Monitoring report 2016

Asubima & Afrensu Brohuma
Forest Reserves

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ADDENDUM

This addendum is made to clarify the surfaces under management in the area of the Akumadan plantation of Form Ghana in Ghana. In the past, different methodologies used by different institutions caused different results (surfaces) and confusion. The data below are based on GIS mapping carried out in April 2017 by Form Ghana and will be used in all documentation as from publication date.

FOREST RESERVE	**YEAR of planting (ha)**	**TOTAL AREA (ha)**	**Planted with INDIGENOUS (ha)**	**Planted with TEAK (ha)**	**UNPRO-DUCTIVE* (ha)**	**AREA PER RESERVE (ha)**
ASUBIMA	2001	66,09	11,56	53,76	0,77	1667,48
	2006	107,48	15,05	91,41	1,03	
	2008	171,52	22,35	148,16	1,01	
	2009	609,03	92,27	512,57	4,18	
	2010	713,36	88,46	612,51	12,40	
AFRENSU BROHUMA	2011	986,37	132,75	844,32	9,30	1779,86
	2012	793,49	127,80	663,12	2,56	
TOTAL AKUMADAN		**3447,34**	**490,24**	**2925,84**	**31,25**	**3447,34**

**) 'Unproductive' is not reforested (because of presence of rocks or shallow soils, streams or roads).*

The addendum applies to the Management Plan Akumadan and all plans and reports.

Publication date: 1st of May, 2017

M. Willem Fourie
Managing Director Form Ghana

1. INTRODUCTION

Management is a continuous process. This means that the management will be adapted over time related to changes in the field. To keep track of these changes, Form Ghana applies a system of monitoring in which annually information is gathered. The process of evaluation and adaptation will lead to further fine-tuning of the management plan.

The current report informs on the various monitoring activities that have taken place the past year, and what has been learned from it. As more knowledge is gained on monitoring activities, these are further refined and the setup of the monitoring system will be adapted.

This annual monitoring report is public to allow interested persons to be informed on the progress of Form Ghana and the impact its activities have on the people and the environment in Asubima and Afrensu Brohuma Forest Reserves.

Form Ghana Ltd.

Willem Fourie

General Manager

1.1 Plantation monitoring

The objective of Form Ghana is to establish and manage the timber plantation in an ecologically, financially and socially sustainable manner. These management objectives are divided into criteria and for each criterion, a set of measurable indicators are determined as well as the means to verify them (Table 1).

Monitoring framework

Management objectives	Criterion	Indicator	Verifier
1. Establish and manage the timber plantation in an ecologically sustainable manner with a maximum of 90% Teak and at least 10% of mixed local species with conservation of natural, riparian forest	1.1 Extent and condition of forest	1.1.1 Area planted with Teak	Map
		1.1.2 Area managed as forest plantation / buffer zone	Map
		1.1.3 Changes in planted area	Map
	1.2 Biological diversity	1.2.1 Extent of area protected	Map
		1.2.2 Fauna population and diversity in the forest reserves	Report
		1.2.3.Flora diversity in the buffer zones	PSP
		1.2.3. Existence and implementation of procedures to identify / protect endangered, rare and threatened species	Procedures
	1.3 Forest health	1.3.1 Check of the growth rate of the plantation	PSP
		1.3.2 Check of the growth rate of the Buffer zones	PSP
		1.3.3 Monitoring of fire frequency	Fire report
	1.4 Soil protection	1.4.1 Procedures to protect soil productivity and avoid erosion	Procedures
		1.4.2 Effectiveness of activities undertaken to avoid soil erosion	PSP
		1.4.3 Procedures to avoid impact from work in the forest	Procedures
	1.5 Water protection	1.5.1 Procedures to protect forest and vegetation along water courses	Procedures
		1.5.2 Checking of water quality	Sample analysis
2. Guarantee financial and economic sustainability through the generation of income from the produced round-wood and carbon sequestration	2.1 Forest production	2.1.1Harvest of round wood	Tables
		2.1.2 Comparison of yield with yield tables	Tables
		2.1.3 Calculation of current stored carbon in the plantation	Calculation
		2.1.4 Calculation of current stored carbon in the buffer zones	Calculation
	2.2. economic aspects	2.2.1. Cost benefit of plantation	Table
		2.2.2 Value of wood sales	Sales data
3. Provide social benefits by offering good economic conditions for	3.1 Social benefits	3.1.1 Number of people (partially) depending on the plantation for their livelihood (employees, inter croppers, out growers	Annual report

Management objectives	Criterion	Indicator	Verifier
employees and the surrounding smallholder community		3.1.2 Training and capacity building for employees, inter croppers and out growers	Table
		3.1.3 Information of the public	Website, stakeholder meetings
		3.1.4 Worker health / Accidents on work floor	Statistics

1.2 Monitoring methods

In order to check compliance with the management objectives, Form Ghana has developed a monitoring system consisting of several activities. Different monitoring methods are adopted to optimize verification of different indicators. All indicators are monitored at least once every five years. Specific indicators can be monitored annually or bi-annually.

Each indicator is described in detail in the following paragraphs.

1.2.1 Extent and forest condition

By the end of 2012, a total of 3,469 ha of land in Asubima and Afrensu Brohuma Forest Reserves falls under the management of Form Ghana. See Appendix 1 for the development of the plantation over time.

Currently, 14.7% of the area consists of indigenous vegetation and is actively being restored into its former state as productive forest (Table 2).

Stratification of Form Ghana plantations

Planting year	Area Teak (ha)	Area indigenous (ha)
2001	53.8	12.3
2003	18.0	0
2004	42.0	0
2008	151.0	20.5
2009	512.0	83.3
2010	576.3	83.7
2011	845.4	139.1
2012	736.7	170.4
Total	**2935.4**	**509.3**
%	**85.3**	**14.7**

1.2.2 Biological diversity

A report was prepared on the monitoring of the flora in the buffer zones. The study has led to the following conclusions: The forest in the buffer zones of Asubima FR has

shown development over the past 5 years to a more mature forest, with larger average height and DBH.
The buffer zones in Afrensu Brohuma show typical characteristics of a disturbed forest that is now rejuvenating, with a large number of small trees and a small number of large, mature trees. A number of species identified in the buffer zones is classified as 'vulnerable' by the IUCN Red List: Nesogordonia papaverifera, Entandrophragma cylindricum, Khaya anthotheca, Coffea togoensis, Hallea ledermannii. The Genetic Heat Index of Asubima FR has increased since 2010, emphasizing the need for conservation of the buffer zones.

The following tree species with a star-rating were observed:

Star	Comment[1]	Species	AFR	ASU
Gold	Fairly rare internationally and/or locally. Ghana has some inescapable responsibility for maintaining these species.	*Maranthes aubrevillei*	3	5
Scarlet	Common, but under serious pressure from heavy exploitation. Exploitation needs to be curtailed if usage is to be sustainable. Protection on all scales vital.	*Entandrophragma cylindricum*		1
		Khaya anthotheca	7	2
Red	Common, but under pressure from exploitation. Need careful control and some tree by tree and area protection.	*Afzelia bella*		2
		Amphimas pterocarpoides		1
		Antiaris toxicaria	5	4
		Canarium schweinfurthii		1
		Ceiba pentandra		7
		Daniellia ogea		1
		Distemonanthus benthamianus		1
		Hallea ledermannii	1	1
		Mansonia altissima	1	
		Piptadeniastrum africanum		1
		Terminalia superba		1
Pink	Common and moderately exploited. Also non-abundant species of high potential value.	*Albizia zygia*	1	16
		Bombax buonopozense	1	3
		Celtis mildbraedii	1	2
		Holoptelea grandis		1
		Morus mesozygia		2
		Nesogordonia papaverifera	1	
		Petersianthus macrocarpus		1
		Ricinodendron heudelotii	4	8
		Sterculia oblonga	1	
		Sterculia rhinopetala	1	1

[1] As stated in Hawthorne & Abu-Juam, 1995

Star	Comment[1]	Species	AFR	ASU
		Strombosia glaucescens		1

The next five year monitoring of fauna is foreseen in June 2017.

In the plantation one individual of the CITES species Kokrodua (*Percicopsis elata*) is present. This tree was discovered in 2010, and verification in 2015 has confirmed it is still in good health.

1.2.3 Forest health

Analyses of forest growth and health as well as soil erosion are based on the PSP measurements taken in the plantation. Every year after planting, additional plots are created in the newly planted compartments. The number of plots will therefore increase yearly. PSP monitoring is done according to Protocol 13: Monitoring.

The basic shape of a PSP is a circular plot with a pole in the centre. GPS coordinates of the pole determine the site location. Each sample plot has a size of 800m^2. This plot size does not change over time and the size is chosen so that a plot contains a sufficient amount of trees even after subsequent thinnings.

Height and DBH (diameter at breast height) of the trees in the plots as well as overall health of the plantation is assessed annually.

The measurements taken in these plots are:

- Date of measurement
- Tree diameter at breast height (DBH): the diameter of each tree is measured at breast height with measurement tape or calliper.
- Height: The height of all trees is measured as accurately as possible with a clinometer (Suunto) or a measurement pole;
- Tree health, pests and diseases: it is recorded whether the measured trees are healthy or affected by disease.
- Soil erosion: any visual sign of erosion will be noted (rills, gullies, splash erosion, crusting);
- Undergrowth: A note is written on the amount of undergrowth and the type of undergrowth.

The data form these plots are entered in an Excel sheet, where they are further analysed. A summary of the plots for this monitoring activity is presented below in table 3.

PSP monitoring in 2016 focused on the plant year 2001. A total of 7 PSPs have been selected this year for monitoring plantation growth and performance of Teak. Sampling density for Teak was 1.05%

Summary results of the monitoring of Teak

Plant year	Average planting density (#/ha)	N (#/ha)	+/-	H_{av} (m[1])	+/-	H_{dom} (m[1])	+/-	DBH (cm)	+/-	V (m^3/ha)	+/-
2001	1111	224	41	20,7	1,1	21,4	1,1	26,6	2,1	113,8	18,3

N is calculated as the total number of trees/records per plot (800m^2), then extrapolated to one hectare (N/ha) and the average of all plots of the same plantyear is calculated.

H_{av} = the average height per plot, then the average of all plots of the same plantyear is calculated.

H_{dom} = the average height of the 100 largest (DBH) trees per ha. The average height of the 8 largest trees per plot is calculated, resulting in the H_{dom} per plot. Then the average of all plots of the same plantyear is calculated.

DBH = Diameter at breast height (1.3 m.). The average per plot is calculated, then the average of all plots of the same plantyear is calculated.

V is calculated as V_{tree} = Pi r^2*H*form factor. (r= radius = ½ DBH). Then the sum of the volume per plot is calculated, extrapolated to a Volume / ha, then the average of all plots of the same plantyear.*

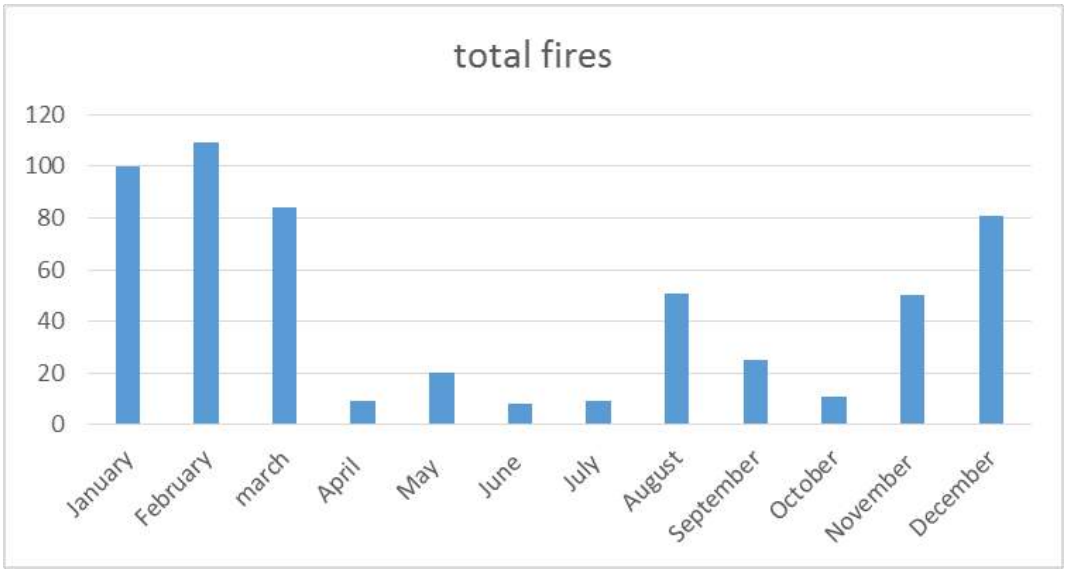
Form factors are based on the adapted Ivory Coast yield tables (0.36)

1.2.4 Protection against fire

Fire is a great potential threat to the plantations. In 2016, 557 fires were reported by the security team. 555 of these fires were located outside the Form Ghana area. 2 fires were within the Form Ghana boundaries, but could quickly be quenched by the rapid response teams. Fire occurs mostly during the first three months of the year and the frequency of occurrence quickly drops with the onset of rains.

Fire occurrences

Month	Fires outside	Fires inside
January	99	1
February	109	0
march	84	0
April	9	0
May	20	0
June	8	0
July	9	0
August	51	0
September	25	0
October	11	0
November	50	0
December	80	1
Total fires	555	2



Fires summarized per month of 2016

1.2.5 Soil protection

On sloped terrain erosion can be a problem, especially on the more sandy soils of Asubima. For this reason we pay special attention to erosion on the roads and in the plantation. Especially in older plantation areas, erosion can become a problem as the dense crowns can create shade that few understory plants can survive in. By regular and timely thinning this erosion can be kept in check as it stimulates undergrowth.

In the permanent sample plots erosion is checked every time the plot is measured. No erosion was found during PSP monitoring in 2016.

1.2.6 Water protection

The protection of the buffer zones is effective in the respect that they have been fully planted. The trees planted will need time to grow into trees and in that way restoring the buffer zones in full.

Water samples in 2008 showed that all water was polluted to a certain extent with silt and pesticides. Now that all agricultural pesticides except round-up are banned and the vegetation restored this situation was expected to change.

The water quality in Asubima FR was assessed again in 2011 at strategic points where streams enter and leave the plantation. The data showed that the water in the streams is of drinking quality (according to WHO standards) for all factors except iron, colour and turbidity. It shows that the contamination of the water is minimal.

Measurements of hydrological characteristics in streams in Afrensu Brohuma FR in 2013 show that nearly all streams are polluted quite severely. The restoration of the 30 meter buffer zones along the water courses is expected to reduce erosion and prevent chemicals from entering the water, as was observed in Asubima FR.

Measurements done in 2015 show there is quite a difference between Asubima and Afrensu Brohuma when looking at certain parameters of water quality. Water has a lower turbidity and lower total dissolved solids (TDS). Average temperature and pH were similar for both sites. Dissolved solids refer to any minerals, salts, metals, cations or anions dissolved in water.

Follow-up monitoring will be done in 2017. The data collected during 2016 were not useable due to calibration problems.

1.2.7 Rainfall

The precipitation in the area was this year measured at 5 points:

- In the nursery
- At fire tower # 1 in the West of the Asubima plantation
- At fire tower # 2 in the Eastern corner of the Asubima plantation.
- At fire tower # 3 in the Afrensu Brohuma plantation
- At fire tower # 4 in the Afrensu Brohuma plantation

The data shows that the rainfall fluctuates around 1100 mm, with a peak in 2010 and low levels in 2012 and 2013. The average rainfall for 2016 is very low at an average 912 millimetres.

Average rainfall in Akumadan.

Nursery Site	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2009	0	0	43	110	125	222	138	25	112	125	64	0	964
2010	0	54	50	184	119	162	309	63	136	258	28	27	1390
2011	8	48	65	51	128	339	67	38	257	241	0	0	1241
2012	0	33	75	106	229	128	67	8	25	253	64	13	1000
2013	0	73	97	64	189	59	123	25	249	97	27	4	1005
2014	15	26	129	181	125	197	60	94	198	145	88	0	1256
2015	0	101	53	98	83	104	107	0	118	174	29	0	1258
2016	0	33	90	109	153	82	87	2	249	144	10	13	972
Tower 1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	11	31	13	56	93	254	69	57	246	349	0	0	1178
2012	0	31	62	120	162	168	87	9	25	223	75	45	1007
2013	0	86	132	85	178	55	121	9	214	129	71	0	1080
2014	12	27	104	171	114	158	65	81	166	133	89	0	1118
2015	0	94	66	104	56	89	108	4	115	200	35.5	0	1120
2016	1	35	81	95	152	60	84	13	227	151	20	1	920
Tower 2	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2011	7	22	13	91	136	207	85	118	242	216	0	0	1137
2012	0	45	97	145	187	102	111	0	85	183	84	38	1076
2013	0	119	142	90	137	49	133	16	191	94	60	0	1029
2014	25	15	110	302	84	201	74	183	152	173	131	0	1448
2015	0	119	144	93	49	103	96	5	89	194	36	0	1450
2016	2	13	68	112	112	36	90	14	223	140	39	5	854
Tower 3	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2012	0	45	75	130	180	142	111	0	9	162	92	13	958
2013	0	72	102	101	138	59	200	5	236	95	57	0	1065
2014	26	24	62	235	110	130	72	109	112	117	101	0	1098
2015	0	132	97	80	54	106	96	0	80	170	34.5	0	1098

2016	1	18	98	105	92	58	72	15	238	139	55	0	891
Tower 4	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2012	0	0	0	0	0	0	0	0	0	98	97	2	197
2013	0	35	183	197	196	92	199	21	307	82	102	0	1413
2014	24	27	114	162	66	167	26	71	171	136	73	0	1037
2015	0	73	99	112	58	138	79	0	104	203	54.5	0	1037
2016	8	23	121	158	115	29	81	17	213	116	27	15	923

1.2.8 Forest production

In the end of 2015 and the beginning of 2016 the 2001 area has been thinned. About 50% of the standing stems was removed during this operation.

In 2015 a start was made with the thinning of 2001 area and this was completed during the beginning of 2016. In total about 1000 m3 of saleable product was produced.

Production		Jan	Feb	March	Total (including 2015)	
Felling		4,113	1,975	0	8,747	Trees
Extraction		1,595	2,575	1,443	6,759	Trees
Processing	Billets	240.53	248.29	102.25	693.55	m^3
	Poles	62.22	86.41	48.12	251.99	m^3
	Saw logs	7.35	9.98	1.39	20.82	m^3
	Total	310.10	343.68	151.76	966.36	m^3

1.3 Economic aspects

The following sales were realised in 2016

Poles	Length (m)	#	Value (GHC)
	10	157	38,739.75
	9	347	65,236.00
	8	8388	59,267.00
	7	300	35,250.00
Billets	2.35	12671	204,715.84
			403,208.59

1.4 Social benefits

Number of people (partially) dependant on the plantation

A social evaluation was conducted in 2016 in the communities around the plantation. In these communities a total of 1038 people live (data 2014).

Number of people per community

Community	Number of inhabitants	Off or On Reserve	Work at Form Ghana
Yaa-Danso	150	Off	5

Atrensu	35	On	n/a
Nkubem	90	Off	5
Libya	40	On	5
Joe-Nkwanta	350	Off	70
Amponsakrom	120	Off	50
Atinga	0	On	0
Second Tower hamlet	3	On	0
Meta	250	Off	35
Total	1038		170

To see how the company is embedded in these villages the impacts, concerns and expectations of the communities were identified together with them in 2015.

Community impacts, expectations and concerns 2016

Community	Positive impacts	Expectation	Concerns
Atrensu (fr)*	Reduction in bush fire occurrences that previously destroyed their crops. Now have good road to transport food crops and other stuff Some of their inhabitants are employed by the company.	Need School building, Need toilet facility Portable water	Source of water usually dries up during prolonged dry season.
Nkubem (ofr)**	Employment for community members	Pipe borne water, electricity poor road network needs to be fixed	-
Libya (fr)*	Employment during fire season, contract weeding	Employment	-
Joe-Nkwanta (ofr)**	Employment for youth	Permanent employment for the youth Need school building Poor road network hence needs assistance	No land to farm
Amponsakrom (ofr)**	employment for community members	poor road network hence needs assistance Need Pipe borne water or bore hole School	-
Sreso/Konkomba (ofr)*	Reduction in bush fire Good road condition to transport food items	Need School building (two classroom blocks have been built by the community for the younger ones who cannot go to Akumadan on foot) community needs further assistance from company. Need Bore hole/ pipe borne water Need toilet facility	Due to the good nature of the road cars and motor bikes drive at high speed risking the lives of the children in the community.
Meta (ofr)*	Some community members employed by	Need clinic in the community pipe borne water since there	-

	the company.	is only one bore hole in the community Poor road network hence needs assistance	
Nsukuasua (ofr)*	The forest will help bring back animals (snails, etc) and rainfall	To be provided with good roads Need school building (school children walk long distances to school at Akumadan) Need pipe borne water/ Bore hole Need toilet facility, electricity Need clinic facility	Poor road network Poor nature of drinking water

Communication with Project Company

Community	Company accessibility	Information transfer
Atrensu (fr)*	The company opens its doors to us when we have issues of concern	Information is given to community members through group discussions in the community
Nkubem (ofr)**	Community members have access to the company to send their concerns	Means of information transfer is good
Libya (fr)*	Access company through security at tower 3 and security patrol	Transfer of information is good
Joe-nkwanta (ofr)**	Access to company is good	Information transfer through group discussion is good
Amponsakrom (ofr)**	Community members are allowed access to transport their farm produce	Information delivery is good
Sreso/Konkomba(ofr)*	Community members are welcomed to bring their views and concerns to the company Security assists us when we get to the company premises	Communication with the company has improved Form Ghana Limited communicates with community members through group discussion
Meta(ofr)*	Access to the company is good	Transfer of information to the community is encouraging
Nsukuasua (ofr)*	Access to company is good. Company assists as in burning our farms	Information delivery is good

1.4.1 Information to the public

One stakeholder meeting was organised in Akumadan. The main subjects discussed were fire in the plantation, the possibility for people to do intercropping in Tain II Forest reserve and the public ablution facilities that Form Ghana want to construct at Akumadan.

Form Ghana has signed an intercropping agreement with 7 people in 2016. In 2015 the number was 25. This number is going down now as the plantation is maturing and most of the terrain is now under canopy cover.

1.4.2 Training and capacity building

Fire education was given in and around the Form Ghana areas. As the use of fire has become part of their lifestyle, all communities were advised to use fire with great caution. Loss of soil fertility due to fire is widespread as farmers are compelled to use chemical fertilizer to augment crop yields. Community members were advised not to leave any fire unattended, even before leaving farms for their homes. Recalcitrant members are to be reported to the appropriate authorities for sanctioning and redress. Farmers can ask for free assistance of Form Ghana on fire issues when needed during land preparation.

In general, the communities expressed great appreciation for the collaboration during the yearly fire education program in the communities and also promised to keep fire out of the communities and the forests.

Workers and management of Form Ghana have been trained on various subjects such as the use of phytosanitary products, the application of first aid, firefighting, nursery techniques, plantation techniques, use of the chain saw, monitoring, GIS mapping and FSC. The following trainings were provided in 2016:

Training at Form Ghana in 2016

TRAINING SUMMARY - 2016		
DATE	TOPIC	PARTICIPANTS
14-jan	Social Monitoring	4
5-apr	Mankar TRAINING	6
25-apr	Stump Uprooting & Stump Cutting	16
9-mei	Vehicle Safety Checks/Inspection	14
15-16 June	*IFRS Update Training*	2
28-jun	*Grievance Redress Mechanism*	3
30-jun	*Grievance Redress Mechanism*	All Permanent Workers
4-jul	*The Ten Commandments of Good Safety Habits*	All Permanent Workers
12-jul	*Waste Management*	16
11-jul	*Seven Common Accident Causes*	All Permanent Workers
18-jul	*Good Personal Hygiene*	All Permanent Workers
19-jul	*First Aid Training*	8
22-jul	*First Aid Training*	18

TRAINING SUMMARY - 2016		
DATE	TOPIC	PARTICIPANTS
25-jul	*Waste Management*	2
25-jul	*Boils*	All Permanent Workers
2-aug	*Waste Management*	6
17-aug	*HIV/AIDS and Awarness Counselling*	4
22-aug	*Dehydration*	All Permanent Workers
19-aug	*HIV/AIDS and Awarness Counselling*	13
23-aug	*Minimizing the spread of Flu at the work place*	All Permanent Workers
13-sep	*Malaria*	All Permanent Workers
26-sep	*Domestic Fire*	All Permanent Workers
19-sep	*First Aid*	All Permanent Workers
27-sep	*Chemical weeding using Knapsack and Manker*	18
28-sep	*How to stop bleeding and Bandaging*	All Permanent Workers
28- Sept.	*Personal hygiene*	23
28-sep	*Waste Management*	2
30-sep	*HIV/AIDS awareness Training*	All Permanent Workers
30-sep	*Mankar Spraying system*	10
27-okt	*FSC Protocol*	10
7-nov	*First Aid Training*	11
11-nov	*Boil*	25
14-nov	*Snake Bite*	All Permanent Workers
14-nov	Forest Fire Fighting and Prevention Training	16
14-nov	*Seven Common Accident Causes*	24
16-nov	Chainsaw Operators Training	10
16-nov	*Bakki Sakki Operators*	6
16-nov	*Headache*	All Permanent Workers
24-nov	*Cough*	All Permanent Workers
26-nov	*Conjunctivitis (Apollo)*	9
28-nov	*Forest fire fighting and prevention*	30
30-nov	*Dehydration*	All Permanent Workers
30-nov	*Wound Dressing*	14
20-dec	*Fire Extinguisher Training*	21

1.4.3 Size of the work force

The number of people in permanent employment has reduced slightly. Less weeding is required which clearly translates in the hiring of less casual labourers The number of permanent employees was 126 in 2016 and 134 in 2015 (see table 6).

Employees hired by Form Ghana

Contract	2010	2011	2012	2013	2014	2015	2016
Permanent	127	173	182	142	135	134	126
Casual	300	400	224	289	268	134	201
Total	427	573	406	431	403	268	327

1.4.4 Worker health / accidents on the work floor

Form Ghana has an agreement with the national Health Insurance Company of Ghana, insuring all permanent workers of free access to medical care. An onsite professional nurse assists people not feeling well or injured in the plantation. The nurse can assess the persons, treat them if it is a simple problem or forward them to the hospital in Akumadan or Techiman. The nurse is also responsible for the renewal of the first aid training and for checking the contents of the first aid boxes.

Dispensary use over the years and per person

Year	2011	2012	2013	2014	2015	2016
Workers	573	406	431	403	268	327
Medical attention	1352	1192	971	1163	934	952
Interventions / person	2,4	2,9	2,3	2,9	3.4	2.9

During 2016, medical treatment has been issued 952 times in Akumadan, which is slightly more than the 934 times in 2015. The number of treatments per person has gone down to about 2.9 times per person. The main disease encountered on both locations is malaria. After malaria (135), most treatments were given to people with musculoskeletal pain (128), and cough (121). Typical work related injuries were reported 13 times which is up from 2015 (9 times reported).

1.5 Conclusions

- The annual rainfall was highest (1390 mm) in 2010, decreased in 2011 and decreased again (984mm) in 2012. In 2013, rainfall increased again to 1118mm and in 2014 to 1191 mm. In 2016 it was down to 912 millimetres which is very low.

- Growth in the pilot has slowed down during the last year. It is expected the thinning will have a positive effect.

- The activities of Form Ghana have a positive effect on the availability of paid employment in the region. It is perceived as aiding significantly to the restoration of the forest and its various services.

APPENDIX 1: FORM GHANA PLANTATION DEVELOPMENT