

EVALUATION OF SADA-ACICL AFFORESTATION PROJECT



Draft Final Report

**FACULTY OF RENEWABLE NATURAL RESOURCES,
UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE**

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Executive Summary

Planting trees is a novel idea especially in vulnerable environments like the savanna woodlands that characterize the SADA catchment area. SADA envisions a forested and green North intended to achieve climate mitigation and economic prosperity. This report validates or otherwise the activities provided in the ACI Construction Limited's report on the status of the SADA afforestation project, which would also be used as basis for future monitoring and evaluation of the project. The main tasks were to;

1. Determine the percentage survival of planted species on various plantations
2. Ascertain the silvicultural and management practices implemented in the plantations.
3. Determine acreages planted on various plantations
4. Verify the performance of contractors engaged on the projects.

A total of 145 plantations were surveyed in all the four afforestation zones encompassing 45 political districts in 5 regions. Eight tree species were planted in the various operational zones namely; *Tectona grandis*, *Senna siamea*, *Albizia lebbek*, *Khaya senegalensis*, *Mangifera indica*, *Anacardium occidentale*, *Eucalyptus spp.* and *Moringa oleifera*. The average percentage survival of all the planted species in the SADA plantations were very high (85%) with the highest (88%) recorded in the Eastern Zone and the least (76%) in the Southern Zone. The Western Zone had the highest acreage of 204 ha while the Central Zone had the least of 140 ha. Management practices employed in the plantations include fencing in a few cases and construction of fire belts. Two main cultural practices were used namely; beating up and weeding. Overall ACI Construction Limited performed creditably and adhered mostly to the terms of agreement of the contract between the former and SADA.

However the project has several challenges including irregular weed control on the plantations, destruction of plantations by livestock, difficulties in recruitment, absence of fire belts, insufficient supply and untimely delivery of seedlings, insect pests infestation, irregular planting distance, inadequate supervision, irregular attendance of field assistants, worn-out tools and equipment, problems with land acquisition and ownership of plantations and poorly placed and inadequately labeled billboards.

The following recommendations are proposed for consideration;

- i. Recruitment of project and field assistants/beneficiaries should be transparent and based on competence to ensure effective and successful implementation of the afforestation project. The field assistants should be recruited from the communities in which the plantations occur to satisfy the objective of job creation and livelihood enhancement at the community level.
- ii. The number of field assistants engaged on each plantation should commensurate with the size of land under cultivation.
- iii. The project must demonstrate gender equity by ensuring that female field assistants are equally employed for the enhancement of rural livelihoods as envisaged by the proponents of the project.
- iv. The use of *Eucalyptus* spp should be encouraged in waterlogged areas rather than *Cassia siamea*. It is stressed that site-species matching must be fundamentally pursued
- v. Due process must be followed in the acquisition and documentation of land earmarked for the plantations and the ownership of the plantations must also be clearly defined.
- vi. Presently all the plantations are community-based. It is being emphasized that private individuals and corporate participation should be encouraged to fulfill the national public-private partnership agenda.
- vii. Based on the phase of development of the afforestation project, successes achieved so far and the preparedness of ACICL, it is being suggested that ACIC Limited be allowed to continue providing the technical and management support for the project until the plantations are well established..

Project Evaluation Team

Prof. S.K.Oppong	Team Leader
Mr. W.J. Asante	Team member
Mr. D.Tom-Dery	Team member
Mr. B.N. Baatuuwie	Team member

Contact

Department of Forestry and Forest Resources Management
Faculty of Renewable Natural Resources
University for Development Studies
P. O. Box TL 1882
Nyankpala Campus, Tamale.

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1.0 Introduction

The cultivation and nurturing of fast-growing and woody trees to protect mainly water bodies and rejuvenate a rapidly depreciating forest cover across the Savannah Accelerated Development Authority's (SADA) project area does not only mitigate climate change but also create jobs for several idle youth. Ghana in recent years has experienced a sharp decline in the forest cover which has brought in its wake several attendant environmental problems. The situation is exacerbated in the northern savannas, including the three northern regions, parts of the Volta Region and the northern part of the Brong Ahafo Region.

The Savannah Accelerated Development Authority is mandated to implement programmes and projects that will propel and sustain the socio-economic and environmental development of the SADA enclave. As part of her development agenda, SADA has embarked on an afforestation project to enhance environmental sustainability and improve the livelihoods of the inhabitants of the project area. This activity is being implemented with a strategic partner, the ACI construction company.

This document aims at validating activities listed in the ACI construction's Ltd report sent to SADA and to confirm or otherwise indicate the status of the SADA afforestation project to date. Specifically the terms of reference for the evaluation of the project are to;

1. Determine the percentage survival of planted species on various plantations
2. Ascertain the silvicultural and management practices implemented in the plantations.
3. Determine acreages planted on various plantations
4. Verify the performance of contractors engaged on the project.

The findings and recommendations provided in this report shall serve as the basis for future monitoring and evaluation of the afforestation project.

2.1 Field study

The SADA afforestation programme area is categorized into four operational zones namely Central Zone, Eastern Zone, Western Zone and the Southern Zone (Fig. 2). The Central Zone has plantations mainly in Northern region while the Western Zone has plantations in the Northern and Upper West regions. The Eastern Zone also has plantations in Northern and Upper East regions while the Southern Zone has plantations in Northern, Brong-Ahafo and Volta regions.

All afforestation sites visited were mapped using GARMIN GPSMAP 62 device to determine the acreages planted. Three 30×30m plots were laid at random in each plantation and all plants within the plots were counted to estimate the percentage survival of the various species planted. Observations of the management and silvicultural practices were also made on the fields. A questionnaire was administered to Project Assistants and Zonal Coordinators to ascertain the management and silvicultural practices employed on these planted fields. Other information like staff strength as well as challenges militating against the implementation of the project was solicited using questionnaire.

2.2 Desk study

Secondary data were gathered from both SADA and ACI Construction Limited. Monthly reports and others such as staff payment schedules and terms of agreement between SADA and ACI Construction Limited were obtained from the latter. SADA also provided the ACICL's report on the afforestation project and list of all afforestation sites.

2.3. Data analysis

The seedling survival and questionnaire data were subjected to descriptive statistics such as percentages. They were also tabulated as well as constructed into graphs. The GPS data points were also tabulated with other data such as species and acreages planted. The GPS coordinates were analysed using ArcGIS software and converted into maps for all the communities surveyed.

3.0 Findings

3.1 Central Zone

Thirty-two (32) plantations in the Central Zone (Northern Region) were assessed. A total of five tree species have been planted using mainly stumps and seedlings. These species include: *Tectona grandis* (Plate 1b), *Senna siamea* (Plate 1a), *Albizia lebbbeck*, *Khaya senegalensis* and *Mangifera indica* (Plates 1b). A point map indicating the locations of these plantations is shown in Fig. 2.



Plate 1a: *Senna siamea* at Zamanshegu



Plate 1b: *Tectona grandis* at Pishegu



Plate 1c: Mango planted at Kamina barracks

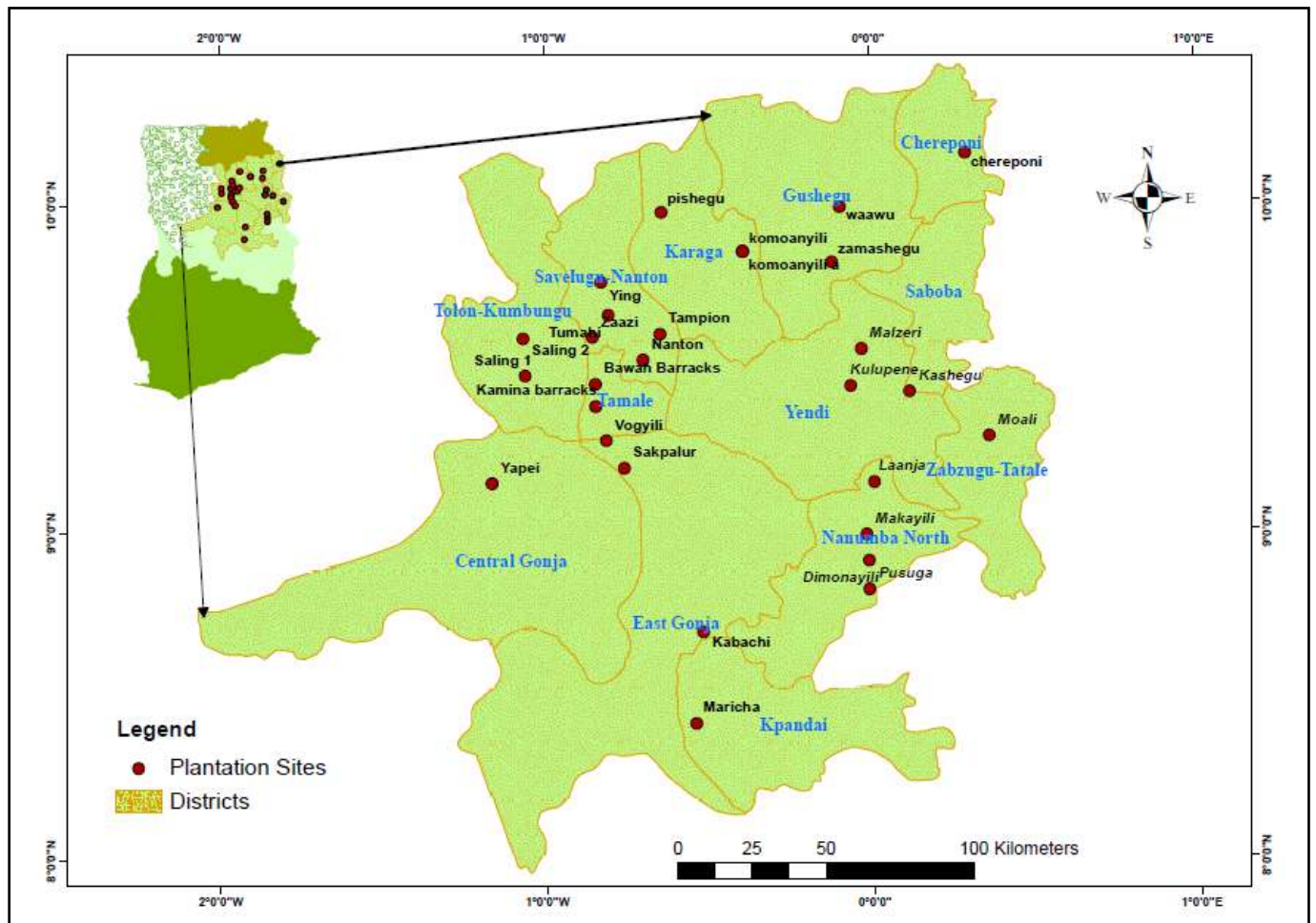


Figure 2: Evaluated plantations in the Central Zone of the SADA-ACICL afforestation project.

3.1.1 Percentage survival of planted trees

The Central Zone had an average percentage survival of 78 for all planted trees. However; individual planted species had varying percentage survival levels at the various communities (Figure 3). *Senna siamea* (Cassia) had the highest average percentage survival of 86. The plantation in Kulkpene had the highest percentage survival for Cassia (98%) while those of Kumbungu No.1 (Saling 1) and Saling 2 had the least of 54% survival.

Tectona grandis (Teak), the most encountered tree species had an average percentage survival of 80 and the highest survival of 98% at Malzeri. Mariche plantation had the least (38%) percentage

survival for teak. *Mangifera indica* (Mango) was encountered at only one location (Kamina barrack) with percentage survival of 70.

Albizia lebbbeck was also encountered in only two communities (Makayilli and Pusuga) and had an average percentage survival of 79 while *Khaya senegalensis* (Mahogany) the only indigenous species was planted in four communities and had an average survival of 75%. The planted species in the various communities visited with their survival levels and year of planting are presented in appendix 3.

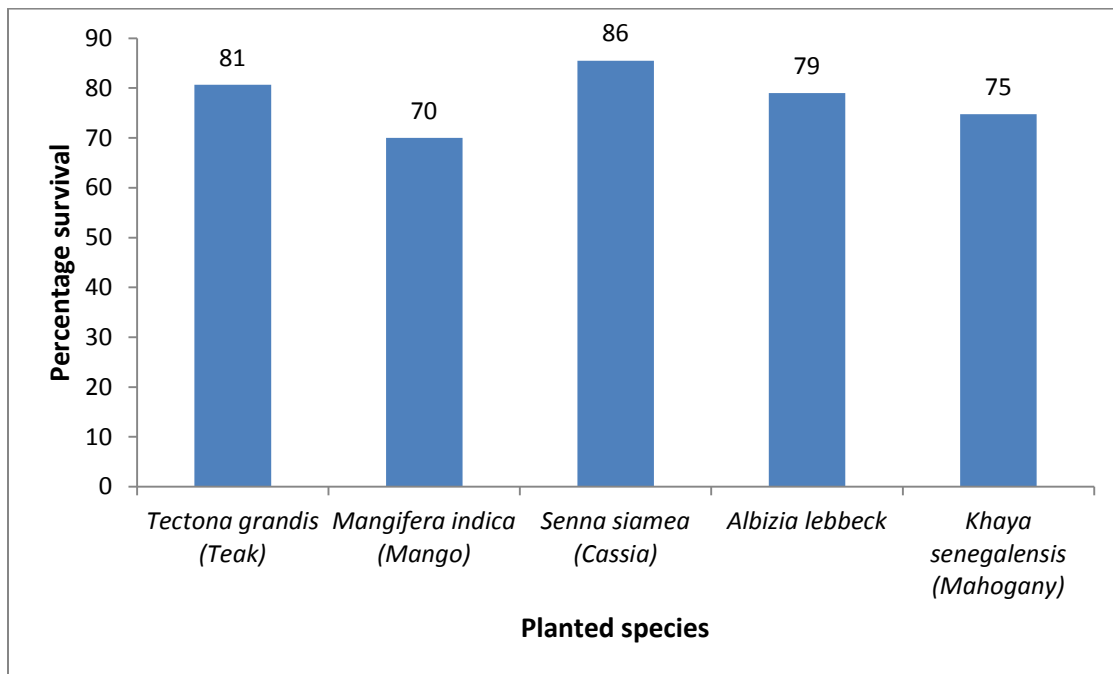


Figure 3: Average percentage survival of planted tree species

3.1.2 Acreages Planted

A total plantation area of 149.5 Ha was mapped in the communities visited in the Central Zone (Table 1). The average plantation area mapped is 4.7 ha with minimum and maximum areas of 1 ha and 14 ha respectively.

Table 1: Mapped acreages of plantation areas and species planted

Community	Location(Degree)	Species	Mapped area(Ha)
BAWA BARACKS	09.53428N, 000.85076W	<i>Tectona grandis</i> ,	14.0
KAMINA BARRACK1	0 9.468419N, 000.850242W	<i>Tectona grandis</i>	9.0
KAMINA BARRACK 2	09.470355N, 000.849274W	<i>Mangifera indica</i>	7.0
KAMINA BARRACK 3		<i>Mangifera indica</i>	3.0
KOMOAYILI (1)	09.85207N, 000.39181W	<i>Senna siamea</i>	3.4
KOMOAYILI (2)	09.85144N, 000.39062W	<i>Tectona grandis</i> ,	2.6
ZAMANSHEGU	09.81666N, 000.11680W	<i>Tectona grandis</i> ,	1.0
		<i>Senna siamea</i>	
WAAWU A	09.98478N, 000.09157W	<i>Tectona grandis</i> ,	5.8
		<i>Khaya senegalensis</i>	
WAAWU B			1.6
PISHEGU	09.97124N, 000.64073W	<i>Tectona grandis</i>	9.6
NYANGEOLA	09.96980N, 000.50085W	<i>Tectona grandis</i>	5.7
CHEREPONI	10.14697N, 000.29457E	<i>Tectona grandis</i>	5.0
KUMBUNGU NO. 1 (SALING 1)	09.56457N 000.93693W	<i>Senna siamea</i> ,	6.0
		<i>Khaya senegalensis</i>	
SALING 2	09.56800N 000.93806W	<i>Khaya senegalensis</i>	3.6
ZAAZI	09.58617N 000.87047W	<i>Senna siamea</i> ,	5.7
		<i>Khaya senegalensis</i>	
YING	09.67037N 000.82128W	<i>Senna siamea</i>	6.0
TUMAHI	09.56468N 000.78952W	<i>Senna siamea</i> ,	5.0
		<i>Khaya senegalensis</i>	
NANTON	09.56069N 000.73722W	<i>Tectona grandis</i> ,	3.0
		<i>Senna siamea</i>	
TAMPION	09.57446N 000.68534W	<i>Tectona grandis</i> ,	2.7
		<i>Khaya senegalensis</i>	
YAPEI	09.14768N 000.16453W	<i>Tectona grandis</i> ,	5.7
		<i>Senna siamea</i>	
VOGEYILI	09.28453N 000.81418W	<i>Tectona grandis</i>	2.8
SAKPALUA	09.245511N 000.80892W	<i>Tectona grandis</i>	3.6
KABACHE	08.69114N 000.51868W	<i>Senna siamea</i>	5.5

MARICHE	08.41185N 000.54071W	<i>Tectona grandis,</i> <i>Khaya senegalensis</i>	2.7
KULPKENE/ DARKU	09.43867N, 000.06177W	<i>Senna siamea</i>	5.3
MALZERI	09.48836N, 000.02822W	<i>Tectona grandis,</i> <i>Senna siamea</i>	3.4
PUSUGA	08.92751N, 000.01354W	<i>Albizia lebbbeck</i>	1.2
DIMONAYILI	08.93805N, 000.00787W	<i>Tectona grandis</i>	3.0
MOALI	09.28467N, 000.36311E	<i>Tectona grandis,</i> <i>Senna siamea</i>	5.9
LANJA	9.145 W, 0.008 E	<i>Tectona grandis</i>	3.0
KAMSHEGU	09.42056N, 000.11897E	<i>Tectona grandis</i>	3.7
MAKAYILI	008.98660N, 000.01512W	<i>Tectona grandis,</i> <i>Albizia lebbbeck</i>	4.0
TOTAL AREA			149.5

3.1.3 Management and Cultural practices

The management practices employed presently were fencing in a few plantations and the use of fire belt. However most field assistants indicated their intention of creating fire belts before the drought begins.

The two main cultural practices employed were beating up (planting to replace dead seedlings) and weeding. Different communities employed different weeding methods such as whole field weeding, weeding along planted rows and ring weeding (Plate 2a to 2c). It was also observed that the use of herbicides in weed control is becoming popular in some areas. Watering is also employed in some communities.



Plate 2a: Weeding along planted row of *Senna siamea*



Plate 2b: Ring weeding of *Tectona grandis*



Plate 2c: Whole field weeding of *Tectona grandis*

4.1.4 Project staff

A total of 577 beneficiaries were enumerated in the Central Zone. The visited plantations in the Central Zone have one coordinator and 11 field assistants (Table 2).

Table 2 Number of staff enumerated at the various plantations assessed in the Central Zone and training activities of ACICL

COMMUNITY	No. of Staff	Male	Female	Qualification of PA	Training from ACICL
BAWA BARACKS	42	41	1	BSc. Agric Tech.	Site selection, choice of seedlings, fire protection, species spacing
KAMINA BARACKS	21	18	3	BA. Sociology	Boundary demarcation, species spacing
KOMOAYILI A & B	21	17	4	BSc. Agric Tech.	Site selection, planting, report writing, community entry, lining and pegging
PISHEGU	21	19	2	"	Species selection, Species spacing, community entry report writing
ZAMANSHEGU	21	21	0	MSc. Economics	Pegging, Species spacing, Report writing, plantation management
WAAWU	21	20	1	"	"
NYANGEOLA	20	16	4	"	"
CHEREPONI	43			Dip. (Education)	Pegging, Report writing
KUMBUNGU NO. 1	25	25	0	Mphil (Post-harvest)	Lining and pegging, planting, report writing
ZAAZI	10	10	0	BSc. Forestry	Site selection, planting, report writing, community entry, lining and pegging
YING	25	15	10	"	"
TUMAHU	14	14	0	"	"
NANTON	12	12	0	"	"
TAMPION	8	8	0	"	"
YAPEI	20	12	8	BA. Social Science	Lining and pegging, planting, report writing, mulching.
VOGEYILI	10	10	0		
SAKPALUA	15	12	3		

TAMALE GIRLS	0	0	0		Lining and pegging, seedling management.
KABACHE	20	19	1		Lining and pegging, seedling management and fire belt creation.
MARICHE	20	20	0		Lining and pegging, seedling management and fire belt creation.
PUSUGA	12	12	0	BSc. Nat. Resources Management	No training
DIMONAYILI	8	8	0	"	"
MAKAYILI	20	20	0	"	"
MOALI	40	30	10	"	"
LANJA	15	15	0	"	"
KAMSHEGU	24	24	0	Degree Holder	"
MALZERI	30	28	2	"	"
KULKPENE	39	38	1	"	"
Totals	577	484	50		

3.2 Southern Zone

Twenty-six (26) plantations in the Southern Zone (parts of Brong Ahafo Region, Volta Region and Northern Region) were assessed. Only two tree species were planted using mainly stumps and seedlings. The species are *Tectona grandis* and *Senna siamea*. A point map indicating the locations of these plantations is illustrated in Fig. 4 below.

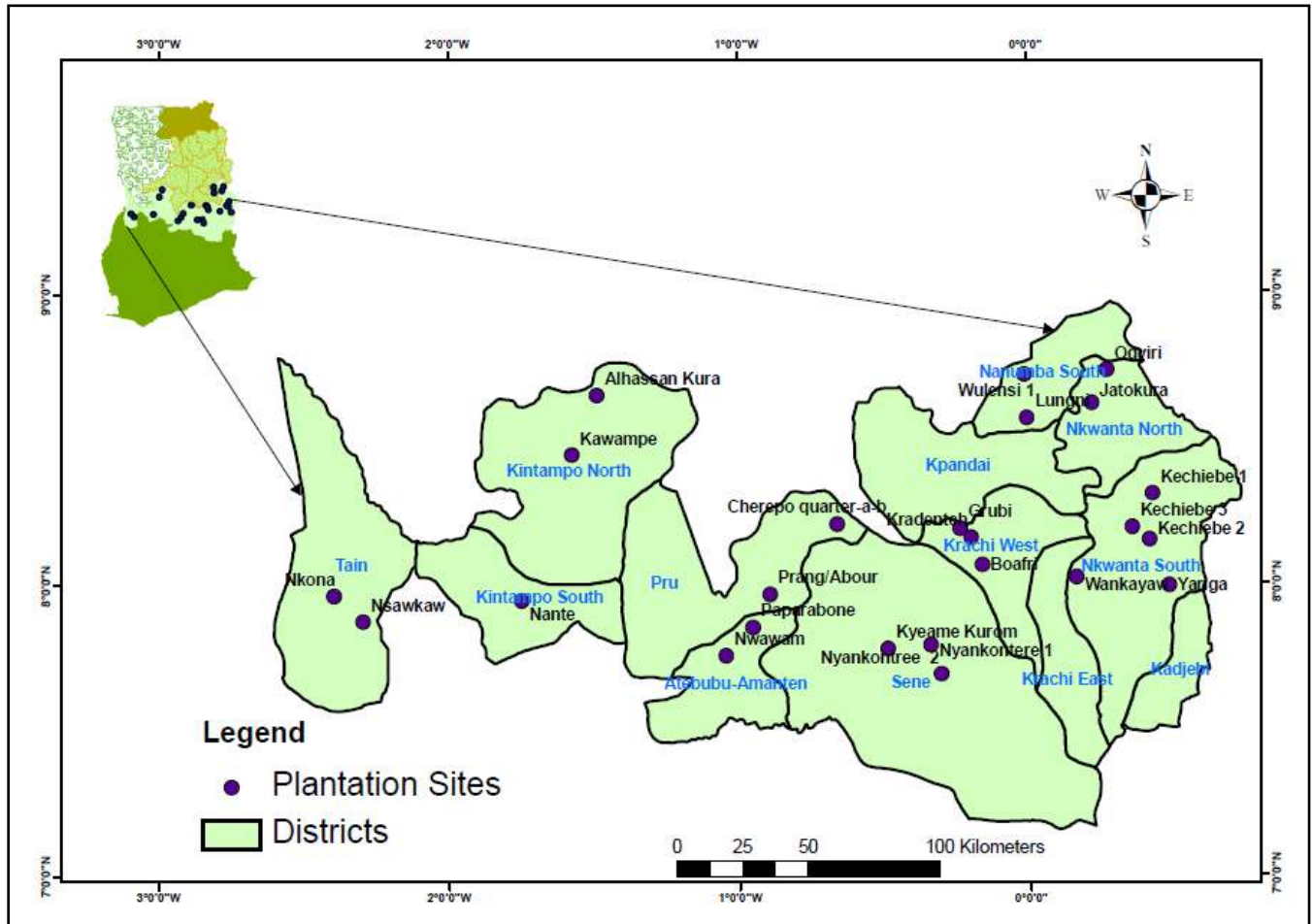


Figure 4: The distribution of plantations in the Southern Zone

3.2.1 Percentage survival of planted trees

The Southern zone had an average percentage survival of 75 for all planted tree species. The individual plant species had varying average percentage survival at the various communities surveyed (Appendix 4). Unlike the central zone, *Tectona grandis* (Plate 3a & b) had the highest percentage survival of 82 while *Senna siamea* (Cassia) had an average survival (62%).

With the exception of two communities, Teak was the only species planted with highest percentage survival rate (98) recorded at Kradenteh and the least (25) was recorded at Cherepo quarters.



Plate 3a: *Tectona grandis* at Ogyiri



Plate 3b: *Tectona grandis* at Nwawam

3.2.2 Acreages Planted

A total plantation area of 144.89Hawas mapped at the communities visited in the Southern Zone (Table 2). The average plantation area mapped is 5.57 ha with minimum and maximum acreages of 0.40 ha (Kechiebi 3) and 20.87 ha (Cherepo quarters) respectively (Table 2).

Table 3: Actual Acreages of plantation areas and species planted

COMMUNITY	Location (Degrees)	Species planted	Mapped Area(Ha)
KAWAMPE	08.44701N,001.57518W	<i>Tectona grandis</i> , <i>Senna siamea</i>	13.03
NANTE	07.94715N,001.74857W	<i>Tectona grandis</i>	19.84
NSAWKAW	07.87592N,002.29605W	<i>Tectona grandis</i>	2.68
NKONA	07.90774N,002.34671W	<i>Tectona grandis</i>	5.14
PAPARABONE	07.85334N,000.95293W	<i>Tectona grandis</i>	3.54
KYEAME KUROM	07.77808N,000.48767W	<i>Tectona grandis</i>	2.55
NWAWAM	07.79927N,001.00991W	<i>Tectona grandis</i>	5.17
NYANKONTERE 1	07.79100N,000.33962W	<i>Tectona grandis</i>	2.77
NYANKONTERE 2	07.77919N,000.33100W	<i>Tectona grandis</i>	2.80
PRANG/ABOUR	07.96684N,000.89279W	<i>Tectona grandis</i>	15.76
CHEREPO QUARTERS	08.20665N,000.66119W	<i>Tectona grandis</i>	20.87
KPANDAI SECONDARY	08.47770N,000.0399W	<i>Tectona grandis</i>	3.05
LUNGNI	08.56813N,000.00446W	<i>Tectona grandis</i>	2.94
WULENSI 1	08.64635N, 000.01326W	<i>Tectona grandis</i>	4.33
WULENSI 2	08.64799N,000.00907W	<i>Tectona grandis</i>	0.47
OGYERI	08.71918N,000.18818W	<i>Tectona grandis</i>	5.65
JATOKURA	08.65330N,000.20808W	<i>Tectona grandis</i>	1.88
KECHIEBE 1	08.26371N,000.44008E	<i>Tectona grandis</i>	2.80
KECHIEBE 2	08.19230N,000.34511E	<i>Tectona grandis</i>	3.52
KECHIEBE 3	08.19225N,000.35654E	<i>Tectona grandis</i>	0.41
BOAFRI	08.06497N,000.16204W	<i>Tectona grandis</i>	2.18
GRUBI	08.19002N,000.23792W	<i>Tectona grandis</i>	2.97
KRADENTEH	08.15944N,000.19932W	<i>Tectona grandis</i>	2.27
YARIGA	08.05891N,000.25117W	<i>Tectona grandis</i>	2.24
WANKAYAW	08.02149N,000.16351W	<i>Tectona grandis</i>	8.29
ALHASSAN AKURA	08.70790N,001.49563W	<i>Tectona grandis</i> , <i>Senna siamea</i>	7.75
Total			144.89

3.2.3 Management and Cultural practices

Taungya was practiced on some plantations (Plate 4a and b). The use of fire belts and beating up (Plate 5a &b) were the only management practice employed at the moment in the Southern Zone. Most field assistants indicated their intention of creating fire belts before the drought.



Plate 4a: Taungya practised at Nsawkaw



Plate 4b: Reforestation of Bosomoa Forest Reserve at Nante

The two main cultural practices employed were beating up, and weeding. Different communities employed different weeding methods which included weeding along rows and ring weeding. It was observed that the use of herbicides in weed control is also becoming popular. Watering was also employed in some communities.



Plate 5a: Boundary fencing at Kpandai HighSchool.



Plate 5b: Beating up on 2012 plantation at Grubi

3.2.4. Project staff

In all the 19 plantations visited, 646 staff were enumerated. The Southern Zone is manned by one coordinator and nine (9) project assistants.

Table 4: Number of staff enumerated at the various plantations assessed in the Southern Zone

COMMUNITY	No. of Staff	Male	Female	Qualification of PA	Types of training from ACICL
ALHASSAN AKURA	29	28	1	BSc. Agric. Business	Workshop on plantation establishment, people management skills
BOAFRI	18			Bed. Social Studies	Community entry, Plantation establishment and management
GRUBI	24	23	1	"	
JATO KURA	12	10	2	"	
KAWAMPE	33	20	13	BSc. Integrated Dev. Studies	Plantation establishment and management, Community entry, Site identification,
KECHIEBE	13			MBA in Marketing	
KPANDAI SECONDARY	30	12	18	"	
KRADENTEH	20			"	
KYEAMEKURAA	16	10	6	"	
LUGARI	32	31	1	"	
NANTE	100	52	48	DBS	Establishment of plantation
NKONA	10	2	8	Diploma(Architecture)	Orientation on plantation establishment, Plantation management
NSAWKAW	11	4	7	"	
NYANKONTERE	15	13	2	Middle school	None
OGYIRI	21	19	2	"	Community entry, Plantation establishment and management
PAPARABONE	16	11	5	"	
PRANJI	42	12	30	Dipl.(Education), Certificate in forestry	Plantation establishment and management, Community entry, Site identification,

WANKAYAW	65	35	30	BSc. Political Science	Site selection, Plantation establishment and management
WULENSI	44			None	
WUNWONG	45	21	24	Dipl.(Management studies)	Plantation establishment and management, Community entry
YARIGA	20	12	8	BSc. Political Science	Site selection, Plantation establishment and management
YEJI QUARTERS	30	23	7	Dipl.(Education), Certificate in forestry	Plantation establishment and management,Community entry,Site identification,

3.3 Western Zone

Forty (40) plantation sites in the Western Zone (Northern and Upper West Region) were assessed. A total of six tree species were planted namely; *Tectona grandis*, *Senna siamea*, *Khaya senegalensis*, *Moringa oleifera*, *Anacardium occidentale*, *Eucalyptus spp* (Plate 6). A point map indicating the locations of these plantations is illustrated in Fig. 5 below.



Plate 6a: *Anacardium occidentale* at Toure



Plate 6b: *Khaya senegalensis* at Piisi



Plate 6c: *Eucalyptus* species at Berwong



Plate 6d: *Moringa oleifera* at Chansah

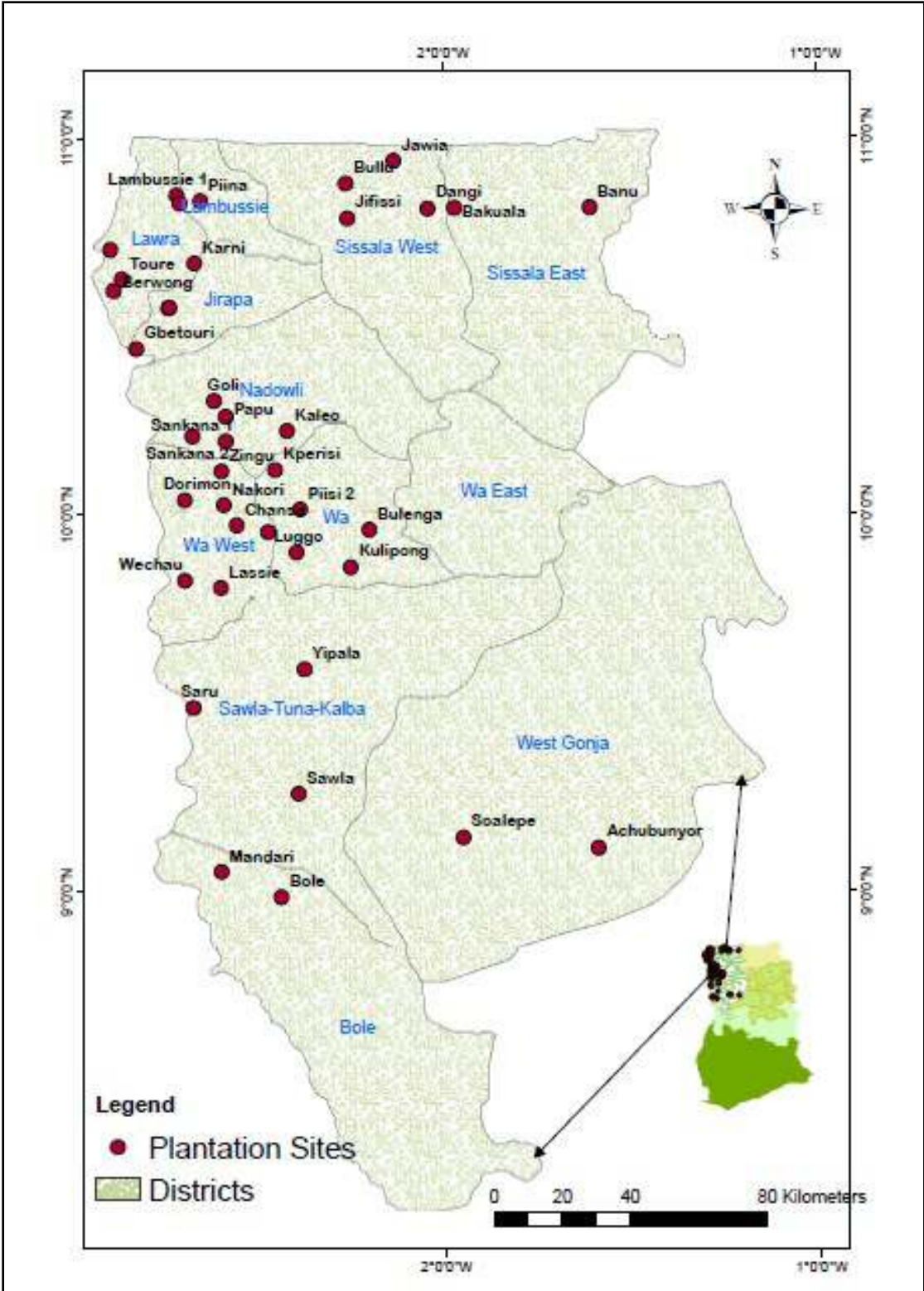


Figure 5: The distribution of plantations in the Western Zone

3.3.1 Percentage survival of planted trees

An average percentage survival of 84% of planted tree species was recorded in the Western zone. Again, individual plant species had varying average percentage survival at the various communities visited (Fig. 6, Appendix 5). *Eucalyptus* spp had the highest average percentage survival (93) while *Moringa oleifera* had the least average percentage survival (77).

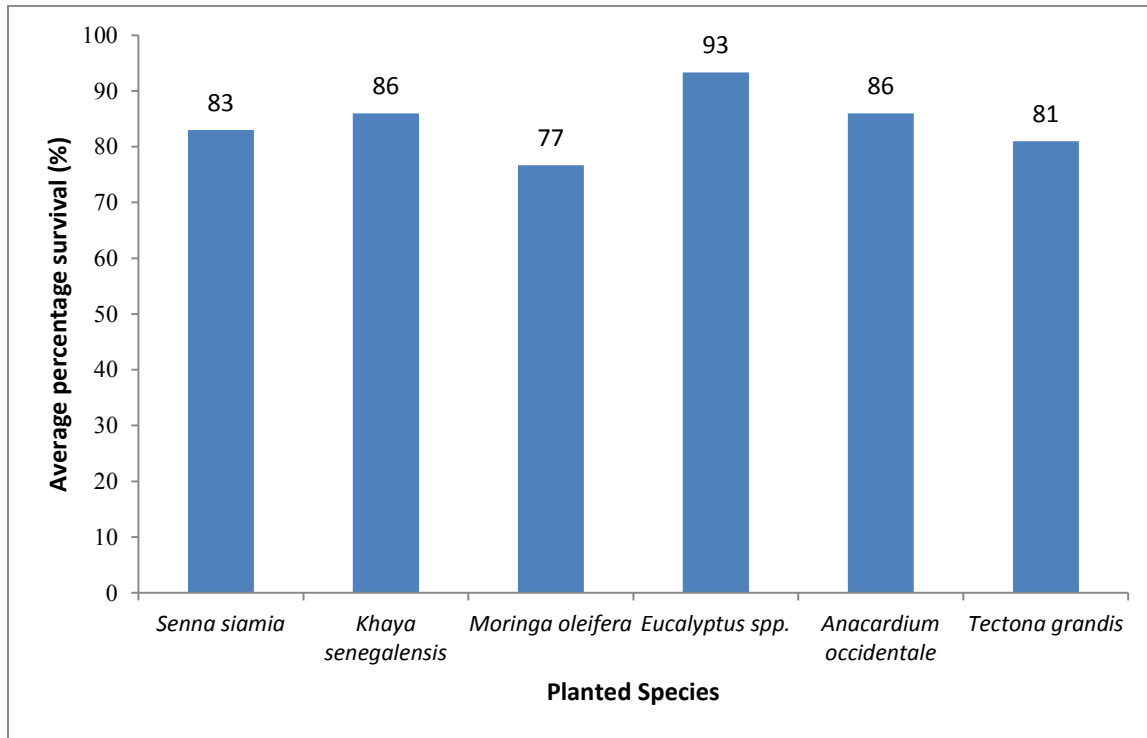


Fig. 6 Average percentage survival of various species in the Western Zone

Senna siamea (Plate 7b) was the most planted species (31 communities) in the Western zone, with the highest percentage survival (95) recorded at Jawia and Bullu while the least (48%) was recorded at Lambussie 1.



Plate 7a: *Tectona grandis* at Gbetouri



Plate 7b: *Senna siamea* at Toure

Khaya senegalensis was recorded in fourteen communities with Berwong having the highest percentage survival of 97 while Lambussie 2 had the least survival of 77%.

Moringa oleifera and *Eucalyptus spp* were planted in only the Chansah and Berwong communities with average percentage survival of 77 and 93 respectively.

Anacardium occidentale was recorded in two communities; Toure and Berwong with percentage survival of 93 and 78 respectively.

Tectona grandis (Plate 7a) was planted in eleven communities with the highest percentage survival of 92 recorded in Toure and the lowest percentage survival of 72 recorded at Tabier.

3.3.2 Acreages Planted

A total plantation area of 204.06 hectares was mapped at the communities visited in the Western Zone (Table 5). The average plantation area mapped was 7.0 ha with minimum and maximum acreages of 1.0 ha (Lambussie 1) and 16.70 ha (Dorimon) respectively.

Table 5: Mapped acreages of plantation areas and species planted

COMMUNITY	LOCATION	SPECIES	Mapped Area(Ha)
Achubunyor	N 09.11414 W 001.67879	<i>Senna siamea</i>	5.7
Soalepe	N 09.09098 W 001.74475	<i>Senna siamea</i>	11.6
Sawla	N 09.25916 W 002.39235	<i>Senna siamea</i>	5.1
Yipala	N 09.58283 W 002.42081	<i>Khaya senegalensis, Senna siamea</i>	6.2
Saru	N 09.48685 W 002.67399	<i>Senna siamea</i>	4.2
Bole	N 09.00966 W 002.48232	<i>Senna siamea</i>	4.4
Madari	N 09.02606 W 002.55476	<i>Senna siamea</i>	5.0
Lassie	N 09.84393 W 002.60170	<i>Senna siamea</i>	4.9
wechiau	N09.82490 W 002.69554	<i>Senna siamea</i>	15.6
Dorimon	N 10.03767 W 002.69584	<i>Senna siamea</i>	16.7
Nokori	N 10.02565 W 002.55305	<i>khaya senegalensis, Senna siamea, Tectona grandis</i>	4.6
Chansah	N 09.99515 W 002.55704	<i>Moringa oleifera, Tectona grandis</i>	3.2
Kperisi	N 10.11809 W 002.46936	<i>khaya senegalensis, Senna siamea, Tectona grandis</i>	3.6
Zingu	N 10.08150 W 002.57774	<i>Tectona grandis</i>	2.7
Piisi 1	N09.95362 w 002.47361	<i>Senna siamea</i>	3.4
Piisi 2	N 09.98834 W 002.42632	<i>Khaya senegalensis, Senna siamea</i>	2.4
Loggu	N 09.90154 W002.35821	<i>Senna siamea</i>	1.9
Kulipong	N 09.85992 W 002.25179	<i>Tectona grandis</i>	4.4
Bulenga	N 09.92603 w 002.20445	<i>Tectona grandis</i>	2.7
Kaleo	N 10.18116 W 002.55194	<i>Senna siamea</i>	7.2
Sankana 1	N 10.19196 W 002.60211	<i>Khaya senegalensis</i>	5.4
Sankana 2	N 10.19463 W 002.59826	<i>Khaya senegalensis</i>	3.2
Papu	N 10.24789 W 002.58609	<i>Senna siamea, Khaya senegalensis</i>	5.6
Goli	N 10.30174 W 002.61772	<i>Senna siamea, Khaya senegalensis</i>	5.7
Gbetouri	N 10.43915 W 002.82684	<i>Senna siamea, Tectona grandis</i>	8.1
Doggohchari 1	N 10.54757 W 002.74028	<i>Tectona grandis</i>	2.9
Doggohchari 2	N 10.54949 W 002.73796	<i>Tectona grandis</i>	1.4
Berwong	N 10.59417 W 002.88674	<i>Tectona grandis, Senna siamea, Khaya senegalensis, Anacardium occidentale, Eucalyptus spp.</i>	5.2
Toure	N 10.62494 W 002.86491	<i>Tectona grandis, Senna siamea, Anacardium occidentale</i>	6.9
Tabier	N 10.70289 W 002.89610	<i>Tectona grandis, Anacardium occidentale</i>	6.0
Lambussie 1	N 10.84740 W 002.71805	<i>Khaya senegalensis, Senna siamea</i>	1.0
lambussie 2	N 10.82637 W 002.70981	<i>Khaya senegalensis, Senna siamea</i>	2.6
Piina	N 10.83234 w 002.69388	<i>Khaya senegalensis, Senna siamea</i>	4.6

Karni	N 10.66678 W 002.67038	<i>Senna siamea</i>	1.7
Jiffissi	N 10.78642 W 002.25961	<i>Senna siamea</i>	2.7
Bullu	N 10.87825 W 002.26399	<i>Senna siamea</i>	5.8
Jawia	N 10.93871 W 002.13437	<i>Senna siamea</i>	4.7
Dangi	N 10.81227 w 002.04338	<i>Senna siamea</i>	4.7
Bakuala	N 10.81330 W 001.97292	<i>Senna siamea</i>	3.1
Banu	N 10.81394 W 001.60903	<i>Senna siamea, Khaya senegalensis</i>	7.0
Total			204.06

3.3.3 Management and Cultural practices

The most common management practice employed in the zone is the construction of fire belts. However some communities also control livestock from entering their plantations by keeping guard on the plantations in turns.

The two main cultural practices employed were beating up, and weeding. Different communities employed different weeding methods which included weeding along planted rows and ring weeding. It was observed that the use of herbicides in weed control is also becoming popular in the communities. Watering was also employed in some communities.

3.3.4 Project staff

In all the 40 plantation sites visited, a total of 493 staff was enumerated (Table 6). The zone is managed by one (1) Coordinator and nine (9) Project assistants.

Table 6: Number of staff enumerated at the various plantations assessed in the Western Zone

COMMUNITY	No. of Staff	Male	Female	Qualification of Project Assistants	Type of training from ACICL
Achubunyor	20	11	9	HND Agriculture	Lining and pegging, demarcation of plots, seedling management.
Soalepe	45	27	18	"	"
Sawla	26	5	21	BSc. Community Nutrition	Lining and pegging, Planting, seedling management.
Yipala	9	7	2	"	"
Saru	10	7	3	BSc. Community Nutrition	Lining and pegging, seedling management, planting
Bole	43	33	10	O Level.	Lining and pegging, seedling management, planting.
Madari	23	13	10	"	"
Lassie	15	8	7	BA. Integrated Dev. Studies	Lining and pegging, seedling management, planting.
wechiau	18	12	6	BSc. Agric. Tech	Lining and pegging, seedling management, planting.
Dorimon	25	18	7	"	"
Ga	0	0			
Nokori	15	13	2	BSc. Agric. Tech	Lining and pegging, mulching, seedling management
Chansah	10	10	0	"	"
Kperisi	17	14	3	"	"
Zingu	10	10		"	"
Piisi 1 &2	11	11		"	"
Loggu	8	6	2	HND Accounting	Lining and pegging, site selection
Kulipong	6	6		"	"
Bulenga	12	12		"	"
Kaleo	9	7	2	BSc. Agric. Tech	Lining and pegging, holing for planting
Sankana 1 & 2	11	6	5	"	"
Papu	8	8		"	"
Goli	11	6	5	"	"
Gbetouri	40	13	27	BA. Sociology	Lining and pegging
Doggohchari					Land clearing, Lining and pegging and hole preparation
1&2	45	33	12	"	

Berwong	10	9	1	"	"
Toure	10	10		none	
Tabier	10	5	5	none	
Lambussie 1&2	5	4	1	NADMO official as project assistant(PA)	Lining and pegging, hole preparation and planting
Piina	15	14	1	NADMO official as project assistant(PA)	Land preparation, lining and pegging, hole preparation
Karni	5	3	2	None	Lining and pegging, hole preparation
Jiffissi	11	9	2	HND Accounting	site selection, initial clearing, lining and pegging
Bullu	16	14	2	"	
Jawia	17	13	4	"	
Dangi	14	13	1	Diploma General Agric.	Lining and pegging, planting and seedling management
Bakuala	13	13		"	Lining and pegging
Banu	15	13	2	"	

3.4 Eastern Zone

Forty nine (49) plantation sites in the Eastern Zone (Parts of Northern and Upper East Regions) were assessed. Four tree species were planted and they include *Tectona grandis*, *Senna siamea*, *Khaya senegalensis* and *Albizia lebbek*. Unlike other zones with single species stands, many of the stands in the Eastern zone are mixed stands. A point map indicating the locations of these plantations is shown in Fig.7 below.

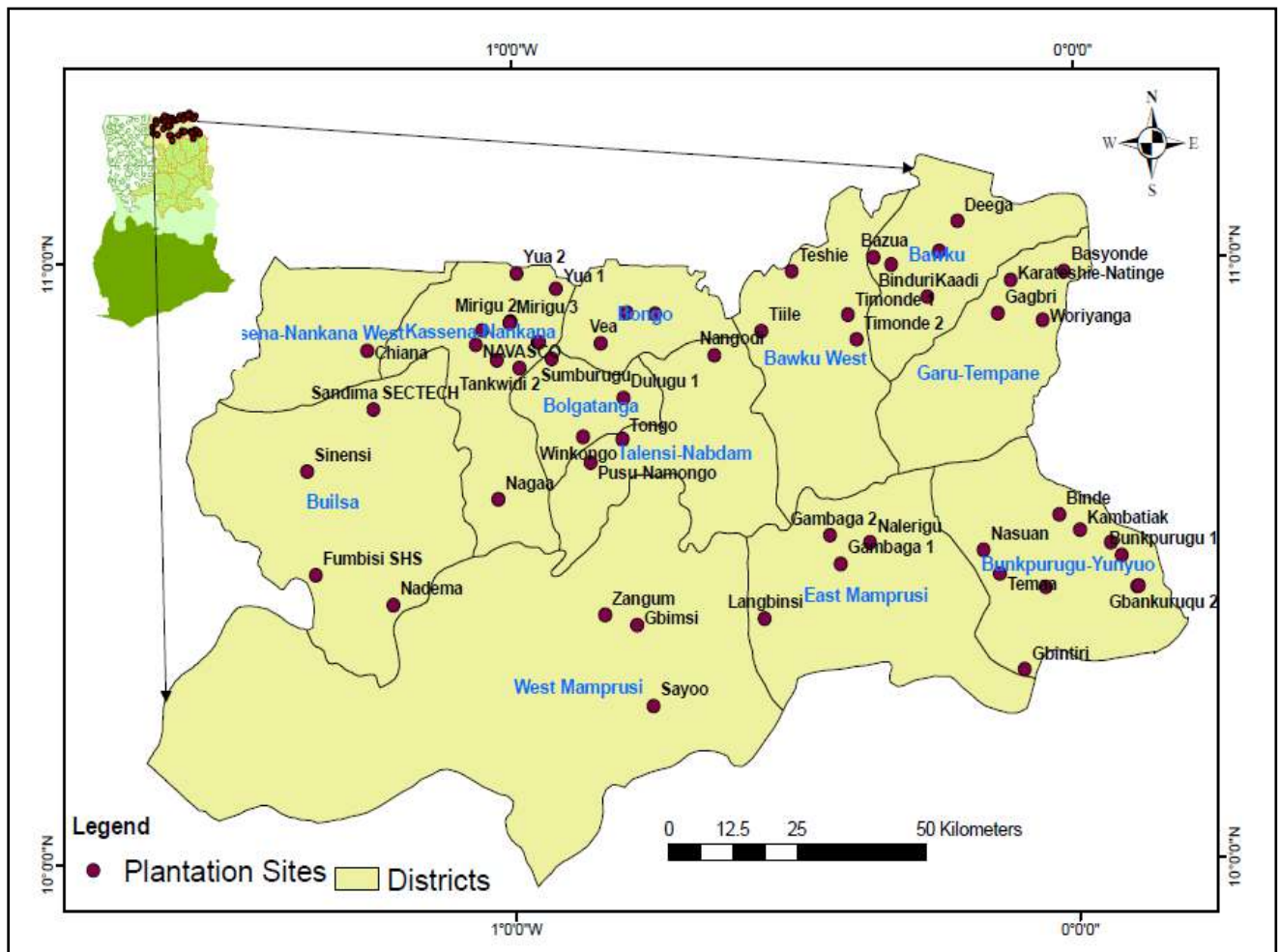


Figure 7: The distribution of plantations in the Eastern zone

3.4.1 Percentage survival of planted trees

The Eastern zone had an average percentage survival of 88. *Tectona grandis* had an average survival of 77(Figure 8) with the Navrongo Senior High School (Navasco) plantation showing the highest percentagesurvival of 87 while Karateshie-Natinge hadthe least survival of 50%.

Albizia lebbeck was planted in only one community, Gbankurugu 2, with percent survival of 93.*Senna siamea* was the most planted species (19 communities) in the Eastern Zone. It had an average survival of 95% with the highest percentage survival recorded at Bongo nursery, Bongo dam and Fumbisi (100) while the least (83%) was recorded at Gambaga assembly.

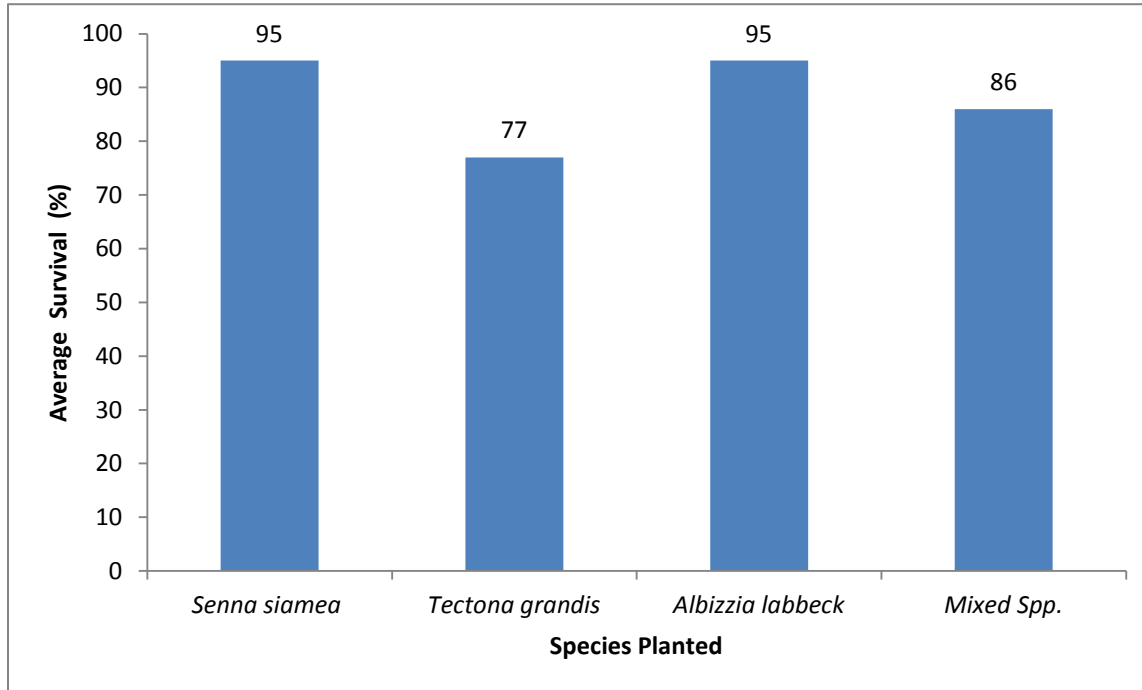


Fig. 8 Average percentage survival of various species in the Eastern Zone

3.4.2 Acreages Planted

A total plantation area of 140 hectares was mapped at the communities visited in the Eastern Zone (Table 7). The average plantation area mapped was 2.79 ha with minimum and maximum acreages of 0.5 ha (Mirigu 2 and Kandiga 2) and 10.62 ha (Binde) respectively.

Table7: Mapped acreages of plantation areas and species planted

COMMUNITY	LOCATION (Degrees)	SPECIES	MAPPED AREA (Ha)
ZANGUM	10.41078N, 000.83865W	<i>Albizia lebbbeck</i>	4.14
SAYOO	10.38634N, 000.78344W	<i>Tectona grandis, Senna siamea</i>	2.28
GBIMSI	10.39361N, 000.78174W	<i>Khaya senegalensis, Tectona grandis</i>	0.73
PUSU NAMONGO	10.66443N, 000.86244	<i>Tectona grandis, Senna siamea</i>	5.00
WINKONGO	10.70383N, 000.86636W	<i>Tectona grandis, Senna siamea</i>	2.30
TONGO	10.70901N, 000.81286W	<i>Sennasiamea</i>	3.80
DULUGU	10.77136N, 000.80317W	<i>Senna siamea</i>	2.06
SUMBRUNGU DAM	10.8256N, 000.95447W	<i>Senna siamea</i>	0.96
TANKWIDI 1	10.83148N, 000.98867W	<i>Tectona grandis</i>	2.57
TANKWIDI 2	10.83515N, 000.98393W	<i>Tectona grandis</i>	2.00
KANDIGA 1	10.86491N, 000.95411W	<i>Senna siamea</i>	2.36
KANDIGA 2	10.86525N, 000.95270W	<i>Senna siamea</i>	0.50
YUA 1	10.97342N, 000.91329W	<i>Senna siamea</i>	0.54
YUA 2	10.99040N, 000.92468W	<i>Senna siamea</i>	0.70
MIRIGU 1	10.90018N, 001.00316W	<i>Senna siamea</i>	1.01
MIRIGU 2	10.89935N, 001.00378W	<i>Senna siamea</i>	0.50
MIRIGU 3	10.89788N, 001.00526W	<i>Senna siamea</i>	0.63
NAVASCO	10.86150N, 001.06553W	<i>Tectona grandis</i>	4.17
NAAGA	10.60464N, 001.02692W	<i>Senna siamea</i>	0.83
VEA	10.86279N, 000.84314W	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	5.10
BONGO NURSERY	10.91377N, 000.79584W	<i>Senna siamea</i>	0.81
BONGO DAM	10.91097N, 000.78742W	<i>Senna siamea</i>	0.84
SANDEMA SEC.TECH	10.75514N, 001.24828W	<i>Tectona grandis</i>	3.77
KADEMA	10.45390N, 001.26950W	<i>Tectona grandis</i>	4.52
FUMBISI SHS	10.45427N, 001.29751W	<i>Senna siamea</i>	4.50
SINESI	10.65224N, 001.36676W	<i>Tectona grandis</i>	4.50
CHIANA--Kalvio	10.85295N, 001.25886W	<i>Senna siamea</i>	0.89

TESHIE	10.97979N, 000.46295W	<i>Senna siamea, khaya senegalensis</i>	1.91
BUNKPURUGU 1	10.52144N, 000.06250E	<i>Tectona grandis, Khaya senegalensis</i>	2.87
BUNKPURUGU 2	10.52509N, 000.06123E	<i>Tectona grandis</i>	1.39
TIMONDE 1	10.90727N, 000.40297W	<i>Tectona grandis, Senna siamea</i>	2.51
TIMONDE 2	10.90843N, 000.39231W	<i>Eucalyptus spp, Khaya senegalensis</i>	4.40
NALERIGU	10.53181N, 000.38382W	<i>Senna siamea</i>	5.40
GAMBAGA ASSEMBLY 1	10.53219N, 000.42997W	<i>Senna siamea</i>	0.88
GAMBAGA 2	10.54011N, 000.43763W	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	7.14
BINDE	10.57143N, 000.03017W	<i>khaya senegalensis, Tectona grandis</i>	10.62
LANGBINSI	10.40295N, 000.55483W	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	4.60
KAADE	10.9211N, 000.30674W	<i>Senna siamea</i>	2.31
NANGODI	10.84128N, 000.64117W	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	6.00
GAGBORI	10.96720N, 000.13610W	<i>khaya senegalensis, Senna siamea</i>	1.02
GBANKURUGU 1	10.45084N, 000.10715W	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	5.04
GBANKURUGU 2	10.45205N, 000.10966W	<i>Albezia labeek</i>	3.15
KARATESHIE-NATINGE	10.96195N, 000.07129W	<i>Tectona grandis</i>	1.17
ZAAGU	11.00442N, 000.32804W	<i>Senna siamea</i>	0.91
MOZIO	10.45108N, 000.05478W	<i>Senna siamea, Khaya senegalensis</i>	5.60
GBINTIRE	10.31473N, 000.09356W	<i>Senna siamea</i>	3.41
DEEGA	11.04168N, 000.20021W	<i>Tectona grandis, Senna siamea</i>	0.80
WORINYANGA-HEALTH CENTRE	10.89524N, 000.05666W	<i>Tectona grandis, Senna siamea</i>	3.07
BASYONBE-HEALTH CENTRE	10.97633N, 000.04845W	<i>Tectona grandis, Senna siamea</i>	0.57
Total			139.57

3.4.3 Management and Cultural practices

In the Eastern zone, fencing around individual trees (Plate 8a) and construction of fire belts are the management measures employed in some plantations. The field assistants to the plantations indicated their intention of extending these practices to other plantation that require them (i.e. fire belts and fencing).



Plate 8a: Fenced seedlings at Binde



Plate 8b: Beneficiaries watering planted trees at Timonde 1

Beating up, weeding and watering (plate 8b) were the cultural practices employed in the plantations. Different communities employed different weeding methods which included weeding along rows and ring weeding.

3.4.4. Project Staff

The surveyed plantations in the Eastern zone engaged a total of 610 beneficiaries (Table 8). The zone is manned by one coordinator and 18 project assistants.

Table 8: Number of staff enumerated at the various plantations assessed in the Eastern Zone

COMMUNITIES	No. of Staff	Male	Female	Qualification of Project Assistants	Type of training from ACICL
ZANGUM	9	6	3	BA. Integrated Community Development	Pegging, tree planting and management
SAYOO	8	8	0	"	
GBIMSI	9	9	0	"	
PUSU NAMONGO	20			HND General Agriculture	Pegging, tree planting and management
WINKONGO	18	15	3	"	
TONGO	14	3	11	"	
DULUGU	47	17	30	Certificate in Forestry	Tree planting and management
SUMBRUNGU DAM	10	4	6	"	Tree planting and management
TANKWIDI 1 &2	50	50	0	Diploma in Agriculture	Tree planting and management
KANDIGA 1 &2	10	5	5	Middle School	Tree planting and management
YUA 1 &2	16	14	2	Diploma in Agriculture	Pegging and Tree planting
MIRIGU 1,2 & 3	20	11	7	BSc. Agriculture	Tree planting
NAVASCO	6	3	3	"	
NAAGA	11	11	0	"	
VEA	31	26	5	BA Political Science	Tree planting
BONGO NURSERY	20	16	4	"	
BONGO DAM	20	16	4	"	
SANDEMA SNR. SEC.	11	6	5	"	
KADEMA	15	15	0	"	
FUMBISI SHS	15	14	1	BA Economics and Enterpreneurship	Pegging, tree planting and management
SINESI	8	4	4	Diploma in Agriculture	No training
CHIANA-SABORO	5			BFD Agriculture	Tree planting
TESHIE	5	5	0	"	

BUMGURUGU 1 &2	15	13	2	"	
TIMONDE 1 &2	20	20	0	BA Planning and Rural Management	Tree planting and management
NALERIGU	18	8	10	"	
GAMBAGA 1 &2	9	8	1	"	
BINDE	27	24	3	"	Tree planting
LANGBINSI	18			"	
KAADE	10	6	4	Advanced Level Cert.	Tree planting
NANGODI	11	7	4	"	Tree planting
GAGBORI	7			"	
GBANKURUGU 1 &2	18	18	0	DBS	Tree planting
KARATESHIE-NATINGE	10				
ZAAGU	15	11	4	Advanced Level Cert.	Tree planting
MOZIO	19	19	0	DBS	Tree planting
GBINTIRE	13	11	2	"	Tree planting
DEEGA	4			Advanced Level Cert.	Tree planting
WORINYANGA-HEALTH CENTRE	5	2	3	Diploma(Com. Development) , Diploma(Education)	Tree planting
BASYONDE-HEALTH CENTRE	13	10	3	"	Tree planting

3.5 Overview of all the SADA afforestation zones

A total of 145 plantations were surveyed in all the four afforestation Zones encompassing 45 political districts in 5 regions.

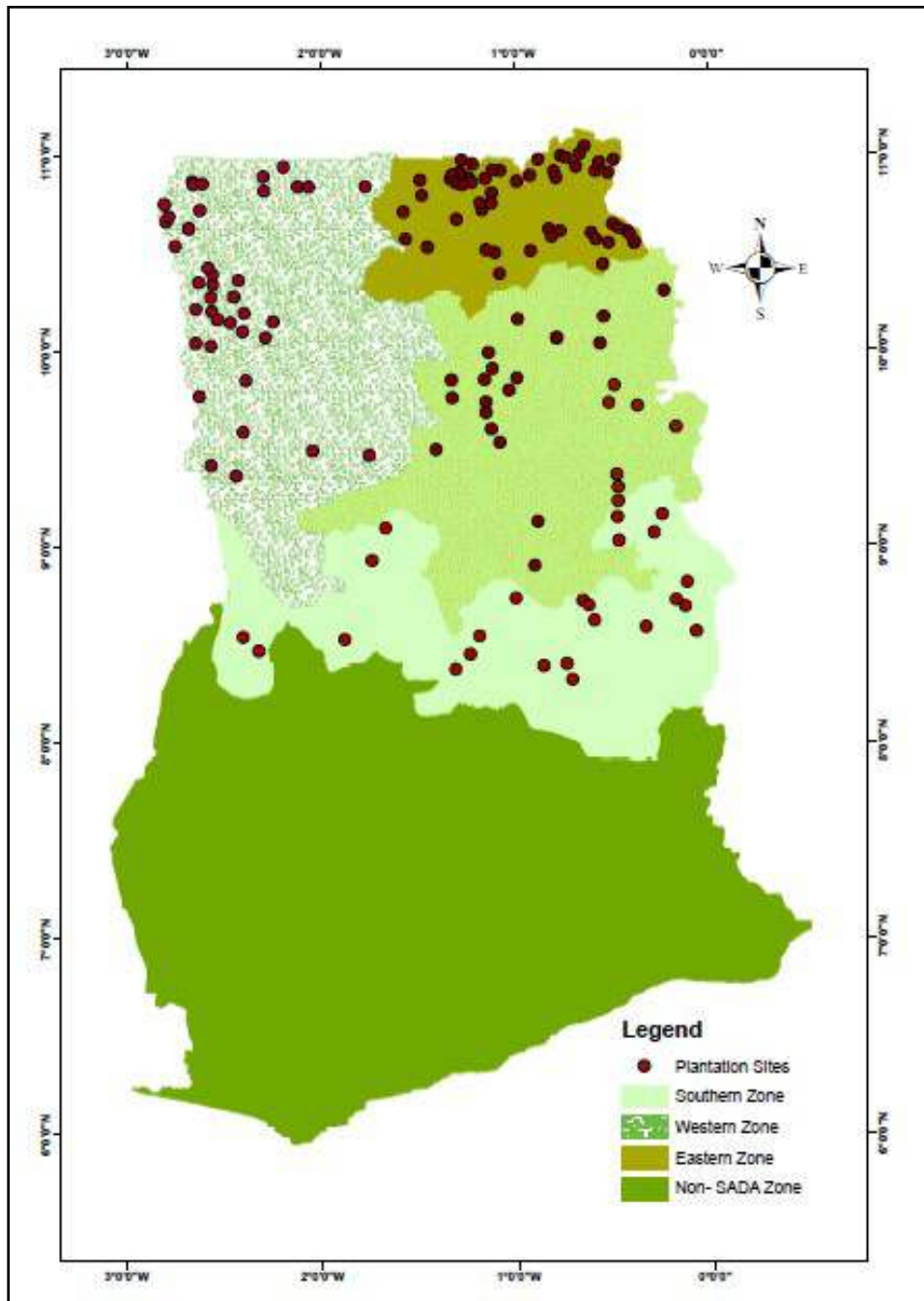


Figure 9: The distribution of the evaluated SADA Plantation sites

A greater number of communities were surveyed from the Eastern Zone (49) while the least number were surveyed from the Southern Zone (Fig. 10).

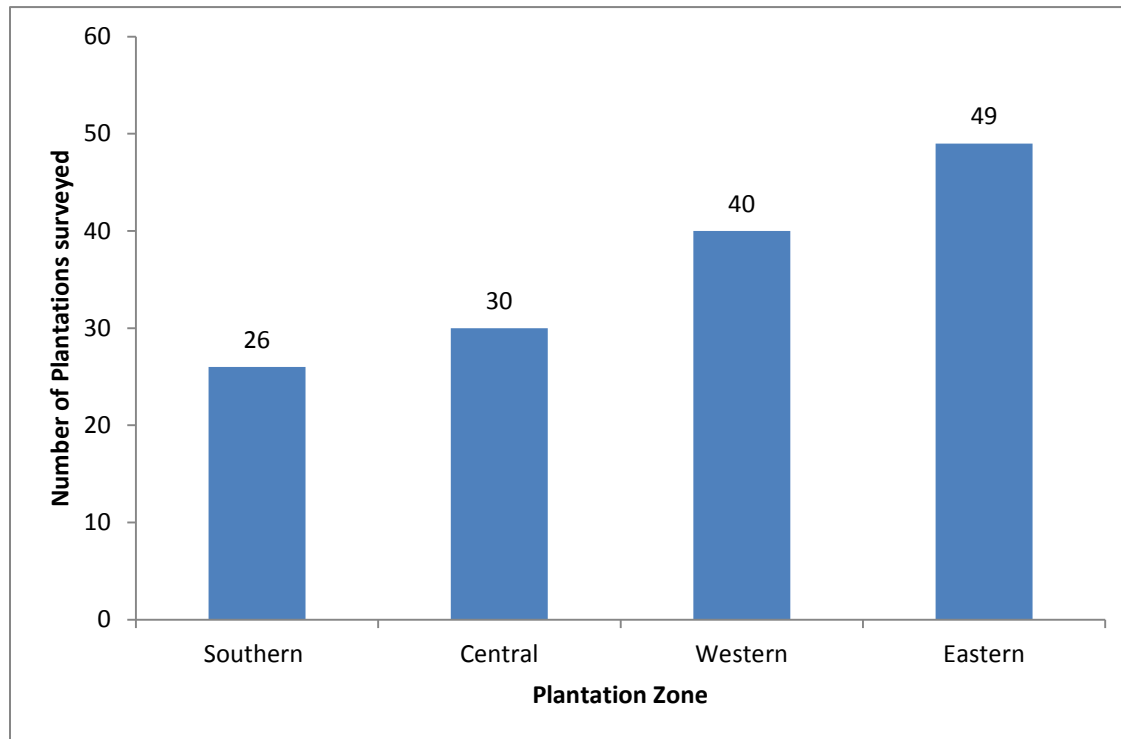


Fig.10. Number of plantations surveyed in the various zones

In all a total of eight tree species were planted in the various afforestation Zones namely; *Tectona grandis* (Plate 9b), *Senna siamea* (Plate 9a), *Albizia lebbeck*, *Khaya senegalensis*, *Mangifera indica*, *Anacardium occidentale*, *Eucalyptus spp.* and *Moringa oleifera*.



Plate 9a: *Senna siamea* plants in the Central Zone



Plate 9b: *Tectona grandis* in the Central Zone.

Generally the average percentage survival of all the plantation zones were very high with the highest (88%) recorded in the Eastern Zone and lowest (76%) recorded in the Southern zone (Fig. 11) In terms of acreages of surveyed plantations, the Western Zone had the highest mapped acreages (204 Ha) while the Central Zone was the least (140 Ha; Fig. 12).

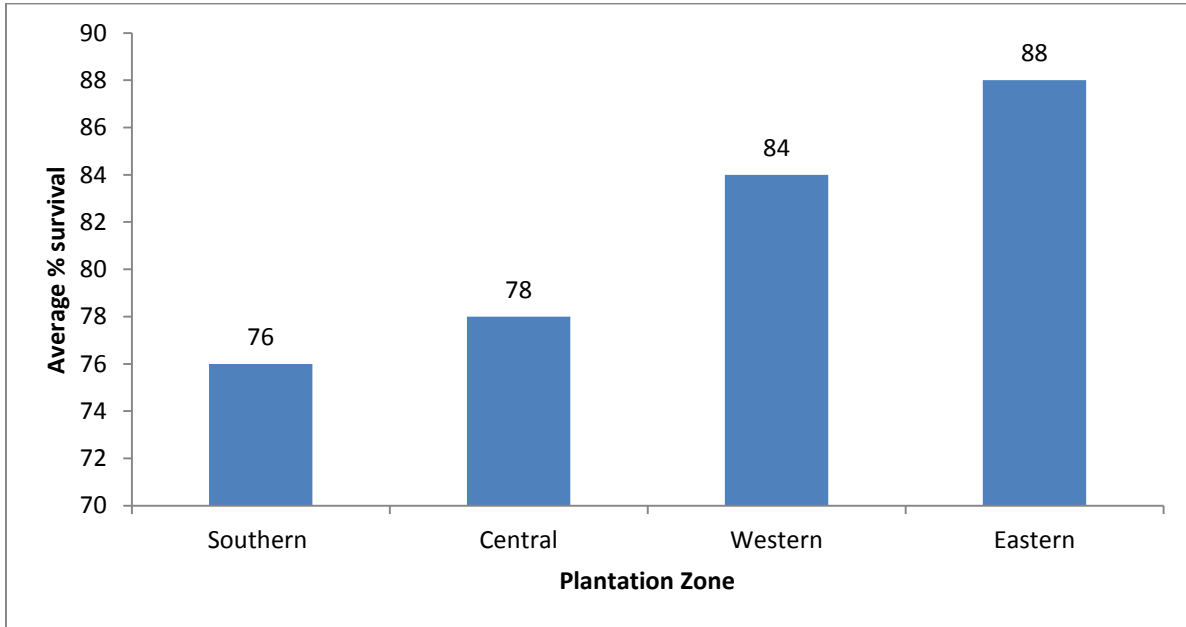


Fig.11: Average percentage survival of the various Plantation Zones

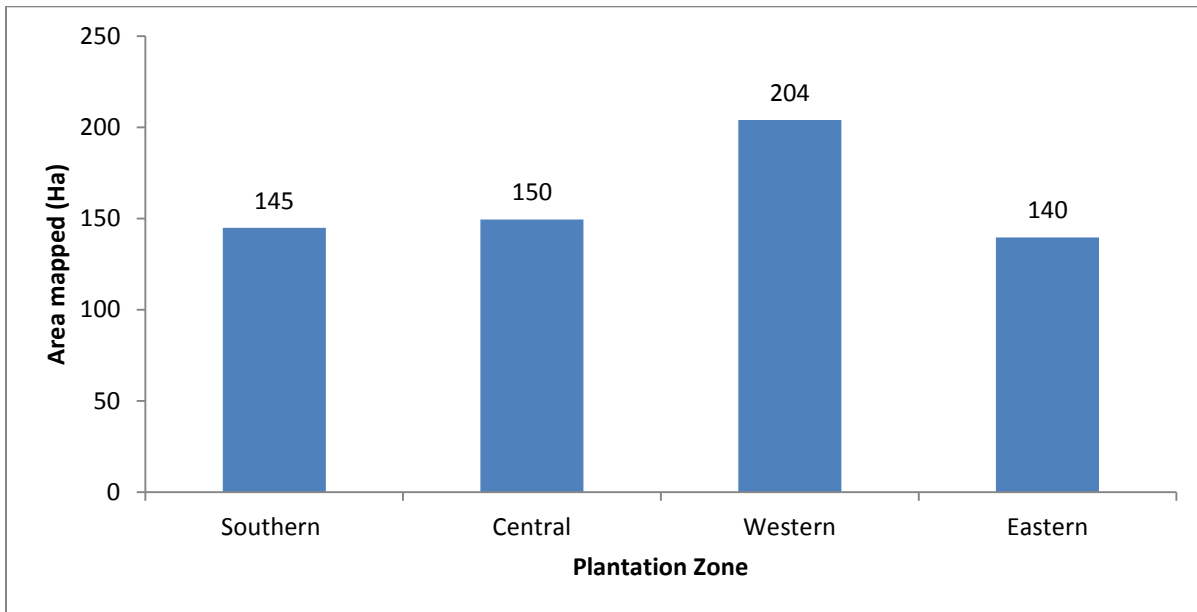


Fig. 12: Acreage of plantations mapped in the various plantation zones.

3.6 Verification and Assessment of the Performance of ACICL Limited

During our verification surveys, it was clear that obligations of the implementing organization were met according to the section 6 of the terms of agreement between SADA and ACI Construction Limited (Appendix 11). 145 plantation sites were visited within the four SADA afforestation zones. Various acreages of land have been acquired, prepared and seedlings planted in the four zones. A total of four (4) coordinators, 48 project assistants and 2426 beneficiaries were enumerated in the 145 plantations visited (Fig 13).

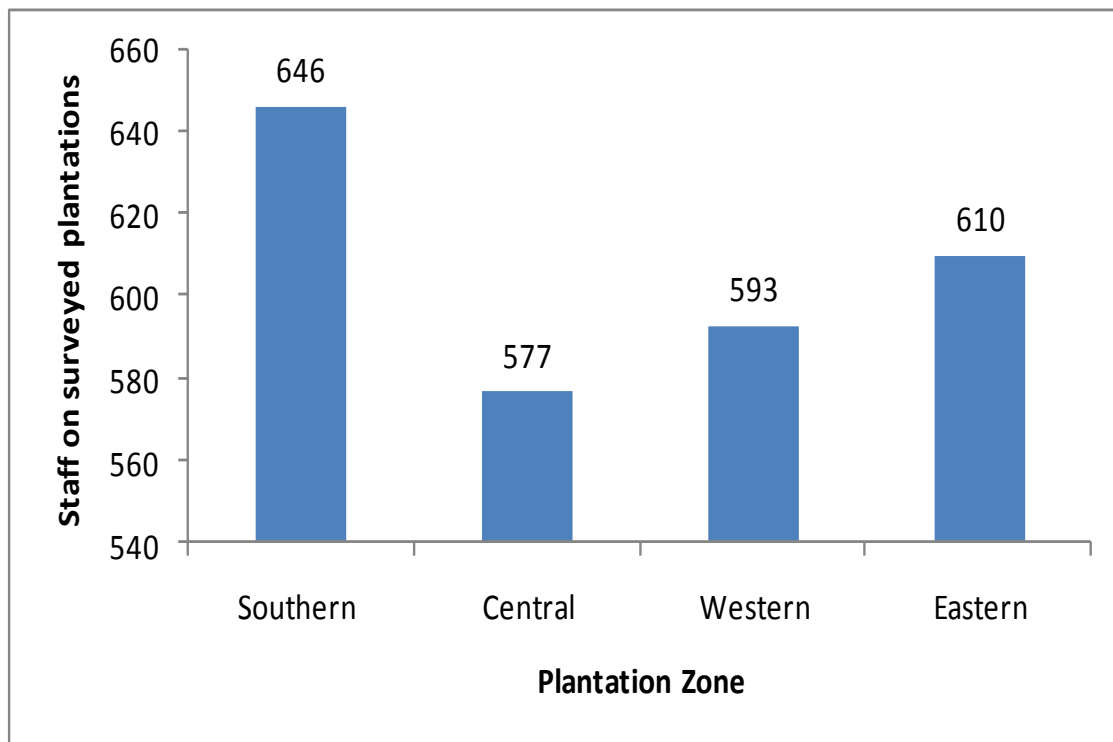


Fig 13: Total number of field assistants on the surveyed plantations in the various SADA zones

Payments to beneficiaries have been made to the month ending July, 2013 (Appendix 7). The targeted employment of 5000 youth was oversubscribed by 496. These youth were employed in various capacities which include; Project assistants and Field assistants/beneficiaries. The management is composed of a Project Manager, 1 Technical Advisor, 1 Training and Research coordinator, 4 zonal coordinators, 1 media and communications coordinator, 1 Logistics officer and 2 Training and Research assistants. ACI Construction Limited also employs 4 drivers, 12 security personnel and 1 project assistant who also acts as secretary to the project manager

(Appendix 8). All above obligations were met according to the section 6 of the terms of agreement between SADA and ACI Construction Limited.

The organization has four operational offices, one each in the four SADA zone that is, Tamale for the Central Zone, Zuarungu for the Eastern Zone, Wa for the Western Zone and Kintampo for the Southern Zone. Each office is headed by the zonal co-ordinator. The organization also has a large stock of assests ranging from pick up vehicles (seven in all for coordinators and management), motorbikes (for project assistants), Tricycles, polytanks etc. Appendix 9a, b, c and d illustrate the logistics of ACI Constructions Ltd.

A review of the logical framework by ACI Construction Limited for the implementation of the SADA afforestation project revealed that four out of the ten outputs were not strictly verifiable. Output 4, Nursery development was not strictly met since ACI Constructions used privately established nurseries in the various zones instead of establishing its own nurseries. Outputs 8, 9 and 10 were not also strictly adhered to. These outputs bother on community sensitization on factors that destroy the ecology of the environment, mitigating strategies to manage risk, and incentives for the reduction of wild fire established and other suggestions (Appendix 10).

4.0 Challenges encountered during the implementation of the afforestation programme

Despite the attainment of very good survival levels of the planted species, the plantations face a number of challenges which should be addressed as soon as practicable in the face of the impending drought. The challenges include;

- **Insect and pests infestation:** Incidence of ants and termites were evident in some plantations (See Plate 10a and b). If not controlled, could lead to death of tree seedlings or damage to the bole which would result in future tree losses.
- **Irregular weed control on the plantations:** A number of the plantations in the study areas were weedy (Plate 11a and b). Inquiries showed that this situation has arisen as

a result of delay in the payment of allowances to the workers. Weeds can affect the general development of the seedlings as they compete for both above and below ground resources thus inhibiting growth and performance of seedlings. Weeds also serve as fuel in the plantations especially during the dry season and can easily be set ablaze. Weeds also encourage insects and rodents attacks which may destroy tree stands.

- **Destruction of plantations by livestock:** The destruction of planted seedlings on plantations by livestock (cattle and goats) was identified in some communities (Plate 12a and b) and poses a serious threat to the establishment of the plantations particularly during the dry season.
- **Recruitment and training:** The recruitment process for the project and field assistants as stipulated in the terms of agreement was not strictly adhered to and therefore resulted in recruiting individuals who were not very suitably cut for the work. Some of the Project Assistants (PAs) do not have the requisite skills for tree plantation establishment and development. Examples include PA's with degrees in Community Nutrition, HND in Accounting and GCE Ordinary level certificate. Even though ACICL offered basic training in plantation establishment and management they required further training to bring them up to the expected level of competency for the job.
- **Absence of fire belts in some communities:** A few communities have already created fire belts but most communities are intending to create them soon. If this is not done early can lead to the destruction of seedlings by wild fires during the dry season.

- **Irregular planting distance:** Trees like agricultural crops require proper spacing for healthy growth and good yields (Plate 13a). However, some of the plantations were either overcrowded or poorly spaced. Overcrowding of seedling may affect the diameter, height and basal area growth of the trees in the plantations thus resulting in poor performance of the plantations. Over spacing may lead to poor plant population and subsequent waste of land resources and increased cost in weed control.
- **Insufficient supply and untimely delivery of Seedlings:** Some communities complained of late delivery of seedlings during planting (Plate 13b). Some received seedlings at the time that the rain was about to stop (November, 2012). This did not only put a lot of burden on the field assistants but it also led to low survival of seedlings especially those planted in 2012. A few communities did not also receive the expected quantities of seedlings to cover the prepared land area.
- **Inadequate supervision:** Irregular supervision of field assistants in some plantations have translated into poor plantation performance as the necessary management and cultural practices are not carried out by these field workers.
- **Irregular attendance of field assistants:** Reports from various Project Assistants indicated that some of the field assistants did not participate in the field activities but were prompt to go for their allowances. Distance to the plantation site could be the reason for the irregular attendance. For example, all the 45 field assistants engaged at the Soalepe plantation come from Damongo, a distance of 11km which affected work schedules at that site.

- **Worn-out tools and equipment for plantation maintenance:** It was observed that most tools and equipment supplied to the workers are worn-out. For example, cutlasses, wellington boots and clothing.
- **Land acquisition and ownership of plantations:** Many of the sites used for the plantations were not properly acquired and documented. In some communities, the trees were planted on individual and family lands and this could pose a serious problem in future. In such a case, the ownership of the plantation is not well defined as the land area is not covered by any documentation. Hence, improper land acquisition and undefined ownership of plantations could generate future conflicts.
- **Poorly placed and inadequately labelled billboards:** Billboards produced for the plantations were not adequately labelled and their location did not properly give direction to the plantations. The purpose of the billboard is to show the observer where the SADA plantation occurs in the community (Plate 14). If this is not done, the billboard can be moved and placed anywhere and this will hinder auditing and mislead the general public.



Plate 10a: Termites infestation at Soalepe



Plate 10b: Ant hills at Laanja



Plate 11a: Weedy plantation at Tamale Girls Sch.



Plate 11b: Weedy plantation site at Waawu



Plate 12a: Cattle encroachment at Kumbungu



Plate 12b: *Khaya* plant destroyed by cattle at Mariche



Plate 13a: Irregular planting distance at Tampion.



Plate 13b: Unplanted/overgrown seedlings at Yapei



Plate 14: Billboards that are not site specific (Photo taken at Makayili)

5.0 What do the findings tell us?

The dream of SADA to ameliorate environmental degradation and mitigate climate change as well as create jobs for the unemployed youth in its operational area will not be a mirage but a reality. This is evident as plantations have been established simultaneously across all the political districts within the SADA programme area. Plantations assessed across the zones have high and diverse spatial coverage and high seedling survival percentages. This implies that cultivation and nurturing of fast-growing woody tree species especially along water bodies, marginal lands and on degraded lands across SADA operational zones is already in place and growing by the day and it is hoped will help combat environmental degradation, mitigate climate change as well as improve the living standards of the people in these areas through job creation.

However the success or realization of this vision hinges on the proper management of the established plantations. Planting of the trees is just one of the steps but its management is very crucial to the success and fruition of the entire project. Plantation establishment requires more investments in human capital for a long period of time. Hence to have a forested and economically viable north, more financial, physical and human capital commitment is required as well as the elimination of other bottlenecks that may hinder the smooth implementation of the project to achieve the desired goals.

The savanna must be greened and greened in peace and in a sustainable manner. Peaceful and sustainable development of these plantations revolves around proper acquisition of land and right definition of the plantation ownership. Our survey has revealed that many of the sites used for the plantations were not properly acquired. Improper land acquisition and undefined ownership of plantations have future implications. This may lead to the abandonment of the plantations and worst of it all, conflicts.

6.0 Conclusion

Generally, the percentage survival of the seedlings was good but require good cultural and management practices such as regular weeding, beating up, pest control as well as effective monitoring to enhance the general health of the plantations. Effective control of bushfires in the dry season will be imperative to the survival of the plantations. Therefore, the creation of fire belts must be fundamental in all the plantations.

7.0 Recommendations

- i. Recruitment of project and field assistants/beneficiaries should be transparent and based on competence to ensure effective and successful implementation of the afforestation project. The field assistants should be recruited from the communities in which the plantations occur to satisfy the objective of job creation and livelihood enhancement at the community level.
- ii. The number of field assistants engaged on each plantation should commensurate with the size of land under cultivation.
- iii. The project must demonstrate gender equity by ensuring that female field assistants are equally employed for the enhancement of rural livelihoods as envisaged by the proponents of the project.
- iv. The use of *Eucalyptus* spp should be encouraged in waterlogged areas rather than *Cassia siamea*. It is stressed that site-species matching must be fundamentally pursued.
- v. Due process must be followed in the acquisition and documentation of land earmarked for the plantations and the ownership of the plantations must also be clearly defined.
- vi. Presently all the plantations are community-based. It is being emphasized that private individuals and corporate participation should be encouraged to fulfill the national public-private partnership agendum.
- vii. Based on the phase of development of the afforestation project, successes achieved so far and the preparedness of ACICL, it is being suggested that ACIC Limited be allowed to continue providing the technical and management support for the project until the plantation are well established..

7.0 Appendix

Appendix 1. Field questionnaire for plantation evaluation

FIELD QUESTIONNAIRE FOR PLANTATION EVALUATION

Region/Zone..... Contact
Person..... Phone No.....
Name of record keeper: Phone No.....
Date:.....

1. What are the management measures employed? Fencing, fire control etc?.....
.....
.....
2. What are the cultural practices employed? Watering, Weeding etc.....
.....
.....
3. What are the challenges faced?.....
.....
.....
4. How many people are employed in the project?.....
5. Educational background of employee
 - a. Co-ordinator.....
 - b. Field Assistants
 - c. Beneficiaries
6. Gender of the employee
7. What data has been gathered so far?.....
.....
8. Training Programs
 - a. Have you received any form of training from ACI?.....
 - b. What type of training?.....
.....

9. a. Has there been visits from ACI officials?.....

If yes how many times?

Appendix 2. Field form for plantation evaluation

FIELD FORM PLANTATION EVALUATION

Region/Zone..... Contact
 Person..... Phone No.....

Name of record keeper: Phone No.....
 Date:.....

Community	Location of plantation		Area(Ha)		Landsc ape	Species	Type of planting material	Age		No. plant ed	No. Survi ved	No. Dead	Rem arks
	N	W	Plan ned	Ac tu al				L P	P T				

Appendix 3. Percentage survival of various planted tree species in the Central Zone and their year of planting

Community	Species planted	Survival (%)	Year planted
Bawa Barracks	<i>Tectona grandis</i>	75	2013
Kamina Barracks	<i>Tectona grandis</i>	67	2013
	<i>Mangifera indica</i>	70	2013
Kumbungu No.1	<i>Senna siamea</i>	54	2013
	<i>Khaya senegalensis</i>	92	2013
Zaazi	<i>Senna siamea</i>	93	2013
Ying	<i>Senna siamea</i>	93	2012
Tumahi	<i>Senna siamea</i>	87	2012
Nanton	<i>Tectona grandis</i>	78	2012
	<i>Senna siamea</i>	88	2012
Tampion	<i>Khaya senegalensis</i>	82	2012
Yapei	<i>Tectona grandis</i>	65	2013
Vogyili	<i>Tectona grandis</i>	65	2012
Sapkalua	<i>Tectona grandis</i>	97	2012
Kabache	<i>Senna siamea</i>	93	2012
Mariche	<i>Tectona grandis</i>	38	2012
	<i>Khaya senegalensis</i>	63	2012
	<i>Senna siamea</i>	63	2012
Makayilli	<i>Tectona grandis</i>	92	2013
	<i>Albizia Lebbeck</i>	80	2012
Dimonayilli	<i>Tectona grandis</i>	82	202/2013
Komoayilli	<i>Tectona grandis</i>	90	2013
	<i>Senna siamea</i>	87	2013
Pishegu	<i>Tectona grandis</i>	85	2013
Nyangeola	<i>Tectona grandis</i>	85	2013
Waawu	<i>Tectona grandis</i>	85	2013
	<i>Khaya senegalensis</i>	62	2012
Zamanshegu	<i>Tectona grandis</i>	77	2013
	<i>Senna siamea</i>	97	2012
Kamshegu	<i>Tectona grandis</i>	93	2013
Malzeri	<i>Senna siamea</i>	93	202/2013
	<i>Tectona grandis</i>	98	202/2013
Kulkpene/Darku	<i>Senna siamea</i>	98	2012/2013
Moali	<i>Tectona grandis</i>	85	2012
	<i>Senna siamea</i>	80	2012
Chereponi	<i>Tectona grandis</i>	83	2012
Pusuga	<i>Albizia lebbeck</i>	78	2012
Laanja	<i>Tectona grandis</i>	90	2012

Appendix 4. Percentage survival of various planted tree species in the Southern Zone and their year of planting

Name of Community	Species planted	Survival (%)	Year planted
Kawampe	<i>Tectona grandis</i>	67	2012/2013
	<i>Senna siamea</i>	63	2013
Nante	<i>Tectona grandis</i>	73	2012/2013
Nsawkaw	<i>Tectona grandis</i>	93	2012
Nkona	<i>Tectona grandis</i>	82	2012/2013
Paparabone	<i>Tectona grandis</i>	67	2012
Kyeame Kurom	<i>Tectona grandis</i>	88	2013
Nwawam	<i>Tectona grandis</i>	82	2012
Nyankotere A	<i>Tectona grandis</i>	93	2013
Nyankotere B	<i>Tectona grandis</i>	80	2012/2013
Prang/Abour	<i>Tectona grandis</i>	67	2012/2013
Cherepo Quarters	<i>Tectona grandis</i>	25	2012/2013
Kpandai Secondary	<i>Tectona grandis</i>	85	2012/2013
Lungni	<i>Tectona grandis</i>	92	2012/2013
Wulensi A	<i>Tectona grandis</i>	87	2012/2013
Wulensi B	<i>Tectona grandis</i>	98	2012/2013
Ogyeri	<i>Tectona grandis</i>	82	2012
Jatokura	<i>Tectona grandis</i>	80	2012
Kechiebe A	<i>Tectona grandis</i>	93	2012
Kechiebe B	<i>Tectona grandis</i>	90	2013
Kechiebe C	<i>Tectona grandis</i>	68	2013
Boafri	<i>Tectona grandis</i>	93	2012/2013
Grubi	<i>Tectona grandis</i>	95	2012/2013
Kradenteh	<i>Tectona grandis</i>	80	2012/2013
Yariga	<i>Tectona grandis</i>	98	2013
Wankayaw	<i>Tectona grandis</i>	92	2013
Alhassan Akura	<i>Tectona grandis</i>	88	2013
	<i>Senna siamea</i>	72	2013

Appendix 5. Percentage survival of various planted tree species in the Western Zone and their year of planting

Name of Community	Species planted	Survival (%)	Year planted
Achubunyor	<i>Senna siamea</i>	75	2013
Soalepe	<i>Senna siamea</i>	93	2013
Sawla	<i>Khaya senegalensis</i>	93	2012
	<i>Senna siamea</i>	80	2012
Yipala	<i>Khaya senegalensis</i>	93	2012
	<i>Senna siamea</i>	92	2012
Saru	<i>Senna siamea</i>	83	2013
Bole	<i>Senna siamea</i>	90	2013
Madari	<i>Senna siamea</i>	93	2013
Lassie	<i>Senna siamea</i>	85	2013
Wechiau	<i>Senna siamea</i>	93	2013
Dorimon	<i>Senna siamea</i>	92	2013
Nokori	<i>Khaya senegalensis</i>	83	2012
	<i>Senna siamea</i>	85	2012
Chansah	<i>Tectona grandis</i>	78	2013
	<i>Moringa oleifera</i>	77	2013
Kperisi	<i>Khaya senegalensis</i>	82	2012
	<i>Tectona grandis</i>	83	2012
Zingu	<i>Khaya senegalensis</i>	83	2012
	<i>Senna siamea</i>	78	2012
Piisi 1	<i>Khaya senegalensis</i>	82	2012
	<i>Tectona grandis</i>	73	2012
Piisi 2	<i>Senna siamea</i>	83	2012
Loggu	<i>Tectona grandis</i>	80	2013
Kulipong	<i>Tectona grandis</i>	95	2013
	<i>Senna siamea</i>	83	2013
Bulenga	<i>Senna siamea</i>	87	2013
Kaleo	<i>Khaya senegalensis</i>	70	2013
Sankana 1	<i>Senna siamea</i>	88	2013
Sankana 2	<i>Khaya senegalensis</i>	88	2013
Papu	<i>Senna siamea</i>	85	2013
	<i>Khaya senegalensis</i>	93	2013
Goli	<i>Senna siamea</i>	92	2013
	<i>Khaya segegalensis</i>	87	2013
Gbetouri	<i>Tectona grandis</i>	87	2012
	<i>Senna siamea</i>	87	2012
Doggohchari 1	<i>Tectona grandis</i>	80	2012
Doggohchari 2	<i>Tectona grandis</i>	80	2013
Berwong	<i>Tectona grandis</i>	67	2013

	<i>Anacardium occidentale,</i>	78	2013
	<i>Senna siamea</i>	80	2013
	<i>Khaya senegalensis</i>	97	2013
	<i>Eucalyptus spp.</i>	93	2013
Toure	<i>Senna siamea</i>	73	2012
	<i>Anacardium occidentale,</i>	93	2012
	<i>Tectona grandis</i>	92	2012
Tabier	<i>Tectona grandis</i>	72	2012
Lambussie 1	<i>Khaya senegalensis</i>	92	2013
	<i>Senna siamea</i>	48	2013
lambussie 2	<i>Khaya senegalensis</i>	77	2013
	<i>Senna siamea</i>	77	2013
Piina	<i>Khaya senegalensis</i>	80	2013
	<i>Senna siamea</i>	53	2013
Karni	<i>Senna siamea</i>	85	2013
Jiffissi	<i>Senna siamea</i>	67	2013
Bullu	<i>Senna siamea</i>	95	2013
Jawia	<i>Senna siamea</i>	95	2013
Dangi	<i>Senna siamea</i>	83	2013
Bakuala	<i>Senna siamea</i>	82	2013
Banu	<i>Senna siamea</i>	82	2013

Appendix 6. Percent survival rates of various planted tree species in the Western Zone and their year of planting

Name of Community	Species planted	Survival (%)	Year planted
Zangum	<i>Khaya senegalensis, Tectona grandis, Senna siamea</i>	88	2012, 2013
Sayoo	<i>Tectona grandis, Senna siamea</i>	85	2012
Gbimsi	<i>Khaya senegalensis, Tectona grandis</i>	93	2013
Pusu Namongo	<i>Tectona grandis, Senna siamea</i>	95	2012
Winkongo	<i>Tectona grandis, Senna siamea</i>	95	2012/2013
Tongo	<i>Tectona grandis, Senna siamea</i>	77	2013
Dulugu	<i>Senna siamea</i>	95	2013
Sumbrungu dam	<i>Senna siamea</i>	95	2013
Tankwidi 1	<i>Tectona grandis</i>	78	2012
Tankwidi 2	<i>Tectona grandis</i>	73	2012
Kandiga 1	<i>Senna siamea</i>	97	2013
Kandiga 2	<i>Senna siamea</i>	97	2013
Yua 1	<i>Senna siamea</i>	97	2012

Yua 2	<i>Senna siamea</i>	97	2012
Mirigu 1	<i>Senna siamea</i>	97	2013
Mirigu 2	<i>Senna siamea</i>	97	2013
Mirigu 3	<i>Senna siamea</i>	97	2013
Navasco	<i>Tectona grandis</i>	87	2012
Naaga	<i>Senna siamea</i>	87	2012
Vea	<i>Khaya senegalensis, Tectona grandis, Senna siamea</i>	80	2012
Bongo nursery	<i>Senna siamea</i>	100	2012/2013
Bongo dam	<i>Senna siamea</i>	100	2012/2013
Sandema Sec.Tech.	<i>Tectona grandis</i>	85	
Kadema	<i>Tectona grandis</i>	83	2012/2013
Fumbisi SHS	<i>Senna siamea</i>	100	2013
Sinesi	<i>Tectona grandis</i>	83	2013
Chiana-Saboro	<i>Senna siamea</i>	95	2013
Teshie	<i>Senna siamea, khaya senegalensis</i>	97	2012/2013
Bumgurugu 1	<i>Tectona grandis, Khaya senegalensis</i>	78	2012/2013
Bumgurugu 2	<i>Tectona grandis</i>	73	
Timonde 1	<i>Tectona grandis, Senna siamea</i>	97	2012/2013
Timonde 2	<i>Eucalyptus spp, Khaya senegalensis</i>	98	2012/2013
Nalerigu	<i>Senna siamea</i>	97	2012/2013
Gambaga Assembly 1	<i>Senna siamea</i>	83	2012
Gambaga 2	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	70	2012
Binde	<i>khaya senegalensis, Tectona grandis</i>	90	2012/2013
Langbinsi	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	93	2012/2013
Kaade	<i>Senna siamea</i>	92	2012/2013
Nangodi	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	88	2012/2013
Gagbori	<i>khaya senegalensis, Senna siamea</i>	68	2012
Gbankurugu 1	<i>khaya senegalensis, Tectona grandis, Senna siamea</i>	92	2012
Gbankurugu 2	<i>Albezia labeek</i>	95	2013
Karatashie-Natinge	<i>Tectona grandis</i>	50	2013
Zaagu	<i>Senna siamea</i>	87	2013
Mozio	<i>Senna siamea, Khaya senegalensis</i>	82	2012/2013
Gbintire	<i>Senna siamea</i>	97	2012/2013
Deega	<i>Tectona grandis, Senna siamea</i>	93	2012/2013

Worinyanga-Health Centre	<i>Tectona grandis, Senna siamea</i>	57	2012
Basyonbe-Health Centre	<i>Tectona grandis, Senna siamea</i>	88	2012

Appendix 7: Payment schedule for beneficiaries in the Zabzugu /Tatale district in the Central zone.

NAME	AMOUNT/MONTH	MONTHS DUE	AMOUT DUE	BANK/BRANCH
FATI SULEMANA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDUL-RAHAMAN SHEI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ADAM SALIFU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
FUSHEINI MAHAMA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDUL-FATAWU A SALAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABU ABDULAI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
SAYIBU MUMUNI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI AYAMBA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IMORO ADAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI MUTARU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZAKARI SUMAILA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
BAWA ABU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
LAGFU BABA SALIFU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI ISSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IMORO HARUNA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI MUSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI ADAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI YUSSIF	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZAKARI AYISHA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IDDI SHEI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI SAYIBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZIBLIM IMORO	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK

		JULY)		BANK
BAWAH MUTARU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
WAHABU ABU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
SEIDU MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MUMUNI IDDRISU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED ANATU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MAHAMA OSUMANU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
SAYIBU MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDALLAH MAHAMA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
AMADU MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI FARUK	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED ZAKARIA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI SAYIBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MAHAMA BABA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ISSIFU ALIDU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IDDRISU SAHADA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
SUMANI ADAMU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ADAM MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
FUSHEINI MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED ABDUL- SALAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ADAM MUSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
YAKUBU GANI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALIU MUBARIK	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
LELA ABDULAI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK

YAKUBU HARUNA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
SAYIBU FUSHEINA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALHASSAN SAYIBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
HAKIM ISSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IDDRISU IBRAHIM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI MUMIN MOHAMMED ABDUL- SALAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED YAKUBU SHAHADU MOHAMMED JAKON	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ARAHAMAT SALIFU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
FUSHEINI ABUKARI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
IDDRISU ALHASSAN	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
YUSSIF AWALU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALHASSAN ALHASSAN	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZIBLILA RAHINATU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
YAKUBU ISSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
FUSHEINI ZAKARI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALHASSAN MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED FUSHEINI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ADAM SAYIBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZAKARIA ISSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZAKARIA YUSSIF	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI MOHAMMED	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK

ABDULLAI ISSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
BABA YAKUBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
UMMAR IMMORO	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED ABUKARI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALHASSAN ADAM	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ZIBLIM DAMATA	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
NASAM UMAR	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
YAKUBU ALHASSAN	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABDULAI AWAL	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED SAYIBU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ABUKARI MEELI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
HAWA IDDRISU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ISSAH INUSAH	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
YUSSIF ZEINATU	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
ALHASSAN KANDE	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK
MOHAMMED ABUKARI	GH¢110.00	2(JUNE, JULY)	GH¢ 220	ZABZUGU RURAL BANK

Appendix 8 Number of Project Beneficiaries by sex:

WESTERN ZONE (Upper West Region/Northern Region)					
	DISTRICT	NUMBER OF FEMALES	NUMBER OF MALES	TOTAL	NO OF DROPOUTS.
1	Wa Municipal	12	87	99	
2	Wa West	31	53	84	
3	Wa East	5	68	73	
4	Nadowli	25	72	97	
5	Jirapa	34	51	85	
6	Lawra	25	70	95	
7	Lambussie	5	64	69	
8	Sissala West	16	89	105	
9	Sissala East	12	88	100	
10	Sawla	43	47	90	
11	Bole	29	69	98	
12	Damongo	27	38	65	
	Totals	264	796	1,060	
CENTRAL ZONE (Northern Region)					
	DISTRICT	NUMBER OF FEMALES	NUMBER OF MALES	TOTAL	
1	Tamale	3	84	87	
2	Karaga	10	90	100	
3	Savelugu	10	75	85	
4	Kumbungu	0	75	75	
5	Gushegu	7	78	85	
6	Yendi	4	87	91	
7	Chereponi	30	55	85	
8	Nanumba North	5	80	85	
9	East Gonja	2	83	85	
10	Sangnerigu	3	27	30	
11	Central Gonja	6	79	85	
12	Saboba	0	85	85	
13	Zabzugu	6	79	85	
	TOTAL	86	977	1063	
NORTHERN ZONE (UPPER EAST REGION/NORTHERN REGION)					
	DISTRICT	NUMBER OF FEMALES	NUMBER OF MALES	TOTAL	
1	Talensi-Nabdam	46	77	123	2
2	Bongo	12	96	108	-
3	Kasena Nankane East	38	171	209	19
4	Kasena Nankane West	42	103	145	-
5	Bawku West	11	73	84	1

6	West Mamprusi	6	79	85	-
7	East Mamprusi	14	82	96	-
8	Bawku Municipal	38	58	96	-
9	Bunkpurugu Yunyoo	4	85	89	-
10	Bolgatanga Municipal	52	63	115	-
11	Garu-Tempene	26	64	90	-
12	Builsa North	8	39	47	
13	Builsa South	1	29	30	-
	Pusiga	3	16	19	-
	Total	301	1,035	1,336	
SOUTHERN ZONE (Brong Ahafo Region/Volta Region)					
	DISTRICT	NUMBER OF FEMALES	NUMBER OF MALES	TOTAL	NO OF DROPOUTS.
1	Tain	27	78	105	
2	Kintampo South	48	52	100	
3	Kintampo North	26	74	100	
4	Atebubu	4	91	95	
5	Pru	25	75	100	
6	Sene	22	63	85	
7	Nanumba South	4	91	95	
8	Kpandai	23	77	100	
9	Nkwanta North	28	72	100	
10	Nkwanta South	18	82	100	
11	Krachi East	43	43	86	
12	Krachi West	1	60	61	
	TOTAL	269	858	1,127	

Appendix 9a: Records of materials distributed within the Southern Zone

DISTRICT	Wellington boots	Watering cans	Cutlasses	Reflective vest	Tricycle	Hand gloves	Signages	Sharpening	Pumping machine	First aid boxes	Metal hoe	Touch Light	Polytanks (Big size)	Polytanks (Small size)	Uniforms
TAIN	105	105	105	105	6	105	14	2	2	2	105	2	5	5	105
KINTAMPO SOUTH	95	100	100	100	2	100	2	1	1	1	100	1	1	1	100
KINTAMPO NORTH	85	100	100	100	4	100	9	1	0	1	100	2	4	3	100
ATEBUBU	85	100	100	85	3	100	10	1	1	1	100	2	3	3	100
SENE	85	85	85	100	3	85	14	1		1	85	2	0	2	100
PRU	85	100	100	85	4	85	12	1		2	85	2	3	3	85
KPANDAI	85	85	85	85	0	85	6	2		2	85	2	0	0	100
NANUMBER SOUTH	85	85	85	85	0	85	4	1		1	85	1	1	0	85
NKWANTA NORTH	85	100	100	100	6	100	7	1		1	100	2	0	0	85
NKWANTA SOUTH	100	100	100	100	6	100	14	2		1	100	1	0		100
KRACHI EAST	100	70	85	100	0	100	3	1		1	100	1	0	0	100
KRACHI WEST	98	100	85	100	3	100	10	2		1	100	1	3	3	100
TOTAL DIST.	1093	1130	1130	1145	37	1145	105	16	4	15	1145	19	20	20	1160
TOTAL RECEIVED	1200	1200	1200	1200	58	1200	300	20	10	20	1200	30	40	60	1200
BALANCE	107	70	70	55	21	55	195	4	6	5	55	11	20	40	40
Pickup	1														
Office space	1														

Appendix 9b. Records of materials distributed within the Eastern Zone

ITEMS	DISTRICT	QTY RECEIVED	KNE	KNW	Builsa	Bawku West	Bawku municipal	Garu Tempane	Bolga Municipality	Bongo	Talensi - Nabdam	West Manprusi	East Manprusi	B.Yunyo	Total Qty	balance
Motorbike		11	1	1	2	1	1	0	1	1	1	1	0	1	11	0
Tricycle		60	2	2	4	2	2	2	4	2	2	4	4	4	34	26
Wheelbarrow		20	0	2	0	0	0	0	0	1	0	2	0	0	5	15
Watering Cans		1340	229	145	77	85	105	90	105	77	125	85	96	89	1308	32
Cutlasses		1100	100	90	76	85	100	90	79	80	100	100	100	100	1100	0
Gloves		2000	216	109	77	85	100	0	110	108	125	85	96	89	1200	800
W.Boots		1000	100	90	76	85	100	-	69	80	100	100	100	100	1000	0
Reflective Jackets		1300	208	100	77	85	100	90	110	130	100	100	100	100	1300	0
T.Shirts		1200	100	100	100	100	100	100	100	100	100	100	100	100	1200	0
Signages		198	14	12	5	5	5	5	15	4	10	27	4	4	110	88
Polytanks big		40	4	0	0	0	0	0	0	2	4	5	3	3	21	19
Metal Hoes		1200	225	100	77	85	100	0	110	108	125	85	96	89	1200	0
First Aid Box		20	2	2	0	0	0	0	0	0	1	2	0	0	7	13
Watering Pump Machine		10	-	-	1	0	1	0	0	1	1	1	1	1	7	3
Water Hose		11	-	-	1	0	1	0	1	1	1	1	1	1	8	3
Cutlass Sharpening Machine		20	2	2	0	0	0	0	0	1	0	2	1	1	9	11
Air Condition		4	4												4	0
Polytanks small		48	3	2	4	2	2	2	4	3	2	8	4	4	40	1
uniform		1200	200	100	77	85	115	90	115	31	100	85	96	89	1183	17
Ford ranger pick up		1														0
office space		1														

Appendix 9c. Records of materials distributed within the Central Zone

S/ N	Item	Qty	District/Quantity Supplied												Total Qty Supplied	Balance
			Tamale M.	Tolon/ K	Save./ N	C. Gonja	Gush e.	Karag a	Zab .	Yend i	Chere .	Sabob a	Nanumba N	Sang .		
1	Cutlass	1,200	80	75	85	60	85	101	85	85	85	85	85	30	941	259
2	Reflective Vest	1200	15	75	85	60	85	101	85		85		85	30	706	494
3	Wellington Boot	1,200	97	75	85	61	85	101	87	177	85	85	85	32	1055	145
4	Hoe	1,200	80	75	85	60	85	121	85	60	85		85	30	851	349
5	Hand Glove	1,200	80	75	85	60	85	101	85	78	85		85	30	849	351
6	Wheel Barrow	20	4												4	16
7	Watering Can	1200	3	75	85	68	85	80	85	60	85		85	32	743	457
8	Water Hose	10	0		3	1									4	6
9	Pumping Machine	10			3	1							1		5	5
10	Poly Tank (700L)	40	1	2	9	4	5	5	3	3	2		5		39	1
11	Poly Tank (3,000L)	40		4	7	3	5	1	4	3	5		5		37	3
12	Tricycle	60	1	2	9	4	5	5	3	3	2		5	2	41	19
13	Motor Bike	11	1	1	1	1	1	1	1	1	1		1	1	11	0
14	Sign Post	200		2	5		5	10		4	8		10		44	156
15	uniform	1001	80	85	85	55	85	100	90	91	85	85	80	32	953	48
16	Ford ranger Pick up	1													1	0
17	office space	1													1	0

Appendix 9d. Records of materials distributed within the Western Zone

District	Signages	Polytank	Metal	Water Cans	Hand gloves	Pumping Machines	Tricycles	Touch light	Uniforms	Office space	Ford Ranger Pickup
		(Large size)	Hoes								
Total received for distribution	200	40	1200	1040	1200	10	47	60	1200	1	1
Wa.M	15	8	99	99	99	0	0	4	99		
Wa.W	10	0	62	62	62	0	0	4	62		
Wa E.	10	0	60	60	60	0	0	4	60		
Nadowli	15	0	97	97	97	0	0	4	97		
Jirapa	10	0	85	85	85	0	0	4	85		
Lawra	10	0	95	95	95	0	0	4	95		
Lambussie	10	0	69	69	69	0	0	4	69		
Sissala W.	10	0	100	100	100	0	0	4	100		
Sissala E.	10	0	100	100	100	0	0	4	100		
Sawla	15	7	90	90	90	0	0	4	90		
Bole	10	3	98	98	98	0	0	4	98		

	10	0	66	66	66	0	0	4	66		
Damango											
Total distributed	135	18	1021	1021	1021	0	0	48	1021		
Balance	65	22	179	19	179	10	47	12	179		
Continuation 2											
District	Wallington Boot	Cutlasses	Wheel barrow	Reflective Jackets	Polytanks(smal l size)	Water Hoes	First aid boxes	Sharpeni ng machine s			
Total received for distribution	1200	1200	20	1200	44	10	20	20			
Wa.M	99	99	4	99	0	0	1	1			
Wa.W	62	62	0	62	0	0	1	1			
Wa E.	60	60	0	60	0	0	1	1			
Nadowli	97	97	0	97	0	0	1	1			
Jirapa	85	85	0	85	0	0	1	1			
Lawra	95	95	0	95	0	0	1	1			
Lambussie	69	69	0	69	0	0	1	1			
Sissala W.	100	100	2	100	0	0	1	1			

Sissala E.	100	100	2	100	0	0	1	1
Sawla	90	90	2	90	0	0	1	1
Bole	98	98	0	98	0	0	1	1
	66	66	0	66	0	0	1	1
Damango								
Total distributed	1021	1021	10	1021	0	0	12	12
Balance	179	179	10	179	44	10	8	8

SADA AFFORESTATION OF THE NSEZ PROJECT

DRAFT LOGICAL FRAMEWORK

PROJECT GOAL

To protect, reforest and sustainably manage degraded forest sites through collaborative management and sustainable increase the income of rural communities within the Northern Savanna Ecological Zone (NSEZ).

PURPOSE OF PROJECT

Improve environment, livelihood and health of communities in the NSEZ through conservation and sustainable use of renewable natural resources (RNR) including medicinal plants.

DRAFT LODFRAME

SADA ACI CONSTRUCTION REF	OUTPUT	VERIFIABLE INDICATORS
OUTPUT 1	Management and Operational staff engaged.	1.1 ACI construction formal agreement signal 1.2 Training centres for supervisors field employees established in each District Assembly. 1.3 Senior management staff trained 1.4 Performance indicators agreed upon with SADA. 1.5 Supervisors trained 1.6 Sensitization workshop for District Assemblies and opinion leaders.
OUTPUT 2	Promote effective reforestation programmes	2.1 Identify appropriate project sites within each District Assembly for active

	<p>that can lead to the restoration of degraded environmental sites through the implementation of tree planting programmes as positive community building actions.</p>	<p>community participation:</p> <ul style="list-style-type: none"> - Windbreaks - Shelter belts - Water Catchments rehabilitation - Amenity planting - Avenue planting - Greenbelt Planting - Parks planting -Dams, streams, river banks planting schemes <p>2.2 Identify suitable tree species for each planting scheme.</p> <ul style="list-style-type: none"> - <u>Khaya senegalensis</u>: streams, river and dam banks; medicinal herbs, Tool handles, mortars and woodlots. - <u>Anogeissus leocarpus</u>: Excellent for construction poles, firewood, potash used in the manufacture of local soap. - <u>Tectona grandis</u> (Teak): Good for poles, structural works; firewood. -Vite llaria paradoxa -Parkia biglobosa are socio-economic spp. -<u>Senna siamea</u> (Cassia) medicinal, good for shade and fuel wood. <p>2.3 Facilitating environmental renewal, climate resilience as stated in SADA’S Business Plan.</p>
OUTPUT 3	Training Modules	<p>3.1 Seed preparation/sowing</p> <p>3.2 Preparation and handling of</p>

		<p>seedlings</p> <p>3.3 Land/site preparation</p> <p>3.4 Transplanting of seedlings</p> <p>3.5 Post transplanting care.</p>
OUTPUT 4	Nursery development	<p>4.1 Techniques in nursery operations</p> <p>4.2 Seedling production</p> <p>4.3 Preparing seedlings for planting</p> <p>4.4 Training on techniques of nursery operations and preparing seedlings for planting</p> <p>4.5 Two central Nurseries and 3 flying nurseries established.</p>
OUTPUT 5	<p>Establishment and management Techniques of planting: Woodlots</p> <p>Avenue planting</p> <p>Amenity Planting</p> <p>Dams, streams and River banks rehabilitation.</p> <p>Windbreaks and water catchment areas planting.</p>	<p>5.1 Sites reconnaissance in all District Assemblies.</p> <p>5.2 Selecting of planting site in all District Assemblies</p> <p>5.3 Species selection</p> <p>5.4 Site preparation</p> <p>5.5 Coping with delays in planting seedlings</p> <p>5.6 Water catchment areas rehabilitation.</p> <p>5.7 Establishment of <u>Ceiba pentandra</u> on temporarily flooded areas.</p> <p>5.8 Establishment of Jatropah sp. On highly degraded areas.</p> <p>5.9 Beating-up replacement of dead seedling.</p>
OUTPUT 6	Development of plantation	6.1 Plantation maintenance

OUTPUT 7	Train staff on handling seedlings and methods of planting types of nursery stock.	7.1 Potted seedling 7.2 Open rooted.
OUTPUT 8	Communities sensitization on factors that destroy the ecology of the environment	8.1 Wild fires 8.2 Indiscriminate cutting of trees 8.3 Reckless harvesting of medicinal plants 8.4 Group hunting.
OUTPUT 9	Mitigating strategies to manage risk.	9.1 Develop study plan for analysis of the role of fire in farming systems 9.2 Develop fire us guidelines 9.3 Uses of fire in farming systems: Food crops Livestock Fisheries Trees Crops Apiculture
OUTPUT 10	Incentives for reduction of wild fire established in rural communities and other suggestions.	10.1 Identify appropriate incentives to reduce the risk of fire 10.2 Define criteria for award of incentives 10.3 Institute mechanism for the award of incentives 10.4 Award incentives to deserving communities at District Assemblies levels. 10.5 Review existing policies and legislation related to fire 10.6 Pick up success fire management lessons from various communities in

		<p>NSEZ as well as activities from neighboring countries</p> <p>10.7 Collaborators: Local communities District Assemblies NADMO, Police, Forestry Commission, Media, NGOs, CBOs</p> <p>10.8 Conduct fire prevention suppression training.</p> <p>10.9 Facilitate cooperation amongst government organizations to increase fire fighting efficiency.</p>
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OUTPUT 1: MANAGEMENT AND OPERATIONAL STAFF ENGAGED

Ref	Leader	ACTIVITY DESCRIPTION
1.1		Selecting and engaging ACI Construction and Restoration Senior Management team for the community based livelihood improvement program through rehabilitation of degraded lands and forest and environmental enhancement.
1.2		Establishing training centres in each District Assembly (DA) for supervisors and field staff.
1.3		Conducting training needs analysis and training Senior Management team.
1.4		Developing and implementing an integrated performance management.

1.5		<p>Training of supervisors and field staff in key nursery and plantation establishment techniques and rudimental rural sociology.</p> <p>Recruiting and selecting 100 field staff from each District Assembly</p> <p>Developing and implementing appropriate human resource management policies, including Job design and redesign, welfare and gender equity and fairness.</p>
1.6		Initiating regular workshops for sensitizing key stakeholders.

OUTPUT 2: PROMOTE EFFECTIVE REFORESTATION THAT CAN LEAD TO THE RESTORATION OF DEGRATED ENVIRONMENTAL SITE.

Ref	Leader	ACTIVITY DESCRIPTION
2.1		Developing capacity at District Assembly level to promote stakeholder participation in identifying degraded lands that require reclaiming
2.2		Identifying fast growing and useful indigenous tree species and a few popular exotics and use them in implementing the rehabilitation of the ecologically impoverished areas to enhance livelihood and reduce poverty.
2.3		Encouraging indigenous opinion leaders, District Assemblies (DAs), Chiefs, Tindamba to assist in reclaiming the degraded lands.

OUTPUT 3: TRAINING MODULES.

Ref	Leader	ACTIVITY DESCRIPTION
3.0		<p>Conducting training needs analysis based on techniques in sighting and establishing: Nursery, plantation development and basic rural sociology and training field staff regularly to enhance efficiency of output,</p> <p>Testing various forest based activities to enhance livelihoods and reduce poverty including-</p> <ul style="list-style-type: none"> -developing NTFP cultivation and gathering -Small scale outside forest reserve plantation -encourage modified “taungya” for small scale rehabilitation.

OUTPUT 4: NURSERY DEVELOPMENT

Ref	Leader	ACTIVITY DESCRIPTION
4.1		Developing permanent source of water, viable seeds, methods of nursing the seeds and compost making as key to sound nursery operations.
4.2		Producing good and viable nursery stock require implementing the following: <ul style="list-style-type: none">- Good soil mixture both in pots and beds- Watering seedlings twice daily-morning and evening- Eliminating weeds
4.3		Preparing seedlings for planting out, the general rule of thumb is- above-ground of potted stock should not be less than 0.2metres and not more than 1.0metr -Open-rooted stock can have between 0.2 to 1.5 metres in growth above ground.
4.4		Training relevant staff in nursery development to eliminate unnecessary looses during field planting

OUTPUT 5: ESTABLISHMENT AND MANAGEMENT TECHNIQUES OF PLANTATIONS

Ref	Leader	ACTIVITY DESCRIPTION.
5.0		Selecting planting sites and species in all the different planting designs are important prior to implementing rehabilitation. Handling of seedlings if they are not to be planted the same day is essential if heavy casualties are to be avoided – placing of potted plants in sunken <ul style="list-style-type: none">- Placing of the roots of open-rooted seedlings in a shallow ditch and in shade.

OUTPUT 6: DEVELOPMENT OF PLANTATION

Ref	Leader	ACTIVITY DESCRIPTION.
6.0		<p>Getting the plantations free from weed completion, insect and disease attack yield optimum growth.</p> <p>Pruning and thinning with technical advice and at the right time enhances wood volume together all the environment benefits plants provide.</p> <p>Developing capacity of field staff to promote stakeholder participation in integrated forest management planning processes including developing social monitoring tools and developing policy community based indicators.</p>

OUTPUT 7: TRAIN STAFF ON HANDLING OF SEEDLINGS AND METHODS OF PLANTING

Ref	Leader	ACTIVITY DESCRIPTION
7		<p>Conducting intensive training for field staff and farmers the need for the root collar of stump, striping or potted plant not to go deeper than the soil/ground level.</p> <p>Developing training manuals.</p>

OUTPUT 8: COMMUNITIES SENSITIZATION ON FACTORS THAT DESTROY THE ECOLOGY OF THE ENVIRONMENT.

Ref	Lesson	ACTIVITY DESCRIPTION
8.0		<p>Creating awareness at workshops, training centres and other public fora on factors that degrade the environment leading to climate change.</p> <p>Developing training manuals for information dissemination on sustainable land management and agro forestry.</p>

OUTPUT 9: MITIGATING STRATEGIES TO MANAGE RISK

Ref	Leader	ACTIVITY DESCRIPTION
9.0		Identify reasons for burning and socio-economic roles of fire. Assisting communities to construct fire belts around all tree plantings to ensure adequate protection. Undertaking community fora on wildfire management issues through folk plays and drama as well as jingles in the radio to address uncontrolled burning.

OUTPUT 10: INCENTIVES FOR REDUCTION OF WILDFIRE ESTABLISHED AND OTHER SUGGESTIONS.

Ref	Leader	ACTIVITY DESCRIPTION
10		Identifying incentives to reduce risk of wildfires and criteria for award at District Assembly level. Passing of more punitive bye-laws on wildfires by every District Assembly within the NSEZ as a means of improvement of environment quality and food security

Appendix 11: Agreement for the Cooperation in the implementation of the Reforestation Project between SADA and ACICL.

SAVANNAH ACCELERATED DEVELOPMENT AUTHORITY

AND

ACI CONSTRUCTION LIMITED

AGREEMENT FOR THE CO-OPERATION
IN THE IMPLEMENTATION OF THE REFORESTATION
PROJECT

05- June , 2012

(Handwritten initials)

AGREEMENT

This AGREEMENT is made this 7th June 2012.

Between,

Savannah Accelerated Development Authority (SADA), of Post Office Box CT272 Cantonments Accra acting by its lawful representative, and Executive Director (hereinafter referred to as "SADA"), of the first part.

And

ACI Construction Limited, a company incorporated under the laws of the Republic of Ghana of P. O. Box CT6027, Cantonments, Accra acting by its lawful representative and Chairman Roland Agambire (hereinafter referred to as "ACICL") of the second part.

WHEREAS

- A. SADA is a corporate body established to among other things mobilize human, financial and other resources for the implementation of the accelerated development strategy within the Northern Savannah Ecological Zone.
- B. ACICL is in the business of training, equipping and setting up young unemployed persons in technical and entrepreneurial vocations and trades.
- C. SADA envisions to create a forested and green North has identified the roll out of a comprehensive and sustained afforestation programmes (hereinafter referred to as "the Project") as one of the ways for achieving this vision and for creating jobs among youth as a means of undertaking afforestation activities within its catchment area.
- D. Upon SADA's invitation, ACICL has developed and submitted a proposal for the implementation of an afforestation programme that seeks to train and deploy Five thousand (5,000) young persons (hereinafter referred to as "Beneficiaries") as re-afforestation brigades within the SADA zone comprising all districts in the three Northern Regions, the Northern Brong-Ahafo and the Northern Volta Regions. ACICL also committed to contribute part of its services in training and in communications to support the initiative, as a private-sector partnership with SADA
- E. SADA has agreed to enlist and use the expertise of ACICL to train, equip and deploy the re-afforestation brigades within the SADA zone to execute a comprehensive and sustainable tree planting exercise. This choice is in reference to ACICL's widespread national expertise, and in particular, being a company indigenous to the Northern Savannah.
- F. This Agreement records the agreed terms and conditions of SADA's engagement of ACICL in respect of the Project

IT IS AGREED AS FOLLOWS

1. Engagement

Subject to the terms set out in this Agreement, SADA engages ACICL and ACICL agrees to act in good faith and with all reasonable skill and care for the purpose of implementing the

Project within the targeted area of the three Northern Regions, districts in the northern Brong-Ahafo region and districts in the northern Volta Regions of Ghana (hereinafter referred to as the "SADA zone").

2. **Commencement and Duration**

This Agreement shall come into effect upon execution and unless terminated by contravening the rules of engagement by either parties. Herein, shall remain effective until Expiration Date.

Expiration Date

This Agreement shall expire on the first anniversary date on which it comes into effect, and for a period no more than 12 calendar months. Schedule 1 of the Agreement (Specific Tasks and Cost Estimates for Year 1) shall cease to be effective 12 calendar months after its commencement, unless otherwise stated in a separate, signed amendment. The agreement may be renewed for a period not exceeding 4 additional years, subject to the satisfactory performance of ACICL as attested by an independent external evaluation and audit; and provided SADA budget is available and adequate to cover project costs. For the avoidance of doubt, each year's appropriation for this project and any extensions thereof shall be governed by a separate, signed agreement and/or extensions to this Agreement, duly negotiated and signed by the appropriate parties.

3. **Cost of Project**

3.1 Subject to clause 3.2 the Project cost for year 1 is **Thirty-Two Million, Four Hundred and Ninety-Eight Thousand Ghana Cedis (GHC32,498,000.00)** disbursed in accordance with Clause 4 below.

3.2 ACICL shall contribute in-kind towards the project which shall cover specific aspects of project cost, representing the costs of training and capacity building of beneficiaries, and part of the cost of communications, branding and public awareness.

4. **Terms of Disbursement**

4.1 SADA shall pay into an account designated by ACICL as Project Account an amount of **Twenty-Four Million, Five Hundred and Sixty-three Thousand Ghana Cedis (GHC24,563,000.00)** as the first payment upon signing this agreement. This represents the costs of critical mobilization expenses, including seedlings, tools, water supply and part of the costs of recruitment and payment for youth beneficiaries. The specific schedule of payment is outlined in Detailed Budget and Quarterly Disbursement Schedule.

4.2 SADA shall make a subsequent quarterly payment of **Two Million, Six Hundred and Forty Five Thousand Ghana Cedis (GHC2,645,000.00)** to ACICL and shall be made in one installment not later than thirty (30) days from the commencement of every subsequent quarter.

4.3 Quarter for the purpose of payment under Clause 4.2 shall be three months from the Effective Date and subsequent three months thereafter for the duration of this Agreement.

4.4 ACICL shall submit a quarterly progress and financial report of the previous quarter's work and disbursement. ACICL shall also submit an invoice for the next quarterly disbursement not later than seven days after the commencement of each relevant quarter.

4.5 ACICL shall provide and maintain an Advance Payment Guarantee in a form

acceptable to the Client, as a condition precedent for the payment of the disbursement of the amount under clause 4.2.

5. SADA's Obligations

- 5.1 Pay to ACICL the mobilization payment in respect of project start-up; and quarterly amount in accordance with clause 4.1 and 4.2 for the timely implementation of the Project.
- 5.2 Clearly identify and define the specific areas within the SADA zone where project activities are to be targeted.
- 5.3 Collaborate with ACICL in selecting and recruiting the 5,000 Beneficiaries within the Project implementation area, and support ACICL in enlisting Members of Parliament, DCEs and other relevant stakeholders to be actively and appropriately involved in the recruitment process
- 5.4 Approve the types of seedlings and specifications of equipment procured by ACICL for the implementation of the Project.
- 5.5 Monitor the training, deployment and management of the Beneficiaries through its district co-ordinators or any other nominees as it may in its discretion determine.
- 5.6 Periodically review the implementation of the Project and prescribe or issue such variations order as may be required from time to time, provided always that, where such prescriptions and/or variations increases cost of implementation it shall adjust upwards the budget to accommodate such increase.

6. ACICL's Obligations

- 6.1 Provide relevant human and material resource for the implementation and management of the Project.
- 6.2 Provide all required logistics for the effective training of the Beneficiaries.
- 6.3 Develop and implement fully the curricular for training the Beneficiaries within the Project implementation area for a period of one month at no charge or cost to the Beneficiaries.
- 6.4 Establish the appropriate number of brigades within all the districts constituting the SADA zone and deploy the Beneficiaries to the relevant brigades,
- 6.5 Provide the equipment, tools and safety clothing as well as health and safety facilities necessary for the implementation of the Project to each Beneficiary upon successful completion of the training.
- 6.6 Procure the certified and approved seedlings and distribute among various brigades for planting.
- 6.7 Adminster the deployment of the Beneficiaries into the respective brigades and supervise the planting of the approved seedlings within the Project implementation area.



6.8 Administer the payment of stipends to the Beneficiaries after deployment in strict accordance with provisions rates and terms set out in the Proposal.

6.9 Submit monitoring reports monthly on the status of the Project and performance of Beneficiaries after deployment. Specific reports include: monthly narrative reports; quarterly narrative and financial reports; and an annual narrative and disbursement report at the end of the project's 1 year duration.

7. **Standard of Performance**

7.1 ACICL shall perform its duties diligently and in good faith and exercise reasonable skill in the implementation of the Project.

7.2 ACICL shall procure and supervise the planting of Five Million (5,000,000) approved seedlings annually in the three (3) project regions.

7.3 Beneficiaries shall be deployed at all times within the region in which is recruited.

8. **Training Location**

ACICL shall implement and manage the training to the selected Beneficiaries at proximate centres within the districts where Trainees are located.

9. **Confidentiality**

All communications and information whether written, visual or oral and all other material supplied to or obtained by either Party in the course of or as a result of the discharge of its obligations under this Agreement shall be confidential and shall not be disclosed to any third party without the prior written consent of the other party, such consent not to be unreasonably withheld, Except where such disclosure is required under any law for the time being in force.

10. **LIABILITY AND INDEMNITY**

ACICL shall keep SADA indemnified and held harmless from and against all actions, proceedings, costs, expenses, loss and damage whatsoever arising out of or in connection with the implementation of the Project and the discharge of its obligations under this Agreement, its employees, agents and duly authorized representatives or any breach of this Agreement on their part.

11. **Assignment**

ACICL shall not assign its obligations under this Agreement without the prior, express written consent of SADA, such consent not to be unreasonably withheld.

12. **Notices**

Each notice or other communication relating to this Agreement shall be in writing, shall be hand-delivered or sent prepaid by mail or overnight delivery service and shall be deemed duly given when sent to the following addresses:

To CHIEF EXECUTIVE OFFICER
SAVANNAH ACCELERATED DEVELOPMENT AUTHORITY
INDUSTRIAL AREA
P.O. BOX 883
LAMASHEGU, TAMALE

Attention:

To ACICL
NO. 13, ABBRESEM STREET
OSU RE (NEAR PHOTO CLUB)
OFF OSU-CANTONMENTS ROAD
P.O. Box CT 6027,
CANTONMENTS, ACCRA

Attention: []

13 Miscellaneous

- 13.1 ACICL shall bear the costs of preparing and executing this Agreement.
- 13.2 Any dispute arising out of or in connection with or implementation of the Project under this Agreement shall be amicably settled failing which the same shall be referred to arbitration in Ghana in accordance with the Alternative Dispute Resolution Act, 2010 (Act 798);
- 13.3 This Agreement shall be governed by the laws of Ghana;
- 13.4 The headings and numberings in this Agreement are for convenience only and shall not form part thereof;
- 13.5 This Agreement may be executed in several counterparts, all of which shall form one document;
- 13.6 This Agreement cannot be amended or varied without the express written consent of the parties.
- 13.7 If any provision of this Agreement shall be or become invalid unenforceable or illegal the remaining terms and provisions shall be deemed to be severable therefrom and shall continue in full force and effect unless such invalidity unenforceability goes to the root of this Agreement.
- 13.8 The Proposal submitted by ACICL on the { 2012 shall be incorporated by reference into this Agreement and shall be read and construed as an integral part of this Agreement provided that the terms of this Agreement takes priority over any statement in the said Proposal.



IN WITNESS WHEREOF the duly authorized representatives of the parties hereto have executed this Agreement on the day and year first above written.

Signed on behalf of Savannah Accelerated
Development Authority
By - Alhaji Gilbert Seidu Iddi



In the presence of witness:

SAIBU NICHANNA
Chiffondier

NAME:
Address:
Occupation:

Signed on behalf of the ACI CONSTRUCTION
LIMITED
By:- Mr. Roland Agambire



In the presence of witness:
Name: JOSEPH MIAH
Address: 16 Luman Hill Road, Accra
Occupation: ACCOUNTANT

