them on all investment involving hazardous wastes (Pastor 1993: 57). Needless to say, from the perspective of environmentalists and other observers, the problem in both countries is not the wording or presence of laws and regulations, but the difficulty of enforcement in the context of non-compliance, bureaucratic subterfuge, business influences, corrupt politicians, and inefficient public agencies (Ellingwood 2000).

Forestry Production

Forests occupy more than 70 percent of Mexico's land mass, and temperate forests account for three fourths of that, or about 28 million hectares (World Bank 1989:3). Indian Institute personnel discovered that 70 percent of the native groups are located on 4 percent of the nation's forestlands (S. Nahmad et al. 1993). As a consequence the Indian Institute has renewed interest in forestry production in the last decade and they have a special division devoted to indigenous forestry. The national agricultural sector, which includes forestry, accounted for 18.6 percent of Gross Domestic Product (GDP) in 1986, with forestry alone representing 1.8 percent of GDP. Chihuahua contains one of the best stands of productive forests in the country, and produces 25 percent of the nation’s output. Forestry ranks third in the state’s production, with manufacturing first because of its many assembly plants, and mining, although diminished in recent decades, still second (Subsecretaría de Cultura 1988:26).

Forestry production diminished by 22.7 percent between 1986 and 1991, with the states leading this reduction being Chiapas, Quintana Roo, Campeche, Jalisco, Chihuahua, and Durango. This diminished production was reflected in a 25 percent decrease in coniferous products, 43 percent in cellulose, and 42 percent in tropical products. Growth in the agricultural and manufacturing sectors contrasted with a 23.6 percent reduction in real value production in forest products. Importation of forest products increased 100 percent between 1988 and 1991, with 60 percent of this represented by cellulose. The total production in Mexico represents about 40 percent below the world average and 3.5 times less than the US and 2.3 times less than Canada (Tellez Kuenzler 1994: 264-266).

The motive for Mexico’s forestry policies that propagate a plethora of new agencies lies in the need to harness its forest resource for economic and employment gain over concerns for the environment or rural poor people. Many social, political, and economic demands have been placed on the future production of Mexico’s forest products. Mexican authorities want to increase foreign trade and decrease demand for imported forest products. Particularly notable in this respect is the production of cellulose for paper manufacture. High rates of population increase in Mexico mean continued demand for construction materials, both for domestic and business purposes. Population increases also mean a greater requirement for fuel wood and employment. The fact that other sectors of the national economy can not fulfill the growing employment needs means that many new workers find employment in the so-called hidden economy processing waste materials, petty street sales, in illegal logging, and migration to the US, to mention only a few in this category.

Cutting trees for the production of charcoal, or carbon fuel and the collection of resin are two other activities that provide minimal jobs for Mexico's poor people (Sánchez Mejorada 1990: 185-186). The invasion of forestlands in search of agricultural and ranching opportunities also places pressure on the nation's forestlands (World Bank 1995). A response to a query by an economic historian suggests the choices faced by the poor: "*O el árbol o la tortilla de mis hijos. Y de que coma el árbol a que coman mis chamacos, pues mejor mis chamacos.*" (It is a matter of the tree or bread for my children. And whether the tree eats or my kids eat, well, it is better that it be my kids) (Weaver 1997). Many poor agriculturists thus view attempts to protect the forest as inimical to the growing of necessary food (Sánchez García 1990: 69). It is clear that forestry alone can not fulfill the subsistence needs of Mexico's citizens. The answer to full conservation of the nation's forest resources lies in the creation of a diversified economy that will remove pressure from the forests by providing alternate employment.

The irony is that although blessed with one of the largest forest reserves in the world Mexico is a net importer of wood products. The major problem is the country's inability to meet demand for paper pulp production, although it does serve internal needs for sawnwood and other processed products. Mexico has not been able to compete with Canadian and US paper pulpwood and plywood, forcing closure of four of eight existing pulp plants and many sawmills in 1993 (Castilleja 1993: 33, Morell et al 1994: 35, Lara 1992). Mexico's inability to compete internationally can be attributed to inadequacies in management, business, and technical skills, development capital, forest management plans, and poor transportation infrastructure. Another factor is diminishing forest reserves. But there are other important considerations such as poor technology and a decadent system of annual contracts that do not permit long range planning (World Bank 1995, Weaver 1996).

Many observers agree that a crisis exists in forestry conditions in Mexico. Forest production is low, even compared to agriculture and cattle ranching. Continued exploitation at the current rates do not allow for regrowth of trees to maturity. Forestry policies of the past have encouraged commercial exploitation over conservation, factors that have created, if not exacerbated, the current condition. Still, other impediments include a limitation of contract terms to one year that discourages investments in plantation development, and the lack of policies that encourage the preservation of available resources. Additionally, financial policies that permit large tax deductions make the maximization of benefits on a short-term basis expedient and do not provide incentives for longer range planning. Finally, existing forest laws have been encumbered by ponderous regulations that govern every aspect of production including planting, harvesting, transportation, industrialization, commercialization, importation, and exportation (Tellez Kuenzler 1994: 266-268).

The future of forestry in Mexico after NAFTA looks dismal, although it may be good for the recuperation of its forests. The reason for this is that the cost of national wood products is 10 to 30 percent more expensive than imports from the US and Canada, and unless transportation and other production efficiencies are improved, the forests will lie dormant (World Bank 1995: xiii). This is a blessing in disguise, many would say, but does not solve the need for wood products and employment opportunities.

Deforestation and the Environment

A document by the Diocese of the Tarahumara describes in dramatic terms the environmental situation as ecological destruction and the pillaging of forests as a result of the imposition of an uncontrolled economic system in collaboration with local agents, and involving the sentencing to death of an entire ethnic group. The forests are described as a fragile system undergoing rapid desertification. Natural springs are going dry, leaving a region almost devoid of livestock, and traditional groups are witnessing the death of a habitat vital to the reproduction of their culture. The presence of the drug trade is at the same time a reflection of lack of employment opportunities and an opportunity to survive (Dibildox Martinez et al 2000).

The factors dealing with inadequate production above have resulted in inadequate management, lack of regulation and oversight as well as widespread environmental damage, forest degradation, illegal logging, and poor economic returns to indigenous and rural poor groups (Weaver 1994, Castilleja 1993). A long term practice of high-grading (cutting the largest trees) led to the degeneration of valuable stands of virgin coniferous trees and the reduction of species variation and fecundity. The biggest problem, however, in the nation's forestlands is deforestation. Deforestation has progressed at an alarming rate since the 1960s and does not seem to be abating. Since then the nation has lost about one-third of its forestlands. Deforested areas amount to about 17.8 million hectares, or more than 50 percent of existing forests (World Bank 1989:3; World Bank 1995:x).

Some of the conditions that have led to this loss include economic prioritizing of other sectors of the economy. Land tenure laws prior to 1992 together with a rapidly increasing population, exacerbated by *minifundismo*, encouraged the exploitation of forest lands to fulfill a demand for agricultural and ranching lands. The latest titling change in the land tenure laws applies only to private forest and agricultural land, and this may further encourage deforestation as common forestlands are quickly cleared and claimed (World Bank 1995: xii, 21-27). Cattle ranching appears to have been the greatest contributor to deforestation. Second, has been the movement of agricultural populations onto forest highlands with soils ill suited for agricultural purposes. Other factors leading to deforestation include uncontrolled fires in temperate forests, some of which result from out-of-control slash and burn activities, and illegal logging. Finally, deforestation has also been worsened by the almost complete dependence of the nation on fuelwood, the uncontrolled road construction, and the activities of the mining and oil industries. It is estimated that one in five households nationally utilize wood or carbon as a source of fuel (Tellez Kuenzler 1994: 267; World Bank 1995:39-63).

Deforestation has other consequences. Most obviously, deforestation reduces the fertility of soils, increases erosion and the loss of topsoils. This leads to lessened productivity of agricultural lands, and less profit for agriculturists and ranchers. On removal of trees the soil is exposed to rain that washes away valuable minerals. It is estimated that between 70 and 90 percent of Mexico's total land mass shows evidence of soil erosion. This results in increased desertification. Hydrologic cycles are also disrupted. The removal of surface vegetation reduces water filtration and encourages run-off, leading to the deposition of soils in dams and lakes. Reduced water filtration does not replenish constantly lowered aquifers. The diminution of precipitation also causes the loss of humidity. Deforestation has consequences for future populations in that it reduces the available land for subsistence. It also causes the extinction of animal and plant life, the deterioration of pasture land and releases carbon dioxide into the atmosphere leading to

global warming (Tellez Kuenzler 1994: 264-265, Sánchez Mejorada 1990: 186, Office of the US Trade Representative 1992a).

Recommendations and Conclusions

A comparison and critique may be made of various recommendations concerning forest policy, production, the environment, and indigenous people. The sources for this discussion include the World Bank's forest sector review of Mexico (1995), observations made by the Bishop and priests of the Tarahumara Diocese in Chihuahua regarding the underlying political and social conditions of the degrading environment and poverty in the region (Dibildox Martinez et al 2000), and an evaluation of a World Bank loan to Mexico to improve forestry in the Sierra Madre Occidental that included the Tepehuan of Durango and the Tepehuan and Tarahumara of Chihuahua (Weaver 1994).

Policy. The suggestion to improve the policy and legal framework for forestry management comes from the World Bank's forestry sector review. Recommendations deal with various aspects of policy that affect forestry such as removing agricultural pricing that disfavors investment in forestry and that policy and regulation should consider indigenous cultural values (World Bank 1995: 96). The Bank also recommends changes should be guided by a more encompassing view of forestry to include wildlands, wetlands, plantations, and protected areas. Other suggestions include restructuring the Subsecretariat for Forestry and Fauna (SFF) as an independent agency with responsibility for all types of protected areas; another was to strengthen the role of consultative bodies such as NGOs, local communities, and the private sector (World Bank 1995:96-97). These recommendations reflect the standard procedure that the World Bank has followed for some time (World Bank 1989, for example).

As pointed out in this paper, decade after decade of new laws and regulations and the creation, restructuring, and decentralization of agencies has done little to improve conditions for production, the environment, or for the rural poor. Some reasons for this state of affairs include laws with poor or no enforcement, with inadequate funding, and that favor short range plans and investments, an unwieldy and centralized bureaucracy, and an economy that cannot support high-minded plans and utopian ideologies. Human rights violations, environmental degradation, reduced forest production, relegation of indigenous and poor people to the lowest socioeconomic ranks, and damage to the export economy of Mexico have been the results of the inadequate management of forestry production.

Production. Recommendations regarding improving production in forestry included the need to increase Mexico's competitive advantage, making Indian *ejidos* part of the production process by providing loans and training, and to create economic buffers to mitigate the most stringent impacts of NAFTA. The World Bank addresses the need to increase Mexico's competitive advantage in timber commercialization. The conditions that prohibit Mexico's competitiveness in this sector have been addressed in this essay. To repeat only a few of these: poor technology and skills, poor transportation infrastructure, and legal constrictions to investment. The World Bank has addressed these issues in its failed loan negotiated from the late 1980s and early 1990s and continues to make similar recommendations. These included technical assistance, diffusion of market information, operational research, and the improvement of infrastructure including the rehabilitation of roads (1995:98-99; World Bank 1989).

Assisting economic development on Indian lands by providing loans and expertise to improve forestry technology was repeated by each of the reports. Development should be

done without the influence of outside enterprises or groups. Activities of the Tepehuan of Durango present an excellent example of a self-driven economy that could be buttressed by loans and technical assistance (Weaver 1994). To alleviate this problem the World Bank, for example, recommends assistance in technology and marketing, conservation, providing resources, encouraging capital flow to forestry and ecotourism, diversifying the use of forest products, and supporting producer organizations through mechanisms such as the Fund for Solidarity Enterprises (World Bank 1995:99). This recommendation is based on one suggested previously through funds made available in a prior special presidential program called PRONASOL. Indigenous and rural groups were provided small funds that they allocated to member groups and management was by local indigenous *Consejos Directivos* (Directing Councils) (Weaver 1994:16).

The bishop and priests of the Tarahumara Catholic Diocese assert that the conditions of forestry in the Sierra Madre Occidental have worsened since the passage of NAFTA (Dibildox Martínez et al 2000). Weaver (1984:16) recommended that economic buffers be developed to protect indigenous people from the most dire economic consequences of GATT and NAFTA by protecting local markets for designated periods of time until technology and experience permits them to compete on a more equitable basis. Forestry, in general, and in particular as it impacts technology-poor indigenous peoples, is not competitive with US and Canadian products. NAFTA has permitted the duty free importation of products created under conditions of superior technology in the US and Canada with the result that the Mexican industry is only able to produce sawnwood for its own consumption but not for export. This situation seems to go against the grain of the recommendations for the improvement of agency and legal frameworks for forestry suggested by the World Bank. As indicated before, these changes over many decades have not resolved the problem of production in Mexico. It is not sufficient to change laws and institutions to bring about change in the forestry sector.

The Environment. The passage of a law governing environmental matters in 1988 created new agencies and regulations but appears to have done little to mitigate environmental degradation. Recommendations by the World Bank on biodiversity conservation, protection of watersheds, and the environment follow similar principles to those for policy and institutional change in that they call for decentralizing planning, management and monitoring by localizing efforts, collaborating research ventures with international academic institutions and parks, exploring self-financing systems such as trust funds, revising laws and regulations for the extraction and sale of flora and fauna, and for consolidating ecoregions. They recommend paying those who conserve and charging those who benefit from use of the environment, creating fuelwood plantations, and formulating a strategy for ecotourism (World Bank 1995:97-98). With regard to the last recommendation, the Bishop and priests of the Tarahumara insist that tourism benefits interests external to the region and executives of tourist services while at the same time depleting drinking water sources and generating raw sewerage (Dibildox Martínez et al 2000).

The Catholic Diocese of the Tarahumara insists that the indigenous people have a tradition of sustainable development and are capable of caring and managing their forests (Dibildox Martínez et al 2000). Recognizing this idea In 1997 the World Bank provided a loan of almost $24 million after matching funds from Mexican entities to help improve forest conservation and production in Oaxaca (World Bank 1997). Unfortunately the loan is attached to the private sector for guidance and information and to SEMARNAP for implementation and coordination. In the past such arrangements work to the benefit of the

dominant group rather than the indigenous people. An assessment needs to be made of this project to evaluate the results.

Indigenous People. Recommendations and concerns expressed in the three reports reviewed regarding indigenous people included matters related to the land tenure law, self governance, localizing decisions, rural poverty, equalizing services such as education and health, and placing Indian apprentices in public agencies. In selecting the option of privatization under the 1992 land tenure law it was suggested that there was need for a fair and open election and for fair land titling and registration (Weaver 1994:116). This can be done by having outside monitors who represent national and international human rights groups. The World Bank recommends clarifying land tenure rights regarding boundaries and reviewing procedures concerning joint ventures between *ejidos* and private partners, which was a condition under the new law (World Bank 1995:96). Securing an independent land base is important to the survival of indigenous peoples. This has been proved true in the United States in light of recent successes with development of casinos and investment of profits in education and other reservation infrastructures. Semi-autonomous territories and governments have allowed them more independence in decision making and economic development.

Localizing decision making as much as possible was made in several forms. Local people should have the right to control their destiny since they understand their own problems best. One of these recommendations was to place the supervision, investigation, and enforcement of forestry and environmental laws and regulations in the hands of local Indians where they are in the majority (Dibildox Martínez et al 2000; World Bank 1995). The southern Tepehuan had officials in place in their native organizations who had this responsibility, which they carried out well (Weaver 1994). Self governance among Mexican Indians should be promoted without ties to outside non-Indian groups by assuring open elections and the selection of Indian leaders where they are in a majority in *ejidos* and *municipios*. Well documented complaints of the dominance of a minority of *Mestizos* in *ejido* affairs in which the profit and easy jobs are reserved for themselves at the expense of indigenous people (Weaver 1994:16; Dibildox Martinez et al 2000). The same election monitoring system involving human rights groups described above would be effective. Human rights groups in Chihuahua and Durango are active in calling attention to exploitation in indigenous matters.

Rural poverty in forestry ejidos and communities has been addressed by all three of the reports referred to in this section. That indigenous people are the poorest of the poor in Mexico has been attested to by a number of sources (Nahmad et al 1993; World Bank 1995; Dibildox Martinez et al 2000). The last named source attributes the poverty conditions of the Sierra Tarahumara to the destruction and degradation of forests, lack of local employment, poor crops, racism, and exploitation by lumber corporations in cahoots with foresters and outside forces. Equalizing access to educational, health, and other institutions would assist in resolving poverty. Educational programs should include training for lower level technological skills needed on forestry *ejidos*, such as truck drivers and truck and sawmill repair mechanics (Weaver 1994:16). Suggestions are made by the World Bank (1995) and the Bishops and priests of the Tarahumara to provide education at all levels in and out of school environments and to utilize culturally sensitive training programs to teach sustainable forest management (Dibildox Martínez et al 2000). Another recommendation that would help educate Indians in the management of their own affairs would be to apprentice Indians to Mestizo officials in the Indian Institute and in other state and federal agencies dealing directly with Indians. Durango had a successful program that

did just this with equal numbers of indigenous apprentices working alongside forest service unit foresters. The program was discontinued because of lack of funds (Weaver 1994).

The more things change the more they remain the same is an adage that could be applied to the shifting panorama of bureaucracies every *sexenio* in an attempt to resolve problems of environmental degradation, diminished productivity, and lessened biodiversity in the nation's forests. One forest service parastatal organization was replaced by another and now the management of forests has been given over to private service organizations. The equipment owned by the prior organizations is routinely handed over to the new organizations. The new organizations are operated by the same foresters, and the forest industry is susceptible to the same old influence from large business interests.

Despite all the policies, laws, decrees, ordinances, regulations, and discussion concerning the management of forestry and the environment in Mexico both have continued to deteriorate at an alarming rate. Mexico is at the end of a crisis of a century and a half that will have dire consequences for its future population, and potentially be harmful to the biosphere. Environmental destruction has implications for global warming and the destruction of biodiversity; both of which do not respect national boundaries or immediate political or commercial ambitions. The periodic generation of new laws has done little to stop the anarchic conditions that prevail in the governance of forestry and the environment, to say little about the destruction of forests and the nefarious implications of the underlying causes and sources of erosion and deforestation.

A word must be said about environmental degradation in the context of poorly nourished and starving populations. The protection of the environment has been characterized as a luxury that only first world countries can afford. While addressing the problems of forestry in a country such as Mexico one must remember that there are other problems that are causative or underlying factors. Some of those mentioned included population growth, high rates of unemployment, need for food and shelter for increased populations, need for building infrastructural facilities such as in health, sanitation, education, and the constant demands of capital growth and profit. However, by focusing on these factors, particularly population growth and poverty, the outcome may be another instance of “blaming the victim.” Political elements, a centralized government, a dominant political party, an authoritarian bureaucratic culture, corruption, the increased power of drug lords are structural factors that must also be considered in any assessment of forestry production and the environment in Mexico.

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Abstract

Despite increasingly more comprehensive policies for forest management, the last forty years in Mexico has witnessed a continuing pattern of mismanagement. While some have pointed a finger at underlying factors such as population growth and poverty, focusing on these factors tend to "blame the victim." Political elements such as a centralized government, a dominant political party, an authoritarian political party, corruption, laws with no enforcement, short range plans and investments, and other structural factors also must be considered. This paper examines the policy ideology, policies, and other factors that have led to the current state of affairs.

Key words: forest management, deforestation, Mexican forestry policy, political ecology, political ideology, Tarahumara, NAFTA, indigenous communities, World Bank

Resumen

A pesar de que normas políticas son cada vez más comprensivas para el manejo de los bosques, los últimas cuarenta años en México han atestiguado un modelo de la continuación de mal manejo. Mientras que algunos han señalado los factores subyacentes tales como el crecimiento de la población y la pobreza, centrándose en estos factores es "de culpar a la víctima." Los elementos políticos tales como un gobierno centralizado, un partido político dominante, un partido político autoritario, la corrupción, las leyes sin implementación, los planes y las inversions de cortas alcance, y otros factores estructurales también deben ser considerados. Este papel examina la ideología de la política, las políticas, y otros factores que han conducido a la situación actual.

Palabras claves: manejo de bosques, deforestaión, políticas de bosques Mexicanas, ecológía política, ideología política, Tarahumara, NAFTA, comunidades indigenas, Banco Mundial.

Résumé

Malgré la croissance des vastes projets politiques dans le domaine de l'administration forestière, les quarante dernières années au Mexique ont connu un cycle permanent de mauvaise gestion dans ce domaine. Alors que quelques études indiquent que ces échecs résultent de différents facteurs tel que les problèmes des taux de population et de pauvreté, ce genre d'analyse a la tendance de "blâmer la victime." Les facteurs politiques tel qu'un gouvernement centralisé, un parti politique dominant et autoritaire, la corruption, l'absence du renforcement des lois, des plans et investissements à courte durée, et d'autres facteurs structurels doivent être aussi considérés. L'article examine l'idéologie politique de l'état ainsi que ses plans de développement et autres facteurs qui ont conduit au courant statut des affaires.

Mots clés: administration forestière, déforestation, la politique forestière mexicaine, écologie politique, ideologie politique, Tarahumara, NAFTA, communautés indigènes, Banque mondiale.

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