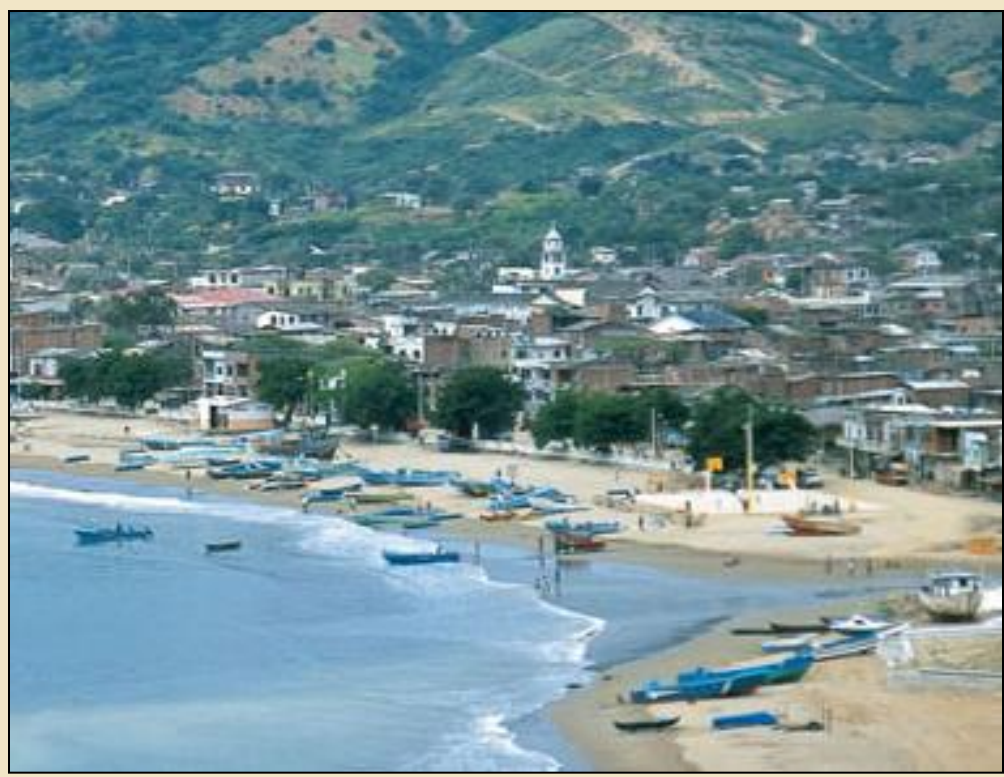




# Nutritional Study in Puerto Lopez, Ecuador

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## INTRODUCTION & BACKGROUND

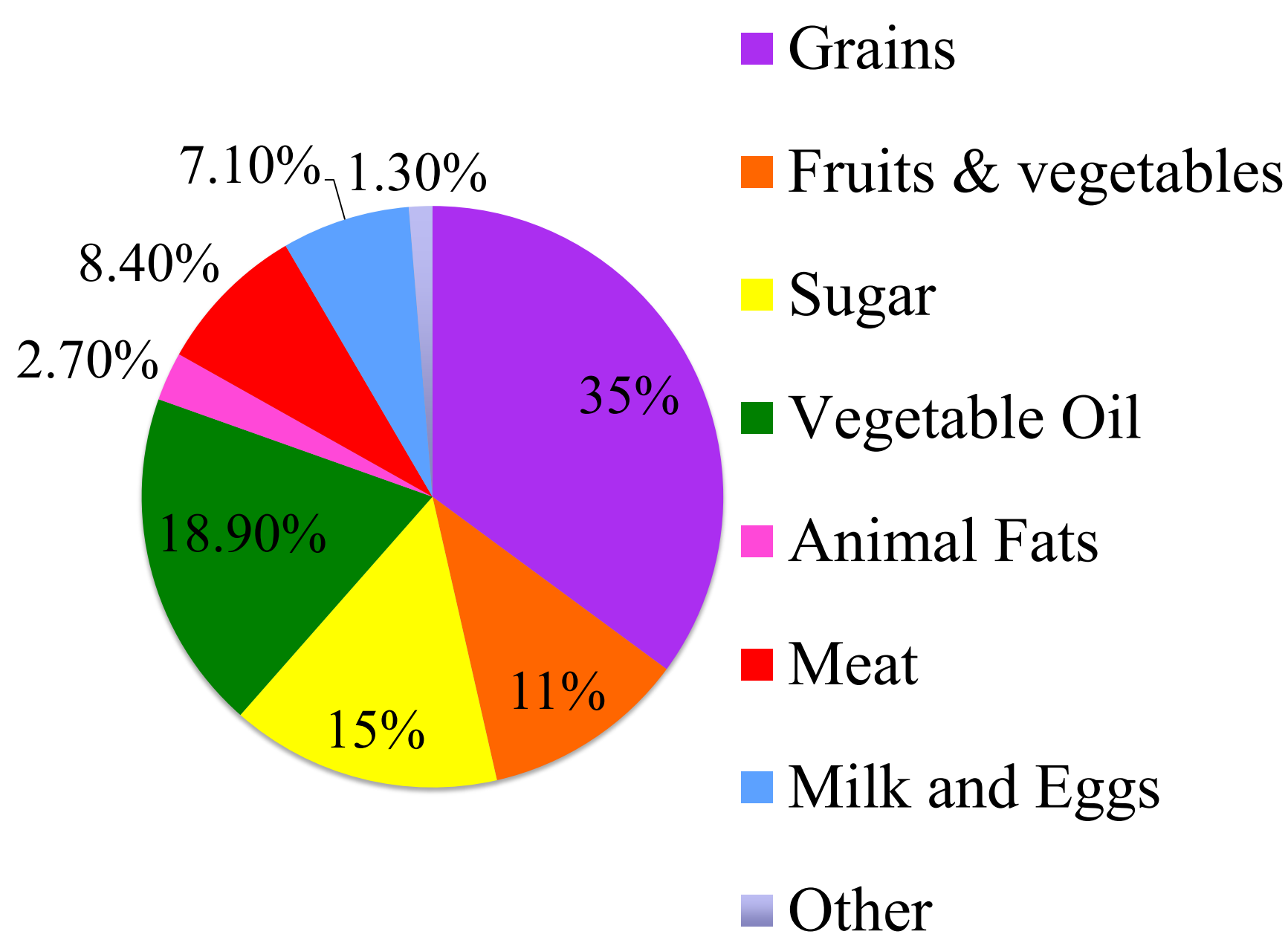
**Area:** Puerto Lopez is a small fishing village in the province of Manabi along the coast of Ecuador. With a population of less than 20,000 and being situated in a tropical area, Puerto Lopez was chosen as the target for this nutritional study for the span of eight weeks over the summer of 2014. In general, the coastal area of Ecuador is dry. The economy thrives on exportation, especially that of cocoa, coffee, rice, maize, & seafood.

**Health:** Ecuador has a public health care system, with specialty hospitals in urban areas, and “Centros de Salud” (day hospitals) in small urban town & rural areas for hospitalizations under 24 hours. In the province of Manabi, poverty rate is 60-65% of the population.

**Education:** 12% females and 8% males are illiterate, yet in rural areas illiteracy is three times more prevalent (49% female, 22% male) than in urban areas due to indigenous cultural beliefs & inaccessibility to schools.

Based on studies done in 2001, the following pie chart was created to address the average caloric & food intake of Ecuadorians. 17% of the population has vitamin A deficiency & 44.6% have iron deficiency anemia between ages 15-29 in rural areas. There is also a low rate of breast feeding, which has affected child growth rates.

### Average Daily Intake in Ecuador\*



\*Based on average of 2711 calorie diet.

## OBJECTIVES

The main objective for this eight week program is to implement a pilot nutrition program in Puerto Lopez, where no sustainable nutritional intervention has been done. The information from this project’s preliminary survey was planned to be used to gather representable data, and then be presented to the locals in order to implement a lifestyle change in Puerto Lopez.

## METHODS

- Weeks 1-2:** observing and assisting with patients in the Centro de Salud, gathering growth statistics for children under the age of 18 in the records room.
- Weeks 3-4:** nutritional knowledge gained through observation was used when day cares were visited in order to obtain height, age, and weight information, looked over the weekly menu with the daycare directors and educated them about healthy diet changes and the growth cycle of young children.
- Weeks 5-6:** data was plotted on growth charts and a nutritional survey was constructed for which the team was assigned a poor section of Puerto Lopez to go door-to-door to understand the general knowledge of nutrition in town. After visiting 77 households, this data was analyzed and compiled into a “charla” (educational presentation) and handouts to be given to locals.
- Weeks 7-8:** three charlas were given after broadcasting the dates and times via the local radio, encouraging locals to attend by promising gifts & providing patients with handouts during their visits to the Centro de Salud. The presentation and handout were left with Dr. Mora, a local Ecuadorian doctor, in order for her to continue educating the community using their own statistics, and therefore leaving a deeper impact.

## RESULTS

For the analysis of the data collected on children under the age of 18, the data points were plotted on growth charts provided by the CDC.

- 45 males, aged 3-36 months old: 32 (71%) under 10% expected height, 27 (60%) under 10% expected weight
- 85 females, aged 3-36 months old: 43 (51%) under 10% expected height, 29 (34%) under 10% expected weight.

For age ranges 2-18 years, the growth charts can be seen below, representing what seems to be a stunted growth trend, especially when looking at height.

- 98 males: 59 (60%) under 10% expected height, 33 (34%) under 10% expected weight
- 165 females: 102 (62%) under 10% expected height, 36 (22%) under 10% expected weight.

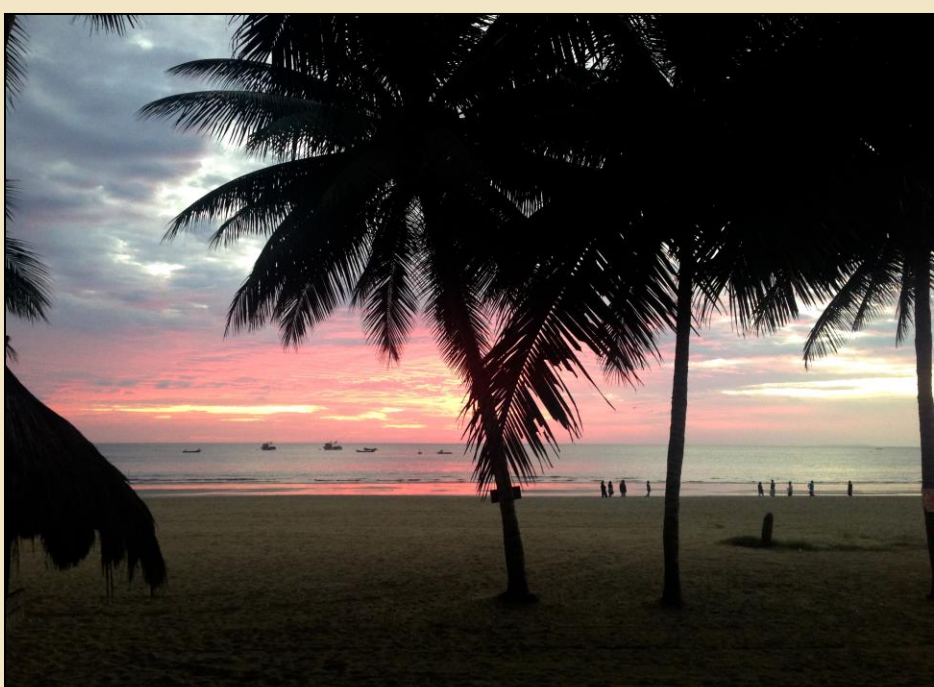
These data points were also plotted on a BMI chart & a weight-for-stature chart, but no conclusion could be formed with the scattered data. When visiting urban cities in Ecuador, it was seen through observation that urban children had healthier heights and weights compared to similarly aged children (even relatives) in rural Puerto Lopez, further pointing the project in the direction of nutrition and availability of affordable resources.

The nutritional survey showed the poor nutritional knowledge that the majority of adults had in Puerto Lopez, which greatly contributed to the growth chart results seen in the children:

- 36% used anti-parasites, leading to poor nutrient absorption
- 54% young children on supplements
- 55% boiled water correctly
- Most families served >50% carbohydrates & very little vegetables and protein.

The survey asked what foods locals thought contained a certain nutrient. The results are as follows:

- Protein**, 69% gave a correct response, 16% did not know & 15% gave a wrong answer.
- Carbohydrates**, <20% correct, 52% did not know, 30% wrong.
- Sugar**, 80% correct, 20% did not know.
- Iron**, 39% did not know.
- Vitamin A**, 9% correct, 50% did not know, 41% wrong.
- Calcium**, 24% correct, 42% did not know, 34% wrong.



## FUTURE DIRECTION

During the last week in Ecuador, the results and presentation were given to local doctors to use when holding nutritional talks in the auditorium found in the Centro de Salud. In the future, it would be beneficial to Puerto Lopez to have a follow up to see if doctors have truly implemented the use of nutritional education in the care of their patients, and if there has been any change in the growth trend and diet of families.

## CONCLUSION

With the data analyzed through the survey in Puerto Lopez, a good correlation was seen between poor diet and poor growth in children. Through this global health project, a lot was learned about ways to implement an innovating program in a developing country, cultural setbacks, and global health diseases and issues.



Giving the personalized nutritional charla to locals of Puerto Lopez

## REFERENCES

- Marcel, Barragan M., Dr. "Fao - Perfiles Nutricionales Por Paises: Ecuador." Organizacion De Las Naciones Unidas Para La Agricultura Y La Alminetacion (2001): 1-35. Web.
- Anderson, J., et al. "Intervention on Diet and Physical Activity: What Works Summary Report." World Health Organization (2009): 1-48. Web.
- *Individual Growth Charts*. Centers for Disease Control and Prevention, 4 Aug. 2009. Web. 5 Jan. 2015. <<http://www.cdc.gov/growthcharts/charts.htm>>.