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Q&A

How did you become involved in doing research?

I became involved in exploring this topic following a Study Abroad program to Matazano in 2013. I noted the environmental conditions prevalent that were directly influencing community health. It was during this trip that I recognized my desire to work with developing communities to find sustainable methods to live in cooperation with their environment while improving their collective health. I was introduced to the Community Health Club method by a fellow student and was intrigued by their success record in Africa. I felt it might be a good fit for the ongoing Engineers Without Borders project in Matazano.

How is the research process different from what you expected?

I expected the research process for this project to be mostly reading and disseminating information. However, translating the method and trying to understand how it would fit with the conditions experienced in Matazano raised more questions than I was initially prepared to answer. This meant that I had to spend more time researching the history of development projects and the region in particular. Overall, the research process raised more questions than concrete answers, and that surprised me.

What is your favorite part of doing research?

Visiting with the community and getting a first-hand experience of the conditions under which they must function as part of their daily lives was definitely my favorite part of the research. Corresponding with the author of the Community Health Club method was also great, as it allowed me to get a better feel for aspects of her work. The other aspect that was important was working closely with my mentor on the final paper and getting his feedback; this reinforced the direction that I've taken in my academic career.

Community health club and its application for health promotion and community building in Matazano, Guatemala

Karen S. Lewis

ABSTRACT

My project was to research the participatory education method known as "Community Health Club" (CHC) and assess its viability for use as part of a larger sustainable development project organized by Engineers Without Borders-Sunflower State Professionals (EWB-SSP) with the Matazano, Guatemala community to provide and improve existing water supply methods. Currently the water in existing lines, which are contaminated with *Escherichia coli*, is adversely impacting the overall health of this community. It was suggested that the CHC, which was first officially introduced in Zimbabwe in 1994, should be considered as part of this project to help ensure project sustainability past direct EWB-SSP involvement. The core goal of CHC is to share information with community members that will improve the overall understanding of health and hygiene behaviors, as well as help foster skills needed for self-initiated development of the community. My research showed that the CHC has had very strong successes in Africa and other countries,

is supported by the World Health Organization as a strategy to reduce poor health worldwide, and definitely should be considered for long-term community development projects in the future. However, it was my conclusion that it would be challenging for the EWB-SSP to implement such a comprehensive program in the Matazano community at this time given the current phase of their project. However, I do feel it should be examined as a cooperative effort between local organizations, separate from the water quality project, to indirectly meet the end goal of project sustainability.

Assistance programs aim to improve the quality of life of communities in less developed countries, often by focusing on individual health and economy. Many programs have fallen short of achieving these goals, however, because the targeted communities have failed to sustain project inputs beyond direct involvement of outside organizations. Several education models have been introduced since the 1980s to break these trends by promoting participatory approaches, through which communities “buy in” and actively work with projects at multiple levels in order to promote long-term sustainability. The Community Health Club (CHC) is one such participatory approach that has achieved increased success rates in Africa and other countries. In my research, I examined the Community Health Club method and assessed its applicability for use with an Engineers Without Borders Water Quality project in Matazano, Guatemala.

METHODS

My research largely involved reviewing primary source documents on the Community Health Club method introduced by Juliet Waterkeyn in 2005 (and presented in print in 2010) and the few secondary source documents of others who have reviewed this method for the World Health Organization. In addition, I utilized the University of Kansas Library and Research databases to locate and review additional electronic source material on the background of development work and get a better understanding



View of the church and central meeting area in Matazano, taken from the community's water holding tanks.

of the multi-disciplinary nature of current-day development programs.

To gain knowledge on the history of the Cho'rti' community and their history, I reviewed secondary source documents found at the University of Kansas Libraries. I also visited the community in Matazano, Guatemala, first as a member of a KU Study Abroad program and secondly as part of the Engineers Without Borders team. My role in the Study Abroad program, and as part of the Engineers Without Borders team, was to visit homes in the community to take water samples and to use Geographic Information Systems to map community infrastructure. During these visits, I made first-hand observations of the community dynamics, environment and social relations, and made inquiries (through an interpreter) of community members. I visited with various local agency operatives for this research and as part of an Engineers Without Borders team to assess what support mechanisms currently exist for this community and get their observations of the

community dynamics and organization.

It was my intention as part of my research to visit with community members more in depth about their history, current challenges and hopes for the future; however,

time limitations in the country and language barriers challenged this more than anticipated. While many in the community speak Spanish, my comprehension of the language is low and, to complicate things further, some members speak only native Cho'rti', which involved complex translation and limited deep conversation. To compensate some for this I visited in length with my mentor, Brent Metz, University of Kansas Professor of Anthropology. Professor Metz has established and maintained a long-standing relationship with people of this region and Cho'rti' communities within them that began with his graduate work in the 1980s. This provided valuable insight into their historical and present day social dynamics.

I presented and discussed my findings with other members of the Engineers Without Borders-Sunflower State Professionals and discussed my thoughts on the feasibility of using this participatory method in this particular community given the history of the project to

date and community expectations. It is my intention to remain involved with this project as part of the EWB-SSP and future projects with this and other organizations. It is my goal to try to find creative ways to educate others about the complex relationship that exists between personal and environmental health so we may find more sustainable ways to live. This research has given me valuable insight to the challenges that I will be faced with as I continue moving forward on this path.

INTERNATIONAL DEVELOPMENT PROJECTS

While the main goal of my project was to dig deeper into the Community Health Club program and process, and summarize this method for a specific audience, I believe it is first important to have an understanding of the larger events that have brought us to this participatory phase in local development programming on a global scale.

Early government-organized programs, like the Marshall Plan, began following World War II and focused on large-scale humanitarian aid while attempting to influence political ideology and agendas in strategically important countries (Harrigan, 2011, 1281-1285). With the creation of organizations like the World Health Organization (WHO) by the United Nations in 1948, the agenda became less government-driven and began to focus on achieving the highest possible level of health for the world in general. It was thought that providing basic health care and services would contribute to reducing the social and economic disparity often found in these communities and might reduce the conflicts which often follow these conditions. Specifically, the purpose of the WHO is to influence and improve quality of life by providing program materials to

organizations within member states so they can better assist countries that are struggling with poor health and economic issues.

Past methods by the WHO and some health organizations, however, have often been costly and too generalized to achieve long-term success (Waterkeyn, 2010, 1960). Some of this occurred because they failed to incorporate local cultural values within their programs and were viewed by local communities as simply another form of outside interference in their lives. Project breakdowns also were (and continue to be) impacted by corruption, bureaucratic failures, aid inappropriate to the need, and lack of coordination between the donor, host organization and recipient. The largest issue, however, is that most methods failed to address the social and psychological needs of the communities by ignoring their unique group dynamics (McMillan, 1986, 14). It was not until the 1980s that NGOs began to place more attention on addressing these group needs by examining the methods being used to convey health information.

Effective information dissemination has become the determining factor of the most recent efforts to improve national health in developing regions. As part of the Millennium Development Goals, the UN intends to reduce by half the 2.4 billion people without adequate sanitation by the year 2015 (Waterkeyn, 2010, 1). In order to achieve this, multiple strategies have been attempted to convey health information and best practices. Some of these approaches have included: forced change through government edict, promises of future assistance following change, and appealing to personal status and "common sense." Each of these has had variable success over the past several decades, but those with the most progress were more often

directly related to the collaboration between the communities' inherent cultures with the education style introduced (Azurdy, 2007, 17).

Some of the most promising methods have focused on long-term initiatives that emphasize long-term sustainability through a bottom-up approach which recognizes how group dynamics impact change. These most recent methods address the capacity of the community to participate in the construction of its own change while promoting, rather than merely teaching, healthy habits. By using multi-disciplinary theories for community development and organization that recognizes group social, physical and psychological needs, the communities are more invested in their own project at its inception, which has indeed often translated to long-term sustainability.

This coincides with recent sociological research which concludes that unless a community is actively involved in their own project initiation, development and maintenance, the project's success rate is negligible (Gaventa, 2010, 16-17). Those behind these promotion methods recognize that unhealthy behavior is not necessarily contingent or caused by missing information, and that individuals can develop their own solutions given the proper encouragement (Azurdy, 2007, 4). Participatory approaches that actively involve community engagement and enable people to increase control over and improve their own health have been recognized by the WHO as a highly effective methodology for health promotion (Azurdy, 2007, 2). Community Health Clubs are one such participatory method that incorporates this collusion and involves the individual as part of a larger collective movement.

COMMUNITY HEALTH CLUB MODEL

The Community Health Club (CHC) education model for hygiene was first officially introduced in Zimbabwe in 1994 as part of the Africa AHEAD (Applied Health Education and Development) program. It has had measured success in multiple African communities in achieving health goals, such as tuberculosis control and sanitation (Azurdy, 2007, 23). CHC's primary purpose is to encourage healthy behavior changes within a community by building a group consensus for these measures. Using structured, measurable and inclusive methods, AHEAD recognizes that community development is a long-term process. CHC provides a relatively low-cost method that is easy to monitor, adjustable to regional customs, and works well with traditional forms of community organization (Waterkeyn, 2005, 1960). Through reinforcement, the CHC uses participatory learning methods to share information in a manner consistent with most traditional community gatherings. In addition, its club meeting structure has also been shown to develop leadership skills that aid in overall community strength. This is significant, since it has been established that community engagement and cohesion is vital to overall community success (McMillan, 1986, 8-9).

The core goal of CHC is to share information with community members that will improve the overall understanding of health and hygiene behaviors, as well as help foster skills needed for self-initiated development of the community (Azurdy, 2007, 4). Through the building of a group consensus in support of these habits, the method operates to build common unity by challenging the community norms and starting a chain of jealousy (Waterkeyn, 2010, 7). While a chain of jealousy is often seen as a negative

aspect of human nature that causes neighbors to be envious of each other, these emotions can also be used to provide a bridge to consensus within a group of individuals.

CHC promotes group consensus through providing active discussion by community members of concerns in open meetings, discussion and introduction of potential methods to address these concerns, and agreement as a group to adopt these new methods. As such, conformity is achieved through creating a group consensus that leaves no individual acting alone in their actions as they try to impact these issues (Waterkeyn, 2010, 7). In addition, meetings are consistently open to new members and the adopted techniques (and benefits) visible to neighbors. As such, there is ample opportunity for non-attending community members to join in and adopt these tactics on their own. Since everyone has this opportunity to enjoy the benefits presented, it increases the likelihood the new tactics will become a standard community practice.

Women have been found to be the most receptive to new ideas, especially when it is perceived these tactics will improve their family's quality of life. For this reason, health programs often focus their attention on this particular demographic in order to modify health behavior in the community (Waterkeyn, 2010, 149). However, this group of individuals also performs a tremendous number of tasks as part of their daily lives, so outside organizations must be creative in their methods of instruction. CHC recognizes this time commitment, but also notes that there are few educational opportunities available, especially for women. By encouraging group activity in this forum, the CHC fulfills not only the specific learning goals but appeals to the individual desires to be social and expand their knowledge.

It is important to note that

although CHC focuses on women as household managers, no one is ever excluded from membership in this club based on gender. As shown in research done for CARE International, female involvement was sometimes only slightly higher than that of males, depending on the village dynamics (Azurdy, 2007). It has also been noted with several Africa AHEAD communities that the men notice the "useful employment" of their wives following involvement in this program. There have been comments on the increased household upkeep and improved family health due to wives who have participated. In addition, these men have shown a commitment to participate themselves in the program, as a show of support to their families (Waterkeyn, 2010, 300). This illustrates one way that the CHC program is able to become an accepted activity within the community structure.

CHC also tries to become part of the community norm by carefully choosing the most appropriate facilitator to guide these meetings and creating leadership opportunities within its members. The facilitator not only guides meetings, but is responsible for periodic household visits to assess if goals are being met or additional support is needed from other club members or the facilitator. There are potential concerns over using local or international NGOs to share information if the organization is not following through consistently and failing to establish strong relationships with community members, as these can create potential risks to future program activity, but it is believed this can be overcome through designating a facilitator specific to this task and community.

CHC recommends using locally trained public health experts initially and training individuals from the community to act as future facilitators when community organization is stronger. This aspect

of the method has been shown to translate to long-term sustainability of the program, the ability to address a large number of health-related issues, and cost effectiveness. By utilizing local health organizations to train local individuals from the start as facilitators, trust issues within the community are often alleviated (Azurdy, 2007, 20). In addition, training from within the community provides opportunities for individuals to have leadership roles which will be important for future project initiation and community development.

The CHC creates new channels of communication and learning opportunities for its members in an informal social structure rather than formal education. It believes that in doing so this method helps the community to generate the knowledge and ultimately power to manage its own social, educational and health development. By encouraging its members to discuss objectives and the barriers to meeting these objectives, collective discussion tactics are used in these meetings to break down these barriers and develop community organizational skills (Azurdy, 2007, 20). One example of the leadership building aspect is the formation of committees within the club program.

It is the role of these committees to provide and organize support for members during the process, and then organize and lead later initiatives. Because CHC seeks to create a health "culture," it continues past the initial health promotion phase to community health management, income generation, and other social development initiatives like literacy and stigmatism (Waterkeyn, 2003). This concept of basic committee organization will be useful in future projects and initiatives, as it has illustrated the capacity of individuals to take active roles in their own community development.

Individual capacity is first



Professor Brent Metz taking a short cut through a typical hillside corn field found near Matazano.

measured and created in the club through the use of an activity membership card. This card acts as a tangible example of their involvement in a group project and a measurement of their commitment toward the main objective of creating a healthy environment for their families and community. The CHC card illustrates not only the weekly objective topic, but methods that will help them achieve this goal (Waterkeyn, 2005, 1961). Following each week's topic, the member is given a task to complete at home that coincides with the discussion at the meeting (Waterkeyn, 2005, 1961). As an example, the first topic might be "Safe Water Chain," and homework would include ensuring that water is always covered, dispensers are always clean of dirt, etc.

At the next meeting and subsequent meetings, the members discuss how they have implemented the process, barriers they may have encountered, and then problem-solve these issues as a group. Their card is signed by the facilitators as completed and the next topic is introduced (Waterkeyn, 2010, 155). The CHC method is open-ended and designed so that members can begin at any time during a session.

Concurrent sessions will begin as the set program ends so that everyone has an opportunity to get involved in the process, catch up on missed initiatives and be recognized publicly for their achievement. Scheduling the program in this way encourages maximum community involvement, regardless of seasonal work schedules, and encourages generational buy-in as objectives become part of the individual and community culture.

COMMUNITY HEALTH CLUB APPROACH

The Community Health Club is designed to be utilized as a comprehensive program for building community health, culminating with the eventual phase-out of outside organization direct involvement. The method is meant to be conducted in a four-stage process over the course of four years through meetings that occur weekly for two hours, at a regular time and convenient location for the community members. Each of these yearlong stages involves specific initiatives to be accomplished that promote opportunities designed to improve the community's overall well-being.

To encourage community management of the method, a

committee is formed from within the Health Club group members to keep records of attendance, organize communication and assist the facilitator and community individuals. These are nominated and voted on by the attending members. While this first stage is initially time intensive for the facilitator and committee members, it is important to create recognition within the community that something important is being accomplished. This process becomes less intensive for the lead facilitator and any assisting organization as the community adopts the program and skills are put into practice at the community level. The program itself also becomes easier as individuals begin to participate in club management and recognize their capacity to take on initiatives which benefit the community.

The first stage of this method involves a health promotion campaign with activities that invite conversation and disease education. This is by far the most important stage of the method, as it sets the groundwork for good health and future community development. Using the Participatory Sanitation and Hygiene Transfer (PHAST) methodology developed for use by the WHO in the 1990s, a standardized tool kit has been developed and tested for the particular region that provides the trained facilitator with illustrated cards for each topic (Waterkeyn, 2005, 1959).

During the session, the group is divided into three subgroups, given a set of activity cards with which they work for about 30 minutes, and then discussion commences as each group presents their activity to the others. The facilitator acts only to direct discussion as needed so that groups can actively debate the issues. The group then discusses the "homework" to be accomplished to affect these issues. Homework involves changes made to household

hygiene habits that are low/no cost and are easy to implement. Revision sessions occur until all members have the opportunity to catch up with adopted measures.

The second stage involves implementation of programs to supply water and contain waste. Ideally, this occurs following the health promotion phase to ensure the community has developed the organization needed to actively participate in this stage's planning. For example, if a communal facility is being used to supply water to the community, Health Club graduates can become responsible for oversight of specific water points in the community. As certified graduates of health promotion, they have shown their commitment to taking action needed to promote good health at the individual level and working as part of the larger community. They are given opportunities to receive further training on Community Based Management (CBM) and receive basic certification toward future and current project maintenance. These members are responsible for appointing the pump technician(s), record keeper, and treasurer as well as providing reinforcement and oversight of the system. This helps create a solid base membership for future community projects.

Another component of stage two is sanitation and construction of sustainable latrines or waste control measures. This is done both at the individual family level, and as part of a community effort to provide communal locations and facilities for families who may not be able to complete construction on their own. Because Health Club members understand good sanitation, they can take an active role in pit or composting construction for themselves. Through use of the Club Committee structure, committee members can help individual households initiate the

documentation needed to secure funds for the construction of sanitation facilities needed in a given location. Because at this point they have more belief in their skills needed to organize these activities, the Club facilitator acts only as needed to offer advice and support the committee as they work with partnering NGOs to help fund these activities and ensure that all members of the community are being included.

Stage three examines the ability of its members to achieve a sustainable livelihood that will break the poverty cycle prevalent in so many developing communities. Having completed training to incorporate healthy habits into their lives and address sanitation concerns, it is appropriate to expand on the ability of members to care for their families beyond their current capacity. Through the use of the existing Health Club, additional skills training can be introduced for the generation of income using local resources. To do this, the Health Club first participates in a Participatory Rural Appraisal workshop where members identify what their priorities are and discuss what training they need.

This stage also includes financial management training and the appointment of a local coordinator who (after training) becomes a financial advisor for other members. The Club is then divided into smaller groups, with each being instructed on a particular skill, and the committee ensuring access to necessary low-maintenance equipment. At this point, the original facilitator acts only as requested to offer advice and mediate as needed with other organizations. Opportunities to generate additional income through low-intensity projects like gardens, soap making, and insect repellent lotion from natural products, allow for members to raise their living standards and improve overall community health, especially those

who are the most vulnerable due to age or impairment.

The fourth stage is designed to become a catch-all directed at social development within the community. Because the Health Club at this point has become part of the community structure, it can be utilized to address social issues such as abuse, physical and mental disability, human rights, and literacy. It would be appropriate at this time for the club facilitator to find members taking an active role in identifying and locating the resources needed to achieve these goals, as there should be a large number of the community active in the club. In this phase, there must be at least one individual trained as an Adult Literacy Tutor to work with club members on this issue. The facilitator should have initiated this process prior to the end of the third phase by identifying and training candidates.

The club will also now need a Home Based Care Trainer in the community who will take the lead to ensure families know how best to care for the terminally ill and displaced family members, as well as dealing with any illnesses that might carry a stigma, like AIDS/HIV. It is recommended that a small percentage of income from group projects is placed in a fund to aid in caring for these individuals and their children's education, as well as projects for these families to contribute to themselves. In this way, all members of the community are developing the capacity to contribute to community health and organization.

At this point in the program, staggered initiation of approaches is complete and the theoretical, practical, economic and social goals needed to promote a healthy community have been accomplished (Waterkeyn, 2010). The original supporting agency should be able to pull out of the community with reasonable assurance that a healthy community culture will be

maintained by the group on its own recognizance. Because the populace has developed a more holistic idea of health, it will be able to initiate any additional development needed in the future with only minimal assistance from local organizations. In addition, because a successful program rollout has promoted broad representation and organization within the community, it has served to help empower its members in the face of any marginalization they might have encountered in the past (Azurdy, 2007, 17).

method was assessed positively for implementation as part of a CARE International child survival project in Sierra Leone (Azurdy, 2007, 47) and additional development organizations are using this method in Vietnam and Bangladesh.

The initial purpose of this research was to examine the Community Health Club approach and determine if it could viably be used to convey health information as part of a larger water quality project in Matazano, Guatemala. Research indicates it has good success with



Some of the women of Matazano following a community meeting with the Engineers Without Borders-Sunflower State Professionals.

Adaptability is one of the key aspects that make this method attractive for use as part of health promotion by the WHO. As part of Africa AHEAD, this methodology has been successfully implemented in multiple Zimbabwe communities since 1994. It has been used extensively since then in additional wards throughout Africa and has been modified for use by Jason Rosenfeld, employee of Africa AHEAD 2007-2010, for use in communities found in the Dominican Republic and Haiti (Africa, 2013). Research performed on this

conveying health information in an economical manner. This, in addition to its cultural adaptability, is positive enough to consider its use in this particular project. I also believe that its capacity to help create cohesion and increase community strength and self-reliance would be extremely beneficial to this community. However, before discussing this further I will provide some information on the Matazano community itself and the Engineers Without Borders project to date.

MATAZANO COMMUNITY BACKGROUND

In order to assess the feasibility of using this approach for this particular project, it was important to understand more about the community in question. In the following sections I will give a little of the background of the aldea of Matazano, Guatemala, part of the Municipality of Jocotán, introduce the Engineers Without Borders Water Quality Project in question, and discuss any obstacles that could impact implementation.

Matazano is an indigenous Ch'orti' Mayan community consisting of approximately 500 households that contain upwards of 3000 people. This aldea is located on limited amounts of land in the steep hills of southeastern Guatemala near the city of Jocotán, Chiquimula, only an hour or so from the borders of El Salvador and Honduras. Historically, the Ch'orti' people have been subsistence farmers using communal property for their crops and a population consensus method for decision making at the community level. Members of this community are at a stage in their development, due largely to overpopulation of available land and lack of local market opportunities, where individuals have been unable to effectively use their traditional subsistence lifestyles to sustain their families throughout the year. This is causing more individuals, especially men, to work outside the community. While traditionally there has been a distinct division of labor between men and women, this shift has meant long absences from their families for these individuals (Metz, 2006, 153). This shift is making it necessary for women to take on more decision-making roles outside of the home and has begun to alter some of the historical social structures of the community.

The community at large has also been impacted by discrimination and marginalization stemming from centuries of maltreatment,

first during Spanish colonialism from 1524-1821 and later by the military during Guatemala's civil war that lasted from 1960-1996. Discriminatory class distinctions between indigenous and Ladino populations continue to be reinforced today through political maneuvering at the local and national level (Metz, 2006, 188-225). Governmental policies limit the educational and employment opportunities of the Ch'orti' and impact their access to adequate levels of healthcare and arable land. Political maneuvering has also influenced the success of past development projects in this community, as anticipated monies for projects have failed to materialize and land has been appropriated for non-community uses. This has caused individuals within the community to be cautious of people they do not know well and to regard unfamiliar ideas with caution; it has also influenced their personal sense of worth, resulting in a low level of self-respect.

Although members of this community are indigenous Ch'orti' Mayas, the use of the language is no longer common, with most individuals fluent in Spanish (Metz, 2006, 219). Few have had formal education past the primary level, with a number of individuals still relying on verbal rather than written communication to conduct daily and community business. The nearest town, Jocotán, is accessible to this community by footpaths that cut through fields, or using the common form of public transportation which consists of numerous people stuffed in the bed of a truck. These vehicles provide this service at a nominal fee that some cannot afford, although vehicles are typically full each trip. Many families have chiseled out house plots in the hills and most homes are a combination of mud brick, corrugated metal and palm leaf construction. Home construction has reduced the already limited arable

land available for crops, and there are few options for this growing community to spread out further.

While many homes have water standpipes and some have electricity, the supply of these resources is inconsistent, creating obstacles for accessible potable water and basic sanitation. Typical home construction layout tends to trap smoke from wood cook-stoves, which has led to respiratory and other health issues. A 2006 report indicates 93% of rural Guatemalans live in extreme poverty (Warren, 2006, 9), although a more recent 2012 WHO report shows only 56% of families in rural areas live well below the poverty line, with a 24.8% mortality rate, largely in children under the age of 5 (WHO, 2012).

Efforts to impact these mortality statistics have driven some to work for long periods of time at large sugar and coffee plantations far from the community. When they return, they continue to use traditional methods for farming their poor agricultural lands on steep hillsides and store most of this product (mainly corn) for use as far into the year as it will last. Other individuals have begun entrance into the market economy using traditional skills such as weaving to produce mats, baskets, pottery and other products for sale at the local town. This income is limited, however, and has been impacted by increased transference to the use of less expensive factory-made products sold by local townspeople.

In addition, young adults have begun to emigrate from the community and country for work in an attempt to supplement their family's livelihood. Households that benefit from this remittance income are typically more noticeable in the community because they can afford more expensive upgrades to their lifestyle, such as cement walls for their homes and cell phones. Despite this remittance income, these families continue to struggle with the same poor water quality and sanitation

as their neighbors. These absences have also begun to impact the familial relationships that had defined their past culture. The cumulative changes to their social and physical climate over the years threaten to cause damage to the psychological sense of community found in Matazano, which are directly related to the individual need for membership, influence and shared emotional connection.

MATAZANO WATER PROJECT BACKGROUND

Multiple households in Matazano do not have sufficient access to water on a daily basis, and the water that is available is highly contaminated by microorganisms. Members of the community who do not have running water travel by foot over uneven terrain to the nearest source, representing an enormous amount of human labor each day. This lack of water access not only takes time from other household duties, but has detrimental impacts on their healthcare, as clean water is necessary for good hygiene and sanitary food preparation. Water sampling done in 2012 and 2013 reveal widespread contamination of existing water sources in the form of microorganisms like *Escherichia coli* (Sunflower, 2013). Unsafe water for consumption and hygiene is adversely impacting the overall health of this community.

The WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation reports that 93% of the households in Guatemala have sustainable access to safe drinking water and basic sanitation; however, this measures potential, not actual, availability. In the community of Matazano, accessibility to safe drinking water is well below 5%, with water standpipes present but not functioning consistently near many homes in the aldea and water contamination present in 100% of

2013 samples (Sunflower, 2013). Basic sanitation efforts in Matazano have not been recently measured, but would be closely linked with the lack of accessible clean water.

Currently the Engineers without Borders-Sunflower State Professionals (EWB-SSP) have been developing a project to address the accessibility and quality of water in an effort to improve local health conditions for the community of Matazano, Guatemala. To date, the EWB-SSP have made numerous site visits and determined that the current water collection and distribution system is inadequate to meet the daily consumption and sanitation needs of the community. In addition, sampling of household water pipes performed in 2013 has revealed widespread *E coli* contamination that must also be addressed. 2013 GIS mapping of existing waterlines and wells revealed current water lines were inadequate for water flow and demand, breakages and blockages were diminishing flow and allowing entrance of contaminants, and additional pipes were needed in response to community growth (Sunflower, 2013). A phased approach to address these issues has been proposed by the EWB-SSP which relies on the coordination and cooperation of a community-run water board, as well as involvement of local NGOs, over the next several years and health promotion to address additional community issues.

The success of this project relies on the entire community contributing to improve these services through the formation of a functioning water board and collection of fees for system upkeep. This proposed framework change is not a new concept to the community leaders; however, it has not been functioning consistently since the early 2000s (Sunflower, 2013). The reason for this previous breakdown has been reported to coincide with

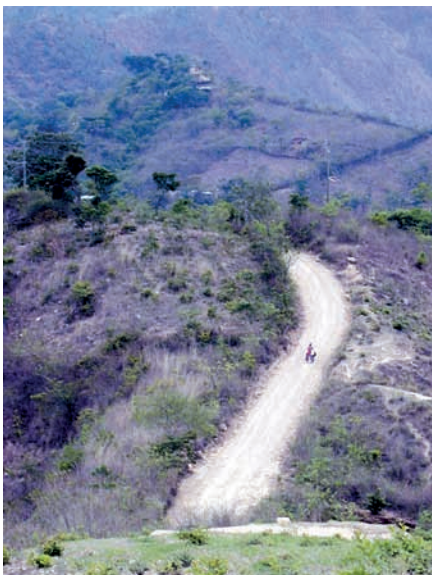
the failing water infrastructure and mishandling of maintenance equipment. Additionally, I would suggest that external stressors, such as absent household members and local government issues, are affecting how this community works as a collective and is impacting current collaboration efforts. As mentioned previously in this report, breakdowns are not uncommon in development projects; however, without community and individual buy-in to new ideas and methods, the effectiveness and likelihood that this project will still be sustainable past EWB-SSP involvement is suspect.

APPLICATION OF COMMUNITY HEALTH CLUB IN MATAZANO

“Important links exist between health promotion and community development,” as development can help create an environment where community members can more easily identify needs and work together to solve problems (Azurduy, 2007, 11). In an effort to build support for future health and improve cohesion, participatory health promotion programs like the Community Health Club program should be considered as a helpful mechanism for long term EWB project plans in Matazano. Through this participatory learning method, which incorporates many traditional group decision making processes, phasing the introduction of information has been shown to help foster skills needed for self-initiated development of the community and promote long term success (Azurduy, 2007, 4). Based on the proven success record of this particular method in Africa and the Caribbean, it is my premise that this method can be adjusted for use in Matazano to create a solid base from which to carry out the current water project and promote activities that will build a sustainable healthy community for generations.

As previously stated, the primary goal of CHC is to promote good health through dissemination of health knowledge in a manner that encourages participation and acceptance. Many individuals in the community of Matazano have received health instructions in the past, but have not utilized them fully. Recent EWB research was performed with the cooperation of community women where they were given a camera and asked to take pictures of community issues. Upon follow-up explanation of photos taken by the participants, it was recognized that there is an acute awareness of the physical health issues in their community. While some ladies recognized related causes of these, it was interesting to note how few identified basic hygiene as one of them. What was also interesting about this event was how animated and how active discussion was during the presentation of the photos to community members.

While the community members EWB-SSP has interacted with recognize the correlation between health and sanitation, the CHC process would reinforce of this



Community members walking on the road toward Matazano from a neighboring aldea.

relationship between hygiene and health. As part of its first stage, the members in Matazano would use the knowledge they already have to assess these problems and gain additional information to address them. Information relayed with each other during discussion and activities will help them build self-reliance and confidence in their ability to impact their family's health and capacity to carry out the necessary tasks. As families and individuals share their success stories with others in the community and how it is achieved, more people will recognize their innate abilities to impact changes that will benefit their family's health and build on their self-esteem as personal goals are attained.

Part of a sustainable healthy community is its relationship with community properties and adjacent lands. It is important to recognize how the space communities reside in encompasses more than merely a geographic location. It has been suggested that a particular place develops significance and meaning for its population over time. As places within the community, such as a home, a community park, or a soccer field, become part of community members' identity through social and cultural relationships, they are responded to differently (Tuan, 1977, 15). However, this community has been pushed to limited lands that are not well suited to their traditional agricultural practices, and climate variations are impacting productivity of these areas.

Although they have resided in this particular place for many generations now and do have significant places within it, I believe this may have impacted some of their current land use habits. Additionally, it is important to note the variance with which different generations are viewing shared common spaces like community paths and meeting areas. On recent visits, EWB members have been

told and witnessed the youngest generations, those who are more used to "disposable" products, dropping these packages on the ground. This practice, compounded by the lack of accessible toilets, creates an unsanitary environment throughout the community, especially in the rainy season on the shared pathways. The land stewardship practices that result from this can potentially be strengthened through the use of the CHC method. While promoting overall community health and impacting refuse control, the CHC method touches on the interconnection that exists between environmental and personal health.

The steep rocky land where they reside was once heavily forested and held the limited amounts of topsoil in place. However, over the years population within this limited space has increased. People have needed the land to create homes and to grow food, resulting in a reduction of land cover and arable land for crops. In addition, traditional agricultural methods have been altered, with less crop rotation and mixed crops than were grown traditionally, which has depleted nutrients like nitrogen from the soil and decreased overall yields. In response, more residents are using chemical methods to add nutrients back and fight pests that attack the crops. At issue is how prone this area is to intense rainy periods, which creates erosion throughout the aldea as soil is washed away in torrents with the rain. Without sufficient ground cover to help stem this flow, it also spreads chemicals and fecal matter across all surfaces of the aldea and makes its way into exposed and underground water sources.

Although the Ch'orti' are aware of many of these issues, they lack the organization to tackle them effectively. As such, environmental health can be a CHC topic to promote discussion of how to improve land quality and as such promote individual and community

health. Utilization of the CHC committee can help organize measures such as fecal containment, trash disposal and nutrient replenishment, as well as strategic planting of indigenous plants and trees to reduce runoff around fields and homes, provide sufficient shade for gardens, and craft materials. Additionally, there are small measures that can be discussed, like keeping water hoses off the ground, and designated hand-washing stations away from food prep, which will aid in creating barriers to disease transmission.

Use of the CHC method creates opportunities not only to promote better environmental and personal health, but also strengthen rapport between the community members, the EWB project group and local project facilitators. As has been mentioned, inherent in many development projects is a level of animosity between the local community and visiting project members. Without sufficient personal history, the level of trust needed to foster collaboration has not been established and can impact project implementation. This bond has been initiated between the EWB-SSP and the community through the presence of an interpreter well known by the community and frequent visits since project initiation. Utilization of a local facilitator, who will be a consistent presence in cooperation with the EWB group, will continue this history building as well and strengthen the existing relationship.

There are a number of local NGOs and government agencies, such as Nuevo Día, Mancomunidad Copanch'orti', and the local hospital in nearby Jocotán, that could also be tapped to assist with continued rapport building. These have been approached as EWB project development has continued and have declared intentions to aid with implementation through training programs and their continued

presence; while one has clearly expressed a limited investment, the others are willing, but face obstacles. One major factor that inhibits this collaboration is that these organizations are already working on other projects and have limited time available for this community. In addition, communication between countries is inconsistent, which has impacted the collaboration between not only the EWB and these organizations, but with the community as well. Due to this, there have been concerns about forward project movement in EWB physical absence.

An option to overcome this is approaching the number of educated Ch'orti' living in the community and nearby town who have history with the community to act as facilitator for the CHC program to help bridge any remaining gap; however, this could cause feelings of jealousy that would be detrimental to the program's success. Other options to consider could be staggering EWB member presence as facilitators throughout the year or seeking out another local Non-Government Organization to provide more consistent communication, community presence and aid in forward motion of the project goals.

The community is anxious to see that the project is coming to fruition through tangible examples; however, they don't completely comprehend the time it takes to implement a project of this scale and how important their own community participation is in this process. Although community meetings on the subject have had relatively good attendance, comprehension and buy-in of project issues like fee payment for future upkeep is low. The EWB has already been working to bring the community further into the discussion and planning phases of the project by introducing them to GPS technology and map reading. By having community liaisons accompany map makers as they

walked existing lines, teaching them how to plot points using GPS and helping them understand the land variations represented on the map, they have been given available tools with which to build on. In addition, the EWB-SPP is attempting to build stronger community consensus and involvement through the creation of a new water board in place of the non-functioning current water board. This board will function to provide future oversight for the projected construction and future upkeep of the new lines.

FEASIBILITY FOR CHC METHOD USE IN MATAZANO

Upon reviewing all the data at my disposal, I feel that the CHC method has a proven track record in other communities and should definitely be considered for long-term development projects with EWB groups that have long-term community development projects in mind. However, it would be challenging for the EWB-SSP to implement such a comprehensive program in the Matazano community at this time given the current phase of their Water Quality Project.

The EWB-SSP group is currently approaching the construction phase of this project. Given CHC program expectations, actual large-scale development would not occur until after stage two is completed, so this would constitute taking definitive steps backward in the current project timeline. In addition, given the history of past development project interactions in this community and animosity to outside interference, it is possible that trying to introduce the original form of this method at this point in the current project would be detrimental to forward movement. It could be considered community interference and damage the positive relationships that have been built to-date between the community and EWB-SSP.

Secondly, the community of Matazano requested only water system improvements, not a health and community overhaul from the EWB-SSP team. Their expectations of this project, due to past experience with other NGOs who have expected so little from them, will be difficult to alter given the current time frame. While health related assistance is definitely something that is needed and requested by members within this community, they have access and established ties with the health center and professionals in Jocotán. However, the EWB-SSP could look at expanding its cooperation with that organization in order to help place a health trained individual in the community. This would be

optimal given the distance to Jocotán and definitely benefit both entities; it would be reliant on money and, given community history, would need to offer more than paper certificates to incite community buy-in. This individual could perhaps use some of their time introducing the CHC first stage method to the community.

In addition, by bringing in a resident health care professional/facilitator to work on the education aspect within the community, they would be able to build good relationships with members. This would also help provide a much needed communication link between the EWB organizations in the state. In addition, this link has potential to help build a bridge for long-term

involvement with local municipal and national organizations that could benefit future EWB projects. Part of this individual's duties could be to initiate the weekly meetings that the CHC method promotes so that the community can address health issues like toilets for all households, environmental measures related to the promotion of good health, and reinforce the committee structure and community organization. As health related issues are addressed using early CHC phases, the EWB-SSP Water Quality Project representatives will be able to step out with relative assurance that the community can sustain its health issues.

Photos courtesy of: Karen S. Lewis

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