Towards Community: a resource-based rural development

Christian Newman

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TOWARDS a rural resource-based development
COMMUNITY
Towards Community:
a rural resource-based development

Request for Approval of Thesis Research
Project Book Presented to:

Professor Marietta Monaghan

and to the
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College of Architecture and Construction Management

by

Christian Giles Newman

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I would like to thank my thesis advisor Professor Marietta Monaghan for your counsel, critiques and thoughtful insight throughout the development of this thesis.

I would also like to thank my studio classmates and friends who have offered advice, guidance, sanity and relentless support during long studio days and nights. I am extremely grateful.

And lastly, to my family who has always supported my endeavors and pushed me to be my best. To my wife Audrey Newman, my mother Jackie Daniels and my father Renodus Newman, my sincerest gratitude go out to you all who have believed in me, elevated me and shown me nothing but love at the times when I’ve needed it most. Thank you.
The Caribbean nation of Haiti has experienced much hardship in providing services and opportunities to its general population and even more so to its rural populace. Of the scarce services the government provides, most are not accessible to millions in the countryside and smaller cities beyond. According to the United Nations Development Program Haiti, poverty is much more prevalent in rural regions at 75.2% compared to 40.8% in urban regions. I have personally witnessed this in my own trips to Haiti.

The concentration of services and centralization of power to Port-au-Prince can make living outside the capital seem like a world apart, while reducing the likelihood that any significant developments will take place. The attraction that urban dwelling offers such as resources, opportunities and social services are essentially nonexistent for these people. This further contributes to the socioeconomic divide within Haiti. Doudou Pierre Festile of the Acul-du-Nord Peasant Movement stated, “For Haiti to be able to decentralize is when they stop treating peasants like outsiders and start treating them like active participants in the development of the country”. The peasants Festile speaks of are commonly referred to as “moun andeyo”, meaning people outside. However simple it may sound; this phrase holds a negative connotation that has lead to the marginalization of people and towns “outside” of the capital. Many attempts by non-governmental organizations have been made to bring services to these areas but these efforts often fail or are not sustained over time due to the creation of “solutions” for Haitians rather than providing support for communities to realize their own plans.

In response, this thesis seeks to create a space for rural communities to organize and utilize shared resources to create change for themselves. This will empower those in the countryside and cultivate a sense of responsibility and ownership. Analyzing precedents of cultural, training and resource centers that benefit under-served populations will provide insight of programmatic and spatial arrangements to consider. Haitians have used the traditional practices of “konbit” and “lakou” as a way to cooperatively create change. Konbit loosely translates to working together and applies to a range of activities from farming to building. Similarly, lakou describes a closely-knit compound in which members provide support for one another. By drawing upon these traditional concepts, this thesis conscientiously examines how a space can be a catalyst for communal work and utilize flexible programming to allow peripheral communities a means of connection within the larger context of Haiti. With flexible, multi-functional spaces, the intervention will be capable of supporting various programs, all of which prioritize community, sustainability, resilience and creation.

Although this thesis seeks to provide opportunities by no means is it a panacea for these rural communities who are often excluded from talks of development. There is much work to be done in Haiti on many fronts, but it is only once the moun andeyo, the people outside, are invited in, can there be meaningful dialogue on prosperity for Haiti.

**Abstract**

The Caribbean nation of Haiti has experienced much hardship in providing services and opportunities to its general population and even more so to its rural populace. Of the scarce services the government provides, most are not accessible to millions in the countryside and smaller cities beyond. According to the United Nations Development Program Haiti, poverty is much more prevalent in rural regions at 75.2% compared to 40.8% in urban regions. I have personally witnessed this in my own trips to Haiti.

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1.0 Design Framework
1.1 Design Hypothesis

The intent of this design proposal rests on the belief that the development of a resource hub for rural communities would allow grassroots efforts to spring forward and provide opportunities for “outside” communities from which they have previously been denied. This thesis will focus on skill development, promoting the exchange of knowledge and collaborative efforts as a means to create communal resilience. This will empower those in the countryside and cultivate a sense of responsibility and ownership. The architectural intervention will serve as a learning tool that demonstrates the capability of sustainable design strategies to facilitate in everyday task while supporting the needs of the community. This prototype will be rooted in its specific context while also remaining adaptable enough to accommodate the changing needs of the community. As a result, rural communities benefit from the facets of the resource hub while also reducing the socioeconomic inequalities between those in cities and those outside.
1.2 Framework

Community Engagement

Economic Development

Skill Acquisition

Sustainable Development

Resilient Design

Community Resource Hub
Rural Haiti - Moun Andeyo

Community

Individual

Architecture

Creation of an equitable environment to socialize, learn and participate in development

Benefit from skills learned and opportunities for growth provided by the hub

Passive design strategies, local labor and materials demonstrate potential for sustainable interventions

Relevance

Proposal

Impact
1.3
Context

Rural to Urban

Prior to gaining independence in 1804, and especially afterwards, there was a shift from an agrarian lifestyle to one that sought opportunities away from the field, decreasing agricultural production, poor quality education and extreme poverty. In 1970, only 20% of Haiti’s population lived in cities; by 2013 that figure had risen to 60%. Consequently, from 1982 to 2010 Port-au-Prince’s metropolitan area grew from 800,000 to 2.8 million people.

This trend is not unique to Haiti. According to the UN, 55% of the world’s population currently lives in urban areas or cities, by 2050 it will have increased to 68%. The UN states “Integrated policies to improve the lives of both urban and rural dwellers are needed, strengthening the linkages between urban and rural areas and building on their existing economic, social and environmental ties”. As the world becomes more urban, we as a global community must ensure we are not leaving those in rural areas behind and afford them equal opportunities to their urban counterparts.
Decentralization + De-concentration

Political instability within Haiti resulted in the United States occupying the nation from 1915-1934. During this time, the United States was able to assert its dominance and authority, by centralizing power to Port-au-Prince. Before the occupation Haiti consisted largely of autonomous provinces. The occupation had significant political, military and economic consequences for years to come.

The centralization of power to one location also aided in the rise of the authoritarian rule of the Duvaliers who were able to remain in power for many years through extreme violence, corruption and political oppression. Along with calls for decentralization is also the desire for de-concentration. “De-concentration mirrors the idea of decentralization, but extends the idea to the need to move social services outside of the capital city and the surrounding regions” 3.

By shifting the current power and aid dynamic of Haiti, the division between rural and urban dwellers could be greatly reduced.

“For Haiti to decentralize is when all the provinces have all the governmental services and people don’t need to go to Port-Au-Prince to find...services that aren’t useful”

- Doudou Pierre Festile, Acul-du-Nord Peasant Movement
Proliferation of NGOs

The prevalence of NGOs in Haiti is widely disputed but assumed to be second highest per capita in the world after India.

Many positive contributions have been made by NGOs throughout the country for both individuals and communities. Before the 2010 earthquake, a study found that 70% of healthcare was provided by NGOs and privatized schools, mostly NGO-run, accounted for 85% of national education.

However, there is also the threat of NGOs weakening Haitian institutions and local merchants as they are promoted as substitutes for the state. Once external funding ceases, efforts are likely to fall into ruin. This is not because of an unwillingness of Haitians to manage projects but rather the lack of access to resources.

“NGOs in Haiti have built an alternative infrastructure for the provision of social services, creating little incentive for the government to build its capacity to deliver services.”

- Vijaya Ramachandran, Senior Fellow, Center for Global Development, World Bank
Vulnerability to Shocks

Haiti has experienced numerous natural disasters and manmade crises. Pierre Gary Mathieu of Nation Coordination for Food Security (CNSA) says, “The context of Haiti, socio-economically is that we’re very much exposed to shocks.” The shocks of which Mathieu speaks can be found throughout the nation’s history, while the most recent have been food insecurity and resulting riots, hurricanes, cyclones, the 2010 earthquake, the 2010 outbreak of cholera and reoccurring electoral crisis.

Existing unfavorable conditions are often exacerbated by these occurrences and further expose the vulnerabilities of individuals and communities. The results of the shocks are usually mass homelessness, extreme poverty, unemployment, crippling of the nation’s scarce and fragile infrastructure and death.

As climate change continues, the increase in frequency of landslides, droughts, flooding and other natural disasters are projected to be a dire problem for Haiti. Underdeveloped and coastal countries globally will have to seek more resilient strategies to survive and sustain.
1.4_ Proposed Project Nature

The nature of this proposal intends for the community resource hub to act as a catalyst for rural communities to realize their own plans, whatever they may be. The support offered by the intervention comes in the form of the most valuable asset any community has to offer, its people. Through collective work efforts and shared responsibility residents will be able to take control over the development of their community.

The characteristics of the hub draw upon necessity, tradition and the potential of rural communities who have been long forgotten.

Programming has been proposed to show how spaces can potentially be used but the idea is that while many rural communities have the same challenges to overcome others may have more unique circumstances that require the program to change in order to better suit the community. However, no matter how much the programs deviates from what is proposed, if the essential elements listed here remain the community will benefit.

Konbit is a traditional Haitian practice that is described as a form of social labor organization. Originally used by peasants in the countryside, konbit has been adapted for more wide-ranging efforts to help communities build and solve local problems. As a place by the community and primarily for the community, the relationships built will foster the spirit of konbit, allowing many hands to help with projects and benefit all in the process. The concept of konbit allows efforts to be more sustainable and extensive.

Because there is no local hotel, visitors to the community resource hub will need accommodation. Lodging will be available at a locally built guest house. Their stay will include a safe environment for relaxing and co-working, electricity and daily meals. Local crops and goods will also be available for purchase at the on-site market. Income generated will be used to support the center, thus supporting the community. By taking advantage of the rural surroundings, in due time, transportation services and vehicle repairs could also be provided by the center.
Due to the many shocks Haiti faces, man-made and natural, it is essential that the design directly responds to the conditions that often cripple communities. Mitigation strategies employed will protect against potentially disastrous events while support programs and skills learned will ensure when hard times do strike the response is timely and direct.

Flexible areas within the center will allow community members to hold meetings, social events and to simply gather with one another. Having a comfortable, welcoming space will facilitate community discussion and help to achieve their collective needs. As locals understand what each other want and are able to discuss this openly, the provision of space for local community discussions will reduce the likelihood of foreign interventions taking precedent over the community.

With an emphasis on rural communities, the center becomes a venue for the transfer of knowledge between locals and those who pass through. This provides understanding of the regional culture to outsiders while the locals are introduced to new people and ideas to which they may have never been exposed.

Further pushing the goal of equipping rural communities with the right tools, the center will house a "tool library" from which locals can borrow. Power tools will be available for use at the center and powered through energy generated from solar panels. As the center grows the resources that become available will grow as well.
2.0_ Case Study Analysis

The following projects have been selected based on their impact on the surrounding community, construction materials and methods, and spatial arrangement. Each case study bears some similarity with the proposed nature of this thesis and will be analyzed to understand how applicable solutions might be applied to the Rural Community Resource Hub.
The THREAD center located in Tambacounda, Senegal was conceived on the premise of creation as it allows both artist and its community to do so. This flexible space allows for community gatherings, performances, education and artist lodging. The surrounding grounds also include farming training, a clinic and an education facilities that serve twelve tribes of the Sinthian Village.

Construction of the center relied on local labor, materials and traditional construction methods. Locally sourced materials include grown and harvested thatch, compressed earth blocks and bamboo. A steeply sloped thatch roof structure allows for rainwater collection which meets 40% of the village’s water needs and provides ample shading. Perforated walls allow for natural ventilation while shielding from the elements.

THREAD’s contributions to the community has been providing lodging and studio space to both local and international artists which allows for the exchange of knowledge and entertainment. In addition, the center is often used as meetings, markets and social gatherings. Notable elements of the center are its integration into the site without displacing existing functions and the introduction of a rather simple, adaptable space for creation.
Mpirigiti Rural Training Center was developed to educate students, communities, farmers and teachers through hands-on teaching methods in food and agriculture. As support to the Iowa State University and Makerere University, students of the universities work alongside the community in learning sustainable practices. Programs consist of dormitories, meeting and dining spaces, a kitchen, demonstration areas for livestock and crop production and recreation spaces, among others.

The center utilized local architects, labor, contractors and engineers for its three courtyard-arranged buildings. Local compressed and fired earth bricks and lightweight timber comprise most of the building’s structure, while furniture within was locally sourced as well. Sustainable concepts integrated into the project include rainwater harvesting, wastewater treatment through an anaerobic biodigester, and photovoltaic panels for power generation.

Programs provided by ISU, including this facility teach rural Ugandans skills in farming, nutrition, sanitation and entrepreneurial opportunities. Using agricultural knowledge and on-site gardening the center and its university have been able to provide school lunch programs to local primary and secondary schools. By passing this knowledge along to locals there’s the potential for it to become a part of their daily lives and lead to fruitful and nutritional harvests.
The architectural agenda here was to “create economic opportunity, rebuild social infrastructure, and restore African heritage”. The center includes a demonstration farm that helps women produce and market their own goods along with food storage, processing methods and guest lodging. At the inviting plaza, women sell food, textiles, baskets, and other products produced on site. Market spaces can be rented to generate additional income, building a self-sufficient community network in Kayonza.

CONSTRUCTION

The center’s circular structures draw inspiration from the King’s Palace in Southern Rwanda. Manufactured steel canopies are used to capture potable rainwater. Some areas utilize green roofs and earth walls. 450,000 clay bricks were made at the center by locals, using a durable manual press method adapted from local building techniques. Perforated brick walls allow for passive cooling and solar shading, in addition to maintaining a sense of privacy.

IMPACT

Clustered human-scaled pavilions create security and cultivate the sense of community. Through its construction and various programs, women are learning marketable, income-generating skills and showcases the center’s economic potential. Additional income is generated through items sold in the market and many women have been hired as masons in the areas after learning building techniques used to erected the center. This has resulted in a self-sufficient community network in Kayonza.
Figure 7
CASE STUDY 04:
Haiti Communitere

25,000 sf. approx | Port-au-Prince, Haiti

PROGRAM
Developed on a ethos of nonintervention while instead providing resources for communities to use, HC gives support to individuals, organizations and businesses through lodging, meeting rooms, co-working space with wifi, a large workshop, a tool library and other spaces/ functions. Storage, secure parking and guest rooms provide income for the center while a full staff are available to assist guests with projects and planning.

CONSTRUCTION
Many of the buildings on-site are built using alternative and sustainable construction such as an earthen ship made of recycle tires, styrofoam and plastic bottles, one made of styrofoam containers and another of clay, crushed rubble and straw. The locally constructed guest lodges are earthquake resistant and built to California’s earthquake standards. Repurposing these items prevent them from being burned, which is a common practice in Haiti, and utilize readily available materials that can be easily reproduced.

IMPACT
Haiti Communitere has provided a safe space so projects introduced by NGOs do not fail at the expense of the people. In addition, classes taught at HC are developed with the goal to directly uplift the lives of the Haitian people. Language classes, a rape prevention projection and providing accommodations for children in need of medical services, students and vulnerable youth are among the many impactful projects at HC.
“We really opened up the entire center to be a zone of safe failure. Our opinion was come try new things out... but let's have them fail within our four walls rather than over a community's head”

- Communitere Founder, Sam Bloch
2.5 Precedent Analysis

Synthesis

The case study analysis yielded promising results for elements that could be incorporated for this thesis project. Although only one of the four case studies is in Haiti, the concept of providing opportunities was a common theme that ran throughout each project. Through research on how each of the spaces is used and on the people to whom it caters, it appears the dynamic programming has facilitated the success of the projects. The ability to host a variety of programs ensures members of the community are not left out, as there is essentially something for everyone to take part in. Proximity of certain programmatic elements to others can also encourage collaboration and sharing of knowledge, as seen in the Women’s Opportunity Center with the placement of the main gathering space at the central point before entering the classrooms. The circulation varied by each case study, but none consisted of linear paths of travel from one program to the next. In addition to adjacencies, varying the size and shape of the spaces provides the potential to establish a hierarchy of programs based on communal needs. Furthermore, the inclusion of social and gathering spaces is a common element that resonates with Haitian culture. As I intend for my design intervention to be a space that provides for the communities, it is essential that it does not require high maintenance and upkeep can be done by locals without sacrificing the integrity of the space. The use of local labor and local materials are especially popular in the case studies. This thesis will utilize both in its construction. Not only does this allow for easy modifications, but it also could serve to encourage the community to take ownership of the space and/or transform it as needs evolve over time. The Women’s Opportunity Center, Mpirigiti and THREAD all made use of passive design strategies that cool through natural ventilation and shade with overhangs. Each of these projects have a similar climate to that of Haiti making the methods used in the precedents applicable to this thesis with only a few necessary variations to be made according to the specific site.
Research
3.1 Cultural Roots

Africa to Haiti

The majority of the peoples taken from Africa and sent to Haiti to work plantations were from Western Africa\(^5\). The illustration to the right depicts the regions in which Haitian ancestry can be traced. Furthermore, many aspects of everyday life for Haitians are directly shaped from their African roots as seen in similarities of linguistics, customs, foods and organization, architectural and otherwise.

Some elements of traditional spatial organizations were retained for some time after arriving on the island of Hispaniola. Clustering of houses, dedicated crop/grain spaces and the circular living arrangements were all elements taken from their native land and adapted to their new context.

Africans who were sent to Haiti came from tribes stretching from modern-day Senegal to Angola. Majority were from Ghana, Togo, Benin, Nigeria and Cameroon.
3.2 Village Spatiality

Nigerian Village Organization

Many Nigerian villages are arranged around a common space. Village expansion and land-exploiting activities happen opposite the side of the village group center to reduce infringing upon the shared space. The center space often serves religious, economic and social functions; it is not uncommon to find shrines, markets and meeting spaces accompanied by trees for shading.

Although the arrangement is primarily shown as circular, terrain and politics can result in variations of the shape.

![Diagram of Village Spatiality](image)
Batammariba House Typology

The Batammariba people, whose name means “those who are the real architects of earth,” have occupied the mountainous savanna region on the border of Togo and Benin since approximately the 17th century. Their belief is that the circle links all forms of life, symbolizing completeness and fullness. Their housing compounds are illustrated to the left to understand how different tribes of the Batammariba morphed the original circular shape to accommodate the needs of their family.

Figure 12  Diagrams recreated from Philippe Yavo
Bèrba
1. Entrance
2. Storeroom
3. Kitchen
4. Bedroom
5. Main Terrace
6. Granary
7. Vestibule (upper)

Bèyanbè
1. Entrance
2. Barn
3. Kitchen
4. Bedroom
5. Poultry
6. Granary (upper)
7. Big Terrace (upper)
8. Small Terrace (upper)

Otchiaou
1. Entrance
2. Barn
3. Kitchen
4. Bedroom
5. Poultry
6. Granary (upper)
7. Atrium (upper)

Otamman
1. Entrance
2. Barn
3. Kitchen
4. Elderly Room
5. Poultry
6. Granary
7. Women Room (upper)
8. Atrium (upper)

Osori
1. Entrance
2. Barn
3. Atrium
4. Shrine
5. Corridor
6. Granary (upper)
7. Bedrooms (upper)

Tayaba
1. Entrance
2. Barn
3. Storeroom
4. Bedrooms
5. Fireplace
6. Granary (upper)
7. Oven (upper)
8. Atrium (upper)
Ghanaian Compounds

Variations in the Ghanan compounds shown are attributed to different tribes and the status of the owner of the compound. For instance, the Gonja Compound of the Larabanga tribe belongs to a religious leader and appear the most atypical of all the configurations.

Due to the protection offered by the enclosed villages, and unlike the Nigerian tribes, much of the food sources are housed internally.

Figure 13  Diagrams recreated from Labelle Prussin
3.3_ The Lakou

The Haitian lakou system developed in the absence of the state and was predicated on the autoregulation of local communities in opposition to the plantation. As stated by Jean-Yves Merilus, lakous were “a space for peasant Haitians to freely practice their culture and way of life while resisting foreign influence and domination”. Lakous were characterized by clusters of houses around a courtyard where members of the lakou lived and worked the land, similar to the arrangement of their African ancestors. This arrangement provided parental support, opportunities for cooperative work to build a house or assistance with large harvest and financial support.

As characteristics of the lakou are incorporated in this proposal for rural communities, efforts towards development and access to resources become more attainable through collaborative work and support. Furthermore, as an early organizational structure, the lakou recalls a core cultural element.

Spatial elements essential to lakou
- clustering of structures
- courtyard as a focal point
- mapou tree (voodoo)
- defined entrance
- agricultural plots
3.4 Modern Spatiality

The aerial imagery illustrates how structures are arranged throughout Haiti. Each of Haiti’s nine departments are represented, some twice. A commonality seems to be the clustering of structures, much like the arrangement of compounds in the aforementioned Nigerian villages.

In more rural areas, there appears to be no organization as to how buildings are positions in relation to each, a true cluster typology. However, unlike the Nigerian ribes, there is an absence of a visible village center. Also, structures are largely situated near a main road; one can assume this is for accessibility.
Traditional housing typologies are depicted on the right to show the basic structure and material of the rural Haitian homes. While rural households usually house four to six people on average, they are typically small and use a relatively simple plan.

Additions are made to accommodate additional family members by adding on to the existing structures with the original structure serving as the main support.

Covered porches are common for lounging and extending the family space into the outdoors. Also, windows are usually placed strategically to take advantage of natural breezes and cross ventilation.
One room subdivided rural dwelling with pitched roof and front porch.

Two room rural dwelling with pitched roof and front porch.

Three room rural dwelling with back room as a later addition. Windows located opposite from doors for ventilation.

Figure 17 Sketches by John Michheal Vlach recreated.
4.0 Design Analysis
Rural areas of Haiti are at a great disadvantage in terms of access to resources that would allow for community and skill development. This is problematic for a nation where 52% of the population lives in the countryside and 75% of them are deemed poor by the World Bank. Furthermore, while inequality and extreme poverty rates are declining in the city, they are on the rise and remaining the same, respectively, in rural areas. Only 11% of Haitians in the countryside have access to energy, as compared with 63% in cities, namely Port-au-Prince. The stark contrast between these two demographics illustrates the disparity that exist based largely on location.

The initial site of intervention is located in the Artibonite Department approximately and hour and half drive north of Port-au-Prince. The site is situated off of Route Nationale #1, with Bois Neuf to the South and Terre Noire to the North. This particular site is significant for a few reasons. First, it is located on a slope which ensures any intervention here must address the mountainous topography that characterizes most of Haiti. Second, the distance away from the capital is far enough to be excluded from electricity and therefore create a need for this resource in the region. Third, the proximity to either a main road or port allows for the community to acquire goods and materials from beyond.

“Haiti will need more targeted public investments in rural areas and effective management of its limited resources to improve access and quality of basic services...”

-World Bank
63% of Haiti’s land is at a 20% slope or greater\textsuperscript{13}

Of Haiti’s 11,123,176 people, 44.7% live in rural areas\textsuperscript{14}

Approximately 19.9% of structures are made of wattle and daub, covered with limestone and have thatched roofs\textsuperscript{15}
4.2_ Physical + Spatial Patterns

Figure 17 Google Earth screenshot
180° panorama. Dashed line represents site extents within photo.
Haiti has a tropical climate with this specific region characterized as a local steppe climate type BSh. The average annual temperature is 79.7 °F. With an average of 82.4 °F, July is the warmest month. The lowest average temperatures in the year occur in January, when it is around 76.6 °F. The variation in temperatures throughout the year is approximately 6 °F. Haiti has two rainy seasons that last from April to June and October to November and averages 28.3 inches annually. The precipitation varies 4.48 inches between the driest month and the wettest month. The driest month is January with only 0.3 inches of precipitation. The greatest amount of precipitation occurs in June, with an average of 4.8 inches. 

### Climatic Conditions

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<th>FEB</th>
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WINTER SOLSTICE DEC 20
Azi/ Alt: -176.11° / 47.47°
Rise / Set: 6:19 / 17:18
Daylight: 10:59 hrs

SUMMER SOLSTICE JUN 20
Azi/ Alt: -21.46° / 85.26°
Rise / Set: 5:14 / 18:31
Daylight: 13:17 hrs

Sun Path Diagram
The Artibonite Department of Haiti is the largest in terms of land mass at 1,925 sq. miles. This department boasts the country’s longest river, Artibonite River, contributing to the surrounding plains having the highest crop yields and the country’s main rice-growing area. While the immediate site itself sits at an elevation of approximately 500 ft., it is part of the foothills of a mountain with an elevation of more than 4,000 ft. Most developments of the region are located along National Routes 1 and 5 and along rivers. Route National #1 is the only paved road near the site; small vehicular paths and footpaths comprise the bulk of the connection network.

The largest city in proximity to the site is Saint-Marc which is approximately 8 miles to the North. Although Saint-Marc is quite large, residents living on the outer edge of the city are with city services such as potable water, electricity and drainage systems. None of these services extend to the selected for this proposal. However, the site can potentially benefit from the port located in Saint-Marc and the traffic that passes through. Bois Neuf is a commune town to the south just a few hundred meters away. There have been small developments in this area of which residents near the proposed site may be able to utilize.
4.4_ Site Potentials + Constraints

Although there isn’t much existing infrastructure to build upon, this benefits the design intervention by limiting the constraints. Most housing in the region occurs along the main road and in clusters along a path up the hill side. Because not every piece of land is occupied, future expansion for housing, markets, business, etc. needs can be supported. Proximity to a main route and the relatively short distance to larger cities with access to ports is a great advantage of this site. The natural landscape and position of the site offer the opportunity for passive design strategies to be utilized. The site is on a hill with no trees above ten feet tall but are many shrubs and low-lying vegetation. This increases the potential for solar energy harvesting and allows for maximum daylight use as there is no tree canopy. Furthermore, the surrounding lands can be used for demonstration of how landscaping and providing diversity of native plants can reduce and control runoff from the nearby Matheux Mountain Chain. The site’s unique location off a main route increases the likelihood that developments here could bring more revenue to the community and the methods implemented here will be adopted by those who pass through.
Site Sections + Topography

1. Avg slope: 28.9% Max slope: 10.1% Distance: 0.6 mi

2. Avg slope: 37.8% Max slope: 16.9% Distance: 0.54 mi

3. Avg slope: 32.6% Max slope: 17% Distance: 0.53 mi

4. Avg slope: 43.2% Max slope: 15.6% Distance: 0.51 mi

5. Avg slope: 23.7% Max slope: 9.3% Distance: 0.49 mi

6. Avg slope: 31.9% Max slope: 7.7% Distance: 0.65 mi

Figure 19: Google Earth screenshot
5.0 Design Intervention
5.1 Massing Considerations

Using a simple massing allows for easy rotation of the building to take advantage of views, wind and other site characteristics. At this particular site buildings are oriented to capture the prevailing northwest winds and for views over National Route #1 below.

As a community’s needs change the building is also able to expand and accommodate those needs. Adding on to the existing building layout with more simple forms allows the arrangement to retain a cohesiveness. Expansion at this site is possible to the southwest along the hill’s ridge.

With great variation in topography throughout Haiti, it is imperative that the design be adaptable to respond to any site. Stepped buildings are a more economical solution on sloped terrains and allow the use typically unfavorable, steep hillsides.
5.2 Program

The proposed programs have been selected for their flexibility of use and potential to allow the community to host various events. By not restricting buildings to only one use, the functional lifespan of the resource hub is extended as programs can be changed over time. Each space serves multiple functions and is not catered to one age group but instead benefits everyone from young children to elders.

Many of the proposed programs support related functions within the hub. For example, the workshops can be used to create items to be sold in the market while tools from the tool library can be used for agricultural production and building the guest lodges. Furthermore, money generated from sales will go towards maintenance of the resource hub and provide facility upgrades over time.

Another notable function of the hub is the importance placed on the exchange of ideas and knowledge. With many spaces to instruct and host guest speakers, such as the lecture space, outdoor pit and classroom, opportunities to learn and interact with others are boundless.
5.3 Orthographic Context

Floor Plan

1 Administration
2 Exterior Courtyard
3 Lecture Space
4 Meeting Space
5 Communal Pit
6 Book Library
7 Bathhouse
8 Exterior Lounge
9 Guest Lodging
10 Farming
11 Exterior Workshop
12 Tool Library
13 Interior Workshop
14 Storage
15 Kitchen
16 Dining
17 Classroom
18 Market
19 Rainwater Harvesting Tank
Section A - A

1 Workshop
2 Book Library
3 Restroom
Exterior Workshop

The exterior workshop is located at the southwestern edge of the site so that work can be done without disturbing other programs. Fostering the spirit of konbit, this space and the tool library provides the necessary tools for coming together to accomplish a task. As the community becomes more developed the exterior workshop will allow craftsmen to contribute to the expansion of the Community Resource Hub. Items created here can be sold for revenue or contribute directly to building maintenance.
Lecture Space

In support of the idea of the hub contributing to the exchange of knowledge and ideas, the lecture space boast an open gathering area and terraced seating that is ideal for guest speakers. This space also has the potential for community members to hold meetings in a more formal manner and offer protection from the elements. Furthermore, an exterior patio beyond the podium offers grand views down the hillside.
Book
Library

As another program to dedicated to bringing resources to rural areas this reading library lends itself to lounging and learning. The space is comprised of three levels separated by interior retaining walls in the form of gabion cages. This is a more efficient use of materials that eliminates the need for expensive construction typically used on sloped terrain. While relaxing in this space patrons can charge their devices and catch a good read in the meantime.
The community market at the entrance of the hub not only generates revenue for the community but also allows local craftsmen to showcase their talents. In addition, crops from the surrounding areas can be brought here to be sold. Visitors and locals alike will benefit from the assortment of items offered at the market.
Communal Pit

The communal pit historically served many functions both formal and informal. As the central point of the Community Resource Hub, the pit lends itself to meetings, announcements, leisure and comfort, allowing it to be as flexible as it is open. The simple act of gathering can strengthen bonds and contribute to the feeling of connectedness which is especially important in rural communities.
5.4_ Building Systems

1. Photovoltaic array used for water pump, charging devices and lighting
2. Overhangs protect from harsh sun year-round
3. Bamboo and woven slats allow cross ventilation to cool the buildings while exhausting hot air
4. Rainwater harvesting to use for irrigation and greywater. Water purifying systems added as funds are generated
5. Plant biodiversity replenishes soil nutrients and reduces runoff
5.5_ Assembly + Materiality
<table>
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<th>ELEMENT</th>
<th>MATERIAL USED</th>
<th>ALTERNATIVE MATERIALS</th>
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<tr>
<td>Roofing</td>
<td>Corrugated Aluminum</td>
<td>Palm Frond Thatch</td>
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5.6
Community
Resource Hub

Entrance
References


Figure Index

Figure 1: Uploaded by Jlanghurst on June 5, 2003. https://commons.wikimedia.org/wiki/File:Mountainous_Farming_Plots_Haiti.jpg


Figure 8: Unknown. https://haiti.communitere.org/the-community-round-table/

Figure 9: Screenshot from: Haiti Communitere. YouTube video. 3:27. “ChangeStream Media,” January 1, 2013. https://www.youtube.com/watch?v=N9x5uV2WdT4

Figure 10: Uploaded by Billtacular on July 25th, 2008. https://flickr.com/photos/billysbirds/2756882921

Figure 11: Nsude, Godwin C. The Traditional Architecture of the Igbo of Nigeria, 1987.

Figure 12: Yavo, Philippe. Technical Know-how in the Indigenous Knowledge System Underlying Batammariba Traditional Architecture in Togo and Benin. 2013.


Figure 14: Sketch of Lakou by Caroline Joseph’s “MEMWA Memory of Haiti: A Haitian Cultural Center”.


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