

Barzakh Falah

Georgeville, Belize



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TABLE OF CONTENTS

| | |
|---|-------|
| Acknowledgments..... | 1 |
| Introduction..... | 2 |
| Background..... | 3 |
| Problem Statement..... | 4-6 |
| Methods..... | 7- 11 |
| <i>Orphanage Model Research</i> | 7 |
| <i>Media</i> | 8-9 |
| <i>Land Use</i> | 9-11 |
| <i>Volunteering</i> | 11-12 |
| Results and Findings..... | 13-15 |
| Recommendations..... | 16-18 |
| Works Cited..... | 19 |
| Appendices..... | 20-45 |
| <i>Appendix A-Literature Review</i> | 20-33 |
| <i>Appendix B-Farm Development Manual</i> | 34-36 |
| <i>Appendix C-Tilapia Pond Manual</i> | 37-45 |
| <i>Appendix D-Goat Herding in Belize</i> | 46-52 |
| <i>Appendix E-A Guide to Education Approaches</i> | 53-62 |
| <i>Appendix F-Weekly Summaries</i> | 63-64 |
| <i>Appendix G-Brochure</i> | 65-66 |

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INTRODUCTION

Nancy and Jaime Marin conceived the idea of Barzakh Falah with the intention of improving the quality of health and life for the orphaned, abused, abandoned or forgotten children of Belize. In 2007, UNICEF estimated there were 5,500 children between the ages of 0-17 orphaned due to a variety of reasons (UNICEF, 2007). With the growing orphan population in Belize, due to demographics and worldwide economic crisis, the needs of the orphans has increased while the government and public response and support has decreased. Barzakh Falah strives to offer a supporting and nurturing living environment for these abandoned children while exemplifying the possibility and benefits of living entirely sustainable in a farm setting. The partnership with Barzakh Falah and our Applications of Sustainable Development group was created in order to assist with on-site construction of the orphanage buildings, farm structure and design, and necessary research. The following report describes the development of our partnership with Nancy and Jaime Marin and the progress we have made throughout the past semester. Included in the following report are background information, methods, outcome, and recommendations for the future of the Barzakh Falah project.

BACKGROUND

Barzakh Falah an organization focused on “sustainable farming for a foster care ranch” is founded on the mission statement;

“We believe that every child has the right to grow and develop in a healthy and safe environment and in a cooperative atmosphere of care, love, stability, and hope. These children deserve a sense of belonging in an atmosphere where they learn to care for one another, care for the plants and animals, and care for the. This shared experience evokes the feeling that they are a part of something worthwhile, something grand, which pulls everyone together and renews their spirits.” (Barzakh Falah, 2006)

Barzakh Falah strives to fulfill their mission by abiding to a framework of the following goals: “Provide a safe home, food security, sustainable lifestyle, trust and love therapy, economic self reliance, and educational and spiritual guidance.” (Barzakh Falah, 2006)

The orphanage was founded in June 2006 and is currently undergoing construction with plans to house children by December 2010. The Marins are local philanthropists who left behind their careers to make their dream a reality. Upon inheriting 25 acres of land from her grandfather, Ms. Nancy knew immediately this would be the future site of Barzakh Falah. The completion of the orphanage’s infrastructure is dependent on efforts from local and international volunteers as well as financial support from outside funding and donations.

PROBLEM STATEMENT

As a developing country, Belize struggles to overcome many challenges and social issues associated with the country's state of poverty. As noted earlier, there are currently about 5,500 orphaned children residing within Belize, many of whom are victims of abuse, neglect, and prostitution (UNICEF, 2007). Presently, there does not exist sufficient infrastructure to house and care for all of the orphaned and abandoned children within Belize. The lack of accessible orphanages and children's homes has sent countless amounts of children into the foster care system or into the streets to fend for themselves. As would seem obvious, maintaining a safe and healthy livelihood on the streets as child is not easy by any means. These abandoned children stripped of a proper home become subject to violence, rape, hunger, disease, and a number of undesired conditions. Unfortunately, the foster care system within Belize does not offer children much escape from these circumstances. From conversations with Mrs. Marin, it was revealed that several children sent into foster homes are sexually abused, neglected, or in other ways inappropriately cared for. The conflicts surrounding the foster care system originate from many families taking in foster kids solely for the government stipends they receive for the children. Considering the foster care system fails to provide adequate care and does not function as a proper form of upbringing for orphaned children, there seems to be a need for more permanent children's homes within Belize.

Along with the lack of currently existing children's homes, there are many defects concerning government policy on the orphanage system. Presently there is a law in effect stating children are not permitted to reside at a location for longer than 3 months (Mrs. Marin, 2010). This forces children into a constant state of uprooting and relocation, which has several detrimental effects on the child's development. In addition, the government only allocates 10 BZ

dollars a day per child within orphanages. The Marins have pointed out that in order to provide basic necessities of food, water, shelter, clothing and education, it is critical to have more than 10 dollars allotted for each child. Another detrimental policy is the dismissal from the system at the age of 16, usually without guidance or employment, sending them back to the streets from which they came. The problems Barzakh is currently facing are finding a way to alter the three-month policy, raise the maximum age to remain in the system, in addition to either receiving more government funding or finding a constant and sufficient source of outside funding.

In response to the monetary concerns and an environmental consciousness, the Marins decided to make Barzakh Falah agriculturally self-sustaining. This addresses the problem of monetary restrictions because after the initial cost of construction, the farm can be maintained to require little financial input. The ideas of a self-sustaining farm will not only make the orphanage more financially secure, but will provide much needed stability for the orphans. As discussed earlier, the Belizean orphanage system leaves much to be desired. Between early removal from and disorganization in the system, the few orphans who make it to an orphanage are not always provided with a safe, stable environment. Barzakh Falah will strive to fix this problem by providing children with an atmosphere fostering environmental stewardship, hard work and outdoor activities. This goal provides a series of issues that must be addressed. Most importantly is the question of agriculture. In order to be self-sustained, Barzakh must be able to produce enough nutritious food to adequately provide for the orphans and caregivers. To achieve this, the farm needs to be designed to provide seeds and seedlings for the next year's crop and to keep the soil intact and healthy. Beyond the needs of the agriculture and livestock, the land must be used in a way that provides recreation and living space for the children. These are the issues

associated with sustainability that must be addressed within the agriculture realm of the Barzakh Falah organization.

Organizations requiring volunteers need a substantial presence of support and encouragement. Prior to our partnership, Barzakh Falah had minimal media representation locally and internationally. Our objective was to improve the visibility of Barzakh Falah through the creation of a website and a brochure. Accompanying the website we will make donations available through PayPal as well as a Pledge Card in the brochure. Our main outreach demographic will be to gain the helping hands of volunteers from the global community.

METHODS

Out of discussions with our community partners, three main topics emerged: land use planning, media development and orphanage model research. We divided ourselves amongst these three groups and set out clear goals. The land use group looked into developing manuals for Tilapia and goat raising and creating a comprehensive agricultural plan for the site. The media development group went to work producing an updated brochure and creating a website. Lastly, the research group delved into the orphanage system in Belize and internationally. As a whole, the satellite groups came together several times throughout the week to contribute physical and technical labor on site. Since the span of these issues was quite wide, the initiatives taken by each sub-group varied greatly.

ORPHANAGE MODEL RESEARCH

In an attempt to develop a model for orphanage operation and function, the orphanage research group began with performing research in regards to orphan statistics in Belize as well as the current state of orphanages domestically. After accessing various sources on international and domestic orphanages, there was an obvious lack of pertinent information to orphanage policy in Belize. Due to a lack of available government data regarding orphanage policy, we were advised to conduct our research via interviews with primary sources. First we pursued an interview with the Director of the children's homes sector of the Ministry of Human Development, Ms. Diane Hall. From there, we decided to move on to Liberty Children's Home in Ladyville, Belize as a primary source. After gaining constructive information from Liberty's website, we attempted to schedule a meeting to speak with Ms. Delfana Mitchell and tour the grounds of Liberty (interview pending).

MEDIA

The main goals of the Media Group were to create a functional, well made website and brochure. We wanted to advertise Barzakh and make their story widely accessible. Previously, there was not a website, and the brochure was not geared towards an international public. We wanted to incorporate a professional and sophisticated element in our work to attract the eyes and help of larger corporations and companies.

WEBSITE

A vital piece of sharing information about your organization is the utilization of the Internet. Once an organization has a website it opens up a whole new world of access for potential volunteers, clients, donors, and employees. Our goal for this website was to provide a place where interested people could have access to resources and information to become involved with Barzakh Falah. To get started we first had to choose on a domain name and a website host. We decided to keep it simple and create a website called www.barzakhfalah.com and have it be hosted by godaddy.com. Drawing from the University of Vermont budget we purchased the domain name and began the registration and management process.

After we set up Barzakh Falah's account we started to create the files, which would be uploaded to the Internet. We have experience in writing html code however after writing our first page we decided it would be more beneficial and the quality and level of professionalism shown in the website could be accomplished better by using a specialized web design program. We already had iWeb available to us and it is a very convenient user-friendly program so it was an easy choice as to what program to use. The actual design process was the most enjoyable part because we were able to put our own creative ideas and style into the project. Our first idea was

to make it very colorful and kid friendly however in time we agreed that a more professional look would be better.

BROCHURE WRITING:

Nancy and Jaime asked our group to create a brochure to replace their original pamphlet. To gather information on making brochures, we used an excerpt from the book Strategic Writing. Because we didn't want to stray too far from Nancy and Jaime's initial ideas, we incorporated some of their information as well as the Barzakh Falah logo. In order to provide the reader with more information, we decided to make the pledge card separate from the brochure itself.

Our main goal was to standardize this brochure to make it applicable and consistent to international organizations while still meeting Nancy and Jaime's expectations. We wanted to mimic a familiar, typical brochure layout so that it will be more presentable and professional. To complete this, we used Microsoft Word and specialized the margins.

LAND USE

Within the land-use group, another set of delegations was made. The three students within this group divided themselves into three separate research topics; 1) farming methods, 2) tilapia farming, and 3) goat farming.

1) FARMING METHODS:¹

Creating a vegetable-farm manual required extensive research and thought. What was feasible to include? What would be most helpful? The first step in research was to think about what needs to go into a farm manual and that lead to a farm preparation model that outlined the

¹ By: Nick Lorenz

most important factors to think about when creating a farm and management plan. The farm preparation model helped give guidance about where to focus research for the manual. Because this model applied to our project, it became obvious that with our time left what would be most useful for our project partners would be to focus on functional analysis. Taking previous knowledge and recently researched information, general land preparation, land management, and future expansion sections were added to the manual. The goal was to create a manual that could be of use even if resources and timelines changes, creating a sturdy ground to take the first steps towards a successful, sustainable, self subsistent farm.

2) TILAPIA FARM METHODS

To develop a manual for guiding Barzakh Falah Children's home in small-scale subsistence fish farming, we are providing information for the entire scope of the project, spanning from construction to maintenance and fish health. This was performed by, researching a variety of scholarly articles and documents produced by several agricultural ministries worldwide. Information was selected based on climate and scale. The document, which most of the information was pulled from, was a guide for small-scale subsistence farming in the tropics. Then, we evaluated the soil type, pond size and water resources available at Barzakh Falah. Based on the recommendations in the document and with consideration to Barzakh Falah's resources, a manual was created, tailored to the needs of the children's home. From there, the Barzakh Falah manual was verified by discussing logistics with tilapia farming expert, Normando Perez from The Ministry of Agriculture and Fisheries at Central Farm. After meeting with Normando Perez, adjustments were made to the manual. The manual includes the following: construction of the pond, introduction of tilapia to the pond, tilapia and water quality monitoring and finally harvesting of tilapia.

3) GOAT FARM METHODS

To develop a comprehensive manual on goat raising, we needed to provide a wide array of information. We needed to provide Barzakh with information on pasture management, milking, milk production and the health, nutrition and lifecycle of goats in order to provide a complete picture. To start we did research by finding a variety of publications on goat health and raising and talked to representatives from Central Farm. We compiled this information into an educational document explaining goat raising. Secondly we looked specifically at the needs and resources of Barzakh Falah. We took this information and turned it into a plan for implementation. This included facilities to be built, supplies to be bought and specified the care the goat herd would require.

VOLUNTEERING

Throughout the course of this project, all of our members found volunteer work at the orphanage to be a large, integral part of their experience. Each member of the group tried to donate at least a few hours of their time every week to Barzakh Falah. We would either take the public bus to the site or walk there from Galen University. During the day, we helped Jaime Marin or Jose Awe with any project that needed assistance.

For the majority of our volunteering, we were constructing two circular structures, meant to provide housing to the Caretaker and other tenants of Barzakh Falah. We accomplished this by creating structures out of filled biodegradable bags. These bags were purchased locally and were filled with moist dirt. These became the “bricks” of the circular structure. They were stacked with a layer of barbed wire between each row. Essentially, after the bags biodegraded, only natural compounds and some barbed wire would be remaining in the structures.

After the bee-hive-like formation was created, we learned how to mix plaster a combination of sand, dirt, limestone, cement, and water, and started covering the bags. After the inside and outside of the structures were plastered, a professional came in and sealed all of the cracks, and put any necessary final touches on the buildings. We saw the beginning and near completion of two structures throughout our volunteering hours.

During the time we spent at Barzakh, we were able to learn more about the process of building an orphanage and sustainability. One of the greatest lessons learned during our volunteer work was how much power and ability each of us had. It was very rewarding to assemble a whole structure with limited tools, machinery, and resources. This was also an ideal opportunity to become closer with each other and Jaime. Because of the volunteer work, our group was able to become further integrated in this project, deepen our understanding of building sustainably, and be apart of a greater learning experience.

RESULTS AND FINDINGS

Throughout the three-month process of planning and implementing our project, the following results were produced by each of the satellite groups.

ORPHANAGE RESEARCH GROUP

From the onset of our time working with the Marins, Nancy clearly expressed her belief in the necessity of altering the 3-month habitation limit within a particular orphanage or home. Through further investigation and research, we were able to find many articles that complimented Nancy's argument surrounding the detrimental effects brought on by transitory living. As stated in The Family and Children's Act of 1998, "[m]oving children, particularly in their early years frequently has far reaching consequences due to the disruption in continuity and the child's sense of security and trust." The flaws embedded in the Belize orphanage system "requires that we take [children] out of the revolving door system of foster home placement and replacement... and provide them with a sense of permanency through long-term group care." (Dale, 1999). One of our conclusions from our research is that a change in Belize orphanage policy is critical to ensure the appropriate development of children.

Another one of Nancy's expressed desires for of Barzakh was a more prominent emphasis on education as opposed to simply caretakers. We believe that Barzakh could follow various approaches to education aiming for the fullest possible development of the whole child. Just like Belize, the Reggio Emilia approach was implemented in an impoverished area right after the onset of development. The Reggio Emilia approach was created, "based on the principles of respect, responsibility, and community through exploration and discovery in an

enriching environment based on the interest of the children through a self-guided curriculum.”¹

The approach puts the natural development of children as well as the close relationships that they share with their environment at the center of its philosophy. The importance of the environment lies in the belief that children can best create meaning and make sense of their world through environments which support “complex, varied, sustained, and changing relationships between people, the world of experience, ideas, and the many ways of expressing ideas.”¹ We believe this method will fit perfectly inline with the ideals the Marins hope instill in the orphanage.

MEDIA

We found that every organization needs sufficient media representation and that Barzakh was lacking appropriate exposure. We found that websites and brochures are informative, concise, and beneficial.

We created a website and a brochure for Barzakh Falah. The brochure discusses volunteer opportunities, how you can help, why Barzakh Falah is different, a message from the founder, the mission statement, and contact information. We chose to convey this information through a tri-fold pamphlet. The brochure is simple, informative, and expresses the important qualities that Barzakh possesses. We also coordinated the colors with the website to create a uniform style throughout the different media forms.

Currently the website has a home, about us, photos, news, volunteers, contact and donate pages. We feel as though it is very comprehensive and gives a well-rounded view of what

¹ <http://www.reggioemiliaapproach.net/about.php>

Barzakh Falah is and where it is headed. The main purpose of the website now is to gain both volunteer and financial support. Through a modern style and colorful attractive photos we feel as though the website is inviting and informative.

*see appendices for brochure

LAND USE GROUP

With the initial goal of providing Barzakh Falah with information on how to move forward with their land use planning, manuals were compiled in the categories of agricultural development, tilapia farming and goat raising*. The scope of the manuals covers the projects from implementation to harvesting the resources. The agricultural development manual aided in preparing the land by defining goals, indentifying resources, providing functional analysis of the land and selecting species of crops. It also provided a land management plan, explaining crop rotations and plans for future expansion. The tilapia manual planned pond construction, daily maintenance, fish stocking, fish care, reproduction, fish harvest and post harvest management. The manual for raising goats outlined pasture, feed, goat species, nutrition, common afflictions and references for the future. Our project partners can now utilize these manuals for land use development in the future of Barzakh Falah.

RECOMMENDATIONS

In order for Barzakh Falah to achieve its goals of operating as a functioning group home, based on the principles of sustainability, we have come up with recommendations. These recommendations are meant for next year's class to follow up on and for Barzakh Falah to work towards in the coming months.

ORPHANAGE RESEARCH GROUP

Based off our results and findings, we came up with a set of recommendations for both the Marins and future group members. For the groups in the coming years, we recommend they initiate planning and contact potential primary sources early in the semester. Primarily our recommendations lie with the Marins. For choosing the appropriate education approach, the Marins first need to assess the needs and desires of the children. Upon choosing an education method, the Marins should then seek out those who have experience with the particular education approach to gain helpful insight and guidance through the process of implementation and operation. Additionally it's essential that the Marins pursue international and local partnership with those who can provide outside funding to ensure the success and longevity of Barzakh Falah Children Home.

MEDIA

Thus far, the majority of Barzakh Falah's volunteer base has been primarily international workers. We suggest that they reach out to a larger audience to continue receiving help. Similarly to any large project, the success and development of Barzakh is dependent on the support of the local community. We recommend that Barzakh reach out and involve the local

population. A website is a critical media resource for any organization. We propose weekly updates, including news, events, and photos, to keep the content up to date and accurate with the current progress. Brochures act as a first point of contact with potential volunteers and donors. We would like to see Barzkh Falah strategically distribute the brochure to their target audience by making contacts nationally and internationally. Lastly, we hope that Barzakh will seek more monetary support through fundraising efforts.

LAND USE GROUP

This year our group created land use manuals and this leads to our recommendation of next year's application of sustainable development class working to implement each of the different farming techniques outlines in the manuals. There are other high-interest land use techniques that need to be considered including a methane digester, a wind-powered well and a compost operation. If our project partners designate other projects as a high-interest then they should be researched and manuals should be created for them. Students and Barzakh Falah should continue to make connections with experts and local businesses. For Barzakh Falah to achieve a state of self-subsistence, it will need the advice and support of community members in San Ignacio and the larger Belizean community. These recommendations will provide Barzakh Falah with the knowledge to become a self-sustaining farm. Upon progress towards their goal of self-subsistence, the farm can set about creating a small excess to provide an income and help other similar projects get underway. These recommendations are broad because next year's class work and focus depends on what progress Barzakh Falah makes. Since Barzakh is still in its construction phase the future projects are dependent on immediate needs of the orphanage. These

recommendations will be useful in moving Barzakh forward regardless of the progress made at the Barzakh Falah community.

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APPENDIX A

Literature Review

Barzakh Falah

Maddy Brumberg, Nick Lorenz, Kalyn Rosenberg, Emily Bird, Dani Lukens, Matt Goodman, Cat Hyman, Sara Geoghegan

Marketing and Public Relations: Website, Brochure, Fundraising, Grant Writing

1. Paypal. (1998). *PayPal*. Retrieved on February 27, 2010.²

Nancy and Jaime said that one of the problems that they were having with fundraising was how they should receive money. They don't have an efficient, convenient way to collect support from international corporations. We suggested an online service that made transactions easy and safe. They brought up a number of concerns about taxes and international currencies and it seemed that the main reason that they haven't acquired an online service was because they were unsure of how they worked.

- PayPal is a fast a easy way to send money through email and over the Internet.
- It will allow donors to send money with very little inconvenience to Barzakh Falah.
- “Affordable- pay low fees to send money around the globe” (it will cost around \$1.50 to send around \$300 US to send money to countries like Mexico)
 - Hopefully most of the donations will be generous, although every little bit helps. This is a low fee for an amount of money that will be very substantial to the orphanage.
- “Fast- the money arrives in minutes”
- “Secure- protected by some of the best technologies”
 - Because PayPal is widely recognized in America and around the world, people have begun to trust this site. Barzakh Falah will not be responsible for protecting any of the credit information, which will be simpler for Jaime and Nancy.
- More than 100,000 nonprofit organizations use PayPal to raise money online. There are over 60 million active account holders worldwide
 - We know that it is a dependable, good way of fundraising.
- A “Donate Button” can be added to the Barzakh Falah website
 - This will be a very effective, fast way for people who are interested in Barzakh Falah to research and help the orphanage. It will also make the website more professional

² https://www.paypal.com/cgi-bin/webscr?cmd=_display-country-functionality-outside&dispatch=5885d80a13c0db1fc53a056acd1538874a43d73a07f26b2caf7353d6a9263490

- PayPal offers discounted transaction fees for registered charities. Fees are only applied when you accept a donation and you're never charged a setup or monthly fee.
 - This will allow Nancy and Jaime the opportunity to avoid charges and to be in charge of what is happening with the donations.
- “Donors without a PayPal account can still donate – either by creating an account or paying by credit card on the PayPal website.”
 - This will be helpful because people who aren't familiar with PayPal can still contribute. It broadens the donation base.
- This entire site is made to assist people in making transactions and donations. There are many tools that are made to make this process as easy as possible. It is a very large database that will hopefully cover every question and problem that Nancy and Jaime have. It will be a great utensil for fundraising.

2. Block, G. (2010). *Web studio west*.³

All three of us have at least adequate knowledge in website building, so we will be able to use this site as a tool to make sure we are staying on track and covering all of the necessary areas. We want this site to professional and successful, and this site has many of the important guidelines to make that happen.

- This website has many different pages on how to make Websites. They cover the key ingredients of a successful website, how to build a successful website in 5 easy steps, the most common website mistakes, and search engine optimization 101 among other things.
- This will allow us to follow the rubric on how to make an effective, high-quality website.
- This site poses many questions such as, “who will update the website?” and “what is the purpose of your website?” These questions might sound basic, but they will be a good resource while we create our site.
- A captivating page: it emphasizes how important a visually appealing site is to the viewer and how to obtain such aesthetics.
- It talks a lot about website marketing and how to make sites popular and readily available. It won't be efficient if we invest all of our time in something that is never seen by the public on the web.
- It discusses the worst website mistakes like poor spelling, grammar, and punctuation, inconsistent style, not scalable, and no clear message. It is a good checklist to have when we are developing the website, and will help us make a quality website.

3. Main, M.B. (2009). *Creating educational trifold brochures from Microsoft word® templates: an example from the Florida master naturalist program*.⁴

³ <http://www.webstudiowest.com/default.asp>

⁴ <http://edis.ifas.ufl.edu/uw228>

This website discusses how to make an effective brochure. It gives tips for designing and developing a trifold pamphlet.

- “A brochure should have a target audience and an educational objective, which might also be described as the message or theme.”
 - This is what we discussed with Jaime and Nancy, but their objectives still seem a little hazy. It is good to know that there should be a clear objective to focus on, so this shows that we need to understand the purpose of the brochure more fully.
- It discusses what should be on the front, back, and inside of the brochure.
 - It is good to know how to construct the brochure and make it as informational as possible. We don’t want to waste space or create something that doesn’t follow normal templates
- It shows how to use the Microsoft Word trifold brochure template.
 - We are working with limited programs, so this will allow us to utilize a very common program. We can also teach Jaime and Nancy how to update and change the brochure because, as this site says, the information you are relaying to the reader needs to be updated and current.

Grant Writing:

4. Non-profit guides - grant-writing tools for non-profit organizations. (n.d.). *non-profit guides - grant-writing tools for non-profit organizations*. Retrieved February 27, 2010.⁵

- “Non-profit guides are free Web-based grant-writing tools for non-profit organizations, charitable, educational, public organizations, and other community-minded groups.”
 - This resource gives lots of information regarding grant writing.
- Provides guidelines and overview on the grant writing process
- Gives example proposals

5. 5 Steps to Successful Grant Writing. (n.d.). *The City of Portsmouth now has a*. Retrieved February 26, 2010.⁶

- Five steps to successful grant writing. This site offers basic but useful information on how to write an effective grant.
- Gives quick and direct tips for grant writing
- Keeps concepts to the point for effective grant writing

6. Walsh, Margaret M., Lessons Learned from *Grant Writing: Establishing a Track Record for Funding and Involving community Providers in Implementation*. *Journal of Dental Hygiene*; Fall2009, Vol. 83 Issue 4, p212-213, 2p

⁵ <http://www.npguides.org/>

⁶ <http://www.ci.portsmouth.oh.us>

- This article focuses primarily on grant writing for hard science however it still covers good grant writing information.
- Provides valuable grant writing strategy

7. Himes, B. A. (2006). A Formula for Successful Grant Writing: Four Proven Keys. [Editorial]. *Academic Leader*, 22, 4-8. Retrieved March 01, 2010 from EBSCOhost database.

As part of the Marketing and Public Relations sector of Barzakh Falah we will be applying for some grants on behalf of the children's home. None of us are very proficient in writing grants so we will need beginner's tips on how to go about writing adequate grant applications. This article outlines 4 main areas that the author believes to be the secrets to successful grant writing. The article is somewhat short, concise, and an easy read which will make it simpler for us to get started when we write our first grant. The article talks about not only what to write about but how to go about writing a grant. One of the key points the article mentions is to make sure that we leave enough time to write the grant well which I believe will be useful advice seeing how stressful it could become.

Orphanage Model Research

1. "A Return to Orphanages?", *Children's Rights* 1998). National Committee for Families and Children.

- "A Return to Orphanages?" offers a practical definition of "orphanage" on which to base the mission of Barzakh Falah.
- The return to orphanages movement in the United States was initiated due to discontent within and surrounding the child welfare system. Study of past orphanages revealed undesired results for the success and well-being of children, therefore a new model or "rethinking" of the orphanage and foster care system was required.
- Characteristics that exist as parallel throughout several orphanage institution and/or attempts to create such, throughout the United States include; "1) A commitment to the values of families for children and the importance of reunification and adoption for children and youth in foster care, but an assertion that for 'many' children and youth, permanency is simply not feasible, 2) Use of a cottage model staffed by house parents, 3) The need for large sums of money to bring the project to reality and the need to rely on a diversified funding base for ongoing operations that includes both public and private dollars, 4) A desire to replicate programs across the country, and 5) Local resistance."(Freundlich, Morris, & Blair, 2004).
- A common problem in establishing and maintaining a successful orphanage systems stems from an insufficient budget. Because caring for several children, often those requiring serious developmental and psychiatric support, is a large cost burden, upkeep of an orphanage of any size is a significant financial commitment.
- Due to the large sum of money that frequently exists as a barrier in the system, foster homes seem to be a most more feasible option for orphaned children. The flaw found

within the foster system is that children are too often moved around from home to home, making it impossible for children to create and remain rooted in a stable environment.

- Barzakh Falah has found lack of permanency to be a similar flaw within the Belize orphanage system. Although foster care may not be the institution of blame in this instance, the orphanage system itself requires that children be uprooted and relocated among orphanages in Belize every 3 months.
- Nancy and Jaime have recognized that “local resistance” and governmental opposition will certainly act as obstacles in the creation of the Barzakh Falah home. Yet once the support on policy change has been gained and permanence within the orphanage system has been granted, Barzakh Falah will be headed towards a more modern model of a successful orphanage.
- In order to address the funding needs, Barzakh Falah plans to rely heavily on local donors and the support of volunteers, mainly international.
- The article, “A Return to Orphanages?”, addresses that the most financial support can be found from large corporations such as Target, Coca-Cola, etc. They find that these corporations are akin to supporting the development of new orphanages because they like to have their name associated with a benevolent cause.

Freundlich, M, Morris, L, & Blair, E. (2004). A return to orphanages?. *Children's Rights*, 1-45.

2. The Families and Children Act 1998 Training of Trainers for Service Providers

- “The Families and Children Act 1998” developed by the National Committee for Families and Children, the UNICEF, and the Ministry of Human Development Women and Civil Society, recognizes and states the rights of children in order to determine the most appropriate living accommodations for orphans.
- The act fully supports the concept that when arranging temporary or transitory living situations, the child’s best interest and well being should be the utmost priority.
- When analyzing the potential effects of the transitory living situation on the child it is noted that, “[m]oving children, particularly in their early years frequently has far reaching consequences due to the disruption in continuity and the child’s sense of security and trust.”
- Due to the current laws in Belize that require children to be relocated every three months, the importance of permanence is disregarded. It seems as though a rethinking or alteration of Belizean policy would render beneficial results for the children. If institutional changes did occur, Barzakh Falah would be able to operated under their desired methods, keeping the children for as long a time period as needed until adoption occurs.
- The Act proceeds to outline the rights of the child and requires that the parents or any temporary guardian is required to provide the child with; “a) education and counseling; b) immunization; c) balanced diet; d) clothing; e) shelter and; f) medical attention.” The guardian of the child must also take on the responsibilities “to protect the child from discrimination, violence, abuse and neglect.”

- Barzakh Falahh as a temporary guardian for the orphans must plan to take on the above noted responsibilities in order to secure a proper living situation for all of the children.

3. SOS Children's Villages International Website

- "SOS Children's Villages International." SOS Children's Villages International - A loving home for every child. N.p., n.d. Web. 27 Feb. 2010.⁷
 - SOS Children's Villages International is an umbrella organization of all SOS Children's Villages associations, is an independent, non-governmental social development which has been working to meet the needs and protect the interests and rights of children since 1949, with the specific mission goal, according to their website, of “We build families. We help them shape their own futures. We share in the development of their communities.” The organization has developed centers in 132 countries and territories focusing on abandoned, destitute and orphaned children requiring family-based childcare.
 - SOS Children's Villages International talks extensively on their website regarding education and training for those at Children's Villages worldwide in addition to facilitating transition into the national labor force.
- “Equal rights to education and training for children are another important area of our work. Pre-school care for children, schooling and vocational training are the key to the future. To ensure that children enjoy these basic rights, SOS Children's Villages has kindergartens, day-care centers, schools and vocational training centers.”
 - “SOS Children's Villages places central value on education and works to provide educational assistance to children growing up in children's villages, those participating in any form of family strengthening program, and all vulnerable children and young people in the communities we work in.”
 - When talking to Nancy about her hopes for Barzakh Falahh, she believed there was more of a need for educators and teachers to be at the homes as opposed to caretakers, which is typical of many orphanages, especially here in Belize. She wanted to learn more about education at children's homes in terms of facilitating it in addition to examples elsewhere.
 - “In order to learn a trade and increase one's chances on the labor market, SOS Vocational Training Centers offer courses and apprenticeships in trades, industries and various service branches. What is taught is strongly orientated towards the local and regional job prospects.”

⁷ <http://www.sos-childrensvillages.org/pages/default.aspx>.

- “Socially disadvantaged young people or those who have hardly any other training prospects are given the opportunity to develop their vocational skills and earn qualifications that will allow them to live autonomous lives as adults who can deal with the economic and social pressures put upon them.”
 - In addition, Nancy discussed how in Belize, a child leaves the social services system when they reach the age of 16. When they are forced out of the system, some are provided with work opportunities, while most are sent out to simply fend for themselves, which she believes, is completely unacceptable. Nancy and Jaime hope to transform the typical system of orphanages in Belize, which includes expulsion at the age of 16 among other policies, to a system in which teenagers are prepared to deal with pressures of society as opposed to returning to the streets. A vocational center of sorts would most likely work well at Barzakh Falahh to increase their chances in Belize's more modernized labor market.

- “One of the most important phases in the care of children and young people is when they move from an SOS Children's Village to an SOS Youth Facility. This is normally a critical stage for young adults. During this process, when the young people gradually become independent, it is particularly important that they are directly involved in the decisions that affect their development, and that they can actively take part in determining how they lead their lives. SOS Children's Villages' youth work involves offering different options and forms of care: shared flats, youth houses or supervised living”
- “The young people, who move into an SOS Youth Facility at the age of 14 on average, go to school or are doing an apprenticeship. They are supported in their further development by a team of education specialists so that they are able to go on to have a steady income, be independent and take responsibility for themselves. A focus is placed on helping the young people to manage their daily lives, and to develop their job prospects and a sense of responsibility.”
- “SOS Children's Villages also provides follow-up care. During this final phase of care we step back and support the young people's further development from a distance. The follow-up care supports the young people in their last steps towards independence.”
 - Nancy also expressed a desire for information regarding the transition from group homes to transition homes, or youth homes. This is a pivotal point in the transition and adaptation of a child into the real world, she believes, with not much currently done in regards to the move. The apprenticeship or vocational program done through SOS is a terrific idea, which should work well with Barzakh Falahh and the philosophy of the orphanage's functioning. Follow-up care would definitely make a huge impact for certain individuals for whom it is necessary, as opposed to cutting off support after leaving the program.
 - SOS Children's Villages International could potentially be a great resource for Jaime and Nancy, with their philosophy operating effectively in 132 countries and territories. Most of SOS's philosophies are very different in comparison with modern orphanage philosophy in Belize today, which is exactly what Jaime and Nancy are looking for.

4. Child Protection Testimony of Nan Dale Before The House Ways & Means Subcommittee on Human Resources for the Hearing on Promoting Adoption and Other Permanent Placements. (July 20, 1999). Child Welfare League of America. Retrieved February 27, 2010.⁸

- In the United States, orphanages were set up by religious organizations in the 18th and 19th centuries. However, following World War II, most orphanages in the United States began closing their doors. Over the Past few decades, smaller institutions that try to provide a group home or boarding school environment have largely replaced orphanages in the United States. Most children who would have been in orphanages are in these residential treatment centers (RTC).
- Residential treatment centers provide a plethora of services for the children including “housing, mental health services, education and recreation in addition to “a full continuum of child welfare and mental health services - preventive, foster/adoptive (including therapeutic and kinship foster homes), group homes and residential treatment.”
- In testimony before the House Ways & Means Subcommittee on Human Resources for the Hearing on Promoting Adoption and Other Permanent Placements, Nan Dale, CEO of Children’s Village in New York, described her facility by saying “Our RTC, like most, functions more like a boarding school than an orphanage - more like a children's psychiatric hospital than an orphanage. Essentially, it is a highly structured, heavily supervised boarding school with intense treatment services for children and their families. Most importantly, it is very, very successful in working with a shockingly troubled and even dangerous population of kids”
- Dale expressed her belief that, when thinking of orphanages, we need to expand was *permanency* really means and include “the notion that subjecting children to the fewest possible substitute care placements should be a critical consideration. Ideally, permanency should mean a permanent home in a family (biological, kinship or adoptive), but for a sub-set of kids in the child welfare system permanency is best achieved by long term care in a group setting - a boarding school or residential treatment center (RTC).”
- Dale continues by saying, when looking at a ‘troubled child’, “underneath the despair and the rage there is a child who desperately wants our help. They are not all that difficult to reach or to turn around. But it takes time and it takes money. And, it requires that we take them out of the revolving door of foster home placement and replacement ... out of the adoption failure syndrome ... and provide them with a sense of permanency through long-term group care.”
 - One of Nancy and Jaime’s main goals through the process of opening and running Barzakh Falahh is to effectively change orphanage policy in Belize. Currently, children are required to change homes at least every three months, leaving behind any sort of *family* created in the short period of time. It is noted in that “there is strong evidence that residential group care works well for very troubled youth.” This is important when thinking of orphans in Belize, many of which are coming into the system from very troubled lives.

⁸ www.cwla.org/advocacy/childprotnandale.htm

**5. Liberty Children’s Home Liberty Foundation. (n.d.). Liberty Foundation.
Retrieved March 22, 2010, from <http://www.libertyfoundation.org.uk/>**

Liberty Children’s Home in Ladyville, Belize is an example of a Belizean orphanage with similar ideals the Marin’s hope to instill in Barzakh Falah. Liberty opened in 2005, with the hope of helping the children as much as possible through it’s operation. Most notably, Liberty is influenced by various atypical methods of teaching, such as the Montessori Approach and the Reggio Emilia Approach focusing on the fullest possible development of the child, which is what Barzakh aims to accomplish. Based on the desires of Barzakh and the needs of the community, these two education approaches would be perfect. Liberty can be used as a prime example of the use of these approaches at an orphanage on a domestic level.

- Opened in Summer 2005-‘Residential care and rehabilitation center’
- Established as a registered charity in UK and certified NGO in Belize by founder Marcelle Delahaye (with help of sister, Gemma)
- Opened a boutique charity shop to generate extra income for liberty
- **Liberty Foundation is funded entirely by the profits of its charity shop, events and the voluntary contributions of individuals, businesses, other charities and foundations.**
- Cares for approximately 40 children all of whom have been abandoned and/or physically/sexually in addition to many with disabilities, special needs or are HIV positive and “Provides an environment where children are respected, nurtured, and treated as individuals”⁹
- Childcare at Liberty is influenced by the *pikler* method- an approach to prevent the damaging effects of institutionalization on children
 - Also draws from the Reggio Emilia and Montessori approaches that aim for the fullest possible development of the whole child
 - Liberty also draws inspiration from **The Montessori approach**, which stemmed from work with underprivileged children in Italy to help those excluded from education and deemed ‘un-teachable.’ The Montessori method focuses on working with each child to develop confidence, independence and a desire to learn. Children 'learn through doing' and work in an environment of mutual respect and co-operation, which aims for the development of the whole child.
 - In addition to **The Reggio Emilia approach**, which strives to serve the child's welfare and the social needs of families, promoting child creativity and active participation. The Reggio approach to early childhood education has been widely recognized, its innovative programs acknowledged by educators, psychologists, and researchers from all over the world as the most exceptional example of the highest quality early education that the world has ever seen (Dahlberg, Moss, & Pence, 1999; Gardner, 2001; Newsweek, 1991). UNICEF is

⁹ <http://www.libertyfoundation.org.uk/>

currently working to introduce the Reggio method into a number of countries where a failing education system is a key issue.

- At Liberty, each child has a key caregiver who he/she spends extra one on one time with to “help develop trust in adults and the ability to form relationships” along with the children receiving regular medical attention, counseling and physiotherapy as needed

6. The Reggio Emilia Approach About the Reggio Emilia Approach - The Reggio Emilia Approach. (n.d.). The Reggio Emilia Approach - The pre-school Childs languages of learning. Retrieved March 26, 2010, from <http://www.reggioemiliaapproach.net/about.php>

The Reggio Emilia Approach to education would most likely be a great fit for Barzakh Falah in terms of the children’s education, based on the expressed desires of the Marin’s. With the approach originated during a time of great turmoil, emotionally and economically, the ideals were catered to address these issues with the help of the surrounding community. The Reggio Emilia Approach has now been hailed as an incredibly successful method for those impoverished and or ‘un-teachable.’ With Belize being a new developing country with a tremendous lack of funding for social programs, the approach could see great success if implemented. The approach is based on the children and exactly what the children need and/or want, which is almost exactly what the Marin’s desire for the education programs at Barzakh upon opening.

- The Reggio Emilia Approach is an educational philosophy, which is focused on the preschool years through primary education.
- Originated after World War II by the parents in the villages of Reggio Emilia, Italy, when the parents believed as a result of the destruction from the war, there needed to be a quicker approach to teaching the children believing that it is in the early years of development that children form who they truly are
 - The Reggio Emilia Approach was created “based on the principles of respect, responsibility, and community through exploration and discovery in a supportive and enriching environment based on the interested of the children through a self-guided curriculum”¹⁰
- The approach is based upon the following principles:
 - [Children](#) must have some control over the direction of their learning;
 - Children must be able to learn through experiences of touching, moving, listening, seeing, and hearing;
 - Children have a [relationship](#) with other children and with material items in the world that children must be allowed to explore and
 - Children must have endless ways and opportunities to express themselves
- The approach puts the natural [development of children](#) as well as the close relationships that they share with their environment at the center of its philosophy.

¹⁰ <http://www.reggioemiliaapproach.net/about.php>

- The organization of the physical environment is crucial to Reggio Emilia's early childhood program
 - The importance of the environment lies in the belief that children can best create meaning and make sense of their world through environments which support "complex, varied, sustained, and changing relationships between people, the world of experience, ideas and the many ways of expressing ideas."
 - The preschools are generally filled with indoor plants and vines, and awash with natural light.
 - Entries capture the attention of both children and adults through the use of mirrors (on the walls, floors, and ceilings), photographs, and children's work accompanied by transcriptions of their discussions

Agricultural Practices for Sustainable Farming: Nutrition, aquaculture, livestock, agricultural practices.

Barzakh Falah is planning on being a self-sustaining community. One of the major focuses presented to us by our project partner is to continue to develop sustainable practices that are quantifiable and visible by the community. The orphanage is still in its developing stages and the development is very dynamic. There are no set plans for the land use development, as the orphanage grows and resources become available there are practices that will hopefully be installed. Because of these circumstances our project partner never left us with a clear thesis or goal. He simply asked us to look at sustainable practices that will help give the Barzakh Falah attention as a sustainable community.

There are many aspect of implementing sustainable agriculture that can be looked at. Everything from actually working the land to prepare farmland, to developing food storage techniques. Listing some of the things that need to be considered:

- Farm planning and management.
- Crop rotation and nutrient cycling
- Integrated livestock and vegetable management
- Compost systems
- Individual crop information. (E.g. when should it be planted, how much water is needed)
- Pest management techniques
- Growing for a balanced nutritional diet for children
- Growing of staple crops such as wheat and corn for further processing
- Water management techniques
- Integrated education and farm management with the orphans.
- Ect....

1. [Agriculture Guide](#). *Guide to agriculture, gift to charity.*¹¹
 - Agriculture Guide is a large resources base with a plethora of information. Everything from how and where to plant different crops, to benefits of drip irrigation over flood irrigation.
 - Because we are looking at such a general topic this website is highly useful because no matter what question we end up focusing our attention on there will be applicable information.

2. **Programs, c. t., resources., partnerships, b., networks., capacity, s. c., & programs, l. f. (n.d.). FarmStart » Mission and Goals. *FarmStart* . Retrieved February 27, 2010.**¹²
 - Farm Start is a non-profit organization who is working towards increasing the number of young and new farmers. The organization provides resources and information regarding what it takes to start your own farm.

3. **CABI International, *a not-for-profit science-based development & information organization*. (2001). Retrieved February 26, 2010.**¹³
 - CAB abstracts published a paper Huibers, F.P on rainfed agriculture in semi arid tropical climate. Although the paper is based on red soils of India there are practices and information that can be applied to farming in a similar climate of Belize. Working in areas with scarce amount of water for part of the year requires special practices.

4. **Carballo, E, Van Eer, A, Van Schie, T, Hilbrands, A. (2008). *Small Scale Fresh Water Fish Farming*. Agromisa Foundation and CTA, Wageningen**

This document was written with the goal of providing information for small-scale fresh water subsistence fish farming for the tropics. The document addresses the benefits of fish farming, processes for building and managing the farm, selecting the best-suited species of fish and the nutritional value.

5. **FAO: Fisheries and Aquaculture Department. (n.d). *FAO in Action, Learning United how to fish farm*. Food and Agriculture Organization of the Nations.**

¹¹ <http://agricultureguide.org/agriculture-guide/>

¹² <http://www.farmstart.ca/about/mission-and-goals/>

¹³ <http://www.cababstractsplus.org/Abstracts/Abstract.aspx?AcNo=19856753726>

This document promotes aquaculture as a solution for food security on rural farms. It addresses the nutritional benefits of fish farming. FAO has introduced sustainable aquaculture as a solution for food deficits in several countries.

- Barzakh Falah is a children's home, planning to sustain the nutritional needs of children through farming.
- Provides information aquaculture as a means for self-sustaining food security.
- Promotes fish as an inexpensive high quality meat protein.

6. Fitzsimmons, K. (n.d). *Introduction to tilapia reproduction*. University of Arizona.

This document describes, in detail, the process of tilapia reproduction. It briefly describes the reproductive biology of Tilapia. Finally, it states several methods for reproduction based on the demands of an individual farm.

- Barzakh Falah aims to be self-sustaining. Reproduction of Tilapia within the farm is very important to sustain the source of meat protein.
- It states the proper environment for spawning along with the most effective female to male ratio.
- It addresses reproduction as one of the largest challenges in Tilapia farming and provides solutions for this challenge useful to Barzakh Falah.
- Barzakh is newly established farm in need of a manual for how to utilize their newly dug fishpond.
- Provides information on how to start the pond and establish a fish species
- Provides nutritional information to plan the diet of the children, who Barzakh Falah plans to sustain.

Goat Farming

7. Coffey, L, Hale, M, & Williams, P. (2004). Dairy goats: sustainable production. ATTRA¹⁴

8. Harris, B, & Springer, F. (n.d.). Dairy goat production guide.¹⁵

9. Van Saun, R.J. (2008). Dairy goat production. Agricultural Alternatives¹⁶

These sources describe the care, management and challenges of raising a dairy goat herd. This includes the following information.

¹⁴ Retrieved from <http://www.attra.ncat.org>

¹⁵ Retrieved from <http://edis.ifas.ufl.edu/ds134>

¹⁶ Retrieved from agalternatives.aers.psu.edu

- Goat Breeds
- Dairy goat management
- Composition of Goat Milk
- Nutritional needs of milk-producing goats
- Parasites that often effect goats
- Treating and processing milk products

10. Coffey, L. (2006). Meat goats: sustainable production. ATTRA¹¹

This source describes the care, management and challenges of raising a meat goat herd. This includes the following information

- Goat Breeds
- Meat Goat Management
- Nutritional needs of meat-producing goats
- The benefits of goat meat

11. Coffey, L, Hale, M, & Wells, A, P. (2004). Goats: sustainable production overview. ATTRA¹¹

12. Hale, M. (2006). Managing internal parasites in sheep and goats. ATTRA¹¹

13. Rhinehart, L. (2008). Pasture, rangeland and grazing management. ATTRA¹¹

14. Varner, M. (1997, January 16). National goat handbook.¹⁷

These sources describe the care of goats in general. These resources includes the following

- Breeding
- Parasites
- Nutrition
- Herd Dynamics
- Pasture Management
- Goat Health
- Parasite management

¹⁷ Retrieved from <http://www.inform.umd.edu/EdRes/Topic/AgrEnv/ndd/goat/>

APPENDIX B

Barazakh Falah: Farm Development Manual

When developing a farm there are many things to consider before getting seeds in the ground. John Quinney outlines some of the most important aspects of farm planning in *Designing Sustainable Small Farms and Homesteads* (Quinney, 2010):

- Defining Goals:** It is important to establish clear goals for the farm to be successful. Some example questions would be: How much time am I willing to put into the farm? Do I want to be self reliant, including energy needs? Where do I want the farm to be in five years? And most importantly, what is it that I hope to get out of the farm?
- Identifying Resources:** Goals can be well established but still be unrealistic. It is important to make a resource inventory to know what will be manageable and what can easily be carried through with. It is important to not only look at current resources, but what will resources be like in a year, a couple years or even five years from now.
- Functional Analysis:** At this point look at the farm from a broad perspective rather than at specifics of plants types and locations. How will the farm function? What does the farm need to function?
- Species and Specifics:** Once the basic design is completed, look at what species will be planted, where will they be planted, where will inputs come from, how will crop rotation work, and when is planting and harvesting time?

This manual aims to focus on the functional analysis aspect of farm design and provide an outline that will help provide guidance for establishing a working farm that will improve the quality of the land and the lives of the people it supports.

Land Management:

Preparing the Land:

The plot of land established to be the farm extends from the fruit trees to the area designated for the erection of the future large structure of the orphanage and as far as possible on either side. Roughly estimated at 50 meters by 60 meters. The previous use of the land was pasture, because of this the soil is assumed to be compacted and oxygen poor. The first step is to establish the exact area to be farmed and then till the land. To begin establishing nutrient rich soil at this point an input layer of horse manure can be added to the plot of land and the soil tilled again. Adding a thick layer of horse manure before the initial till is also an option, but which option is best depends on the quality of till being used. At this point the land will actually look like agricultural land.

Land Management:

| | | | |
|---|---|---|---|
| 1 | 3 | 5 | 7 |
| 2 | 4 | 6 | 8 |

* Size of beds is approximate. Dimensions of beds is not set, the number of beds and size of beds is dependent on the resources available and dependent on what the farm will be utilized for.

If the land is broken up into eight different plots of land rotational grazing and planting can be utilized. If beds 1 and 2 are used for vegetable planting (one for staple crops e.g. maize, beans, etc, and the other for all other vegetables) the rest of the beds can be covered with a combination of grasses/legumes. Beds 3-8 will be used for animal grazing or rotation. Goats start in half of bed 3 (shown by red hash marks) then are moved anywhere from daily to weekly to the other half of the bed and then on to another bed and so forth until the cycle gets repeated. (Note: It is very important to not overuse the farm land. If the animals are not rotated frequently enough, the grasses/legumes will die and not be able to grow back, resulting in the degradation of the land. It is also important to not have too many animals in a designated space. Different species of animals require different amounts of space per individual). Following one bed behind the goats, chickens can be rotated on the same pattern to help with insect management as well as help contribute natural fertilizer to the land. Successful animal rotation requires portable fences as well as attention to insure the land is not overused. *Once again, it is very important to not overuse the land; it will kill all vegetation growing on the land and damage the land rather than better it.

Once a year two new beds can be tilled over and planted. They will have all of the natural fertilizers from the animals as well as the nitrogen inputs from the leguminous plants. The leguminous plants can be tilled directly into the soil to be used as a green or natural organic fertilizer.

If this plan is followed it gives the farmer options. Depending on how many people the land will need to provide for, at first one bed could be used and then in a couple years, when there needs to be more food, two. There are also enough beds being used so one bed could be tilled and planted while one is still being harvested to ensure a constant supply of food. The plot of land designated for farm land does not all need to be planted, especially with the expectation of only needing to provide for ten orphans in the beginning. This gives the farmer the option to till the entire plot of farm land and plant fertilizer bean or grasses/legume combination to be building the health of the soil so in the future when all of the land is utilized the health of the soil

will already be significantly better than its current state. Although this is the time to think about resources, is it feasible to start working all of the land even though part of it would need little to no management? Do we have the resources to purchase what is needed or would it be better to expand slowly as resources become available?

Animal rotation is not necessary for this plan and with the given resources it may be easier to disregard until the farm becomes a major focus of the orphanage. Until then, a similar system could be used and all that would need to be done is: While one area of the land is being used to grow crops the other has a cover crop of fertilizer bean, then the beds are rotated so the soil has time to recover (receiving nitrogen inputs from fertilizer bean) before being replanted. The fertilizer bean can be directly tilled into the soil which uses the fertilizer bean to add organic matter to the soil increasing the soil fertility.

Irrigation: A drip irrigation system that is designed for 10 row 10 meter beds is already available. This irrigation system is versatile because it can be moved easily and used as needed (example: more often in dry season). The irrigation system should be thought about when deciding the size of the beds or planted land.

Expansion/Future Management:

Expansion and future management of the land is very simple once the farming techniques have been applied to a small plot of land. If all of the space currently designated to become farmland is not originally plowed or worked on there will be more land to expand on to. For best management practices it is important to keep a similar ratio of land with cover crops to land being used for vegetable production to ensure good sustainable farming that will increase/maintain the health of the soil and provides the right amount of food/nutrition to those being supported by the land. As land use expands the same practices that are already instilled can be continued, but on a larger scale. When there is expansion it gives the farmer the opportunity to try new techniques and plant a larger variety of species. *The more species on a farm the better.

References:

Quinney, John. (2010, February 24). Designing sustainable small farms and homesteads. *Mother Earth News*, Retrieved from <http://www.motherearthnews.com/print-article.aspx?id=113538>

APPENDIX C

Barzakh Falah: Tilapia Pond Manual

Fish is a high quality animal protein, which most of the world's population turns to for nutrition (FAO, n.d.). Small-scale, subsistence fish farming will provide the children of Barzakh Falah with the proper nutrients, while sustaining the fish population.

Extensive fish farming and **Semi-intensive fish farming** are low input methods of fish farming (Carballo et al., 2008). They require little feed. Most of the inputs can be sustained by the other agriculture on the farm. Organic waste and manure from the farm can be used as an input to promote growth of natural feed for the fish. In exchange, the pond can be used full-circle to provide crops with nutrient rich water. The self-sustaining nature of this aquaculture method will provide the children's home with continuous supply of nutritious and healthy food.

Table of Contents

| | |
|------------------------------------|----|
| I. POND DESIGN AND CONSTRUCTION | 2 |
| II. DAILY MAINTENANCE | 4 |
| IV. TILAPIA CULTURE AND CARE | 6 |
| IV. HARVESTING AND POST HARVESTING | 8 |
| V. PROGRESS CHART | 9 |
| VI. REFERENCE | 10 |

I. Pond Design and Construction:

Excavated Pond: The topography of the land is fairly flat at Barzakh Falah. Therefore, the type of pond required is an excavated pond, or a pond dug out of the ground. The soil, which was dug out must be collected to build banks above ground level to prevent flow of contaminated runoff.

Pond Depth/Dimensions: The pond should be 30 cm deep at the shallow end and 1 meter deep at the deep end. A square or rectangular shape is easiest to build. The topsoil surrounding the pond should be removed including roots, leaves, etc. (this soil should be saved near the pond in its own pile). Most manuals suggest 20m by 20m pond. Barzakh Falah would work best with 10m by 10m pond.

Figure 1.1: Dike construction and trench digging. (Carballo et al., 2008)



Figure 11: Digging a 'core trench' (A= Topsoil, B= Clay)

Dike Construction: The pond *dike* or wall should be 30 cm above water level for Tilapia. This will prevent runoff of contaminated water and fish from jumping out. The dike is built from the soil dug out of the pond. Avoid roots and organic matter that will decay and leave a weak spot. Pile 30 cm of loose soil and then

compact it with a wooden plank/hoe and apply water. Continue this process until the dike is 30 cm high. It is important to consider that overflow of the pond could ruin the walls of the pond. Installing an overflow pipe can prevent this. However, the flat topography does not easily allow this. The water level will need to be carefully regulated using a pump.

Water Inlet/Outlet: The fishpond must have a way for water to enter and exit the pond to maintain a healthy environment for the fish. This is more difficult to perform in an excavated pond. Any pipes that are used in the pond should be screened to prevent the fish from becoming stuck in the pipes.

Inlet: Tilapia is a very resilient species of fish, however a small pond in a tropical climate will experience high rates of evaporation and eutrophication (high nutrients, low dissolved oxygen). It is important that the pond has a separate, uncontaminated water source. Due to high demand for water input, city water would be far too expensive to sustain a fishpond. Ground water is a great source for the pond. A well dug nearby could pump water into the pond (*perhaps utilizing a windmill pump*). The natural feed that grows in a pond for tilapia also promotes the growth of nutrients and algae.

Outlet: Since the fishpond will be an excavated pond, a pump will be needed to remove water from the pond (Ponds that are built into a hill can simply rely on gravity to drain water from the pond). The water drained from the pond is nutrient rich and ideal for watering the crops. The water pumped from the pond should be hooked up to a drip irrigation system to efficiently distribute water to the crops.

Protecting the pond:

Rainwater is a threat to the pond health and can destroy the dikes. The dike should be covered with topsoil and plant grasses with shallow roots over the dikes to prevent soil erosion. *Rhodes grass or star grass is the recommended grass species* (Carballo et al., 2008). Also, to prevent the overflow of runoff into the pond, it is a good idea to dig trenches surrounding the pond that will divert runoff away from the pond.

Predators are also a natural threat to the pond. By building a barrier around the pond, it will prevent children from falling into the pond and predators from entering the pond. A natural barrier could be growing hedges surrounding the pond

(Berry plants would be useful for protection of the pond¹⁸ but be aware that extra organic matter that could enter the pond and introduce a surplus of nutrients.)

Filling the Pond:

Rocks must be placed below the inlet pipe to prevent erosion of the floor. Fill the pond to the required depth and maintain the required depth to prevent the washing away of natural feed, which promote fish growth. The pond will not hold water at first. It will take several weeks of refilling the pond before there is no seepage. Once the water level is constant at the proper depth (30 cm- 1.5 m) wait 4-7 days for natural feed to build up in the pond before stocking the baby fish.

II. Daily Maintenance:

- Check water quality (oxygen, pH, color, transparency, temperature)
- Observe the fish while they feed.
- If the fish are inactive, or staying close to the surface the dissolved oxygen levels are too low.
- Look for predator footprints
- Remove aquatic weeds growing in the pond

Oxygen: Most likely cause of death is low oxygen supply. Low levels of oxygen put the fish under stress and make them vulnerable to disease. This is likely when levels of nutrients are too high and detritivores begin to use up dissolved oxygen to decompose organic waste. It can be avoided by limiting manure and fertilizer use in the pond. It is important to be aware that oxygen levels are highest during the day while algal photosynthesis is producing oxygen in the pond. At nighttime the oxygen is used up and levels are low in the morning. The water supplied from the well will be low in oxygen. It may be necessary to install a water wheel that can be rotated to circulate oxygen into the water.

Temperature: Tilapia can survive in very high temperatures and in temperatures as low as 10°C. Water coming from the well will generally be a low temperature. It may be necessary to monitor the temperature before circulating new water into the pond. Introducing fish to new temperatures can put the fish into shock.

Acidity: Ideal acidity for the fishpond ranges from 6.7-8.6. It is important to monitor acidity, especially after heavy rain, which can quickly change the pH value of the pond. Typically, the water will be too acidic. If this is the case, lime can be added to the pond.¹⁹

¹⁸ *Personal communication with Mennonite farmer, David Harder. February 26, 2010*

¹⁹ *For more details in liming see Carballo et al. 2008. Agrodok 15, Appendix 2.*

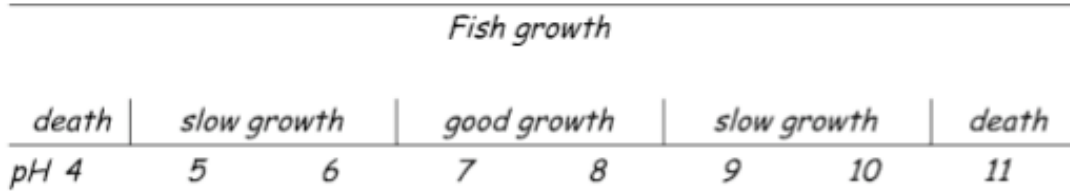


Figure 23: The effect of pH on fish growth (Viveen et al. 1985)

Figure 23: Proper pH for fish growth is 6.7-8.6 (Carballo et al., 2008)

Liming newly built pond:

- Drain the pond
- Add 20-150 kg agricultural lime per 100 m²
- Mix lime with the surface of pond bottom
- Fill the pond 30 cm with water
- Wait one week and test the acidity (should be ~7)

Liming previously limed pond:

- Drain the pond
- Treat damp bottom with 10-15 kg quicklime per 100 m²
- This will rid pathogens and parasites from the pond too
- Wait 7-14 days to refill the pond to depth of 30 cm
- Measure pH
- If pH is still low, add agricultural lime

Table 7: The required amount of agricultural lime (kg/ha)

| pH pond bottom | Heavy loams or clays | Sandy loam | Sand |
|-----------------------|-----------------------------|-------------------|-------------|
| 5-5.5 | 5,400 | 3,600 | 1,800 |
| 5.5-6 | 3,600 | 1,800 | 900 |
| 6-6.5 | 1,800 | 1,800 | 0 |

If the chosen lime application rate is correct, the pH will be above 6.5 and total alkalinity above 20 mg/l in 2 to 4 weeks.

Table 7 of proper lime application for different pH levels. (Carballo et al. 2008)

Turbidity: Turbidity is the amount of suspended solids in the water. High turbidity (thick and cloudy water) is poor for fish production. Sunlight is needed for the production of oxygen. Turbidity can be reduced by simply adding new water to the pond, and then distributing old pond

water to the crops. However, at the beginning of the pond animal manure should be added at a rate of 240 grams/m². This should be done 3 times with 3-4 days in between.

IV. Tilapia Culture and Care:

Tilapia: Tilapia was chosen for Barzakh Falah because they do well in a variety of environmental conditions with little management. “Tilapia is considered the most ideal species for small-scale fish farming” (Fitzsimmons, n.d.).

Stock the fish:

Fingerling stocking: Purchase the small fish also known as *fingerlings* and gently pour them into the pond by lowering the mouth of the bucket to water level. The temperature of the water the fingerlings come from should be the same as the pond.

Adult stocking: Females of about 700g and males of about 200g. Sex ratio of 1 male to every 4-5 females. 1 fish per 2 meters squared. Tilapia males will begin digging holes at the bottom of the pond and reproduction will begin. Within six months the baby fish will reach sexual maturity. This can be promoted even further by providing the holes at the base of the pond using small pottery bowls or jars.

Reproduction: Tilapia are *mouth brooders*; the male digs an attractive hole on the pond floor. The female lays her eggs in the hole. Following, the male fertilizes the eggs and finally, the female incubates the eggs inside her mouth. Tilapias are typically sexually mature within six months (10 cm), before they are adult size. This allows for the establishment of many generations within one pond in a short amount of time. In fact, tilapias are so efficient at reproducing, that over population may present a problem in some fishponds. However, this can be maintained by quick and steady harvesting of fish.

Reproductive conditions: Tilapia reproduce most efficiently in the ideal environmental conditions.

- 3-4 females per 1 male
- Shallow ponds are best for spawning
- Temperature of 20°C -30°C

Feed: Tilapias are omnivores and will eat essentially anything. *Natural feed* will be produced in the pond. However, *supplementary feed* can feed the fish and promote the growth of natural feed. *Supplementary feed* includes: manure, organic waste, fruits and vegetables (often agricultural byproducts or waste).

A method of fish farming is *periphyton-based fish farming*. This includes placing sticks vertically into the base of the pond. The sticks provide a place for the periphyton algae to grow, which the fish feed off of. Periphyton also includes a natural antibiotic that prevents disease in the pond. In addition, the sticks provide the fish with protection from predators. It has been proven that periphyton substrates are beneficial to fish health and survival. Bamboo would be the

best substrate to use for the growth of periphyton. Periphyton-based fish farming can make harvesting more difficult.

General feeding guidelines:

- Feeding requires high levels of oxygen. Feed fish early afternoon when water is rich in dissolved oxygen.

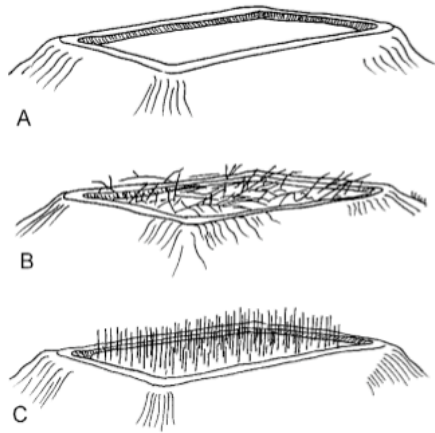


Figure 19: ponds with and without substrates: A: Pond with no substrates, B: pond with sticks and branches placed at random, C: pond used in scientific trials with bamboo poles placed at equal intervals

- Feed fish from same place everyday
- Do not overfeed
- Before harvesting, do not feed fish for 24-48 hours to prevent an increase of water turbidity due to fish excreting waste.

Figure 19 demonstrates different methods for periphyton-based fishing; C is the recommendation for Barzakh Falah (Carballo et al., 2008)

Disease:

Nutritional disease is caused by dietary shortages and can be prevented by supplying supplementary feed to the fish. This avoids stress on the fish that would make them vulnerable to other diseases.

Infectious disease is caused by the introduction of new fish to a pond that are carriers of disease or poor environmental conditions that make the fish vulnerable to natural pathogens in the water.

Preventing disease: Maintaining sufficient levels of dissolved oxygen and good water quality can prevent disease. The water supply should be from a separate source, not just runoff or a river (well is the best option). Also, be certain that new fish introduced are disease free before exposing them to the other fish.

Signs of disease include surface swimming to reach oxygen, sores, rubbing body against sides of pond, or loss of appetite. Be aware that hot weather is the most risky because levels of dissolved oxygen are lowest in these temperatures.

IV. Harvesting / Post Harvesting:

Fish are harvestable after 5-6 months. Only harvest the fish that can be eaten that day (in the tropics food spoils quickly).

Method of collection:

The fishpond at Barzakh Falah is an excavated pond. This means that the water must be pumped out of the pond and cannot simply be drained. Therefore, draining the pond to harvest fish is not the most efficient method.

Selective culling is the best method for Barzakh Falah. A gill net can be used. Gill nets are designed to capture only a fish of a certain size by trapping their gills in the net. Fish under market size would not be captured by the gill net. This would maintain the population of fish that are still in the process of reaching their reproductive age. Without draining the pond, the remaining fish will not be disturbed.

Post Harvesting:

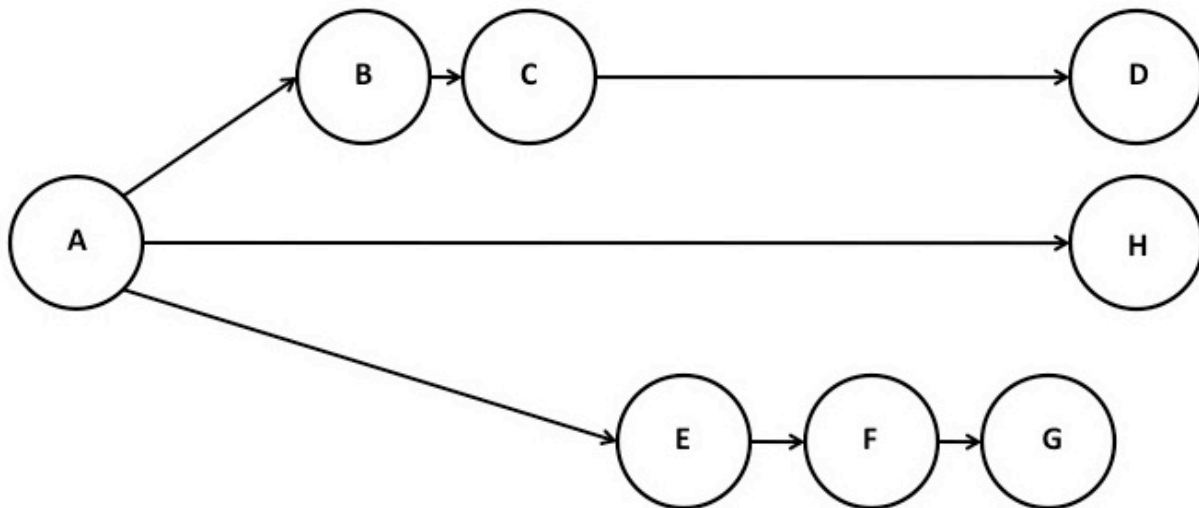
Fish spoil within 12 hours in the tropics. The climate of the tropics is ideal for bacterial growth. Unhygienically slaughtering the fish can also cause spoilage, where certain contaminated areas of the fish are exposed to the meat. Care must be taken in the process of filleting the fish.

Barzakh Falah may consider the following options for post harvest fish storing.

- Refrigeration/freezing (energy is costly)
- Salting
- Smoking (fuel must be provided for heating)

V. Progress Chart

Tilapia Fishpond Progress Chart



Tilapia progress chart: Shows relative completion timeline of the various tasks involved in tilapia aquaculture.

- A. Construction: Pond, dike, trenches, and inlet/outlet pipes. Time needed for completion dependent on available volunteers and labor. Estimated scope: 2-3 weeks
 - B. Fill pond with water, seepage and refill (2-3 weeks)
 - C. Promote/allow growth of natural feed (4-7 days).
 - D. Daily Maintenance, scope: staking of fish, reproduction, harvest
 - E. Stock the fish, done after step C
 - F. Promote reproduction by providing proper environment (rainy season)
 - G. Reproduction-establish fingerlings
 - H. Once reproduction has occurred (G), harvest market sized fish only as needed on day-by-day basis.
-

VI. Reference:

Carballo, E, Van Eer, A, Van Schie, T, Hilbrands, A. (2008). *Small Scale Fresh Water Fish Farming*. Agromisa Foundation and CTA, Wageningen

Specific methods and measurements of fishpond construction and maintenance, as well as tilapia care and harvest were taken from *Small Scale Fresh Water Fish Farming*.

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APPENDIX D

Goat Herding in Belize

By Maddy Brumberg . Barzakh Falah . April 2010 . Applications of Sustainable Development

Why Goats?

Goats provide an excellent option for small sustenance farms for a variety of reasons. They are easy to care for, nutritious and useful to integrate into farm systems. In addition to their benefits to the farm, they can provide a modest income by selling their milk, cheese and meat. Per unit of milk, goats require fewer calories than other milk livestock, making them an efficient and cost-effective livestock option. In addition to having low-caloric intake, goats are foragers. They often eat over 25 different species within a day of grazing. This is significantly more species than cows, sheep or horses. This makes them effective pasture and land managers. They can be used to clear land or keep the vegetation in check. In fact they can be used instead of lawn mowers to keep grass at a manageable length, saving the farmer both time and money. Given the ease of care and their versatility, goats are an excellent option for any small-farm.

Nutrition

Goat's milk, while similar to cow's milk, differs in a number of ways. For example, people who are allergic to cow's milk can, depending on the allergy, enjoy goat's milk. Also it has been renowned for its health benefits and unique taste. As goats eat all manner of things, their milk can be "flavored" by changing their diet. This can give rise to a variety of unique and interesting products including yogurt and cheese. The versatility of goat's milk makes it ideal for small farms as some of the product can be consumed immediately, while other can be stored for a longer period.

In addition to providing milk, goats can be used as a meat source. The requirements for raising goats for meat are nearly the same as for dairy, so a mixed herd of dairy and meat goats could easily and profitably be managed. Goat meat provides a sustainable and healthy protein source for small-farms.

Table 1. Comparison of average milk composition.

| NUTRIENT | HUMAN | COW | GOAT |
|-------------------------|-------|--------|--------|
| Energy (kcal/100 ml) | 68.00 | 69.00 | 70.00 |
| Lactose (%) | 7.30 | 4.70 | 4.10 |
| Protein (%) | 1.10 | 3.50 | 3.20 |
| Fat (%) | 4.00 | 3.60 | 3.80 |
| Cholesterol (mg/100 ml) | 20.00 | 15.00 | 12.00 |
| Ash (%) | 0.20 | 0.70 | 0.80 |
| Calcium (%) | 0.04 | 0.18 | 0.19 |
| Phosphorus (%) | 0.06 | 0.23 | 0.27 |
| Iron (%) | 0.20 | 0.06 | 0.07 |
| Vitamin A (IU/g fat) | 32.00 | 21.00 | 39.00 |
| Vitamin D (IU/g fat) | 0.30 | 0.70 | 0.70 |
| Vitamin C (mg/100 ml) | 3.00 | 2.00 | 2.00 |
| Thiamin (µg/100 ml) | 17.00 | 45.00 | 68.00 |
| Riboflavin (µg/100 ml) | 26.00 | 159.00 | 210.00 |

Data from <http://www.ADGA.org/>

Abbreviations: kcal/100 ml is a measure of energy content, 1 kcal = 1,000 calories; IU = international unit, a measure of vitamin potency; µg = microgram, 1/1000 milligram

Table 2: Goat Meat Comparison Chart

| Animal Specie | Calories | Total Fat (grams) | Saturated Fat (grams) | Protein (grams) |
|---------------|----------|-------------------|-----------------------|-----------------|
| Goat | 122 | 2.58 | .79 | 23 |
| Beef | 245 | 16.00 | 6.80 | 23 |
| Pork | 310 | 24.00 | 8.70 | 21 |
| Lamb | 235 | 16.00 | 7.30 | 22 |
| Chicken | 120 | 3.50 | 1.10 | 21 |

Source: Meat Goats Production, Extension Animal Husbandry, Department of Animal Science, NCSU

Physical Requirements for Goat Herds

Pasture & Feed

When raising a goat herd, pasture selection and maintenance are essential for a successful program. There are a number of factors to be considered; pasture size, rotation, composition, shelter and water. Each of these addresses a different set of issues and should be given equal weight when creating the goat's environment.

Ideally, pastures should provide all the nutrition a goat requires. To ensure this is the case, the pasture, if it does not already contain it, should be seeded with some variety of legumes. Excellent choices include clover, alfalfa, birdsfoot trefoil, sainfoin and vetch. These plants in addition to providing carbohydrates provide the essential nutrient nitrogen. Important in the formation of protein and DNA, nitrogen is essential to a healthy goat.

In order to ensure a constant supply of nutritious pasture, rotation of pasture use is recommended. Switching pastures results in a number of benefits for goat populations. First of all the pasture is allowed to regrow and can continue at a healthy balance. If the pasture is not allowed to regrow freely, the weeds are allowed to grow while the desirable plants are not because of the natural grazing preferences of the herd. This leads to a less productive pasture that will require supplemental feed. Secondly, maintaining the pasture's height at least 3 inches is a good preventative measure for parasites. Parasites are not able to climb more than one to two inches from the soil, so keeping the grass longer than this exposes the herd to fewer dangerous parasites. Lastly, overgrazing can cause a host of environmental problems. Without sufficient plant cover, the ground may become compacted and eroded which not only makes it hard to reestablish a pasture but disrupts the natural cycle of the area.

In addition to maintaining a healthy pasture, it is necessary to provide the goats with shelter, water and feeding space. The latter of these facilities will not be necessary year-round but should be created to provide goats with extra feed at times of stress (birthing, drought, excessive rain etc). The former two, however, need to be provided all year round.

Facilities

Shelter should be provided in two ways. First a number of trees or shrubs should be placed in the pasture to provide the goats with shade during the day. Secondly, and more importantly, the goats should have access to a shed. This shed needs to be dry, clean and well-ventilated. In the climate of Belize, freezing is not a concern, but dampness is. It is essential that the goats have access to dry bedding to prevent foot rot and other skin diseases. To achieve this is relatively simple. One of the most important things is to provide ample ventilation. This can be achieved by leaving a gap of at least 4 inches between the roof and the wall. In addition to this gap, a ceiling fan is advisable to keep air movement at its best year round. After ventilation is addressed, preventing water from entering the building is the next concern. In an area with as much rainfall as Belize, it is advisable to raise the foundation slightly to prevent seepage. Goats are nimble enough to have no problem with a small step up. Once the structure is completed the maintenance of the building needs to be considered. It is necessary, especially in the wet months, to change the bedding of the barn frequently to quash any mold or fungus that is growing. Options for bedding include dry straw, wood shavings or ground corncobs covering a dirt floor. Removing the soiled bedding daily or every-other day should be sufficient.

Within the shed, the goats must have access to water. Although goats have remarkable tolerance for drought, this trait is counteracted by heat. Since the climate of Belize is quite warm, the goats should have constant access to clean water. It is advisable to use troughs or buckets instead of a natural water source. The benefits of troughs are that they are moveable. This prevents the overgrazing and compaction of one certain area. Also livestock tend to ruin riparian zones so it is best to provide them with artificial water source to prevent these problems.

Choosing a Goat

Now that the infrastructure for your goat herd is in order, it is time to select your goats. The considerations are different for meat and dairy goats as they will serve very different species. The climate of Belize adds another dimension. Goats, generally come from dry, arid, hot regions. While Belize is hot, it is not dry, which effects the breed of goats to be used. While more data is needed, Nubian goats seem to be well-suited for moist tropical climates. The most popular dairy goats are the Nubian, LaMancha and Alpine. For meat production the Nubian, unlike other dairy goats, are a desirable breed. For the purposes of Barzakh Falah a herd of 20-50 Nubian goats (one buck and the rest does) would be a reasonable size for meat and milk production.

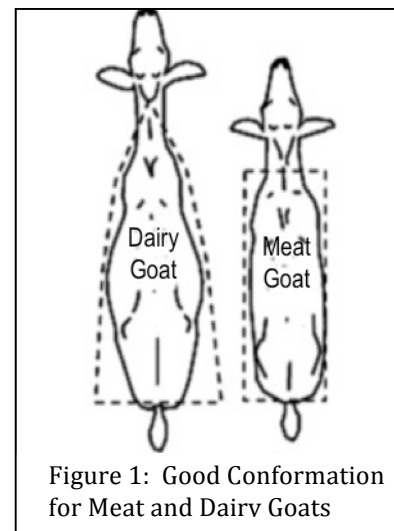


Figure 1: Good Conformation for Meat and Dairy Goats

When picking out individual goats it is important to be able to pick out desirable characteristics. The goats should be a healthy weight, possess a shiny coat, have evenly spaced teeth and look generally healthy. One can tell the age of goats by the number of sets of teeth. Each set of set (every 2 individual teeth) represents one year of life. This can be useful in bargaining and to ensure you are getting the age goat you are expecting

Raising a Goat Herd

After the herd is established it must be maintained. To maintain a healthy goat herd one must pay attention to their health, nutrition and sync operations with the goat's lifecycle.

Nutrition

Although it was discussed earlier, nutrition needs to be emphasized. Goats are foragers, preferring woody shrubs and plants. Although they eat a wide variety of things it is important that goats receive enough food and varied food. As discussed earlier this can be assured by a varied pasture and providing supplemental feed at times of stress. Additionally a salt block should be provided to ensure the goats have sufficient electrolytes

Lifecycle

The nutritional needs of goats vary throughout their life. Does reach sexual maturity at 6-8 months old. At this point they can be bred for a five month gestation period. In the tropics, unlike more seasonal climates, does can come into heat throughout the year. This can pose challenges and advantages to goat herders. It can be easier to manage smaller number of does kidding at one time but more of the year will need to be devoted to kidding.

Kids (baby goats) are, like all newborn animals, vulnerable. They are born without antibodies and so are very susceptible to disease. The kids, within the first 2-4 hours of life, must start eating to receive antibodies stored in their mother's utter. These antibodies are no longer able to be absorbed into the bloodstream after 18 hours of life. It is therefore critical that suckling occur before this time. In addition to ensuring this special attention should be paid to correct pasture management and clean living quarters during kidding to reduce disease. Other than allow them to mature, the only other thing to be done with the kids is dehorning. Goats are dehorned to prevent them from injuring each other, themselves and humans.

Health

Goats are relatively hardy animals but there are a number of common ailments that can be easily prevented. Below is a table of common ailments, causes, treatments and preventative measures

Table 3: Common Goat Afflictions and Treatments

| Affliction | Transmission | Symptoms | Treatment | Prevention | Other |
|---------------------------------------|--|--|--|---|--|
| Parasites | ingested through eating, spread by feces | Weight loss, rough coat, depression, anemia (evident by pale eye lids and gums, death (if untreated) | Deworming, Prevention | Feeding Sericea Lespedeza, Proper Pasture Management | Dewormers will linger in milk, resistance to dewormers is growing so they should be used sparingly |
| Caprine Arthritis-encephalitis | Viral infection transmitted through milk and other bodily fluids | hardened udder, wasting away, arthritis, swollen knees | No vaccine or treatment | Cull infected animals, check medical records of new herd members | CAE can be eliminated in milk through pasteurization |
| Caseous Lymphadenitis (CL) | Infects through cuts and scrapes. Transmitted through direct contact | Abscess in lymph nodes (internal or external), if internal goats waste away, | Lance the abscess and clean with iodine (contain <i>all</i> drained liquid) ²⁰ | Do not buy goats from infected herds, contain infection if it occurs | CL is transmittable to humans and can persist in environments for months so extreme caution must be used |
| Footrot Bacterial infection | Infects the hooves. Bacteria can be present in the environment or by contamination of infected individuals | Limping, pockets of pus on the hoof, strong and foul odor | Trim hooves then soak in a bath of zinc sulfate, copper sulfate or formaldehyde, then move to dry area | Quarantine new stock and infected individuals, remove infected bedding | Footrot is highly communicable so an outbreak should be contained immediately |
| Mastitis | Touching of infected equipment | An udder that appears hot, painful, tense, hard and generally inflamed | Antibiotic treatment is effective if given early enough | Clean milking equipment and facilities, wash udders daily, good nutrition | Mastitis is not serious as long as it is treated and contained quickly |
| Contagious Ecthyma (sore) | Direct contact or loose scabs | Blisters and scabs on lips or udders | Clean the afflicted area and cover with an antibiotic | Quarantine new animals and contain | Highly contagious & communicable to humans. |

²⁰ Source: www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/10801.htm

| | | | | | |
|---------------|--|--|-------|-----------|--|
| Mouth) | | | cream | infection | After an initial infection, immunity is gained |
|---------------|--|--|-------|-----------|--|

Reaping the Benefits of a Goat Herd at Barzakh Falah

In conclusion, with proper herd and facility management, a small goat herd presents considerable gains for Barzakh Falah. The site of the orphanage is 25 acres and much of that is not yet converted to pasture land. Due to the limitations of the land, goats are the perfect option for a dairy operation. They have low caloric requirements, excel in sparse environments and can provide a valuable experience for the children. Because the maintenance of a goat herd is relatively simple, it is possible to allow the children, with supervision, to manage the herd. In addition to providing nutritious food, a herd of 25 to 50 goats could provide a small income for the orphanage. Overall, although a goat herd is a step to be taken in the future, it is one not to be dismissed.

Considerations for a warm, humid climate

Goats, while thriving in hot, arid climates, are not known for living in humid areas. This is not to say that it is not possible, however. Certain goat breeds can be selected for their climate tolerance and dairy products can be stored as yogurt or cheese to prevent spoilage. There are successful projects across the Caribbean. In fact, the institution that is facilitating this movement is located ten minutes from the site of Barzakh Falah. Caribbean Agricultural and Research Development Institute (CARDI) is a sector of Member Countries of the Caribbean Community and has been operating in agricultural and livestock development for thirty years. In order to start a project, CARDI are the people to contact. Their contact information is as follows.

Website: www.cardi.org

Phone: (501) 824-2934

Fax: (501) 824-2936

Email: cardi@btl.net

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APPENDIX E

A Guide to Education Approaches

A Beka Method:

The A Beka homeschool method was founded in 1954 and is a Christian approach to K-12 education. This approach to education mirrors many traditional school techniques, incorporating textbooks and workbooks to “make sure their child remain on par with their peers in Christian and public schools.” (Sanders, 2010). The A Beka program publishes many “colorful, thorough and easy to use” materials, making the system simple and convenient for parents new to home schooling techniques. The range of materials that A Beka publishes as compliments to the curriculum includes; flashcards, charts, games, lesson plans, workbook, teacher’s manuals, etc. (Sanders, 2010).

Pros of using the A Beka approach:

- Materials can easily be reused among children or resold
- Popular, standard home schooling approach
- The curriculum schedule is easily adaptable to meet household or organization’s desires and personal schedules
- Effective education approach for child with visual and auditory learning styles, or who learn better in a traditional manner
- Offers 2 curriculum options:
 - a) Parent directed program: allows for individual purchase of materials to use in an independent manner, allows for more flexibility and freedom
 - b) Fully Accredited option: A Beka Academy generated report cards and transcripts for each student.

Cons of using the A Beka approach:

- One of the most expensive programs compared to similar options on the market
- Education and learning techniques not conducive with children who are kinesthetic or hands-on learners
- The curriculum moves at a “rapid pace” and is not an efficient approach for children with special needs or learning disabilities

Sanders, C. (2010). *A Beka Homeschool Curriculum: An Honest Look at the Pros and Cons*. Retrieved April 22, 2010, from Ezine Articles: <http://ezinearticles.com/?A-Beka-Homeschool-Curriculum---An-Honest-Look-at-the-Pros-and-Cons&id=1687593>

An Informal Analysis of the A Beka Curriculum:

“A Beka is one of three curriculum packages (the others being Bob Jones University and Accelerated Christian Education/School Of Tomorrow) used both in private schools operated by dominionist churches, and correspondence schools operated as "Christian Homeschool

Programs". A Beka is regarded (rightly or wrongly) as the most "liberal" of the three". (Talk to Action, 2005)

This article found on *Talk to Action* website analyzes the approach the A Beka model takes towards each academic subject. The breakdown and scrutiny of the curriculum subjects is all derived from information retrieved directly from the official A Beka website and advertising material.

BIBLE:

“The clear teaching of the Bible is the foundation for all other learning. Since the Bible is the most important subject in the Christian school, it should be taught specifically and systematically. “ (Talk to Action, 2005). The Bible and scripture curriculum is set up in a narrative fashion, in order to elicit a clearer interpretation for younger students.

HISTORY:

“Students need a realistic view of history, government, geography, and economics based upon the foundational truths of the Scriptures.” (Talk to Action, 2005). The A Beka Academy has shaped its lessons plans to relate most historical and political events back to the ordinance of God. Law, economics, communism, socials, liberalism, free-enterprise are all interpreted and taught from a conservative, Christian perspective; which may offer a convoluted or biased view of issues and topics to students. The A Beka Book has decided to reject or exclude particular topics such as Marxist/Hegelian conflict theory, in order to provide a more “positive, uplifting” portrayal of historical events. “In short, A Beka Book offers you a Christian and conservative approach to the study of what man has done with the time God has given.” By presenting history to children in this manner, they may create an subjective understanding that drastically differs from children receiving education in a public or non-Christian based academy. This is a possibility that should be heeded.

MATHEMATICS:

“Mathematics is the language God used in His creation of the universe, and thus it is logical, orderly, beautiful, and very practical in science and in daily life.” (Talk to Action, 2005). It should be noted that the A beka model follows a very similar train of thought in all of their academic subjects, meaning even within mathematics there is a heavy emphasis on the decree of God. Within this field of study, it is elicited to students that mathematical laws, theories, numbers, etc. are all conceived through God himself, it is therefore man’s job to utilize these “absolutes”. The A beka approach does not believe that concept of numbers of mathematics is a production of man. Therefore any flaws within the modern mathematics system are excluded from the A beka curriculum, such as set theory. Choosing to leave out particular mathematical concept may have the danger of robbing students from an entirely comprehensive understanding of the subject.

SCIENCE AND HEALTH:

The science curriculum is very partial to staunch Christian beliefs; “A Beka Book science texts teach that modern science is the product of Western man's return to the Scriptures after the Protestant Reformation, leading to his desire to understand and subdue the earth, which he saw

as the orderly, law-abiding creation of the God of the Bible.” (Talk to Action, 2005). The A Beka Book strives to explain all scientific concepts as creations or products of God. Spirituality sets the foundation for this perception of science. The A Beka approach rejects scientific concepts that revere natural processes and advancement made by human-kind. Evolution is an example of one notion that the A Beka Academy chooses to withhold from its students. (Talk to Action, 2005) (Talk to Action, 2005)

Talk to Action. (2005, November 22). *An informal analysis of the A Beka curriculum*. Retrieved April 22, 2010, from Talk to Action: Reclaiming Citizenship History and Faith: <http://www.talk2action.org/story/2005/11/22/234711/68>

 *A Beka Book.*

Home School Parent's Guide to Curriculum & Scheduling



How to Use *A Beka Book Curriculum / Lesson Plans* in Your Home School

1. *A Beka Book Curriculum/Lesson Plans* are designed to guide parents in teaching average children. The Curriculum/Lesson Plans have been used for more than 50 years in Christian schools and home schools.
2. Because children need reinforcement of material that has been taught, the Curriculum/Lesson Plans include oral and written review.
3. Parents using the Curriculum/Lesson Plans need to cover each point under Preparation and Procedure with their child. Each aspect of the lesson is important to the complete education of the child.
4. Visuals are often suggested to enhance learning. A suggested minimum list is included in the *A Beka Book Home School Order Form* under "Recommendations." These visuals are highly recommended for use in instructing the child. Several visuals have been printed especially for home school parents.

| | |
|---|---------|
| Phonics Charts and Games | K4-K5 |
| Numbers Charts and Games | K4-K5 |
| Learning Games | K4-K5 |
| Arithmetic 1 Charts and Games | Gr. 1 |
| Arithmetic 2 Charts and Games | Gr. 2 |
| Arithmetic 3-8 Charts | Gr. 3-8 |
| Language 4-6 Charts | Gr. 4-6 |
| Geography Teaching Maps | Gr. 4 |
| Old World History/ Geography Maps A | Gr. 5 |
| New World History/ Geography Review Maps B | Gr. 6 |
| Science Teaching Charts | Gr. 4-6 |
| Health Teaching Charts | Gr. 4-6 |

5. *A Beka Book Curriculum/Lesson Plans* save parents many hours of planning and preparation. Using them assures that each page of the textbooks, quiz books, and test books is assigned at an average pace for the grade.
6. Curriculum/Lesson Plans combined with the suggested basic time schedule allow home-schooling parents time to teach their children and

still have time to care for other responsibilities. Suggestions for the order of the day are given on the next page. The times may vary slightly, but parents who use the total *A Beka Book* program have said that these times are sufficient for teaching. Often the child will use additional time to work independently.

7. Parents often have several children to teach at one time. See the last page for a sample of how to set up a master time schedule at home. Notice that the child needs parental instruction from the Curriculum/Lesson Plans as well as independent seatwork or practice time. Keep in mind that a kindergarten child does not have a long attention span and generally cannot do seatwork until second semester. Grades 1-2 have similar schedules and Grades 3-6 are very much alike in format. This should help you in planning your own master time schedule for your home school.
8. Special home school Curriculum/Lesson Plans have been written for the following subjects:

| | |
|----------------------------|-------|
| K4 Phonics/Reading/Writing | |
| K4 Numbers | |
| K5 Phonics/Reading/Writing | |
| K5 Numbers | |
| Phonics/Reading 1 | Gr. 1 |
| Writing/Seatwork 1 | Gr. 1 |
| Arithmetic 1 | Gr. 1 |
| Phonics/Reading 2 | Gr. 2 |
| Writing/Seatwork 2 | Gr. 2 |
| Arithmetic 2 | Gr. 2 |
| Reading/Phonics 3 | Gr. 3 |
| Language Arts 3 | Gr. 3 |
| Arithmetic 3 | Gr. 3 |
| Science/Health 3 | Gr. 3 |
| History 3 | Gr. 3 |
| Language Arts 4 | Gr. 4 |
| Arithmetic 4 | Gr. 4 |
| Science/Health 4 | Gr. 4 |
| History 4 | Gr. 4 |
| Language Arts 5 | Gr. 5 |
| Arithmetic 5 | Gr. 5 |
| Science/Health 5 | Gr. 5 |
| History 5 | Gr. 5 |
| Language Arts 6 | Gr. 6 |
| Arithmetic 6 | Gr. 6 |
| Science/Health 6 | Gr. 6 |
| History 6 | Gr. 6 |

A Beka Book

Recommended Schedule for Subjects

with Estimated Time of Parent Teaching*

| Kindergarten | |
|---|-------------------------|
| Phonics | 10 min. |
| Writing or Reading (later in year) | 10–15 min. 8–12 min. |
| Activity Time (Science/Social Studies/Fine Arts) | 10–15 min. |
| Numbers/Numbers Writing | 10–15 min. |
| Phonics Review | 5–10 min. |

| Grades 1–2 | |
|---|-------------------------------|
| Phonics (Spelling/Language) | 15 min. |
| Seatwork (Children work independently 30–60 min. during the day.) | 5 min. Explanation time |
| Reading | 15 min. |
| Writing | 15 min. |
| Arithmetic | 30–35 min. |
| Reading | 15 min. |
| Additional Activities | 15–20 min. |
| 1st Quarter | Comm. Helpers (Gr. 1) 3x/week |
| 2nd Quarter | Science 3x/week |
| 3rd Quarter | History 3x/week |
| 4th Quarter | Health 3x/week |
| Music | 1x/week |
| Art | 1x/week |

| Grade 3 | |
|---|------------------------------|
| Arithmetic | 30 min. |
| Seatwork (Children work independently 20–30 min. during the day.) | 1–2 min. Explanation time |
| Reading | 15 min. |
| Language | 15 min. |
| Spelling/Poetry | 10–15 min. |
| Penmanship | 15 min. |
| Reading | 15 min. |
| Science (first semester)/ History (second semester) | 15 min. |
| Additional Activities | 15 min. |
| Music | 1x/week |
| Art | 1x/week |

| Grades 4–6 | |
|--|------------|
| Arithmetic | 30 min. |
| Language | 25 min. |
| Reading | 20 min. |
| Spelling/Poetry | 10–15 min. |
| Penmanship | 10 min. |
| History | 20 min. |
| Science/Health | 20 min. |
| Additional Activities | 15 min. |
| Music | 1x/week |
| Art | 1x/week |
| (Children work independently throughout the day on various practice exercises and reading assignments.) | |

*Times may vary.

SAMPLE

A Beka Book Home School Combination Grade Schedule

| Time | Kindergarten | Grade 2 | Grade 4 |
|-------|---|---------------------------------|--------------------------------------|
| 8:15 | <u>Bible / Devotions</u> | | |
| 8:45 | | | <u>Language</u> |
| 9:00 | | <u>Phonics</u> | Independent—Language |
| 9:15 | <u>Phonics/Writing or Reading</u> | Seatwork— Letters and Sounds | Independent— Language/Spelling |
| 9:30 | <u>Social Studies/ Science/Art</u> | Seatwork—Language | Independent—Read |
| 9:45 | <u>Play/Art</u> (5 min.) | Seatwork—Spelling | <u>Read</u> (10 min.) |
| 10:00 | <u>Art/Read</u> (5 min.) | <u>Read</u> (10 min.) | Independent—Arithmetic |
| 10:15 | <u>Phonics Review</u> (5 min.)/ <u>Numbers</u> (10 min.) | Silent Reading | Independent—Arithmetic |
| 10:30 | <u>Numbers</u> (5 min.) | Seatwork—Arithmetic | <u>Arithmetic</u> (10 min.) |
| 10:45 | | <u>Arithmetic</u> | Independent—History |
| 11:00 | | <u>Arithmetic/Writing</u> | Independent—Science |
| 11:15 | | Seatwork—Writing | <u>Arithmetic</u> |
| 11:30 | | <u>Read</u> (5 min.) | <u>Spelling/Penmanship</u> (10 min.) |
| 11:45 | LUNCH | | |
| 12:00 | LUNCH | | |
| 12:15 | | <u>Read</u> | Independent—Penmanship |
| 12:30 | | | <u>History</u> |
| 12:45 | | | <u>Science</u> |
| 1:00 | <u>Additional Activities</u> | | |

*Underline indicates directed teaching by parent. Allow some time (10–30 min.) each day for children to do homework in grade one and above. Most homework in grades four and above is independently done.



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Alternative Suggestions:

While doing research on the A Beka Academy, several other home schooling methods were brought to attention. Just to introduce you to some potentially cheaper and more comprehensive approaches to education, here is a glimpse into a couple more viable methods that may be worth further investigation.

WALDORF HOMESCHOOLING:

“Waldorf Education is based on the work of Austrian philosopher Rudolf Steiner. Its premise is that the human being has three aspects: thinking, feeling and willing, and that education has to come from experiencing the world from all three aspects. Waldorf Education does not use textbooks. The children make their own based on their experiences.

Waldorf Education is particularly adaptable for Homeschooling the independent, hands-on learner, the child with ADD or ADHD or just the child who is frustrated with the time consuming nature of academic schooling.

Waldorf Homeschooling makes use of real life in the home to construct a meaningful and creative education for your child.”

<http://www.waldorfwithoutwalls.com/>

Christian Waldorf Curriculum

“Christopherus Homeschool Resources distributes a Christian Waldorf-inspired homeschooling curriculum. Donna Simmons, the founder of Christopherus has worked with Waldorf homeschooling families for more than ten years to create a Waldorf homeschool curriculum that begins in Kindergarten and goes all the way through 12th grade. The program is complete through the third grade and Donna is working with families in the older grades to help finish the older grades.”

http://homeschooling.suite101.com/article.cfm/waldorf_homeschool_curriculum

<http://www.christopherushomeschool.org/home.html>

THE REGGIO EMILIA APPROACH:

The Reggio Emilia Approach is an educational philosophy, which is focused on the preschool years through primary education.

Originated after World War II by the parents in the villages of Reggio Emilia, Italy, when the parents believed as a result of the destruction from the war, there needed to be a quicker approach to teaching the children believing that it is in the early years of development that children form who they truly are. The Reggio Emilia Approach was created “based on the principles of respect, responsibility, and community through exploration and discovery in a

supportive and enriching environment based on the interested of the children through a self-guided curriculum”²¹

The approach puts the natural development of children as well as the close relationships that they share with their environment at the center of its philosophy. The approach is based upon the following principles:

- Children must have some control over the direction of their learning;
- Children must be able to learn through experiences of touching, moving, listening, seeing, and hearing;
- Children have a relationship with other children and with material items in the world that children must be allowed to explore and
- Children must have endless ways and opportunities to express themselves

The organization of the physical environment is crucial to Reggio Emilia’s early childhood program. The importance of the physical environment lies in the belief that children can best create meaning and make sense of their world through environments which support “complex, varies, sustained, and changing relationships between people, the world of experience, ideas and the many ways of expressing ideas.” The preschools are generally filled with indoor plants and vines, and awash with natural light. Entries capture the attention of both children and adults through the use of mirrors, photographs, and children’s work accompanied by transcriptions of their discussions.

The Reggio Emilia Approach About the Reggio Emilia Approach - The Reggio Emilia Approach. (n.d.). The Reggio Emilia Approach - The pre-school Childs languages of learning. Retrieved March 26, 2010, from <http://www.reggioemiliaapproach.net/about.php>

THE MONTESSORI APPROACH

The Montessori approach stemmed from work with underprivileged children in Italy to help those excluded from education and deemed ‘un-teachable.’ The Montessori method focuses on working with each child to develop confidence, independence and a desire to learn. Children 'learn through doing' and work in an environment of mutual respect and co-operation, which aims for the development of the whole child.

“The Montessori method was created so that Maria Montessori's philosophy could be implemented. Montessori believed the environment was second to life itself. She said, "it can modify in that it can help or hinder, but it can never create" (The Montessori Method, 1912). The Montessori environment is called the prepared environment. There are six essential components

to the prepared environment: freedom, structure and order, reality and nature, beauty and atmosphere, the didactic materials, and the development of community life.

A child having freedom in a prepared environment will be able to develop physically, mentally, and emotionally to his or her full potential. The child uses this freedom to work with the educational materials and to socialize with others. All the materials are designed to fulfill the inner desire for self-construction and spiritual development of the child. The materials indirectly prepare the child for future learning by capturing the child's attention and initiating concentration. The materials at first are concrete and gradually become abstract. Each set of materials progresses from simple to complex. The prepared environment and its atmosphere must be pleasant to encourage positive growth and spontaneity. The environment must be cheerful, relaxing and warm, inviting the child to participate so he can fulfill his inner will.”

<http://www.homeschoollearning.com/approaches/montessori.shtml>

APPENDIX F

Weekly Summaries

3/22

Last week, Cat, Kalyn, Dani, Sara, Emily and myself worked on Wednesday and Kalyn and Maddy worked on Thursday. Today, Cat, Dani, Maddy, and Kalyn worked there again. We have plans to work this Wednesday as well. As you know, we've secured the domain for the website and will be working on it shortly (Dani said it took a day to confirm stuff before we could work on it). We have a basic plan for our brochure but have yet to finalize it. The Land Use group sent Jaime some very good information on Tilapia farming. Kalyn and Cat have scheduled a meeting for Wednesday to talk to Diane Hall, the Director of the Children's Home Section of the Ministry of Social Services.

3/10

This week for Barzakh, Sarah, Cat, Kalyn, and myself worked at Barzakh for three Today. It was cool because there was a probelize group there and apparently there will be for the next two weeks so we can do more weekday work days. We were helping to set the foundation for another beehive like building. We also spoke with Jaime a little about the costs associated with a website and we hope to have that launched soon. The other groups have been researching land use and orphanage information. Cat and Kalyn have been calling a contact that Nancy gave us, but she doesn't call them back. Jaime suggested having Nancy set up the meeting for them. Things are good.

2/27

So this week our group did a few things. Firstly, we broke up into specific groups within our larger group. Myself, Dani, and Sarah are approaching the media aspect. We'll be focusing on the website, the brochure, and checking up on grant writing. Kalyn and Cat are working on other orphanage research while Emily, Maddy, and Nick are working on sustainable land use. Next we all came up with questions for Jaime and Nancy on what they wanted from us. The next thing we did was send a few people to Springfield to look at a fig farm and see the land use there. We met with Jaime and Nancy and it was an awesome meeting. I feel like we all have a much better idea about what we need to do. Today our group is going to Georgeville to work for a few hours on the orphanage.

2/12

In order to get our project "on the road" the Barzakh Falah group has delegated roles and responsibilities within the group. We have met in our group outside of class to discuss meeting times and potential questions for Jamie. Potential meeting times include Mondays, Wednesdays and Saturdays. In addition we discussed areas of interest, since our project has a variety of tasks. Before our meeting with Jamie we all will have reviewed the Lit Review. We also set up our meeting with Jaime and met with him today.

Questions for the meeting with Jamie include:

1. Review Jamie's "Needs Assessment"
2. When is a good time to meet?
3. What are your priority projects?

4. What are your expectations?
5. How often should we check in with him?
6. What level of independence do you want us to take on? How much time during the week do you want us to dedicate to the projects?
7. Discuss Jamie's goals for us and within the different categories.
8. Will our work consist of mostly research and writing or hands on physical progress or both?
9. What budget items need to be considered (supplies/equipment, brochures/stationary, travel)?

APPENDIX G

Brochure

A Message from the Founder

Orphaned, abused, abandoned, or forgotten—these are the children we protect. Sometimes humanity forgets its obligations to a new generation. Societies have been too wrath with problems, so sometimes we leave children that are in need of comfort and nurturing to minimum priority. But most of all, they need hope. These children do not ask for sympathy, but instead prefer encouragement, approval, admiration, acceptance, respect, and love. They are to be prayed for, for their father in heaven has given them life, and where there is life, there is a chance for prosperity for the spirit and body. They truly are a future. With guidance, reassurance, love, and care, these children represent a part of a future.

Yahshuah stood for the poor and depressed. I choose to follow his example. Affirming his value and importance of these children to our nation and working to improve their opportunities in life. What will you stand for?

Barzakh Falah was once my dream; it is now becoming a reality. My goal is that through Barzakh Falah, we bring healing to these children; showing them love, teaching them moral, family values, educating them and reintroducing them to our Heavenly Father. Only then can these little ones become true assets to our world, for even diamonds need to be polished to have their real value. Please join me in ensuring that these little angels reach their true potential, through your help and the saving Grace of Our Father.

-Nefretery Nancy Juan Marin



Volunteering

Opportunities

- Lay foundations
- Build green structures to house children and caretakers
- Create roads
- Farm management and implementation
- Plant gardens
- Help a great cause in a beautiful environment

How you can help

- Fill out the pledge card
- Donate your time
- Spread the word
- Learn more about our cause
- Make a financial contribution

Why is Barzakh Falah Different?

Improved Sustainability

- Cooperation with local and international organizations
- Volunteers
- Sustainable land use
- Eco-design
- Renewable Energy
- Food Security



Care and Support

- Family Planning
- Long-term homes
- Life skills building
- Highly qualified educators
- Stability
- Environmental education

With Guidance, reassurance, love, and care these children represent a brighter future.

Mission Statement

The mission of Barzakh Falah is grounded in respect. We believe that every child has the right to grow and develop in a healthy and safe environment and in a cooperative atmosphere of care, love, stability, and hope. This care is vital for children who have been abandoned or abused, who deserve a sense of belonging in an atmosphere where they learn to care for one other, care for the plants and animals, and care for the soil.

For the children in our care, this shared experience evokes the feeling that they are a part of something worthwhile, something grand, which pulls everyone together and renews their spirits.



Representing a brighter future

Hope lives here, resilience lives here, together we will see it through.



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The Sustainable Children's Home of Belize

