

Tina Haley, Student Participant
Anthony Wayne High School
Whitehouse, OH

Food Insecurity in Mexico

In 1992, the Mexican Daily, or “El Financiero” printed an article stated that fifty out of eighty-five million Mexicans are living below the poverty level. That is almost sixty percent of the Mexican population. Out of those fifty million, twenty million are living in extreme poverty. Anyone living on less than 1 dollar a day is said to be living in the extreme poverty category. Poverty rates in rural areas have seen improvement since 1992, unlike the neighboring urban areas. Other Central American countries such as Honduras have seventy-five percent of its population living in poverty and sixty-three percent of them are living in extreme poverty. Guatemala has fifty-four percent of its population living in poverty. Nicaragua and El Salvador have a poverty rate of forty-seven percent. Only 8.2 percent of the population earns anything above 650 dollars a month. That cannot keep a family of six or seven people from starving. Mexico will need one million new jobs each year to provide work for people entering the workforce even though net job growth is believed to be less than 500,000 per year. In 1993 businesses with one to five employees made up forty-two percent of the urban workforce. In the early nineties, the majority of urban workers earned less than fifteen dollars per day. In December 1995, the minimum wage was 20.15 pesos or \$2.70. Ten percent earned less than minimum wage. Programs are being created to better the economy and land degradation. Some families go out on the streets and try to sell anything they own such as shoes, food, or furniture just to try and boost their net income. In 1985, the government classified almost seventeen percent of all land as totally eroded, thirty-one percent in an accelerated state of erosion, and thirty-eight percent demonstrating signs of incipient erosion. That is eighty-six percent of land that cannot be used as farmland and cannot help the nation move towards being food secure. Mexico has a population of more than 1 hundred million people trying to share 1.9 square kilometers of land. Mexico is almost three times bigger than Texas. If over half of that land has suffered from land degradation or another source of damage, then inflation will be even higher than it is now. That If Mexico can find sustainable research on improving water scarcity, resource management, and natural resource and land degradation, then less people will have to worry about living below that poverty line and being food insecure.

Two-thirds of the rural population work on a farm to provide money to pay for their families necessities. Mexican farm workers do backbreaking manual labor that Americans are skeptical of doing even in times of high unemployment. This is even more true due too these more recent years, with unemployment at its lowest in several decades. While most speak only Spanish, there are an increasing number of people who speak neither Spanish nor English, but instead speak the native languages of the region from which they came. The villages are very poor and have little access to health care and education. There is a market place where farmers will trade or sell their goods and crops. There is also a Roman Catholic Church in town because eighty-nine percent of Mexicans are Roman Catholic.

The typical Mexican farm family has about seven to ten people living in one house. Two parents, three to four children, and maybe two to three other family members including aunts and uncles or grandmas and grandpas may all be living under the same roof. The country's divorce rate is among the lowest in the world. Each person in the household is expected to work on the farm. The crop that the family harvests is most likely corn. It is planted on forty percent of rural Mexican land. A family farm may only have 5 acres or less of poor quality land due to lack of money. Most farmers produce corn ideally to feed their families and because corn is the primary crop of Mexico. The poorer families eat little meat because they cannot afford it. The children might be pulled out of schools so that they can help

provide for the family in the fields or at home taking care of smaller children so that mothers can work. If they go to school, they often do not get breakfast and if their school has a free lunch program then the child might get lunch. However, there are very few schools that have people who will search for ways to help them.

Towns and cities at an elevation south of the 24th parallel have relatively constant, pleasant temperatures throughout the year, where more northern locations experience seasonal variations. February is the driest month and July is generally the wettest month. Mexico lies in the hurricane belt, and all regions of both coasts are likely to experience these storms from June through November. It is important that the farmers in this region know what the climate will be like so they can know how to care for and when to plant their crops.

Mexico faces significant environmental challenges affecting almost every section of the country. Mexico's natural resources are petroleum, silver, copper, gold, lead, zinc, natural gas, and timber. Deforestation, soil erosion, contamination of the air and water and health issues are all problems Mexico has experienced because of extreme land degradation. In Mexico, land degradation is an important factor in Mexico's national economy impacting sixty-five percent of the national land area. It is estimated that losses of nutrients and productivity in agricultural and grazing areas cost over two billion dollars a year. Losses due to the accumulation of soluble salts in soil approach 1 billion dollars and the costs of deforestation are up to half a billion dollars. It has also been shown that land degradation is an important contributing factor to rural-urban migration in Mexico and Mexico to U.S. migration streams. Between 700,000 and 900,000 people migrate from Mexico's dry lands annually. This is due to a strong correlation between environmental stress, poverty, and migration. Mexico loses 1.36 percent of forestland per year. Vast expanses of southern and southeastern tropical forests have been cut down for cattle raising and agriculture. Only twenty-seven percent of tropical forest remained in 1990. From 1940 to 1980, pastureland increased from twenty to sixty percent of the state's total area. The main causes of deforestation are due to burning, logging, fuel, and the expansion of agriculture. A representative from the Food and Agriculture Organization or FAO said, "Deforestation, which is now progressing at a rate of 600,000 hectares per year, is creating severe soil erosion in many areas." Deforestation has contributed to soil erosion all over Mexico and Central America. Land degradation is very costly in Mexico. Salinization, deforestation, and soil nutrient losses have added up to a 3.2 billion dollar deficit. The cost of farming is so high that many Mexicans cannot afford fertilizers or products to increase nutrients in the soil. Many have abandoned their farms and moved to the forest frontier. This has led to forest clearance and a decline in soil quality.

Mexico's vast coastline faces a different series of environmental problems. For example, in April of 1992, Guadalajara had more than 1,000 barrels of gasoline seep from a corroded Mexican petroleum pipeline into the municipal sewer system, where it combined with gases and industrial residuals to produce a massive explosion that killed 190 people and injured nearly 1,500 others. This is bad because a situation like this could have gotten into the water supply and into the irrigation systems used to water the crops.

Mexico City is faced with geography and extreme population as its environmental challenge. They have combined to produce one of the world's most polluted urban areas. Mexico City sits in a valley surrounded on three sides by mountains, which trap contaminants produced by the metropolitan area's fifteen million residents. One government study in the late 1980s determined that nearly five million tons of contaminants were put into the atmosphere. Carbons and hydrocarbons from the region's more than three million vehicles, account for approximately eighty percent of these contaminants. In 2003 Mexico was the world's fifth largest oil producer. It is the ninth largest oil exporter, and the third-largest supplier of oil to the United States. Oil and gas revenues provide about one-third of all Mexican Government profit. Fifteen percent of sulfur and nitrogen comes from industrial plants. During the dry

winter months, untreated fecal matter also becomes airborne. This is responsible for a wide range of respiratory illnesses. One study of twelve urban areas worldwide in the mid-1980s concluded that the residents of Mexico City had the highest levels of lead and cadmium in their blood. The volume of pollutants from Mexico City has damaged the surrounding ecosystem as well.

Anti-pollution policies were enacted by the Mexican government in the mid-1980s to try and cut air pollution. Ideas such as vehicle emission inspections, the introduction of unleaded gasoline, and the installation of catalytic converters on new vehicles helped reduce pollution generated by trucks and buses. They also had a No Driving Day program, but this may have inadvertently contributed to higher pollution levels. Under the program, metropolitan area residents were prohibited from driving their vehicles one day each workweek based on the last number of their license plate. However, those with the resources to do so purchased additional automobiles to use on the day their principal vehicle was prohibited from driving, thus adding to the region's vehicle stock. At certain times in the mid-1990s that the government declared pollution emergencies, promoting temporary cutbacks in vehicle use and industrial production like the "Ozone Action Days" we have today.

The Mexican government and water authorities have begun new regional and local approaches for the planning and management of water resources within a sustainable development framework. Water is crucial to the Mexican economic and social development. These new approaches were part of the "Environment Policy for a Sustainable Development" established by the Mexican government as part of the 1995-2000 National Development Plan. The plan had many regional and local objectives including, to achieve a sustainable and balanced use of the water resources, increase the number of services related to sewage disposal and sanitation, ensure the quality of water supplied for human consumption and for other uses likely to affect public health, and to promote more efficient uses of water for irrigation, domestic consumption, and industrial purposes.

In Mexico City, a research study was conducted regarding the use of physical space and social behavior of dairy cows. Thirty-three animals were given 9 x 40 meters of space each. There were two milkings performed each day for six days, and a feeding routine of lettuce, maize leaves, and cabbage. Milk production from stable-reared cows is the method of production that is favored in Mexico City. Because of the extremely high aggressive behavior of the cows, production of milk was ultimately lowered because of constant alertness and stress. The fact that a state of permanent alertness predominates in the cows reared in urban production systems could be considered as one of the factors that might limit its acceptance as a model of sustainable milk production for the urban environment of Mexico City. Japanese research has determined that the amount of space per animal at which the animal stops being in the state of alertness is approximately forty meters. The cows in this study only had ten meters. The space allowed for the animals to live by the farmer would have to increase by four hundred percent. This would make the area of land from 309 meters to 1425 meters to comfort the cows. This is not viable because of inflated land prices and high population density. These results however would not be the same on a rural farm because you have other factors to take into consideration, such as air pollution. Urban animal welfare can only be determined in urban social conditions. There are many difficulties in finding an apt solution regarding the use of animals within the metropolitan area. The situation would seem to justify the intensification of the use of physical space. It is clear that the state of alertness of the cows was induced by the restriction of space and it will undoubtedly affect the productive behavior of the animals and is considered as a limiting factor in terms of economic sustainability.

Land degradation is not only happening in Mexico. It is also happening in other areas of the world such as the United States. The availability of arable land at world level is less than 0.27 ha per capita. That is the lowest it has ever been in history. That is much less than the average of 0.7 ha per capita in the United States. The minimum amount of 0.5 ha per capita has been suggested as the requirement to have a diverse diet of animal and plant food products. Not only is the availability of

cropland per capita decreasing as the world population grows, but arable land is being lost due to excessive pressure on the environment. During the past forty years nearly one-third of the world's cropland has been destroyed because of soil erosion and land degradation. Agriculture accounts for eighty percent of the annual world deforestation. Deforestation, urbanization, industrial growth and pollution are rapidly growing throughout the planet. Twenty-four percent of the land area is subject to high human disturbance worldwide. Less than half of the Earth's land area, excluding Antarctica, are in areas subject to low human disturbance. This figure includes deserts and mountaintops.

In 1995, The Mexican Ministry of Environment, Natural Resources, and Fisheries (SEMARNAP) established the Directorate of Restoration and Soil Conservation in order to reverse the deterioration of resources and land degradation. This plan allows planning and programming actions to take place to work on gaining sustainable management of Mexico's significant areas of land. This plan of action is attempting to increase agricultural productivity and promote more appropriate land use. In June 2000, this program already restored over 65,000 hectares of land. Other steps have been taken to improve deforestation. Reforestation is the most expensive activity per hectare, but it is essential to recover forest resources. If other countries tried to facilitate this plan, then more farm land could be saved from land degradation and the world would not have an issue with there not being a sufficient amount of food.

A large number of developing countries stake their food security and well being on imports of food. This dependence on the international market makes developing countries vulnerable for both gains and losses in the food supply. If Mexico works towards more efficient ways to better their land, then they could be on their way to a better life. A farm family could learn new ways to save their land, or make their poor quality land farmable. If there is more land that is being saved, then maybe those fifty million Mexicans that are below the poverty level will finally have some food and a job to keep their families healthy. If sustainable research is continually developed, Mexico's economy should be on its way to economic and environmental recovery.

Works Cited

- Gellert, Peter. "Mexico's poverty gap widens." *Greenleft Weekly*(1992): pg 68.
www.greenleft.org.au/back/1992/68/68p16b.htm.
- Hernandez-Zavalal Martha. "Quality of Schooling and Quality of Schools for Indigneous Students in Guatemala, Mexico, and Peru" *Policy, Research working paper*. August 1, 2006. Aug 10 2006<http://wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2006/08/01/000016406_20060801115754/Rendered/INDEX/wps3982.txt>.
- Losada, H. "Cattle behaviour as an indicator of animal welfare in the dairy systems of Iztapalapa, Mexico City." *Livestock Research for Rural Development*. June 1, 1997: Volume 9 Number 4. August 20, 2006. <<http://www.cipav.org.co/lrrd/lrrd9/4/mex941.htm>>.
- Plowman, R.D. "Sustaining Agriculture" *Agricultural Research*" October 1989: 2.
- "Rural Poverty in Guatemala." *Rural Poverty in Guatemala*. August 11, 2006. <www.ruralpovertyportal.org/English/regions/Americas/gtm/index.htm>
- Sustainable Development Project for Rural and Indgenous Communities of the Semi-Arid North-West. *Ifad programs*. 2005. August 5, 2006. <www.ifad.org/operations/projects/regions/PL/des/MX.htm#1349>