I, Bridgett D Hedrick, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

It is entitled:
Contributing Meaningfully as a Foreigner

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This work and its defense approved by:

Committee chair: Michael McInturf, MARCH

Committee member: Aarati Kanevar, PhD
Contributing Meaningfully as a Foreigner
Providing an approach through sociocultural logic + expression

A thesis submitted to the Graduate School of the University of Cincinnati in partial fulfillment of the requirements for the degree of

Master of Architecture
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The earthquake disaster in Haiti in 2010, created immediate and long-term needs for their people. The resulting unbalanced hierarchy between nature and man produced an environment with little to no organization or control. This thesis addresses how the American architect can provide the best design solutions for Haitian people in his or her role as a foreign agent. It poses the question of whether non-local agents can design cross-culturally by employing a socio-cultural approach through the use of indigenous materials, craft, building techniques, and spatial organization. The built environment is a reflection of the socio-cultural logic of place. This thesis is an exploration of architecture as a cultural and social expression of the Haitian life, arguing that social expression of architecture is embedded in development through agriculture. For long-term improvements in Haiti, this thesis will study and analyze subsistence farming through an agriculture-training center in Jeremie, Haiti.
GRATITUDE

“Each of us has received a talent. Use it to serve one another…” I Peter 4:10

I would like to thank 100 Fold Studio and Light House LANDs for the opportunity and support to follow my passion while in school. Thank you for your investment in me as an individual and allowing me to pursue my passion through this trip to Haiti.

Second, I would like to thank my family for their endless support, encouragement, and always being behind me. Thank you for teaching me to go after my dreams!

Third, I would like to thank my professors at Cincinnati for always having an open door to talk about architecture and their investment in teaching! Thank you for believing in me and pushing me to reach my goals. Also, thank you Aariti for your support and wisdom.
This thesis is developed out of many different personal experiences during my educational, professional, and personal journey.

I hold a previous degree in Interior Architecture, which deeply rooted me in the user-first approach to design. This education helped me to see that design is more than merely aesthetic, that design serves the purpose of helping people in need and substantially bettering their lives. UNC-Greensboro offered me exposure to different cultures through studying abroad programs in Finland and China. These experiences initiated in me a persistent interest in how culture affects the way that people design and perceive space; and I continue to immerse myself in international communities and places in order to develop a deeper understanding of the interplay between culture and the production of designed spaces.

While pursuing my graduate degree in Architecture I had three experiences that served to enhance my passions. Shortly after beginning my graduate studies in Cincinnati, I experienced what it meant to be displaced after a house fire destroyed my apartment. This experience changed what architecture meant to me and how I would practice it from that day forward. In the aftermath of the fire, I genuinely realized how important shelter and safety are to the everyday life. This experience led me to seek out a different kind of coop experience, one that invests in assisting people in need, especially through cross-cultural projects, and emphasizes disaster relief work.

I was able to obtain an internship that served these purposes in Montana with 100 Fold Studio. This firm allowed me to use my design skills on projects that assist clients in dire need. Not only was I able to use my design skills, but I was also able to use my knowledge of socio-cultural aspects of the region. In addition, I was able to work with clients in Zimbabwe, Canada, Cambodia, Israel, and Haiti.

I decided during my internship that I wanted to research a project in the office and invest my thesis time studying cultural responses, building techniques, and the logistics of non-profit work. During the summer of 2012, I was assigned to a team focused on a project for Lighthouse LANDS in Jeremie, Haiti. Our mission was to develop a master plan for the site after visiting Jeremie, Haiti to survey the land. Being in Haiti crystallized in my mind the magnitude and intricacies of Haiti’s developmental struggles far more clearly and powerfully than any written article or photograph could. As I experienced the culture, I knew it would impact the way I would design because I gained the kind of understanding of Haitian daily life that only comes through experiencing the culture.
01 - INTRODUCTION
02 - HAITI
03 - JEREMIE
04 - SUCCESSFUL CASE STUDIES
06 - SITE CONDITIONS
06 - DESIGN PROGRAM + PROJECT
07 - BIBLIOGRAPHY
08 - APPENDIX
FIGURES

001 - Context Map by Author.
002 - Port-Au-Prince with Lighthouse LANDS by Author.
003 - Market in Jeremie by Author.
2.01 - Earthquake damage in Port-Au-Prince by Author.
2.02 - Historical Time Line by Author.
2.03 - Diagram of Current Issues in Haiti by Author.
2.06 - Earthquake damage in Port-Au-Prince by John Hudson.
2.08 - Diagram of Cycle Stages by Author reference from Edward, Hall. Creole Architecture Article Edward, Hall. Creole Architecture Article
2.09 - Existing Conditions at the Market in Jeremie by Author.
2.11 - Local Cuisine of Jeremie, "Tomtom ak Kalalou Gombo" made from breadfruit by Author.
3.01 - Diagram of Current Problem in Jeremie by Author.
3.02 - Diagram of dwelling unit in Jeremie by Author.
3.03 - Spatial Photos of Dwelling Unit in Jeremie by Author.
3.04 - Inside + Outside of Market in Jeremie by Author.
3.05 - Street at Market in Jeremie by Author.
3.06 - Diagram use of Space in Jeremie’s Market by Author.
3.07 - Section Diagram of Market Area in Jeremie by Author.
3.08 - Diagrams of typical Creole dwelling units by Author.
3.09 - Kay and Creole housing unit diagrams by Author.
3.10 - Soupe au giraumon (pumpkin soup) by Author.
3.11 - Diagrams of outdoor life in the dwelling unit by Author.
3.12 - Daily life of a woman in Port-Au-Prince by Author.
3.15 - Diagram of distances time frame from site to down town Jeremie by Author.
3.16 - Haitian reading construction drawings in Jeremie by Nick Matthews.
4.01 - Steve Holl Watercolor Drawing for New Haiti Village by Steven Holl Architects.
4.02 - Diagrams of Steven Holl’s attempt of New Haitian Village by Author.

4.05 - DESI Exterior Photo by Kurt Hoerbst http://www.anna-heringer.com/.

4.06 - DESI Construction Photo by Kurt Hoerbst http://europaconcorsi.com/projects/127081?utm_source...

4.07 - Diagrams for Herzog & De Meuron Winery by Author.


4.09 - Diagram of plans of Cassia Coop by Author.

4.10 - Section Diagrams of Cassia Coop project by Author.

5.01 - Downtown Aerial View of Jeremie by Author.

5.02 - Photo of the Airport in Jeremie by Author.


5.04 - Diagram map of site context by Author.

5.05 - Major Road Map Diagram of Jeremie by Author.

5.06 - Site Context of Jeremie by Author.

5.07 - Site Photos of Entrance by Author.

5.08 - Sequential Photos of the Site by Author.

5.09 - Site Diagram by Author.

5.10 - Weather Data by Author references from

5.11 - Climatic Data : Wind Direction by Climate Consultant.

5.12 - Temperature and Rainfall graphs by World bank.

5.13 - Photos of Site Materials and Fruit Trees by Author.

5.14 - Photos of the Soil Condition by John Hudson.

5.15 - Graph of Plant Information by Author. Data collected from:

http://www.kew.org/plant-cultures/plants/sugar_cane_plant_profile.html

http://plants.usda.gov/java/profile?symbol=SAOF

http://www.extento.hawaii.edu/kbase/crop/crops/i_banana.htm

http://www.extento.hawaii.edu/kbase/crop/crops/i_mango.htm


http://www.hort.purdue.edu/newcrop/morton/orange.html

5.01 - Downtown Aerial View of Jeremie by Author.

5.02 - Photo of the Airport in Jeremie by Author.


5.04 - Diagram map of site context by Author.

5.05 - Major Road Map Diagram of Jeremie by Author.

5.06 - Site Context of Jeremie by Author.

5.07 - Site Photos of Entrance by Author.

5.08 - Sequential Photos of the Site by Author.

5.09 - Site Diagram by Author.

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http://www.extento.hawaii.edu/kbase/crop/crops/i_mango.htm


http://www.hort.purdue.edu/newcrop/morton/orange.html

6.01 - Diagram Design Concept by Author.

6.02 - Diagram of Programming by Author.

6.03 - Dialy Cycle Diagram by Author.

6.04 - Program Relationships Diagram by Author.

6.05 - Floor Plan of Training Center by Author.

6.06 - Perspective of Training Center: Garden by Author.

6.07 - Perspective of Entry into Training Center by Author.

6.08 - Exterior Perspective within the Pavilion by Author.

6.09 - Exterior Perspective of Cooking Area by Author.

6.10 - Interior Perspective by Author.

6.11 - Floor Plan of the Dwelling Units by Author.

6.12 - Entry into the Dwelling by Author.

6.13 - Interior perspective - Garden Integration by Author.
01 - INTRODUCTION

The guiding idea of this thesis is that a built environment or design is a reflection of the socio-cultural logic of a place. What follows is an exploration of architecture as a cultural and a social expression of Haitian life. The preeminent question to be addressed is this: how is the social cultural expression of architecture embedded in the designing of place? The Haitian culture is community-centered. This value is embodied in a vibrant outdoor life, which involves food at its root. By offering a design plan for an agricultural training center, this thesis promises to improve and empower the local people of Jeremie. While it is not argued that there is a direct causal relationship between specific traditions, the use of indigenous materials, crafts, building techniques, spatial organization in socio-cultural expression, it is argued that all of these aspects together contribute to a unique spatial experience of a place.

Providing Jeremie, Haiti with an agriculture training center, will empower Haitians and create opportunities for increased self-reliance. Haiti requires continual food aid. This type of aid does not help improve Haitian self-reliance, but instead hinders their long-term development in the aftermath of an earthquake disaster in 2010. A nation once founded on agriculture tradition has now lost their roots due to harsh circumstances. An opportunity lies in providing an architectural expression to redirect the people back to their roots by providing them the possibility of long-term development through agriculture. A training center allows the community the ability to promote hands-on vocational education. In addition it is also anticipated that there will be a culinary institute that would promote Haitian cuisine and sponsor community events linked to harvesting and food preparation for special cultural events. There will also be processing center that focuses on canning of fruits and preparing of fruits juices and preserves. This project will involve examining other humanitarian projects and personal experiences of the Haitian daily life to develop a methodology. This thesis follows successful themes such as promoting community, providing choices to the user, empowering people to be self-reliant through training, using local resources, and promoting a cultural understanding. The development for the site is based on examining other nonprofit firms in the area, construction methods, cultural customs with materials and spatial organization, case studies and site analysis.
02.01 - Port-Au-Prince : Earthquake Destruction
“Food aid is never good for us.” As a farmer, I’m one of the first affected. You can’t send that to a country where that’s what they grow,” states Charles Surfoad. 1

In 2010, Haiti was affected by a 7.0 magnitude earthquake, which crippled the nation. This natural disaster opened a flood gate of aid from nations around the world responding to Haiti’s need and devastation. Three of the most urgent needs in a disaster are food, water, and shelter. Providing Haiti with food aid has caused a desperate need for the people to be retrained and become skilled in growing food for themselves. A nation that was once rich and self-sufficient in their agriculture is now dependent on others.

President Rene Preval raised the issue that food aid was needed right after the earthquake. He now argues, “if we continue to send food and water from abroad, it will compete with national production of Haiti and with Haitian trade.” 1

This thesis is therefore an attempt to address long-term development for the nation of Haiti through the design of an agricultural center. The designer has an opportunity to help provide development in Jeremie, by training the users in life skills and architecture.

**Brief History: Important Factors**

What are the common threads of problems seen across Haiti? The issues are larger than an architectural problem, and they encompass many factors. These factors are physical, environmental, lack of resources, social, political, and economical. For many years, Haiti has been under political oppression, suffered from a lack of knowledge and illiteracy, over population, lack of social infrastructure, issues with self image, underdevelopment in the economy, and unemployment.

In 1750, Haiti was a nation that provided France with over 50% of their gross national product. France was importing goods such as sugar, coffee, cocoa, tobacco, and cotton. At one time, Haiti was one of the wealthiest nations in the entire world, and referred to as The Jewel of the Antilles. In 1804, Haiti was the second free nation in the western world and the first black republic. Many revolted against the idea of the Haitian way of freedom by boycotting their products. This sent their economy into turmoil. The boycott led to an international boycott, leaving long-term effects on the nation. During this time it created isolation in the country that helped develop a national identity. An identity that created traditions in food, dance, dress, rituals, and religion.

The history of the relationship between Haiti and the United States also impacted their current economic condition. The United States had two different major impacts on Haitian History. In 1915, the United States occupation, involved the United States Marines taking over the financial system, and forced Haiti into a new constitution. This repealed the 1804 provision to allow foreigners to own land in Haiti again. There was only one sector the United States could not impact, which was the Haitian education system. This was mainly due to the language barrier. This all ended in 1934, but the United States still plays a huge role in Haitian politics due to the power of the aid packages. The different aid packages seem to perpetuate the problem even today. The United States has continued to be a heavy supplier

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of food imports since the 1960s. As foreign imports increased, Haitian exports decreased because of excessive taxation, lack of investment in new farming and infrastructure. Haiti still has two main exporting goods, which are mangoes and coffee.

The other important date that has raised awareness of Haiti’s struggles is the earthquake in 2010. The earthquake is an important factor of consideration in planning and developing future designs. It has created a need and required a response amongst the people both native and abroad to take action. All these factors are considerations when trying to respond with cultural sensitivity and apply meaningful architecture to a foreign environment.

Cultural Understanding

Sixty percent of the population of Haiti still resides in the rural areas and continues to live in these rural villages. It was not until after the 1970s that the population started moving into cities. Architect Steven Holl recommends that one of the best ways to create long term improvement was to build outside of Port-Au-Prince, the area hardest hit by 2010 earthquake.

Cultural Understanding

Sixty percent of the population of Haiti still resides in the rural areas and continues to live in these rural villages. It was not until after the 1970s that the population started moving into cities. Architect Steven Holl recommends that one of the best ways to create long term improvement was to build outside of Port-Au-Prince, the area hardest hit by 2010 earthquake.

The porch is equal to the living room in the western culture, but it is also a sign of community. The main reason it becomes such an active space is because of the climatic factor of heat. Since many buildings are just unbearable to live in due to the extreme humidity and heat, and the lack of proper ventilation systems.

Currently, Haiti is dealing with the post-earthquake clean up and the excessive foreign aid situation. Haiti had numerous dollars poured into its country from foreign aid help. This aid only continues to hurt the current situation without offering long-term development solutions. This section addresses the current issues, the damage of relief and aid help, and the next steps into long-term development for this design project. This thesis addresses why current issues, damage of relief aid and help is important in designing an agriculture center in Haiti and successfully requires an understanding of the sociocultural impact on design. A part of having the long-term development approach is having a cultural approach to designing.

Eleven billion dollars have been pledged this year 2012 in post-earthquake assistance and only about half of the aid has been delivered. The government and community have been under intense criticism from not having a long-term vision. The area of agricultural training center project is to move away from short term relief and to providing long-term development through training Haitian's in agriculture techniques. This project is not giving a west-


HAITI: Aid + Long-term Development Approach
The Global Post breaks down the problems with the rebuilding efforts as more than just an organizational factor. The Global Post defines the problems into categories of Aid, Politics, and the Earthquake. They reported it as “lack of coordination among foreign and Haiti relief groups, a destroyed infrastructure, absence of a viable Haitian government and corruption.”²⁹

In January of 2010, Haiti suffered a catastrophic 7.0 magnitude earthquake and in February the Prime Minister Garry Conille resigned after only four months in position. This left Haiti without a Prime Minister in an essential time of need and organization. The Prime Minister is the one that runs the government and oversees the earthquake recovery funds. The lack of organization and leadership led many international donors to withhold billions of dollars but also reinforced the idea that the NGOs are more efficient at handling relief efforts.

It is important to understand the current situation of the country, so history does not keep repeating itself. Having an understanding of the aid situation in Haiti and previous projects helps the designer make a decision in what type of approach is needed for move forward. This center will allow the people to learn skills of Jeremie, Haiti through the design of an agriculture center. This center will allow the people to learn skills that would give them economic independence and a doctor for medicine or to stop bleeding. Rehabilitation is defined as restoring people back to their pre-accident conditions. This project may have some elements of rehabilitation, but it primarily focuses on development.

The statement below is true that many go to Haiti to provide aid but with preconceived solutions they think will work, as opposed to local priorities. Over the last 30 years, Haiti has been privatized, outsourced, or taken over by foreign Non-Governmental Organizations (NGOs)."³⁸

In 2010 and 2011 over $4.5 billion dollars was pledged to Haiti but only $2.38 billion was distributed. An NPR report states that disbursements of aid pledged to Haiti but only $2.38 billion was distributed. In 2010 and 2011 over $4.5 billion dollars was pledged to Haiti but only $2.38 billion was distributed. In 2010 and 2011 over $4.5 billion dollars was pledged to Haiti but only $2.38 billion was distributed. In 2010 and 2011 over $4.5 billion dollars was pledged to Haiti but only $2.38 billion was distributed. If you give the same help of material assistance to the material assistance to stop bleeding or prevent death. Relief that is appropriate for a victim who is in need of relief and how to design for the user when addressing problems. Corbett and Kikkert give an example of relief that is appropriate for a person who is in need of material assistance to stop bleeding or prevent death. If you give the same help of material assistance to the person in the development phase it does not help the person. This type of aid does not address the under-

lying issues; such as relational issues or being productive citizens. The goal for development work is to allow individuals and communities to take charge of their lives. This project wants to avoid the top-down approach of “I am here to save you” attitudes, for this only hinders long-term development.

Problems in the current situation: Aid + Poverty

Polak address the root causes of poverty associated with powerlessness, poor education, and absent transport infrastructure. His solution for the most direct step out of poverty is to increase their income. A way to increase income for the rural poor is to increase investment in agriculture. The investment into farming, land, and livestock helps increase their income and eliminates or decreases their dependence on the government or donor. Increasing the income of the rural poor allows for them to be able to make their own choices. Polak addresses an effective way to fight poverty through providing small farms in rural areas, thus providing people with power and choices. Haiti is known for being the poorest country in the western hemisphere and has all three of these issues. One of Haiti’s key issues is the lack of infrastructure with road, water supply, electrical, and waste systems. Through my personal experience, I was able to see the lack of infrastructure in the dwelling units not being supplied properly with water or power. Each dwelling runs off a limited amount of power of about five to eight hours a day. The supply of power could change based on weather conditions or governmental control. As you move out further away from Port-Au-Prince the power supply becomes even less reliable. Jeremie may only have power supply for three to five hours. Handling waste in a safe, efficient manner is an even bigger problem. Currently, there is no waste elimination system in place nor even education of how to safely handle waste. A lack of basic systems within Haiti certainly hinders its development of the country.

Polak also promotes practical problem solving steps against poverty such as to go where the action is, talk to the people who have the problem, listen, learn everything you can about the problem’s specific context, think big, think like a child, if it is invented don’t
The principles that Polak talks about, I have been able to test and apply in my thesis. Being able to visit Jeremie with the intention of better understanding the context of the place. The visit allowed me to be involved with the client, family members, people in the community, and to be involved in the site survey. All this was possible because of relationships were developed. Through my co-op experience at 100 Fold Studio, Montana, and the University of Cincinnati, Ohio, I was able to establish relationships coming together to collaborate and learn from one another. These are useful tools for a foreigner designer to produce meaningful architecture. A part of being a foreigner to the project is addressing some of the most basic steps such as going to the site, talking to the people, listening, and learning everything you can about that specific context. This thesis address these issues and applies them as a methodology to promote a better cultural understanding. What better way to understand a context than actually visiting the place and meeting the people of the place? Before beginning this thesis, I visited Jeremie with the intention of better understanding the context of the place. The visit allowed me to be involved with the client, friends, family members, people in the community, and to be involved in the site survey. All this was possible because of relationships were developed. Through my co-op experience at 100 Fold Studio, Montana, and the University of Cincinnati, Ohio, I was able to establish relationships coming together to collaborate and learn from one another.

Successful Stories of Architectural Projects

“Architect is in a unique position to revive the peasant’s faith in his own culture.” 12

The architect is able to revive community’s culture and give them pride in their identity. When the architect has established trust and respect; it is then the community will respect the architect’s position. The foreign architect can apply meaningful architecture to a place by understanding the common success and pitfalls of other projects. One principle to apply when working in developing country is to understand and recognize that the rural community has something worth offering the professional. Too often, the foreign professional will come in with the attitude that the rural community has nothing of worth to offer. This project allows for the opportunity to collaborate with the people and the place. The process starts with letting your ideas grow from studying the daily lives of the people who will live with your project, weaving in the patterns of the village life, and being mindful of the land. 13

One firm that helped revive the faith in their own culture is MASS Architects with the Butaro Hospital in Rwanda. It is a successful project because the solutions involved going to the place, living there and being immersed in the culture. Other principles the firm used were partnerships, provided empowerment through architecture, the user experience, community involvement, trained locals and used a contextual response through appropriate technology to achieve the project. 14

Mass started off with this as their only project in a partnership with Paul Farmer and Partners in Health. Michael Murphy, founder of the firm moved to the Rwanda to start the project. MASS (ten architects) would live on site for a period of time ranging from one month to three years to make the project successful. The firm broke the cultural barriers by immersing themselves in the culture to provide meaningful architecture.

A part of having a successful project is recognizing the contextual responses and being culturally sensitive. Contextual response not only includes use of local material but also training people in new technologies. The volcanic earth stone was a local resource used by MASS to help with cost. Using this material provided local jobs, and involvement of the community, this empowering the people. The volcanic earth stone required them to acquire a new skill set by being trained in how to build the walls with very little mortar. The masons became so skilled and invested in the project that they tore down the first wall in the project and rebuilt it. The community found value in the project that they tore down the first wall in the project and rebuilt it. The community found value in their work, weaving in the patterns of their culture. The skill is now in high demand throughout the country. The architects used the local resources, applied a new technique, and trained the people. Empowering and training people allows for long-term development instead of just offering handout in forms of foreign aid. 15

References:

“The final impact is an architecture that acts as a symbol of growth, identity, and dignity to a community.”

Cultural Approach Argument

“Poor persons won’t invest in a product or service unless the designer knows enough about the preferences of poor people to create something they value.”

At what point do you choose to move in a different direction when designing for a client in a nation that is in poverty and abundantly being helped by aid organizations? It is when you see the effects of aid on a nation at large and realize this method is not helping the people but only hurting them. You personally go to the place and see the effect and hear the people. You come to realize there has to be more. As a designer, the opportunity has arisen to set aside typical methods and approach and design in a manner that is sensitive of cultural understanding. The design field is in search of a new method of addressing poverty, aid, and cultural understanding. Being able to have a cultural understanding of a place allows you to have more meaningful and have architecture that serves a purpose. It reduces the chance of the building being built and not being used. This is a common theme seen in investment in building overseas in the developing world by NGO organizations. The architecture is left uninhabited and untouched only to be come a monument of decay. The NGO comes to help but only in return becomes less resourceful for the people in need. It produces temporary effects but not long-term development.


Discovering that the cultural approach is essential to the design process allows you to avoid producing the standard model or a copy of your own culture. Rapport emphasizes that, "Culture stress specific variables such as the process of cultural change itself and change will not be single model or copy of western culture." 22

How is the social expression of architecture embedded into the designing of place? The functional order of the daily life is highly meshed with the agriculture productivity in a village. The productivity of the land often influences the size of the villages and what surrounds them. Major concerns to consider when developing an area with an agriculture center are protection and safekeeping of the crops. Davis states that these concerns have been major concerns for villages and often contain symbolical important buildings for that reason alone. 23 The traditional village is highly connected to the daily and annual cycles of life, which create spatial responses to the building activities. These cycles can be linked to the agriculture cycles or ritual such as birth, marriage, and death. Ordinary buildings in a village are connected to ordinary acts but they are often also connected to rituals.

The building process is different in the village process. The building process is usually an act that involves the passage of knowledge from parent to child by involving them in house construction year after year. This skill in a village is as essential as the basic skill of cooking.

Conclusion

Producing meaningful architecture in an foreign environment is crucial to understand the cultural implications and impacts of the architecture. Apart of being an designer in this field is having a knowledge that understands the context of place, history, methods, and materials. A lack of understanding only continues to produce structures that are unused, which creates a ripple effect of only hurting the community. It is important to understanding what phase the country is currently in and how to help them move forward by other means of just aid packages. This thesis addresses what phase Haiti is currently in after the earthquake with the approach of providing more long-term methods of teaching them to feed themselves.
03 - Jeremie: Background

Current Problem

While many people have fled Port-Au-Prince after the earthquake to settle in rural areas of Haiti, the population of Jeremie has done the exact opposite. The men of Jeremie are leaving the town to seek out jobs and moving to Port-Au-Prince. Once the men arrive in the capital, they realize that there are no jobs and it would have been better to stay in Jeremie. This only leaves the men with feelings of shame, which causes them to not return home. Many families have never heard from their family members once they leave home. This leaves the women behind in the town without a support system or training to support their families. The idea of bringing the men back to Jeremie by providing them with training and jobs for the local town had been an important aspect of this thesis project. Jobs will be provided for both the men and women. The people of Jeremie will be trained and educated through a co-op agricultural training center located about five miles outside of the town Jeremie. The hope is to stimulate and empower the local region through education and job provision.
3.02 - Diagrams of Typical Housing in Jeremie

3.03 - Spatial Use of Dwellings
The diagrams in illustration (3.02) show my personal experience of a dwelling unit in Jeremie. I had the privilege to stay with a family during my visit to Haiti in August, 2012. This trip allowed me to experience the Haitian culture in some depth that could not have been experienced otherwise. Living in the community, I was able to see the highlights of the culture, such as the outdoor spaces and the extension of the porch. The porch is the most active space of the house. The porch holds many different programs such as sleeping, community gatherings, dancing, cooking, reading, and story-telling. The porch includes both the front, back and roof of the house. The porch allows for relationships to be built in the community. You can always find a group of people on the porch. The richness of community life is evident in the use of space. Not only is the porch a huge factor in the spatial organization but also in the relationship of the garden to the house. The garden is surrounded around the house to allow easy access to feed the family through the week. The garden creates an ‘L’ shape that hugs the dwelling unit. This provides a few functions for the user, which is shelter, shading, access, and essential basic need of growing and cooking food. This leads the discussion into their important cultural practices such as the outside life, garden, and community.

“The house and its surroundings, the architecture, the furniture, and the garden reflect the Caribbean sensibility and the order of society.” 1

Life in the Outdoors

For the Haitian, the outdoor space is the home. The home is closely related to the history and its culture of users. In the Haitian culture, this is implied through the outdoor space. Most of the daily activities take place outside the house. These activities include cooking, washing, drying clothes, bathing, and restroom. In contrast to the westerner where our daily activities usually remain internally within a building, the life in the Haitian home happens on the porches, yard, and the outside. Many of these practices come out of climatic issues of heat and humidity, which leave the house to be more oriented for storage or shelter from rain. A premium is placed on the space of shadows, this is where people receive relief from the heat. It allows for the user to have a pause moment in their daily activities from the extreme heats. The yard implies many layers of symbolic meaning, which is shaped by influences from African lifestyle. The land for the Haitian is associated with an identity of freedom and is still shared amongst the families. The spaces within the yard usually include some type of dwelling, outside kitchen, and silo. Providing space that includes the outdoors it allows the user to perform their daily task with the ability to handle the heat and promote group interaction. When the user is outside he or she is usually seen by other members in the community, this always allows for opportunity for conversation or helping the other person.

“Housing must bring sanctuary, stabilization, and hope to its dispersed population. Home is a term that means relationship as well as place, and includes close friends as well as extended families.”

Garden + Home + Community

The identity for the Haitian is not only defined by the abolition of slavery, but the relationship of land. After the first revolt in 1791, it was ideal to return the land to the ones who used it. This is how the definition of housing emerged, which is called lakou. The basic unit of the Haitian agriculture world is the garden of the lakou. The garden is considered a sacred space, which usually surrounds the house by enclosure. Having a garden this allows the users to provide necessary food consumption so the family does not have to depend on outside resources. This idea was a symbol for the nation after its first years of independence because Haiti constraints of embargo from Europe and United States. Agriculture was a symbol for the nation after its first years of independence because Haiti constraints of embargo from Europe and United States. Agriculture was a symbol for the nation after its first years of independence because Haiti constraints of embargo from Europe and United States.

Haitian hopes to own land, which is directly linked to their identity and freedom. 2

Home and community are closely related in the Haitian culture an often referred to ‘lakou’ meaning the network of people that are involved in a system of group living and shared responsibilities. This quality of living is desired in modern communities. The home usually consists of the extended family. Even in my experience in Jeremie the home consisted of extended family, which could mean up to ten people. The families will usually adopt children or take care of other family members. The culture is rooted in a collective society, which defines the group as more important than the individual. It is important to provide a space for community because this is their cultural strength and wealth. 4

Community gatherings occur in different forms such as the food, market, porch, and work. For women, community gathering occur even while cooking and going to the market. The women may cook all day long preparing the food for the meals for the family. You will find the women interacting in the most public spaces such as the market or gathering water. Women go to the market not only to buy produce but to socialize. This is where they catch up with the other local women in the area. The market allows the social fabric to strengthen a place for the women to have a relief from daily chores.

Market: Personal Experience

The market is the local newspaper, connection point, the vital heartbeat to the community at large. From my personal experience of the market in Jeremie, I was able to see how community is built through everyday activities. Everyone knew each other by name, they asked about their families, and discussed their lives. The market in Jeremie was a place that everyone knows each other. In some ways, it was a refuge for the women from their daily chores. They were able to seek out help, show off family members, find new spices and recipes. It was an amazing experience to feel so welcomed in the market and to see the beautiful production of the different families.

The spatial experience seemed straight forward a linear path with vendors and open storage facility with overhead covering. The first reading only reveals the structure, as you continue to experience the space you are able to see the depths. You are able to understand the importance of shading and the levels of shading that are involved as you move through the space. The shading is not only for the vendor or the customer but for the products. The shading provides a horizontal elegance of beauty. On the streets, it becomes the middle space between the ground and the sky. The umbrellas, fabrics, wood huts, and concrete overheads ceilings become almost the same as a visual image of reading sheet music. You are able to perceive the different levels of horizontal structures as you look down the narrow street.

2. Stouter, Patti. Haitian Wisdom in Architecture


The presence inside the market is very different than the visual reading outside of the market. Again, it appears to be very simple in organization but the way you experience it, gives it complexity. It appears linear in organization, but experienced in layers. The experience is similar to the way one dresses for extreme cold. It consists of a core with multiple layers surrounding the core. Many of these layers in the market are the actual products that create the barriers in the space.
Off the ground several feet for ventilation. This housing module also allows opinion of building additions on to the sides of the house. The layout of the house is a main room with the bedrooms located on each side with a front porch. This housing module tends to be more expensive because of the additional porch requirements. Often, this module will consist of a full porch wrapped around the house, typically seen in the larger houses. The Creole house dimension is usually sixteen to eighteen feet wide living room with two bedrooms on each side that might be forty-eight to fifty feet long by sixteen feet wide. This housing module is developed on the philosophy to have one continual movement for comfort and closely linked to the ideas of proportion, dimension, and arrangement of the people of colonial culture. This geometry of Creole domestic architecture still survives in the modern vernacular architecture of Haiti.

Both modules provide a flexible approach to building a module that allows for the user to adapt to his or her needs. This type of architecture allows people from many cultures that come in contact with one another to give accommodations that can be easily learned and adopted by people.
Modules of Units

3.08 - Typical layouts of dwelling units

3.09 - Floor Plan Diagrams
Why is there so much joy in this place when it is recognized as one of the poorest countries in the western hemisphere? I believe this joy comes through sociocultural expressions, such as food.

There is still a tradition of Haitian cuisine in Haiti even though most of the population lives in poverty and majority of food comes from USAID. When one expression of culture exists in another expression you start seeing the importance of that identity of a place. There are many specialty dishes in the Haiti culture such as riz djon djon (rice with black mushrooms), lambi (stew), griot (fried pork), pain patate (sweet potato pudding), soupe au giraumon (pumpkin soup). Usually, pumpkin soup is served for New Years, but I was able to experience this delicious meal while visiting Jeremie.

Food and cooking are directly related to the vibrant outdoor culture. Most Haitian dwellings have the kitchen located outside of the house on the back porch or roof. The family, extended family, and neighbors usually tend to cluster in this area. The outdoor areas usually allow for plenty of ventilation and provide large enough spaces for gathering that the housing is not able to accommodate. The kitchen is disassociated with their living area because the Haitian uses coal for a source of cooking and there is a need for large amounts of space for prepping the meat. This space is potentially where the meat is actually slaughtered.

Haitians generally eat two main meals a day, one in the morning, and a larger lunch. Possibly there will be some type of small snack in the evening. Or instead of an large lunch it would be a larger dinner with the family. If the family can afford it they will have three meals a day. The gathering for food is a time to make connection and establish relationships at the local market. It is a time they use to catch up on the day with family and share stories. The lack of jobs leaves people plenty of time to

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3.10 - soupe au giraumon (pumpkin soup)

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spend other areas of life and Haitians often spend
the day cooking, socializing, or being in the public
spaces.

Not only is food prepared, cooked, and
eaten outdoors but food is also purchased in out-
door markets. The full cycle of food preparation
involves the connecting to people and community
life. The woman’s daily cycle involves going to the
market for food and socializing. Both architectural
forms, the porch and market, usually only consist
of two planes, which are the roof and the ground
planes. These planes can either be temporary or
permanent consisting of material such as fabrics,
concrete, plastic, or wattle and daub.
CONSTRUCTION METHODS

“...The more extreme the constraints, the less the choice, but some choice is always available.”

Visiting the site, I was able to examine different construction techniques and explore other NGO projects in Jeremie. I recognize that I am an outsider to this community with limited knowledge of the way the people build structures in Jeremie. One of the ways to be a better designer and understand socio-cultural factors in Haiti is to understand the construction. Realizing this notion is the first step to being effective in the place.

How is construction important to the socio-cultural issues of this place? It is important to understand if this is something that will be permanent, portable, or temporary. Not only understanding its presence on the site but the availability or choice of materials. For Haiti, wood is extremely expensive because the lack of resources. Haiti is battling deforestation due to the use of coal for cooking. In return this causes...
the price for wood to be extremely expensive. Haiti has one of the highest deforestation rates in the world. The lack of trees causes other issues such as mud slides from the rainy seasons. Although other design firms such as D-Lab (MIT) has presented another option of a natural resource such as the sugar cane for cooking fuel.  

A majority of the materials are bought in Port-Au-Prince and brought to Jeremie for purchase. A simple 2x4 that is sixteen foot long can cost about eighteen dollars in Port-Au-Prince. Jeremie currently does not have hardware stores to buy supplies but you can find rough 2x4s at twelve dollars a piece at the market. Being aware of the material resources in a place can largely influence your choices of construction techniques and building form. Construction is not only a modifying factor, but it helps make decision techniques and building form. Construction and site have a tremendous influence on the process and design impact. Amos Rapport makes recommendations for the construction process such as being aware of the materials, portability, prefabrication, lateral forces, weathering, and gravity. He also recommends the construction process be a cooperative building process because it allows for difficult solutions to be achieved. The cooperative building process allows for different skill knowledge to come together to tackle the impossible.

For Haiti, portability is another factor in the choice of material. The site location is about ninety minutes walk from the local market and most materials come from Port-Au-Prince, which is about five hours from Jeremie. Most materials from Port-Au-Prince are imported from other countries such as United States, the Dominican Republic or Cuba. The US is responsible for thirty percent of Haiti’s imports. Even basic materials of construction such as cement or rebar are purchased in Port-Au-Prince. The current cost of these materials are as follows, cement is about $8.25 a bag and rebar is about $1200 a ton. The cost, availability, and mobility are considerations in choosing a material to use on site for this project. In considering the process that is currently under development in Jeremie, I was able to learn successes and potential problems I could encounter while working on Jeremie. I was able to learn that some of the current materials of use were: cement, rock, sand, bamboo, rebar, and wooden planks. Most of their current materials of use were: cement, rock, sand, bamboo, rebar, and wooden planks. Most of their materials were sourced from Port-Au-Prince or the local town of Jeremie. The cement is actually hand mixed on site by the Haitians, which he uses an iron mold to make the blocks. Each bag holds an iron mold to make the blocks. Each bag of cement is about one hundred and twenty dollars a bag. Each bag of rebar costs about $1200 a ton. Today it is possible to transport the cement from Port-Au-Prince to Jeremie; however, the rebar has to be transported from Port-Au-Prince to Jeremie. This is a problem as there is only one car to transport materials to Jeremie. The remainder of the materials used were wood, metal, and bamboo. The wood used in the center was provided through a contractor. The wood is cut and processed at a shop outside of Port-Au-Prince and the wood is brought to Jeremie by cargo truck. The materials used for the cement blocks were also brought to Jeremie by cargo truck. The metal used was purchased in Port-Au-Prince and brought to Jeremie by cargo truck. The bamboo was purchased in Port-Au-Prince and brought to Jeremie by cargo truck. The bamboo was also brought to Jeremie by cargo truck. The bamboo was also brought to Jeremie by cargo truck.

Materials have huge impact on the community. Some of the ways they can impact the community is through providing jobs, growth in economy, changing local style, prestige, accessibility, and cultural implications.

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allows for 30 blocks to be made, which takes about seven days to dry. This detail of knowledge makes the designer aware of the human body and relationship to building. The human body has limitations in dealing with scale and weight of building materials. This detail will be important in choosing materials for the project. Christopher Alexander addresses additional issues of construction and materials. He states that materials in pre-industrial society are the main problems with construction. When considering what materials in use on a project, one needs to address scale, ability to cut on site, consideration of need of machinery on site to help, adaptable, easy to maintain and build. Do you need skilled labor? Is it depleting resource? Is the material affordable? 

A technique they have seen implemented since the earthquake is the idea of a bond beam, which allows the structural frame to have more lateral support. Communicating with this organization, I have gained practical knowledge about the cost of materials and which materials are used most frequently in Jeremie.

This case study has allowed me to understand where I would be obtaining materials, common materials used in the area, cost of materials, new methods being applied to construction in the area after the earthquake, construction timing and how the construction happens in a foreign country.

I have also realized the common issues that one encounters in the construction process and the number one issue is communication. Being a foreigner presents an issue of a language barrier (English vs. Creole). Not only is language an issue, but with the high illiteracy rate in Haiti, reading architectural plans and drawings can be an issue. How will the designer communicate his or her ideas to the people? There is a barrier of communication in the drawing itself because the method may not be the same in the US. Haitian in general are not used to reading construction plans. Nick Matthews, the engineer in training on this project, recommends, “that flexibility is key to making a project successful.” I would have to agree with him on this point. Flexibility allows for interventions in the process. It allows for the extreme constraints of practicality to present itself with a new invention.


Haiti has two seasons: dry and wet. The wet season is the rainy season, so this material has to withstand the downpour of rain. It has to protect the people and provide shelter during this season. Being knowledgeable in how this material withstands rainy conditions is important. Will it withstand potential flooding or high winds during an hurricane?

Haiti’s culture still passes knowledge by word of mouth and through hands-on learning. As a nation, Haiti has the highest illiteracy rate in the Western Hemisphere at forty-nine percent. The building culture of Haiti is still tied to the idea of learning by doing. Davis states that “Learning is by doing and is passed on from generation to generation.” Giving Haiti a construction method to which they can adapt or current conditions one that shows even minimal improvement upon will show success. It will be a new implementation of method that will be learned and passed on to the next generation. This program allows for training in both agriculture and construction.

It is important to have a culturally appropriate building that represents its culture through its building process because as Davie’s states, “Our buildings do represent our culture…”

1. **Foundations**

- Use string and level to establish floor height.
- Workers have finished laying rock foundation mixed with cement + water + sand mixed on-site.
- Concrete footings have not been poured.
- Fill in areas between rock foundation with loose rock + gravel, to be filled to the same height as the rock wall to serve as the base for the concrete floor.

2. **Foundations with Forming**

- String and level are used to establish the floor height.
- Typical use of string to level for floor height.

3. **Pouring Concrete | Floor**

- Use country-cut wooden planks for the form work around the edges.
- Typical 2x4 for the screen board to make concrete level on top.
- Use of string to level for floor height.

4. **Block Mold**

- Custom made iron block mold for mixing sand, small gravel, cement, water then shovel into the mold on the ground from about 1 meter high to consolidate the mixture.
- The block is then turned upside down and left to harden.

5. **Wooden Form Work | Mid-Wall Bond Beam**

- Mid-wall bond beam is a new construction technique since the earthquake.
- It gives the structural frame more lateral stability.
- Place blocks on top of the rebar.
- The rebar in the beam is tied into the column rebar.

6. **Roof 2x4**

- Roof 2x4s are usually supported by bamboo or wooden supports that are left in up to 3 weeks.
- Use PVC for the conduit in the roof.
- Typical 2x4 typ. 6 to 10" grid.
- 1/2" or 3/8" rebar.

7. **Roof Form Work**

- Use bamboo or wooden form work.
- The form work is removed after the concrete has cured for 1 week.

8. **Concrete Roof**

- After placing PVC conduits in the roof for lights then pour the concrete for the roof.
- The roof is usually 4 to 5 inches thick, covered with a tarp or cement bags to keep moisture in.
- The upper beam is poured at the same time as the roof, which is 8 inches and goes on top of the block wall.

NGO: Friends in Health

3.17 - Construction Process + Method in Jeremie

3.18 - Diagrams of the construction process.
04 - CASE STUDIES : Introduction

Producing a building that is meaningful to its context requires the designer to not only look at the failures but at the successful projects too. Many of the case studies I have analysis have been based on similar site constraints, location, materials, and construction methods. This thesis analyze four successful case studies which are Steven Holl’s proposal in Haiti, Francis Kéré’s Secondary School, Herzog and De Meuron’s Winery, and TYIN’s Cassia Coop Training Center.

These case studies are important to my thesis for a few reasons. Each one provides some insightful knowledge in how to address spatial organization, building scale, use of materials, how to address construction with local workers or environmental concerns. The overall intentions are to pull out the important details of each project that apply directly to this thesis such as in Holl’s proposal, the ideas of how to cluster dwelling units. Kéré’s project provides the idea for the overall form of an “L” shape, the orientation of the building, the use of handicraft and local materials. Herzog and De Meuron allows for the material study of gabion construction. TYIN project provides a similar program and site conditions to respond too.
Steven Holl decided to try an off-the-grid community based housing and school project for a town outside of Port-Au-Prince near Jacmel. He proposed constructing housing settlements outside of the city to help with the clean up after the earthquake because more than 600,000 people relocated to the countryside. The idea that was presented was a self-sustaining housing model in a densely packed village.  

The village would consist of courtyard housing using recycled concrete from the earthquake damage, steel, and building with local labor. He also, planned to implement the weaving of the garden into the housing and village by implementing each unit with an individual gardens and designated farming areas. Holl saw the potential for economic growth through the production of the tropical fruit. Each housing unit would provide space for private outdoor gardens. Holl's book goes into explaining the meaning of the relationship between the house and the garden, through explanations of Haiti's history with land and defining the lakou connection to agricultural. He also, recognized the garden as an expression of sacred space and the land represented freedom for the people. 

Holl's project consisted of proposing a dense packed village which included new housing prototype with public space, courtyard gardens and agricultural parcels. Using materials such as recycled concrete and high strength steel. The unit consist of two stories with a courtyard, entry hall, bedrooms, living room, and dining room.

The idea of the individual dwelling units or space with individual gardens goes against the cultural approach of designing in Haiti. Haiti is a communal society, which loves to do things together. Individuals here, do not have their own equipment to be able to garden, they share their equipment. In his design, Holl did extend the sidewalk to create places for market and opportunities for people to gather. The street life is just as important as the porch life in Haiti. Holl has picked the importance of the courtyard being interchangeable with porch life. This project has successful implications of the clustering to allow for in between spaces and the use of the “Z” form to create spaces connected to the outdoors.


The community needs to be educated about how to monitor climatic circumstances and how to use local materials. Only people who take part in building processes can maintain and spread the word about these developments.” Francis Kéré

Francis Kere is a local architect from Burkina Faso who left to study Architecture in Berlin, eventually starting his own firm in Berlin. His main research is tied to the ideas of education, low building cost, self building, responding to climatic circumstances, and use of local materials. He believes his research and architecture are a bridge between cultures of the North and South of Africa in achieving technical and economical development.
What makes his work successful is that he is a native to the land and grew up in the area, so he is not dealing with the same cultural barriers a foreign designer would have with the project. He uses approaches similar to those of other humanitarian organizations such as using local materials, adapting to technologies, and considering climatic factors.

This project uses a plan organization of an “L” shape for the overall school, which helps setup natural corridor spaces and in between spaces. The programs are supported in separate buildings with outdoors spaces and overhead roof structure. The building is oriented to reduce direct sunlight from the south onto the walls through the use of the roof canopy. Allowing the roof structure to be separated from the building creates better ventilation. Another approach used to reduce the solar radiation was to situate the building on the site to run east to west in orientation.

The project involved teaching construction methods to the local people to ensure that these new skills will remain within the community. This is an implication of architecture being a teaching module for long-term development for the country and architecture that provides a skill and knowledge to the local people. The project used local materials, such as the laterite stone for the main building material.

Common problems within the project consist of dealing with the size and weight of materials because of the lack of heavy equipment. The architecture had to develop this process for construction. Another common problem was communication regarding design drawings. The design team was dealing with a group of people who could not read or write. This seems to be a common issue in working in developing countries, which is usually solved by being on site. I chose to explore Francis Kere’s project because it is similar to the program and building scale of the Jeremie Agriculture Center. Kere’s project incorporated methods of using local materials, climatic responses, and providing education to the local community. This project was able to promote re-value in the handicraft, local materials, and education.


4. Interior + Exterior Shots of Secondary School
DESI Building by Anna Heringer

“They like the DESI building more than the METI school, maybe because it is closer to the local culture and it gives more inspirations for their own, local houses and living conditions.”

The DESI is located in Rudrapur, Bangladesh and provides vocational education in electrical training. Ann Heringer designed this project with various methods of craftsmanship, responding to social and financial factors. She also addressed local identity through the use of local materials, challenging building materials, use of basic building methods, and sustainable systems.

The program is based on social functions, changing cultural values within the community, and from being self-sufficient to consumption. The social functions and the cultural knowledge helped determine the architectural form of the building and space. The traditional Bangladeshi homestead typically has all the household functions such as eating, sleeping, and

washing in separate structures designed around a courtyard form. This culture was once a lifestyle connected to the agriculture and rural context. This structure is trying to connect both functions of working and living into one single structure. This connection is happening through the outdoor space, courtyard, circulation, and roof structure.

This project addresses the use of local material for a new purpose. Instead of using earth, brick, and cement brick for the walls, Anna Heringer uses the bamboo for replacement. This provides a local identity to the building and a symbol the people recognize. It also addresses climatic forces through the use of separated roof for ventilation, bamboo facade, extend eaves, openings on both sides of the building, use of passive cooling and heating, natural lighting and implementing solar panel technology.

The program consists of two classrooms, two offices, two residences, bathroom with two showers and two toilets, bathroom on the ground floor, and two verandas. This is a similar program scale for my thesis project but I am also interested in the relationships between indoor and outdoors space uses within this project. The outdoor space acts as connection points to the other buildings, classrooms, working areas, community, and areas of relaxation. Also, interested in the relationship of designing a facility of one space with multiple functions for the community through the use of outdoor space or transitional space.
"Using minimal means to create grand effects in response to program and site... "

Herzog & De Meuron present an alternative masonry system, gabion wall construction for the winery. The architects used this construction system to blur the idea of boundaries. The main idea of this project was to be a box within a box, which makes use of the local resources and using a cost effective approach.

This project is effective for this thesis because I am using it for its construction method for potential use in Haiti.
Cassia Coop Training Centre by TYIN

“Architecture is about the understanding of the world and turning it into a more meaningful and humane place.” 9

This project is located in Sumatra, Indonesia. The project began with a single story from a French businessman with cinnamon that sparked the interest of an architectural firm located in Norway called TYIN Tegnestue. The firm takes on projects to serve the poor in underdeveloped areas. TYIN uses the methodology to deeply root themselves in the context of the project. Everything serves a purpose, and there is a mutual exchange of knowledge and skills.

The firm decided to respond with a sustainable cinnamon training school when they heard about social injustices of workers who were being underpaid and working in unsanitary conditions. The goal of the project was to provide


04.08 - Photo of Cassia Coop Training Center
04.09 - Diagrams of plans: Negative Space vs. Courtyard
a better quality buildings with new standards to the enterprise of cinnamon production.  

The main goal of the project was to provide a social meeting space for the farmers and users. The building program consists of small buildings instead of programming everything into one large building. The plan has a courtyard space that consists of one tree that breaks the roof plane structure. The plan allows for an in-between space that helps promote social gathering. Breaking the roof plane allows for light to spread through the space. The firm kept the building program small because this area frequently has earthquakes. The project’s goals were to achieve techniques of reducing sunrays, thermal mass, ventilation, and maximizing eaves. The architects decided to use local materials: locally crafted brick and cinnamon tree trunk. The materials used were either near the site or from local merchants.

Major challenges in this project were the time frame, untrained workforce, equipment, communicating due to language barriers, temperature control issues, and designing for earthquakes. One of the ways of addressing the untrained workers was to keep the program simple. TYIN were able to have a positive impact on the community through the sharing of construction knowledge. The involvement of the local community helped the firm make a connection to the local culture.

This case study is important to my thesis for a few reasons. One it is similar to the scale of my buildings, same users type, the use of local materials, providing training for local workers and how it addresses environmental concerns. This thesis hopes to apply the notions of a building mass with a removal of thin roof structure. This technique responds to the climatic conditions of the heat and allows for outdoor space to become a priority over indoor space, which is important in the Haitian culture.

The site intervention will take place in Jeremie, Haiti, which is currently located about five miles from the center of town and ten minutes from the Jeremie airport. Jeremie is located four to five hours west of Port-Au-Prince, the capital of Haiti. A key factor to keep in mind about Jeremie, is that it is a rural town with only about 35,000 people. Outside of Port-Au-Prince area, most areas in Haiti are rural and would be conducive to agricultural farming.

History
Jeremie was established in 1756 for development to be a port producing and marketing suppling these items: coffee, sugarcane, bananas, mangoes, and logwood. Jeremie is known for being an area of fertile land. It has also earned the title “City of Poets” signifying its reputation as an artistic and literary community. The port was open in 1807, and then closed in 1964 by Francois Duvalier.

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This site was chosen amongst two different sites within Haiti. The Lighthouse LANDS, a learning network for development sustainability, a non-profit organization, owns the plot of land that the project is being built on. Out of the two sites, this site was the most fruitful and had the least amount of site reconstruction. The site is plentiful with fruit trees such as banana trees, mangoes, sugarcane, coconut, avocados, oranges, and breadfruits. One of the main objectives would be to try to keep as many of the fruit trees as possible. Usually it takes about four to five years after initial planting before one sees any fruit production.

The plot of land has access to future transportation to facilitate the importation and exportation of crops or related products such as canned, juice fruit and vegetables that will be produced. It is located near both the airport and port. The Autorité Aéroportuaire Nationale has future development plans of making the Jeremie's airport international. The airlines only run one time a day; so noise control will not be an issue. The current port is closed in this area to international trade. If this port would reopen it would allow for better prices and opportunities for Jeremie. However the port does run domestically from Port-Au-Prince every Saturday. The town is highly dependent on its imports from Port-Au-Prince and other neighboring countries.

Issues

Since, this area is located near the airport it does have access to the town water supply. This allows for potential future development. The hope is to provide the site with running water. Most of Jeremie does not have running water or electricity. The city only gives each house three to five hours of electricity each day. There will need to be sustainable practices and interventions on the site. This project will introduce ways to make the most of

3.

http://en.wikipedia.org/wiki/J%C3%A9r%C3%A9mie_Airport.

05.03 - Jeremie Airport
The diagrams to the left show the relationship of the site to downtown Jeremie and the airport. The site location currently has access to the Caribbean Sea view and access to the main road system (Rue La Source Dommage). This road system is not currently paved all the way to the downtown. People travel on this road constantly throughout the day. The time it takes to get from the site to downtown by foot is about an hour and half, by car it is about ten to fifteen minutes, and by motor bike it is about fifteen to twenty minutes. There are more motorbikes used in this area than cars, the ratio being for every car there is about fifteen motorbikes. The average person in this town is custom to walking up to four hours daily, and this would be considered normal. Also, the second diagram shows that the city has a local church, market, port, college, government buildings, and city park. All of these facilities and amenities were developed and based off of the port location for easy access.
Jeremie has two main road systems. The site only uses the Rue La Source Road. The second diagram is a time chart to reach downtown from site. Most people’s limitation for walking by foot is about four hours in this town. The site location is not out of range for people to travel to downtown market.

The current site is located near the United Nations Human Rights Center. This diagram also shows context of other dwellings around the site and that the site is not in isolation from the downtown of Jeremie.
This area allows the designer and the client to produce an educational module of learning that will help develop a sustainable community. The people of Jeremie are eager to learn new techniques and improve their economy. The people want to work and support their families. If someone is educated or has been trained in a skill, it does not necessarily mean they will be able to find a job locally. Most of the men in Jeremie travel to Port-Au-Prince to look for jobs for their families.

This project promotes vocational education for both men and women in the town. It will promote learning skills and provides jobs for the area. This site will help teach agriculture, construction methods, and future trade skills to provide jobs. This site provides the user training, place to live, and the ability to experiment on a plot of land and develop crops. The ability to have and own land is currently a problematic issue within Haiti. Land is a prize possession for the people, by giving them land it gives them more opportunities.
The site, it is located by the main road, which turns into a secondary road that is densely packed with trees with one straight path into mountainous hills. It feels as if you are entering an old plantation with large, developed tall trees and then it opens up into a flat land that is devoid of trees. The entrance acts as the compression and release into the open land. Arriving at the survey markers the land opens up with a hill moving upward into a plateau, and then it steps back down into a seventy foot drop off into the Caribbean Sea. The view of the sea is located to the north, and is one of the most breathtaking moments on the site. This water brings continual breezes to the site. As you walk the site, it is surrounded by numerous mountains.
Precipitation
Jeremie has two seasons, dry and wet. It is important in designing to be aware of the climatic data. The dry seasons is usually from December to January. The wet seasons usually takes place between May through July, producing thirteen to fifteen inches of rain. The rain lasts an hour or two in the evenings. The hurricane season happens between the months of July through October. In 2012, the most rainfall occurred during the month of May. After looking at data over a ten year period from the World Bank, the most rainfall typically occurs in the month of September.  

Temperature
Heat is an continual issue in Haiti year round although the hottest months tend to be June through August with a median temperature ranging of eighty-six degrees. The average year round temperature is eighty-two degrees. Design that addresses the elements of heat and rain is essential.  

Humidity
Haiti humidity ranges from moderate to high. The average relative humidity can range in the morning sixty to seventy percent then dropping as low forties in the afternoon. This is drastically different from the Dominican Republic, which rarely drops below sixty percent and remains in the high ninety percent. Haiti has the advantage of the northeast winds.  

Climate Consultant Review
Climate Consultant recommendations were pulled from the a nearby area of Puerto Rico because Haiti currently does not have any support data. Climate Consultant recommends the following strategies: the use of operable windows, raising the building above ground, cross ventilation, window overhangs, and minimizing the west face glazing. It also states that the biggest problem in tropical areas to be the need for cooling and dehumidifying. 


In addition to boasting a coastal line view, the site is abundant in rich soil, water, fruit, natural materials, and rock. The site currently has sugarcane, avocados, bananas, oranges, bread fruits, mangoes, coconuts, bamboo, and medicinal plants. The site is also covered in perennials, trees, and shrubs that provide the potential for food, fiber, and construction materials. It will be important to maintain the current plants while proposing future design options and solutions.

One material that is abundant on the site is the rock condition pictured to the right. This rock is usually seen in many of the dwellings in Jeremie. Many natives use it combined with concrete, to form the foundations of their buildings. This material has potential in providing a solution in gabion wall construction.
Soil Information

“If we want the land to be healthy all over - all of it - then we must do the opposite.” 7

The soil was tested by Chas Edens, Horticulture specialist with Anathoth Community Gardens in North Carolina. Edens was able to travel to the site with 100 Fold Studio and Lighthouse LANDS to review the land and soil. The information gathered reveals that the soil needs the most repair on the south side of the land, so this could be potential land for a building. Something that is advocated by various experts includes Christopher Alexander, who argues the need to use the worst land conditions to build on instead of the best. The north side of the site with the ocean view has the best soil conditions for potential gardens and plants.

Plant Information

The graph to the right describes some of the main plants and trees that are located on the site in Jeremie. The graph includes five main plants which are orange trees, mango trees, banana trees, coconuts trees and sugar canes. The analysis included looking at the height growth, root growth, leaf size, soil conditions, production and harvest, and nutritional needs.

The main goal of understanding these plants is to be able to better provided the best location for agriculture and to understand the relationships of the height of the trees compare to the building height. This analysis helps the designer to have a better understanding of form, shape, and scale of the plants to produce a better understanding of site specific locations of building program.

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Height Growth</th>
<th>Roots</th>
<th>Leaves</th>
<th>Soil Conditions</th>
<th>Time for Production</th>
<th>Needs + Provision</th>
<th>Harvest vs. Planting</th>
<th>Infection + Disease</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange Tree</td>
<td>10-15 meters</td>
<td>Fertile</td>
<td>Dense</td>
<td>Sandy soil</td>
<td>1-2 years (seedling)</td>
<td>Sunshine + Water</td>
<td>Fruits</td>
<td>Fruits</td>
<td>Fruits</td>
</tr>
<tr>
<td>Mango Tree</td>
<td>8-10 meters</td>
<td>Deep</td>
<td>Large</td>
<td>Soil rich</td>
<td>1-2 years (seedling)</td>
<td>Sunshine + Water</td>
<td>Fruits</td>
<td>Fruits</td>
<td>Fruits</td>
</tr>
<tr>
<td>Banana Tree</td>
<td>30-40 meters</td>
<td>Shallow</td>
<td>Small</td>
<td>Well drained</td>
<td>1-2 years (seedling)</td>
<td>Sunshine + Water</td>
<td>Fruits</td>
<td>Fruits</td>
<td>Fruits</td>
</tr>
<tr>
<td>Coconut Tree</td>
<td>15-20 meters</td>
<td>Deep</td>
<td>Medium</td>
<td>Well drained</td>
<td>1-2 years (seedling)</td>
<td>Sunshine + Water</td>
<td>Fruits</td>
<td>Fruits</td>
<td>Fruits</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>15-30 meters</td>
<td>Shallow</td>
<td>Small</td>
<td>Well drained</td>
<td>1-2 years (seedling)</td>
<td>Sunshine + Water</td>
<td>Fruits</td>
<td>Fruits</td>
<td>Fruits</td>
</tr>
</tbody>
</table>
The project will include the following program for the agriculture training center in Jeremie. The program consist of three main areas: training center, dwellings, and gardens.

The training center will have the following program: classrooms, library, gathering space, market, kitchen, storage, wet area, and latrine.

Dwelling will be supplied for the users who will be staying on the land for a year to be trained in agriculture methods. This dwelling unit will have space for them to practice in their own gardens, area for sleeping, kitchen, courtyard, porch, and latrine.

The garden areas will mainly be for fruit production. The user will learn how to apply subsistence farming techniques to the land and their life. The garden will consist of storage areas, equipment, waste, dry and wet areas, cleaning, and plots of land.

**Function:** training next generation | education improvement of agriculture practices substantial farming construction techniques

**Occupancy:** 15 to 30 people

**Activities:** fruit production + gardening teaching education sleeping eating sale of products showering | cleaning storage of materials social interaction | community promotion

**Spaces:** Classrooms Gathering (Meeting Spaces) Cafeteria Gardens Student | Family Housing Storage: short + long term Training Center Library Office Restrooms Market | Store Parking Waste Management Greenhouse

---

**Diagram of Programming**
Daily Cycle

6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11

- eating
- hygiene
- training | working
- plot of land
- gardens
- storage facilities
- shower
- latrine
- kitchen
- outdoor space
- social space
- gathering space
- market
- store
- active learning
- classroom
- gathering space
- seed storage
- graphing equipment
- computers - tech
- library
- beds
- kitchen
- shower
- gardens
- porches | outdoors spaces
- latrine
- study space
- storage

Relationships

A

B

C

D
The design goals of this project is to provide a layout of the potential program onto a master plan which will include entry market, training center, and dwelling units.

The images to the right describe the floor plan for the training center that is located on top of the plateau on the site. The training center will include classrooms, area for cooking, and integrated gardens. The plan is organized with three systems, which are mass walls, main structure, and flexible structure. The mass walls are made of the typical rock found on site. The walls only run one direction, which is east to west. The placement of these walls is to allow for continual ventilation and protection from the south. The second system, structural, is made of concrete columns that allow for the load of the roof. This system sets up a grid for organizing the spaces. The third system, the bamboo structure, allows for flexible walls made of fabric. This allows the user to determine how much space they will need for daily activities or training. The design needs to allow for them to create their own spaces.
06.08 - Interior Perspective of Classroom within the Pavilion

06.09 - Perspective: Cooking Area


1. mass

1.1. mission statement / project development
- Enhancing the Architect’s role through the use of architecture to empower
- Process for a pre-typology of local services to join client
- Buildings that make a difference impact on peoples long-term engagement
- Use experience
- Community impact

1.2. length of visit in foreign country
- 3-4 months living in Rwanda
- Only local materials were used

1.3. use of local materials / construction methods
- Local volcanic stones (coral-colored local stones)
- Only local materials were used
- Proper education and training
- Community

1.4. partnerships funding
- Partner in Health
- Paul Farmer
- Client Foundation

1.5. community
- Focused on training the community to assume leadership in public affairs
- Community involvement for long term success
- Build more, not less

1.6. common problems
- Made their own mud bricks
- Involving women
- Need for appropriate housing

1.7. improvements
- Ventilation
- Operable windows
- Solar water heaters
- Parallel program for women
- Lesson learned: using existing global health infrastructure
- Developed 12,000 short-term jobs
- Directly linked to 500,000 dollars of the culture

2. basic initiative

2.1. urban initiative
- Urban initiative
- European innovation
- Habitat for Humanity, Cuba 2001

2.2. global goal / indigenous talents / central mission (NGO)
- Impact scaling to create some momentum: the project came out of relationship
- With the city
- Global communities
- Building two cultures
- motorcycle action network
- American Indian

2.3. project timeline
- 4 years
- Focus was development of community, local
- Project length: 3 weeks
- Use local bamboo as framework
- Recycling glass & brick
- Local resources

2.4. material benefits
- 2.4.1. NAIVE TO THE LAND
- Freshwater in traditional local housing
- Traditional building
- Clay mortar
- Traditional low-cost building
- Low cost construction
- Traditional local building with no masonry

2.5. funding
- Grant
- Re-invested
- Community involvement
- Community
- Local materials
- Community

2.6. employment
- Employment of local people
- Women
- Young people
- Students
- New generation

3. francis kere

3.1. falling into natural goids, building form
- Primary school completed while in self-employment
- Self-employment
- Global climate adaptation
- Local community development
- Global climate adaptation
- Local community development
- Global climate adaptation
- Local community development
- Global climate adaptation
- Local community development

3.2. deforestation
- Deforestation
- Soil erosion
- Climate change
- Sea level rise
- Global climate adaptation
- Local community development
- Global climate adaptation
- Local community development
- Global climate adaptation
- Local community development

3.3. ngo involvement
- Foundation for the global environment (67 CHOICES)
- Support and encouragement
- Education for the global environment
- Support and encouragement
- Education for the global environment
- Support and encouragement
- Education for the global environment

4. hassan fathy

4.1. understanding the poor
- New guidance
- Architectural education and
- Engagement
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<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>Length of Visit</th>
<th>Use of Local Resources</th>
<th>Construction Methods</th>
<th>Partnerships Funding</th>
<th>Community</th>
<th>Common Problems</th>
<th>Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Hyv Architects (Norway)</td>
<td>Oslo, Trondheim, and parts of rural Norway</td>
<td>1 year</td>
<td>Native species, local timber, and traditional techniques</td>
<td>Designed to fit existing landscape and infrastructure</td>
<td>Mini-grants from local government</td>
<td>Local community involvement</td>
<td>Infrastructure challenges</td>
<td>Financial sustainability</td>
</tr>
<tr>
<td>7. Anna Heringer</td>
<td>Rural villages in China</td>
<td>4-6 weeks</td>
<td>Use of local materials like bamboo, mud, and traditional techniques</td>
<td>Adapted to local conditions and cultural context</td>
<td>Collaborations with local and international partners</td>
<td>Community empowerment</td>
<td>Local autonomy</td>
<td>Local employment opportunities</td>
</tr>
<tr>
<td>8. Rural Studio</td>
<td>Rural areas in Brazil</td>
<td>1 year</td>
<td>Use of local materials and traditional techniques</td>
<td>Adapted to local conditions and cultural context</td>
<td>Collaborations with local and international partners</td>
<td>Community empowerment</td>
<td>Lack of infrastructure</td>
<td>Local economic development</td>
</tr>
<tr>
<td>9. Design Corps</td>
<td>Rural areas in the United States</td>
<td>4-6 weeks</td>
<td>Use of local materials and traditional techniques</td>
<td>Adapted to local conditions and cultural context</td>
<td>Collaborations with local and international partners</td>
<td>Community empowerment</td>
<td>Lack of infrastructure</td>
<td>Local economic development</td>
</tr>
<tr>
<td>10. Idea</td>
<td>Global</td>
<td>4-6 weeks</td>
<td>Use of local materials and traditional techniques</td>
<td>Adapted to local conditions and cultural context</td>
<td>Collaborations with local and international partners</td>
<td>Community empowerment</td>
<td>Lack of infrastructure</td>
<td>Local economic development</td>
</tr>
</tbody>
</table>
1. Mass


2. Basic Initiative: Urban Agricultural Center - Havana, Cuba 2001


3. Francis Kere: Primary School, 1999


4. Hassan Fathy

5. Christopher Alexandar: Experimental Housing Project in Lima Peru


6. TYIN Architects: Cassia Coop Training Center


7. Anna Heringer


8. Rural Studio: mason bend community center


9. Design Corps: Community Planning


10. IDEO

