REPORT ON OVERSEAS TRAINING COURSE ON BAMBOO AND RATTAN PRODUCT DEVELOPMENT TECHNOLOGY FOR GHANA ARTISANS

At FORESTRY COMMISSION TRAINING CENTRE (FCTC) EJISU, KUMASI

From AUGUST 26TH TO SEPTEMBER 23RD 2019

Submitted by

BRU Team

TABLE OF CONTENTS

Cont	Contents F	
1.0	Introduction	1
1.1 1.2	Main Objectives Course Outline	
2.0	Team from Accra (BRU)	2
2.1	Team from China	2
3.0	Activities for the Training Programme	3
3.1	Arrival Day 25 th August, 2019	3
3.2	Opening Day 26 th August, 2019	3
4.0	Week 1 from 26 th August to 1 st September, 2019	7
5.0	Week 2 from 2 nd to 8 th August, 2019	14
5.1	August 8 th , Closing Ceremony for the First Batch of Artisans/Trainees	19
6.0	Week 3 rd from 9 th September to 16 th September, 2019	21
7.0	Week 4 from 17 th September to 23 rd September, 2019	28
7.1	September 23 rd , Final Closing Ceremony for the Second Batch of Artisans/Trainees	
8.0	Challenges	41
9.0	Recommendations	41
10.0	Conclusion	41

1.0 INTRODUCTION

Bamboo which is referred to as the "golden" plant, is the fastest growing plant in the world and exists in diverse forms (Guinness world record edition, 2017). It is known to have alleviated the poverty and enhanced the livelihood of many people across the world. Bamboo stands a greater chance of contributing to the realization of the Global Goals for Sustainable Development (SDGs), especially SDG1 (no poverty), SDG6 (clean water and sanitation) and SDG 13(climate action). Ghana can thus achieve these SDGs through the use of bamboo resources which the Bamboo and Rattan Development Programme (BARADEP) Secretariat is mandated to oversee all its activities.

BARADEP in fulfilling its core mandate which is, promoting bamboo and rattan plantation and industry development as a complement to the wood industry to reduce the pressure on the natural forest for timber and increase income and employment opportunities for the rural poor, have been organizing trainings for communities around the country.

In view of this the Ministry of Lands and Natural Resources in collaboration with the Ministry of Commerce (MOFCOM) in China, and International Centre for Bamboo and Rattan (ICBR) organised a training course on bamboo and rattan product development technology for 90 artisans selected all over the country. These artisans were grouped into two, the first batch was made up of 45 people who are new to the bamboo crafting and the second batch was also made up of 45 artisans that received similar training in 2018. Activities like lectures, onsite technical training as well as discussions were all part of the training process.

1.1 MAIN OBJECTIVES

The main objective of the training programme is to;

- Provide the participants with the opportunity to produce bamboo and rattan products using our local raw materials.
- Learn about new techniques of bamboo and rattan.
- Improve on design and production of bamboo and rattan furniture and handicrafts so as to improve the current bamboo and rattan processing technology in Ghana.
- Enhance the quality and increase the value added in the bamboo and rattan products
- Promote the sustainable development of bamboo and Rattan industry in Ghana.

1.2 COURSE OUTLINE

Different topics were treated during the training programme which included:

- The country facts of China and Ghana.
- Classification and uses of bamboo.

- Pre-treatment and preservation techniques of bamboo and Rattan.
- Creative designs and processing of bamboo and rattan crafts.
- Processing techniques of high quality and high value-added handmade bamboo and rattan furniture.

2.0 TEAM FROM ACCRA (BRU)

Table 1. A team of four (4) officers and two (2) driver were present during the one-month training period.

NO.	NAME	POSITION
1	Faustian Baffour-Awuah	Ag. Unit Head
2	Victoria Neizer	Office Administration
3	Samuel Sarbah	Programme Officer
4	Erica Appiah-Nuamah	Programme Officer
5	Stephen Asiedu	Driver

2.1 TEAM FROM CHINA

Table 2. The details of resource persons from china who were present for the training programme.

NO.	NAME	POSITION	ORGANIZATION
1	Mana Cana	Director of Training Department	International Contra for Domboo
1	Wang Gang	Director of Training Department	International Centre for Bamboo and Rattan (ICBR)
2	Dang Jie	Deputy Director	International Cooperation
			Department, ICBR
3	Dai Honghai	Director Foreign-Aid Programme	International Cooperation
			Department, ICBR
4	Sang Wei	Interpreter and Project Manager	International Bamboo and Rattan
			Organisation (INBAR)
5	Wang Yunjia	Interpreter	International Centre for Bamboo
			and Rattan (ICBR)
6	Yu Jiaqi	Interpreter	International Centre for Bamboo

NO.	NAME	POSITION	ORGANIZATION
			and Rattan (ICBR)
7	Yi Longqian	Deputy Manager	Daguan Suo Shi Bamboo Company
8	Wei Xuequan	Chief Technical Manager	Ningguo Suo Shi Bamboo Company
9	Zhang Xiujin	Senior Technician	Ningguo Suo Shi Bamboo Company
10	Liu Shengxian	Senior Technician	Hangzhou Suo Shi Bamboo Company

3.0 ACTIVITIES FOR THE TRAINING PROGRAMME

3.1 ARRIVAL DAY 25TH August 2019

The first batch of artisans who were selected throughout the country started arriving at the training Centre (FCTC) at exactly 1.45pm after which they were registered and allocated to their rooms. Some participants also trooped in individually and were all registered and allocated their rooms. Some of the participants were allocated to Asamany Hotel about 5 minutes' drive from the training centre while the rest remained at the FCTC hostel.

As at 4.00pm about 80% of participants were registered and accommodated for the training programme, and at 5.00pm dinner was served to the participants who were present.

T-shirts, bag, and training manuals were distributed to all participants on arrival. Registration still continued and as at 9.pm all participants had arrived.

3.2 OPENING DAY 26TH AUGUST 2019

The programme started at 10am with an opening prayer by one of the artisans. The MC introduced the dignitaries on the high table and they include, the Deputy Minister for Lands and Natural Resources, the Ashanti Regional Minister, the Chinese Counsellor, a Member of Parliament and council member, Representative from Forestry Commission, INBAR country Director, the Executive Director, Forest Services Division, Technical Director (Forestry Division), Ministry of Lands and Natural Resources and a host of other dignitaries.



Fig 1. Shows a picture of dignitaries and participants present at the opening ceremony

The Regional Minister of Ashanti Region in his opening statement said, it is his hope that this training will further strengthen the China-Ghana cooperation. He said he was very optimistic that the commitment and dedication of the country can make Ghana the leading country in Africa where bamboo and rattan is concern. He appealed to the Chinese government to continue in supporting Ghana's dream to become the leading producer of bamboo and rattan products.

The Country Director of INBAR Ghana, said continuous support of INBAR do help West African country especially Ghana to be the leading producers of bamboo and rattan resources. INBAR will continue to provide all the needed support necessary to its partners ICBR, Ministry of Lands and Natural Resources and other stakeholders to ensure that the aim of this and future training courses are organized successfully.



Fig. 2. Shows the Ashanti Reg. Minister

fig. 3. West African Regional Director of INBAR

The President of the National Bamboo and Rattan confirmed that previous trainings have really helped to improve their knowledge, skills and businesses and the key potential of

the bamboo and rattan industry. He however pleaded with the authorities if more of the Chinese training will be organized for the artisans from time to time.





Fig 4. Mr. Wang Gang, Head of Chinese delegation

fig 5. President of Bamboo and Rattan Association in Ghana

Dr. Kwakye Ameyaw, a representative from the Forestry Commission stated that, following the successful completion of the maiden program last year, 90 artisans are involved in this year's training and he commended the Chinese embassy for sponsoring this program as well as providing resource persons. The good work done by the resource persons is one that justifies the reputation of the program and wish to congratulate them on the tremendous work done and the positive feedback received.



Fig 6. Shows Dr. Kwakye Ameyaw Delivering an address on behave of the CE of FC

fig 7. A section of the trainees

The Commercial Counsellor of the Chinese Embassy Chai Zhijing, in his speech said that last year there were 100 craftsmen who participated in the maiden program and the hardworking Chinese teachers who did a very good work on the technology and new skills they shared with the artisans. He assured the people that their one month stay in the country they will make sure good and quality furniture are produced.



Fig 8. Dep. Min. for Lands & Natural Resources fig 9. The Chinese Counsellor

The Deputy Minister of Lands and Natural Resources in his speech said somewhere in October2018, a similar training program was organized for hundred (100) Ghanaian artisans and after the training they came out with beautiful products. He extended the gratitude of the government of Ghana to the government of the People's Republic of China for their continuous support to Ghana for the development of the bamboo and rattan industry. Each trainee will become a resource person in their operational areas and will be able to transfer the knowledge acquired from the training to other artisans who were not part of the 2018/2019 program. He entreated the public to engage more of the local communities to create awareness on the value of bamboo and rattan to ensure that we will leave our future generation with a richer and better forest resources.



Fig 10. Dignitaries exchanging pleasantries Exchanging performance Fig 11. The De Exchanging performance Fig

Fig 11. The Dep. Min. and Chinese Counsellor Exchanging peasantries

The Deputy Minister of Lands and Natural Resources declared the training programme duly opened.



Fig 12.

Fig 13.

Figs 12 and 13, Shows Chinese team and some government officials inspecting workshop and equipments at the training centre

In the Afternoon after the opening ceremony, the Chinese team and Bamboo and Rattan Unit staff met the first batch of artisans for introductions after which the artisans were put into three main groups for the training programme. They were taught how to treat the bamboo by boiling it in hydrogen peroxide for an hour and then dry it in the sun for some time.



Fig 14. Treatment of bamboo culms before drying and using it for production



Fig 15fig 16.Figs 15 and 16, Shows some participants drying treated bamboo

4.0 WEEK 1 FROM 26TH AUGUST TO 1ST SEPTEMBER 2019

In week one, the trainees were introduced to all the equipment they will be using during the training. The first group were tasked to straighten some selected bamboo culms which are not straight. Straightening is done when the bamboo culm is not straight enough to process/produce a furniture. The bamboo is fixed in a wood vice constructed by the Chinese technicians, and heat from a gas touch is applied on the curved bamboo culm to straighten.

The other groups were tasked to produce dining tables and chairs, and coffee tables.





fig 18

Figs 17 and 18 Shows trainees straightening bamboo culms as demonstrated by a Chinese resource person



Fig 19. Drying of bamboo culms after treatment



Fig 20. Some trainees sanding rattan for furniture making

fig 21. Trainees being supervised by a resource person on the production of a chair leg



Fig 22. Shows rattan materials for the training programme



Fig 23. It's the 2019 OVERSEAS BAMBOO AND RATTAN TRAINING, HURRAAAYYYY

The artisans were also taught how to use the various machines and also how to take measurements for a specific product since this was the first time they were to use such machines



Fig 24. Chinese technician introducing the equipments to the participants



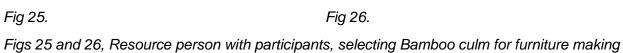






Fig 28.

Figs 27 and 28, Resource person explaining measurements to artisans

They were also taught how to produce corner moulding designs for the tables, chairs and coffee tables, and also how to cut the plywood for the top of the tables and chairs.



Fig 29. Cutting of plywood boards by trainees for the seat of the furniture



Fig 30. Trainees using rattan to design a corner mould for the tables and chairs



Fig 31. Bamboo curved boards from China being admired by participants



fig 32. A Chinese Technician teaching trainees how to use the crosscut saw machine



Fig 33. Participants supervised by resource persons

In order to join the bamboo culms together for a specific product, the artisans have to put round wood into the bamboo culms with the aid of white glue and special pins and also cut it at an angle required for a specific product.



Fig 34. The two pictures above shows, joined bamboo culms with the aid of white glue and pins



Fig 35. Team admiring progress of work so far

In the course of the week, the groups that were been tasked with the production of the tables, chairs and coffee tables were asked to go and straighten the bamboo culms and the other group who were straightening the culms were asked to start with their production.



Fig 36. The above pictures shows production of a coffee tables by resource persons and trainees



Fig 37. Shows trainees and resource person producing a dining table

fig 38. Shows a trainee and a resource person producing corner moulds for different set of furniture and tables





Fig 39

fig 40





fig 42

Figures 39, 40, 41 and 42 shows pictures of trainees and resource person putting various joints together to produce different sets of furniture

In week one, the trainees measured, cut and put together various bamboo culms to produce different sets of furniture e.g. dining tables, dining chairs, coffee tables and book shelves.

5.0 WEEK 2 FROM 2ND TO 8TH AUGUST 2019

The artisans continued with production in their various groups. Some groups have completed some of their products and have moved on to other products. The resource persons were always on hand to assist those who had difficulties.



Fig 43. The picture above shows resource person inspecting a coffee table being produced by trainees



fig 44. Shows a resource person helping trainees out in the production of a dining table



Fig 45. The picture above shows trainees seriously working on a coffee table



fig 46. Shows a resource person helping trainees out in the production of a dining chair



Fig 47

Fig 48

Figs 47 and 48 Shows participants adding finish touches on their products

After most of the trainees has completed their task i.e. production of their various dining tables, chairs and coffee tables, they were asked to apply putty at the various joints to seal all the gaps that might have occurred during production. The putty consist of white glue mixed with talc powder (ordinary powder).



Fig 49

fig 50

Figs 49 and 50 shows participants applying putty filler to the cracks and holes in the bamboo products





Fig 52

Figs 51 and 52, Shows a resource persons supervising participants with the application of putty filler



Fig 53. Shows three female participants posing with one of the products they proudly produced together

After applying the putty to the joints, the artisans were asked to sand paper the products before it can be sprayed, but due to time constraints, the trainees were not able to spray

their products. The two (2) weeks training period was very insufficient for them. They were not able to go through the process of mixing the right spraying agents for spraying.

Some volunteered to join the second (2nd) batch using their own resources (pay for accommodation and feeding) in order to learn more.



Fig 54

fig 55



fig 56

fig 57

Figures 54, 55, 56 and 57, shows participants sanding some of the products they have produced



Fig 58. Shows some products ready for spraying



Fig 59Fig 60Figures 59 and 60, shows participants taking pictures with some of the products

In the course of the week, the Municipal Chief Executive (MCE) of Juaso paid a working visit to the participants. Some of them were from his district. He was very impressed with work rate of the participants and what they have been able to achieve within the short stay at the training centre.



Fig 61

fig 62

Figures 61 and 62 Municipal Chief Executive of Juaso in the Ashanti Region visit to the training centre



Fig 63.Fig 64Figures 63 and 64, shows some of the products on display

5.1 AUGUST 8TH, CLOSING CEREMONY FOR THE FIRST BATCH OF ARTISANS/TRAINEES

The training for the first batch of artisan trainees officially came to an end on this day. There was a short closing ceremony for the first batch of trainees. Dignitaries present at the closing ceremony were the Head of Unit, Bamboo and Rattan Unit (BRU), the West African Country Director of INBAR, some officers FCTC and the Chinese team. In all forty-five trainees were awarded with certificates from the Chinese government.



Fig 65. Show a section of the first batch trainees seated at the closing ceremony



Fig 66, shows a picture of the first batch of trainees displaying their certificates after completion of the training, with them are some officials at the training centre

6.0 WEEK 3 FROM 9th TO 16TH SEPTEMBER 2019

The second batch of artisans started arriving at the training centre (FCTC) at exactly 1.45pm right after the first batch finished with their closing ceremony. All the trainees in this batch were trained last year by the same Chinese team, and all they needed in this year's training is a top up. Officers from BRU started with registration of participants, rooms were allocated them. Some of the participants were allocated to Asamany Hotel about 5 minutes' drive from the training centre while's the rest were allocated rooms at the FCTC hostel.

T-shirts, bag, and training manuals were distributed to all participants on arrival. By 6:00 pm, about 31 of the artisans have arrived at the training centre. The rest of the participants arrived the next day and were registered and allocated to their various rooms.



Fig 67 fig 68 Figures 67 and 68 shows some participants in the second batch selecting bamboo culms for straightening

They started working the following day since they already have experience on how to use the materials and equipments. They were also grouped into three (3). Each group was tasked to produce dining tables and chairs, and coffee tables just like the first group but, with the second group, they are to curve rattan using a gas touch (heat/fire) and also straighten the bamboo culms that are not straight. The curved rattan will serve as the back of their dining chairs. Each group selected their raw materials and started working on their products.



Fig 69 fig 70 Figures 69 and 70 shows pictures of a resource person teaching trainees how to bend the willow/cane



Fig 71 shows a picture of participants straightening bamboo culms



Fig 72 shows a picture of a resource person teaching a participant how to take correct measurements on a curved rattan



Fig 73 shows a picture of the participants cutting the corner mould to design the chairs and tables

In the course of the training the resource persons were always on hand to teach the trainees when the need arises. Each group was eager to come up with the best quality product and at the same time, finish more products on time. They cut the bamboo and rattan into various measurements depending on what it they want to produce.



Fig 74 shows a resource person demonstrating how to insert the round wood into the bamboo culms in order to join the culms together to produce a table



Fig 75, shows a resource person teaching trainees how to measure various sizes of bamboo culms and rattan for production

A bamboo is joined together with the aid of a wooden round stick. The round stick is inserted into the bamboo culm with the aid of a white glue. Small pins are shot into the bamboo, that is, where the round wood is inserted with the aid of a shooting gun which has been designed specially for this purpose.



Fig 76



Fig 77 Fig 76 and 77 shows pictures of trainees joining some parts of a bookshelf and three seater that Living room furniture

Trainees being taught how to put the various joints together to produce a living room furniture



Fig 78. The picture above shows some of the trainees screwing the various joints of the three seater living room furniture together



Fig 79. The picture above shows some artisans putting bamboo joints together to construct a coffee table with the aid of a shooting gun.

During the week, the trainees put all the necessary culms and rattan that they have measured and cut together by screwing them and also by using air pressured shooting guns with pins, to put them together. This is done carefully and skilfully in order not to damage or destroy the joints.

7.0 WEEK 4 FROM 17th SEPTEMBER TO 23rd SEPTEMBER 2019

This week is the final week for the whole month training. The trainees in the various groups have completed almost all their products, they were asked to putty, sand paper and prepare (both the first and second batches) products for spraying. There are different grades of sanding paper. They first used a rough sanding paper to sand paper the products, after that, they used a smooth sanding paper to smoothen it before spraying.



Fig 80. This picture shows a resource person puttying a book shelve



Fig 81. The picture shows an artisan puttying a dining chair

The putty is applied on the joints of the bamboo or rattan to seal the gaps and holes that might occur during screwing and also to conceal the pins that was used to join the bamboo or rattan together.



Fig 81. Shows a picture of a resource person together with BRU officers and trainees puttying a centre table



Fig 82. The picture above shows some of the artisans puttying some of the products

After puttying, the products were allowed to dry for about 2 to 3 hours before sanding or sand papering is done.



Fig 83 shows a picture of a trainee sanding a dining table



Fig 84. The picture above shows a section of the artisans sand papering some products



Fig 85 shows a picture of a trainee sanding ladies dressing mirror

After sanding all the products, the product were now ready for spraying. A first coat of the spraying was applied to all the products by the resource person's and the trainees and allowed to dry till the next day, sand paper again the following day, using the smooth sanding paper, before the final spray was applied.



Fig 86. The picture above shows some of the products being lined up for first coat spraying



Fig 87. The picture above shows a participant spraying a dining chair



Fig 88 show a picture of a resource person spraying a book shelve





Fig 89

fig 90



Fig 91fig 92Figures 89, 90, 91 and 92 above pictures shows products that has been given first coat spraying



Fig 93 shows a coffee table being covered with old newspaper and ready for the final spraying



Fig 94 shows a book shelve being covered with old newspaper on some parts and ready for the final spraying

Dark red was the colour chosen for the final spraying. Each of the products were sprayed by the resource persons and the trainees. The spraying was done carefully and methodically in order not to let the paint drip on the finished products.



Fig 95. The above picture shows a resource person applying a final spray on a bamboo dining table



Fig 96 shows a picture of a trainee applying a final spray on a bamboo and rattan dining chair



Fig 97 shows a picture of a BRU Officer applying a final spray on a bamboo coffee table



Fig 98 shows a picture of bamboo and rattan dining chairs that have been given the final spray



Fig 98 shows a picture of bamboo dining chairs that have been given the final spray



Fig 99 shows a picture of some different types of finished or final products



Fig 100 shows different set of dining chairs designs

7.1 SEPTEMBER 23RD, FINAL CLOSING CEREMONY FOR THE SECOND BATCH OF ARTISANS/TRAINEES

Today marks the end of the whole overseas training programme in Ghana. The ceremony started at 11:00am with an opening prayer by one of the participants. The dignitaries from the Ministry of Lands and Natural Resources (MLNR), the Forestry Commission (FC), a team from the Chinese Consulate and the a team from International Network Organisation(INBAR) were all present to grace the occasion. They were introduced by the MC for the programme.

The Director of the Forestry Commission Training School gave a welcome address. He encouraged the participants to use the new techniques acquired to enhance their products. He recommended them for exhibiting good behaviour during their stay at the training centre and also wished them a safe journey back home.

The President of the Natural Bamboo and Rattan Association in his statement mentioned all challenges encountered during the training and appealed to the authority to improve the conditions on future training programmes.



Fig 101 shows a cross section of dignitaries and participants seated at the closing ceremony



Fig 102 shows a cross section of dignitaries seated on the podium at the closing ceremony, seated among them is the Hon. Deputy Minister for Lands and Natural Resources (MLNR), the Chinese Counsellor and the Executive Director of Forestry Commission (FC)



Fig 103 shows a picture of the Country Director for INBAR, West Africa fiving his closing remarks

The INBAR country Director during a statement appealed to the Chinese government to organise more of such training programmes in the country. The Chinese counsellor and his team were very pleased with the work rate of the artisans and the entire training programme.



Fig 104. The picture above shows the Executive Director of Forestry Commission (FC) giving his closing remarks



Fig 105 shows a picture of the Hon. Deputy Minister for Lands and Natural Resources (MLNR) giving his closing remarks

The Deputy Minister for Lands and Natural Resources congratulated all the participants for exhibiting good behaviour throughout the training programme. He said, the training was divided into two batches because of the complains he received during last year's programme, and the government of Ghana is ready to develop the bamboo and rattan industry. He also proposed that, all the products should be kept at the FCTC training grounds so as to be used in this year's bamboo and rattan exhibition to be held in Accra in November.



Fig 106. The above picture shows the MC the of the day, the Principal Planning Officer of (MLNR)

Certificates were awarded to each of the 45 participants and it was done by the Chinese Counsellor, the Deputy Minister for Lands and Natural Resources, the Executive Director of Forestry Commission (FC) and the head of the Chinese delegation to Ghana.

Parcels and gifts were given by the Ministry and also some of the trainees to Chinese team



Fig 107 shows the Hon. Deputy Minister for Lands and Natural Resources (MLNR) presenting a kente sash to the Chinese Counsellor



Fig 108. The picture above shows the Executive Director of Forestry Commission (FC) presenting a picture frame and a sash to the Director of Foreign Aid (ICBR)



Fig 109 shows a picture of the Director of FCTC, presenting a picture frame to a resource person



Fig 110 shows a picture of the President of Bamboo and Rattan Association of Ghana's President, presenting a picture frame to a resource person



Fig 111 shows a picture of the Hon. Deputy Minister for Lands and Natural Resources (MLNR) presenting a picture frame to a resource person



Fig 112 shows a picture of the Executive Director of Forestry Commission (FC) presenting a picture frame to a resource person

The MC thanked the entire staffs of the FCTC for hosting the entire programme.

The closing ceremony ended at 2:00 pm with a closing prayer by one of the participants.

The entire delegation proceeded to the exhibition grounds were all items produced by the participants have been displayed.



Fig 113 shows the Chinese Counsellor with his Chinese team



Fig 114 shows a picture of the Executive Director of Forestry Commission (FC), the Hon. Deputy Minister for Lands and Natural Resources (MLNR) and some participants inspecting the products on display.

8.0 CHALLENGES

Based on the observation made, the following challenges were encountered during the training;

- The trainees were complaining about the two week time frame for the training programme which they thought was inadequate for them to grasp all the techniques been taught by the Chinese resource persons. At least a month or a month and a half is ideal for them.
- They also complain of lack of tools to work with after the training, of which they say is very expensive to acquire in Ghana.

9.0 RECOMMENDATIONS

Recommendations were made that;

- Some of the participants should be selected to China for further training so as to enhance their skills.
- The Bamboo and Rattan Village at Ayi Mensah should be constructed as soon as possible in order for the participants to have access to tools in order to apply knowledge acquired during the training on their work.
- The two weeks training period should be extended to a month or a month and a month.

The artisans the artisans should be paired in a room in the on subsequent trainings.

10.0 CONCLUSION

In conclusion, the programme ended successfully with 45 participants graduating for the two (2) weeks training programme.

In all, a total of 90 artisans were trained for the one month period.