

**SUSTAINABILITY IN ZAMBIA, AFRICA:  
EXAMINING PARTNERSHIP OF AN  
AGRICULTURAL BUSINESS AND A NON-  
PROFIT ORGANIZATION**

by

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## APPROVAL PAGE

TITLE: Sustainability in Zambia, Africa: Examining  
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Figure 2 Luke Gudeman and Richard Nelson (Page 32): This photograph shows the strawberry crop of the small sustainable agricultural business on site at Lifesong Zambia. The photograph was taken in May 2013.

## DEDICATION

*“Character is the real foundation of all worthwhile success.”*

*-John Hays Hammond*



Figure 1. Richard and Vicki Nelson, Founder and Chairman of Plant Sciences Inc.

*To my Grandpa and Grandma Nelson,*

*My senior project is dedicated to you! Thank you for setting an ultimate example of leadership and generosity through your faith, perseverance, and hard work. My heart is absolutely grateful for growing up in a family that has pursued the Lord with their gifts and abilities. Thank you for teaching me what it looks like to be generous; you both have impacted me by your loving, cheerful, and selfless example. I am in awe of how the Lord has used your individual time and talents to bless each other, your kids, your grandkids, business, and those around you! May these pages of observations and findings encourage you, your business, and the partnership between Plant Sciences, Inc. and Lifesong for Orphans that you have so faithfully pursued. It is my hope that you would be blessed by this senior project as a refreshed recognition of your efforts as business owners, hard workers, family leaders, and Christ followers.*

*Sincerely,*

*Your Granddaughter, Kate O'Leary*

## NOTES ON TERMINOLOGY

**Sustainable business:** “business that contributes to an equitable and ecologically sustainable economy... offer[s] products and services that fulfill society’s needs while contributing to the well-being of all earth’s inhabitants” (Sustainable Business).

**Cross-cultural:** “dealing with or offering comparison between two or more different cultures or cultural areas” (Merriam-Webster).

**Technology:** “1 a : the practical application of knowledge especially in a particular area. b : a capability given by the practical application of knowledge. 2 : a manner of accomplishing a task especially using technical processes, methods, or knowledge. 3 : the specialized aspects of a particular field of endeavor” (Merriam Webster).

**Agriculture:** “the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products” (Merriam Webster).

**Globalization:** “the act or process of globalizing, (globalize : to make global; especially : to make worldwide in scope or application) : the state of being globalized; especially : the development of an increasingly integrated global economy marked especially by free trade, free flow of capital, and the tapping of cheaper foreign labor markets” (Merriam Webster).

# **SUSTAINABILITY IN ZAMBIA, AFRICA: EXAMINING PARTNERSHIP OF AN AGRICULTURAL BUSINESS AND A NON-PROFIT ORGANIZATION**

**Kaitlin Grace O’Leary**

**June 2013**

## **ABSTRACT**

The purpose of my study is examining the ways in which agricultural business is currently supporting and benefitting a non-profit organization. Through participation of an international agricultural business, Plant Sciences Inc. (PSI) and a Christian non-profit organization, Lifesong for Orphans, this study has been a collaborative effort and process, observing agriculture as a means of sustainability for a non-profit organization. This study has revealed the necessity of not only updated technology and resources, but has also discovered a continued necessity of dedicated personnel to the field. A major theme from my observations was cross-cultural relations, and the ways in which the continuing process of two disciplines (agriculture and non-profit work) coming together has created opportunity for further successes in areas such as: globalization, and economic sustainment. My work is helping bridge the two disciplines in the form of the efforts of PSI and Lifesong for Orphans by the means of a small sustainable strawberry farm. The project is revealing that the two practices, global non-profit organization work, and agricultural business, can rely on each other to achieve something other than the work they usually practice. Through PSI and Lifesong for Orphans, this study is an example of cross-cultural and agricultural business cooperation.

Key Words: sustainable business, cross-cultural, technology, agriculture, globalization



## **CHAPTER 1:**

### **INTRODUCTION AND BACKGROUND**

*“All experience is an arch where through gleams that untraveled world whose  
margin fades for ever and for ever when I move.”*  
-Alfred Lord Tennyson

When I enrolled in my under graduate degree at California Polytechnic State University (Cal Poly), I was a business major with the intent of going in to an International concentration. I discovered that I desired something more besides the financially structured mindset that the business major only had to offer. The fall of my sophomore year I took a class called Survey of Africana Studies, which was a Comparative Ethnic Studies major class. I was intrigued by the content: the history, the media influences, the reality of the African Diaspora, the literature, and even my professor's and peer's thoughts and opinions during discussions. As I took this class, I discovered a passion within myself for people, the history of nations, the role of the United States—from years in the past, up to today's influences—and knew Comparative Ethnic Studies was a field in which I could develop this excitement.

Finding Comparative Ethnic Studies (CES), I switched my major in the spring of my sophomore year. I was amazed at the professional, yet personable CES faculty at Cal Poly, as well as intrigued by the course offerings that followed in my first year officially being a CES major at Cal Poly. I was interested in learning more about marginalized communities and analyze the ways in which the United States has played a role in the history of our nation and the world.

Ethnic Studies has prepared me to have an open mind, look for further implications, and identify missing links that are not otherwise noticeable at first glance. I have enjoyed learning and discussing new possibilities for successes in different ethnicities and communities.

I grew up in a family where agricultural business is very important. My grandpa, Richard Nelson, is the founder and chairman of an international agricultural business called Plant Sciences, Inc. (PSI). The business “is committed to research and development in many areas including plant breeding, plant tissue culture, seed production, crop growing techniques, and pest management” (Plant Sciences Inc.). Today, both my uncles and some of my cousins are a part of the thriving business.

The summer after my freshmen year, my Uncle shared with the family one of the big and new exciting factors about the family business. A new partnership with a non-profit Christian organization called Lifesong for Orphans in Zambia, Africa, had begun. PSI primarily supported Lifesong financially, but then noticed they could help improve the non-profit organization specifically onsite at the orphanage in Zambia, in the city of Kitwe. Sending one of their employees, Judy Johnson, PSI began their partnership with Lifesong Zambia and helped them begin a small sustainable strawberry farm business on site at the orphanage. Lifesong as a whole provides shelter, education, food, and faith-based care in multiple nations other than just Zambia, including: Bolivia, Ethiopia, Guatemala, Honduras, India, Liberia, Ukraine, and USA (Lifesong For Orphans). Lifesong

Zambia is PSI's original focus, but PSI has also recently begun to be a part of Lifesong in Honduras and Ukraine (Plant Sciences Inc.).

For my senior project at California Polytechnic State University, I am doing an investigative research project that is examining the small sustainable agricultural business that has been established through the partnership between PSI and Lifesong. I am looking at the involvement of my family's international agricultural business, PSI, and how their partnership with Lifesong Zambia is benefiting the lives of those at the non-profit organization. In this study I will explore the ways in which agriculture technology is a means to progression and production.

The tangible tools of agriculture technology, as I will explore in my analysis of literature, provide the foundational position for growth. In this case, for a non-profit organization, I am studying how agriculture is helping economic growth and sustainability. My agricultural background from the upbringing in my family has given me an agricultural business perspective and now being at Cal Poly, I have engaged in a new perspective with my Comparative Ethnic Studies major. I am excited to have both of these broad viewpoints, and see my project as an opportunity to engage and connect the two disciplines. As I am discovering my project, looking at an agricultural business and a non-profit organization, I see my project acting like a 'bridge' bringing and molding together two worlds: an agricultural disciplinary and an ethnic studies disciplinary. I have found through this project, these two approaches when brought together, have the opportunity to shape and present hope that would not otherwise have existed. It is my desire that

you would feel enlightened and encouraged by my observations and discoveries of a partnership that has existed to bless others through their cooperation.

## **CHAPTER II:**

### **LITERATURE REVIEW**

*“Literature adds to reality, it does not simply describe it. It enriches the necessary competencies that daily life requires and provides; and in this respect, it irrigates the deserts that our lives have already become.”*  
-C.S. Lewis

In the following pages, agricultural business will be discussed in contrast to non-profit organization work. Primarily seeming like two very different fields that usually do not interact, the following literature review will describe each discipline and specific factors under each discipline. When agricultural business becomes cross-cultural, new extensions of relationship between companies are created. Therefore, the process of agriculture in relation to developing countries will be discussed. This review of literature supports the ways in which developing countries benefit and respond to new technologies and resources from agriculture. I will be addressing the specific partnership between PSI and Lifesong that has produced a small sustainable agricultural business in the means of a strawberry farm. Bringing the two disciplines together, has paved the way not only for greater sustainment, but has also allowed for more cross-cultural relationships.

#### Developing Perspective

The role of agriculture in developing nations over time has shown significance through the ways in which it has brought productivity, employment, and financial sustainment; therefore, bettering the quality of life. However, I recognize that I have a western perspective in my conceptualization of agriculture,

as does PSI. This perspective creates a firm and unswerving viewpoint towards agriculture, and therefore may seem rigid, modern, and possibly even overpowering. Nonetheless, the ways agriculture is studied, viewed, and carried out from the western perspective is valid because it has produced its own working function, therefore creating its own culture. This culture is part of the process in developing the established position of agriculture. However, allowing room to question the western perspective in relation to developing countries is an important position to begin with. In *Agriculture on the Road to Industrialization* John W. Mellor states:

The interesting question here is whether accelerated agricultural growth, owing to its structure, decreases absolute poverty more rapidly than alternative strategies of growth. The answer depends on the extent of the multipliers between agriculture and nonagriculture. (Mellor 9)

Development in countries includes a multiple-disciplinary approach. Looking at the ways in which technology plays a key role in the process of growth is important and one of the beginning components for new developments in progressing countries.

Agriculture produces food, provides jobs, and can even help boost or maintain the economy (Mellor 9). However, does agriculture in fact provide resources to fulfill the needs for developing countries to reach beyond poverty levels? Mellor argues that agriculture is a better alternative than just simple strategies of growth. However, only if there are applicable and substantial factors that are yielding actual crop, will there be actual growth. The following sections

will discuss the processes between technology, cross-cultural relations, and small sustainable business in relation to agriculture and non-profit organizations.

### Agriculture

Irwin Isenberg's book, *The Developing Nations Poverty and Progress*, argues that agriculture, as the choice for pushing a nation in progress, is not necessarily the answer to development. If there is a belief in agriculture, then it is effective, but if agriculture lacks visionary possibilities, then it is ineffective. "Short-changing agriculture is no longer either feasible or fashionable. This new political climate has led to firm allocations of budgetary and foreign-exchange resources" (Isenberg 131). Isenberg argues, that bringing a nation above poverty solely through agriculture, results in "uncertainty" and "instability". In this context, agriculture is lacking vision of its effectiveness. To Isenberg, agriculture is not "feasible"; it is a combination of technology, politics, and a historical context of colonialism in which all add up as components to agriculture (Isenberg 131).

Isenberg's lack of vision in the effectiveness of agriculture may result from his underlying belief that agriculture requires a collaborative approach. He continues to draw on the practicalities for developing nations: "Adequate supplies of water and fertilizer are needed to attain high yields" (Isenberg 132). Realistic factors that are a part of agriculture such as water and fertilizer are but a few of many factors, which must be attained in order for agriculture to flourish, let alone produce. Isenberg goes on to analyze, even with the knowledge of water technicalities and fertilizers, that this does not necessarily mean there will be

quality production output: “In some of the developing countries, production of food in relation to population has actually been declining for the last five years” (Isenberg 20). As much as Isenberg makes the practical assets required for agriculture production, he understands that this may not be achieved. For some developing countries that may know the basic requirements of agriculture, such as land, water, and fertilizer as Isenberg stated, they may still lack in success. Therefore, failure in the practical factors of agriculture directly affects the country’s population.

### Technology

The opportunity of new technological resources is vitally important to the production of agriculture. Making sure that agricultural businesses are kept up to date with their use of technology is important to the success of their units of production. Interestingly enough, Mellor agrees with Isenberg’s practical approach, but in relation to the logistics of input and output expenditures in agriculture. “Agricultural growth often requires a substantial increase in operating expenditure, particularly for fertilizer and other chemicals” (Mellor 13). Whether its water resources, technology, fertilizers, or other factors of production, these researchers seem to agree that in order for agriculture to help influence the bettering of a nation, logistics must be met. Although, Mellor continues to analyze this theory, developing nations can be pushed in the right direction if agriculture draws on other resources. For instance, he argues, “Someone arguing from a simple neoclassical position would say that if agriculture benefits from increased factor productivity in comparison with other sectors, it will expand at the expense



of those other sectors by drawing resources from them” (Mellor 13). Using all units and factors of production will change the outcome of successful agriculture.

According to John P. Lewis and Valeriana Kallab, the editors for *Development Strategies Reconsidered*, in order for economic growth to develop and happen, a developing country must recognize its need for updated technology. They state:

One of the most important theoretical and empirical findings in analysis of Western economic growth is the identification of technological change as a major source of growth. Hence it is initially surprising that in the various ascendant macro-economic theories of economic growth for developing countries, technological change has not been assigned a central role.

(Lewis, and Kallab 76)

Technology can be assigned by different companies and can therefore be a part of the process in developing a nation. Lewis and Kallab see technology as an integral specific part of formulating growth for developing countries. Often it is viewed as surprising that economies in developing countries have yet to see technology as a “central role”.

The term technology is quite general; the term is vague, which causes lack of direction. The term therefore can be broken down to the specifics. As a result, when it comes to technology, there can be subtle contradictory assumptions.

According to Michael A. Amsalem, in *Technology Choice in Developing Nations*, “So little information has been collected about the availability and characteristics of alternative technologies for the production of a given good that the most

contradictory positions still coexist on this issue” (Amsalem 3). Amsalem states that, there is lack in knowledge and availability of technological resources. This is often seen in developing countries and is often what sets these countries behind in successful production. His book provides examples of different forms of technology, defining alternative choices such as: textile, computer, science, and field technologies (Amsalem 4). Although Amsalem believes that technology information is lacking in its capacity, he gives practical examples of technological options to choose from. As he has argued that not enough information is given, he then accommodates his stance by presenting tangible resources. By doing so, he is helping the lack of information and giving practical ideas and approaches that can be used.

In contrast to Amsalem’s belief, David Elliott, in *Sustainable Energy Opportunities and Limitations*, believes that there is enough information and plenty of knowledge to the extent of even being environmentally adequate, “... a farmer or local co-operative members can utilize his/her own social network to advance the planning case” (Elliott 157). Elliott is passionate about the environment and using technology not just to further production, but also to sustain the environment. By having information to sustain the environment, there is more than enough information, for simply just new technologies. In contrast, Amsalem believes that there is not enough knowledge or criteria for developing countries to further their technological usage. Therefore, these countries often find themselves almost “stuck” because they cannot go beyond, or learn something new from the way they are use to farming. However, from Elliott’s point of view,

it is up to the farmer or co-operation to plan and therefore find clarity to their goals while simultaneously being energy efficient, “What also matters is that they can be used into the future without damaging the planets climate and ecosystem, or indeed the human social system, i.e. their use must be socially and environmentally sustainable” (Elliott Introduction). As a result, Elliott’s belief that agriculture’s technology must be up to date for the purpose of the environment, conflicts with Amsalem’s belief. Elliott’s focus is what is best for the environment should be, and is, the best outcome for sustainability from the agriculture production. Yet, Amsalem argues that sustainable agriculture simply brings higher employment.

Amsalem recognizes that technology requires information and knowledge, and if a developing country can attain such knowledge, the sustainable outcome would be higher employment. This higher employment would be a product of obtaining and using ones resources. “Technologies should result in the full use of the factors of production... [and] lead, among other things, to full employment” (Amsalem 3). Taking in the factors of production when it comes to technology creates efficiency. Being diligent towards efficiency, while adequately using all resources and technology forms a business mindset for agriculture.

### Sustainable Business

Both Amsalem and Elliott see technology as important, but with different processes of attainment and beneficial outcomes. Technology can either be ready, useful and environmentally friendly, or unattainable because of the unknown capabilities or requirements. Despite the obstacle of obtaining new technology, it

is part of the process in developing sustainable business. The University of California, Davis, is a school that is not only well known for the agriculture programs, but is recognized as such (Department of Agricultural and Resource Economics at UC Davis). In UC Davis' Agricultural and Resource Economics department, there are six current faculty members in the Fellows of the American Agricultural Economics Association and the department offers "unique training in methods and applications to agriculture, business, and resource issues" (Department of Agricultural and Resource Economics at UC Davis). UC Davis facilitates a group through ASI called: UC Agriculture and Natural Resources (SAREP). This on-campus organization was created for "individuals concerned about the environmental impacts of agriculture, the health of rural communities, and the profitability of family operations in California" (SAREP). UC Davis sees the need not only for small business, but a business that will sustain and protect the environment while helping the community. According to UC Davis, sustainable agriculture is: "Agriculture that addresses many environmental and social concerns...offers innovative and economically viable opportunities for growers, laborers, consumers, policymakers, and many others in the entire food system" (SAREP).

As progress in technology provides more opportunity in agriculture; development in cross-cultural small business provides security. The people of the community are also impacted by new progression. Sustainable small businesses provide employment, which leads to better quality of life and more economic growth. "The urgency of moving the agricultural sector is underlined by its role as

a supplier of food as essential backing to employment growth” (Lewis, and Kallab 77). In *Development Strategies Reconsidered*, Lewis and Kallab state:

Agriculture as a process in developing countries provides employment. It is generally understood that developing countries have a large pool of extremely low-productivity if not idle labor. In effect, this provides a highly elastic labor supply. If jobs become available, labor is ready to march into them... (Lewis, and Kallab 77)

Coincidentally, the developing country not only benefits economically through higher employment rates, but the country is also simply uplifted through healthy food production. “Thus accelerated growth in employment must be accompanied by accelerated growth in food supplies” (Lewis, and Kallab 77). These researchers believe that employment growth leads to food supply growth, and thus, stems from an overall perspective in which this is the way to attain the greatest efficiency.

The belief of greatest efficiency through agriculture employment and food supply coincides with Amsalem’s argument. Amsalem suggests that the problem of unemployment is relevant to underdeveloped countries. “Faced with such alarming prospects, developing countries have been searching for policies that will lead to significant increases in the creation of employment” (Amsalem1). Opportunity of employment as an anticipating factor benefits the pursuit of small businesses for developing countries, as it would be using all of its optimal and possible resources of technology.

#### Cross-Cultural Perspective

Technology and sustainable business are two extensions from agriculture that can be cultivated and stretched further. Taking the next step in the development of agricultural business is through cross-cultural relations. This connection between two departments furthers development on both sides of the interaction. Partnerships take cooperation, skills, and effort, yet, may have long-lasting positive successes. Combining two different fields, in this case, agricultural business and non-profit work, but while also interacting across national borders is a double cross-cultural perspective. This causes patience, communication, and effort, in order to establish connection in a professional and relational style. PSI and Lifesong for Orphans has been afforded the opportunity to interact in such a way.

#### Agricultural Small Business in Developing Nations

Efficiency is a quality in businesses that helps in the utilization of resources in the best way possible. For small businesses, cultivating efficiency through the use of resources is just as important as it would be for a huge corporate business. “The mood is to press for greater efficiency—to give precedence to optimal uses of scarce resources—throughout the economic system” (Lewis, and Kallab 9). Lewis and Kallab compiled their book to present a collaboration of an overall stance in making sure technology, resources, input, and capital, are all being used in cooperation. However, efficiency is attained more easily when the country’s government, economy and society has a degree of success in development. It is quite interesting that Africa was addressed specifically, “As to development performance thus far, Africa is the exception. It

is easy enough to see why development there is peculiarly difficult. Governments are new” (Lewis, and Kallab 31). Despite the book’s “strategies” that are for developing countries in general, the illustration of Africa putting these strategies in to action shows that it is quite realistically difficult (Lewis, and Kallab 31). Nevertheless, according to Isenberg:

Economic growth, however, is primarily a function of investment. Of course, investment is conceived here in its broadest meaning, that is, the investment of capital and skill, of know-how, of managerial ability, and of initiative. In every field of economic endeavor, investment is the key to progress and expansion. (Isenberg 23)

For the economy to expand, the government can play an important role by managing and sifting through necessities of a nation. The way in which Isenberg believes economic growth is through ultimate help and investment of the government, is similar to, but not fully consistent with, Lewis and Kallab’s point of seeing it as a collaborative pull of multiple factors in helping developing countries. Even though they both agree on government interaction, Lewis and Kallab seem to make sure to include the other push and pull factors of development:

Governments must play a major role in the pursuit of a strategy that is both agriculture- and employment-oriented. If agriculture, for reasons of efficiency as well as equity, is to be developed mainly through smallholders, governments must take the initiative in promoting research, education, and even input supply systems. (Lewis, and Kallab 38)

Investment leads to new technologies, and technology affects the process and successes of agriculture. And with agriculture, there are now new employment opportunities, and new food supply, thus bettering the quality of life. This is the process for developing nations to extend in a positive direction of growth.

### Zambia

Africa being the specific focus of study, we find some astonishing realities in relation to its development, agricultural technology, and resource accessibility, particularly in Zambia. Considered a developing country, Zambia is struggling to be a better country socially and agriculturally (Travel State Gov). Compared to the situation in developed countries, Zambia's health situation is distressing. In *Zambia and Malawi*, Alan Murphy states:

Zambia has one of the world's most devastating HIV and AIDS rates.

More than one in every seven adults in Zambia is infected, and there are funeral processions on a daily basis, as the disease has claimed enough lives to lower the average life expectancy at birth to just over 40 years.

(Murphy 39)

According to Murphy, Zambia's health and quality of life is devastated with diseases, which have caused a negative downward spiral affecting the lives of Zambia's citizens. Could this be a repercussion of the continent's history?

“Landlocked Zambia is one of Africa's most eccentric legacies of colonialism” (Murphy 49). Only gaining its independence in the last fifty years; “the area was colonized in the 1800s and ruled by Britain as Northern Rhodesia until 1964”



(“Zambia Country Profile”). The fact that Zambia has only been an independent country since the 1960’s shows how it is definitely still developing as a nation.

Kenneth Kaunda led the way to independence for Zambia; however, he was also “blamed for the country’s economic woes during his time” (“Zambia Country Profile”). Despite difficulty in Zambia’s economy, there has been growth, especially since the 1990’s: “Government support for agriculture is also said to have contributed to economic growth, averaging around 6% a year in recent years” (“Zambia Country Profile”). This statistic confirms that there has been a subtle economic area of growth.

Although the quality of life in Zambia is in process, equality has played a significant role. “Zambia’s constitutions uphold the principle of equal rights for men and women and prohibit any discrimination based on gender or marital status” (Murphy). As the country is striving to prevent discrimination, equal rights for citizens have struggled and persevered to be upheld. Even with equal protection rights for its citizens, Zambia’s society has formed social norms, one being women’s hard work and efforts in and out of the house. According to Murphy, equality is still developing:

[For Zambia] still very traditional societies and gender inequality is evident in all walks of life. It is particularly reflected in the disproportionate amount of work that women do. For example, as well as doing most of the work around the home, women also undertake the bulk of farm work. (Murphy 44)

Zambia has shown progression through holding their equal rights, but lack in gender equality implies that further progress can continue. If the country has moved forward from historical hardship since gaining their independence, then it can continue in a similar positive direction.

Farming is a commonality in Zambia, but much progress is needed in order for Zambia to be using its land at its fullest potential. According to Isenberg, farming is happening and moving forward,

Yet with the amount of uncultivated land that can be brought under tillage constantly dwindling, progress in this direction is overwhelmingly dependent on larger yields per unit of land, which can be realized only by irrigation, soil improvement, adequate use of fertilizers and the like, all of them dependent upon input capital. (Isenberg 23)

There needs to be more cultivation in order for development to continue for Zambia; in order for sustainment through agriculture, investment must be made. Sustainability requires implementing new ideas, and in order for the new ideas to come about, investment has to be a necessity. Cultivating the new developments through investment leads to lasting impacts.

#### Non-Profit Organization

According to a video on Lifesong for Orphan's web page, Zambia is a nation with 1,00,000 orphans with 50% of its population under 15 years old, of which 10% attend school (Lifesong for Orphans). Feeling led in the direction of orphan care, Lifesong For Orphans Zambia began through selling a previous

business and has functioned as a nonprofit organization ever since (Lifesong for Orphans).

Lifesong for Orphans in Kitwe, Zambia is a thriving nonprofit Christian organization, which has provided micro-business loans, employment through sustainable strawberry farms, and education (Lifesong for Orphans). This nonprofit organization has been encouraged by, and has reached these opportunities, through the help of Plant Sciences Inc. (PSI), an international agricultural business. In *Strategic Communications Planning for Non-profit Organizations: A Data-Based Application of a Seven Step Model*, Christina Hoogendam analyzes the importance for non-profit organizations to gain and hold support:

Nonprofit organizations also often have a greater need for strategic planning and clear direction because they are driven by their mission statement...Nonprofit organizations do not distribute surplus funds to any individual(s); the organization instead uses those extra funds to further their cause and efforts. (Hoogendam 5)

As a non-profit organization, Lifesong has needs that PSI went above and beyond with—providing not only finances, but also brought their agricultural science expertise to give towards the organization in hope to bless them.

PSI “is committed to research and development in many areas including plant breeding, plant tissue culture, seed production, crop growing techniques, and pest management” (Plant Sciences Inc.). PSI partnered with Lifesong “to assist in the development of sustainable farm businesses to benefit orphans in Honduras, Ukraine, Zambia” (Plant Sciences Inc.). PSI has paved the way for Lifesong

through their funds, technology and resources. Lewis and Kallab imply that because Africa is a developing continent, there has been more difficulty in them being successful in economic growth:

In Africa, the situation is at once simpler and in practice more difficult.

The basic act of moving the agricultural sector has not yet been put together. Training, national institution-building, and giving development priority to the needs of the most responsive regions and commodities must be pursued vigorously...Africa in particular, has suffered from such a lack of priority on the part of national policies and donor-country assistance alike. (Lewis, and Kallab 87)

PSI has chosen to be a leader and has “vigorously” pursued Lifesong in Zambia, in the form of agriculture sustainability through a small strawberry farm business. PSI has provided a representative, Judy Johnson, Ph.D. who helped begin the farming process with the leaders of the Lifesong orphanage in Kitwe and continues to connect by traveling there yearly to provide her expertise.

Often non-profit organizations need assistance in obtaining resources and applying them to function from those resources. Hoogendam analyzes the importance of outside support by quoting authors Sally J. Patterson, and Janel M. Radtk’s view that assistance of resources through the help of those outside the non-profit organization may “help the [nonprofit] recognize the full range of resources that can potentially be tapped to help achieve the plan’s objectives” (qtd. in Hoogendam 41). Developmental progress through sustainable agricultural business has been accomplished through the resources of PSI for Lifesong

Zambia. Investment, new technologies, and open employment through sustainable business, all attribute to the progress and process of a developing country.

Sustainable business provides a boost for a developing country. Hence, “To expand agriculture and augment the supply of food is the most urgent concern of the underdeveloped world” (Isenberg 23). The strawberry field has provided not only jobs and education of marketing, but even nutritious fruit for the kids (see Chapter IV). Through sustainable agricultural business, PSI has provided their expertise in order to bless and serve Lifesong Zambia.

### **CHAPTER III:**

## **METHODOLOGY: DEVELOPMENTAL RESEARCH PROCESS IN A CROSS-CULTURAL CONTEXT**

*“To effectively communicate, we must realize that we are all different in the way we perceive the world and use this understanding as a guide to our communication with others.”*

*-Tony Robbins*

For my project, Lifesong Zambia and PSI are my two main focuses; specifically looking at the connection between the two, and focusing on the outcomes from the relationship. My project developed over time; it began with an idea and it became a process as I began the steps in researching. My process involved certain factors that contributed to a course of action and resulted as a methodology, which included: communication across cultures, interacting with leaders from PSI and Lifesong, surveys, and the possibility of traveling.

Being that both PSI and Lifesong are out of the area, communication quickly became my project’s primary need. Communication is a necessary component to any interaction, and when brought in to a cross-cultural context, it automatically requires extra clarity and patience due to time differences or misunderstandings.

My initial connection was my grandpa and grandma, Richard and Vicki Nelson, the founders of PSI. Once I heard about the partnership with Lifesong, when my Uncle shared with the family, I shared my interest and curiosity of the partnership with my grandparents. After we had casually discussed PSI and Lifesong’s interaction multiple times, they had me contact one of their

employee's from PSI. The first person I connected with was PSI's employee and representative, Judy Johnson. Through email interaction I learned that Judy's work requirements involve her being in direct communication with Lifesong for PSI, which includes her traveling to and from Lifesong Zambia two to three times a year. Judy was an excellent help; she shared information about Lifesong, her role in the partnership, and continued to help me connect with other Lifesong staff in Zambia. Judy was only the beginning of my communication; crossing to the other side of the partnership, she connected me to Lifesong's VP of Operations, Kory Kaeb.

Through emailing Kory, my project was beginning to develop as I continued my communication. Kory lives in Illinois and works for Lifesong's headquarters. We emailed back and forth and then planned to talk more on the phone. With just a two-hour time difference between California and Illinois, communicating with Kory was still difficult because of our busy schedules. We called each other and left voicemails often. Although concerning at the beginning, the disconnection only caused me to persevere harder. We finally did get hold of each other and were able to talk a few times over the phone. So communication with Lifesong was happening and in process. Our communication included: talking about Lifesong, the location in Zambia, and the relationship between the orphanage in Kitwe and PSI. The development of my project was continuing.

The communication was happening; I was able to interact with leaders from both PSI and Lifesong, but my cross-cultural relationship was beginning to become complex. I realized that my interaction with the actual orphanage in

Kitwe, Zambia, was limited and distant, oceans away from my research and I. In addition to this realization, Judy challenged me with my work and research, specifically with my position as an outsider and not being fully there in Zambia.

This led me to the idea of creating a survey. Because I was not in Zambia personally, I needed a way to get a closer look in order to make observations. I desired the input and knowledge from PSI and Lifesong about their partnership. I wanted to know what was working, benefiting, and lacking on both sides of the partnership, and to do this, I needed a tangible and practical component to my research.

I created a survey of four statements that the recipient was asked to fill in with one of the following responses: strongly disagree, disagree, neutral, agree, or strongly agree. The statements were as follows:

- The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa:
- The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business:
- There is updated technology and resources used to maintain the small sustainable agricultural business:
- The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help:

The survey also asked the recipient to comment and provide feedback under each statement in accordance to each of their responses. I then created a list of names with the contact information of the people whom I was planning to send the survey. Before I did this, however, I needed approval from Cal Poly. I had to



fill out an application of what kind of information I would be asking for and how I was planning on proceeding because I was dealing with human subjects. I had to make revisions in my informed consent and receive approval from the university before I was able to send out my survey. After waiting a week and a half, I received approval and was able to send out my survey. The recipients of my survey from PSI included: Founder and Chairman of PSI Richard Nelson, along with his wife Vicki Nelson, the President Steven Nelson, Global Development and Lifesong for Orphans Advocate Judy Johnson, Director Michael Nelson, and Chief Business Officer Daniel Nelson. The recipients of my survey from Lifesong included: Vice President of Operations Kory Kaeb, Farming Director Luke Gudeman, Marketing Director Sheila Schwab, Lifesong Chairman Gary Ringger, and Lifesong Ukraine Director Denis Poshelok. A cross-cultural interaction was in process because of the surveys.

Sending out the survey was easy. However, I had to continue communication via email, reminding the recipients to complete and send the survey back. I gave a two-week time for them to reply, but even still, I did not receive all of the surveys by the deadline I had indicated. My cross-cultural interaction and communication continued to be an evident factor in my development process of research.

Another interesting factor that contributed to the development of my project was the possibility of getting to go to Zambia this summer (2013). Kory offered the opportunity to join a church group visiting Zambia in August, but those plans did not work out for me. However, it was important to recognize that

my perspective would have changed if I were going to visit and stay at Lifesong Zambia. It would have benefited my conclusions and observations, but the reality is that my conclusions are drawn from my surveys and findings here in California. Right now, I am still an outsider and making my observations from afar, but this perspective still contributes to my overall findings. Even though I was unable to go to Zambia this summer, my grandparents, (founders of PSI) headed to Lifesong Zambia with Judy Johnson at the end of May 2013. This made me excited because not only did they get to experience all that I had been looking into and researching, but also was able to take pictures of their journey. It is my hope that the photographs convey the importance of whom and what I am representing, revealing up-to-date imagery for my project.

The development of my project was a process: dynamic and exciting, along with phases of patience and interludes of waiting. My methods were less systematical which allowed freedom to adapt and adjust when needed. The development of my project was rewarding and exciting because I had to persevere through the communication, along with the cross-cultural distance and interaction. In addition, the correlation with the surveys and ending with figuring out whether I could go to Zambia, contributed to a challenging methodology. Through experiencing developmental research, I learned the outcomes of what you discover is not necessarily the projects main successes, but the journey and process of observing, communicating, and interacting are just as important.

## **CHAPTER IV:**

### **THE DISCUSSION: THREE SPHERES OF INFLUENCE**

*“Productivity is never an accident. It is always the result of a commitment to excellence, intelligent planning, and focused effort.”*

*-Paul J. Meyer*



Figure 2. Luke Gudeman and Richard Nelson

My observations between a partnership of two very different practices—agricultural business and non-profit organization work—has furthered my understanding of cross-cultural relations. Through my communication, research, and surveys, I have gathered information I initially was unaware of. Collecting feedback from both sides of the partnership through my survey, I was able to synthesize and contrast what is, and is not working in the partnership on a

spherical basis: inside the intimate community of Lifesong Zambia, outside Lifesong Zambia into the community, and beyond to other countries in Africa and the world.

The first sphere of influence is based off factors that are positively affecting adults and children at Lifesong Zambia, which is the closest community the partnership touches. These findings have come from the first statement on the survey as follows: “The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa.” On both sides of the partnership, and in every survey received, the answer for this statement was “strongly agree”.

According to PSI’s President, Steven Nelson: “Today, a number of the women, from the village, are employed at the farm”(Appendix F: Steven Nelson).

On the other side of the partnership, Lifesong Zambia’s Marketing Director, Sheila Schwab, stated: “Lifesong Farms in Zambia Africa provides opportunities for a few of the local women and men the chance to provide for their families the necessities of life” (Appendix G: Sheila Schwab). So the partnership has brought monetary benefits to the orphanages’ caregivers. While touching the community economically, Lifesong Zambia has also been able to provide nutritious food for the orphans confirmed by two surveys: “the children are benefitting from the availability of fresh healthy produce which they are also consuming... Children eat better ...i.e. berries daily” (Appendix F: Steven Nelson, and Appendix D: Richard and Vicki Nelson). It is amazing the small strawberry farm that PSI began is providing such tangible benefits, employment

and crop production, which in turn benefits straight to the community at Lifesong Zambia.

According to Schwab, another exciting aspect of the strawberry farm has been the opportunity to expand through different strawberry grades.<sup>1</sup> “Through the crops of the farm, we are producing high quality, locally grown fruits. We are expanding the immediate local economy not only through wages paid to employees but also to local women who will sell our “Grade B” strawberries (those not within the quality standards for “Class A”) in the neighboring large city” (Appendix G: Sheila Schwab). The small sustainable agricultural business is already expanding its sphere of influence, which is confirmed on both sides of the partnership.

The perspective from PSI is that the strawberry farm at Lifesong Zambia is, “raising awareness of market principles and generating actual economic return to the school, farm, and ultimately the young people we are endeavoring to serve” (Appendix F: Steven Nelson). This is important because it confirms that PSI is excited that part of the outcome of their influence on Lifesong Zambia has been education of business practices while supporting the community.

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<sup>1</sup> “Grades provide a common trading language, or common reference, so that buyers and sellers can more easily determine the quality and value of those commodities” (Federal Register). For more on US agricultural grades and standards, see Federal Register.

The small sustainable farm's strawberry production is reaching beyond itself: "The funds generated from this small business will help to continue to support the efforts of the orphanage to care for and provide for the educational needs of the local orphans" (Appendix E: Michael Nelson).

The strawberry farm at Lifesong Zambia has been successful through its given resources and has therefore been able to begin extending its production cross-culturally. These findings have come from the following statement on the survey: "The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business." According to Schwab, they have been marketing and selling to local grocery stores and South African stores. The survey also showed that the partnership has helped shape cross-cultural relations: "We routinely do business with Indian store owners, Greek restaurant owners, and South African businessmen...Lifesong Farms...run by group of Americans, which seeks to treat all employees with high level of respect and self worth" (Appendix G: Sheila Schwab). It is amazing how the small sustainable strawberry farm is touching multiple cultures, interacting, and doing business with them.

As I was analyzing the feedback from the surveys I had received, I noticed my outside perspective looking in to the partnership had caused me to have a narrow viewpoint on the success, productivity, and influence of the strawberry farm. Simultaneously, as my study continued, from talking with my grandparents and from analyzing the surveys, I began noticing that this was not just a partnership between two different fields. Initially, yes, it was a partnership

between Lifesong and PSI, but this original partnership created opportunity for more people and businesses to get involved; the partnership had created dynamic cross-cultural relations.

Going beyond itself as a partnership is the third and final sphere of influence that I discovered in gathering my observations and feedback. The third sphere of impact was discovered through analyzing the third statement on the survey: “There is updated technology and resources used to maintain the small sustainable agricultural business.” From multiple responses on the survey, it seemed that technology and resources were made possible through PSI connecting with Lifesong in Zambia initially, but these donations then paved the way for other US, European, and African companies to donate resources as well. For example, “Because of the Plant Science, Inc. contacts with other US businesses, other companies have provided the necessary drip irrigation (John Deere), and fertilizer (Scotts Fertilizer), and a large freezer for the storage of berries that will be made into jam and sold” (Appendix D: Richard and Vicki Nelson). It is incredible that a small sustainable agricultural business has caused growth to the point in which it is extending outside its own parameters. This shows how a small sustainable agricultural business essentially has allowed the opportunity of multiple disciplines to come together and put in their resources where they see fit. The partnership has been a means of developing cross-cultural relations through producing, marketing, and selling the fruit of their labor.

Although the small sustainable agricultural business is making connections worldwide, there are still practical needs of the strawberry farm. This

was found from the fourth statement on the survey: “The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help.” According to the people who participated in the survey, there is a need for technological resources such as more irrigation, tractors, and fertilizers, as well as, dedicated personnel to continue to maintain the farm (Appendix F: Steven Nelson, Appendix E: Michael Nelson, Appendix H: Judy Johnson, Appendix D: Richard and Vicki Nelson, and Appendix G: Sheila Schwab). For the small sustainable agricultural business, despite its wonderful successes and productions, it is definitely in need of continual maintenance. “There are always areas ‘in need’ in small agricultural businesses due to scale and resource challenges” (Appendix H: Judy Johnson). Although the strawberry farm is up and running, it needs updated supplies and dedication.

Another obstacle acknowledged in the survey was the recognition of western ways of doing business and strawberry farms. Schwab commented in her feedback that because of this reality, it has been a slower development process due to weather conditions and soils. “Because strawberries and blackberries are not indigenous to Zambia, we have learned many growing lessons the hard way. Specifically the rains here cause much damage to our year-round strawberries...” (Appendix G: Sheila Schwab). It is vital we recognize the challenges in producing non-indigenous crop. From the feedback on the survey, I did not find any other obstacles in terms of the west bringing in their resources and help to Lifesong Zambia.



The beginning partnership between Lifesong for Orphans and PSI has allowed other businesses—U.S., African, and European to come together and cooperate in a faith-based and professional manner, in hope to bless and develop the sustainable business establishment in Zambia.

## **CHAPTER V:**

### **CONCLUSION**

*“Bringing JOY and PURPOSE to orphans...”*  
*-Lifesong for Orphans*

The partnership of PSI and Lifesong for Orphans in Zambia Africa has afforded two different disciplines to bridge the gap between cross-cultural relations in agriculture and non-profit work. The cooperation in the partnership's initial efforts has achieved greater economic stability, nutrition through the strawberry crops for the orphans at Lifesong Zambia, and has brought cross-cultural relations to the initial community and beyond.

There have been a few challenges to this study, for example: the distance (I have yet to visit Lifesong Zambia), available communication, and business and non-profit organization feedback. Nevertheless, I was able to conduct a survey, and receive feedback from both PSI and Lifesong Zambia. This provided the opportunity to analyze and provide conclusions from my research.

Through my study I discovered the ways in which a small sustainable agricultural business is affecting a non-profit organization. The feedback from my survey conveyed the absolute importance of agriculture technology and resources, along with continual maintenance. The small sustainable agricultural business would not be functioning in a successful manner if it were not for their drip irrigation, fertilizers, and hands-on expertise. And confirming my literature review, the continual need for updated technology and resources is vital for the

agriculture to continue producing properly. For the strawberry farm at Lifesong Zambia, according to survey responses, from Richard Nelson, and Steve Nelson, there is a need for tractor equipment along with continual farming and marketing personnel.

This project had been an idea in my mind ever since I had heard about the partnership between PSI and Lifesong. The relationship was intriguing because growing up, agriculture was extraordinarily important because of my family, and then being a Comparative Ethnic Studies major at Cal Poly, the cultural and historical perspective was important to me as well. Through my project, I did however recognize that the two perspectives and disciplines often do not coincide with one another. At the beginning of my project, the agriculture and comparative ethnic studies perspectives seemed far from each other and detached. Despite this unusual correlation, I knew there was more going on between PSI and Lifesong in which I wanted to discover.

As a result through my observations, I have found the perspectives in fact, to rely on one another in order to expand their capabilities and understandings of each other and the world. This was shown through the cross-cultural business transactions, relations, and support that the partnership between PSI and Lifesong initially triggered through their interaction. Because of my faith in God, my heart is filled with joy when I see people interact with one another through loving kindness, and this is exactly at the foundation of the partnership. PSI has sacrificed time, energy, and monetary value towards the strawberry farm at Lifesong Zambia and in doing so, has created an opportunity for other businesses

to come alongside, support, and be a part of the partnership. Bringing people together, through agricultural business in a cross-cultural context, PSI and Lifesong's partnership, through faith, not only is currently providing jobs, nutrition for orphans, and crop that is yielding income, but also is providing hope, which lasts a lifetime.

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## Appendix A: Sample Letter

Greetings from Cal Poly, San Luis Obispo, California!

If you are receiving this email, this means I have received your name from Kory Kaeb or Judy Johnson and am interested in your feedback! My name is Kate O’Leary, and I am a third year Comparative Ethnic Studies Major at Cal Poly. Over this Spring quarter I am completing my senior project (with still another year until graduating). Last quarter I was in a Fieldwork class where I began the research process of my project titled: “Sustainability in Zambia, Africa: Discovering the Bridge Between an Agricultural Business and Non-Profit Organization”. And this quarter I will be continuing the research, analysis, and writing processes in order to complete the project by June!

As you will find, I have attached two important documents. The first is quite important, as it explains in more detail what I am conducting and asking from you. I would be grateful if you would keep this document for your records. The second document attached is the actual survey. If you would like to download the document, type in your answers, and resend it to me—that would be much appreciated! This feedback will be a huge part of my methodology and conclusion section of my final write-up!

This project has been an idea in the back of my mind since my Uncle Steve first shared with the family about PSI and Lifesong’s partnership. I have enjoyed this process of being in communication with Lifesong and PSI via Kory Kaeb and Judy Johnson! It has been so much fun exploring this project; it’s a joy to share with my peers, professors, and friends what I have been working on!

If you could complete the survey as soon as possible that would be wonderful! Please send it back to me no later than APRIL 30, 2013.

Thank you so much for your time and help!

Blessings,  
Kate O’Leary



## Appendix B: Informed Consent

### **California Polytechnic State University Comparative Ethnic Studies Senior Project 2013**

#### **INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT: “Sustainability in Zambia, Africa: Discovering Connections Between an Agricultural Business and Non-Profit Organization”**

My name is Kate O’Leary, and I am a third year Comparative Ethnic Studies Major at California Polytechnic State University (Cal Poly), San Luis Obispo, California, U.S.A. I am conducting a survey that will be given to the staff leaders of the non-profit organization, Lifesong for Orphans in Illinois, U.S.A., Zambia, Africa and the Ukraine, as well as to staff leaders from Plant Sciences Inc. in Watsonville, California. The survey will help me better understand the ways in which the non-profit is enhanced from a partnership with a small sustainable agricultural business: the successes, failures, and recent needs.

I would be grateful if you would take part in this survey by answering a short questionnaire. Your participation should not take longer than twenty minutes. Please be aware that you are in no way required to fill out this questionnaire and you may discontinue your participation at any time without penalty. You may also omit any questions you prefer not to answer. Your feedback will greatly help the progress of this project and in turn could possibly benefit Lifesong for Orphans, as well as Cal Poly’s Comparative Ethnic Studies and Agricultural Business majors and communities.

There are no risks anticipated with participation in this survey. All of the information you provide will only be used for this project and will possibly help in determining the areas that need additional research and attention in the small agricultural business. None of your personal information will be asked or collected and therefore your responses will be kept anonymous.

If you have any questions regarding this study or would like to be informed of the results when the study is completed, please feel free to contact me, Kate O’Leary: +01 (805) 471-9568, kgoleary@calpoly.edu. If you have concerns regarding the manner in which this study is conducted, you may contact Dr. Steve Davis, Chair of Cal Poly Human Subjects Committee, at + 01 (805) 756-2754, sdavis@calpoly.edu, or Dr. Dean Wendt, Interim Dean of Research at + 01 (805) 756-1508, dwendt@calpoly.edu.

If you agree to voluntarily participate in this research as described, please indicate your agreement by completing and returning the questionnaire. Please retain this consent form for your reference. Thank you for your participation in this research.

Appendix C: Copy of Survey

“Sustainability in Zambia, Africa: Discovering Connections Between  
an Agricultural Business and Non-Profit Organization”

Student Researcher California Polytechnic State University

Kate O’Leary

*Please answer with **one** of the following responses for each question:*

*strongly disagree      disagree      neutral agree      strongly agree*

1. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: \_\_\_\_\_.

Please provide examples and/or share any comments:

2. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: \_\_\_\_\_.

Please provide examples and/or share any comments:

3. There is updated technology and resources used to maintain the small sustainable agricultural business: \_\_\_\_\_.

Please provide examples and/or share any comments:

4. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help: \_\_\_\_\_.

Please provide examples and/or share any comments:

“Sustainability in Zambia, Africa: Discovering Connections Between  
an Agricultural Business and Non-Profit Organization”

Student Researcher California Polytechnic State University

Kate O’Leary

*Please answer with **one** of the following responses for each question:*

*strongly disagree      disagree      neutral agree      strongly agree*

1. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: ***STRONGLY AGREE*** \_\_\_\_\_.  
Please provide examples and/or share any comments:
  1. Children eat better...i.e. berries daily.
  2. Teaching new skills to those involved...how to grow strawberries---clear the land, prepare the land, drip-irrigation, plant nutrient requirement (fertilizer, etc.), integrated pest management, picking schedules, product handling, etc.
2. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: ***STRONGLY AGREE***.  
Please provide examples and/or share any comments:
  1. The orphanage is now embraced by the community, while previously it was looked upon as a blight in the community. Now orphanage produces a sellable crop---they are located within 5 miles of the largest copper mine in world. Therefore, a ready market for the crop.
  2. Teaches business principles.
  3. South Africa’s strawberry nurseries and consultants now aware of orphanage and provide plant stock of proprietary varieties from Plant Sciences, Inc. and expertise on cultural practices.
  4. Largest South African grocery chain came to visit the orphanage amazed that they had fresh quality berries, and are developing a strategy to market the berries in other African countries
  5. A large legal firm from the Netherlands provided pro bono services to receive plant patents in Zambia to protect the genetics of Plant Sciences, Inc. which provides a sustainable program at the orphanage with exclusive rights to unique proprietary varieties..
3. There is updated technology and resources used to maintain the small sustainable agricultural business: ***STRONGLY AGREE*** \_\_\_\_\_.
  1. Because of the Plant Science, Inc. contacts with other US businesses, other companies have provided the necessary drip irrigation (John Deere), and fertilizer (Scotts Fertilizer), and a large freezer for the storage of berries that will be made into jam and sold.

4. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help: **AGREE**.  
Please provide examples and/or share any comments:
  1. Need more physical equipment---tractors, etc. Plant Sciences, Inc. provides a half-time Ph.D scientist to consult on this project.  
Additional expertise needs to be recruited to set trials with additional crops.

Appendix E: Michael Nelson

“Sustainability in Zambia, Africa: Discovering Connections Between  
an Agricultural Business and Non-Profit Organization”

Student Researcher California Polytechnic State University

Kate O’Leary

Please answer with **one** of the following responses for each question:

strongly disagree      disagree      neutral agree      strongly agree

1. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: \_\_\_ *strongly agree* \_\_\_\_\_.  
Please provide examples and/or share any comments:

*While I am not directly involved in this project, I have learned from others that the strawberry farm that PSI has helped to establish at the orphanage in Zambia is providing jobs for some of the orphans during their time at the orphanage and also after they graduate from the orphanage school program. It is also providing jobs for some of the local people who were not previously employed. So, it is providing economic benefits to the local community in and around the orphanage.*

2. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: \_\_\_\_  
*strongly agree* \_\_\_\_\_.  
Please provide examples and/or share any comments:

*My understanding is that some of the American volunteers there at the Zambia orphanage (Luke Goodman, I believe is the name of the primary person heading up the strawberry business project for the orphanage) are helping the local Zambia people learn how to grow and care for the strawberry crop, to help ensure its success. They are also helping the locals to learn how to harvest and cool the fruit, as well as market the fruit at local retail outlets. My understanding is that despite the economic challenges of this part of the world, there is substantial demand for the fresh strawberry fruit being produced at the farm, and the economic profitability of the operation is very promising. The funds generated from this small business will help to continue to support the efforts of the orphanage to care for and provide for the educational needs of the local orphans.*

3. There is updated technology and resources used to maintain the small sustainable agricultural business: \_\_\_\_ *strongly agree* \_\_\_\_\_.  
Please provide examples and/or share any comments:

Please provide examples and/or share any comments:

*The lead person at PSI that has served in this project is Dr. Judy Johnson. She has been successful in getting a number of international companies that we interact with here in the states to provide various farm inputs free-of-charge, including fertilizer, drip irrigation system components, etc. So, it's great to see that as we've shared the vision of helping the folks in Zambia with some of our colleagues here in the USA, they've have gotten onboard with us to help make the project successful.*

4. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help:   strongly agree

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Please provide examples and/or share any comments:

*Compared to the advanced agricultural practices we employ in strawberry fruit production here in the states, the Zambia farm has a long way to go. However, they are up and running and moving forward. They could definitely benefit from more mechanized equipment (tractors, tillage equipment, pest / disease control application equipment) to improve the performance / productivity of the strawberry crop at the Zambia farm. They don't have access to many of the modern pest control strategies utilized here in the states, such as soil fumigation, which is foundational to successful strawberry production here in the USA. There is a new soil disinfestation system being developed here in California, called anaerobic soil disinfestation, which involves the use of an organic substrate rather than a chemical application to clean the soil of fungal organisms and nematodes which are pathogenic to strawberry plants. This would be a good system to evaluate there in Zambia, as it could probably be implemented using locally produced organic material (such as molasses). Results here in California research trials show that this technique is comparable to standard chemical soil fumigation, in terms of pathogen control and subsequent strawberry plant performance.*

“Sustainability in Zambia, Africa: Discovering Connections Between  
an Agricultural Business and Non-Profit Organization”

Student Researcher California Polytechnic State University

Kate O’Leary

*Please answer with **one** of the following responses for each question:  
strongly disagree      disagree      neutral agree      strongly agree*

1. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: *Strongly agree.*

*Plant Sciences’ partnership with Lifesong has afforded us the opportunity to bring world class small fruit genetics and certain technical support, to the people of Zambia. Today, a number of the women, from the village, are employed at the farm. Fruits are being produced, packaged and sold to locals; raising both awareness of market principles and generating actual economic return to the school, farm and ultimately the young people we are endeavoring to serve. In addition, the children are benefitting from the availability of fresh healthy produce which they are also consuming.*

2. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: *Strongly agree.*

*We are excited about the opportunity to learn from one-another even as we serve one-another. We have been afforded the opportunity to step away from our busy and demanding lives and step into a culture that is less captured by such demands, as they are focused on meeting certain basic needs such as shelter, nutrition, clean water, basic health care and education. We have had the opportunity to send some of our own business leaders, scientist and support personnel to Zambia. Others have joined us including suppliers of materials and technology, plant providers, technicians and entrepreneurs. We have recently expanded our commercial activities into surrounding African countries such as Kenya and our activities in Zambia have provided us with a measure of credibility and set us apart as not simply another multi-national company that is coming to Africa to extract valuable resources. We anticipate sending small teams (2-3 people) to Zambia every year in support of the effort there.*

3. There is updated technology and resources used to maintain the small sustainable agricultural business: *Strongly agree.*

*Yes, we have submitted our most advanced strawberry, raspberry and blackberry genetics to Zambian officials for intellectual property protection and have received support from our plant protection attorney, in Holland, who offered to do all of the plant protection (plant breeders rights) filings in Lifesong countries at no charge. Additionally, we have had supplier companies and even competitors send materials and in one-case personnel to Zambia in support of the effort there. Fertilizers, irrigation equipment, plant genetics, and know-how have all been transferred...*

4. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help: *Agree.*

*Indeed, such a start-up effort is in need of qualified and dedicated personnel that are able and willing to stay for extended periods of time. Lifesong Zambia is very fortunate to have 2 very enthusiastic and trained people who have committed to stay for 1 and 2 years in support of the farming and marketing initiative. Judy and Andy can provide you with more specifics but as the farming initiative continues to expand, there is need of investment capital, equipment (tractors, irrigation systems, cold storage facilities, land and ongoing support-as required until they can be truly independent and profitable).*



“Sustainability in Zambia, Africa: Discovering Connections Between  
an Agricultural Business and Non-Profit Organization”

Student Researcher California Polytechnic State University

Kate O’Leary

*Please answer with **one** of the following responses for each question:*

*strongly disagree      disagree      neutral agree      strongly agree*

5. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: **strongly agree**.  
Please provide examples and/or share any comments:
  - Lifesong Farms in Zambia Africa provides opportunities for a few of the local women and men the chance to provide for their families the necessities of life.
  - Through the crops of the farm, we are producing high quality, locally grown fruits. We are expanding the immediate local economy not only through wages paid to employees but also to local women who will sell our “Grade B” strawberries (those not within the quality standards for “Class A”) in the neighboring large city.
6. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: **agree**.  
Please provide examples and/or share any comments:
  - Within Zambia there is a large variety of cultures represented in addition to the local African culture. We routinely do business with Indian store owners, Greek restaurant owners and South African businessmen. The difference that Lifesong Farms brings is that we are (currently) run by a group of Americans, which seeks to treat all employees with a high level of respect and self worth.
  - By embracing our employees as our equals we are building a complementary diversity within not only our business and school but within the broader community wherein we work.
7. There is updated technology and resources used to maintain the small sustainable agricultural business: **strongly agree**.  
Please provide examples and/or share any comments:
  - Maize and groundnuts (peanuts) are the 2 main crops of Zambia, these crops can only be grown within a 5 month window of time due to the seasonal rain. Strawberries and blackberries are not native crops to Zambia and we are able to grow these crops outside of the window that Maize and groundnuts are grown. We are hoping (once we

perfect our growing methods) to expand production on soft fruits in order to provide more profit and funds for our schooling project. The advances in technology that we have embraced are irrigation, enhanced fertilizer programs and a tractor (instead of hand hoes).

8. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help: **agree**.

Please provide examples and/or share any comments:

- Because strawberries and blackberries are not indigenous to Zambia, we have learned many growing lessons the hard way. Specifically the rains here cause much damage to our year-round strawberries and we are at a loss to grow any soft fruit during this season without the aid of greenhouses (which to buy locally are extremely expensive). Pest issues are also different than those in other growing climates and fertilizers are harder to source, so we are working to make adjustments in our growing strategies to accommodate these local challenges.

Appendix H: Judy Johnson

"Sustainability in Zambia, Africa: Discovering Connections Between an  
Agricultural Business and Non-Profit Organization"  
Student Researcher California Polytechnic State University  
Kate O'Leary

Please answer with **one** of the following responses for each question:

strongly disagree   disagree   neutral   agree   strongly agree

1. The small sustainable agricultural business with help from Plant Sciences Inc., Watsonville, California, has enhanced the lives of those living at Lifesong for Orphans Zambia Africa: Strongly Agree

Please provide examples and/or share any comments:

The farm in Lifesong Zambia has enriched the lives of many of the children's caregivers. Monetary and provided an education in state of the art berry culture, post harvest handling, food sanitation and business practices. They begin their day with worship and bible study and are growing spiritually.

2. The partnership between Lifesong for Orphans Zambia with Plant Sciences Inc. has impacted cross-cultural relations in business: Agree

Please provide examples and/or share any comments:

The PSI sponsored Lifesong Farms in Zambia have promoted numerous business partnerships internationally (through cooperative alliances - Starline, Monester, Windsor Assoc - S. Africa; El Pinar - Spain; Scotts Fertilizer - The Netherlands) locally. The Farms have allied with the Zambian Dept. of Ag, national grocery chains, local shops etc.

3. There is updated technology and resources used to maintain the small sustainable agricultural business: SA

Please provide examples and/or share any comments:

Success of LS-Zambia has been based on the superior genetics of Berry Genetics & PSI strain varieties & the technical advice for growing them. Our partners around the world have also provided technical consultation & advice.

4. The small sustainable agricultural business is lacking in certain areas and could benefit from updated maintenance/help: Agree

Please provide examples and/or share any comments:

There is always some "in need" in small ag business due to scale and resource challenges. These are ongoing. However great strides have been made due to excellent leadership in Zambia with their staff on board. Judy Johnson  
5/15/2013