
CASE STUDY: MENOMINEE TRIBAL ENTERPRISES

(Menominee Reservation, Wisconsin, USA)

by

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All views, interpretations, recommendations, and conclusions expressed in this paper are those of the authors and not necessarily those of the supporting or cooperating organizations.

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Land, Forest and History of the Menominee Tribe

The Menominee Reservation is located in northeastern Wisconsin. ¹ It is contained within Menominee County with which it shares the same borders. The Reservation consists of about 235,000 acres of land, of which 220,000 acres are forested. Major tree species include white pine, hemlock, sugar maple, red maple, red oak, basswood, and yellow birch.

During the 1800's, Wisconsin was heavily lumbered for its white pine. The so-called Pine Barons bought and sold much of the standing timber in northern Wisconsin. According to Curtis (1959), the pine harvest was "...the most thorough exploitation(s) of a single natural resource ever witnessed in Wisconsin." He reports that in the late 1800's, 3.4 billion board feet of pine timber were sent down Wisconsin rivers each year. The

Menominee Forest escaped the ravage of the ax and became an island of large timber surrounded by agricultural land and regenerating forest. Landsat photos of the state of Wisconsin clearly show the boundaries of the Reservation outlined by the darkness of the mature forest.²

Casual observers assume the Menominee forest to be pristine and untouched. Large diameter trees in a natural setting belie the fact that the Menominee Forest is one of the most intensively managed tracts in the Lake States. Over two billion board feet of lumber have been removed from the forest in the last 140 years, and yet the volume of sawtimber on the Reservation is greater than when the Reservation was established.

The Menominee look with pride on their forest and the forestry methods that have helped to maintain both the forest and the Tribe. According to oral history, when the Menominee were faced with living on a small land base, the chiefs directed the Tribe in the following manner, as quoted by Spindler and Spindler (1971):

"Start with the rising sun, and work toward the setting sun, but take only the mature trees, the sick trees, and the trees that have fallen. When you reach the end of the Reservation, turn and cut from the setting sun to the rising sun and the trees will last forever."

The forest is more than a source of income to the community and this has contributed to the feeling that the forest should be properly managed to keep it intact for further generations.

The Menominee people are the oldest continuous residents of Wisconsin (Lurie, 1980), originally claiming some 9½ million acres in the United States, from the Escanaba River in the Upper Peninsula of Michigan south to the Milwaukee River and west to the Mississippi. The ownership of these lands was recognized by the United States Government. Through a series of treaties (in 1828, 1831, 1836, 1854, and 1856) between the U.S. Government and the Menominee Nation, these land holdings were reduced to 234,000 acres. The Treaty of 1854 established the boundaries of the Reservation. The final Treaty of 1856 ceded two townships to the Stockbridge Munsee Indians of New York to use as their home.

In the 1800's, the land of the Reservation was mostly forested. It contained vast tracts of pine, hemlock, and hardwood timber. These forests of their ancestors have always been very important to the Menominee people. When the United States Government tried to move the Menominee people west of the Mississippi to eastern Minnesota in 1850, Menominee's Chief Oshkosh refused to allow his people to be moved, saying that even the poorest of the Menominee holdings in Wisconsin was better than the land the U.S. Government was offering. The Menominee Reservation was established four years later in 1854.

In 1887, Congress passed the *General Allotment Act*, which posed a serious threat to the Menominee Reservation and to the lands of other Indian nations. The government urged the Menominee to follow the lead of many other Indian nations in dividing their Reservation into small parcels that would be owned by individual Indians. Under this system, the land would be in the hands of individuals who could do with it as they chose, even if that meant selling it.

The lands of many Indian nations were rapidly divided as a result of the *Allotment Act*. The Menominee refused to participate in the *Act*, and therefore preserved the collective land base that was instrumental in preserving the forest for the Tribe. Today, the land remains in the collective ownership of the Menominee people.

Although given the Reservation land as a home, the Menominee did not have full rights to manage their land. At first, the Menominee were only allowed to harvest dead and down timber from their forest for their own use. As a condition of the treaty, a small sawmill was established at Keshena Falls in 1856 to meet the needs of the tribal community. It manufactured lumber, shingles, and other wood products.

The sawmill began manufacturing pine lumber for sale outside the Reservation in 1871. This operation continued for 15 years. During that time approximately 100 million board feet of logs were cut for sale—all from dead and down timber. In 1890, the Menominee received permission from the federal government to cut green timber at an annual rate of 20 million board feet. This was the first attempt to calculate an annual allowable cut in the United States. Over the next 17 years, 290 million board feet of timber were cut and sold.

Then, in 1905, a huge windstorm blew down approximately 40 million board feet of timber—twice the amount of the annual cut. This prompted Senator Robert LaFollette to argue on behalf of the Menominee people for the right to salvage the dead and down timber, in addition to their allowable cut. The *LaFollette Act* was passed in 1908 and provided for construction of a modern sawmill at Neopit to help the Tribe process this additional timber.

The role of the federal government was further defined in 1934 with The *Indian Reorganization Act*. This law established a trust responsibility for the Secretary of the Interior on behalf of the Menominee Indian Tribe. It called for the Secretary to "...make rules and regulations for the operation and management of Indian forestry units on the principle of sustained-yield management...". The Secretary defined sustained-yield management as "...the yield of forest products that a forest can produce continuously at a given intensity of management."

The new sawmill complex at Neopit, built in 1908, allowed the Menominee to efficiently process their timber. In the 50 years following its establishment, more than one billion board feet was cut at the sawmill (Newell, 1986). The sawmill profits, coupled with a successful lawsuit against the federal government for mismanagement of the forest, resulted in over \$10 million dollars in the Menominee Trust Fund by 1954. Meanwhile, the Menominee were able to construct a hospital and a clinic, and establish a law enforcement and judicial system. These successes

were ultimately used to justify removing the Menominee people from federal protection through a plan called Termination. The process through which the Menominee ultimately consented to termination was a dubious one.³

The Reservation was removed from federal trust protection status by the *Menominee Termination Act*, passed in 1959. This federal law continued to mandate forest management on a sustained yield basis. That requirement ensured the preservation of the forest and the tribal sawmill which was the only significant source of jobs, economic development and tax revenue for the Menominee. During Termination, the land was taken out of trust and the title was transferred to the tribal business, Menominee Enterprises, Inc. (MEI), and stock was issued to tribal members.⁴

Loss of tribal status proved devastating for the Menominee. In 1961, the Menominee Reservation became Wisconsin's 72nd county. The state assumed administrative and oversight responsibilities.⁵ As a county, the Tribe was required to pay state taxes on their land and submit to state jurisdiction. Building and sanitation codes had to be met, as did road standards. With the trust account dissolved and taxation of their lands specified by law, the Menominee began a downward economic spiral. The hospital and BIA schools were forced to close. MEI, trying to support the Tribe and pay taxes, operated at a loss. One of the nation's most successful Indian tribes had become impoverished.

In an attempt to regain some financial security, MEI, with the assistance of a real estate developer, created the Legend Lake area.⁶ Many of the Menominee people opposed this project and, in the end, it did not provide enough revenue to help the Menominee recover from their financial problems.

Ultimately, the Menominee organized and rallied against Washington in an effort to regain their tribal status. In 1973, the federal government finally rescinded their order terminating the Menominee from federal protection. The Menominee were, once again, recognized as a sovereign nation through the *Menominee Restoration Act*. After Restoration, MEI transferred assets back to the Tribe, and the rights of members were restored. Menominee Tribal Enterprises (MTE), the successor business to MEI, however, had to take over the obligation of the bonds issued during Termination, and still carries that obligation today.⁷

Current Status of Resource Tenure and Community Governance

With the restoration of Menominee tribal status, title to the land was once again transferred to the Secretary of the Interior to be held in trust for the Menominee people. This accomplished two things. First, it removed the tremendous tax burden that incurred when the Menominee lost Reservation status. Secondly, the lands were better protected through the power of the Secretary. In trust status, the lands cannot be sold or traded without congressional approval.

As part of the Restoration process, the Tribe entered into the 1975 *Trust and Management Agreement* with the Secretary of the Interior. That Agreement gave the Menominee Tribe the right to manage its forests (with oversight from the federal government), but with the provision that the Tribe cannot sell or trade land without congressional approval. The Agreement, which is still in effect, requires the Tribe to develop and follow a *Forest Management Plan* which "...shall provide for the continuing operation of such land on a sustained yield basis." The *Management Plan* is developed by MTE's forestry personnel, approved by the Tribal Legislature, and then submitted to the Secretary of the Interior for approval. The *Forest Management Plan* can be amended as long as it meets federal guidelines. The Secretary of the Interior must approve the management of the Menominee forest annually, and has a trust responsibility to protect and improve forest resources for future generations. Through the BIA, the Secretary provides the ways and means to manage the forest for all the things the Tribe wants for its own use, including timber and recreation.

The Trust and Management Agreement requires the Secretary of the Interior to provide services to manage the forest. In fact, the Tribe carries out this duty and is reimbursed by the Secretary. The government provides the financial support for the forestry operation including salaries, operations, and support services. Two foresters from the Bureau of Indian Affairs, as representatives of the Secretary of the Interior, are stationed at the Menominee Forestry Center. Also at the Forestry Center, at the request of the Tribe, are staff from the Department of Natural Resources (DNR) who are paid with federal funds.

Tribal Government.

The Menominee Indian Tribe of Wisconsin is a self-governing, sovereign nation, recognized by the government of the United States. Through the *Constitution and Bylaws of the Menominee Indian Tribe of Wisconsin* (adopted in 1976 and approved by the Tribal Council, tribal members, and the Secretary of the Interior) the Tribe has the power to set its own laws and the methods to enforce them. Menominee government is comprised of two separate and equal branches: a) the Menominee Tribal Legislature (MTL), which has sole power to enact laws and provide the mechanisms to enforce them; b) the Menominee Tribal Judiciary, which interprets laws and resolves controversies.⁸ Anyone who enters the Reservation, tribal member or not, is subject to tribal jurisdiction and must abide by tribal law. Tribal Law Enforcement officers also have the authority to enforce state laws on the Reservation. The Federal Bureau of Investigation takes over in the case of major crimes like murder, rape, or armed robbery.

Forest Use and its Control

Traditional Resource Use and Control.

Traditionally the Menominee lived by hunting, fishing, and gathering. The forest provided them with everything they needed, including food, shelter, and clothes. Dwellings were constructed from small trees and covered with the bark of cedar and birch. Clothes were made from animal hides. Food was plentiful and included fish, game, berries, and wild rice. Birch bark was used in making everything from food containers to canoes (Ourada, 1979), and plants were used extensively for medicinal purposes (Smith, 1923). Porcupine quills, sometimes tinted with plant dyes, were used to decorate clothing and artwork (Ourada, 1979). When the white people came, the Menominee expanded their use of the forest to include trading furs for supplies.

Today, many Menominee remain close to the land. Tribal members (see Appendix A) have "...the right to hunt, fish, trap, and gather food from plants subject only to those tribal laws which are necessary to conserve these natural resources of the Tribe; provided that this right shall not include the right to engage in commercial uses of such tribal resources; such right is reserved to the Tribe acting through its Tribal Legislature..." (The Constitution and Bylaws of the Menominee Indian Tribe of Wisconsin). So, the right to hunt and gather food is reserved for tribal members for their personal use. They do not have the right to sell food taken from the forest for commercial purposes.

Many members of the Tribe still use their hunting and fishing rights. Hunters take about 1,000 white-tailed deer and 100 bears per year. Rabbits and squirrels are also harvested, and to a more limited extent, Ruffed Grouse. Wild game, no longer a household staple, is considered a delicacy. Trapping beavers and muskrats provides food and income from furs. Hunting on the Reservation has become more regulated in the last few years as a result of the adoption of the *Menominee Tribal Hunting Code*. The harvesting of food and medicinal plants is not regulated, so there are no figures available on the number of households that participate or the amount of material that is harvested. Picking blackberries and raspberries on the Reservation is a major fall activity for many tribal members. Some tribal members collect plants for medicinal uses. Wild rice, a staple of the Menominee in historic time, still grows in the waters on the Reservation, but the harvesting method is a long and arduous one. Most members find it easier to buy it at the store.

In the late 1800's, the Tribe was involved in a maple syrup industry (Ourada, 1979). Many members still collect maple sap and process it into maple syrup. One tribal member does so with the local high school students, to help them preserve a portion of their culture.

Today, only non-food products are sold to outsiders, including the timber and wood products of the community-controlled enterprise. Some individual tribal members gather moss and other "greens" and sell them to floral product companies. Some sell cedar boughs. The biggest market is for ginseng, commonly called shang. There are several Menominee who gather shang on a regular basis and sell it to dealers in Wausau. It is then exported to China. Ginseng gatherers are very protective of their sites and careful in their collection methods. They always bury the seeds to ensure that they do not deplete the supply of ginseng.

Tribal members are allowed to cut firewood on the Reservation. To do so, they must first get a free Use Permit issued by the Forestry Department. The permit allows for the harvest of 25 face cords of firewood, 100 cedar posts, and any number of evergreen boughs. About 350 people apply for the permit each year, and it is estimated that this amounts to about 3,000 cords or 1.5 million board feet of timber per year.

The Menominee have deep feeling for the forest, and that feeling guides their use of the forest. According to tribal Chairman Glen Miller, the Menominee are accustomed to being poor. Financial gain is not the driving force behind the Menominee and their forest. They have always been conservative in their dealings with the natural resources. As one elder said, "Everything we have comes from Mother Earth⁴from the air we breathe to the food we eat⁴and we need to honor her for that. In treating the forest well, we honor Mother Earth."

The Timber Management Plan and Forest Monitoring.

More than two billion board feet of timber have been harvested from the Menominee forests in the last 140 years, yet over that period the volume of sawtimber has remained constant, or actually increased. The policies and methods currently used to manage the Menominee Forest are described in the *Forest Management Plan*, which details the harvest schedule, the compartment cutting system, the silvicultural prescriptions, and the monitoring system which provides information for determining the annual allowable cut of timber.

The impact of harvesting on the tree species is strictly monitored using two inventory systems: the Continuous Forest Inventory (CFI) and the Operations Inventory (OI). Ecological monitoring for the specific purpose of assessing the impact of harvesting on the community's ecosystem has not been done.

The Continuous Forest Inventory monitors the forest health, including the area, volume and condition of the timber, to determine how much of the forest can be harvested annually or over a longer period. The CFI consists of a systematic grid of permanent plots on which a number of variables (strata) are periodically remeasured. Thus, observers can track changes in the forest due to the forest management practices or natural occurrences. The present CFI system was begun in 1963, and collects detailed data on individual trees as well as the plot using the same

techniques at each measurement.⁹ This repetitiveness allows for direct comparison of data from one measurement period to another. The CFI is a refinement of a forest-wide inventory designed in 1959 to measure the volume and condition of the forest. Since the CFI system has been implemented, there have been four complete forest inventories. Recently, the Menominee have begun to track an additional variable, habitat type, in order to analyze the optimal habitat potential for a given site.

The Operations Inventory (OI) System was installed in 1987-1989. The OI monitors all forest land in order to determine where the timber types described in the CFI occur. Data is collected by stands, which are areas of like species (and other characteristics) growing together in uniform fashion. Stands are delineated from each other and identified in the OI database. Data common to both CFI and OI systems (such as cover type) are collected with the same specifications, allowing information from both inventories to be merged. This detailed stand information provides the basis for planning when and where to cut. Basically, the CFI is used for volume control and the OI for acreage control. A Geographical Information System (GIS), a computer based mapping system, is used to combine information collected through the CFI and the OI. GIS produces acreage information and graphical presentations (maps) of the data.

Biological inventories on the Reservation have been limited. The only inventory of mammals was done in 1929 (Komarek, 1932). Preliminary inventories of vascular plants (Goff et al., 1964) and birds (Gordon, 1964) were done some 30 years ago. Since that time, some assessments of individual populations have been done--these were mostly aimed at game species and other higher vertebrates. The Menominee have identified the need to collect baseline data, and many inventories and surveys have been initiated or planned. Appendix B describes those surveys and inventories and implementation schedules.

Several significant changes have taken place in the forest resource over the past few decades. One is the reduction of forest land by housing, which could further diminish as more tribal members return the Reservation, attracted by increased economic development.¹⁰

The second change is the incremental transformation of the forest towards the northern hardwood cover type, comprised mostly of hard maple with some beech, basswood, and yellow birch. It is a climax cover type that can occupy most sites on the Reservation. Species in this type tend to show high vigor, and therefore often remain after treatment because current forest management practices select the low vigor, high-risk trees. The forestry staff sees this as a problem since it could lead to a monotype across the forest. Silvicultural prescriptions are being modified to allow for the enhancement of species that do not regenerate well under historic single-tree prescriptions. With the use of a habitat classification system (Kotar et al. 1988), sites are identified and assessed for their biological potential. Future management plans will use suitable silvicultural prescriptions to select for the most productive species on these sites. This will eventually lead to a more diverse forest composition of a higher quality.

A third positive trend is the increase in sawlog volume and the quality of the trees. Since 1963, the forest sawlog volume has increased to 1.7 billion board feet, (a 13 percent gain), thereby meeting the Tribe's objective to grow quality hardwood sawlogs. As the forestry staff continues to match sites with their potential, the volume and quality of sawlogs should continue to increase.

Organization of Production: The Menominee Forest and Timber Processing Mill

Menominee Tribal Enterprises (MTE) is the principal business arm of the Menominee Indian Tribe of Wisconsin, operating under authority of the *Tribe's Constitution and Bylaws* and directed by the *Forest Management Plan*. The *Constitution* empowers MTE to manage and operate the Tribe's business assets, including "...to log, manage, and reforest tribal forest land, and to manufacture, market, sell, and distribute timber, forest products, and related products." MTE manages and operates the property and subsidiary businesses within its scope of authority. Property includes the mill, forest land and the property owned by the business. MTE has the power to buy and sell land and other property.

MTE is run by a 12-member Board of Directors, which establishes overall policies and objectives for the management of the Tribal Enterprise's affairs and assets, and evaluates management results. Board members must be enrolled tribal members and are elected by other tribal members for a 3-year term. The present Board is composed mostly of people who work at MTE.

The Board of Directors hires the President whose responsibilities include general supervision and management of the business affairs of the tribal enterprise. The President is an ex-officio member of all standing committees, and has the general powers and duties of supervision and management usually accorded the president of a corporate body. Reporting to the President are seven Department Managers: Mill, Forest, Sales, Personnel, Purchasing, Financial, and Management Information Systems.¹¹

Management personnel have worked for MTE an average of 22 years. The average mill worker has been with MTE for 13 years. Technical positions include lumber inspectors, electricians, head filers, head sawyers, and edger. Mill workers are trained on the job by other operators or through training workshops. These include extension and industry association short-courses, sometimes several months in duration.

Positions within the forestry enterprise are filled according to Ordinance 82.10 of the Menominee Indian Tribe. This ordinance ensures that qualified Menominee are hired first on the Reservation. If no qualified Menominee apply for the job, hiring is done in the following order:

descendants of tribal members, spouses of tribal members, and other Indians. Non-Indians are hired only if there are no qualified people from the other categories.

The Menominee Tribal Legislature (MTL) has no operational authority over MTE. But, by Constitution, it does retain the authority and power to "...exercise all proper governmental and sovereign functions over the property managed or owned by the Successor Business (MTE)."

Production Equipment.

MTE owns all the mill's production machinery and mobile equipment.¹² In 1975, the mill underwent a complete renovation to upgrade the facility. Managers feel that current level of technology and the capacity of the equipment is sufficient to meet present production needs. The MTE has newer and more technically advanced equipment than the majority of sawmills in the region. Within the last two years improvements have been made in maintenance, carriages and in the trimmer area. MTE also plans to buy a new debarker.

The logging contractors own all their equipment. Most buy used equipment as new equipment is very expensive. Loggers are highly skilled, and turnover is low. Training is usually provided by the contractors, although most of the loggers have worked elsewhere and acquire skills before they come to work on the Reservation.

Wood Processing.

The mill at Neopit operates throughout the year, with a two- week shut-down period for repairs. On average, the mill processes 10 to 11 million board feet per year into cut, rough or finished lumber as well as specialty products depending on customer specifications. Wood processing procedures are explained in greater detail below.¹⁴ The mill utilizes everything, including log waste and bark. If the bark cannot be sold, it is used for boiler fuel heating the dry kiln, as is the sawdust. Log waste is chopped up in a "hog" and sold to pulp mills.

As noted previously, the mill was built in 1908. Several improvements have been made since that time, including modernization of the primary facility in 1975. Technical training of many employees (primarily through a national lumber inspector training program in Memphis, Tennessee) has yielded significant improvements. There are currently trained people in all phases of the operation. Training workshops have improved maintenance (e.g. boiler maintenance, electrical efficiencies, and kiln maintenance) and increase mill efficiency. In addition, MTE recently installed an advanced quality control system that focuses on cutting for grade and maximizing recovery. This initiative included the hiring and training of a Quality Control Coordinator. Finally, MTE has a fully-equipped machine shop with a skilled staff who provide "in-house" repairs and equipment maintenance. Their work includes equipment design improvements and "inventions" that improve the efficiency of existing equipment and dramatically reduce downtime. Skilled mechanics with a well-equipped garage maintain mobile equipment and rolling stock.

Revitalization and Value-Added Processing.

MTE recently began a strategic planning process to address the future of the forestry operation. A revitalization project is addressing inefficiencies in the primary wood processing facility with the goal of reducing operating costs.¹⁵ Expanding value-added processing is expected to reduce raw materials sales to downstream manufacturing and increase Menominee income. Plans for increasing secondary processing include: improving dry-kiln capacity, implementing cut-stock and finger jointing, establishing an efficient small-diameter/length log mill.

Marketing

The Menominee system of sustained yield forestry presents distinct advantages as well as challenges with respect to marketing. Successful marketing requires detailed planning because the harvested species are not always the ones that are in demand. Until 15 years ago, MTE used a broker to market its products. Now they have a marketing department with two full-time salespeople, and one part-time employee. Both full-time people are lumber graders, which adds to their ability to sell the product. The MTE salesmen are shown a "menu" of timber to be harvested in the next year. From that, they plan a marketing strategy.

When MTE first started marketing its own products, the difference between market demand and product availability was a problem. However, the marketing department developed clientele, educated them about the Menominee harvesting system, and soon found they had loyal customers. MTE's established customers recognize that the Menominee produce quality timber. Customers initiate the procurement process with enough lead time for their particular needs. There is steady customer base and order file for Menominee lumber, which commands a premium price. The mill has an excellent record of filling orders and with quality products.

MTE is mainly a wholesaler of its merchandise, selling throughout the U.S. and in international markets. It directly markets all products, which includes lumber, sawlogs, veneer logs, and pulpwood of the following types: hard maple, basswood, beech, red oak, soft maple, birch, aspen, white pine, red pine, hemlock. Fifteen high-quality finished wood products are currently available through MTE.¹⁶ MTE owns three semi trucks

for hauling products throughout the midwest, although most customers arrange to haul their own goods. Two major U.S. highways link the Reservation both regionally and nationally, and there is a railroad spur to the mill.

Most of the product (85%) goes to customers who are end users, 10 to 12 percent is for distribution, and a small portion is sold for retail or brokerage.¹⁷ MTE markets to local small dimension plants and to paper mills. They sell specialty woods to local manufacturing corporations for production of items such as windows and venetian blinds. Wood chips produced in processing are sold to paper mills for pulp, and shavings are sold to a company that processes them for animal bedding. When necessary, bark and chips are used as fuel for the MTE steam plant. Domestic buyers purchase 90 percent of the lumber processed at the mill.

In most years MTE has not made a profit. The primary cause for this situation can be attributed to the tremendous burden placed on MTE as a result of nearly two decades of Termination and the resulting bond indenture. Other contributing factors range from economic situations to natural disasters, like the tornado of 1983 that blew down large amounts of white pine. For the last two years, however, MTE has shown a profit. In 1993-94, the profit amounted to nearly \$1,700,000. This recent turnaround is attributable to a new philosophy of progressive management, new market penetration, and rigorous planning for growth to capitalize on emerging markets.

The issue of profit is a complicated one because MTE does not pay for the management of the forest resource. Through the arrangement in the *Trust and Management Agreement*, the Secretary of the Interior has an obligation to provide services for the benefit of the forest. These services, including fire protection, inventory assessments, and insect and disease control, would be provided whether the Menominee harvested their timber or not. These federal reimbursements entail much more than management for timber production, so it is difficult to sort out the cost of timber management alone. This professional management goes far beyond the services for which most forest enterprises would contract.

The allowable cut on the Menominee Forest is 29 million board feet per year. Next year, the mill is expected to cut about 12 million board feet, considerably below its capacity of 20 million board feet. The remainder will be sold as veneer, pulp, sawbolts, and sawlogs to be processed elsewhere. The decision not to process the latter is based on economics of scale and the design of the existing mill, which does not allow for the efficient processing of smaller material. The sawmill at Neopit is well-equipped for primary processing of lumber, but that is not the area of most attractive profit in the lumber industry.

Future Strategies.

In the past two decades, the trained and educated workforce on the Menominee Reservation has expanded considerably. This growing professionalism has contributed to the development and implementation of new strategies. MTE's long-term strategic planning seeks to eliminate inefficiencies in the primary wood-processing facility, and to diversify and increase value-added processing. Furthermore, developing "green markets" through Green Cross Certification has enabled the Menominee to secure premium prices for their sustainably-produced lumber. This certification, conducted by Scientific Certification Systems of California, was the first of its kind awarded to a U.S. timber producer (Landis, 1992). In addition to green markets, MTE has been developing international markets (e.g. for hemlock studs in Japan and hard maple in the U.K.)

Recently, the Menominee entered into an agreement with the Oneida nation to explore mutually beneficial economic development strategies. The Menominee have the forest resource and the mill. The Oneidas are favorably located near a population center and harbor, and need to develop their business enterprise to serve a growing community. The two nations have formed a Venture Analysis Team which will be looking at possible ways to work together for the benefit of their communities.

The Forestry Enterprise and the Local Economy

From its inception, the mill and the forestry enterprise have been the backbone of the tribal economy.¹⁸ The mill has provided jobs for tribal members for nearly a century. The forestry enterprise directly generates hundreds of thousands of dollars in salaries and benefits to its employees, and gives predictable work to the logging contractors and their employees. Nothing surpassed the forestry enterprise's impact on tribal economy until a casino operation was inaugurated in 1987.

The casino has generated a great deal of income for the Tribe, which has invested most of the profit into services benefitting the community. Because of the casino, starting wages for unskilled labor on the Reservation are higher than in surrounding counties. Jobs are plentiful at the Casino and pay well. As a result, other area employers must meet casino wages in order to attract employees. (Appendix A presents more-detailed information on employment and incomes.)

Over the past four or five years, the tribal economy has improved significantly and has become more resilient because of diversification through gambling, service-based businesses, and retail outlets. Current economic development has produced a high multiplier effect which has increased spendable income on the Reservation.

Yet, even though the gambling operation brings millions of dollars each year into the tribal economy, people still regard the mill as the foundation of their economy. The Menominee see the mill as successful and stable, while the new economic ventures are viewed with uncertainty. Over the years, several community ventures have failed (e.g. trusses, firewood, and industrial sewing) but the mill has always remained.

The mill has been a consistent provider of jobs for tribal members. The mill operation is not supplying the community as a whole with much income at this point. Although mill profits can be distributed to tribal members through MTL, they are currently reinvested for mill upkeep and improvements in order to cope with the incredible burden placed on MTE through the bond issue (see discussion of interest payments on bonds, above). According to Wendell Irving, Chairman of MTE's Board of Directors, "Some members just don't understand that if they took lump sum payments, they wouldn't get much. Three million dollars sounds like a lot of money, but if it is divided among 6,000 members, each would only get \$500." Generally, most members are satisfied with the benefits of the forestry enterprise. It has provided steady income for many tribal members, and it conserves the ancestral forest.

Summary and Analysis

The Menominee people have lived on the Reservation since 1854. Most of their land was forested then, as it is now. Yet in those 140 years since 1854, the forest has been intensively managed -- yielding some 2 billion board feet of timber. Still, visitors come to the Reservation and marvel at what they perceive to be a pristine forest, unaware of the intensity of management.

The success of the forest enterprise on the Menominee Reservation is rooted in the community. The tribal members maintain the enterprise -- through their support of the harvest methods, and their refusal to allow their forest to be degraded. To develop a market-oriented forestry enterprise that is ecologically and socially sustainable as well as economically feasible requires a society that is well-balanced with respect to these areas.

From an economic standpoint, the Menominee could be very wealthy if they chose to liquidate their forest. But that is not an option. The Menominee do not look at their forest just as a source of economic benefit. Thus, they continue to manage the forest as their ancestors did -- for their children and their children's children.

If the Menominee ignored ecological concerns, they could also make a great deal more money. They could just produce a monoculture of an economically beneficial species like red pine, and cut and replant on a short rotation. They could push their forest in whatever direction that they think the market will go. They could cut based on market demand. But that's not what they have chosen to do. They have chosen to manage so that the diversity of species remains.

Menominee culture and society also contribute to this balance and ultimately to a successful forest enterprise. The Menominee have been taught to respect all living things, and that respect is always there even when it is necessary to harvest. A tribal artist and elder, James Frechette, explains it this way, according to Wrona (1988):

"That whole practice of harvesting and processing (the wild rice) was formalized to the extent that the collection and preparing were carried out ceremonially. That is, it included the relationship of the people with the surrounding world and respect for its preservation."

The culture itself puts constraints on the harvest of the timber, and also the harvest of other forest materials. If a tribal member takes more than what is perceived by others to be necessary, whether it's game, ginseng, or firewood, other tribal members will let him know about it. Overuse is simply not tolerated. The communal attitude toward the forest is that of taking what is necessary, but nothing more than that.

A society that is skewed toward economic gain may well decide to overharvest the forest to reap immediate financial gain. A society driven by culture may not be able to harvest at all. A society where the members cannot agree on goals, or changes them depending on the current power structure, will not be able to direct effective management of a community enterprise. The Menominee have been able to balance economic, cultural, and ecological values to maintain sustainable forestry.

Resource Tenure and Control of Resource Use.

As a result of regaining tribal status, title to the Menominee's land is again held in trust by the federal government. The 1975 Trust and Management Agreement, however, gave the Menominee far-reaching rights to manage their land and resources. The people, through their elected MTE Board, have the power to influence how the forest is to be managed. MTE is responsible for the development of a management plan that directs the forest operation. The *Forest Management Plan* is written with long-range goals that ensure both the productivity and maintenance of the forest. The plan is, by design, rigid enough to withstand "...(the) more ephemeral Tribal concerns" (MTE Forest Management Plan, 1988).

Tribal mandate dictates that the Menominee Forest be managed for maximum quantity and quality of sawtimber while maintaining like species. In other words, the Menominee forest is managed for production, while preserving existing components of the forest. Fluctuating market demand does not influence management of the forest.

Impact of Management on the Forest Resource and Ecosystem.

The Menominee's sustained yield system appears to maintain the structural composition of the forest. The volume of sawtimber on the Reservation today equals, or may even surpass, the volume standing when the Menominee Reservation was created by Treaty in 1854, even though over 2 billion board feet of timber have been harvested during that time period. Furthermore, a broad approach to management -- one that focuses on forest cover types rather than on single species -- has apparently preserved the diversity of the forest. It may be this diversity that has helped the Menominee Forest survive in the wake of natural disasters, such as insect infestations. Although biodiversity for the Reservation as a whole has not been assessed, the foresters believe that this broad approach to management sustains rather than degrades the ecosystem.

The two indicator species that commonly are used to gauge ecological health in northern forests of Wisconsin -- hemlock and Canada yew -- are relatively abundant in the Menominee forest. However, as noted above, no comprehensive biological inventories have been carried out on the Reservation, although the Menominee are in the initial stages of collecting baseline data for plants and animals.

Management of the Menominee forest has, of course, had an impact on the ecosystem. The CFI plots which are used to inventory species composition over time have shown that the composition of the forest has shifted to northern hardwoods as a result of the harvesting system. Fire suppression, too, has caused changes in the composition of the forest. Logging, along with building and maintaining roads, causes some environmental damage in spite of strictly enforced guidelines. Spraying of herbicides, although benefiting some species, does so at the expense of others.

Economic Viability of the Enterprise and the Community.

The Menominee have an incredible strength in their integrated forest management and processing facility. Management of the Menominee Forest with sustained yield practices has presented challenges as well as advantages both in marketing and in processing. Processing and marketing are always tied to the resource and the annual allowable cut. While this can present some interesting challenges for marketers, it has positive ecological consequences for the forest, because market demand does not affect management decisions, but rather marketing responds to the resource. Basically, the forest drives the mill, the mill does not drive the forest. Management of the forest is geared toward growing quality timber while preserving the diversity of the forest.

At the moment, MTE is in need of some changes. There are major revitalization and diversification plans for the mill, which include added kiln capacity, dry storage, and value-added processing. Such changes will allow the mill to build inventory and process products in response to market demands. It will also give MTE more flexibility than it has had in the past, and the opportunity to develop a better marketing plan. With small dimension log milling, and more secondary production and product lines, the Menominee will be able to realize more value on their products. The Menominee will increase community employment levels and enterprise profits without harvesting more trees. Green Cross and Smart Wood certifications will help Menominee wood command premium prices. Other new markets will allow the Menominee to sell products like paneling with knot holes, hemlock, big timber, and manufactured products such as windowsills and cabinets.

Managing forests for timber alone underutilizes potential income and benefits. Non-timber products, such as medicines, food, or crafts, are not providing tribal members with much income at this point and it is uncertain whether or not individual members are interested in pursuing this opportunity. Tribal ventures such as the tourism, which supplements the White River Apache's forestry operation (Davis, 1993), have not been explored.

With over half of the enrolled tribal members living off-Reservation, there are perhaps more pressing problems than the issue of income generation and distribution. The number of people returning to the Reservation may grow as economic opportunities continue to increase on the Reservation. Land use and the question of a burgeoning population is one that needs immediate attention. The Tribe is in the process of developing a comprehensive land use plan that will be ready in 1999. At present, the land allocated for housing is limited. If land is removed from forest production to accommodate housing needs of tribal members, the volume of timber produced will decrease. Recently, the tribe purchased land in Shawano County to develop into a community.¹⁹

The forest enterprise is considered by the Menominee to be the backbone of their economy, and there is general community consensus that the forest needs to be maintained for economic reasons. Yet, it is probably the Menominee dependence on the forest for cultural survival that has provided the real motivation to maintain their forest. If this is true and the forest survives in its present condition because of traditional cultural beliefs, any cultural devaluation is a potential threat to the forest.

The forest has provided the Menominee people with employment, economic benefit, and a strong tie to their cultural heritage. If we look at the Reservation as a whole, including man and his needs as part of the ecosystem, harvesting has not been detrimental. Current management practices using sustained yield forestry do not seem to compromise ecological sustainability. At this point, without more information, we can only

look to the forest and see a healthy productive system and assume that our history proves that what we are doing works. For over 100 years, forest management has maintained both the forest and the people, and we expect that it will continue to do so.

Appendix A: Social and Economic Background Information

According to the 1990 census, the total population of the Reservation (not including Menominee County) was 3,411. Ninety-four percent of the population listed their race as American Indian. The population is steadily growing and as of August 1994, there were 3,539 enrolled members of the Menominee Indian Tribe of Wisconsin living on the Reservation.²⁰ Another half of the tribal members (3,768) live off the Reservation (Enrollment Office, pers. comm.).

The Reservation is considered rural. Population centers include Keshena (pop. 685) Neopit (pop. 615), two smaller settlements (Zoar and South Branch) and a clustering of homes along Legend Lake (U.S. Census, 1990). A 1989 census showed a total of 934 households on the Reservation in 1989. (A household is defined as all the people who live in a housing unit). Of these households, 177 were located in Keshena, 161 in Neopit, and the rest in more rural areas. English is the primary language spoken in these households, although the Menominee language is spoken in about 15% of the homes (U.S.Census, 1990). In the last 5 years, there have been an average of 114 births and 33 deaths per year on the Reservation (Center for Health Statistics, pers. comm.).

Sixty-one percent of the people living on the Reservation in 1989 had at least a high school education. Of that number, 15% had some college, no degree; 3% had associate degrees; 3% bachelor's degrees; and fewer than 1% graduate degrees (U.S.Census, 1990).

According to the 1990 Census, more than half (52.1%) of the people on the Reservation were living below the poverty level in 1989. The median Reservation household income in 1989 was \$13,139, while that of the state of Wisconsin was \$29,442. The mean family income on the Reservation was \$19,778, while that of nearby Shawano County was \$32,919. The per capita income on the Reservation for persons 15 years and older was \$5,134; for Shawano County it was \$10,586.

The Menominee Indian Tribe of Wisconsin is responsible for the administration of tribal programs. It employs 621 people of whom 440 (71%) are Menominee, 24 (4%) spouses of Menominee, 17 (3%) are descendants (i.e. a first or second generation offspring of an enrolled member), 7 (1%) are both spouses and descendants, 9 (1%) are other Indians, and 122 (20%) are non-Indian.

The Menominee Tribal Gambling Corporation (the Casino, Bingo and the Crystal Palace) employed 484 people in 1993. Of these, 83% were Menominee, their spouses, or descendants (Menominee Tribal Gaming Corporation, Annual Report³⁴FY '93).

Menominee Tribal Enterprises (MTE) employs 170 people. One hundred (all Menominee) are employed at the mill, 40 (22 Menominee) at Forestry, 20 (15 Menominee) in the MTE office building, and 10 (all Menominee) in outlying areas.

Logging: Currently, there are 26 logging contractors on the Reservation, of which 15 are Menominee-owned. Of the 143 crew workers, slightly less than half (68) are Menominee.

Appendix B: Biological Inventories

Biological Diversity

Birds

Breeding Bird Survey Since 1991, personnel from the Wisconsin Department of Natural Resources (WDNR) have assisted the Menominee Conservation Department (MCD) and the Forestry Center in monitoring the presence and relative abundance of breeding birds on the Reservation.

- **Ruffed Grouse** Surveys are used to monitor the spring population of ruffed grouse (Drumming Counts), and its reproductive success (Ten-week Brood Observation Survey). Drumming Counts were begun in 1991, and the Brood Counts were started this year. These surveys are being conducted by MCD, Forestry, the Sustained Development Institute (SDI) and WDNR.
- **Eagles and Ospreys** Location of eagle nests and reproductive success is determined by aerial searches, and nestling banding. This survey, begun in 1991, is conducted annually by WDNR.
- **Woodcock** Peenting counts are done each spring for the US Fish and Wildlife Service, by MCD personnel. They have been conducted since 1978.

Mammals

- **Furbearer Survey** The Northern Furbearer Track Count Survey provides an index to the population size and the distribution of furbearers such as bobcat, coyote, fisher, otter, marten, and fox. These surveys have been completed sporadically over the last couple of decades. Previously a cooperative effort between WDNR and MCD, MCD and SDI have plans to greatly expand these surveys.
- **White-tailed deer** To date, deer numbers have been estimated by pellet-group counts. To get more accurate information, biologists on the Reservation will now begin estimating the deer population on the Reservation with the Sex-Age-Kill (SAK) method used in the rest of Wisconsin. To gather information for the SAK, MCD in conjunction with SDI will be aging deer registered in Menominee County during the gun deer season, and collecting information on recruitment into the population with Summer Deer Observations.
- **Bear** Bear registration is now required on the Reservation. Beginning this year, MCD and SDI will be taking tooth samples from these bears to determine their age. From this information, a model can be constructed to assess the population. Trends in population levels over the last few years have been evaluated using the information collected by the WDNR on annual Bear Bait Surveys.

Other

- **Frog and Toad** The purpose of the Frog and Toad Survey is to provide relative abundance and distribution information. Singing frogs and toads are tallied along set transects in the County. The survey has been conducted since 1992 by Forestry.
- **Fish** Fish have been inventoried annually since 1978 by MCD.
- **Natural Communities** The Bureau of Endangered Resources (WDNR), in a preliminary assessment, has identified rare and endangered species and natural communities presumed to occur in Menominee County (BER Publ.).

Appendix C: Chronology of Events Which Have Affected Menominee Land, Tribal Government, and the Forest Enterprise

Beginning in 1928, the Menominee people's ownership rights to 9.5 million acres, previously recognized by the US government, were eroded through a series of treaties (1828, 1831, 1836, 1854, 1856) which drastically reduced the Tribe's land base.

1854 Treaty - Current boundaries of reservation established.

1856 Treaty - Menominee ceded two townships to Stockbridge Munsee Tribe of New York.

1856 - Small sawmill established in Keshena Falls for the use of tribal community.

1871 - First pine sales outside of Reservation.

1887 - Congress passed the General Allotment Act (the option to divide Tribal communal land among individual tribal members); rejected by the Menominee Tribe.

1890 - Menominee Tribe obtain federal permission to cut green timber.

1905 - Windstorm blew down 40 million board feet.

1908 - LaFollette Act provided for construction of modern sawmill at Neopit.

1934 - Indian Reorganization Act: Secretary of Interior assumed trust responsibility for Tribe.

1954 - Menominee Tribe had built up a \$10 million trust fund from mill profits and a successful lawsuit against the federal government for mismanagement of tribal resources.

1959 - Menominee Termination Act: Land was taken out of trust with the federal government (Department of Interior) and title was transferred to the tribal business, Menominee Enterprises, Inc. (MEI). Termination Act mandated the continued protection of the forest on a sustained yield basis.

1961 - Menominee Reservation became Menominee county. State assumed administrative responsibility.

1963 - Continuous Forest Inventory System instituted (refinement of system instituted in 1959).

1973 - Menominee Restoration Act: Forestry Enterprise and other assets transferred back to the tribe; land placed back in trust with the Secretary of the Interior. Land cannot be sold or traded without congressional approval. Menominee Tribal Enterprises (MTE) became successor to MEI.

1975 - Trust and Management Agreement established with the Secretary of the Interior. That Agreement, which includes elements of the 1934 Indian Reorganization Act, constitutes the current legal basis for sustained yield management.

1975 - Indian Self-Determination Act: Tribal councils were given more authority and control over their affairs. BIA's role changed from control to service (at least for the Menominee tribe).

1975 - Mill modernized.

1987-89 - Operations Inventory System instituted.

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1 Appendix A presents social and economic background information on the Reservation.

2 Menominee County/Reservation is bordered by three counties: Langlade, Oconto, and Shawano. Of these, Langlade (which includes a portion of the Nicolet National Forest) has the most commercial forest land (66%); Oconto County has 53% commercial forest land; Shawano County 44%. Menominee County, on the other hand, is 94% forested. Agricultural lands account for well over 50% of the area in Shawano County, 25% in Langlade County, nearly 40% in Oconto, but less than 0.05% in Menominee County.

3 A small number of Menominee People were polled and agreed to the concept of Termination. However, the question was tied to a \$1500 per capita payment from the Trust Fund. A positive answer approved both the per capita payment and the concept of Termination (Lurie 1980). The

Menominee were told that the Senate would not approve a per capita payment unless the Menominee agreed to Termination (Newall, Clow, and Ellis 1986).

4 Each of the 3,270 tribal members was allocated 100 shares of MEI. The members did not receive the stock directly. Rather, their rights were assigned to a Voting Trust. The Voting Trust was legally the shareholder of the stock and had the right to vote as they saw fit. Additionally, at the time of Termination, each member was given the per capita payment of \$1,500 and issued a \$3,000 income bond. The principal obligation of the bonds becomes due in the year 2000. On each bond there is a 4% annual interest (\$120 on whole bonds) paid from the annual net income of the Enterprise.

5 The Menominee forest passed under the direction of the State of Wisconsin's Conservation Department (now the Department of Natural Resources). It was managed with the provision that the forest continue to provide forest products to the Neopit sawmill yet still be protected from exploitation.

6 A large lake was created by damming up several small lakes and marshland. Hundreds of lots, comprising some 4,000 acres, were sold to non-Menominee at premium prices in an attempt to raise both revenue and the tax base of the county.

7 The Voting Trust transferred the MEI stock to the Tribe. The stock was held by the Restoration Committee until the Menominee Tribal Legislature was constituted. The U.S. Government paid \$1.00 for each of the 327,000 shares of MEI stock. This was then distributed to the certificate holders, and the Voting Trust was dissolved. MTE has met its obligations to bond holders each year except for one, when a partial payment was made. Some of these bonds were purchases from their original holders, during a redemption period in December 1993. This was the only open redemption that has been offered. Occasionally, the board will approve the buy-back of a bond under special circumstances, such as hardship cases. About 60% of the bonds have been purchased, at fair market value.

8 The Legislature is composed of nine members of the Menominee Indian Tribe, seven of whom must be residents of the Reservation. They are elected to fill three-year terms of office. The Judiciary is composed of one Supreme Court (with three Judges) and the lower courts. Judges are appointed by the vote of 2/3 of the Tribal Legislature. The Supreme Court has jurisdiction over the appeals from the lower courts. The Supreme Court is the "final and supreme interpreter of this Constitution and Bylaws, and tribal ordinances" (The Constitution and Bylaws of the Menominee Indian Tribe of Wisconsin).

9 The CFI consists of 941 permanent plots, each a 1/5 acres circle, set out at roughly 3/4 mile by 3/4 mile grid throughout the forest. All commercial trees 4.96 inches or greater in size are measured in great detail. Trees smaller than the 4.96 inch diameter are counted on a 1/100th acre plot for precommercial tree estimates. Data regarding the entire plot are also collected and recorded in the database.

The large number of sample plots was installed to adequately monitor important subgroups or strata across the forest. One important strata is the cover type. The most important cover types are included with this intensity of sampling. Recently, an additional strata for habitat type has been defined, in order to analyze the forest condition bases on site potential.

Each sample plot in the Menominee CFI represents 248 acres, not necessarily contiguous to the plot. Analyzing the representative sample indicates positive or negative trends for the forest.

10 The tribe removed 5,200 acres from forest production in the 1960s, in attempt to generate income during Termination. Since then, housing needs have removed another 1,000 to 2,000 acres from production.

11 MTE headquarters, which houses all administrative staff except for forestry, is located near the mill in Neopit. Forestry staff is housed at the Forestry Center in Keshena.

12 Production machinery includes a full two-sided carriage band sawmill with kilns, rolling stock, and surfacing equipment. The mill's mobile equipment includes five 45-foot trailers. MTE leases two tractors to transport lumber. The road crew owns two bulldozers, two road graders, two front-end loaders, and three heavy dump trucks (16-yard, 5-yard, and 7-yard).

13 The mill is budgeted for 34,000 board feet of hardwood/day (log scale) or 60,000 board feet softwood per one eight-hour shift. Until a few years ago, the mill ran two shifts per day, and now runs one eight-hour shift per day.

14 Logging trucks bring logs directly to the mill log yard. There the logs are scaled for volume, and sorted by grade and species. Log-quality pulp logs and veneer logs are sold at this point. Sawlogs are loaded into the debarking area where, depending on their diameter, they are run through one of two debarkers (MTE owns a HMC, Rossier Head debarker and a Nicholson ring debarker). The scale is again recorded on the debarked logs. Subsequently, the logs are delivered into the mill on a bull-chain conveyor. Logs are processed down to a cant with two separate carriage band saws with computer assisted hadrigs (using thin kerf technology). Lower grade lumber is sent to the resaw. Lumber is sent to the edger, where it is edged for width, and finally trimmed for length. The grader inspects the lumber, after which it is scaled and sorted by length or grade per customer's order. It may be sold green at this point, or sent to the dry kiln. MTE operates four dry kilns, two at 60,000 board feet capacity and two at 25,000 board feet. MTE is now analyzing the net present value projection on expanding the dry kiln capacity to maximize the value of

selling dried product to new value-added machine centers. In addition, MTE operates a pre-dryer with 120,000 board feet capacity. Steam for these kilns is generated by two boilers with the water capacity of 25,000 to 35,000 pounds for four-hour peaks. The boilers are also used to heat the production facility. Mte operates a Yeats planer and two edge molders with several well-trained operators, exacting the production of quality crafted finished products.

15 Efficiency is expected to improve through the following measures: a) more energy-efficient electrical system (that is, soft-start motors); b) replacing inefficient lighting with high-tech lighting system; c) improving steam plant efficiency, including recovery of heat; d) reducing log waste through utilization of thin kerf technology; e) upgrading machinery to reduce down-time; f) quality control measures.

16 Finished wood products include S4S stock, S2S stock, W.P. 4, W.P. 6, W.P. 116, SIS2E, decking, log siding, drop siding, shiplap siding, channel lock, bevel siding, moldings, paneling, wainscoting.

17 Locally, the mill maintains a retail lumber yard where local tribal members can buy lumber at a reduced cost. It is a small operation and not advertised at this point -- some tribal members are unaware of its existence.

18 The Reservation has a few small retail operations, several contractors (construction, electrical work, and plumbing), but no manufacturing.

19 The community, called Middle Village, is located between Keshena and Neopit and is expected to provide housing for about 500 people. Eight acres are designated for commercial developemnt.

20 Enrolled members have at least 1/4 Menominee blood, although there are some exceptions. Prior to 1953, a child born on the Reservation was automatically enrolled.