**Notre Dame Business on the Front Lines: Scope of Work**

**Amaranth Feasibility Study**

**Context:**

Guatemala is the largest nation in Central America with a population of just over 14 million. It has several varied ecosystems including a Pacific and Atlantic coast with tropical and temperate ecosystems in between. Despite being a nation that has taken large steps forward since the 1995 Peace Accords ended its over 30 year civil war, the nation remains deeply unequal. Guatemala is one of the most unequal countries on the planet with a GINI coefficient of 55.9 and 51% of the population lives in poverty. These are two factors which contribute to the country´s high levels of malnutrition. Guatemala has the highest rate of chronic malnutrition (stunting) in the Western hemisphere and fourth highest in the world. Just under 50% of the population suffers from chronic malnutrition. Nonetheless, Guatemala has a vibrant business sector and a reasonably well-functioning government. Agriculture remains one of the nation´s most important sectors and accounts for 13% of GDP and employs 50% of the population. There is potential in the agricultural sector to build nutrient dense value chains which provide farming families with win-win situations; nutritional on-farm production and off-farm commercial sales. Amaranth has the potential to be a win-win crop for poor, malnourished families in Guatemala.

**Amaranth (***Amaranthus hypochondriacus*):

Amaranth is a grain crop that can grow to 2 meters tall. Farmers harvest the head of the plant, dry it, and then collect the grain to eat as a cereal or grind it into flour. The crop is a C4 plant and known to be drought tolerant. Amaranth has exceptional nutritional properties including an impressive 16% protein content (including the hard to acquire amino acid lysine) and levels of calcium and iron several times higher than most other grains. It is also high in fiber, magnesium and vitamin B6.

Amaranth is native to the region and although it is no longer widely cultivated in Guatemala it was one of the region´s primary food crops in pre-Columbian Central America. There is wider spread cultivation of amaranth in Southern Mexico (Chiapas) where there has been some success commercializing the product for snack foods and cereals. In Guatemala, there is a woman´s group in the department of Sololá that has organized, and is growing amaranth which they then process (into popcorn) and sell in local markets.

**Analysis:**

* Identify the current potential value chain opportunities for the sale of amaranth at the local (municipal or community markets) and national (buyers in the capital) level
* Judge local acceptance of amaranth production both for home consumption and market sales.
* Measure the current level of amaranth consumption at the local and national levels (How much do the supermarket chains in Guatemala sell?)
* Determine the supply of amaranth and regular intervals of production which a small farmer or farmer organization would need to comply with to be profitable at a local and national level.
* Determine the number of small farmers or the area of land which would need to be under cultivation to meet the demands of a local and national buyer.
* Conduct a cost-benefit analysis (farm level) of amaranth production for an individual small producer including the start-up costs (both in financial terms and in trainings)
* Identify costs of post-harvest processing of amaranth for national and possible international markets
* Identify the health and safety standards which a small producer or producer organization would need to meet in order to sell at the national and international levels
* Identify potential obstacles and/or restrictions for small producers looking to enter the amaranth market.
* Investigate the future potential of working with a major company such as Tortrix (Frito Lays); engaging their social responsibility department to produce a healthier snack (along the lines of Guatemala´s experience with the product Incaparina which is a corn-soy blend drink that is widely marketed and available in country)
* International market longer term?

**Expected Product:**

* Develop a business plan for a small producer and producer organization looking to engage in amaranth sales at the national level.
* Produce a study that identifies the current state of the amaranth market in Guatemala and the potential for growth including marketing recommendations.