TRACER STUDY FOR VOCATIONAL SKILLS TRAINING ON SAFE HOUSING CONSTRUCTION IN KARONGA

Where is all the training gone?

TRACER STUDY FOR VOCATIONAL SKILLS TRAINING ON SAFE HOUSING CONSTRUCTION IN KARONGA

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Acronyms

CBET	-Competency Based Education and Training
DFID	-Department for International Development
EU	-European Union
IDA	-International Development Agency
MASAF	-Malawi Social Action Fund
MC	-Master Craft
MoH	-Ministry of Housing
OJT	-On Job Training
SHCT	-Safe House Construction Technology
TEVETA	-Technical, Entrepreneurial and Vocational Education and Training Authority
ToT	-Training of Trainers

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Abstract

The earthquake in Karonga in 2009, left 1000 families homeless and 2900 displaced due to damage to various degrees to their houses. Following a World Bank assessment it was revealed that most houses did not follow safer construction guidelines. In responding to this natural disaster, several organization including World Bank, Red Cross and TEVETA, implemented a training program targeting those involved in the construction industry. This study therefore was a follow up of that training. The basic question being answered is **"Where is all the training gone?"** The study has found that there is sustainability of training as more people are being trained after the formally arranged training and also the majority of those trained are still practicing what they were taught. However income distribution has been affected which is a latent outcome of the project. The study has therefore recommended a relook into entrepreneurship taught during the training.

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CHAPTER ONE

1.0 Introduction

Following the earthquake in Karonga that left 1000 families homeless and 2900 homes displaced due to damage to various degrees to their houses in 2009, Technical, Entrepreneurial and Vocational Education and Training Authority (TEVETA) through the Informal Sector Development Office in collaboration with World Bank and Red Cross implemented training on safe housing construction. The instituting of this training followed a revelation from a World Bank assessment which showed that damage would have been mitigated if the construction followed approved safer construction guidelines.

A comparative assessment in the stated World Bank assessment showed that 60% of the schools and over 90% of the teachers residences built by the community were the ones that suffered most damage compared to schools built by organizations such as Malawi Social Action Fund (MASAF), Department for International Development (DFID), European Union (EU) and International Development Agency (IDA). This however, does not demean the community participation in development neither does it suggest sidelining communities in housing construction, but propagates for enhancing the community capacity in safe housing construction. This chapter therefore introduces the project and the beneficiaries of the project of Safe Housing Construction (SHC).

1.1 Safe Housing Construction Project

In upgrading this capacity, the Red Cross and World Bank, in collaboration with TEVETA trained unskilled, semi skilled and the skilled workforce in construction industry working in Karonga and encouraged the adherence of safe housing construction technology through the approved safer construction guidelines. This training program followed the on job training mode with the beneficiaries of the training being attached to sites where the Malawi Government through Department of Disaster Management was reconstructing and repairing schools brought down and damaged by the earthquake respectively.

The project started with community sensitization meetings which led to the recruitment of artisans and supervisors. After the training materials were developed, there was a Training of Trainers' (ToT) workshop which was attended by sixteen artisans coming from five zones affected by the earthquake namely: Ipyana, Lupaso, Mweniyumba, Mpata, and Mwenitete. The workshop was also patronized by five district based supervisors. Apart from the TOT, the trainers were also to undergo induction in Competency Based Education and Training (CBET) techniques. This training in CBET was to help trainers improve their ability to deliver modules developed for the OJT participants as they work on site.

The expectation was the fifteen artisans who went through ToT would then engage three semi skilled artisans with whom they work with at the site. This would then translate to forty five on job apprentices and fifteen trainers. In total therefore sixty skilled and semi skilled artisans were supposed to benefit from this training program. The beneficiaries as can be seen were those working on various sites using Safe Housing Construction Technology (SHCT) but had never had a chance to be trained on the same. In other words, there was no manifest program to take them through the technology despite using it. The training therefore, was to provide them with an opportunity to understand techniques they had been using and the idea behind there being recommended. After the training, there was the attachment of the identified beneficiaries to fifty construction sites. For a list of beneficiaries of the training refer to Appendix I.

In order to maximize the benefit of the on job training, the project incorporated monitoring of the training and log books were used to record all modules covered and their assessments, which would then lead to certification of the beneficiaries by TEVETA. The project was to cost the organizations MK2, 322,065.00.

1.2 Arrangement of the Paper

Having looked at the project and its intention, this paper aims at providing the outcome of the training. It has to be noted afore that the tracer study was at a lower scale than the impact assessment that could be done for the project. The basic question that this exercise was answering was "**Where is all the training gone?"** To achieve this, the exercise intended to know what the beneficiaries are doing; the effect the training has had on their income; sustainability of the training and safe housing technology.

CHAPTER TWO

IMPACT OF THE PROJECT

2.0 Introduction

The previous chapter introduced the project aimed at reconstructing Karonga district. The basic idea was impartation of skills for safe housing construction. After the implementation of the training there was a need to follow up on what the beneficiaries are doing. This chapter will therefore rely much on descriptive statistics from the conducted tracer study. It will concentrate on the work of the artisans before and after the training, and lastly the comparative analysis of the two periods.

It has to be noted that different from the project concept note which focused on trainers and trainees, this report will refer to trainers as Master Craft Persons (MCs), due to the role they were playing in the project and trainees will still be referred to as trainees. This will also help in keeping constant the terms used throughout the projects beings implemented by TEVETA.

2.1 Descriptive Statistics for the Tracer

The tracer study managed to get ten of the MCs and twenty nine trainees, giving 67 percent tracing success rate for the MCs, and 64 percent tracing success rate for the trainees. Looking at the percentage though not that high, generalization can still be attained based on 30 percent representation criterion. One clear observation is that all those who participated in the training are male. This is not surprising due to stereotyping of construction trades which is so high in the informal sector. The formal sector due to gender mainstreaming and career talks is slowly getting done with the stereotype. It worthy appreciating that it usually takes formal education which acts as a catalyst for empowerment and increases adoption and absorption of new knowledge. Such is not the case in the informal sector where education levels are so low. The ages of the trainees ranged from 23 to 48, with a mean age of 34, indicating at least a symmetric distribution of ages.

However, contrary to the projects concept note stipulation of training beneficiaries in bricklaying, and carpentry and joinery, the output of the project indicates that only bricklaying was taught. This therefore indicates that all analysis in this report will be confined to bricklaying.

The companies and organizations that sent these bricklayers starting with MCs are; Red Cross, Local Development Fund (Local Government), Lusuwilo, and Nkhonde Cultural Association. The trainees came from Red Cross, Catholic Development Commission of Malawi (CADECOM), Flood Plain Organization, Local Development Fund (Local Government), Malawi Social Action Fund (MASAF), World Vision International, Mpukuto Construction, and Spear Head Construction. From this distribution it can be stated that for those organization which had both the MC and trainee in the project benefited a lot because of the development of a trainer who can train the other people who were not part of the project, and also continued learning for those people who were identified as trainees. This therefore would warrant sustainability of the concepts and technology, above all the skills.

2.2 Situation before the Training

The study has found that the MCs which were involved in the project had experience of the trade of a minimum of two years to thirty four years maximum. With the years of their practice, 40 percent of the MCs felt competent to have acquired all the necessary skills for them to practice the occupation. The minimum years of such experience confidence has been found to be seven years. This therefore translated to 50 percent indicating not being satisfied with their performance and the ten percent did not respond. The expectation therefore would have been that the training would meet the needs of those who noticed a deficiency in their practice however it has only 40 percent of the whole sample, but 80 percent of those who noticed a gap in their practice. This therefore means overall the training was a success in giving additional knowledge to the MCs who felt there was a gap in their skills and knowledge.

Similarly for the trainees, it has been found that 90 percent of the trainees were already practicing the trade, such that as is the case with the MCs, the training was to bring additional knowledge or skills regarding the occupation. It has therefore been noted that out of those who were already in the trade, 15 percent have a qualification related to the trade. This therefore means the training though targeting the informal sector, some who could belong to the formal sector benefited from the same. The sources of the qualifications are technical college and other organization sharing 50 percent for those who have the qualifications. Furthermore, 75 percent of those who have a qualification have had experience before the training with a minimum and

maximum of 13 and 32 years respectively. According to the experience and satisfaction of the trainees not much can be gathered, in other words there is no definite pattern. This indicates that some of the trainees could as well be used to train others or else be used for peer checking as a provision of peer learning strategy. This however, would work better if their skills were up to the required standard. However, according to the findings of this study, the majority, 65 percent of the trainees and 25 percent of those who have a qualification, stated to have found their skills wanting before the training, 15 percentage points above that of MCs for the former.

As far as the training was concerned, 90 percent of those who were not satisfied with their performance found the training very useful in filling the gaps they had as far as skills and knowledge related to the SHCT is concerned. However they found the training lacking in plastering, and equipment not being enough as also alluded to by the MCs.

Turning to the houses the MCs have been building, on average they have been working on one house in a month and two houses when the work is small as maintenance. Their own self assessment indicates that almost all the houses they had built before withstood the earthquake indicating 88 percent survival rate. This therefore meant the training of these MCs in SHCT was just an addition to the knowledge and skill they already had. However, the study has also found that the higher the number of houses one has built, the higher the susceptibility to damage by earthquake. This is not surprising as it hinges on risk spread and frequency of the MCs house being struck, and using correlation coefficients, it has been found to have a positive relationship of 0.99. This therefore indicates the need to target those who are highly involved in the construction, if the program has to register much impact.

The picture is different when we come to the trainees. The analysis indicates a weak relationship on the number of houses built vis-à-vis the susceptibility to damage by earthquake with a correlation coefficient of 0.51 compared to 0.99 of the MCs. The relationship might be partly attributed to the type of work being done by either of the two, where the other is much into maintenance and the other is into the actual building hence having a greater risk, secondly the numbers built by MCs is so high with an outlier building over 2000 houses and less than 200 surviving the tragedy. The other notable thing is that the outlier came from the zone that was largely affected by the earthquake, Lupaso, which then justifies the susceptibility.

Lastly from the income perspective, there is an indication that much of the income MCs were earning before the training was not coming from the occupation. This can be noted from the distribution of income with the occupation having the minimum, maximum and average income lower than that of other sources of income. The table below rightly shows the distribution and also indicates that the average of the total income is more than twice the average income from the occupation.

Table 1; Income distribution for the MCs before training

	Minimum	Maximum	Average
Occupational Income	600.00	55,000.00	15,556.08
Income from Other Sources	2,000.00	70,000.00	27,935.64
Total Income	17,000.00	125,000.00	43,764.90

The distribution shows how low the income is in construction trades compared to other trades. The study found that the sources of such a higher income are; bicycle repairing, fishing, transportation of goods across the Karonga boarder from Tanzania, selling vegetables, selling clothes and shoes. The engagement into several occupation has been found among 50 percent of the MCs, with selling timber being the highest income earner to the tune of MK70,000.00 a month.

The picture as far as income of the trainees is concerned seems to be different from that of the MCs. The average minimum, maximum and average earning from the occupation are higher than those of the MCs, which at least gives some possibility of dependence on the occupation than the former. Largely this can be attributed to higher maintenance works than the MCs as indicated in the number of houses worked on in a month registering one as minimum and sixteen as maximum with an average of three, which is above that of the MCs. The argument is so simple if based on economies of scale. From the recipient perspective, those concentrating on building houses and not maintenance they face diseconomies of scale as the owner enjoys the economies of scale from their labor, while those doing piece works, though may be risking, but the aggregated income tends to be higher than those sticking to one construction site.

This analysis therefore indicates the possibility of trainees earning more than the MCs from the trade except other income sources as can be seen on the next page. The higher earnings in the occupation and other sources, gives a very high maximum value and translates to a higher

average earning for the group in comparison to the MCs. The little earnings from other sources by trainees are justifiable in the sense that they are largely coming from ambulant trading, vending and agriculture, like selling mandasi, chicken, and rice, and also actual farming. Below is a table showing the distribution.

Table 2; Income distribution for the trainees

	Minimum	Maximum	Average
Occupational Income	3,000.00	70,000.00	24,896.55
Income from Other Sources	-	140,000.00	22,743.48
Total Income	5,500.00	200,000.00	47,656.52

2.3 Situation after the Training

According to the MCs, the training has helped them in gaining recognition, winning contracts, budgeting on few resources, building capacity to train other people, acquisition of modern ways of building houses, and above all getting more money than before. The evidence from this tracer study upholds the ascensions. From recognition perspective, the study used numbers of people approaching them out of self will to build a safe house that can with stand the earthquake. Partly this indicator also shows how widely adopted has the technology been among the users of the service of these artisans. The study further used the actual numbers of people who have built the houses not just asking for one as a good indicator of adoption.

Using these indicators, the study has found that all the MCs were asked by someone out of self will to build them an SHCT house with a minimum of one and maximum of fifty between the phasing out of the project and the tracer study period which is about a year. However, the range of houses built is two to fifteen with a high mean difference of eighteen suggesting an existence of cause. The major drawback in SCHT is the sunk costs associated with the houses, however it has also to be accepted that not all enquires can materialize. From this simple analysis results therefore upholds the proposition that there is recognition of these MCs in SHCT and also people by and by are becoming aware of the safe houses and are adopting the technology. However for better measurement of adoption there is a need of a longitudinal study in ruling out impasse demands and measure the sustainability of the project.

When considering the trainees, the analysis indicates a similar pattern where people are asking for the SHCT houses. The inquiry has registered a minimum of one person to seventy as maximum, with a mean distribution of eight. The number of SHCT houses built by these trainees is a little higher than that of MCs ranging from one to forty two in comparison to the maximum of fifteen by the MCs. The mean difference in the inquiries and the actual houses built is however very small counting to only one. One thing to note is that the highest numbers of houses built by the trainees suggest no mutual exclusion, i.e. there can be double counting on houses that were worked on by both parties together. The numbers may also suggest high rate of adoption but as stated above for adoption there is need for a longitudinal study, however from recognition perspective the inquiries could indicate recognition of those who passed through the training by the members of the community. It has to be indicated further that everyone who passed through this training, both MCs and trainees received a certificate which would therefore enhance their recognition and give them a comparative advantage above those who don't have any credential.

The other ascension is that of building capacity of the MCs in training other people. The study used the number of people trained above those attached to them by TEVETA. This indicator would be a proxy of sustainability as is the case with the self will to have SHCT used on people's building, and also it is an indicator of the marketability of the skill. It could be better if a comparative analysis was done, however since there is no other study of a similar nature, no comparative decision can be made. It is worth mentioning afore that though the study targeted forty five, according to the available data, it indicates forty two who turned up for the training, with the rest not turning up for the training and one deceased. Using this indicator, the study has found continuity in training beyond the people attached to the MCs. At the time of the study, forty two people above those attached were trained by the MCs in SHCT, representing 105 percent above the targeted beneficiaries. From this analysis it is so clear that without the examination of quality, the MCs have really proven their up skilled ability in training other people and there is a high demand by those interested to build SHCT houses. Beyond this, the numbers indicates the self sustainability of the training, a cause that calls for recognition of the effort.

For the effect on income, two indicators were used in the study: The first is the number of houses built as a proxy measure of their marketability and improved income, and the actual earning after building a house. From the number of houses built, average yearly distribution was adopted using years of experience as a reference indicator. The major assumption being made in such a context is that with more years, one would expect more houses being built and also more experience which will subsequently increase the marketability and positioning of the MC on the market disregarding attitude and behavior. With an average distribution of houses according to years of experience, in comparison to the reference observatory year, it can be stated that overall there has been an increased trend on houses being built by these artisans. Partly it may be because a lot of people needed accommodation in the year, but that does not rule out competitors and the search for a cheap accommodation at the time of disaster which would as well reduce the work they could do in the year. Therefore all things being constant and attributing the increase largely to the need for SHCT housing, the project has yielded desirable results especially to those who are in the mid years of their career as can be seen from Table 3 below.

Table 3; Average yearly distribution of houses built distributed by years of experience - MCs

Years of experience	Houses before in a year	Houses after training in a year	Change
2	7	10	+
3	6	2	-
5	2	5	+
7	7	2	-
14	1	3	+
16	2	3	+
18	2	4	+
34	59	2	-

A similar pattern has been registered when we come to the trainees. Using the monthly data and converting them to annual data, the figures are such alarming to raise doubts if they have really worked on such numbers, the minimum being eighteen and maximum ninety six. If the lowest time it can take to build a house is one week, then the highest must be forty eight houses in a year, which means ninety six houses could take exactly two years to build. However looking at the time it would be an unrealistic assumption to build one house in a week for such local artisans. Partly the alarming figures might be an effect of stochastic trends in short term data. Therefore to even out the distribution, annual contribution has been generated from the total

number of houses they have built divided by the years of experience. From this distribution, the change is largely positive with no definable trend of experience vis-à-vis the change as is the case with the MCs. Below is a Table showing the number of houses built and subsequent change.

Table 4; Average yearly distribution of houses built distributed by years of experience-Trainees

Years of experience	Houses before in a year	Houses after training in a year	Change
1	8	5	-
3	2	1	-
4	4	2	-
5	3	12	+
6	4	4	±
7	2	15	+
8	6	6	±
9	3	8	+
10	3	16	+
13	3	7	+
15	5	4	-
16	2	8	+
20	4	8	+
21	1	5	+
32	1	6	+

Turning to income, there has been an increase in the amount of income accruing to the MCs though the average income has gone down by 10 percent as an effect of 40 percent of the MCs whose income has gone down. Despite the going down of the average income, the study still indicates that 10 percent of the MCs have had no effect in their income, while the majority, 50 percent has their income increased. The better picture that can be gathered from the assessment is that the minimum income has jumped with 733 percent from K600.00 to K5000.00, and the maximum has jumped with 82 percent from K55000.00 to K100000 while the drop in the average is only 10 percent, from K27060 to K24300. Table 4 below presents the numbers as provided above.

Table 5; Income comparisons for the MCs

Income from occupation	Before	After	Percentage increase	Poverty Before	Poverty After
Average	27060	24300	-10%	3.378277	3.033708
Minmum	600	5000	733%	0.074906	0.62422
Maximum	55000	100000	82%	6.866417	12.48439

One thing that is so clear from the data is that the distribution is more uneven compared to the initial period with a skewness of 2.44 and 0.167 respectively, suggesting even distribution in the initial period. A further analysis regarding the distribution shows that more people are below the average in the period after the project validating the skewness above. This scenario has the potential of breeding a better few at the top and the majority at the bottom. However this is not part of the projects expected outcome.

Turning to poverty measure using the poverty line of $1/day/person and K265 exchange rate, it can be stated that the income after training has a higher probability of getting people out of poverty where the minimum earning per day per person is very close to $1/day than the income before the training. In other words, the minimum income from the occupation before the training is far below $1/day/person.

For the trainees, as earlier observed that they are largely dependent on the occupation especially maintenance work for survival, a quest to know what their source of income is after the training, has revealed that 72 percent largely depends on bricklaying followed by agriculture 17 percent. However, the picture seems somehow different from the MCs regarding the change in income after training. For the MCs it showed a 10 percent decrease in the average, while in the case of the trainees it indicates a 1 percentage decrease coupled with a 100 percent decrease in minimum income. Despite the doubtful figures in number of houses, the drop in this minimum income might still be attributed to the dropping in the number of houses constructed/ maintained by the trainees within a month compared to the annual figures which have been evened. The possible reasons for the drop of the houses can be speculated to the trainees complaints of SHTC houses being expensive for the people, a large number of people who have been trained in SHTC such that their market share has decreased, and some blame the people they have attached themselves to that they are not popular, and don't know how best they can market themselves. Below is Table 6 showing the incomes of the trainees as has been discussed.

Table 6; Income comparison for the trainees

Income from occupation	Before	After	Percentage increase	Poverty Before	Poverty After
Average	24857.14	24523.81	-1%	3.126684	3.084755975
Minimum	3000	1500	-100%	0.377358	0.188679245
Maximum	70000	120000	42%	8.805031	15.09433962

2.4 Conclusion and recommendation

The project aimed at equipping the artisans with new skills in safe housing construction in order to mitigate the effect of earthquakes within the Karonga district in case there is an occurrence of one in the near future. The project has managed to achieve the objective, forty two people were trained and the project has been proven to have the potential of sustainability with 105 percent more people trained outside the project. The study has further found that there is sustainability in practicing of what was taught in SHCT by the MCs. The percentage reported by MCs being practicing what they were taught is as high as 88 percent. The study has also registered that the communities are adopting and are more willing to own SHTC houses. However, as stressed the adoption measurement of this study falls behind the adoption measurement that can be used in comparative studies.

Despite these positive impacts the project has registered, the income inequalities are likely to widen among the beneficiaries with some not getting the earnings they were getting before the training. This is largely been attributed to the amount needed to construct the SHTC houses. It has also to be accepted that with more training it is expected that the beneficiary will be able to earn higher than what s/he used to earn. However in this case, the majority are below what they used to. This therefore suggests a relook into the contents of the training program especially from entrepreneurship perspective.

APPENDIX I

Beneficiaries of the project as trainers

Zone	Trainer	Trainees
Lupaso	Alisa Theu 0995195485	Gift Katembe
		Bernad Kaonga
		Anolrd Theu
		Dan Ngwenya
	Innocent Gomiwa 0999386460	Dickson Madalitso
		James Gama
		(Patrick Namawona)
		Bingu Inosi
		(Mr. Wasu) Not done
		(Mr. Mataya) Not done
	Achken Qoto 0884499781	(Lawrence Sikwese)
		Banda
		(Mwenisamba)
		(Bonface Mwalwanda)
		(Ebelero Mwambwale)
	Grey zingwangwa 0881728029	C. Mphande
		Chirwa
		Mkandawire
Ipyana	Davie Mankhokwe 0881116985	Madalitso Dickson
		Nkhoma
		(Lucius Banda)
		Hamilton Listen
		Changanya
	Yotamu Mwampangire 0995650044	Ronald Munthali
		Elisha Chisale
		Shawa
	Mike Mitawa Banda 0881298892	Adam Mbwana
		Asad Phiri
		Evance Jonasi Phiri
		Emanuael Gama
		(Alick Masina) Did not do
	Arnold Mwenifumbo 0888403932	New site yet to recruit
		Stanford Msukwa
		Greshamu Chisale
		(Steven Chiona) Deceased
		(Yohane Katema)
	(Eneya Mbizi) 0991609483	B. Chirwa
		W. Phiri

Zone	Trainer	Trainees
Mpata	(Paul Njeghenje) 0992525332	Lusubilo
		Bonface
		Augustine
	(Frank Nyoni) 0993878976	Belekani Msach
		Frank Ntami
		Vesent Gondwe
Mwenitete	(Moses Mwafulirwa) 0991329289	Crispin Silomba
		Smart Kainga
		E. Mwamulima
	(Sanco Mwakikunga)	Gill Mwamboya
		Halfly Mwenisako
		Bone mwafongo
Mlale	(Foster Mwakabanga)	Toniki Mwakabanga
		Bosiko Maweche
		Atupele Mwakabanga
Mweniyumba	Mc Never NKhunda 0995212906	New site trainees yet to be recruited
		Peter Chinoko
		Francis Gama
		William Mlenga