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Concordia, Factor 11: Malnutrition

### **One of the Mexican States With the best Production With One of the Most Marginalized Municipalities**

Concordia is a city with semi-rural conditions located in the south of the Mexican state of Sinaloa. This municipality is like a little black spot in the middle of a white surface, because Sinaloa is one of the principal agricultural sources in Mexico, having the most modern and technologically advanced agriculture in the country. Its high productivity integrates it to national and international markets as a fruit and vegetables exporter, which represents 65% of Sinaloa's exportations. 97% of their fruits, legumes and vegetables go directly to the USA, while the rest partially cover Canada, Spain, Italy, Sweden, Argentina, Germany, Netherlands, Belgium, Japan and Colombia's markets. (Gobierno del Estado de Sinaloa, 2010). On the other hand, Concordia presents a nutritional gap in their habitants due to the lack of fruits and vegetables. How is this possible?

Concordia is located on a plateau surrounded by hills and valleys, 423 ft. above sea level. Its climate is subtropical, temperate and humid. The average annual mean temperature is 25°C. Rainfall is plentiful in the months of July to September; it has a rainfall of 23 inches. There are several streams that cross its land (adequate for agriculture). Deer, wild boar, tigers and a variety of birds and reptiles represent the area's fauna. The flora has hardwoods such as pine, oak, and cedar, and a few fruit trees. (Enciclopedia de los Municipios y Delegaciones de México, 2010).

Concordia's streets are traced in irregular lines, narrow and all natural floors; and only 10% has cobblestone sidewalks. There are two types of houses: some are built with sticks and tile roofs, adobe walls with brick floor, one-room kitchen, and most of them have small backyards. There are others built with adobe, brick walls or reinforced concrete and cement floors, which consist of 2-5 rooms. On the outside of the town there are houses of stick and palm roofs with dirt floors.

Population is 28,493 habitants, from which 13,097 (52.6%) live in poor conditions. Among them, 10,068 (40.4%) are found in moderate poverty, which, according to CONEVAL<sup>1</sup>, is defined as someone who is poor but not in an extreme way; and 3,029 (12.2%) live in extreme poverty, defined as the position in which a person has three or more shortages within the social index of social depravation and lies below the minimum social wellness line. 20.6% of the population lack from access to healthcare services, and 8,296 (33.3%) lack from access to food. There are 7,347 inhabited dwellings, from which (14.1%) have floor, (14%) don't have drainage (there is only drainage on the foreground of the community), (14%) don't have piped water, (5.6%) don't have electricity and (5.1%) don't have any goods. (SEDESOL<sup>2</sup>, 2010). 4.9 members, average, compose a family. The predominant population is young, with a higher percentage of women. (Registro Civil Mexicano, 2014).

98% of the population uses electrical energy for light, and the rest is illuminated with oil lamps. 4% use firewood as fuel, and the rest of them have oil stoves and some gas. People living in the periphery have latrines, but, however, a fairly high percentage of the population practices open

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<sup>1</sup> CONEVAL in Spanish means 'Consejo Nacional de la Política de Desarrollo Social' and it's the Mexican Federal Government's department in charge of generating objective information on the social policy situation and the measurement of poverty in Mexico.

<sup>2</sup> SEDESOL in Spanish means 'Secretaría de Desarrollo Social' and it's the government department in charge of social development efforts in Mexico.

defecation. 90% of the people receive potable water, 10% are supplied from wells on the banks of the outskirts of Concordia (SEDESOL, 2010).

The main economic sources are livestock, forestry, mining, trade and agriculture. All local products are consumed in low proportion and most of them are exported to other regions of the country, in exchange for food. The average daily salary is about \$2.49USD. The average daily income per family is between \$3.05USD and \$4.57USD. (SNIM<sup>3</sup>, 2010.)

There are 147 schools in basic and middle education, but the problems are that rates of disappointment and failure in elementary remain high, and efficiency at this level is of 35%. Nearly 25% of teenagers do not study junior high school. There are no programs to support children and young people with low achievement, and no support for academically talented youth. The illiteracy rate in the municipality ranges between 12 and 15% thereon to the total school population. (Gobierno del Municipio de Concordia, Sinaloa, 2010).

Students from a governmental course of nutrition techniques, with the help of local nurses, carried out a survey in Concordia applied to 40 families. (Official Concordia, Sinaloa Municipality Government, 2010). With the information they gathered, they found out that:

The principal food consumed is corn. Also, milk meat and eggs turned out to be a good alimentation source. Vegetables are mainly tomato, onion and pepper, and, with those exceptions, any vegetable consumption is extremely rare and low. 99% of fats are from animal origin. Rice and pasta are consumed by 50% of families, and a fairly high percentage of them eat bread every day. Frequent daily diets consumed daily consist of milk, coffee, eggs, beans, cheese, tortilla and bread for breakfast; soup (for example rice or pasta), meat, beans and tortillas for lunch; and coffee, beans, cheese, tortillas and bread for dinner. All this in the best of the cases, because the most marginalized population only has milk, coffee, beans and tortillas for breakfast; soup, beans and tortillas for lunch; and milk or chocolate, bread and beans for dinner. The average cost of their daily diet is \$3.05USD.

Concordia has rock, forest and agricultural areas. 60% of the work done there is agriculture and livestock, which are the main sources of their diet. There are 3,500 acres of common lands that are not legally defined yet, and 60% of those are for agriculture, thanks to its flat soil with mountainous proportions. Corn, sesame, sugarcane, beans and peanuts are grown as well as a few fruit trees such as plums, peaches and mangoes. Agricultural techniques are rudimentary, picket and moldboard plow pulled by mules. The average cost is \$38.15 USD per month per family. (SAGARPA<sup>4</sup>, 2010).

Food is purchased daily at the market in town, and there is a good availability of them, except for fruits and vegetables, from which there are little variety. According to the previously mentioned nutrition survey, 75% of the families from Concordia don't even eat one single vegetable in a week, and fruit consumption wasn't even mentioned for being few and far between.

Table 1. Daily Per Capita Household Consumption Compared With Recommendations. (Ilustrados, 2011.)

NUTRIENTS	CONSUMPTION	RECOMMENDED	% ADEQUACY
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<sup>3</sup> SNIM in Spanish means 'Sistema Nacional de Información Municipal' and it presents political, socio-demographic and financial information from municipalities and delegations belonging to the Mexican Republic.

<sup>4</sup> SAGARPA in Spanish means 'Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación' and it's a unit of the Federal Executive Branch which promotes the political support for better production, better exploitation of the agricultural sector, integrating rural production to rest of the economy, etc.

Calories	1794	1957	86.5
Proteins	34.9	49	71.2
Calcium	821	513	160.0
Iron	18.22	12.90	141.2
Vitamin A	1.012	1.220	82.9
Thiamine	1.42	1.15	123.5
Riboflavine	0.98	1.08	90.7
Niacin	17.74	13.87	127.9
Vitamin C	17	61	28.0

Comparing the nutrition that people from Concordia get with the nutrition recommended by the INCMN<sup>5</sup>, their consumed diet is deficient in calories and protein, but the levels are not that low. Iron (which they obtain from meat, beans, rice and pasta), calcium (which they obtain from milk and egg yolks), thiamine (which they obtain from breads and rice), and niacin (which they obtain from meat and milk) are above recommendations. The amount of ascorbic acid -also known as Vitamin C- consumed is very small and barely covers 20% of its recommendations. Vitamin C is found in fruits and vegetables such as papaya, broccoli, strawberries, cauliflower, oranges, brussels sprouts, pineapple, bell peppers, etc.

This is a serious problem, due to the fact that fruits and vegetables play a major role in human nutrition. They have been strongly associated with the risk reduction of 20% of cancer types (Crawford et al., 1994), which, by the way, are one of the main mortality causes in Concordia. (Registro Civil Mexicano, 2010). They have also been proven to prevent heart disease, stroke, and other chronic diseases. Some of their components function to modify metabolic activation and detoxification/disposition of carcinogens, or even influences processes that alter the course of the tumor cell. Vitamin C acts as an antioxidant and protects cells from damage caused by free radicals, from which people are exposed to in the environment from air pollution, cigarette smoke, ultraviolet light, etc. The body also needs ascorbic acid to help wounds heal and to be protected from disease. As a matter of fact, according to INCMN, some symptoms specifically presented in Concordia's habitants because of the inappropriate nutrition are lactation tetanus, muscle tremors, dingy skin, mumps, infertility, skeletal thinness and even sudden death.

As we can see, Concordia has several problems, but some of the most important are poverty, lack of education and malnutrition. It is absolutely necessary to find and apply solutions for these situations.

For the schooling theme, Concordia's Government can carry out actions such as developing a program of construction of educational infrastructure, support the operation of the municipal council of social participation in education and establish municipal prize "Recognition of Merit Student" each school year, motivating students to focus on their studies.

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<sup>5</sup> INCMN in Spanish means 'Instituto Nacional de Ciencias Médicas y Nutrición' and it's a public assistance institution pertaining to the Mexican Secretariat of Health, which consists of a set of 12 highly specialized hospitals that provide health services to the Mexican population.

CECATI<sup>6</sup> could promote programs with the purpose of keeping children in school, such as capacitation programs for teachers to expand and improve such as scholarships and school supplies, and back up the creation a center of technology-oriented high schools in Concordia (for example Silviculture Technician, Technical Management of Forest Conservation, and Technical Companies in Fruit and Legumes), because this way students will learn how to manage their farms and crops, invest in effective techniques, work for their own and other's benefit while studying, and get rid of the necessity of immigrating to the city or to other countries searching for a job or better life conditions, improving this way their economy.

On the other hand, institutions like The Mathile Institute -which purpose is to end hunger and malnutrition in children-, and companies like PepsiCo, -which would gain good publicity material- could sponsor school lunches, pantries and fruit and vegetable seeds that would benefit mothers with no resources for feeding their families, in addition to the fact that this would help increase the quantity of Vitamin C, improving this way the nutrition issue previously presented.

Summing up, we could say that if these proposals were applied, mothers would send their kids to school because they would count with a daily lunch and they would learn how to work with the resources they count with without leaving their studies behind, while women would have the time and material to work on their harvests. Now, speaking about women, it's important to understand their role in farms.

*"When women are empowered and can claim their rights and access to land, leadership, opportunities and choices, economies grow, food security is enhanced and prospects are improved for current and future generations"*

*-Michelle Bachelet - Under-Secretary-General and Executive Director of UN Women*

Our Central American culture places a number of symbolic representations of women that underestimate them. People think that women are inferior in the sense that they aren't prepared for the attainment of certain tasks. In Concordia, as well as in many places around the world, farmer women have been taught to follow their pre-established role; that they don't have to search for more. This makes them weak, underrated, subjected and devalued.

Throughout history in times of crises, wars, expansions or declines, women have had some recognition in the world of work. Ever since the Second World War, women are demanding gender equality in legal, occupational, and cultural terms, generally speaking.

It's true that men have more muscular mass than women, and that could be a reason for them to work on harder physical tasks. But that doesn't mean that women are completely useless. In fact, women are essential for agriculture: They comprise 43% of the world's agricultural labor force, which rises to 70% in some countries. Rural women play a double role that combines their participation promoting and encouraging the unity of the family, and their work as producers of vegetables, representing an important contribution to the household economy. (Saquina Mucavele, MuGeDe - Women, Gender and Development, Republic of Mozambique).

Vegetable seed planting is an easy but important job, "it needs only a small area of land, with minimal capital outlay and can provide access to a valuable food under subsistence conditions" (Growing Vegetables for Home and Market, 2009), it keeps aliments fresh for self-consumption, and it suitable for rural women, especially the ones in Concordia, because of the lack of fruits and vegetables consumption in their community.

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<sup>6</sup> CECATI in Spanish means 'Centro de Capacitación para el Trabajo Industrial' and it's a department that belongs to the SEP (Public Education Secretariat), which counts with formal capacitation centers for people who aspire to be teachers.

It has two methods: Planting vegetables by seed: this method works by planting seeds in containers or pots, and then when the seedlings reach a certain size that ensures their survival, they are transplanted into a garden.

The second method is direct seeding vegetables: There are certain species, which, by nature, are suitable for direct seeding on the soil of the garden, without having to make the nursery. This method is for larger production, and has considerable labor savings. (Growing Vegetables for Home and Market, 2009).

Spring and summer are the most propitious times for planting vegetables directly, but there are several crops that can be planted any time of year, like radishes, beets, leeks, lettuce, chard, etc. In temperate and warm climates, harvest occurs earlier than in cold climates. The seed germination occurs when temperatures are warm, not when the ground is frozen. Greenhouses are adequate to plant any time throughout the year.

Empowering women is really important, so that they become more self-sufficient and independent. They increase their capabilities of looking after their families, and improve their social status in their communities. SAGARPA and its programs of technological rural innovation -which include professional service providers-, could train and qualify women in Concordia to use their backyards or assigned small lands for growing the seeds donated by The Mathile Institute and PepsiCo, having the advantage that, while learning how to grow fruits and vegetables as smallholders, testing cultivation practices are less risky and cheaper than if they grew their products in a larger scale. (FAO Diversification Booklet 11, 2009).

## **Conclusion**

Having inquired on Concordia's situation, I felt really frustrated by the fact that my countrymen are suffering from lack of money, nutrition and education, which they should have for granted as well as any human being in the world. It is amazing to realize that a little help can make big changes, and although we are able to do something about it, we still haven't.

This issue can't wait ... It is a matter of utmost importance. And what are we doing while they give everything for an extra food portion? Eat more than we need, waste food, spend excessive amounts of money and grow as a materialistic society.

We get home to ask what's for lunch. They get home to see if they will eat today. We are used to excess, and we are not aware of what's outside of our bubble. About how we live, while they survive. What is happening to humanity? Is there no empathy? No feelings?... Or, at least, some mercy?

I chose Concordia because the situation they live in is not the one that they paint us, it is not the one that internet shows us. I know that my proposals to make a change may seem as many at once, but I firmly believe that they are necessary. Women and young people cannot be underestimated. Women are able to learn and work to get ahead, and educate future generations to keep the pace. Young people need to be educated because they are the tools of the future. They will be the next farmers. All this is possible with a little help, a boost... But if we just sit down to watch from our comfort zone, while we enjoy our peaceful life, these people will continue to go to bed with an empty stomach.

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