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Keywords

Gender discrimination, Wealth, Education, Sustainable Development

Disciplines

Business | Social Statistics

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Disciplines

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THE EFFECTS OF AN NGO DEVELOPMENT PROJECT ON THE RURAL COMMUNITY OF TARKWA BREMAN IN WESTERN GHANA

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1. INTRODUCTION

1.1. Statement of the Problem

It is often referred to that women in Africa are treated very poorly, have little to no rights, and that in Western Africa particularly, there is a higher value placed upon the education of young boys over girls. (Tanye, M. Interchange (2008) 39: 167) Most Ghanaian girls attend what is termed “mushroom” secondary schools. These are poor quality institutions that lack many of the required facilities ranging from qualified teachers to teaching-learning materials and appropriate infrastructures. (Tanye, M. Interchange (2008) 39: 167.) In light of this problem, the Tarkwa Breman Community Alliance (TBCA)¹ is an NGO committed to providing quality education to young girls within the village of Tarkwa Breman and the surrounding community (TB), whilst promoting women’s rights and improving the healthcare system in the surrounding area. The project consists of the TBCA Girl’s School, a health clinic and a forty-acre cocoa farm. The aim of TBCA is to provide higher quality healthcare and a first-class education for young girls, at costs similar to what villagers already pay at much inferior institutions, whilst addressing cultural concerns associated with the education of women. (N.B, since the publication of this research paper, TBCA now known as Cocoa 360 has committed to meeting 100% of the cost of attendance)

The Blackbaud Index, which tracks the donations to 6,377 US based Charitable Organisations shows that from July of 2013 to July of 2016, overall giving has decreased from +6.9% to -2.2% on a year to year basis.²This is a worrying downward trend for charities that are for the most part donor reliant. Prompted by concerns about donor funding, TBCA has created a model for

¹ TBCA is now known as Cocoa 360, as of 09/02/2017 (this change took place after the initial publishing of this research paper)

² Data obtained from www.blackbaud.com

development that focuses on using revenues generated by the cocoa farm to make up for the shortfall between the costs associated with running the health clinic and school, and the nominal fee that patients and parents will pay for the use of these facilities.

In order to better assess the effectiveness of TBCA in the TB community in the future, this paper sought to provide a baseline of economic conditions and cultural practices within the TB community prior to the initiation of TBCA's development project and comment on the likelihood of the project being successfully self-funded.

1.2 Scope and Limitations

This research is limited to the Tarkwa Breman Community area (TB). Due to time and budget constraints, quantitative data was sampled from four of the eight villages under the project: Tarkwa Breman, Techimantia, Fantekrom and Krofofrom. Future research will have to take this into account. It was also not possible to conduct a survey of the main primary school in Tarkwa Breman, the government Methodist Primary School, as the staff had been instructed not to give interviews or allow interviews of the students in their care. This made it impossible to impartially assess the differences in the quality of education provided to young girls and boys within the classroom of a government school. As no staffed government clinics existed until 3 weeks prior to the survey in the community, quantitative data on healthcare in the community had to be obtained through household surveys of community members and is limited in scope.³

³ In typical fashion, the building had been completed approximately three years beforehand and was simply never staffed

2. METHODOLOGY

This paper uses results obtained through quantitative and qualitative methods using a survey of 156 separate households, numerous formal and informal interviews, focus groups, and observations of community meetings and interactions. As such the method of analysis and weights applied to different household characteristics used to determine wealth are subject to the authors discretion. Where possible, footnotes shall be used to explain the methodology used in the analysis of particular data sets. Surveys were conducted at random households during the hours of 7 am to 9 pm and on all days of the week, including holidays and weekends in an effort to create the best approximation of the community make up. The survey included three sections: a quantitative section with questions pertaining to household amenities such as number of rooms, primary source of drinking water, availability of electricity and type of bathroom attached to the main building; an inventory section with questions on household assets such as numbers of beds, televisions and radios, to assist with providing a metric for measuring household wealth; a section focused on the primary female decision maker in the household containing questions on women's self-image/confidence. This last section presented women with statements such as "I can influence important decisions in my community" and asked them to what extent they felt this was true. Interviews were conducted with Village Elders, the Chiefs' council, Community members and healthcare professionals. All material was verbally translated from English into Twi by local translators.

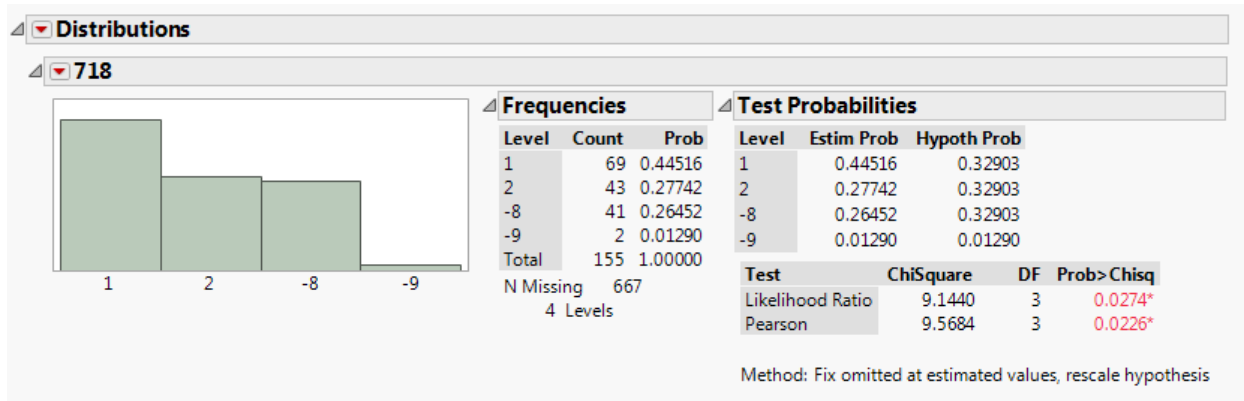
3. CHANGING THE CULTURAL PERCEPTION OF WOMEN IN THE COMMUNITY

3.1 The Education of Women and Young girls

The comment on the general poor quality of educational institutions is certainly warranted based on the observation of educational institutions in Tarkwa Breman. It was common to find that walls were falling apart, desks had not been replaced since the schools were built and many teachers did not come to work -the often-cited reason being that the government has not yet paid them. Apart from the decrepit education system, villagers highlighted a failing National Health Insurance System, lack of medical facilities and poor road networks as main reasons for deaths within the community.

Research findings have shown that investing in female education may be the most cost-effective measure a developing country can take to improve its standard of living (Donkor, 2002 as cited in Tanye 2008). While this is certainly the premise on which TBCA is operating, the views held by the members of the community differ somewhat, particularly pertaining to the role of women in society and the importance of education for girls. Figure 1 shows the distribution of which child (boy or girl) household heads would choose when being asked to educate a male or female child given limited funds. There was a statistically significant difference in choice, with 44.5% choosing the male child, 27.7% choosing the female child, 26.5% stating that it would depend on the specific circumstances, and 1.3% refusing to answer. The p-value of the likelihood ratio test under an assumption of equal probability for all levels, after fixing the refusal rate at its estimated value was $p = 0.0274\%$.

Figure 1⁴



Two reasons commonly given for why a household head⁵ would prefer to educate sons over daughters were that men would be expected to provide for the household in the future and needed to be prepared for this responsibility and daughters would simply get pregnant and drop out of school, wasting the money spent on their education. The author was only able to find three examples of young girls to which this occurred in the community. The Ghana Multiple Indicator Cluster Survey (MICS) conducted in 2011 reported that 23.7% of women aged 20-24 had a live birth before age 18 in Western Ghana (MICS 2011 p 155, Table RH.2). Figure 2 shows at what age women who identified as the spouse of a household head or as the household head themselves within the Tarkwa Breman area had their first-born child. The number of births at or below age 18 amongst all ages is 20.7%. Figure 3 shows the plot of the age at which these mothers had their children against the number of years of education they had. Only one data point is consistent with a mother getting pregnant while in school, with the majority finishing or dropping out of either primary or junior high school before pregnancy occurs. While there are

⁴ 1=Boy, 2=Girl, 3=Don't Know, -9 = Refused to Answer

⁵ Household head is defined in this paper as the primary decision maker in the household. In all cases where the household was headed by a couple, the household head was indicated to be the male member of the couple.

likely other reasons for these women not completing their education, the case for girls getting pregnant and dropping out of school is not supported by the data gathered from the community.

Figure 2⁶

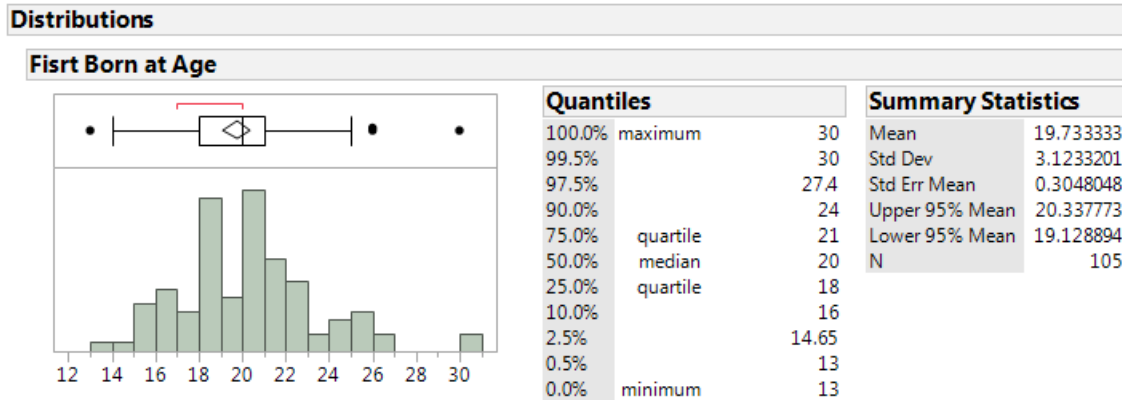
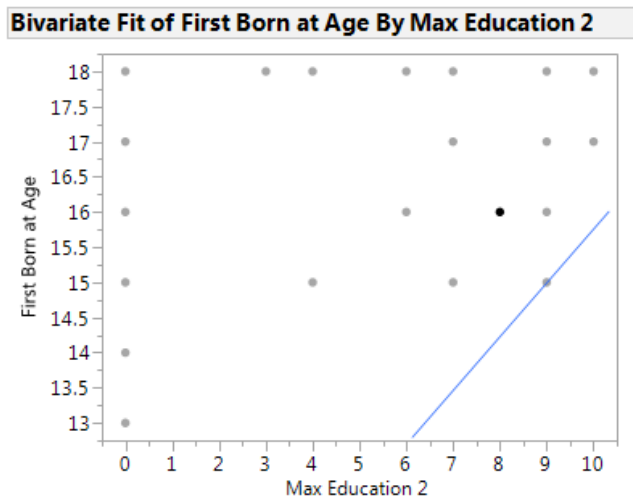


Figure 3⁷



Supported by the data or not, the very fact that this fear exists is an indicator of the wider problems within the village culture concerning the role of women in the community. TBCA is counting on the fact that by providing young women with an education that enables them to be

⁶ The age at which women reported to have their first child.

⁷ 0=No education, 1 to 6= Primary Education, 7 to 9= Junior High School, 10 to 12= Senior High School

equal to or even surpass their male peers, that men will begin to have more respect for them and their abilities. This is not to say that TBCA views women as being superior or more important than men, but that by emphasising young girls' education, they will help communities gain access to a wealth of human capital that they are perhaps currently neglecting. Indeed, during a formal interview, one woman stated "*If you have no education you are nothing to them [men], so education is good*". When asked to elaborate, it was explained that in this case, 'education' referred to a university degree, and not simply obtaining a high school diploma. This was in fact a common theme throughout interviews and focus groups: simply being as well educated as a man was not enough to gain his respect. In general, you had to be significantly more educated as a woman for your education to have any bearing on societal interactions with men who were not part of your immediate family.

3.2 The Role of Women in the Community

Within the Tarkwa Breman community, women are generally seen as the homemakers and house-keepers of the village and will commonly engage in activities such as cooking, cleaning, selling of produce, managing of stores, sewing, farming and the collection of firewood⁸. Women typically receive little to no credit for the success of the household. For example, compliments for the success of a farm or household was generally offered to the male figurehead. At community meetings, the Elders would often ignore women who raise their hands or give them less time to speak. There is only one woman, known as the 'Queen Mother' on the Council of

⁸ Typically, this involves waking up at around 5am to begin cleaning the area around the home with the help of your children, with firewood being collected weekly and women and girls expected to carry around 20kgs of wood distances of up to 5km

Elders. The Queen Mother occupies a role within the community similar to that of the male chief. She participates in mediation of disputes and provides council and wisdom to all members of the community with an emphasis on the women within the community. Though she does wield considerable power and influence, many of the women surveyed as part of their households felt that she could have done more to support them. Specific mention was made of her more traditional stance on women's health that made it less acceptable in a social context for women to explore methods of contraception. In contrast to the community meetings held by the village elders, a significant number of participants at community meetings chaired by TBCA staff were women and they often asked the most pertinent questions, being much more concerned with the Project and its effect on them and their daughters. These meetings were often the main venue for the discussion of the TBCA Project and the level of female involvement. The level of respect and attention to detail shown by TBCA staff to the community's inquiries was encouraging.

The treatment of women in the community is also largely influenced by the religious beliefs to which they and their spouses hold. In M. Tanye's paper 'Access and Barriers to Education for Ghanaian Women and Girls' (2008), she makes the point that men often use biblical scriptures, as a means of cementing their authority over women. Scriptures such as, "I do not permit a woman to teach or to assume authority over a man; she must be quiet" (1 Timothy 2:12, New International Version). She states, "Men refer to such religious admonishing to silence women into docility". Indeed, one woman, when asked whether a man was more important than a woman replied "*Of course! The bible says so*". This is not necessarily however a full endorsement of Tanye's views, as the same woman went on to say "*but if your husband is 'God*

fearing, *he will treat you well*". It is of course not possible to outline exactly what is meant by 'God fearing' as the many different Christian sects within the village follow markedly different religious teachings, but the author did note that church going couples were more at ease with one another and considerably relaxed during surveys about the household and family life.

The connection between being 'God fearing' and treating your wife well was also mentioned during a focus group discussion with a group of villagers. When asked "Who makes the important decisions in your family, you or your wife?", one man answered "*We are one, God gave us women to be man's helper but you must also look after your wife, there should be no secrets and you should always consult her about everything*". The concept of 'being one' with your spouse was stressed repeatedly during conversations. Figure 4 shows the responses given to various questions about decision making in the household that were administered to the female heads of house without the presence of their husband. It is notable that in most cases over 90% of respondents indicated that the decision was made jointly, with the only major deviation from this being the question "Whether or not to use family planning (including contraception) to space or limit births?" (Figure 4, Indicator 80216), where the decision was made jointly only ~60% of the time. Women provided the main decision ~ 17% of the time and 19.05% of respondents stated that it was a discussion that they had never even had. Overall, the treatment of wives by their husbands was reported in a positive manner, with the poor treatment experienced by women mostly coming from a male outside their immediate family. Despite, or perhaps because of this distinction, a significant number of women, reported at 28% in Figure 5, responded negatively when questioned as to how much influence they felt they had on community decisions. This figure is likely an underestimation as despite the best efforts of the author it was not always

possible to conduct separate interviews with the women of households and exclude any sort of male influence. As mentioned earlier, TBCA has shown that it is committed to including women at all stages of the community decision making process during project development. The discussion forums held by the TBCA organization are very public affairs. By placing women at the forefront of these discussions and actively seeking their input, they provide them with an opportunity to make their voices heard and shape the futures of their children. In the coming years, as women wield more influence, and exert that influence, through the development and running of the TBCA school, there will likely be a marked shift in how women perceive themselves and their roles within the community.

Figure 4⁹

Tabulate

	8021		8022		8025			8026			8027		8028	8029	
	3	1	3	1	3	5	0	1	3	0	3	3	3	4	
% of Total	100.00%	1.56%	98.44%	1.61%	96.77%	1.61%	1.72%	3.45%	94.83%	1.49%	98.51%	100.00%	98.65%	1.35%	

666 rows have been excluded.

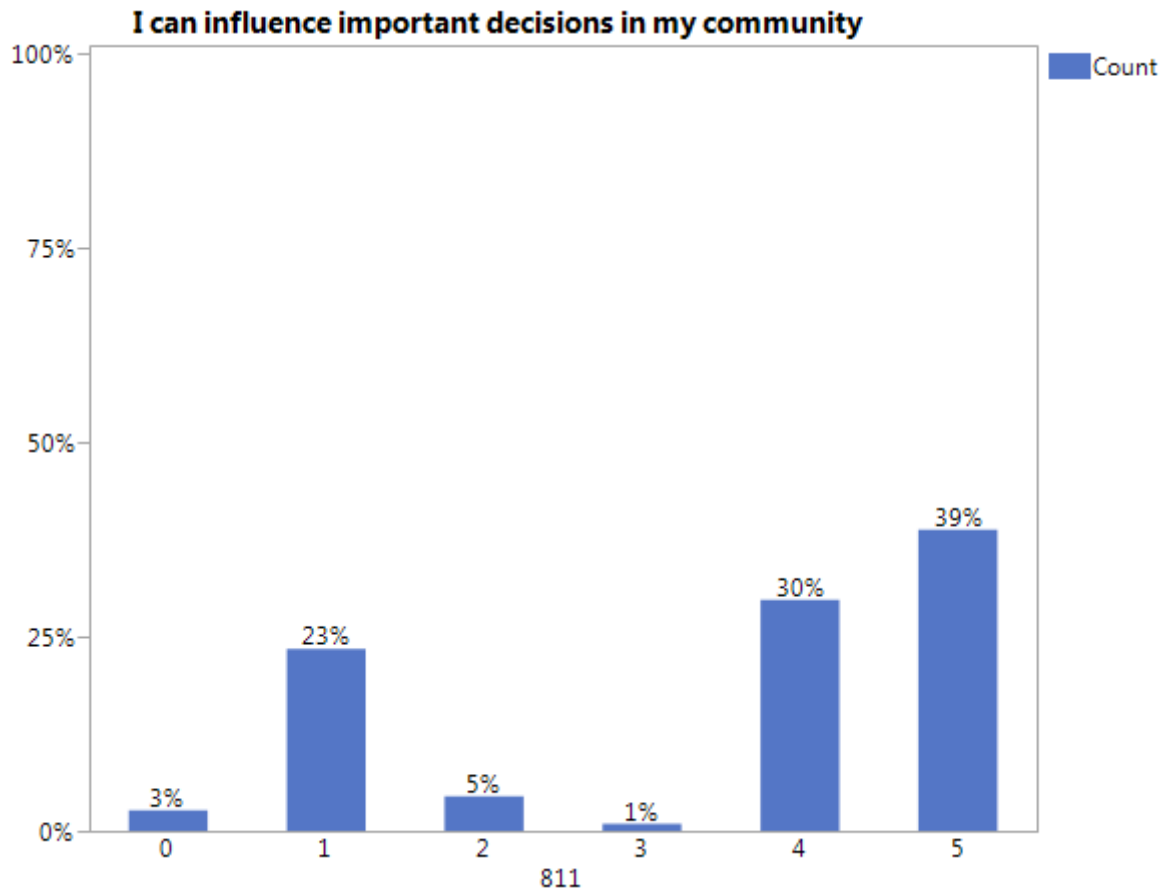
Tabulate

	80210			80211		80212			80213			80214	80215	80216				
	3	4	5	3	4	3	4	5	1	2	3	3	3	0	2	3	4	5
% of Total	97.33%	1.33%	1.33%	97.37%	2.63%	86.84%	2.63%	10.53%	3.95%	5.26%	90.79%	100.00%	100.00%	19.05%	4.76%	59.52%	4.76%	11.90%

666 rows have been excluded.

⁹ See Appendix A for description of Variables

Figure 5



3.3 Educational Differences between Adult Women and School Age Girls

It is encouraging to see that the quantitative data shows that the views held by many household heads on the education of boys and girls have not been causing major differences in the education levels between the two groups (Figure 7). This would indicate that common views held in the past concerning the education of young women are not a good measure of circumstances within the village at this time. Despite the survey responses highlighted in section 3.1, parents may not actually be faced with having to choose between any two children if they can afford to send both children to school. While this is very encouraging there are still major problems within the village concerning the education of both sexes as shall be elaborated in Section 4.2. Figure 6 for example shows that there is a statistically significant difference between the education levels of adult men and women, implying some level of discrimination between the two sexes at some point between childhood and adulthood. This does not hold true when comparing the population of children, as we see in Figure 7 there is no statistically significant difference. This would indicate that common views held in the past concerning the education of young women are not a good measure of circumstances within the village at this time. Despite the survey responses highlighted in section 3.1, parents may not actually be faced with having to choose between any two children if they can afford to send both children to school. While this is very encouraging there are still major problems within the village concerning the education of both sexes as we shall elaborate in Section 4.2.

Figure 6¹⁰

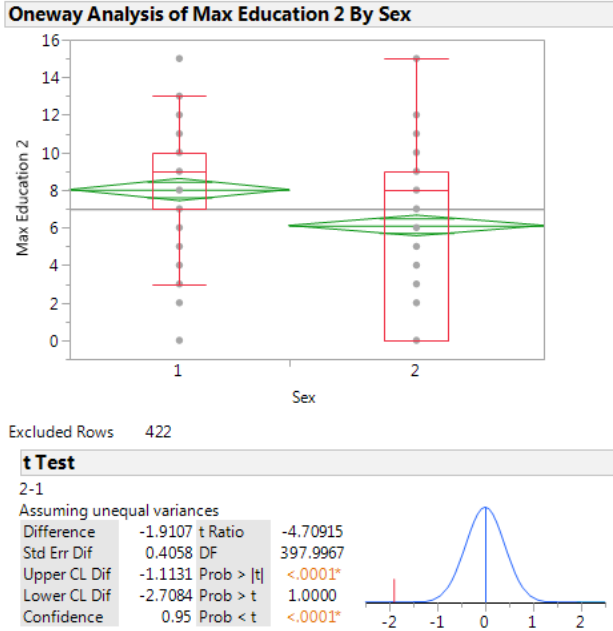
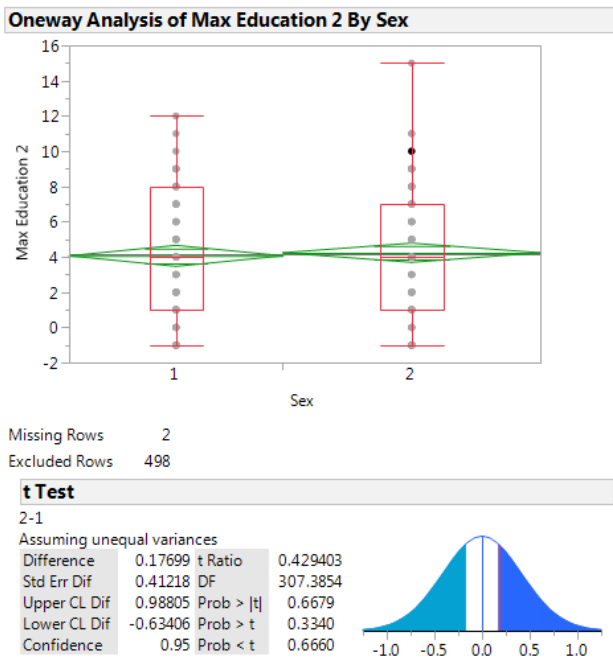


Figure 7¹¹



¹⁰ Figure 6 shows analysis of the education adults 18 and over who no longer attend school within the TBCA area.

¹¹ Figure 7 shows analysis of the education of children attending school within the TBCA area.

4 PROJECT IMPACT ON LOCAL HEALTHCARE SYSTEM, EDUCATION AND ECONOMY

4.1 Healthcare within the Community

At the time the research for this paper was conducted, the government clinic in the village of Tarkwa Breman had only been staffed for three weeks, even though the building had been constructed about three years prior to the start of research. The nurses staffing the clinic also complained that they did not have enough equipment such as forceps, gauze and malaria test kits. The building itself does not have enough beds for its patients and the clinic is not equipped to handle anything beyond First Aid and emergency childbirth, which does not include Caesarean sections. This means that in cases of life threatening illness, a patient is referred on to Bogoso Clinic, which is over an hour away by terrible roads and does not have a qualified medical doctor¹² on its staff. Bogoso Clinic will then refer patients requiring an operation to the next largest cities Prestea or Tarkwa, roughly another two hours away. According to the government clinic nurses, in the case of an emergency caesarean, most patients would die before making it to Tarkwa. Members of the community, when asked what caused the largest number of avoidable deaths¹³ cited lack of transportation and a poor road network as the two main problems.

¹² This is defined as holding an MD or OD equivalent

¹³ Those that could have otherwise been avoided with access to basic services provided in a public health institution

Figure 8¹⁴

Tabulate

	None		Dysentery		Malaria		Cholera		TB		HIV/AIDS	Hepatitis B		Buruli Ulcer		BP		Stroke		Cancer		Diabetes	
	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	1
N	137	19	122	34	31	125	136	20	144	12	156	146	10	123	33	130	26	150	6	155	1	147	9
% of Total	87.82%	12.18%	78.21%	21.79%	19.87%	80.13%	87.18%	12.82%	92.31%	7.69%	100.00%	93.59%	6.41%	78.85%	21.15%	83.33%	16.67%	96.15%	3.85%	99.36%	0.64%	94.23%	5.77%

666 rows have been excluded.

¹⁴ 1= A household member suffered from this disease at some point in the last 12 months, 0=No Household Member suffered.

For each household surveyed, we recorded the number of diseases out of 12 listed diseases that the household had encountered during the last year, as shown in Figure 8. Malaria had the highest prevalence rate with 80.13% of surveyed households having a member that had been treated for malaria in the last 12 months. Observations of houses showed that while houses generally had screens to prevent mosquitos from entering they often lacked enough mosquito nets for everyone and though the government gives these out for free each year, according to the locals there are never enough.

A statement on the healthcare of the village would not be complete without addressing the issue of HIV/AIDS and Sexual Education. In the case of the TBC Area, no survey respondent recorded a household member suffering from HIV/AIDS in the last year-an improbable statistic in the Western Region where HIV/AIDS prevalence is reported as 2.5% by the Ghana AIDS Commission.¹⁵ There seems to be a ‘Taboo’ surrounding any discussion of the topic. When asked whether any household member had suffered from HIV/AIDS, respondents would often shake their heads and make a clicking noise to indicate the ridiculousness of the question. As one Nurse at the clinic pointed out during an Interview *“Normally they have the fear of coming for testing, because if the person is not aware that he or she is having the HIV virus she or he will move freely.”* The Government Nurse’s detailed response to a question about sexual education and the use of contraceptives is worth quoting in full to give the reader a better understanding of the situation faced by healthcare professionals and young women.

“Their parents don’t bring their daughters here! At times when we are going out we go along with the contraceptives, so some of them after the education they will wait, when everybody is dispersed most of the mothers will go to their various houses then they (The daughters), will

¹⁵ http://www.ghanaims.gov.gh/gac1/aids_info.php

come see us privately and if they need the condoms we can give it to them and if they need injectables we can also give it to them and over here too they can just walk in at any time. For a father or a mother to bring a daughter that, let's go to the clinic and then do family planning, it's only the boyfriend, the boy and the girlfriend, that one they can come together and a husband and a wife they can come in both of them at times. The parents themselves, they don't normally bring their children in to come in for those activities. The one thing I have noticed is that the mothers, they only bring the children to this facility when they think the child is pregnant and they come for pregnancy tests. The one thing we have thought of is that we want to form a club in the schools [JHS¹⁶ level and upper Primary] so that we can teach them the education, because actually no matter what you will do to the children they will have the sex- they can never abstain from that"

While the Tarkwa Bremen Clinic Staff do run educational programs on contraception and HIV/AIDS in places such as churches and schools, the author was led to believe that they are often not well attended, with villagers seeming to take a 'hear no evil, see no evil, do no evil' approach to the situation. Indeed, a significant difference between the TBCA health clinic and the current community clinic will be the existence of a laboratory for clinical analysis and the testing of all blood samples for HIV/AIDS and other diseases. TBCA will also be purchasing an ambulance to provide transportation in emergencies to those in need at no additional cost which should help reduce the number of unnecessary deaths that occur. To provide an example, in some cases villagers reported instances where they had been forced to carry relatives up to 10km because they could not afford the taxi fees from their village.¹⁷

¹⁶ Junior High School, typically ages 13 through 15

¹⁷ Typically Speaking a Taxi costs \$3 if it originates from your destination, \$10 if it does not. As the villages apart from Tarkwa Bremen often did not have large numbers of taxi drivers due to their small size, most villagers would find themselves paying the \$10 fee.

4.2 Education and the Economy

The Government Education System within the TBC Area is plagued with numerous problems, from run-down and outdated facilities to teachers not showing up for work. Schools and therefore classrooms are crowded and the quality of education is such that any families that can afford to send their children to better schools in cities and towns such as Kumasi in the Ashanti Region or even closer in Tarkwa or Bogoso will do so, though this often means that the children must board or find alternative lodging. Where the government fails, communities will often step in themselves, building schools with rudimentary facilities and paying teachers. A large problem facing the community currently is the lateness of enrolment amongst school children. Figure 9 shows a Mosaic Plot of the proportion of school-going children who, when Age and Years of education have been adjusted for, must have enrolled late in the schooling system. The proportion sits shockingly high with 45.7% of all students enrolling late, though it is important to note that once again there is no tangible difference between the results when separated by sex. This is just one indicator of the much wider problem facing families who cannot afford to send their children to school on time, often due to financial difficulties that families are facing. Farming families in particular are struggling to cope at a time when much of the farmland, which is often rented from a prominent family, is being sold to Chinese miners and Local Ghanaians who are involved in the practice of illegal gold mining also known as galamsey in the country.

Whilst the Chinese miners often have mineral rights, or concessions to the land they mine, these are often given out by government officials in the nation's capital Accra, some 8-10 hours' drive from Tarkwa Breman. In the case of a concession being granted, if the land is not being used for farming, the mine owner is not required to pay compensation to the landowner. Where the land is

being used for farming, farmers may opt to sell the land for the value of the crops currently being cultivated. Given that many farmers, are desperate for cash, they are indirectly forced to sell their land for short term gain at the expense of their long-term livelihood. With the main cash crop being cocoa trees and cocoa trees taking anywhere from three to five years to mature¹⁸, this will likely lead to a long-term reduction in farmer's wealth and consequently a shift away from farming as the primary occupation in the community (see Figure 10). Galamsey has also been blamed by community members for many male children choosing not to continue their education after JHS. A 16-year-old boy who was asked, during an informal conversation why he chose to leave school and go work on a mine said, "*why should I wait, it is not like I'll get paid any better after high school*".

The widespread use of illegal practices is likely the largest problem facing the community at the moment. The illegal miners will often not refill the holes that they dig searching for gold. These holes fill up with water during the rains and provide perfect breeding grounds for malaria larvae, no doubt a contributor to the high number of households affected by malaria within the community. Mercury from the mining practices has also polluted the villager's water, resulting in the need for boreholes to be drilled to provide clean and safe water¹⁹. In addition to the effect on the community as a whole, there is no training provided to mine workers on the dangers of mercury they use in the refining process, neither by their Chinese employers nor any government programs. A common practice is for workers to mix mercury with crushed rocks using their bare-hands to collect the trace amounts of gold. They will then suck the mercury off the gold and spit it into a container to be reused later. More importantly, although it is the government who

¹⁸ <https://www.icco.org/faq/57-cocoa-production/129>

¹⁹ At the time of writing, there were three boreholes drilled in the village, one of which was drilled by TBCA.

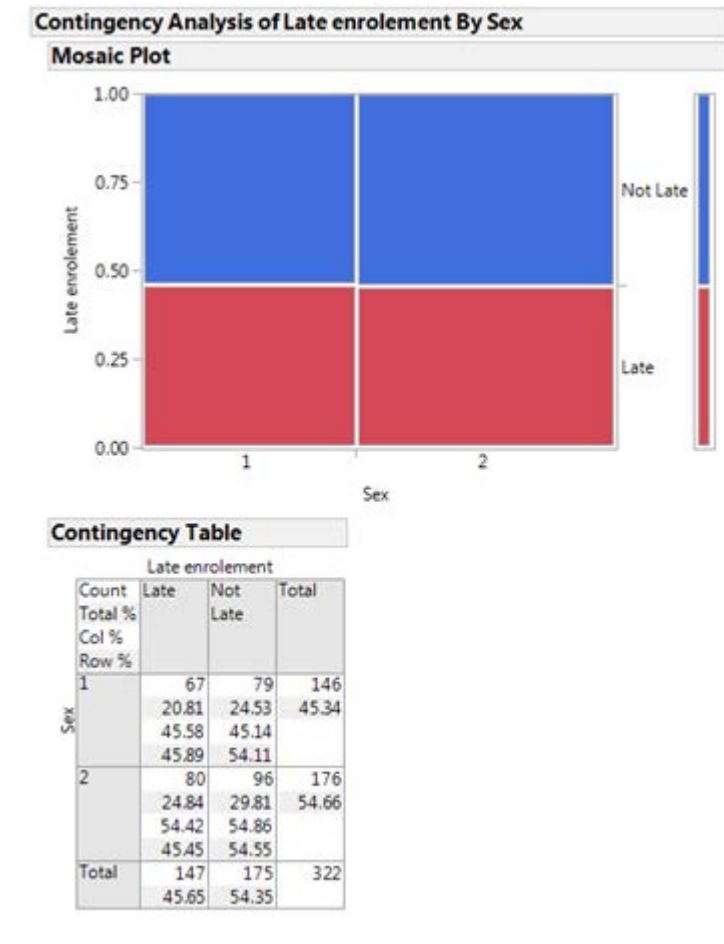
provides mineral rights to miners, local chiefs and officials will often demand a tithe of any gold mined on their land. In these areas where the government's presence is minimal chiefs thus benefit directly from 'endorsing' illegal mining practices. ("Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots" Sadia Mohammed Banchirigah ,Resources Policy ,Volume 33, Issue 1, March 2008, Pages 29–38) It was discovered that within the Tarkwa Bremen area that the tithe required was 10%. One Galamsey worker estimated that the Queen Mother collected roughly US \$10,000 in a good week from his mining site. Most miners that were interviewed reported weekly totals ranging from 50 to 200 blades of gold²⁰, which would have a rough value between US \$2,000 and US \$8,000. The chiefs when interviewed denied any collection of a tithe stating instead that "*Every month we collect some two or three thousand cedis as a 'Social Responsibility Tax'*". We would determine that considering the existence of hundreds of illegal mining sites within the hills of Tarkwa Bremen, it is the failure of the local notables²¹ to redistribute the proceeds of the illegal mining combined with local corruption that are the main limiting factors of economic growth within the region.²²

²⁰ One blade is the equivalent to roughly one gram of gold

²¹ Elder's Council

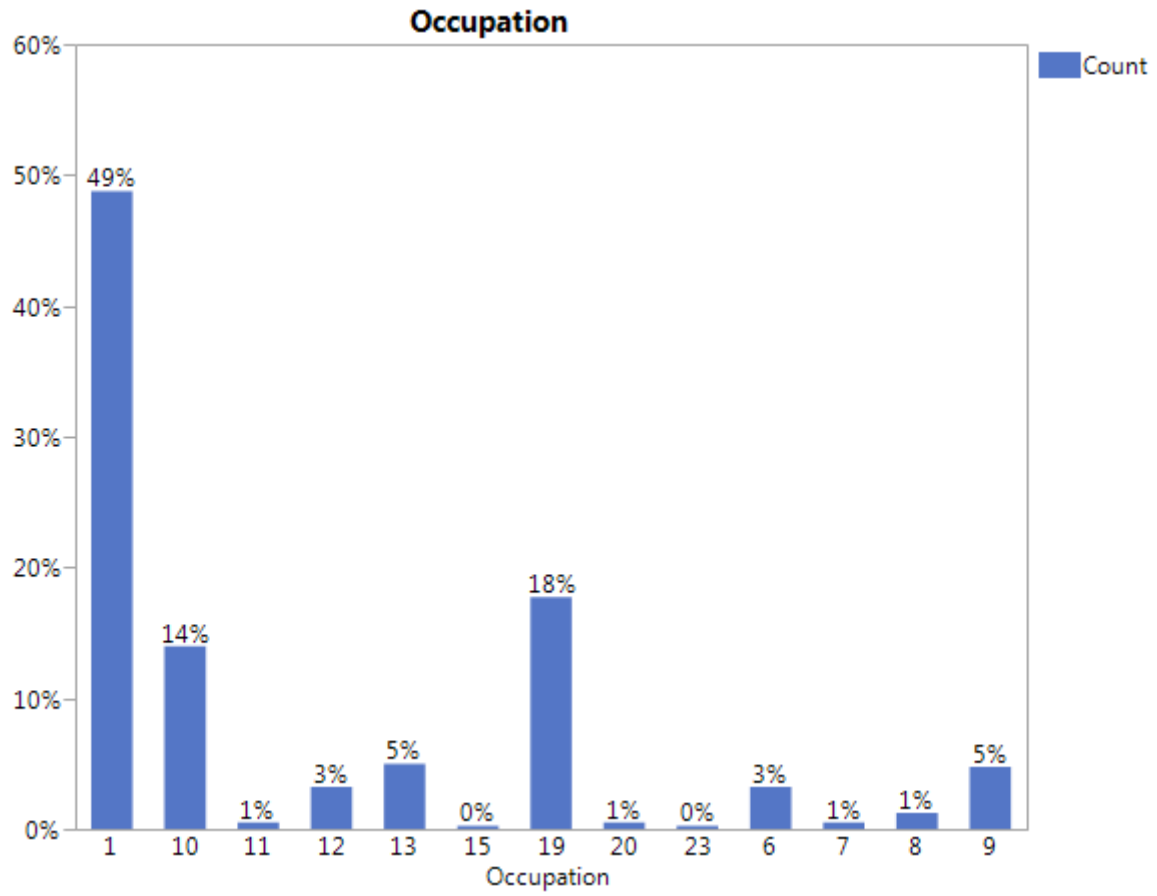
²² A rough estimate of the wealth being claimed is around \$1 million per year

Figure 9²³



²³ Late If, Age of Child- School Year>6, that is you are more than one year older than recommended government age.

Figure 10²⁴



²⁴See Appendix B for description of occupations. 1=Farmer, 19=Unemployed

With regards to the possible effect of education on wealth within the community, no correlation was found between the education of a household head and the wealth that a household had in assets with a value of $r = 0.07641$ found for a bivariate fit of household wealth in assets against maximum education, however it was found that there was a statistically significant difference between both the wealth of households when separated into 'Farming' and 'Other' occupations (Figure 11) as well as in the levels of education between 'Farming' and 'Other occupations' (Figure 12). This would suggest that any increases in education, even if wealth and education are themselves not strongly correlated, does lead to a somewhat better financial situation. The low correlation may be explained by the fact that the clear majority of community members have not received more than a high school education.

The abject poverty that villagers find themselves living in is less a product of their lack of education and more an indicator of poor government policy and corrupt local traditional government. As education levels begin to progress to a level that allows for workers to create and fill rolls outside of farming and Galamsey mining, they will be less affected by these conditions and better equipped to overcome these issues. Currently, TBCA is providing employment for around 15 locals from the community, and this number will grow as the organisation expands. There will also be certain secondary effects to consider such as; increased demand for taxi fares to transport patients to and from the hospital; or the general increase in foot traffic to markets and local businesses that will result from Tarkwa Breman's increased standing in the Region. However, due to the continuing growth of the project it is likely that we shall have

to wait some four to five years before the benefits are reflected properly within the local economy.

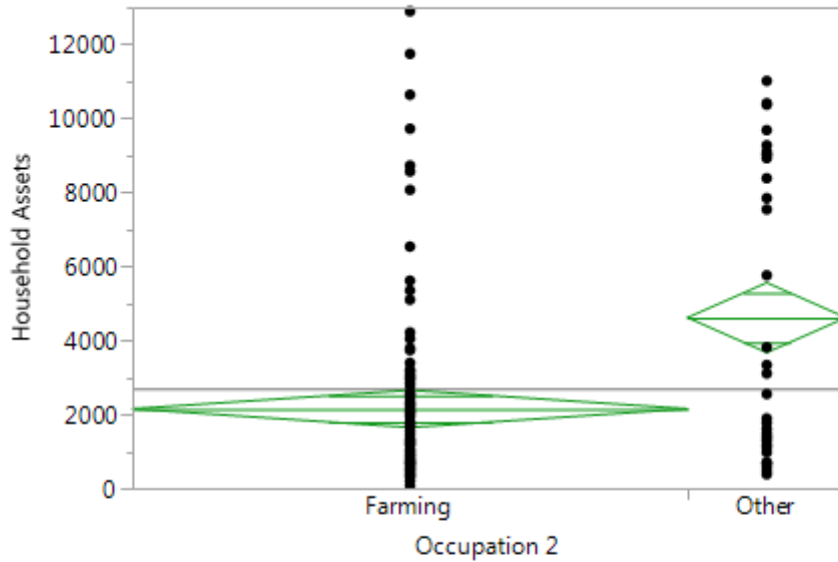
This is not to discount the value of the project that TBCA is undertaking, the young girls, and eventually young boys, that are being enrolled into TBCA's school will be receiving some of the best education available in the region, and indeed the country. They will have access to E-books, a computer lab, a library and much more. The curriculum itself is being designed to incorporate elements of both the Ghanaian and American education systems, with the aim of providing these young children with a strong basis for attending University overseas.

As these children begin to complete their university education, whether within Ghana or abroad, they shall either return to their homes bringing to the region much needed knowledge and expertise, or become part of the significant African diaspora. The strong familial cultural values ingrained in these children, would likely result in a significant proportion of their earnings being repatriated, bringing a much-needed boost to the local economy. Indeed, according to data from the World Bank, in 2015, personal remittances made up 13.271 % of Ghana's total GDP.

Combined with the major improvements in healthcare being offered by the TBCA hospital, the additional high quality training offered to farmers participating in communal labour on the cocoa farm, and the increased custom to both local businesses and farmers that the project will create, the long-term prospects of the local economy are strong.

Figure 11²⁵

Oneway Analysis of Household Assets By Occupation 2



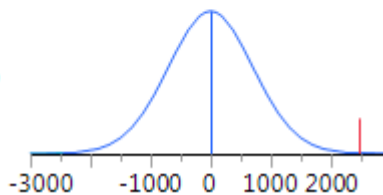
Excluded Rows 669

t Test

Other-Farming

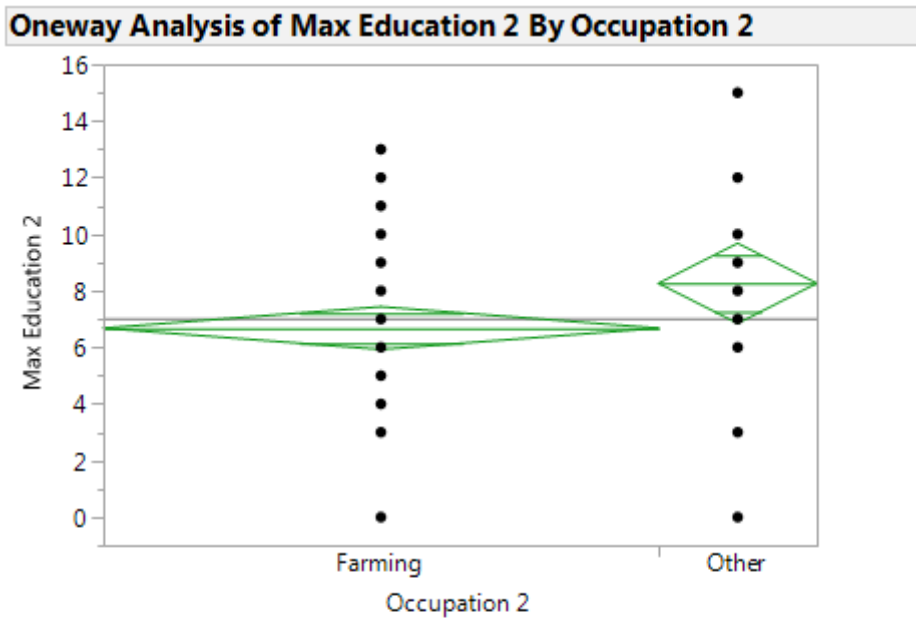
Assuming unequal variances

Difference	2465.71	t Ratio	3.478513
Std Err Dif	708.84	DF	40.09999
Upper CL Dif	3898.23	Prob > t	0.0012*
Lower CL Dif	1033.20	Prob > t	0.0006*
Confidence	0.95	Prob < t	0.9994



²⁵ Values expressed in Ghanaian Cedi

Figure 12



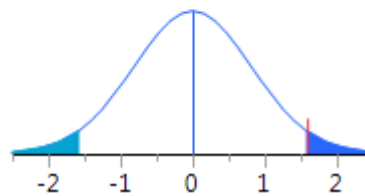
Excluded Rows 669

t Test

Other-Farming

Assuming unequal variances

Difference	1.5840	t Ratio	1.927491
Std Err Dif	0.8218	DF	52.48841
Upper CL Dif	3.2328	Prob > t	0.0593
Lower CL Dif	-0.0647	Prob > t	0.0297*
Confidence	0.95	Prob < t	0.9703



5 PROJECT SUSTAINABILITY

The TBCA project is mainly reliant on their cocoa farm to produce the necessary profits to cover project overheads and allow them to maintain the roughly 80% scholarship that they are offering to all students from the TBC Area²⁶. The three main obstacles that were identified to the financial success and thus sustainability of the TBCA model were; The Acquisition of Land, The Expected Yield of the Cocoa Trees and the Variability in the World Price of Cocoa.

In a Community where most farms are under 10 acres, it would have seemed that finding 40 acres of land for sale was impossible, indeed farming families typically do not wish to sell their land unless they are migrating or are desperate for cash. In the case of TBCA however, the NGO was able to come to an arrangement with community leaders whereby the community donated 40 acres of land made up of several different plots towards the school farm. In fact, all the land currently being utilised by TBCA is communal land, a set of circumstances only made possible through a deep level of community involvement in the planning and implementation of the project.

The current TBCA model²⁷ calls for a yield of around 640 kgs or 10 bags of Cocoa per acre to obtain sufficient profits. Francis Baah of the Cocoa Research Institute of Ghana defines a ‘High Class Cocoa Farmer’ as *“Using High class improved seeds from designated seed gardens to raise seedlings for planting. [On whose farm] regular spacing of trees occurs at*

²⁶ As mentioned earlier, as of edits and revisions to this document, the scholarship amount is now 100% of the cost of attendance.

²⁷ The organisation’s preliminary financial model was created in partnership with google and using local knowledge concerning cocoa yields and labour costs

3m X 3m. Who performs regular weed management, shade management, pest and disease control. Who practices frequent pruning, conducts fertilizer application once a year, with frequent harvesting of the cocoa to obtain 1400 kg (or 22 bags)per hectare (or 9 bags per acre)”. With this in mind, the goal of 10 bags is realistic, although we would recommend adding another 10 acres of land to the project. At a cost of approximately \$1000 an acre, as estimated by locals, this would provide the proper measure of security against the usual fluctuations in crop yields. Maximum cocoa yields are obtained between the ages of 15 and 25 years after planting with a possible, profitable life span of up to 50 years (M., Nalley, L. L., Dixon, B. L. and Popp, J. S. (2014), An optimal phased replanting approach for cocoa trees with application to Ghana. Agricultural Economics, 45: 291–302.) This indicates that there will be sufficient time for the planting of replacement cocoa trees, as trees begin to produce sufficient amounts of cocoa after 3 years. As the seeds used for planting are provided by the Ghana Cocoa Board and COCOBOD, the initial planting, and replacement of trees will not impose any significant added costs on TBCA.

Lastly, BMI Research in its quarterly review of Cocoa production for 2106 in Ghana stated:

“Cocoa production in Ghana will improve throughout the coming years, as the set price given to farmers by Cocobod will increase, allowing them to spend more on inputs. However, the sector suffers from key structural issues such as labour shortages and fragmentation, which will prevent the country from overtaking Côte d'Ivoire as the world's largest cocoa producer and exporter.”

BMI predicted an industry growth of 2.9% as well as predicting that there will be a moderate upward trend in world cocoa prices through to 2020. Considering the strong industry growth and good cocoa market fundamentals, this Paper finds it reasonable to state that there are no

significant problems with the financial viability of TBCA's model that would prevent the project from becoming self-sustaining in the near future.

Not only is the project financially viable, but the structuring of operations makes the model as a whole easily exportable to other cocoa growing communities. Indeed, members of villages surrounding Tarkwa Breman expressed a strong interest in creating similar projects for their own communities. Providing a community is willing to provide shared communal land for the creation of a cocoa farm, the upkeep and maintenance of the farm is a straightforward affair. The largest obstacle to the expansion of the TBCA project is the human capital and level of organisation and community involvement required to bring such a project to fruition. Should TBCA wish to expand operations to other communities in Ghana, their increasing national presence and reputation will provide them with a unique advantage with regards to establishing trust and communication with willing communities.

6 CONCLUSION

Religion has had a surprisingly positive impact on the treatment of women and whilst the current cultural practices concerning women and the education of young girls leave much to be desired, women are not as disadvantaged in some areas as was previously believed. It is very encouraging to note that the current level of young female education is currently on par with that of their male counterparts up to the completion of junior high school.

The current health situation within the area, particularly with regards to the prevalence of Malaria and the lack of HIV testing is very worrying. This situation is likely to improve within the next couple of years as the TBCA health clinic begins to play a more important role in the community. The incredible amount of support shown for the project by all but one of the 156 survey respondents stating their belief that it would bring positive change to the village combined with the land donated by the community are good indicators of the commitment of the village to the project in general.

The combination of community support and the positive outlook outlined for the Cocoa Industry in the coming years give confidence in the sustainability of the project for the near future. We do not expect the project to make a marked impact on the local economy in the short term. The Project will be providing a small number of jobs to the local community and its intention is to address primarily educational and health concerns. It is not within the mandate of TBCA to confront problems facing the community such as the terrible road networks and prevalence of

Galamsey that is having a negative effect on both the health of workers and the environment. However, we can expect that in the long term TBCA's commitment to the region will begin to have a strong effect on these issues independent of local government politics. As the health clinic grows to become a state of the art hospital providing quality healthcare and learning opportunities for young physicians around the world, the health, productivity and therefore wealth of the community will increase. The children who attend the school will return to invest themselves in the local economy, filling new roles in the economy and providing previously unavailable services such as engineering, architecture and computer programming. TBCA's investment in human capital will make the area more attractive to both businesses and investors. With a commitment to tackling gender bias, this workforce will be both more educated and more diverse than previously seen. Taking all this into consideration, there is the strong probability that Tarkwa Breman, where both the school and hospital are located, will become a regional powerhouse similar to that of Tarkwa or the thriving coastal city of Takoradi in the South.

7 BIBLIOGRAPHY

- Tanye, M. Interchange (2008) 39: 167. doi:10.1007/s10780-008-9058-z
- Multiple Indicator Cluster Survey with an enhanced Malaria Module and Biomarker (2011), Monitoring the situation of children and women in Ghana, Ghana Statistical Service
- “Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots”
Sadia Mohammed Banchirigah ,Resources Policy ,Volume 33, Issue 1, March 2008,
Pages 29–38
- M., Nalley, L. L., Dixon, B. L. and Popp, J. S. (2014), An optimal phased replanting approach for cocoa trees with application to Ghana. *Agricultural Economics*, 45: 291–302

8 APPENDICES

8.1 Appendix A

If household does not engage in a particular activity, enter code 3 for “Decision not made” and skip to next decision category .		Did you yourself participate in decisions about [ACTIVITY] in the past 12 months ? 1. Yes 2. No 3. Decision not made → 2,3 skip to next [activity]	How much input do you have in the decision for [ACTIVITY]? CODE ↓	How much input did you have in decisions on the use of income generated from [ACTIVITY] CODE ↓
		801	802	803
1	Crops that are grown primarily for household food consumption			
2	Cash crop farming: crops that are grown primarily for sale in market			
3	Livestock raising (excluding poultry)?			
4	Livestock raising - poultry			
5	When or who will take products to the market?			
6	Non-farm business activity?			
7	What inputs to buy for agricultural production?			
8	Major household expenditures? (large appliances, etc.,)			
9	Minor household expenditures? (such food for daily consumption or other household needs)			
10	Negotiate with buyers?			
11	Buying clothes for yourself or your children?			
12	Spending money that you have earned?			
13	Spending money that your spouse has earned?			
14	Children’s education			
15	Seeking medical treatment for your children or yourself.			
16	Whether or not to use family planning (including contraception) to space or limit births?			

802/803: Input into decision making			
1	I have no say in the decision	4	I ask other HH members, but I most always have final say
2	Husband/other male asks for my opinion, but I don't have final say	5	I am solely responsible for the decision
3	Joint decision with each person having equal say	-8	DK
		-9	Refused
		0	Did not take part in Activity

8.2 Appendix B

204 Relationship Type		205 Education		208 Occupation	
1	Head	1	Never Attended	1	Own crop production/sales
2	Spouse	2	Primary 1	2	Own livestock production/sales
3	Son/daughter of head and	3	Primary 2	3	Agricultural wage labor (casual, temporary, seasonal,
4	Son /daughter of head	4	Primary 3	4	Non-agricultural wage labor (casual, temporary,
5	Son/daughter of spouse	5	Primary 4	5	Salaried, permanent (agricultural)
6	Mother/father of head/	6	Primary 5	6	Salaried, permanent (non-agricultural, non-mining)
7	Sister/brother of	7	Primary 6	7	Sale of wild/bush products (e.g., honey, charcoal)
8	Foster child			8	Informal trader/vendor (agricultural products)
9	Grand child	8	Form 1	9	Informal trader/vendor (non-agricultural products)
1	Other relatives	9	Form 2	1	Other self-employment (e.g., bricklayer, builder,
1	Non-relatives	1	Form 3	1	Own business (agricultural)
-8	DK	1	Form 4	1	Own business (non-agricultural)
-9	Refused	1	Form 5	1	Mining (works as operator or gold washer etc)
		1	Form 6	1	Handicrafts (baskets, beads, pottery)
		3		4	
		1	Incomplete higher	1	Remittances
		15	Post-secondary certificate		Childcare/domestic work (paid)
		16	Completed higher		Homemaker/housewife (unpaid)
		17	Adult literacy program	1	Unable to work due to illness/disability
		18	Other Qualifications e.g	1	Unemployed
		19	Some church/mosque	2	Retired with pension
		-8	DK	2	Retired without pension
		-9	Refused	2	Child/student
			207 Marital status	2	Other
		1	Married	-	DK
		2	Never married	-	Refused
		3	Divorced/separated		
		4	Widowed		
		-8	DK		
		-9	Refused		