CONSIDERATIONS FOR DEVELOPING A SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION CENTRE AT AGUA BLANCA, EL SALVADOR

By

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A thesis submitted in partial fulfillment of the requirements for the degree of:

MASTER OF ARTS
In
ENVIRONMENT AND MANAGEMENT

We accept this thesis as conforming to the required standard

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ROYAL ROADS UNIVERSITY
April 2009

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Eddy, Brenda, and Alec. You invited my family into your lives and made us all feel so welcome. I have learned so much from this amazing experience directly attributed to your efforts. You are a beautiful family and I am sure we will be lifelong friends.

In Canada, thanks to Rainbow of Hope for Children representatives Don, Clara, and George, and Royal Roads University thesis supervisor, Dr. Lenore Newman. Also, thank you to my friend Carlos, for the introduction to this fantastic journey.

In El Salvador, a multitude of people could be mentioned, but special thanks to Julio, Madre Ursula, Austen, Father Gerry, Lazaro, Anna and Myra, Micha, Jimmy, Francisco, Rachel, Yolanda, Mauricio, and the sisters and staff at the Izalco orphanage.

The Social Sciences and Humanities Research Council of Canada has provided grant funding. Thanks to the RRU and SSHRC selection committees for seeing the value of my research. The BC Government has contributed scholarship funding. Thanks to Allan, Dave, and other colleagues in the BC Public Service for their unwavering support.

The children of the Izalco orphanage are the most important part of this story. Finding ways to help hungry kids is critical to any discussion of food system sustainability. Thanks to the students and staff of Royal Roads University for your generous donations to brighten a few days of their lives.

Thank you to all my family and friends who supported this vision. My mother Sandy, brother Steve, and niece Emily were even brave enough to join me in El Salvador.

Finally, the biggest gratitude of all is extended to my wonderful wife Andrea, who has supported me in every way through this journey. Thank you my love.

Ashlynnnnnnnnnnn…., poppa is all yours now!
ABSTRACT

This SSHRC and Pacific Leaders funded thesis summarizes participatory action research conducted in El Salvador between January 2008 and April 2009. This research resulted in a $355,000 proposal to the Canadian International Development Agency for a sustainable agriculture research and education centre in canton Agua Blanca, Morazán, El Salvador. The project is proposed by Canadian NGO, Rainbow of Hope for Children, in partnership with Salvadoran NGO, Fundahmer.

Fundahmer owns 9.8 hectares of land in Agua Blanca. The researcher analysed practices at an existing Rainbow agriculture project in Izalco, and identified options for Agua Blanca by defining project goals and objectives, conducting a risk assessment, describing proposed centre activities, quantifying beneficiaries, assessing funding requirements, and developing performance measures. Funding was rejected, citing six sections that required additional information for second submission: sector and regional context, sustainability, gender, beneficiaries, performance measures, and environmental impacts. Seven recommendations are included to move project forward.
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1.0 INTRODUCTION

1.1 Thesis Overview

This thesis summarizes the results of a participatory action research project conducted in the Central American country of El Salvador between January 2008 and April 2009. This research effort has culminated in the submission of a $355,000 funding proposal to the Canadian International Development Agency (CIDA) Voluntary Sector Fund to support the development of a community based sustainable agriculture research and education centre in the canton of Agua Blanca, in the Cacaopera Municipality of the Morazán Department of El Salvador. This proposed project in Agua Blanca is being sponsored by the Canadian based non-governmental organization (NGO) Rainbow of Hope for Children (ROHFC), in partnership with the Salvadoran NGO, Fundahmer. Funding has been provided for this research project through a research grant of $17,500 from the Social Sciences and Humanities Research Council of Canada (SSHRC), and a $10,300 scholarship from the British Columbia government Pacific Leaders Scholarship Program (Appendix A).

This thesis is divided into eight chapters. Chapter 1 includes relevant project background and historical context, a summary of the study problem, research question, project timelines and milestones, and project stakeholders. Chapter 2 describes the research methodology and schedule of activities undertaken during three field visits to El Salvador. Chapter 3 includes a detailed description of the study country, El Salvador. Chapter 4, the literature review, demonstrates the need for a shift towards sustainable agriculture, highlights the many challenges that exist in the current agrarian structure of El Salvador, and describes the benefits of
biointensive farming to potentially address some of those challenges. Chapter 5 summarizes the results of data collected to develop the CIDA proposal for Agua Blanca. Chapter 6 provides recommendations for Fundahmer and ROHFC to effectively move the Agua Blanca project forward. Chapter 7 concludes the research analysis by discussing the potential for broader expansion of sustainable agriculture in El Salvador. Finally, Chapter 8 provides personal reflections from the researcher’s perspective on the use of the participatory action research method.

1.2 Project Background

Rainbow of Hope for Children is a school-based NGO active in helping poor and marginalized people of the world since 1975. The organization continues to affirm its original mandate that students and all citizens should learn about the root causes of poverty and that ordinary people can make an extraordinary difference. The words of founder Hank Zyp capture the essence of Rainbow’s ongoing mission: "Each of us, in big and little ways, can be a rainbow of hope for a child or a community, here and now, and make the world a little better, one step at a time” (ROHFC, 2009).

Rainbow is committed to personal involvement of grassroots people to create a more just world for themselves, their families, and their society. Rainbow channels funds designated by donors to development projects identified by international grassroots partners to help alleviate suffering and to change the underlying structures that cause this suffering. With the major support of the Alberta Wild Rose Foundation and CIDA, Rainbow has undertaken projects around the world including Central America, Brazil, Peru, Africa, the Philippines and India.
Since 2003, Rainbow has provided program support and funding for a sustainable agriculture and biointensive farm site in Izalco, El Salvador (Figure 1). This project has been enormously successful in transforming a 1.2 hectare parcel of pasture land into a richly diverse farm site, capable of producing over 30 different crops, using primarily biointensive farming methods. The land was donated to the Hogar Inmaculado Corazon de Maria, a Catholic based orphanage, located on the Pan-American Highway near Izalco. The orphanage houses approximately 90 children. The farm site provides sustenance food for the orphaned children, and surplus crops are sold at local markets to generate income that is invested back into the site. Local workers are hired as interns and trained on using the biointensive farming methods. The site has been successful and is approaching the point where less external funding is required to sustain program delivery.

Figure 1. Map of El Salvador with Locations of Izalco Farm Site and Proposed Agua Blanca Education and Research Centre (Map reproduced with permission of Lonely Planet. © Lonely Planet 2010).
Given the success of the Izalco farm, ROHFC is now looking to expand the sustainable agriculture training program to the department of Morazán, located in the mountainous northeast part of the country. Morazán was one of the strongholds for the guerrilla fighters during the Salvadoran civil war that occurred between 1980 and 1992, and remains one of the most underdeveloped and poorest regions of the country. Given this reality, the local communities of Morazán would benefit significantly from any support that ROHFC is able to provide. Rainbow has already started to purchase seeds and other supplies for local communities in the Cacaopera municipality.

In keeping with its commitment to include local grassroots organizations in project development, and to facilitate effective project expansion, ROHFC has developed a partnership with the Salvadoran NGO, Fundahmer. Fundahmer grew out of the movement of the Ecclesial Base Communities in El Salvador (CEBES) as an instrument of service to those communities. Fundahmer has been involved in the development of El Salvador’s poorest communities for over 20 years and currently serves the departments (department is equivalent to provincial boundaries in Canada) of La Libertad, San Salvador, and Morazán. This includes 47 communities throughout these regions, encompassing more than 2,100 families (Fundahmer, 2008). As a grass roots organization, Fundahmer works to promote the social, economic and spiritual development of these communities while allowing the protagonists themselves to create positive change (Fundahmer, 2008).

Fundahmer has been working in the Morazán region since 1992 and has executed many productive small-scale projects in the area. In 2003, Fundahmer started a small, ad hoc sustainable agriculture project in Morazán and it has been a key objective of the
organization to start something more formal so that they can expand their reach to help
more families in need. Now that a reasonable organizational level has been established in
the region, Fundahmer has identified the necessity to work more consistently and directly
with the communities over the long term to build sustained and enduring capacity. People
from the affected communities have also expressed their desire many times to Fundahmer
to have a public space designated for sustainable food production, training, education,
and related social activities (Fundahmer, 2008). To support this community desire, in
2007, Fundahmer bought a 9.8 hectare parcel of land for a proposed farm site in the
canton of Agua Blanca in the municipality of Cacaopera, Morazán (Figure 1).

The vision for the Agua Blanca site is to alleviate hunger while promoting the
sustainable management of soil, water and other communal resources, and providing a
place to teach the community techniques of growing and marketing sustainable
agricultural products. Over time, it is hoped the centre will become a community based
resource for long-term rural development to help reduce the dire circumstances of
poverty and malnutrition that is endemic throughout the department of Morazán and all of
rural El Salvador. The research and education centre will focus on:

- the improvement of crop varieties and yields through biointensive methods,
- the development of open pollinated seed sources and a viable seed bank,
- the development and implementation of integrated pest management techniques,
- the development and implementation of compost production techniques,
- the development of water conservation and management systems,
- the establishment of a nutritional centre, and,
- the training of participants in small agri-business management and marketing.
1.3 Study Problem and Research Question

Although some initial scoping work has occurred, prior to this thesis there had been no comprehensive planning process to identify feasible options and realistic resource requirements for developing the centre at Agua Blanca. Thus, ROHFC requested the researcher travel to El Salvador to observe current organizational practices at the farm site in Izalco, identify key considerations and barriers for successful expansion to Morazán, co-write a CIDA proposal with the ROHFC El Salvador Project Coordinator Brenda Carpio, and document the entire process in this thesis paper. This has led the researcher to addressing the following research question:

What are the considerations for developing a sustainable agriculture research and education centre at Agua Blanca, El Salvador?

1.4 Research Activities, Timelines, and Milestones

The SSHRC Research Grant Program of Study proposal was submitted in December 2005 and accepted in March 2006. The RRU student, thesis supervisor, program head, and project sponsor Letter of Agreement was signed-off in December 2007. The RRU ethical review form was approved in January 2008. The field work and academic research was completed between January 2008 and April 2009. Table 1 describes the primary research activities, research timelines, key milestones, and milestone completion dates.
Table 1

Primary Research Activities, Research Timelines, Key Milestones, and Milestone Completion Dates for Master’s Thesis Completion

<table>
<thead>
<tr>
<th>Research Activity</th>
<th>Time Range</th>
<th>Milestone</th>
<th>Milestone Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit SSHRC proposal</td>
<td>Nov 05 – Dec 05</td>
<td>Approved SSHRC Grant</td>
<td>Mar 26, 06</td>
</tr>
<tr>
<td>Submit thesis proposal</td>
<td>Sep 07 – Nov 07</td>
<td>Approved thesis proposal</td>
<td>Nov 20, 07</td>
</tr>
<tr>
<td>Complete RRU Letter of Agreement</td>
<td>Nov 07 – Dec 07</td>
<td>Signed-off Letter of Agreement</td>
<td>Dec 31, 07</td>
</tr>
<tr>
<td>Complete RRU Ethical Review Form</td>
<td>Dec 07 – Jan 08</td>
<td>Approved RRU ethical review</td>
<td>Jan 17, 08</td>
</tr>
<tr>
<td>Field Research 1</td>
<td>Jan 17 – 26, 08</td>
<td>Approved project plan</td>
<td>Jan 26, 08</td>
</tr>
<tr>
<td>Research Block 1</td>
<td>Feb 08 – Jun 08</td>
<td>Preliminary literature review</td>
<td>June 30, 08</td>
</tr>
<tr>
<td>Field Research 2</td>
<td>Jul 3 – 28, 08</td>
<td>CIDA proposal field data</td>
<td>Jul 28, 08</td>
</tr>
<tr>
<td>Research Block 2</td>
<td>Aug 08 – Mar 09</td>
<td>Final CIDA proposal Draft thesis framework</td>
<td>Sep 8, 08</td>
</tr>
<tr>
<td>Field Research 3</td>
<td>April 11 – 23, 09</td>
<td>Final thesis review</td>
<td>April 09</td>
</tr>
<tr>
<td>Thesis Submission</td>
<td>Apr 27, 09</td>
<td>Published thesis</td>
<td>Apr 29, 09</td>
</tr>
</tbody>
</table>

1.5 Project Stakeholders

Understanding the scope of project stakeholders and their roles, responsibilities and expectations is critical to any community development endeavour. Many important stakeholder organizations have been involved in this research for the proposed project at Agua Blanca, and all must be adequately considered to ensure success (Table 2).

Table 2

Project Stakeholder Organizations, Representatives, Roles and Responsibilities, and Expectations

<table>
<thead>
<tr>
<th>Organization</th>
<th>Represented By</th>
<th>Role/Responsibilities</th>
<th>Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Eddy Brooks – Sociologist</td>
<td>- RRU Thesis Sponsor - Coordination of activities - logistics and lodging - Strategic Direction</td>
<td>- Opportunity to provide strategic direction - Opportunity for review and comment</td>
</tr>
<tr>
<td>ROHFC - Canada</td>
<td>George Bunz – President</td>
<td>- CIDA proposal co-sponsor  - Technical assistance - Provision of data and background information</td>
<td>- Analysis of Izalco operations - Analysis of Agua Blanca project potential - CIDA proposal alignment with ROHFC project vision - Opportunity for review and comment</td>
</tr>
<tr>
<td></td>
<td>Don Sheeran – Project Donor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clara Qualizza – Volunteer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12
<table>
<thead>
<tr>
<th>Organization</th>
<th>Represented By</th>
<th>Role/Responsibilities</th>
<th>Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROHFC - El Salvador</td>
<td>Brenda Carpio – Project Coordinator</td>
<td>- Coordination of activities &lt;br&gt; - Data collection &amp; analysis &lt;br&gt; - Spanish translation &lt;br&gt; - Co-author CIDA proposal</td>
<td>- Opportunity to provide strategic direction &lt;br&gt; - Opportunity for review and comment</td>
</tr>
<tr>
<td>Fundahmer</td>
<td>Armando Marquez – Fundahmer President Ana Ortiz – Fundahmer Director</td>
<td>- CIDA proposal co-sponsor &lt;br&gt; - Agua Blanca property owner &lt;br&gt; - Input on CIDA proposal</td>
<td>- CIDA proposal alignment with Fundahmer vision &lt;br&gt; - Property rights are respected &lt;br&gt; - Review and comment</td>
</tr>
<tr>
<td>Cacaopera communities</td>
<td>Martina Luna – Community Leader</td>
<td>- Main benefactors of proposed Agua Blanca site &lt;br&gt; - Review and comment on CIDA proposal</td>
<td>- Community values and needs are considered &lt;br&gt; - Property rights are respected &lt;br&gt; - Long-term program development desired</td>
</tr>
<tr>
<td>Hogar Inmaculado Corazon de Maria</td>
<td>Madre Ursula – Head Nun</td>
<td>- Izalco property owner &lt;br&gt; - Benefactor of food production at Izalco site</td>
<td>- Property rights are respected &lt;br&gt; - Current program delivery is continued &lt;br&gt; - Funding is continued in some capacity</td>
</tr>
<tr>
<td>Izalco farm staff</td>
<td>Mauricio Tamacas – Lead Farmer</td>
<td>- Local farming expertise &lt;br&gt; - Data and background info</td>
<td>- Fair assessment of practices &lt;br&gt; - Job security considered in recommendations &lt;br&gt; - Opportunity for review and comment</td>
</tr>
<tr>
<td>San Salvador National University</td>
<td>Julio Carpio – Professor, Nutritional Department</td>
<td>- Project advisor &lt;br&gt; - Review and comment &lt;br&gt; - Potential partners for research centre</td>
<td>- Opportunity for review and comment &lt;br&gt; - Agua Blanca project considers involvement by University</td>
</tr>
<tr>
<td>CIDA</td>
<td>Christine Mageau – Project Officer</td>
<td>- Potential funding agency</td>
<td>- Completion of proposal in CIDA template &lt;br&gt; - Consideration of feedback to improve proposal for 2nd draft</td>
</tr>
<tr>
<td>Royal Roads University (RRU)</td>
<td>Dr. Lenore Newman – Program Head, MEM Program</td>
<td>- Thesis Supervisor &lt;br&gt; - Strategic direction &lt;br&gt; - Review and comment &lt;br&gt; - Approval of final thesis</td>
<td>- Regular progress updates and communication &lt;br&gt; - Thesis submitted on time and within scope of proposal</td>
</tr>
<tr>
<td>SSHRC</td>
<td>Daniel Mayer – Program Officer</td>
<td>- Research grant funding</td>
<td>- Project completed on time and within scope of proposal &lt;br&gt; - Results communicated to SSHRC as required</td>
</tr>
<tr>
<td>BC Government</td>
<td>Allan Lidstone – Ministry of Agriculture and Lands</td>
<td>- Scholarship funding</td>
<td>- Project completed on time and within scope of proposal &lt;br&gt; - Progress reported at regular intervals</td>
</tr>
</tbody>
</table>
2.0 RESEARCH METHODOLOGY

2.1 Field Research

The field research methodology is based on a participatory action approach. Ramirez, Gilmore and Krantz (1986, p. 161) describe the intent of this participatory process: "Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process.” So, the research objective is to combine personal learning through life experience with acting as an effective change agent for ROHFC, Fundahmer, and the people of the Cacaopera communities.

The researcher spent a total of 48 days in El Salvador during January 2008, July 2008, and April 2009. Summarized in Table 3, a broad range of field activities were undertaken to gather information for the Agua Blanca proposal and to gain broader knowledge and understanding of the economic, environmental, social, and political context that exists in the country. The ROHFC Project Coordinator acted as a communications liaison and tour guide, translating when necessary. Community participation in the process was a key to the project’s success, and draft CIDA proposals were vetted through the Project Coordinator for review and feedback from project stakeholders including ROHFC, Fundahmer, and Cacaopera community leaders.
Table 3

*Schedule of Activities for Three Research Visits to El Salvador, January 2008, July 2008, and April 2009*

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRIP 1: JANUARY 17 – 26, 2008</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January 18</td>
<td>City tour of San Salvador</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 19</td>
<td>Meeting with biointensive farming expert</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 20</td>
<td>Meeting with Proyecto Presa</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 21</td>
<td>Tour Romero museum</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 21</td>
<td>Meeting with UN-FAO</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 22</td>
<td>Meeting with San Salvador National University</td>
<td>San Salvador</td>
</tr>
<tr>
<td></td>
<td>Nutritional Department</td>
<td></td>
</tr>
<tr>
<td>January 23</td>
<td>Site visit to Izalco farm</td>
<td>Izalco</td>
</tr>
<tr>
<td>January 23</td>
<td>Site visit to Izalco orphanage</td>
<td>Izalco</td>
</tr>
<tr>
<td>January 23</td>
<td>Observe live FMLN rally</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 24</td>
<td>Meeting with ROHFC board members</td>
<td>San Salvador</td>
</tr>
<tr>
<td>January 25</td>
<td>Coastal farm land tour</td>
<td>Costa del Sol</td>
</tr>
<tr>
<td>January 25</td>
<td>Boat tour of mangrove forests and river estuary</td>
<td>Playa del Sol</td>
</tr>
</tbody>
</table>

<p>| <strong>TRIP 2: JULY 3 – 28, 2008</strong> |                                                  |                                   |
| July 3              | Coastal tour of El Salvador                       | La Libertad Department            |
| July 3 – 16         | Field camp at beach house                         | Casa Tortuga, Playa Dorada       |
| July 4              | City tour of Sonsonate                            | Sonsonate                         |
| July 8              | Field tour of traditional campesino farm          | Playa Dorada                      |
| July 10             | Field tour of Sonsonate Department                | Sonsonate Department              |
| July 10             | City tour of Juayua                               | Juayua                            |
| July 11             | Host party for Izalco orphans at beach house      | Acahutla                          |
| July 12             | Field tour of farm land in Santa Ana Department   | Santa Ana Department              |
| July 12             | City tour of Santa Ana                            | Santa Ana                         |
| July 14             | City tour of La Libertad                         | La Libertad                       |
| July 15             | Field tour of Lake Coatepeque region              | Coatepeque Municipality           |
| July 16             | Site visit to Izalco farm                         | Izalco                            |
| July 21             | Site visit to Agua Blanca farm site               | Agua Blanca, Morazán              |
| July 22             | Meeting with Fundahmer representatives            | San Salvador                      |
| July 23             | Site visit to Izalco farm                         | Izalco                            |
| July 23             | Drop-off food donations at Izalco orphanage       | Izalco                            |
| July 23 – 24        | Rural farm land tour of Guatemala                 | Santa Rosa Department, Guatemala  |
| July 24             | Meeting with Canadian priest regarding            | Milpas Altas,                     |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 24 – 25</td>
<td>City tour of Antigua</td>
<td>Antigua, Guatemala</td>
</tr>
<tr>
<td>July 25</td>
<td>City tour of Guatemala City</td>
<td>Guatemala City, Guatemala</td>
</tr>
</tbody>
</table>

**TRIP 3: APRIL 11 – 23, 2009**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 15</td>
<td>Site visit to Izalco orphanage</td>
<td>Izalco</td>
</tr>
<tr>
<td>April 15</td>
<td>Site visit to biointensive demonstration site</td>
<td>Sonzacate</td>
</tr>
<tr>
<td>April 15</td>
<td>Site visit to El Jobo co-operative dairy farm</td>
<td>Sonsonate</td>
</tr>
<tr>
<td>April 15</td>
<td>Field tour of coastal farming countryside</td>
<td>Sonsonate Department</td>
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<tr>
<td>April 18</td>
<td>Meeting with American research student</td>
<td>San Salvador</td>
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<td>April 19</td>
<td>City tour of San Salvador central market</td>
<td>San Salvador</td>
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<tr>
<td>April 20</td>
<td>Attend professional soccer game</td>
<td>San Salvador</td>
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<td>April 21</td>
<td>Site visit to community organic gardens and solar pump set-up</td>
<td>Junquillo</td>
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<td>April 21</td>
<td>Site visit to Agua Blanca farm site</td>
<td>Agua Blanca</td>
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<td>April 22</td>
<td>Field tour of COMUS co-operative organic coffee plantation and processing plant</td>
<td>San Francisco de Gotera</td>
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<td>April 22</td>
<td>Field tour of rural coastal farm land</td>
<td>Usulatan, La Paz and San Vicente Departments</td>
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<tr>
<td>April 23</td>
<td>Thesis review with ROHFC representatives</td>
<td>San Salvador</td>
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</table>

### 2.2 Literature Search

 Academic literature and background information was accessed from the Vancouver Island Public Library, the Royal Roads University and University of Victoria libraries, the open internet (primarily through Google searches), and the online journal databases EbscoHost, EnviroNetBase, Oxford Journals, and Wilson Web.
3.0 DESCRIPTION OF EL SALVADOR

3.1 Geography and Climate

El Salvador is a small country on the Pacific Ocean side of Central America. It is the only Central American country without a Caribbean coastline. It has a total area of 21,040 km²; including 20,720 km² of land and 320 km² of water (CIA, 2009). It shares 545 km of land boundaries with Honduras (342 km) and Guatemala (203 km), and has 307 km of coastline (CIA, 2009). The country ranges in height from sea level to 2,730 m at Cerro El Pital, located along the Honduran border in the northwest (CIA, 2009).

El Salvador lies along the Pacific “ring of fire”, a term used to describe an area which is subject to significant tectonic activity, including frequent earthquakes and volcanism. The landscape is composed mainly of foothills and volcanic mountainous areas, with a narrow coastal belt and a fertile central plateau. There is approximately 30% arable land, 12% permanent crops, and 58% other land types (CIA, 2009). There is 450 km² of irrigated land (CIA, 2009). Natural resources include hydropower, geothermal power, petroleum, and arable land.

El Salvador is subject to severe weather conditions, including heavy rainstorms and severe droughts. It has a tropical climate with two seasons: the dry season, verano, between November to April, and the wet season, invierno, from May to October. Almost the entire annual rainfall occurs during the wet season, and mainly at night. Temperatures are based mostly on elevation. The coast is the hottest area, averaging between 22-32 °C;
central plateaus between 19-38 °C with dramatic seasonal variation; and cooler mountainous areas ranging between 12-23 °C (CIA, 2009).

The total area of the Morazán Department is 1,447 km². The Cacaopera communities are located at altitudes ranging between 600-800 m. The geography of Morazán is rugged and mountainous, with little contiguous arable land. The soil of the Cacaopera area is laced with clay and stones, limiting soil productivity. Deforestation and bombing during the war has further altered the physical landscape and deteriorated soil conditions.

3.2 History

The Pipil Indians, descendants of the Aztecs, likely migrated to the region in the 11th century (Foster, 2000). The area was originally named by the Pipil people "Cuzhcatl", which means "the land of precious things" (Perez-Brignoli, 1989). In 1525, conquistador Pedro de Alvarado conquered El Salvador for Spain and renamed the land Provincia De Nuestro Señor Jesucristo El Salvador Del Mundo, or, Province of Our Lord Jesus Christ, the Savior of the World (Foster, 2000). After years of struggle, El Salvador finally became independent of Spain on September 15, 1821, and of the Central American Federation in 1839 (Perez-Brignoli, 1989).

Since the 16th century, the Spanish system of land allocation created a strong oligarchy where only a handful of families benefited while the vast majority were poor (Foster, 2000). The inequality of agrarian land dispositions increased tensions in the country after independence. By 1979, the ruling elite, in alliance with the military, had produced a country that was polarized, impoverished, and unstable (Landau, 1993). This finally resulted in a rebellion by leftist insurgents that resulted in the Salvadoran Civil
War, between the years 1980-1992. The conflict took the lives of 75,000 people and was particularly known for atrocities on the part of the National Guard and extreme right-wing death squads organized to eliminate suspected leftists. The 1993 United Nations Security Council Truth Commission report concluded that 85% of human rights violations committed during the war were by government forces. The Reagan administration staunchly supported the El Salvador government with military aid during the conflict, under the guise of the Reagan Doctrine (Landau, 1993).

The war ended on January 16, 1992, with the signing of the Chapultepec Peace Accords, a treaty brokered by the United Nations. The treaty provided for military, political, and land reforms, but tension still simmers in the country as the division of wealth and resources remains greatly unbalanced (De Bremond, 2007). Emerging from the peace agreement, five factions of the former guerrillas formed the Frente Farabundo Martí para la Liberación Nacional party (FMLN) to seek office through free and democratic elections. Although the FMLN continued to make steady gains in the legislative assembly and municipal government positions, since 1989 the right wing Nationalist Republican Alliance (ARENA) party had won every presidential election. But on March 15th, 2009, the left leaning FMLN won the presidency for the first time, signaling a shift in the political ideology of the country.

3.3 Demographics and Culture

El Salvador is the most densely populated country in Central America. The global population of Salvadorans is approximately 7 million, consisting of 90% mestizo (mixed Native American and Spanish origin), 9% white and 1% Amerindian (CIA, 2009). Currently, almost one-quarter of the population lives abroad with over 90% of these
migrants in the United States (CIA, 2009). The country is divided into 14 departments, which are in turn subdivided into 267 municipalities. The capital city is San Salvador, with an approximate population of 1,517,000. Other major cities include Santa Ana, with 167,000 people, and San Miguel, with 145,000 (Chinchilla and Piedra Santa, 2006). The population of the Morazán department is approximately 235,000 with much of the department’s population isolated in small, rural communities (Chinchilla and Piedra Santa, 2006). The population of the 15 target communities in the Cacaopera municipality is approximately 3,250 (Fundahmer, 2008).

The United Nations ([UN], 2008) estimates average life expectancy in El Salvador at birth is 71.3 years (male – 68.2, female – 74.3). The sex ratio is 0.949 male(s)/female. The median age is 22 years (male – 20.9 years, female – 23.2 years) (UN 2008). The birth rate is 26.13 births/1,000 population; and the death rate is 5.6 deaths/1,000 population (CIA, 2009). The infant mortality rate is 22.88/1,000 live births (UN 2008). Total fertility rate is 2.99 children born per woman (UN, 2008). Population growth rate is 1.699% and net migration rate is -3.54 migrant(s)/1,000 population (UN, 2008).

The only official language in El Salvador is Spanish. Nahua is practised by some Amerindian groups. Approximately 83% of the population is religious, with the Roman Catholic religion practised by the majority of the population, and the rest belonging to other affiliations, including over 20% identifying with Protestant denominations (CIA, 2009). There are numerous Protestant evangelical groups active in the country. Intact indigenous cultures are largely non-existent in El Salvador, although the Cacaopera area has one of the few remaining indigenous cultures left. They are called the Lenca people.
(Amaya Amaya, 1985). The national sport of El Salvador is soccer. The national food is the *pupusa*, a cheese and bean filled soft tortilla.

### 3.4 Governance

El Salvador is a presidential representative democratic republic with a multiform multi-party system. The President is both head of state and head of government. Executive power is exercised by the government. Legislative power is vested in both the government and the Legislative Assembly. The Judiciary branch is independent of the executive and the legislative branches (Penland et al., 2006).

### 3.5 The Economy

El Salvador has the third largest economy in Central America, with a total gross domestic product (GDP) of approximately 22.28 billion in 2008 (UN, 2008). The average income per capita in 2007-08 was $5,255 (UN, 2008). Remittances, primarily from the United States, represented 12.1% of GDP in 1995; but rose to 16.7% in 2005 (CIA, 2009). In 2006, the country exported $3.5 billion worth of goods and imported $7.3 billion (CIA, 2009). The country received $199.4 million worth of foreign aid in 2005, of which $55 million was from the United States. (UN, 2008).

The total labour force is estimated at 2.96 million, and the unemployment rate is estimated at 6.8% (1996-2005 data), although the percentage of underemployment is estimated much higher (CIA, 2009). Between the years 1996-2005, employment in agriculture equaled 19% of total employment, industry 24%, and services 57% (CIA, 2009). As a percentage of GDP, the agriculture sector contributes 11.1%, industry 29.8%, and service sector 59.1% (CIA, 2009).
There is a significant disparity in income distribution in the country. In the period 1990-2005, an average of 37.2% of the population lived below the national poverty line, with 19% of the population earning below one dollar per day during this same period (UN, 2008). In the poorest areas of Cacaopera, the average family unit consists of five members with a monthly income of $75 per household (Fundahmer, 2008). To put this in perspective, prices of staple goods such as milk and eggs are nearly on par with the United States and Canada (e.g. a litre of milk in El Salvador costs approximately $1.25 in American currency).

With the adoption of the United States dollar in 2001, El Salvador lost control over monetary policy and must concentrate on maintaining a disciplined fiscal policy (De Bremond, 2007). In 2006, El Salvador was the first country to ratify the Central America-Dominican Republic Free Trade Agreement (CAFTA). CAFTA has bolstered the export of processed foods, sugar, and ethanol, and supported investment in the maquiladora (assembly plant) sector (CIA, 2009). The recent downturn in the global economy may have a significant impact on Salvadoran exports, and the amount of remittances the country is receiving from ex-patriots in the United States and elsewhere around the world.

### 3.6 Public Health and Education

Many Salvadorans struggle daily to meet basic human needs, including access to medical care, clean water, and an adequate and secure food supply. According the United Nations 2008 Human Development Index report (HDI), El Salvador ranks 101 of 179 countries. The HDI data shows that malnutrition affects 11% of the population, including over 10% of children under 5 years old. The HDI also concludes that 25% of children
under 5 are under height for their age. The department of Morazán has one of the highest indexes of poverty in El Salvador, making the families in this region particularly susceptible to malnutrition. According to a 2000 municipal FAO poverty survey for El Salvador, Cacaopera is classified as an area of extremely high poverty (FAO, 2000).

Major infectious diseases in El Salvador include the food or waterborne diseases bacterial diarrhea, hepatitis A and typhoid fever, the water contact disease leptospirosis, and the vector borne diseases dengue fever and malaria (WHO, 2008). The risk remains high for most citizens due to lack of sanitary living conditions, fresh water, and accessible public medical services, particularly in rural areas. According to the 2008 United Nations HDI report, only 3.5% of GDP is spent on public health, compared to Canada, where 6.8% of total GDP is spent on public health. Only 62% of the population has access to improved sanitation, and 84% access to an improved water source (UN, 2008).

Public education is available but typically only accessible up to 6th grade in rural areas. Combined gross enrolment ratio for primary, secondary and tertiary education is 70.4%, and 2.8% of total GDP is spent on education (UN, 2008). Compare this to Canada, where gross enrolment is 99.2% and 5.3% of total GDP is spent on public education (UN, 2008). A robust private school system exists that typically caters to wealthier clients. An emerging middle class is driving the expansion of the private system, but in rural areas such as Morazán the opportunities for private schooling are limited. The adult literacy rate, defined as those over 15 years old who are able to read and write, is 80.6% (male – 82.8%, female – 77.7%) (UN, 2008).
3.7 The Environment

The natural environment of El Salvador is highly disturbed; it is a small country with a long history of natural disasters and human resource exploitation. FAO estimates that El Salvador has lost 95% of its natural forest, equivalent to the second highest rate of deforestation in the world. Only 30,000 hectares of 120,000 original hectares of mangrove forest remain along the coast (FAO, 2005). More than 75% of the soil has been severely affected by erosion, and 95% of rivers are polluted (Instituto de Permacultura de El Salvador [IPES], 2009). Most agricultural soil in the country has been acidified due to the irrational use of inorganic fertilizers, pesticides, acid rain and other forms of pollution (Harvey et al., 2008).

El Salvador is party to international agreements on biodiversity, climate change, desertification, endangered species, hazardous wastes, ozone layer protection, and wetlands (CIA, 2009). Only 2% of lands are protected, in 62 officially protected areas. One wetland feature has been classified and protected as a Ramsar Site (WRI, 2009).

4.0 LITERATURE REVIEW

4.1 The Agrarian Crisis We Face

As human societies continue to expand and increased global conflict finds its origins in lack of soil and water resources, never has it been more evident that a shift in how we produce our food is required. Historically though, the shift to industrialized agriculture was viewed as a positive outcome of human advancement. As with other mechanized sectors of the economy during the 20th century, technology driven, corporate-run models of crop production were considered more efficient than traditional small-farm
models (Koepf, 1993). Prior to this time, agricultural food production was localized within individual communities and farming operations were typically family owned, labour intensive, and organically driven (Jeavons, 2001a). Agricultural production across the world doubled four times between 1820 and 1975, which was seen as a natural and necessary progression (Scully, 2002). Farming had to feed a global population of only one billion in 1800, compared to a staggering 6.5 billion in 2002 (UN, 2007).

With this rapid and unchecked expansion came significant cost. The impacts of industrial agriculture are widespread and significant, due in large part to the overuse of fertilizer, plant and pest controls, the proliferation of monoculture techniques, and the replacement of small independent farming communities with large corporate entities (Nelson, 2007). Prominent among these impacts have been deterioration of human health, disintegration of economic and social conditions in rural communities, groundwater and soil contamination, loss of species diversity, and topsoil depletion (Gliessman, 2006).

The issue is particularly alarming from a human perspective. The forces and processes emerging from industrial agriculture that have promised cheap food are now pushing food beyond peoples reach (Shiva, 2008). According to the United Nations Standing Committee on Nutrition (2007), an average of 850 million people worldwide were undernourished between 1999 and 2005. The food crisis poses the most immediate threat to the survival of the poor. It has emerged from two historical process, one long term – the industrialization of agriculture and the uprooting of peasants from their land – and one more recent – globalization and trade liberalization that has increased food costs and marginalized the value of local food production (Shiva, 2008).
Industrial agriculture has taken a significant toll on the social fabric of agrarian communities throughout the world. Most family run farms are unable to afford the land and equipment that is necessary to be economically viable within the current system (Pretty, Morison & Hine, 2004). Small-scale farmers in many regions have been forced out of the industry due to heavy competition from globalization and subsidized food production in other regions of the world (Jeavons, 2001a). With this increasing decline in local food production once thriving communities serving rural populations have deteriorated, and the traditional self sufficient life of a small farmer is rapidly disappearing (Pollan, 2006).

We are poisoning our landscapes with conventional farming practices. In the United States, 939 million pounds of pesticides are used annually, and an estimated 90% do not reach the target (Kristiansen, Taji & Reganold, 2006). A World Resources Institute report by Repetto and Beliga (1996) documented extensive human exposure to pesticides in Latin America and elsewhere in the developing world. Throughout Central America, increased nitrogen fertilizer applications have gone hand in hand with the widespread removal of shade cover from coffee plantations (Segura, 1993). Overuse of chemicals results in the contamination of rivers, streams and other water courses, impacting water quality, destroying aquatic life, and damaging ecosystems (Gliessman, 2006).

Monoculture farming practices deplete soil of vital nutrients, which then require greater amounts of chemical fertilizers to continue to grow productive crops (Jeavons, 2001a). In El Salvador, it is estimated that the average farmer needs to invest over $350 per year in agrochemicals and hybrid seeds, often representing half of their annual
income (IPES, 2009). Soil that is continuously planted with the same crop may also be more vulnerable to erosion because it becomes nutrient deficient (Jeavons, 1995). Over 30% of the world’s cropland has been abandoned in the last 40 years due to severe erosion and it is estimated that there may be as little as 40 years of farmable soil remaining globally if current practices persist (Gliessman, 2006).

Biodiversity has also suffered at the hands of industrial farming. It is estimated that 95% of seed varieties ever grown in conventional agriculture are now virtually extinct, largely due to the use of only a few specialized seed varieties for industrial harvest (Beeby, Doran & Jeavons, 2006). During the 1970s, the expansion of industrial-scale livestock and horticultural production, and peasant agricultural frontiers in El Salvador produced rapid and extensive deforestation, devastating the natural flora that existed (Hecht & Saatchi, 2007). Dietary diversity is also becoming a major concern among the developed countries, as they are beginning to recognize that although their diets are rich in calories, they lack the diversity that is required to prevent a number of vitamin and mineral deficiencies (Demment, Young & Sensenig, 2003).

Industrial agriculture uses massive amounts of water. It is estimated that industrial agricultural practices use 70-80% of the Earth’s available water, limiting access for other water uses (Nelson, 2007). Irrigation agriculture produces half the world’s food supply, with some countries relying on irrigation for 80-90% of crop production (Clay, 2004). Climate change is altering climate patterns and shifting hydrographs in rivers. According to 1998 climate change modeling conducted by the El Salvador Ministry of Environment and Natural Resources, changes in precipitation are expected in the country between
-11.3% to 3.5% by 2020, and between -36.6% to 11.1% by 2100. The World Food Program (2009) states that agriculture in El Salvador is highly vulnerable to climate variability, particularly to droughts and floods that are affecting the country on a yearly basis.

All of these problems are explicitly evident when one travels to El Salvador. In addition to the threats to food security created by industrial agriculture described above, other threats to food security in El Salvador include the prevalence of natural disasters, widespread poverty, insufficient food production, high food prices, and low education levels (Replogle, 2004). Already the most densely populated country in the American continent, the United Nations (2007) estimates that by the year 2025, the population of El Salvador will have doubled in size, further exacerbating the issues of food security. As livelihoods disappear and farmers abandon their land to pursue employment in urban centres, the problem compounds itself and the need for new methods of sustainable agriculture become even more prevalent. However, there are many barriers to realizing a fundamental change in the entrenched agrarian structure of El Salvador.

4.2 The Barriers to Agrarian Change in El Salvador

The conventional agricultural system in El Salvador is not sustainable due to a number of factors including natural geographical limitations, environmental degradation, socio-economic inequities in the agrarian structure, a breakdown in rural livelihoods, limited access to land, and political factors (Hecht, Kandel, Gomes, Cuellar & Rosa, 2006). The plight of the rural poor has been exacerbated by continuing inequities in the agrarian structure and the breakdown in rural livelihoods, and limited access to land and other assets is accelerating environmental degradation (McReynolds, 1998).
Stable societies require a stable foundation, and El Salvador has a long history of earthquakes, volcanic eruptions, and extreme weather conditions that have consistently disrupted the country’s physical environment along with its socio-economic structures (Foster, 2000). For example, Hurricane Mitch struck El Salvador in October 1998, destroying 20% of the corn crop and up to 100% of the bean crop in some areas, and displacing over 55,000 people (USAID, 1998). In 2001, a series of powerful earthquakes struck El Salvador, killing several thousand people and causing over 3 billion dollars in damage (USAID, 2002). As discussed by Hecht et al. (2006), geographical influences such as these have exacerbated the challenges the country faces in establishing economic prosperity, socio-economic equity, and environmental protection of natural resources.

Stressors caused by these multiple natural disasters likely tax personal characteristics of wellness, energy, and condition resources, intensify pre-existing stressors, and contribute to distress amongst the population, further exacerbating impoverished social and economic conditions (Sattler et al., 2006; Updegrowth and Taylor, 2000).

Compounding the challenges imposed by El Salvador’s susceptibility to earthquakes, droughts, and hurricanes, El Salvador has a deeply entrenched legacy of inequitable land distribution. Under Spain’s system of feudal land distribution, the Spanish conquest divided the lands into 14 family-owned “haciendas” (now the present day departmental divisions) and introduced a cash crop agricultural economy that still persists today, much to the detriment of rural communities (IPES, 2009). Major land reforms in the 1880’s, implemented to facilitate higher coffee production, outlawed communal forms of land ownership and resulted in the massive and rapid loss of communal lands controlled by indigenous communities (Paige, 1996). These reforms,
along with El Salvador’s high population density, created a situation ripe for exploitation by wealthy landowners, introduced fundamental structural changes in land markets, labor relations, business and financial organizations, and increased pressure on the land and labor required for subsistence agriculture (Perez-Brignoli, 1989).

Between 1898 and 1931, the country was presided over by an authoritarian and paternalistic system of oligarchical rule. A massive influx of foreign capital (primarily from the United States) following the First World War further tied the country to the foreign export market, resulting in an agrarian economy driven almost exclusively by coffee production (Perez-Brignoli, 1989). Labor unions began to emerge during this period but were outlawed in 1930, further limiting the opportunities of campesinos (landless peasants) to effectively organize and push for agrarian change (Dalton, 1972). A failed Indian and peasant revolt in 1932 led to further repression and the killing of several thousand peasants (Perez-Brignoli, 1989).

Following this unsuccessful revolt, power was handed over to a series of oppressive military regimes, backed by the country’s internal elite, that continued to exploit the country’s campesinos with low wages, limited access to land, and poor living conditions (Perez-Brignoli, 1989). After the Second World War, industrial agriculture took hold in the country, causing further divisive gaps between the wealthy and the landless. This was a time when illiteracy, over population, unjust distribution of resources, dominance of military regimes, penetration of western culture and the industrial north’s merciless exploitation of natural resources had already created an alarming threat of ecological destruction (IPES, 2009). The green revolution dramatically changed the countries agrarian structure as new export crops such as cotton were
introduced, vast areas of tropical forest were removed, and landless workers were consolidated in rural *pueblos* (towns) to support industrial farms (Foster, 2000).

Throughout the next three decades the repressive agrarian system continued to deteriorate social and economic conditions, particularly in rural El Salvador. Even though modest land reforms were implemented in the early 1980’s in an attempt to quell an uprising, the 1980-1992 Civil War was largely a peasant revolt against the oligarchy and their constant and heavy-handed control of agrarian land (Paige, 1996). During the war, massive displacement of the rural population occurred, and the rapid expansion of industrial agriculture, peasant farming, and livestock frontiers sharply declined as the countryside became too perilous to inhabit (Hecht & Saatchi, 2007). In the conflict zones of Morazán, the population was forced to flee to refugee camps in Honduras. They returned to communities whose infrastructure was totally destroyed, land poisoned by armaments, and deforestation and soil erosion caused by constant bombing (Vigil, 1993).

The agrarian reforms of the 1980’s and the 1992 peace accords distributed 401,232 hectares, a fifth of the national territory, to 120,597 beneficiaries. About 25% of the rural households in El Salvador received land under the programs (Hecht & Saatchi, 2007). Despite this land redistribution, during and after the war, hundreds of thousands of displaced people fled the country’s rural areas for urban centres, and approximately one-sixth of the population left El Salvador, mostly for the United States (Kandel 2002). The 1992 El Salvador National Census showed that the country’s population had increased 42% in 20 years and that for the first time the majority were concentrated in the main urban centres. This demographic shift resulted in significant changes to rural society and the major loss of community capacity in these already marginalized communities.
Compounding these challenges are the additional development challenges associated with reconstruction and national reconciliation experienced in countries during the post-conflict transition stage (del Castillo, 2001).

Although agricultural exports had been the main source of foreign exchange for all of El Salvador's history, by the mid-1990s farming had ceased to be the dominant economic sector, as the Chapultepec accords laid the basis for an accelerated integration of El Salvador into global capitalism (Robinson, 2004). As part of the political and economic arrangements imposed after the war, a suite of neoliberal policies was implemented that emphasized market-led rather than state-led forms of development, focused on urban-industrial sectors, promoted trade liberalization for food imports, and sharply limited credit to rural areas, all of which undermined the markets, economic support, and returns for small farmers (Cueliar, de Larios & Rosa, 2002). As shown in Figure 2, by 2000, the real return to agriculture had contracted to 27% of its value in the 1970s, creating a strong disincentive to produce, with the cost of production for most crops exceeding potential profits (Hecht & Saatchi, 2007).

Figure 2. Decline in relative prices of the agricultural sector in El Salvador, 1970-2000. GDP computed as an aggregate value for all agricultural goods, values are relative to 1990. Data source is the Central Reserve Bank of El Salvador (Hecht & Saatchi, 2007).
The civil war was part of this process. When land was expropriated during agrarian reform, protection of urban and financial assets became a higher priority than rural development for economic elites (McReynolds, 1998). After the war, experts in international development encouraged the retooling of El Salvador with a focus on the creation of low-wage assembly factories (Hecht and Saatchi, 2007). The national development model shifted from export agriculture to one based on industrial and banking services, even as half the population remained rural (Gwynne & Kay, 2004; Hecht & Saatchi, 2007). The migration of peasants from rural to urban centres created an economy of sweatshops and shanty towns, with prime agricultural land taken over by factories and housing developments (IPES, 2009).

The impacts of globalization in El Salvador are discussed by Hecht et al. (2006) and Gwynne and Kay (2004), including how new flows of labour, capital, commodities, and ideas have profoundly affected the rural agrarian economy and community structures. Today, most families are landless and forced to rent land which is often steeply sloped, unsuitable for farming and subject to severe erosion as the natural vegetation is removed (IPES, 2009). Although 64% of the Salvadoran population lives in rural areas, this portion of the population only owns 5% of the land (Gwynne and Kay, 2004). Prime agricultural land continues to feed the needs and luxuries of the wealthy north, whilst the impoverished rural population is forced to use methods of farming that ensure they can never rise above the level of mere subsistence, and their land is rapidly degrading, demanding more and more external inputs at ever increasing costs.
4.3 Hope Through Sustainable Agriculture

At its root, sustainability rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Government and Development, 1987). A growing movement has emerged around the world since the early 1970’s to question the role of the agricultural establishment in promoting practices that contribute to the deterioration of our environmental and social constructs (Beeby et al., 2006). Today, this movement for sustainable agriculture is garnering increasing support and acceptance within mainstream culture. Economic and social factors, such as world markets, the expanded roles of private industry, strong public emphasis on food quality and safety, and much greater environmental and societal expectations are all involved in this shift (Nelson, 2007).

The aim of sustainable agriculture is to create systems that are ecologically sound and economically viable, which do not pollute or exploit and are sustainable in the long term (Shreck, Getz & Feenstra, 2006). In El Salvador, the need to build sustainable rural communities which care for the land and its resources has never been more urgent. At the heart of sustainable farming practices is the need to return to small-scale community-driven practices, like the project proposed at Agua Blanca. The productivity of small-scale farms is being widely recognized by agricultural economists who call it the “inverse” relationship between farm size and productivity (Beeby et al., 2006). Helena Norberg-Hodge (2008) contends that one of the best ways of reducing both CO₂ emissions and poverty in the South would be to strengthen the existing, decentralised demographic pattern by keeping villages and small towns alive. This would allow communities to maintain social cohesion and a closer contact with the land.
Editor Vandana Shiva, in the book, *Manifestos on the Future of Food and Seed* (2007), describes the required steps to ensure food and agriculture become more socially and ecologically sustainable. The ideas are taken from the work and ideas of thousands of communities around the world, and the common theme for success is collaboration at the local level. Francis, Poincelot and Bird (2006) emphasize the need to understand and apply ecological principles in the development of more sustainable agricultural systems, and to forge partnerships between diverse stakeholder groups. The creation of broad-based social partnerships, according to these authors, is an important step in the move towards more sustainable agro-food systems.

Altieri (1999) discusses critical issues that must be addressed if a productive sustainable agriculture industry is to be achieved in Latin America. He states the system is dependent on new technological innovations, policy changes, and more socio-equitable economic schemes. Holt-Gimenez (2006) provides a Latin American model for building farmer capacity to use agro-ecology when solving problems and generating alternatives in their farming systems, empowering farmers to build local capacity, autonomy, and self-sufficiency. Johnston (2004) provides several grassroots examples of NGO-led initiatives in Latin America that have demonstrated increased biological productivity can be achieved through restructuring of small peasant farms, shared labour markets, and more efficient use of available resources. The Permaculture Institute of El Salvador has several grassroots organic agriculture programs in place to support marginalized communities. Their methodology is to support a process of empowerment in which communities build their capacity to understand their problems, analyze their needs, find solutions and develop the skills and resources needed (IPES, 2009).
4.4 The Benefits of Biointensive Farming

The primary method of food production utilized at ROHFC’s project at Izalco and proposed for Agua Blanca is biointensive farming; a technique developed and promoted by the California based NGO Ecology Action. Biointensive agriculture is an ecological and sustainable way to grow food, focusing on family consumption and small scale commercialization (Jeavons 1995; Jeavons, 2001a). The key component of the method is its focus on producing food while maintaining fertility of the soil from within the garden itself, primarily through composting and nutrient recycling (Ecology Action, 2009b). The techniques can be used to grow a wide variety of crops, and only open-pollinated seeds are utilized to ensure genetic biodiversity is maintained (Jeavons, 1995).

The origins of modern biodynamic agriculture developed out of a series of lectures given in 1924 to a group of farmers in Austria by Rudolf Steiner, an Austrian scientist and philosopher (Steiner, 1993). By combining Steiner’s biodynamic methods with other early 20th century methods of French Intensive agriculture, the modern biointensive system was derived. The movement continued to grow throughout Europe and in 1966 Alan Chadwick, an English master horticulturist, demonstrated the techniques on a 4-acre site at the University of California (Ecology Action, 2009b). A young researcher named John Jeavons eventually took the techniques to a research site in Willits, California, and subjected them to careful modification and testing, with the goal of always striving to produce the optimum yield from the smallest possible space (Jeavons, 2001b). Since 1972, Jeavons has been the core figure in developing the Ecology Action program. Since its inception, Ecology Action has been working to
develop biointensive programs in countries around the world, including Latin America through a partner organization called ECOPOL (Ecology Action, 2009a).

Although Ecology Action actively promotes these growing methods, in reality small-scale biointensive farming is as old as agriculture itself. It has really only been in the last 100 years that these time-tested methods have been abandoned for more industrial practices (Beeby et al., 2006). Over the centuries, many of the most basic biointensive techniques have been utilized throughout the world including ancient Greece, Africa, and Maya (Koepf, Petterson & Schaumann, 1976; Jeavons, 2001b). In El Salvador, there is ample evidence of indigenous Mayan and Pipil practice of natural agriculture in the region (IPES, 2009).

The benefits of utilizing the biointensive system are numerous, particularly in impoverished areas where land ownership is low and access to external resources is minimal. Biointensive methods allow communities to become empowered to facilitate local change. It is this focus that distinguishes this approach from most other agricultural techniques and frees the small landowner from crippling dependency on costly external inputs (Jeavons, 2001a; Ecology Action, 2009b). Because the sustainable farming techniques focus on minimizing external inputs, dependency on resources from agencies outside of the community is very low. These techniques have been utilized successfully throughout the world where soil degradation, lack of access to water, and lack of access to large pieces of agricultural land demand a mini-farming approach to crop production (Koepf, 1993; Jeavons, 2001b, Jeavons, 2001d).

Environmentally, the impacts of food production are significantly reduced because the biologically-intensive method requires much less land and resources to produce the
same yield of crops than conventional agriculture. Ecology Action study results have shown two to six times more food can be grown than using conventional methods (Jeavons, 1995; Jeavons, 2001c; Jeavons, 2001d). Results from studies conducted at the research farm located in Willits, California, have demonstrated that biointensive methods require 67% to 88% less water than conventional agriculture, 95% less energy, and 50-100% less fertilizers (Ecology Action, 2009b). The techniques also result in substantial soil quality improvements, resulting in the ability to sustain high levels of food production (Jeavons, 1995).

5.0 RESULTS AND ANALYSIS

5.1 General Field Observations

Although this thesis is focused on the application of sustainable agriculture, one cannot start to discuss El Salvador without speaking first of its troubled past and the wide gap between the rich and the poor that exists, for this affects everything else in a very profound way. When one goes to *el campo* (the countryside) he or she will quickly observe that a majority of families live under conditions of extreme poverty and hunger. They typically live in corrugated tin and cinder block huts with limited or no access to sanitation facilities, clean water, electricity, or a secure food supply. Often these houses are perched in steep ravines or along the busy highway. Most of the agrarian dependent family homes have only dirt road access and are bunched together with only a small yard to raise a few chickens. The families usually do not own this land, but instead rent it from wealthy landowners. If they have adequate space, their sustenance farms consist of
primarily corn and beans, which are required to feed large families, often with several generations living in one house.

However, every so often a large hacienda will appear on landscape, either on the top of the hillside or in a large walled compound on prime real estate in the plateau areas, or along the ocean waterfront. These are obviously the havens of the elite in the country. Even in the main city of San Salvador there is a striking contrast between the rich and the poor. There is one particular area that stood out to the researcher on the outskirts of the city. In the past, this area was still rural farmland. But over the years, the city limits have expanded to engulf this area. On the one side of the road a shanty town persists, next to the busy highway. On the other side, a massive development of shopping malls has been constructed that rivals anything you see in North America. Here, the flaws of capitalism are clearly evident.

A majority of the prime arable land is taken up by monoculture farming. For example, all along the Pan-American Highway that runs across the country from east to west, massive fields of sugarcane stretch as far as the eye can see, dominating the agricultural landscape. Other monoculture crops regularly observed include corn, cotton, pineapple, fruit orchards (e.g. guava, coconut, banana, mango, lemons), and lemon grass. Less productive arable land is taken up by industrial cattle ranchers and other industrial farm animal production. The mountains and higher elevation areas are utilized by coffee growers, with massive plantations that require major inputs of artificial fertilizers and pest controls.

The conditions for workers in these industrial agriculture industries are generally deplorable. There are no effective laws in place to protect workers from poor working
conditions or low wages. Because labour is so cheap there is little mechanization built into the process. It is not uncommon to see campesinos with backpack pesticide apparatuses spraying industrial crops with noxious substances. They typically have no respiratory or eye protection, and inadequate clothing to protect them from contact with the poisons and artificial fertilizers. Workers are often transported in the back of pick-up trucks with as many as 15-20 people in one vehicle. At harvest time, poor campesinos, typically only earning a few dollars a day, toil in the hot sun harvesting crops by hand for production at local factories or to be exported internationally. Most work at least 6 days a week for 10-12 hours per day. In short, the life of a campesino is hard.

5.2 Izalco Farm Site Analysis

5.2.1 Project Goals and Objectives

Since its inception in 2003, the main goal for the site has been to become a centre of organic agriculture production to feed the children of the Hogar de Inmaculado Corazon de Maria orphanage. The project also focuses on training marginalized people in the Sonsonate region of El Salvador to supplement their diets by learning and utilizing well-established organic biointensive agricultural techniques. Five main objectives are being targeted to achieve these goals (ROHFC, 2008).

1) Adapt biointensive techniques to Salvadorian climate, soils and plant species,
2) Train farmers from the region in basic agricultural skills who also agree to train other residents of their local communities,
3) Supplement the normal corn and beans diet of the orphanage with organically grown vegetables and fruit,
4) Develop marketing skills and contribute to the sustainability of the centre by selling a portion of the production, and,
5) Expose children to a working farm where they periodically help with planting, weeding and harvesting.

5.2.2 Site Description and Program Activities

The 1.2 hectare site is located off a 150 m long dirt access road, on the north side of the Pan-American Highway, approximately 300 m east of Izalco. The site is surrounded by a 3 m high cinderblock fence with large steel doors providing the only access. Once a farm pasture used to feed livestock, it is now a stunning mix of vegetation, with a great biodiversity of vegetables, fruit and medicinal plants and trees growing throughout the site (Figure 3, Photo 1). The site is totally organic and no expensive petroleum based fertilizers are used. The only insecticides and disease control are compatible with organic criteria and made from locally obtained plant materials.

A well was drilled in 2003 by ROHFC to provide water for a drip irrigation system, which reduces water consumption by 50% and allows continuous cultivation through the dry season. A majority of the beds now have irrigation piping infrastructure in place.
Figure 3. Representative photos of biointensive farming project site in Izalco

(Photos courtesy of Clara Qualizza, ROHFC Volunteer Coordinator, April 2009).

The site is organized into approximately 110 beds, each approximately 1.3 m x 8 m. The beds are prepared by loosening the soil to a depth of 0.6 m and mixing in compost developed at the site using food market waste, manure and crop plants. The crops are planted in closely spaced patterns to provide shade, to lower evaporation, and to discourage weeds. Companion planting is utilized to maximize productivity. Trees have been planted throughout the site to provide additional shading and protection. The site also has a greenhouse (Figure 3, Photo 2), overnight facilities, washrooms, an office,
floral gardens, stables for livestock and poultry, a processing area, and an organic composting facility.

A single farmer can manage about 30 beds (Figure 3, Photo 3). Each participant is trained for 3 months during which they are exposed to the cultivation of 30 species of organic vegetables (e.g. radishes, onions, corn, squash, lettuce, cabbage, peppers), medicinal plants (e.g. noni), and fruit (e.g. papaya, banana, mango, oranges, lemon). Farmers receive a modest scholarship during the training period that allows them to spend full time in training. The project has also supported two lead farmers to receive ECOPOL training in Costa Rica, which has been important to give them more understanding and confidence in using the biointensive methods. They now have been able to give speeches and training about the Izalco experience to different communities in the Sonsonate region.

A Professional Agrologist spends 1-2 days per week at the site to design the continuous production schedule and trouble shoot problems. The Leader Farmer and an assistant train 3 to 4 participants for each 3 month period. The hard work of these farmers has helped turn the project into reality. They are responsible for site irrigation, production harvest, weeding, compost making and applying organic fertilizers and pesticides to the crops, preparing beds, planting, and other tasks. The project Coordinator manages the project fiscally and develops business strategies to allow the basic functions of the centre to become self-supporting.

5.2.3 Site Production and Expenses

According to the ROHFC 4-Year Summary Project Progress Report (2008), the site has produced approximately 32 different types of vegetables in 109 beds and 9
different types of fruit (Figure 3, Photo 4). The total value of production generated at the site from 2005-2007 was $20,946, of which $17,153.00 went to the orphanage and $3793.00 to support farm expenses.

From 2005 to 2007, the site has produced 800 kg of organic fertilizer. The greenhouse has produced approximately 15,000 seedlings for future planting in the beds, 70 kg of tomatoes and 400 units of peppers. There are 700 mature noni trees in production. At harvest, noni is sold to the San Andrés Foundation, a local juice business.

ROHFC has invested $123,338.09 at the Izalco site between December 2003 and August 2007. During this period, the project has employed and trained 41 local farmers, with a total of $38,950.74 paid in salaries. The farmers come from rural areas and low income families, mainly from the towns of Izalco and Apaneca. A total of $17,025.00 has been spent on permanent infrastructure, including well perforation, water tank, water tower, irrigation system, green house, and store for compost. Direct production costs totalled only $5,534.25. Seed and supply donations have helped to keep this cost low.

Table 4 summarizes ROHFC project expenses at Izalco, December 2003 to August 2007.

Table 4

Summary of ROHFC Project Expenses, Izalco Farm Site, December 2003 to August 2007

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost ($)</th>
<th>% of Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTRUCTION AND CAPITAL EXPENSES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>17,025.10</td>
<td>13.80</td>
</tr>
<tr>
<td>PROGRAMMING EXPENSES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intern Farmers</td>
<td>35,276.74</td>
<td>28.60</td>
</tr>
<tr>
<td>Agrologist</td>
<td>22,116.73</td>
<td>17.93</td>
</tr>
<tr>
<td>Coordinator</td>
<td>28,626.09</td>
<td>23.21</td>
</tr>
<tr>
<td>General Labour</td>
<td>3,674.00</td>
<td>2.98</td>
</tr>
<tr>
<td>OPERATING EXPENSES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>5,342.14</td>
<td>4.33</td>
</tr>
<tr>
<td>Direct Production Expenses</td>
<td>5,534.25</td>
<td>4.49</td>
</tr>
<tr>
<td>Office Expenses</td>
<td>273.76</td>
<td>0.22</td>
</tr>
<tr>
<td>Bank Fees</td>
<td>611.72</td>
<td>0.50</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>Salary Taxes (Social Security)</td>
<td>4,857.76</td>
<td>3.94</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>$123,338.09</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>


5.2.4 Project Constraints and Challenges

Although the site is very productive and has a wide abundance of crops growing, observations made during this research study, along with feedback from Izalco project participants, indicates there are a few issues that hamper the site from reaching its maximum potential. First, there are conflicting visions for the site and its direction moving forward. The original intent of the site from ROHFC’s point of view was to be an open demonstration site, to provide local farmers the skills and knowledge required for utilizing sustainable agriculture and biointensive techniques. However, the land owner, which also manages and maintains the Izalco orphanage, has different opinions on how the site should be used and advertised. Often the project coordinator is unable to make the best business decisions for the site as they conflict with the vision of the land owner, who has the ultimate say in how the site will be developed.

The land owner has at times made staffing decisions for the site without consultation of the donor, ROHFC, including the occasional removal of interns and permanent staff. This high turnover results in staff members and interns that are less trained and thus less able to optimize production. The property owner also has control over which crops are planted and where on the site they will be located. There are many crops at the site that are mainly ornamental, or that do not provide enough caloric or nutrient return to justify their inclusion in the program. For example, a section of the farm is devoted to pineapple, which takes up a lot of space which each plant requiring up to 2 years for the production of a single fruit. More emphasis could be placed on growing high...
calorie, nutrient, and protein rich crops such as sweet potato, beans, peas, grains, and vitamin and mineral rich produce and fruits.

Although one of the main objectives of the site is to expose children to a working farm where they periodically help with planting, weeding and harvesting, it is apparent that this is not being achieved to its full potential. For ROHFC, it is very important to recognize the children as the centre of the project, this means to include the kids not only by improving their nutrition but in the agricultural training, processing and commercialization of the crops. The importance of this aspect of the program is to generate in the children the learning elements about organic food production and how to generate added value to other crops, so that can take these skills away with them to apply in their own lives when they leave the orphanage. Currently, there is no specific program in place to include the children in the farm on a regular basis. Although there has been a nutritionist contracted in the past, there is also no formal monitoring program to measure how effective the food program is in improving the nutritional status of the children.

Other challenges for the managers of the site include difficult weather conditions, a lack of access, investment in, and storage of high quality open-pollinated seeds, prohibitively high costs to get the site organically certified, and an overall lack of female participation. According to ROHFC project participants, inclement changes in the weather and the lack of seeds with open germination have done the most to reduce production, and this affects the commercialization aspect of the site, as the majority of the current production goes to the orphanage.
5.2.5 Future Opportunities

Since its humble inception, the site has grown into a place that is now garnering a lot of local interest. The site has received visits from over 170 people, including community farmers, non-governmental and governmental organizations, university students and teachers, and foreign visitors. All of them have concluded that the farm is the first biointensive centre in the country and is an excellent example for benchmark organic agricultural practice (ROHFC, 2008). The rich biodiversity and soil recovery has generated most of the interest amongst the different groups of people that have visited the project. The site has also been profiled on an El Salvador national television news report.

Local communities surrounding Izalco are beginning to develop similar programs. For example, through the efforts of a former Izalco trainee, in the nearby town of Sonzocate the local Catholic Church has started a community biointensive garden in its courtyard. Organic agriculture is also starting to gain prominence in local and national markets and if higher productivity could be achieved, along with better marketing and promotion of goods, then the Izalco site could generate even more profits for site operations than are already being realized. Given the success of the program and its unique contribution to improving agricultural practices in the region, other funding partnerships could also be explored to expand the program at its current site in Izalco and other interested communities in the area.

5.3 Agua Blanca Proposal Development

In September 2008, a funding proposal was submitted to CIDA, from ROHFC in collaboration with Fundahmer, for the proposed research and education centre in the canton of Agua Blanca. The proposal was jointly written by Brenda Carpio, the ROHFC
5.3.1 Project Goals and Objectives

The first step is to determine the goals and objectives of the project. The goals and objectives of the project were developed collaboratively between Fundahmer, ROHFC, and Cacaopera community leaders. A goal statement has been agreed upon as follows:

*To develop a sustainable agriculture training and education centre to benefit 15 communities belonging to the municipality of Cacaopera, Morazán, El Salvador.*

Five key objectives were developed to support this goal.

1. To contribute to organic and biointensive food production through education and training of sustainable agriculture techniques,
2. To improve food security by providing citizens of 15 Cacaopera communities the knowledge and skills needed to generate a balanced diet,
3. To improve environmental conditions in 15 Cacaopera communities,
4. To provide employment to citizens in six Cacaopera communities, and,
5. To market production surplus to generate revenues for the maintenance and expansion of the centre.

5.3.2 Site Description

The plot of land owned by Fundahmer is near the community of El Tablon, in the canton of Agua Blanca. The site has incredible potential for the proposed research centre
and farm. The site is located on a 9.8 hectare piece of land. At the top end of the site a flat lot exists that currently houses a small community chapel and the dilapidated home of the site caretaker and his family (Figure 4, Photo 1). The chapel is already a central meeting place for the community making it a very desirable location to construct the research centre and associated buildings. Currently, there is no electricity reaching the Cacaopera communities and a gas powered generator is set-up to provide a light source and power for the chapel. There is also no running water or proper sanitation facilities at the site.

The rest of the site is sloped with a broad south-eastern exposure (Figure 4, Photo 2). The site is fully fenced with 1 m high barbed-wire and wooden posts. There are many footpaths and trails throughout the property. There is currently a small organic subsistence farming operation on the site, growing typical crops including beans, cucumber, onions, and corn (Figure 4, Photo 3). These crops are tended to by local women of the Cacaopera communities. The farming infrastructure at the site is not well developed and significant improvements could be made to the soil and growing conditions using biointensive methods. Soil conditions are poor, consisting of rocky, clay laced soil. Without water capture and irrigation systems, there is likely dramatic variation in potential site productivity between the wet and dry seasons. In January, the site was lush and green, in April the site was extremely dry and desiccated. The property has been highly deforested and there is little tree cover for protection. The site would require the planting of trees to maintain slope stability and reduce erosion. A few mango and amarone fruit trees exist on the site.
Two water sources exist on the property. At the top end of the property a small ephemeral stream flows during the wet season only. A concrete and stone cistern has been constructed to capture stream flow for use in the dry season (Figure 4, Photo 4). At the bottom end of the property a second ephemeral stream exists that also only flows during the wet season. However, on the left bank a natural spring exists that flows year-round. Observations during the dry season confirmed continuous flow, but discharge is not high, and a cistern would be required to capture water for continuous use during the
dry season. The water would also be required to be pumped up to the farm site as the stream is at the bottom end of the property.

### 5.3.3 Risk Identification and Management

Risk identification and mitigation strategies are a key requirement within the CIDA application process and are critical to consider in advance of further planning of specific activities at the site. In consultation with project partners, stakeholders, and local Cacaopera community participants, a risk analysis was conducted in July 2008 to understand the challenges the communities face and identify any potential risk factors for developing the centre. Table 5 summarizes the results of the risk analysis, including an assessment of probability of risk occurring (low, medium, high), the scale of potential impact (low, medium, high), and the proposed mitigation strategies for each risk factor.

Table 5

*Results of Risk Assessment including Potential Risks, Probability of Risk Occurring, Scale of Potential Impact, and Proposed Risk Mitigation Strategies*

<table>
<thead>
<tr>
<th>Risk/Challenge</th>
<th>Probability</th>
<th>Impact</th>
<th>Strategies to Address Risk/Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental degradation, soil erosion, and deforestation</td>
<td>H</td>
<td>H</td>
<td>Land use plan to address biodiversity and deforestation, reforestation program for Agua Blanca land, education and training on environmental best practices, use of organic fertilizers and pest controls</td>
</tr>
<tr>
<td>Limited access to adequate water supply in dry season</td>
<td>H</td>
<td>H</td>
<td>Land use plan to address conservation, hydrological survey to assess water resources, construction of well and water storage facilities, drip irrigation and water conservation techniques to be utilized, farm methods and crop plans adjusted to consider water use, program for protection and management of water supply area</td>
</tr>
<tr>
<td>Malnutrition in communities that is affecting normal growth and human development</td>
<td>H</td>
<td>H</td>
<td>Nutritionist to assess and monitor most vulnerable beneficiaries, nutrition plans developed for beneficiaries, focus on farming for high calorie and nutritious food crops to improve the family diet, workshops about food preparation and nutrition</td>
</tr>
<tr>
<td>Risk/Challenge</td>
<td>Probability</td>
<td>Impact</td>
<td>Strategies to Address Risk/Challenge</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Access to adequate organic or open pollinated seed source</td>
<td>H</td>
<td>M</td>
<td>Identify interim source for consistent access to seeds, establish centre as community seed bank for organic and open pollinated seeds, training and education on seed collection and storage</td>
</tr>
<tr>
<td>Illiteracy in the population</td>
<td>H</td>
<td>M</td>
<td>Training and education programs using simple to understand applied techniques (e.g. hands on demonstrations, farmer to farmer mentorship programs etc.), support learning of reading and writing</td>
</tr>
<tr>
<td>Difficulty reaching collective vision among participant organizations and communities</td>
<td>M</td>
<td>H</td>
<td>Community participants invited to contribute and participate at all stages of project development and implementation, local traditions and customs considered in site planning, feedback loops built into monitoring processes</td>
</tr>
<tr>
<td>Project management for complex project involving multiple stakeholders</td>
<td>M</td>
<td>H</td>
<td>Selection of qualified personnel most suitable for project, development of strategic plan, utilization of project technical team, application of rigorous project management, reporting, monitoring and financial accounting systems</td>
</tr>
<tr>
<td>Breaking down social barriers and long held beliefs regarding farming techniques and traditional diet habits</td>
<td>M</td>
<td>M</td>
<td>Training and education on the advantages, benefits and nutritional values of different food, community outreach, provide inclusive community environment where all participants are welcomed, generate results at demonstration garden using sustainable methods to sway public opinion</td>
</tr>
<tr>
<td>Difficulty establishing working relationships with other community organizations in region</td>
<td>M</td>
<td>M</td>
<td>Close coordination and communication with other organizations, engagement early in planning process, exchange of experience, technical expertise and information, invitations to workshops and other events to build community capacity and solidarity</td>
</tr>
</tbody>
</table>
5.3.4 Proposed Program Activities

Based on the results of field observations, the risk assessment, and participatory consultation with project partners, stakeholders, and local Cacaopera community participants, six key program activities are proposed for facilitating centre development at the Agua Blanca site.

1) Develop land use plan and construct infrastructure for training centre,
2) Develop crop planning process and data inventory tools,
3) Develop sustainable agriculture training program,
4) Develop nutritional planning program,
5) Develop strategic agri-business plan to move site towards self-sufficiency, and,
6) Monitor and document progress.

The following provides a description of the specific actions required to deliver on each of the six proposed activities.

1) Develop land use plan and construct infrastructure for training centre

To meet the goals of long-term sustainability and the provision of a food production site that is completely organic, a detailed and comprehensive land use plan is required to direct future farming activities. This will be a first step, to occur prior to any further physical site development. The Project Coordinator, along with community participants and experts from the ROHFC project technical team, will engage in the development of the plan which will identify all critical land use components to be considered. These considerations include the location of physical infrastructure, irrigation and waste management system requirements, areas requiring reforestation, the location of ecological reserves, animal stables, and biointensive garden plot layout and design.
Once the land use planning process has been completed and the results approved by Fundahmer, ROHFC, and community leaders, the construction of training centre infrastructure will commence. Volunteer labour is critical to support construction of the centre, and the Cacaopera communities have shown strong support and willingness to dedicate significant time, effort, and resources to ensure the infrastructure requirements at the site are realized. The physical infrastructure proposed for the site includes adequate space for the regional offices of Fundahmer, a nutritional centre, a classroom for training and information workshops, lodging for site visitors, toilet facilities, an administrative area, and a food cleaning, sorting, and storage area.

The establishment of the biointensive gardens requires the construction of 100 garden beds, each about 30 m², the construction of associated natural compost systems, greenhouses, the installation of a permanent well (if feasible), and the set-up of water conservation and irrigation infrastructure. Purchased items will include sufficient seed for the garden, various gardening implements and supplies, chicken manure compost and straw to commence the composting process, irrigation tubing, a solar pump, and other required capital expenditures to get the site fully functioning. Reforestation on the property, particularly in the area where the streams are located, is also a high priority activity that will be started during this phase.

2) Develop crop planning process and data inventory system

It is recognized by all the project partners, stakeholders and community participants that for the site to be an efficient and cost-effective organic food producer, it must have a well developed and documented crop planning process in place. To facilitate this requirement, a Professional Agrologist from El Salvador with wide knowledge and
experience in sustainable agriculture and biointensive techniques will be hired to work with the Lead Farmer to develop and implement a detailed crop planning cycle for the site. ROHFC already has an Agrologist supporting the Izalco site who may be available to fulfill this role.

The Professional Agrologist and Lead Farmer will be responsible for crop planning and the establishment and maintenance of a data base to track all crop production, climate, and management impact data at the site. This database will be reviewed regularly to optimize growing techniques and crop yields. Target crops will focus on those which provide the most help for families to elevate their nutritional status, such as rice, manioc, sweet potato, amaranto, beans, and corn, plus a variety of herbs and vegetables. A portion of the site may also be devoted to value-added crops such as botanical oils, henequen, cacao, paxte, and morro, to generate a consistent revenue source that will help move the site towards self-sustainability.

3) **Develop sustainable agriculture training program**

A primary goal of the site is to be a place where local farmers can have access to training and technical assistance. This will empower the local community to generate change from within, thus not having to rely on or being subject to external forces for change to occur. The Project Coordinator, Agrologist and Lead Farmer will work closely with community stakeholders and participants to develop a training program directed at local farmers, using participatory education methods that can be understood by everybody. The curriculum will include the use of biointensive methods for cultivation of organic fruits and vegetables, reduction of chemical fertilizers and pesticides, soil conservation, respect for biodiversity, recovery of open-pollinated seeds, reforestation,
water use, storage and conservation techniques, recycling of nutrients through composting, nutritional requirements for families, small business development and product marketing.

The Coordinator will work with the community to develop the schedule and encourage participation in training sessions. She will also coordinate training courses on elements of marketing and small business. The centre will be the location of at least 4 workshops per year (corresponding to each crop cycle) for the transfer of sustainable agriculture technology. Additional courses on aspects of agro-ecology and marketing will be provided. Sessions will be targeted at both men and women in the community, thereby encouraging participation in crop production in their own yards and introducing them to aspects of small agri-business.

The establishment of the site will also result in the training of 6 farmer interns every six months (6 months per internship), for a total of 36 farmers trained at the end of the 3 year period. These farmers, who are recruited from the local Cacaopera communities, will reside at the demonstration site and participate in the daily activities and training developed for them. They will be trained in how to collect the data required for optimizing food production, and will be expected to engage in training programs and workshop sessions to teach other community members the techniques they are learning through their internship training.

4) Develop nutritional planning program

As malnutrition is a major problem in the target Cacaopera communities, a primary goal of the centre is to help alleviate this suffering. The first issue, the accessibility to a broad range of nutritious foods, is being addressed through the proposed
biointensive farming program. However, the community participants have also identified that one of the major barriers to maintaining a healthy and balanced diet is a lack of understanding in what foods are required for optimum nutrition. To solve this problem, a project nutritionist will be contracted to assess the nutritional requirements and deficiencies of the beneficiary population and to develop a nutritional plan. This program will be particularly targeted at those most vulnerable, which in the Cacaopera communities are typically children under 5, and women.

Based on results of the assessments, nutritional plans will be developed including recommendations to eat more rice, morro (horchata drink), amaranto, beans, corn, manioc, sweet potato, plus herbs and vegetables. All of these foods, with the exception of rice, will be the main crops cultivated at the training site. Training will include how to prepare nutritious, balanced meals and to diversify the diet using sustainable agriculture methods. Regular monitoring through site visits by the nutritionist will continue throughout the three year term of the project. Data will be collected and a summary of results will be included in annual reports for CIDA and ROHFC.

5) Develop strategic agri-business plan to move site towards self-sufficiency

Led by the Project Coordinator, the partner organizations and community participants will work together to develop a 5-year strategic business plan with the goal of self-sufficiency at the site. This activity will involve working with local businesses to identify opportunities for local farmers and companies, compilation of production and marketing details for locally adapted food and non food crops produced at the farm, as well as continual assessment of value-added opportunities. This plan will be reviewed annually. The Project Coordinator will also interface with local communities, businesses
and universities to build the profile of the project, to identify resources to meet the research and training goals, and to create marketing opportunities for garden products. It will be very important to coordinate activities with other organizations that have presence in Cacaopera to ensure the full benefit of the various programs is realized within the communities. The Coordinator will interface with San Salvador National University staff to develop linkages for environmental and sustainable agri-business training and research opportunities and work with international technical experts through translation and scheduling of training visits to the Agua Blanca site.

6) Monitor and document progress

With any project of this scope and complexity, it is critical to monitor results of activities to ensure efficiency is achieved, and changes can be implemented to make improvements moving forward. CIDA and ROHFC reporting requirements will be undertaken by the Project Coordinator and the ROHFC Project Liaison, George Bunz. Quarterly Progress reports and a year-end report and financial summary will be provided for each project year using CIDA’s required templates. Additional project statistics, employment records, crop records, financial information, nutritional data, meeting minutes, pictures and videos of operational activities will be recorded and maintained by the Project Coordinator and available any time for review by CIDA, ROHFC and Fundahmer.
5.3.5 Potential Beneficiaries

As part of the CIDA proposal application requirements, a detailed assessment of both direct and indirect project beneficiaries was conducted in each of the 15 target Cacaopera communities. Fundahmer communicated regularly to potential beneficiaries through community and house visits, workshops, and special committees developed to identify potential opportunities and barriers. The ROHFC Project Coordinator and other members of the organization have also travelled to the site several times to discuss the project with potential beneficiaries.

Building community ownership and capacity through the development of practical and transferable skills and knowledge is a major focus of the proposed centre, enabling beneficiaries of the project to become more self sufficient in their food production. People will be able to produce their own food, growing a variety of crops without needing high cost chemicals and seeds for production. This will reduce the need to purchase food from external markets. By removing dependency on expensive food imports, more resources will be available to direct toward education and other community activities to improve the overall quality of life for community residents. Both direct and indirect beneficiaries will see improved health conditions due to better diets, improved food security, and nutritional planning, and will develop community linkages and relationships that will help to support wellness over the long term. Beneficiaries of the project will also gain improved self esteem through training in different subjects of sustainable agriculture, economics, marketing, and nutrition, plus social, humanistic, and ethical elements which will provide them the necessary tools to be change agents within their communities.
Six communities were chosen to receive intensive training due to their close proximity to the property site, and their willingness to be leaders in program development and site construction. The primary direct beneficiaries from these communities are the 36 internship farmers. The intern farmers will each work for 6 months (2 crop cycles), to ensure that a comprehensive understanding of the sustainable farming techniques is acquired. The farmers will be provided with the tools they need for their participation and will be paid $200 per month. They will also be afforded agri-business training, and full access to communal resources available at the centre.

Following the first 6 months, as the initial six interns will be focussed on infrastructure development at the site, the remaining 30 internship farmers will be required to train six other “community trainees” in their target communities on how to utilize the sustainable agriculture techniques they have learned. The resulting 180 community trainees will receive sustainable agriculture training, access to education centre resources and technical expertise, nutritional planning and education, interchanging of experience with other similar projects and farmers from different areas, as well as agri-business training. These 180 trainees will then be expected to take the knowledge gained to engage and train interested people in the other target communities so that they can benefit indirectly from the training program.

Table 6 summarizes the direct community beneficiaries, who have already been identified within the six target communities, totalling 216 people (36 interns and 180 community trainees), of which 108 are women and 108 are men (who are supporting 137 children under 5 years of age).
Table 6

*Summary of Direct Beneficiaries from Proposed Educational Centre at Agua Blanca*

<table>
<thead>
<tr>
<th>Cantón</th>
<th>Community</th>
<th>Total Trainees</th>
<th>Trainees by:</th>
<th>Children under 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Agua Blanca</td>
<td>Hacienda</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Agua Blanca</td>
<td>Colón</td>
<td>62</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Estancia</td>
<td>El Rodeo</td>
<td>46</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Agua Blanca</td>
<td>Guacamaya</td>
<td>30</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Junquillo</td>
<td>Junquillo</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Agua Blanca</td>
<td>El Tablón</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td><strong>216</strong></td>
<td><strong>108</strong></td>
<td><strong>108</strong></td>
</tr>
</tbody>
</table>

Source: Community survey data to support CIDA funding proposal, collected by Fundahmer, June, 2008 (Fundahmer, 2008).

Other direct beneficiaries of the project include the Professional Agrologist, Lead Farmer, and a contracted nutritionist, who will all be provided a fair market salary for their technical expertise. The Fundahmer organization itself could also be considered a direct beneficiary, as it will receive financial assistance for program delivery, physical infrastructure construction and other property improvements on their property, and access to the expertise of the ROHFC project technical team.

Shown in Table 7, there are 15 communities in the Cacaopera municipality whose citizens will be engaged in the project as indirect beneficiaries (table does not include the 216 direct beneficiaries identified in Table 5 from the six direct beneficiary target communities). Indirect beneficiaries will receive training from the 180 community trainees and will also be afforded access to the research centre, including its nutritional and educational programs.
Table 7

Summary of Indirect Beneficiaries from Proposed Educational Centre at Agua Blanca

<table>
<thead>
<tr>
<th>Sub-Region</th>
<th>Community</th>
<th>Total population</th>
<th>Gender</th>
<th>Children &lt;5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Estancia</td>
<td>1. Tierra Blanca</td>
<td>472</td>
<td>254</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>2. Maculis</td>
<td>200</td>
<td>99</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>3. Copante</td>
<td>409</td>
<td>204</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td>4. El Rodeo</td>
<td>232</td>
<td>125</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>5. Presa</td>
<td>272</td>
<td>133</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>6. Naranjera</td>
<td>184</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>1769</strong></td>
<td><strong>907</strong></td>
<td><strong>862</strong></td>
</tr>
<tr>
<td>Agua Blanca</td>
<td>7. Colón</td>
<td>187</td>
<td>93</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>8. Flor del Muerto</td>
<td>104</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>9. Guacamaya</td>
<td>94</td>
<td>43</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>10. El Tablón</td>
<td>51</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>11. Hacienda</td>
<td>65</td>
<td>38</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>501</strong></td>
<td><strong>249</strong></td>
<td><strong>252</strong></td>
</tr>
<tr>
<td>Guachipilin</td>
<td>12. San Miguelito</td>
<td>151</td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>13. San Pedro</td>
<td>210</td>
<td>104</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>14. Colonia</td>
<td>329</td>
<td>175</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>690</strong></td>
<td><strong>354</strong></td>
<td><strong>336</strong></td>
</tr>
<tr>
<td>Junquillo</td>
<td>15. Junquillo</td>
<td>76</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>76</strong></td>
<td><strong>39</strong></td>
<td><strong>37</strong></td>
</tr>
<tr>
<td></td>
<td><strong>GRAND TOTAL</strong></td>
<td><strong>3036</strong></td>
<td><strong>1549</strong></td>
<td><strong>1487</strong></td>
</tr>
</tbody>
</table>

Source: Community survey data to support CIDA funding proposal, collected by Fundahmer, June, 2008 (Fundahmer, 2008).

5.3.6 Funding Requirements

Presented in Table 8, is a summary of expenditures at Agua Blanca over the proposed 3 year project period, another key component of the CIDA funding application. The main expenditures at the site will include construction and capital expenses, program delivery costs, travel costs, and operating expenditures. The total funding required is $354,896, with CIDA and ROHFC providing $266,172 and $88,724, respectively. The project funds will be managed in El Salvador by Fundahmer, who charge a 6%
administration fee, equalling $19,503 over the three year period. As per the CIDA overhead allowance policy, the 12% internal Canadian administration costs will be covered by CIDA, equalling $31,941, bringing the total funding request from CIDA to $298,113.

Table 8

Summary of Cost Estimates for Developing Research and Education Centre at Agua Blanca

<table>
<thead>
<tr>
<th>Item</th>
<th>Project Activities ($)</th>
<th>Monitoring Activities ($)</th>
<th>Total Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSTRUCTION AND CAPITAL EXPENSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training centre building &amp; lodging facility</td>
<td>50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm tools</td>
<td>1,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer and accessories</td>
<td>1,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation system</td>
<td>6,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water tank</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solar pump and panels</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse</td>
<td>2,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed stock</td>
<td>10,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial compost material</td>
<td>6,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAMMING EXPENSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Project Coordinator</td>
<td>46,130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Project Agrologist</td>
<td>31,968</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Nutritionist</td>
<td></td>
<td>36,905</td>
<td></td>
</tr>
<tr>
<td>1 Lead Farmer</td>
<td>18,453</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 Farm trainees</td>
<td>43,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPERATING EXPENSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>10,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle depreciation &amp; maintenance</td>
<td>11,250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle insurance</td>
<td>5,250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationary</td>
<td>3,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fundahmer admin &amp; monitoring (6%)</td>
<td>19,503</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contingency fund (~3%)</td>
<td>10,337</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJECT TOTAL</td>
<td>$317,991</td>
<td>$36,905</td>
<td>$354,896</td>
</tr>
<tr>
<td>CIDA 12% overhead allowance</td>
<td></td>
<td></td>
<td>31,941</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td></td>
<td></td>
<td>$386,837</td>
</tr>
</tbody>
</table>
If realized through CIDA, this project funding will provide a majority of the physical infrastructure required at the site for successful long-term project implementation. Ongoing operational and maintenance costs for the project beyond the 3 year CIDA funding period will be financed primarily through the production of marketable goods at the site (goods produced beyond the basic sustenance requirements of the local communities involved). Capacity building through training of local participants in small scale localized agri-business development will facilitate this shift towards self-sustainability at the site. Additional funding for long-term activities may be provided through ROHFC as a legacy funding agreement with Fundahmer. Additional partnerships and other innovative funding opportunities will also be sought through the strategic planning process. Volunteers from the local communities will be integral to project success and their continued engagement is expected beyond the CIDA funding window to minimize the financial resources that are required in the long-term.

5.3.7 Outputs and Performance Measures

To monitor progress effectively, a set of performance measures have been developed for each of the six proposed activities at the Agua Blanca research and education centre. Table 9 describes the measures, including the outputs and outcomes for each activity, and the performance indicators that will be tracked, documented, and reported on over the three-year CIDA funding period.

Table 9

*Summary of Outputs, Outcomes, and Performance Indicators for Six Activity Areas at Agua Blanca Research and Education Centre*
<table>
<thead>
<tr>
<th>Activity</th>
<th>Outputs</th>
<th>Outcomes</th>
<th>Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Develop land use plan and construct infrastructure</td>
<td>1.1) Approved land use plan document by June 30, 2009</td>
<td>1.1) Efficient and environmentally sustainable use of land and resources</td>
<td>1.1) Approval of land use plan document</td>
</tr>
<tr>
<td></td>
<td>1.2) Completion of required physical infrastructure by Sept 30, 2009</td>
<td>1.2) Community based meeting centre for exchanging information and building capacity</td>
<td>1.2) Training centre building constructed</td>
</tr>
<tr>
<td></td>
<td>1.3) Completion of water system for irrigation by Sept 30, 2009</td>
<td>1.3) Ability to plant and harvest crops on annual cycle through both dry &amp; wet seasons</td>
<td>1.3) number of cultivations under irrigation</td>
</tr>
<tr>
<td>2) Develop sustainable agriculture crop plan</td>
<td>2.1) Approved crop plan document developed with community input by October 31, 2009</td>
<td>2.1) Crop plan and ongoing monitoring will ensure maximum efficiency of scarce resources and yields</td>
<td>2.1) Approval of crop plan document</td>
</tr>
<tr>
<td></td>
<td>2.2) At least 7 different cultivations moved to production by December 31, 2009</td>
<td>2.2) Varied crops will diversify local diets, improve conditions of malnutrition, supplement incomes</td>
<td>2.2) Number of established cultivations</td>
</tr>
<tr>
<td></td>
<td>2.3) 100% of cultivations at farm free of chemical pollutants</td>
<td>2.3) Improved environmental conditions and reduced reliance on external inputs for crop production</td>
<td>2.3) Ratio of cultivations without pollutants</td>
</tr>
<tr>
<td>3) Develop sustainable agriculture training program</td>
<td>3.1) At end of 3 year project to have 36 farmers trained in sustainable agricultural methods</td>
<td>3.1) Increased community capacity and expertise to alleviate issues of poverty and food security</td>
<td>3.1) Number of farmers trained at site</td>
</tr>
<tr>
<td></td>
<td>3.2) Conduct 4 workshops annually for men and women on sustainable agriculture technologies</td>
<td>3.2) Increased community capacity and home grown expertise to alleviate poverty and food security</td>
<td>3.2) number of workshops conducted annually</td>
</tr>
<tr>
<td>4) Develop nutritional planning program</td>
<td>4.1) Database with information on beneficiaries suffering malnutrition</td>
<td>4.1) Through ongoing data collection over the term of the project malnutrition levels will decrease</td>
<td>4.1) Populated database of people, age and gender</td>
</tr>
<tr>
<td></td>
<td>4.2) Transfer of skills and knowledge for at least 7 cultivations to diversify local diets</td>
<td>4.2) Beneficiaries empowered with knowledge and skills to overcome caloric/protein deficiency</td>
<td>4.2) Number of families growing at least 7 crops</td>
</tr>
<tr>
<td>5) Develop strategic agri-business plan</td>
<td>5.1) Approved Business Plan document developed with community input by December 31, 2009</td>
<td>5.1) Provides identification of key components for moving site towards self sufficiency</td>
<td>5.1) Approval of Business Plan</td>
</tr>
<tr>
<td></td>
<td>5.2) 4 crops for agribusiness accepted by the families and into production by December 31, 2010</td>
<td>5.2) Marketable goods being produced in local communities and generating beneficiary income</td>
<td>5.2) Number value added products in production</td>
</tr>
<tr>
<td>6) Monitor and document progress</td>
<td>6.1) 4 quarterly reports per year</td>
<td>6.1) Continuation of CIDA funding</td>
<td>6.1) Approval from CIDA</td>
</tr>
<tr>
<td></td>
<td>6.2) 3 annual evaluation reports</td>
<td>6.2) Continuation of CIDA funding</td>
<td>6.2) Approval from CIDA</td>
</tr>
<tr>
<td></td>
<td>6.3) 6 workshops with men and women beneficiaries to measure the impact of the project (two every year)</td>
<td>6.3) Opportunity to assess lessons learned and adjust project activities to increase positive impacts</td>
<td>6.3) Number of workshops offered per year</td>
</tr>
</tbody>
</table>
5.4 Results of CIDA Application

In December 2008, CIDA responded by letter to ROHFC rejecting the Agua Blanca proposal in its current form (letter included as Appendix B). However, CIDA did not reject the proposal outright and provided feedback on several components of the proposal that could be strengthened in a second submission. Six key sections of the CIDA proposal template required improvements or additional information for a second submission to be considered, as described below.

1) Sector and Regional Context – requires more information about how other non-agricultural activities proposed at the site will be linked to the agricultural training component; what the specific conditions of local farmers are and if other training methods may be more appropriate, if the training curriculum is consistent with relevant government training curriculum; the need for a nutritionist; and more details on the national plans and strategies of the country to address agriculture and health issues.

2) Sustainability – proposal requires more information on how governmental services will be utilized for project delivery; financial details on how project will be maintained beyond CIDA funding period; and how the centre will be used and managed to ensure its intended purpose as an agricultural research and education centre can be maintained over the long-term.

3) Gender – proposal requires more information about the potential barriers that impact women’s participation and how the female trainees will be attracted and retained.

4) Project Beneficiaries – proposal requires more information on how indigenous groups will be engaged in the project; the rationale for intern salary amount; criteria used to
select trainees; and how volunteers will be engaged in project including what their roles and responsibilities will be in project delivery.

5) **Results Based Project Summary Table** – proposal requires better integration of non-agricultural activities proposed at the site with agricultural training component in outputs and performance measures.

6) **Environment** – proposal requires more information on the exact size and specifications of building construction; and more details on the type of irrigation system to be used, including volume of water required to be drawn, total volume available to be drawn, and potential impacts downstream of water withdrawal.

At the time of thesis completion, ROHFC and Fundahmer are weighing their options for the project and considering the merits versus effort required for submitting a revised proposal to CIDA for the Agua Blanca project.

### 6.0 RECOMMENDATIONS

The following recommendations are provided to ROHFC and Fundahmer for consideration.

**Recommendation 1: Address deficiencies in CIDA proposal and resubmit to CIDA**

The primary motivation for any NGO to undertake the enormously bureaucratic CIDA proposal process is financial; the potential for having funding contributions matched 3:1, and having administration costs for the approved funding covered by CIDA. ROHFC has a strong track record of obtaining CIDA funding for projects. This fact provides some comfort for the effort required to undertake a second submission. A significant amount of time and effort has gone into writing the original proposal, and
none of the comments received from the CIDA review are insurmountable to address in a second version.

The process of writing the original proposal also served as a tool for the sponsor organizations and the Cacaopera communities to focus on what is required at the Agua Blanca site, and how to plan strategically moving forward. Addressing the deficiencies outlined in the CIDA response will help to galvanize this collaborative vision and potentially strengthen understanding of previously unidentified risks and opportunities at the site. Future funding proposals to other organizations may also be strengthened by the additional information that is collected.

**Recommendation 2: Develop “Plan B” to move project forward if CIDA funding is not approved**

The proposed project at Agua Blanca has incredible potential to deliver sustained hope and improved quality of life for the citizens of Cacaopera. There is strong community will to see the project realized which is fundamental to success in the long-term. There is also a reasonably large parcel of available arable land, which is rare in the country, largely due to its inequitable agrarian structure. ROHFC has committed $30,000 per year as part of the CIDA proposal. There is, of course, a chance that CIDA funding will be granted to supplement this $30,000, but realistically this may not occur. Unfortunately, with recent changes to CIDA funding policy guidelines, and the major downturn in the global economy, the chances of receiving CIDA funding are likely worsened.

Even without external CIDA funding, the $30,000 per annum available through ROHFC could provide enough capital to see significant improvements at the site. The
strategic planning activities described in the CIDA proposal (and this thesis) could be downsized or stretched over a longer time frame to still be feasible under a reduced funding scenario. Activities would need to be prioritized more stringently with the focus initially on getting the strategic land use planning completed and the building, farm and irrigation infrastructure in place, and then, over time, moving into program development, including nutritional assessments and education, farmer training, and product marketing.

**Recommendation 3: Identify other potential funding sources and submit proposals**

Although CIDA has been a primary contributor to ROHFC in the past, there are many other potential funding organizations that could be tapped into. The proposed centre has many different positive attributes and thus has many potential angles for tailoring a funding proposal to a wide range of organizations, including those focused on poverty reduction, food security, sustainability, community capacity building, agriculture, education, welfare of women and children, and climate change. The $30,000 available through ROHFC could be utilized to leverage matching funding, similar to how CIDA has their system set-up.

Although each organization has a different template and set of criteria for approving funding, the work completed on the CIDA proposal for Agua Blanca will serve as an excellent start to any proposal template. As additional proposals are developed and submitted this “library” of existing knowledge and documented proposal requirements will continue to expand, making future proposal processes largely a cut and paste exercise from existing proposals. The focus for prioritizing the submission of proposals should be based on how closely the organization’s criteria match the project at Agua Blanca, and what the ratio of funding provision would be based on the input of the
applicant organization (e.g. CIDA provides 3:1 matching funds). Fundahmer may have some additional capacity to support this funding proposal writing process, and should be a key partner in developing any future proposal submissions collaboratively.

**Recommendation 4: Build collaborative partnerships and alliances in the region with other similar-minded organizations**

Building agency with other similar-minded organizations in the region is important to ensuring the long-term viability at the Agua Blanca site. By building local capacity in small-scale farming and agri-business, the resiliency of the entire network of organizations can be increased and additional economic resources can be generated and filtered back into the projects, thus strengthening the organizational infrastructure through a perpetual cycle. All of the participating organizations will benefit from the increased pool of knowledge and expertise that is available through the exchange of information, ideas and techniques that inevitably occurs as synergies are realized between groups with similar goals and ideals.

For example, existing linkages with Ecology Action and its partner organization, ECOPOL, could be formalized and expanded to provide additional resources and better exchange of information. The relationship with contacts in the nutritional department at the San Salvador National University could be formalized, and students could be utilized to support elements of the project such as the collection of monitoring data, or the development and delivery of training programs. Other local organizations have sustainable agriculture programs in El Salvador that may be relevant, such as the Foundation for Self-Sufficiency in Central America, and the Permaculture Institute of El Salvador.
Recommendation 5: Establish representative management board to facilitate ongoing site development at Agua Blanca

One of the key strengths of the proposed centre at Agua Blanca is the broad support it has from the local communities and the collaborative expertise brought to the table through both Fundahmer and ROHFC. The governance model established to foster this relationship at Agua Blanca must ensure that inclusivity remains in decision making, or fractures in this relationship may begin to appear. Rural citizens of El Salvador, and particularly in the war-torn Morazán region, may be very sceptical of outsiders who come strolling in promising positive change. This scepticism has been fostered over a long period of development projects that lead to high expectations with poor delivery of promised results and aid. Thus, the establishment of a management board with representation from all the stakeholders involved will be critical to ensure these relationships are maintained, nourished, and fostered over the long term. By combining the agricultural, environmental and engineering expertise of the ROHFC and the Fundahmer technical team with the local knowledge of a core team of engaged citizens in decision-making, the project will be better able to foster its long term goal of being a reliable and effective community resource.

Recommendation 6: Implement rigorous monitoring and reporting program

Given the project at Agua Blanca is still in its infancy, the opportunity exists to establish a formalized set of measurable indicators that is repeatable over time. The first priorities at the site should be to establish this set of indicators (including specific criteria to be adhered to) and to collect a set of baseline data that can be built upon in subsequent monitoring periods. This data could be used to identify trends over time and potential improvements to program delivery that may be implemented. As a strategic tool, reliable
and consistent monitoring can also be used by the sponsoring organizations to demonstrate success, which may lead to additional funding and resource opportunities that would not otherwise be available.

Documentation of these successes is also critically important, and formalized project reporting and information tracking procedures are required. Quarterly progress reports and a year-end report and financial summary should be completed. Examples of other things that should be documented regularly include monitoring data, purchasing records, employment records, crop records, financial information, nutritional data, meeting minutes, issue logs, and pictures and videos of operational activities. These records should be maintained by the Project Coordinator, stored electronically at the site, and available any time for review by sponsoring organizations and community participants. This will help to ensure transparency is maintained at the site and to reduce the opportunities for conflicts to occur related to the use of project resources.

**Recommendation 7: Continue to support project in Izalco**

The ROHFC project at Izalco has been very successful in demonstrating the potential for establishing sustainable agriculture in the region. It also continues to provide sustenance foods that improve the quality of life for orphaned children who have virtually nothing of their own. Although the site is productive and is able to generate surplus products for market, it is difficult to envision the site in its current structure ever being able to completely sustain itself. Thus, to continue, the program will require funding support on an ongoing basis. ROHFC should work with the Izalco project managers and land owner to establish what this funding arrangement should be.

However, funding should not be provided in perpetuity without addressing the fundamental issues that hamper the sites productivity and effectiveness. With the
recognition that many entrenched barriers exist at the current site that will make these changes difficult to implement over the short term, ROHFC should start to communicate directly with the land owner on how these changes could be implemented. For example, a consistent monitoring program using indicators of basic health in the orphan children could provide important information that may help to improve their dietary deficiencies on an individual basis. The children should also be more directly engaged in farming activities at the site, so that they can take this knowledge and translate it into useful life skills upon leaving the orphanage. This could be delivered through specific programs that teach them the methods of sustainable farming, the importance of dietary balance, and the techniques of small-scale agri-business and product marketing.

7.0 STUDY CONCLUSIONS

Sustainable agriculture practices such as biointensive farming have enormous potential for addressing the many issues related to conventional agricultural practices in El Salvador. Given its tropical climate, El Salvador has the potential to grow food year-round, unlike many countries in the north. One could imagine how different El Salvador might be if every home or community had an organic biointensive garden plot that provided a majority of the perishable foods required for the family unit. This shift in culture would have enormous benefits to help propel El Salvador towards a sustainable food system, improve the health of its citizens, and provide much needed food security for the most marginalized.

As demonstrated throughout this thesis paper, there are many challenges to overcome when considering a shift in El Salvador’s industrial agrarian structure to one that is more sustainable. The current agrarian situation offers little or no hope for the
thousands of rural families in El Salvador simply trying to survive. This situation, combined with the continued drive for profit by elite landowners and multi-national corporations, forces the majority of the population to abandon a sustainable long-term perspective, in which the health and wellness of the people and the land are a priority. Instead, short-term economic drivers perpetuate and encourage unsustainable practices to continue unabated. The challenges are daunting to overcome, but certainly there must be a better way forward?

From this researcher’s perspective, making the transition to sustainable agriculture is a process that requires a series of small, realistic steps. Although it is clearly evident that alternative techniques such as biointensive farming are much more sustainable and productive than current practices, the wide spread entrenchment of industrial agriculture restricts the real possibility of implementing alternatives on a broad scale. To facilitate greater acceptance of these alternative methods, a major shift in social values is needed, as merely introducing alternative farming designs will do little to change underlying forces that led to monoculture production, farm expansion, and mechanization in the first place. Thus, in addition to more technically based strategies for preserving natural resources and changing physical farm production practices, a sustainable food system for El Salvador requires a commitment to changing public policies, economic institutions, and perceptions around the importance of food security and environmental protection.

New public policies are needed in the Salvadoran farming industry to simultaneously promote environmental health, economic profitability, and social and economic equity. Without this shift in policy, sustainable practices will be difficult to
There are many potential options for developing new public policies in El Salvador. For example, land reforms could be expanded to provide more families secure access to usable land for subsistence farming, perhaps through a nominal tenure system. Subsidization and price support programs could be restructured to allow farmers using sustainable methods to realize the full benefits of productivity gains and environmental protection over conventional farming methods. Economic development policies such as micro-credit loans could encourage more diversified agricultural production on family farms as a foundation for healthy economies in rural communities. Furthermore, government, corporate, and university agricultural research policies could be modified to emphasize the development of sustainable farming alternatives. Development and enforcement of stricter labour laws is also required to protect vulnerable workers.

Achieving the goal of a sustainable agrarian system is the responsibility of all participants in the system. The "food system" extends far beyond the farm and involves the interaction of individuals and institutions with contrasting and often competing goals, including farmers, researchers, suppliers, farm workers, unions, processors, retailers, corporations, consumers, and policy makers. Each group has its own part to play, and its own unique contribution to strengthen the overall sustainable agriculture community. Stewardship of both natural and human resources is of prime importance, and consumers can play a critical role in creating a sustainable food system. Through their purchases, they can send strong messages to producers, retailers and others in the system about what is important to society as a whole. At the same time, to support the seller, new policies and institutions must be created to enable producers using sustainable practices to market their goods to a wider public.
Increased education is required to disseminate this shift and expedite change. All stakeholders must contribute to sustainable action, but changing social values is challenging, and must be tackled one person at a time. Education can play a key role in building public, corporate, and government support. In El Salvador, many campesinos are poorly educated and simply do not understand the hazards of conventional farming practices, nor the benefits of other more sustainable options that may be available.

Coalitions, community organizations, and other public forums can be important vehicles for educating people, clarifying issues, suggesting new policies, increasing mutual trust, and encouraging a long-term view of sustainable food production, distribution and consumption in the country. It is here where small community driven projects such as the existing one at Izalco, and the one proposed at Agua Blanca, are needed to demonstrate the viability and potential of these more sustainable options that exist.

Despite their turbulent history, the people of El Salvador are very resilient and seem to have an unbreakable spirit. It would be impossible to suggest that the problems faced by the majority of the country’s poor campesinos are due to a lack of hard work. From what this researcher has observed, at every level Salvadorans are extremely hard working, gracious, and humble. This applies to farm workers, restaurant staff, teachers and bankers, right across the demographic board. Given the opportunity and proper information there is little doubt substantive change could be realized. The recent national election has resulted in a shift in power from a right leaning government to the left. It will be very interesting to observe how this new government’s policies will affect future agrarian land distribution and the inequality of agrarian policies that currently exist.
8.0 REFLECTIONS ON PARTICIPATORY LEARNING

As described in the methodology, the objectives of using the participatory action approach for this research project were two-fold; to be an effective change agent for the sponsoring organizations and Cacaopera communities, and to achieve personal learning through life experience. Throughout this research paper, it has been demonstrated that the first objective has been achieved, and the analysis and recommendations will help ROHFC and Fundahmer move forward at Agua Blanca. Feedback from ROHFC members who reviewed the draft thesis confirmed that indeed this was the case.

The second objective – personal learning through life experience – has also been achieved. I have always had a strong desire to become involved in Latin America in some capacity. This ambition has been with me a long time, probably since I had the opportunity to travel there in my youth and early adult years. Thus, I have approached this project as the fulfillment of a long running dream, and have tried to participate openly and fully. I have got to see and do a lot along the way that has shaped me into a different person than when I started.

I travelled all over El Salvador and had the opportunity to speak with a diverse group of people, including representatives of the United Nations FAO, grassroots NGOs such as Fundahmer and ROHFC, agrologists, government officials, scientists, professors at the National University, students, engineers, farm workers, sociologists, farm owners, foreign aid workers, business owners, food exporters, doctors, community leaders, project leaders, campesinos, soldiers, social workers, mothers and fathers, teenagers, children, church leaders, priests, nuns, and orphans, among many others. This experience could not
have been realized without a participatory approach, and emerging from this experience are four key personal lessons learned.

First, there is no substitute for knowledge based on experience. From my perspective this is the only way to truly understand how local systems work and to connect with the local people who will be expected to implement change over the long-term. Much of the research today is based on case studies and literature reviews, with little field work taking place and even less concrete action emerging from these processes. Given the fragile state of our environment and food supply systems, we are running out of time for more research, what we need is tangible action towards effective change. To plot effective courses of action, one cannot only sit in their office plotting diagrams and developing budgets, they must get their hands dirty by engaging in the problem at the operational level, and meeting with the people most affected to discuss issues, consider options, and identify opportunities.

Second, when approaching different situations one must always have an open mind. Coming from the north, pre-conceived notions of the south are engrained in our mindset. For example, when one reads the Canadian government travel advisories for El Salvador, a picture is painted of a country that is fraught with danger and peril, filled with street gangs, dirt, and disease. However, in my 48 days in El Salvador, travelling all over the country, at times with my young family in tow, I never had one moment where I felt seriously threatened. In fact the opposite occurred, as the people everywhere I went were incredibly receptive and friendly, often going out of their way to make contact or to share what little they had. Until a tipping point is reached in our societies to have an open mind, and to use critical thinking to analyse the information presented to them, there will be
little hope for the massive shift towards the immediate actions that are required to address the challenges we presently face with food security at a global scale.

Third, as ROHFC affirms, a lot can be accomplished by ordinary people doing extraordinary things. Observed throughout the country during this research project, there are examples where grassroots change is starting to occur, such as the work ROHFC is doing in Izalco, or the work of COMUS in San Francisco de Gotera. This type of project is very important to bringing marginalized people an expectation and delivery of food security and hope, both fundamental to maintaining peace, reducing poverty, and protecting natural resources. The people engaged in these projects are investing their own resources, time, and money, driven solely by a want to improve the situation for local communities and the people who live there. They are truly ordinary people doing extraordinary things, and I am humbled and motivated by their actions.

Finally, what I have observed and learned the most from my experience in El Salvador is that while the south is always looking to the north for inspiration as they strive to further develop their nations, there is still so much the south has that we in the north should also be inspired by, including very strong internal ties to family and community. This is demonstrated by the compassion Salvadorans are willing to show to their families, friends and neighbours. I witnessed this compassion first hand over and over again during my time in El Salvador. This is particularly true in the campo, and may be simply a result of the need to work together to survive the hardships that are a daily reality. However, I believe these values have in many respects been lost from our daily practices in northern culture, and are critical to maintaining a sustainable society.
I am an avid organic gardener and am always seeking to learn more about sustainable growing methods. It is very rewarding to provide for yourself and your family in such a basic way. I am a strong believer in the potential of community-driven small scale organic farming to improve the security of our food production systems. It is my hope that the knowledge and experience learned through this research project will provide benefits to other communities and grassroots organizations I have the opportunity to work with in the future. To help build towards solutions for a more just and better managed world, one community grown organic carrot at a time.
9.0 REFERENCES


Appendix A: SSHRC Grant and Pacific Leaders Scholarship Acceptance Letters

March 16, 2006
Our ref.: 766-2006-0203

Mr. Bradley J. Smith

Dear Mr. Smith:

I am writing on behalf of the Social Sciences and Humanities Research Council to advise you of the outcome of your application for a Canada Graduate Scholarship in the Master’s program.

It is my pleasure to inform you that the Council is able to offer you a scholarship, valued at $17,500 for one year. You will find enclosed a Notice of Award.

I would like to draw to your attention two of the conditions of the CGS Master’s Scholarship: the first is that to be eligible to hold the award, you must be registered at a Canadian university; the second is that you must be pursuing full-time studies that lead to a Master’s degree in the social sciences or humanities.

For complete information regarding the conditions for holding the award, as well as the information you will need to accept or decline your award and to activate it, please consult the SSHRC Website at:
http://www. sshrc.ca/web/using/felliguid_e_A/intro_e.asp

On behalf of the Council, I extend my warm congratulations and wish you every success in your studies.

Yours sincerely,

Adèle Savoie
Acting Director
Fellowships and Institutional Grants Division

Enclosure
March 10, 2008

To: Brad Smith
   Strategic Land Policy and Legislation
   Agriculture and Lands

Re: Pacific Leaders Scholarship Program for Public Servants

Congratulations on being selected as one of the recipients of the Pacific Leaders Scholarship for employees of the BC Public Service. All approved recipients have been awarded 75% of tuition and 75% of books to the maximum allowed for their course of study (with the exception of "grandfathered" applications). Disbursements are being administered by Terry Bonin in CSD's Finance and Administration Branch. Below are details of the process for receiving funds through the Program.

Once you have registered for Masters in Environmental Management at Royal Roads University and paid for your tuition and books, please submit your receipts for tuition and books to Terry directly @ 2nd Floor - 2975 Jutland Road, Victoria. With your supervisor's (and/or Authorized Expense Authority) assistance, please provide us with the financial coding to which your tuition and books will be charged. More information on the reimbursement process can be found on the Training and Development site of the HR Strategies Intranet located at http://cssdeww.bcgov/hr/Train_KHR_wis/index.html.

Upon successful completion of your approved study period, you must submit copies of completion and/or pass marks to the HR Strategies Branch. The ministry may require the repayment of the full amount of all scholarship amounts, pay, benefits and other expenses, or part thereof in the following instances:
   a. failure to maintain a satisfactory standing in your course of studies;
   b. failure to resume employment with the public service on completion of the course of study; or
   c. termination of employment with the public service before completing the return of employment agreement.

If you are pursuing a multi-year program, you must re-apply for funding for subsequent years and also include a copy of your completion and/or pass marks. Your future funding will depend on your strong academic achievement and clear documentation, supported by your supervisor, of how the program supports your career goal in the BC Public Service.

HR Strategies Branch,
Corporate Services Division

Serving the Ministries of:
Agriculture and Lands,
Environment, Integrated Land Management Bureau and the Environmental Assessment Office

Malline: Location:
Every effort will be made to process disbursements as quickly as possible. However, if due to hardship you are unable to pay for your tuition and books, you may wish to enquire about receiving an accountable advance. Where this is the case, please consult Core Policy 4.3.9 Advances – Other Accountable Advances for accountable advance procedures.

As you are receiving reimbursement for your tuition and books, you are not eligible to claim a tuition tax credit for the amount of the tuition fee reimbursement you have received from the Pacific Leaders Scholarship for Public Servants Program. In addition, the income tax education amount is not available when your tuition fees are paid for or reimbursed by your employer or when you receive remuneration while taking courses in connection with your duties of employment.

Congratulations on being selected for a Pacific Leaders Scholarship. If you have any questions about the program, please contact

Yours truly,

Rhonda Gluns, CHRP
Manager, HR Planning

pc: Allan Lidstone
December 19, 2008

Brad Smith
Ministry of Agriculture and Lands

Dear Brad Smith:

I am very pleased to advise you that you have been selected as one of the recipients of the Pacific Leaders Scholarships for employees of the BC Public Service.

Your scholarship will provide 100 per cent of the cost of tuition and books up to a maximum of $5,000 per year for undergraduate degree, diploma and certificate programs, and $7,500 per year for master’s or PhD programs at designated educational institutions to support your continued professional and career development this year. If you are pursuing a multi-year program, funding for subsequent years will be dependent on your strong academic achievement and clear documentation, supported by your supervisor, of how the program supports your career goal in the BC Public Service. You will be contacted by a representative of your ministry/organization in the near future to confirm the details of your scholarship.

On behalf of all members of the BC Public Service, thank you for your contribution to our organization. The professionalism and talent of our employees has never been more important than it is today and I commend you for working to expand your skills and advance your career as we all work to meet the needs of British Columbians.

Congratulations on being selected for this scholarship and best wishes for your continued success in a rewarding career with the BC Public Service. If you have any questions about the program, please contact

Sincerely,

Jessica McDonald
Deputy Minister to the Premier
and Cabinet Secretary
Appendix B: December 2008 CIDA Agua Blanca Proposal Evaluation Letter

Mr. George Bunz  
President  
Rainbow of Hope for Children Society

Subject: Results of the evaluation of your proposal submitted to the Voluntary Sector Fund

Dear Mr. Bunz:

We would like to thank you for your proposal entitled “Development of Education and Training Centre for Sustainable Agriculture at “Agua Blanca” in the Morazan Department of El Salvador” submitted to the Voluntary Sector Fund (VSF) on September 08, 2008.

We have reviewed the application and documentation submitted by your organization. We recognize the importance and relevance of supporting local farmers in the very poor area of Cacaopera in El Salvador, but for a number of reasons explained below, we have the regret to inform you that your proposal has not been retained for funding.

**Sector and Regional Context:** The proposal does not provide enough information to help explain the need for and the feasibility of your project. The main points are the following:

- The purpose of the project is to develop a sustainable agricultural training and education centre and activities mainly target agricultural and nutritional activities. However, other training activities, such as tailoring, carpentry, human and gender rights and culture, are also mentioned in the proposal, without any explanation as to the gap that they help to address or the links with the agricultural training component of your proposal.

- With reference to the specific agricultural training activities, the proposal does not provide sufficient details on the farmers’ specific conditions and needs in the project area, and does not describe why the approach chosen to build a training centre is the best option. The proposal does not indicate whether other approaches, such as training farmers within their communities on demonstration plots on individual’s pieces of land, have been discussed. Also it would be helpful to know how local farmers were involved in the decision to build a centre for agricultural training activities;

- The proposal should indicate whether the agricultural training’s curriculum is recognized by or consistent with the relevant government curriculum;

- With reference to the specific nutrition component of the project, the proposal does explain why there is a need to hire a nutritionist;

- In order for us to understand how the project is in line with El Salvador’s national priorities, details on the national development plans and strategies of the country
in the sector of agriculture and health and how they relate to the project, should be included in the proposal.

**Sustainability:**
- The proposal should provide additional information on how the governmental services were involved in the planification of the project and whether they will have a particular role during and after the project to sustain the Centre;
- The proposal mentions that activities will continue after the project funding ends and will be financed through the production of marketable goods. The proposal should therefore include financial details showing how the financial sustainability of the centre will be achieved. What are the projected revenues from all sources? What are the recurrent expenses associated with the building? This information can be part of the proposal itself or annexed separately;
- As for the management of the centre after the end of the project, the proposal mentions both the role of the local partner FUNDHAMER and that of a core team of trained citizens. The proposal should clearly explain how the centre and the building will be used and managed, clarify the role of stakeholders involved and provide details on the cited team of citizens (i.e. trained on what, when, by whom and with what money);
- How can the project ensure that, in the long term, the centre built on the local partner's land will be used as an agricultural training/education centre.

**Project Beneficiaries:**
- Additional information on how indigenous groups were involved in identifying traditional crops and techniques that were or will be added to the plan crop should be included in the proposal;
- Additional information on the rationale supporting the payment of the trained farmers, and on how this constitutes a sustainable practice is needed;
- The proposal should explain how farmers who do not have a family farm will be able to benefit from the project;
- Details on the criteria to be used to choose the trained farmers (training interns and community trainees) should be included in the proposal;
- Details on how community trainees will train other farmers should also be included;
- The proposal also mentions that volunteers will be integral to the success of the project, but does not provide details on who the volunteers are, their role and on how their interest will be sustained through the years;

**Gender:**
- The proposal provides good knowledge of the gender issues in the project area. It indicates that 50% of community trainees would be reserved for women. However, details should be added on how the project will address concerns about barriers that impact women's participation in the agriculture sector and on how it will attract women as trainees since, as indicated in the gender issues of the proposal, only 8.7% of women are active in this sector.
• Result Based Project Summary Table:
  - Some activities, such as tailoring, carpentry, human and gender rights and
culture, are mentioned in the proposal but are not part of its main description nor
do they appear in the Result Based Management Table. Consequently, It is not
clear whether the centre will be an agricultural/education centre or a
multi-purpose community centre. The overall project objectives, activities and
results should be well integrated in the description of the project and into the
logic chain for results of the Result Based Project Summary Table.

• Environment:
  - The proposal does not specify the exact size of the building to be constructed.
Since the Canadian Environmental Assessment Act may be triggered, the
proposal must specify the exact footprint and height of the building and provide
an Environmental Assessment if the building exceeds 500 square meters;
  - The proposal should also provide details regarding the irrigation system to be
used: the volumes of irrigation water it is expected to draw from the water
source and the capacity of the water source to provide that amount of water, the
impacts of the water draw on downstream populations using the water.

Please note that a re-submission could be sent to the VSF provided that the above cited
points were addressed. Resubmitted proposal should be sent electronically to

If you have any questions about these points, please do not hesitate to contact me by phone
at    or by email. Thank you.

Sincerely,

Christine Mageau
International Development Project Officer
Voluntary Sector Projects
Canadian Partnership Branch