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Farmers' perceptions of the quality of extension services provided by non-governmental organisations in two municipalities in the Central Region of Ghana

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ABSTRACT

Since independence in 1957, the provision of major support services for farmers such as physical infrastructure and research services for the agricultural sector in Ghana has been the preserve of the government. However, with respect to agricultural credit, extension and marketing services, there has been a mix of both public and private sector participation with public services declining in quantity over the period of structural adjustment programmes in the country beginning in 1983–2006. Over this 24-year period, government involvement in extension delivery to farmers declined. Since 2007 the level of government support for the agricultural sector has increased considerably with government support for investment in agriculture outpacing its recurrent expenditures for the sector. The decline of government extension delivery led to an increased role for not-for-profit organizations such as non-governmental organizations (NGOs) in supporting farmers. We assessed the quality of extension services provided by four NGOs in two municipalities of the Central Region of Ghana: Mfantseman and Komenda–Edina–Eguafo–Abrem (KEAA). The study was based on random sampling of farmers with the gender used as the key attribute in the choice of the optimal random sample. Beneficiary farmers assessed six main services provided by NGOs, namely information support, input supply, training, technology transfer, credit and monitoring and evaluation of extension activities. Farmers generally perceived the services to be relevant to their operations. However, they had mixed opinions concerning the services with respect to their adequacy, availability and their timeliness of supply. Monitoring and evaluation of extension activities by NGOs was generally acceptable.

1. Introduction

1.1. Background

For many countries in Africa, agriculture continues to be a major source of income and livelihood for large numbers of people. The agricultural sector provides food and basic subsistence needs of many farmers living in the rural areas of these countries. In Ghana, over the 2006–2012 period, the gross domestic product (GDP) was re-measured after a rebasing exercise by the Ghana Statistical Service (GSS) with the conclusion that the country had attained a lower middle income status as of 2010 measured by a real GDP per capita of over 1300 United States dollars. Based on the revised or rebased GDP figures, the share of the agricultural sector as a proportion of the GDP was about 28.1% over the more recent 2008–2012 period. The industrial sector accounted for about 22.3% with the remaining 49.6% of GDP accounted for by the services sector (Ghana Statistical Service, 2013).

Despite its relatively smaller size, the agricultural sector employs about 41.6% of the economically active population aged 15 and over compared to the figures of 15.3% and 43.1% for the industrial and services sectors respectively (Ghana Statistical Service, 2012, pp. 76–78). This makes the agricultural sector an important source of employment of people and consequently poverty reduction in the country. Agriculture in Ghana is dominated by semi-subsistence farmers, who live mainly in rural areas and cultivate about 1–3 ha of land using hand tools like hoes and cutlasses. The export crop agriculture sub-sector, such as the cocoa industry, is largely dominated by male farmers who cultivate larger sizes of land on average between 6 and 10 ha. However, the food crop industry is largely dominated by women farmers. Rural non-export

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agricultural production is characterized by inadequate extension delivery services, little modern capital inputs and resilient but relatively low yielding farming methods. The consequences of low support systems, and low quality inputs are low yields, relatively low commercial outputs and low revenues and endemically high levels of poverty for food crop farmers.

The results of the Ghana Living Standards Survey (GLSS) 5 undertaken by the GSS in 2005/2006 showed that poverty reduction had improved with about 28.5% of people living in poverty with poverty measured as per capita expenditure below the 1.25 United States dollars per day threshold. This poverty level ascertained from GLSS5 was significantly lower than the 38% level in 1998/99 and the 51% level in 1991/92. Nevertheless, the GLSS 5 results indicated that most food crop farmers lived in poverty and poverty levels were over 80% in the three northern regions of the country (Ghana Statistical Service, 2008). Poverty reduction in Ghana achieved in 2005/2006 was largely due to improvement in incomes of cocoa farmers due to relatively high world market cocoa prices which were passed onto cocoa farmers and expanded support services including the release of high-yielding cocoa varieties for cocoa farmers which increased yields per hectare. Cocoa farmers in Ghana were paid at least 70% of free-on-board world cocoa prices from 2000 to 2011.

There has been a growing awareness that sustained increases in poverty reduction in Ghana are more likely to be achieved through improvement in the agricultural sector especially the food crop sector (for example, refer to various Ghana Government medium term development strategy documents such as the Ghana Poverty Reduction Strategy, 2003–2005, Growth and Poverty Reduction Strategy, 2006–2009 and the more recent policy statement, the Ghana Shared Growth and Development Agenda, 2010–2013) (Government of Ghana, 2003; Government of Ghana, 2006; Government of Ghana, 2010). Despite this awareness, the real monetary value of support services to farmers in Ghana had declined except for cocoa farmers. This legacy was mainly due to the structural adjustment programmes (SAPs) undertaken by the Government of Ghana since April 1983 with the support of various international lending agencies mainly the International Monetary Fund and the World Bank.

SAPs became necessary in Ghana after the near collapse of the economy over the 1979–83 period. The causes of the near collapse of the economy of Ghana have been documented by Anaman (2006). These included political instability, extremely severe droughts in 1977 and 1983 which were linked to a very severe form of the El Nino Southern Oscillation (ENSO) weather phenomenon, and economic mismanagement of various military governments that seized power from 1966 to 1983.

A major consequence of SAPs was the general diminution of the State in the provision of social and public services including agricultural extension services. Over the period from 1983 to 2006, the level of public agricultural support services declined with the services targeted at food farmers being hit severely (Anaman and Okyere, 2012). Levels of support services for the agricultural sector started to increase in real terms from the beginning of the 21st Century (2001) with the initial focus on cocoa farmers. Towards the end of the first decade of the 21st Century starting in 2007, the government started to increase sharply its investment support to the agricultural sector because of the world food crisis of 2007–2008 which hit the country with high food prices (Ministry of Food and Agriculture, 2010). Despite the increased awareness of public support services for the agricultural sector, the public extension service is constrained by many factors including inadequate finances and manpower and poor roads to rural areas where many farmers live. As a result many farmers have not benefitted much from public extension services in terms of important information related to new techniques of farming, training for improved skills in farming and access to credit (Government of Ghana, 2010). Asuming-Brempong et al. (2006) document several factors and bottlenecks that reduce the effectiveness of agricultural extension services in Ghana.

The diminution of the State in the provision of agricultural extension services in Ghana saw the rise of the role of NGOs in the provision of these services especially since the era of SAPs starting in 1983. It must be noted that the role of NGOs in agricultural extension services delivery is not new. For much of the 19th Century and the first two decades of the 20th Century, European Christian missionaries, especially the Swiss-German Basel Evangelical Church Missionaries, provided valuable agricultural extensions services as part of their package of Christian livelihood mission activities which included spreading the message of Christianity, improved health and education services. The expulsion of the Swiss-German Basel Missionaries in 1917 by the British Colonial Authorities from Ghana (then Gold Coast) reduced significantly the role of Christian Missionaries in agricultural extension services delivery (Debrunner, 1967).

The role of NGOs in economic and social development in Ghana has also been noted by a number of scholars. Frantz (1987) pointed out that NGOs were usually involved in solving economic, social and cultural problems of a country. Asibey-Bonsu and Posamentier (2001) documented the growth of NGOs in the supply and financing of extension services in Ghana. According to Swanson and Sammy (2000), with the necessary support from the government, NGOs could be more effective in helping resource-poor farmers gain access to resources and technologies. Services provided by NGOs in Ghana come in the form of services like agricultural information support, provision of input and credit, training, technology transfer, and monitoring and evaluation of projects related to agricultural improvement. Farmers require training to enhance their performance on the job (Halim and Ali, 1997) and improve their competency (Kwarteng, 1995).

In order to improve production and overcome the drudgery that results from the use of traditional farm practices and tools, farmers need to adopt new technologies. But local farmers generally have limited access to education and credit, and also lack information and knowledge about a wide range of technological alternatives. Many rural farmers lack the capital to purchase inputs for expansion of their farms. Agricultural extension involves offering advice and sharing information (Garforth, 1997). Farmers obtain information from several sources including the mass media, other farmers, extension services, training courses for decision-making. A major requirement for the implementation of the recommendations of extension is inputs. Even though these must be available and affordable, farmers sometimes complain of their untimely delivery and high cost. An important service that NGOs render is monitoring and evaluation. It is critical to the effective implementation of projects. It provides timely information on project progress and performance and gives an assessment of whether the target group is getting the benefits.

In Ghana, a few published studies have been undertaken to assess the quality of agricultural extension activities of NGOs (for example, refer to the work of Amanor and Farrington (1991)). There is an inadequate level of published literature on the services of agricultural NGOs in the country; the kind of services provided, the approach used, and the perception of the beneficiaries of these services. The gap in the knowledge of agricultural extension services provided by NGOs in Ghana prompted this study. For example, in the two municipalities that the study was conducted, there was a gap in service delivery by the public extension services which was filled by several NGOs; yet there is no published study on the performance of these NGOs. Knowledge of the performance of agricultural NGOs could help the government and the commercial private sector gain valuable information to shape policies and programmes to enhance the standard of living of rural people and thereby reduce poverty and improve rural livelihood.

1.2. Objective of study

The main objective of the study was to assess farmers' perception of the quality of services provided by NGOs in agriculture in Mfantsiman and KEEA municipalities of the Central Region, one of the ten administrative regions of Ghana. The rest of this paper is organized as follows: the next section discusses the materials and methodologies used for the study including sampling procedures and a brief description of the study areas. The next section of the paper is devoted to a discussion of the main results of the study. The discussion and implications section follow. The final part of the paper contains the conclusions and references.

2. Methods and materials studied

2.1. Introduction

The failure of the national government to provide adequate levels of public extension services has led to an increased role for community organizations such as NGOs and farmer-based organizations (FBOs). The quality of extension services provided by the Community and the State to support the farmer is important if the farmer is to use these services to improve the levels of his/her incomes and reduce his/her poverty. Support services come in the form of direct inputs and/or information. Direct inputs when combined in particular forms lead to certain output incomes. Information on the other hand involves the conversion of raw data and/or unimproved information into forms that can be useful for decision making. In general, the value of extension services depend on various quality attributes embodied in these services.

A service needs to be relevant to a farmer for adoption for use on the farm. Once the service is relevant, the farmer desires its provision at adequate levels if the service is available. This implies that the service provision has to be timely, provided in enough quantities and at times needed by the farmers. The service provider must also have an efficient monitoring and evaluation system to ensure that its services and products are actually reaching the farmers in a timely manner and are considered to be reliable. Briefly, the quality attributes of a service include (1) relevance of the service for the operations of the farmer, (2) availability of the service for possible use by the farmer, (3) the adequacy of the level of the service, (4) timeliness in the provision of the service, and (5) efficiency in the monitoring and evaluation of the service by the provider aimed at establishing the reliability and consistency of the service. The overall usefulness of a service depends on high levels of desired quality attributes as one limiting quality attribute can render the value of a service of little value. It is also accepted that the perception of quality of a service may depend on the socio-economic characteristics of users (Anaman and Lellyett, 1996) and service provision may need to be tailored to different users based on their socio-economic characteristics.

Services provided by NGOs to farmers are often underpriced or are offered "free" (zero market prices). However these services do have economic value to farmers as they are actually demanded and used. The values of these services are largely dependent on their perceived quality. The assessment of the quality of extension services is best done by eliciting data and information directly from farmers in order to help improve service delivery by tailoring the services to the expressed needs of farmers. This bottom-up-approach is superior to the alternative approach whereby so-called experts decide the types and levels of services needed by farmers. Thus, in our study, we used the direct elicitation of data and information of farmers to determine the quality of services provided by NGOs in the selected municipalities. This was done through a survey of randomly-selected farmers serviced by various NGOs. The research design and the survey procedures and administration are discussed next.

2.2. Research design

We used the descriptive correlation survey as the research design. As noted by Kerlinger (1979), this design aims to determine the nature of a situation as it exists at the time of the investigation. Gay (1987) suggests that descriptive research is useful for researchers to derive reliable insight into the current status of phenomenon related to conditions in a situation. The main purpose of a survey design is to describe the characteristics of a population. In essence, researchers want to find out how members of a population distribute themselves on one or two variables. As in other types of research, the population as a whole is rarely studied. Instead, a sample of respondents is carefully selected and the information they provide is used to describe some aspects or characteristics of the population from which the sample is part.

2.3. Survey procedures and administration

A survey of farmers and fishsmokers benefitting from services provided by four NGOs working in the Mfantsiman and KEEA municipalities in the Central Region of Ghana was undertaken over the 3-month period from April to June 2007. Stratified random sampling procedure based on gender was used in selecting 297 crop farmers based on the population of farmers in the two municipalities. For fishsmokers, 26 were selected based on interviewing available women involved in fish smoking since the populations of fishsmokers were not available. The survey approach involved direct face-to-face interviewing to elicit data and information on farmers' perceptions about the services provided by four NGOs.

The information requested from respondents consisted of six main services provided to farmers in the form of (1) information support, (2) provision of inputs, (3) training, (4) technology transfer, (5) supply of credit, and (6) monitoring and evaluation of activities. The quality of these services was assessed using a simple 1–5 Likert scale of measurement. The survey data collected were analysed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics such as means and standard deviations of variables related to the perceptions of farmers concerning quality attributes of the services provided to farmers were computed using SPSS. Our study focused on five quality attributes of extension services, namely (1) relevance, (2) availability, (3) adequacy, (4) timeliness, and (5) monitoring and evaluation of planned activities.

2.4. Brief description of study areas

The first municipality, Mfantsiman, has Saltpond as its capital. Other major communities include the towns of Essakyir, Dominase, Anomabu, Mankessim, Kormantse, Abandze, Otuam, Narkwa and Yamoransa. This Municipality had a population of 152,000 in 2000 out of which 54% were females. Major crops cultivated are vegetables particularly pepper and garden eggs. Minor vegetables grown include okro, tomatoes and cabbage. Other crops cultivated are maize, cassava, plantain, pineapples and also citrus, oil palm, cocoa, sugarcane and cashew. Gari processing is undertaken in Taabosom with palm fruit processing factories based at Toboase, Odumanor and Akobima. The main NGOs operating in the area at the time of the study were the Adventist Development and Relief Agency (ADRA), World Vision International (WVI) and International Association for the Advancement of Women in Africa (ASAWA).

The second municipality, KEEA consists of four traditional areas, namely, Komenda, Edina, Eguafo and Abrem with Elmina as its capital. It had a population of 112,435 in 2000 with a male to female

gender ratio of 91.6–100 (Ghana Statistical Service, 2001). About 86% of the total land area is arable land. Farmers in the area mainly semi-subsistence farmers with average holding size between 2 and 3 ha. Food crops cultivated include maize, cassava, yam, plantain, cocoyam and pineapple. Other crops grown are citrus, cocoa, oil palm and sugar cane. NGOs operating in the area at the time of the study were ADRA and Central and Western Fishmongers Improvement Association (CEWEFIA).

3. Results

3.1. The profile of the target NGOs operating in the study areas

This section gives a brief description of the four NGOs studied with respect to their origin and actual work that they undertake in the study areas related to agricultural extension services. The four NGOs are ADRA, WVI, ASAWA and CEWEFIA. ADRA carried out its operations in 44 and 21 communities in the Mfantsiman and KEEA districts respectively. The other three NGOs operated in seven and 12 communities in the Mfantsiman and KEAA districts respectively. The details of the four NGOs are provided below.

3.1.1. ADRA

ADRA is a foreign NGO that came to Ghana in 1984 after the severe drought of 1983. It is a major distributor of commodities that are used primarily for food-for-work (FFW) activities. It has projects in all the 10 regions of Ghana. With FFW, it has promoted tree- planting for community woodlots and intercropping in farms. It liaises with the Forestry Department, Ministry of Land and Natural Resources for the production of free seedlings for community woodlots; however community members pay for the cost of transport of the seedlings to the woodlots. Some of the activities undertaken by ADRA in the study areas include formation of farmer groups, provision of farm inputs to farmers, for example, cutlasses, seeds, seedlings of cashew, cassia, citrus and fertilizers, offering technical advice to farmers, helping farmers to acquire processing machines, helping farmers to construct cribs for storage of produce, provision of market information on prices of farm produce, linking farmers to buyers of produce and the training of technical men and farmers and undertaking monitoring of its activities.

3.1.2. WVI

WVI is a well-known international Christian-based relief and development agency with branches in over 90 countries. It commenced operations in Ghana in 1979. The major programme areas being pursued in Ghana are education, food and agriculture, health and nutrition, water and sanitation, gender development activities, micro-enterprise development and Christian witness and leadership training. The food and agriculture programme area is meant to improve the efficiency of farm production, incomes and welfare of farmers. WVI provides credit facilities and technical assistance to farmers through its extension staff.

3.1.3. ASAMA

This is a local NGO which was started in Ghana in 1998 to help develop human resources in the rural areas with emphasis on training women in various income-generating activities. It assists women in areas including (1) fish smoking, processing and packaging, (2) gari processing, (3) mushroom cultivation, (4) pineapple cultivation, and (5) palm oil processing. It has an integrated rural human resource centre at Ekumfi Eyisam in the Mfantsiman Municipality.

3.1.4. CEWEFIA

This is also a local NGO which was initially formed in March 1990 after the displacement of 54 fishmongers whose mud ovens were destroyed during the rehabilitation of the station of the Ghana Railway Corporation in Sekondi in the Western Region of Ghana. The fishmongers mobilized into a group, resettled and obtained loans to improve upon their fish processing business. As a result of this initial success, some fishmongers in the Central Region invited the Sekondi fishmongers to work with them. This was done and both groups worked together and exchanged ideas and experiences, hence the name Central and Western Fishmongers Improvement Association of Ghana (CEWEFIA). CEWEFIA aims to improve the socio-economic status of rural women, children and communities. It assists women by organising fishmongers into viable groups and co-operatives and encourages them to engage in improved processing of fish using energy-efficient and environmentally-friendly smoking technology. Other activities of this NGO deal with the promotion of savings and increasing access of women to micro-credit programmes through means such as organising capacity building workshops.

3.2. Summary socio-economic characteristics of farmers

The summary socio-economic characteristics of respondents are presented in Table 1 based on frequency analysis. Majority of the farmers (56.0%) came from Mfantsiman Municipality which was the larger district. About 53.1% of the respondents were female reflecting the gender composition of the population of the study areas. About five-sixths of the farmers (83.6%) were between the ages 30 to 59 with the 40–49 age group accounting for almost one-third of the sample (33.0%). Junior Secondary School/Middle School graduates were the prominent class of respondents based on the attainment of formal schooling (47.8%). Respondents with no schooling constituted the second largest group based on educational attainment (37.3%). Overall, the respondents were generally middle-age people with relatively low levels of formal education.

3.3. Perceptions of relevance of services provided by NGOs

Farmers' perceived importance of the relevance of the services rendered by NGOs is shown in Table 2. With the exception of the provision of credit, all the other services were perceived by farmers to have high levels of relevance for their work. The services with

Table 1
Summary of socio-economic characteristics of survey respondents based on frequency analysis.

Item	Percent frequency (%)
Municipality respondents lived	
– KEAA	44.0
– Mfantsiman	56.0
Gender	
– Female	53.1
– Male	46.9
Age	
– 20–29	5.7
– 30–39	30.2
– 40–49	33.0
– 50–59	20.4
– 60 or greater	10.7
Educational attainment level	
– No school at all	37.3
– Some primary school	10.4
– Junior secondary school/middle school	47.8
– Technical college/secondary school	1.6
– Some tertiary education	0.9

Table 2
Means, standard deviations (SD) and coefficients of variation (CV) of Farmers' ranking of the degree of the relevance of services provided by NGOs in two municipalities in Ghana. *Source*: Survey Data, 2007.

Service	*N*	Means	SD	CV
Agric information	242	4.02	0.92	0.23
Inputs in general	237	3.97	0.79	0.2
Technology transfer	196	3.87	0.94	0.24
Training	295	3.63	0.95	0.26
Credit	73	2.88	0.87	0.3
Overall mean	–	3.67	0.8	0.22

Notes: (1) *N* denotes the total number of valid responses. (2) The Likert scale used for this assessment is as follows: 1 = not relevant, 2 = lowly relevant, 3 = relevant, 4 = very relevant, 5 = relevant is excellent.

Table 3
Means, standard deviations (SD) and coefficient of variation (CV) of Farmers' ranking of the adequacy of services provided by NGOs in two municipalities in Ghana. *Source*: Survey Data, 2007.

Service	*N*	Means	SD	CV
Agric information	240	3.26	1.1	0.34
Inputs in general	243	3.00	1.01	0.34
Technology transfer	307	2.97	0.93	0.31
Training	197	2.91	1.17	0.4
Credit	73	2.34	0.77	0.33
Overall mean	–	2.91	0.88	0.3

Notes: (1) *N* denotes the total number of valid responses. (2) The Likert scale used for this assessment is as follows: 1 = not adequate, 2 = lowly adequate, 3 = adequate, 4 = very adequate, 5 = adequacy is excellent.

the highest relevance ranking in order of importance were agricultural information, inputs supply, technology transfer and training. This finding corroborates the work of Orhin (2003) undertaken in the Central Region of Ghana which reported that farmers rated agricultural information as very relevant based on the same Likert scoring scale index used in our study. The overall mean for relevance of services in our study was 3.67 with standard deviation of 0.80 and a coefficient of variation (CV) of 0.22. The CV is obtained by the standard deviation divided by the mean. The mean value of 3.67 indicated that the services were perceived by farmers to be relevant to their activities. The relatively low CV suggested that the farmers had common agreement with respect to the relevance of NGO services for their operations.

3.4. Adequacy of Services Provided by NGOs

Table 3 shows the means and standard deviations of the degree of adequacy of various services rendered by NGOs in the two municipalities. The mean values ranged from 2.34 to 3.26 with the overall mean average of 2.91 which connoted a degree that could be described as barely adequate. The farmers rated agricultural information as the service with the highest level of adequacy with a mean score of 3.26 and standard deviation of 1.10. This ranking of importance was followed by supply of inputs (mean of 3.00), training (mean of 2.97) and technology transfer (mean of 2.91). The supply of credit was ranked last with a level that could be considered to be fair but not adequate. The result on adequacy is also consistent with the work of Orhin (2003) where farmers perceived farm inputs and agricultural information to be adequate but with rating for credit (cash) considered barely adequate with mean of 2.34. Our finding also corroborated the result established by Nabare (2007) that the loan size for farmers was insufficient to increase their capital base. The farmers in our study indicated that most of their raw materials were expensive and they therefore required adequate funds to develop their enterprises.

Following the presentation of results on adequacy of services including inputs supply in general, Table 4 shows the degree of availability of specific inputs used in production as perceived by the participating crop farmers. The results show that only seeds/planting materials and hand tools were highly available. The other inputs were barely available or not available. These other inputs included fertilizers/manure, agro-chemicals, tillage equipment, storage and preservation facilities and market facilities. For fishsmokers or fishmongers, market facilities and storage/preservation facilities were deemed to be easily available. However, they indicated that fuel wood, packaging materials, ovens, trays and water containers were not easily available. The results shown in Tables 3 and 4 suggest that farmers' perceptions of adequacy of inputs were related to availability of inputs supplied by the NGOs.

Table 4
Means, standard deviations (SD) and coefficient of variation (CV) of Farmers' ranking of the availability of specific inputs for crop production in two municipalities in Ghana. *Source*: Survey Data, 2007.

Inputs	*N*	Means	SD	CV
Seeds/planting materials	290	2.72	1.29	0.47
Seedlings	291	2.39	1.41	0.59
Hand tools	294	2.16	1.32	0.61
Fertilisers/manures	290	1.94	1.2	0.62
Other agro-chemicals	291	1.69	1.12	0.66
Processing plants	291	1.36	0.84	0.62
Tillage equipment	293	1.22	0.73	0.6
Storage/preservation facilities	286	1.22	0.54	0.44
Market facility	279	1.21	0.58	0.48
Overall mean	–	1.78	0.73	0.41

Notes: (1) *N* denotes the total number of valid responses. (2) The Likert scale used for this assessment is as follows: 1 = not available, 2 = Barely available, 3 = available, 4 = readily available.

3.5. Timeliness of services provided to farmers

As indicated earlier, the timeliness of the provision of service is crucial in the successful execution of farm activities and the overall efficiency of farm production. With regards to the timeliness of the provision of inputs by NGOs, the majority of the respondents (86.1%) indicated that the inputs were provided on time by the service providers. The timely supply of inputs is particularly important for seasonal activities such as agriculture. Crop production in Ghana is generally rain-fed. Farmers therefore wish to carry out land preparation and planting on schedule so that their crops can take advantage of the rains. Inputs for other cultural practices during farming season must be available on time if a good harvest is to be assured. Delays in the supply of inputs could have negative consequences on the farm. With respect to the timely provision of available credit, the majority (83.0%) of the farmers indicated that credit provision was timely as against 17% of farmers who said it was not timely.

3.6. Efficiency of the monitoring and evaluation of extension activities

Table 5 also shows the means and standard deviations of farmers' opinions on the extent to which the NGOs carried out their monitoring and evaluation activities. Monitoring and evaluation activities are essential to establish the overall reliability of a service. The various activities are arranged in descending order of means of responses. As shown in Table 5, overall respondents perceived the extent of monitoring and evaluation to be between average and high quality based on the overall mean score of 3.39 with a standard deviation of 0.34 and overall low average CV of 0.10. In fact for all the 18 activities being assessed, except for the processing of produce, respondents considered the efficiency of

Table 5
Means, standard deviations (SD) and coefficient of variation (CV) of Farmers' ranking of the quality of monitoring and evaluation (M&E) of extension activities undertaken by NGOs in the two municipalities in Ghana. *Source*: Survey Data, 2007.

M&E activity	*N*	Means	SD	CV
Ensure correct spacing	151	4.08	0.91	0.22
Ensure early planting	151	3.9	1.04	0.27
Ensure farmer get info. regularly	158	3.78	1.06	0.28
Ensure timely weed control	147	3.75	0.96	0.26
Ensure good land preparation	150	3.74	0.94	0.25
Ensure collection of yield data	93	3.49	0.79	0.23
Ensure fertilizer/manure application	104	3.46	0.84	0.24
Ensure adequacy of inputs	239	3.36	0.89	0.26
Ensure inputs arrive on time	241	3.32	0.92	0.28
Ensure training objectives are achieved	169	3.31	1.00	0.3
Ensure storage and preservation	106	3.27	1.32	0.4
Ensure disease control	97	3.27	0.92	0.28
Ensure credit recovery	236	3.12	0.87	0.28
Ensure availability of market facilities	104	3.12	1.13	0.36
Ensure pest control	103	3.1	0.89	0.29
Ensure credit is used for right purpose	226	3.04	0.86	0.28
Ensure timely credit delivery	234	3.00	0.96	0.32
Ensure processing of produce	99	2.93	0.85	0.29
Overall mean	–	3.39	0.34	0.1

Notes: (1) *N* denotes the total number of valid responses. (2) The Likert scale used for this assessment is as follows: 1 = very low, 2 = low, 3 = average, 4 = high, 5 = excellent.

monitoring and evaluation was at least of average quality. The five top highly-ranked activities (with average score of at least 3.75) were (1) ensuring correct spacing, (2) ensuring early planting, (3) ensuring that farmers get information regularly, (4) ensuring timely weed control, and (5) ensuring good land preparation. In a summary, monitoring and evaluation activities were generally perceived to be of reasonably good quality.

4. Discussion and implications

From a human system perspective, the small scale farmer, the subject of this study, operates in an economic and social environment that also provides legal and cultural rules for his/her operations. This farmer combines his/her labour with capital to produce farm goods and services for subsistence use with the surplus sold in available markets generating cash income (Anaman, 1988). Labour on the farm can be supplied by the farmer or purchased from available labour markets. Capital inputs used by the farmer can be categorized into six main types as follows: (1) physical capital such as seeds and equipment, (2) financial capital such as farmer's own cash or borrowed monies including credit from financial institutions, (3) human capital through means such as health and educational improvement of the farmer, (4) information and improved knowledge, (5) environmental capital through improved environmental support system, and (6) social capital that defines the institutional networks and organizations that support the work of the farmer, for example, FBOs or cooperatives.

The six forms of capital are not used as mutually exclusive inputs as they can be complementary inputs. For example, information and improved knowledge can be complementary with the other five types of capital. Inadequate amounts of the six capital forms and/or labour markets lead to the inability of the farmer to produce adequate amounts of goods and services and income despite abundance of labour. Economists call this phenomenon market failure which means that the free market, where everyone is left to fend for himself or herself, does not achieve the outcomes desired by society in general. Market failure is illustrated by the farmer inability to generate adequate amounts of income to support himself/herself and family, and unless corrected can lead to persistent poverty and human degradation. When markets fail to achieve desired societal outcomes, other alternatives are explored by society through the institutions of the Community and the State (Hayami, 2009).

The failure of the individual farmer to generate adequate amounts of income may lead to interventions by the Community and/or the State to reduce levels of poverty and human degradation. The Community represents non-State actors which operate in a society and are often voluntary associations such as FBOs and NGOs, and semi-voluntary structures linked through blood ties such as extended families, clan lineages and traditional chieftaincy institutions. Community organizations may extend assistance to individual farmers on a reciprocal basis or through some form of moral obligation. At the other hand is the State or government which possesses coercive taxation powers that allows it to generate and raise funds for general development of a country as part of its core functions. Thus a government may provide agricultural extension services as "free" or "subsidized" services to correct the market failure exhibited by individual farmers exemplified by less than desired levels of production and incomes necessary to eliminate extreme poverty.

Our study analyses the contribution of four NGOs, which are essentially community organizations, in correcting the market failure arising from inadequate availability and supply of agricultural extension services to farmers in the two municipalities in Ghana and essentially deals with the second and fourth types of capital described above. Despite the geographical limitation of the study, the results are applicable to other parts of Ghana and other developing countries. We show that farmers' perceptions of adequacy of inputs are related to availability of inputs supplied by the NGOs. This implies that NGOs need to expand their service provision of inputs to include more inputs needed by farmers. In order to improve availability, we suggest that the NGOs could supply inputs directly to farmers where feasible and/or advise input agencies of the actual supply situation in the field and anticipated demand and thereby co-ordinate supply with the needs of farmers. This would ensure more ready availability of inputs to farmers.

One area of concern that needs to be addressed is the delivery of expanded credit to farmers. Our study established that the level of credit made available to farmers was inadequate and this inadequacy seemed to affect the operations of the farmers. Related to access to credit is the linkage to the access to micro-insurance services for farmers. We suggest that NGOs should expand their linkages and partnership work with local financial institutions to increase cash credit support to farmers to enable them to purchase required inputs and undertake various cultural practices in anticipation of better returns and incomes. According to Iheduru (2002), timelines of loan disbursement is crucial when loans are being used for seasonal activities such as agriculture. Farmers who benefit from timely delivery of loans can undertake their activities when they wish to and this may enhance the prospects of repayments. Our study shows that for the credit delivery, timeliness was generally adequate though it could still be improved.

It is important to note that despite the proliferation of NGO activities in agricultural extension delivery in Ghana and in other developing countries, public agricultural extension services remain important and are not likely to be replaced entirely. Therefore a policy implication arising from the study is the need to replicate the quality of monitoring and evaluation of extension activities achieved by NGOs in the two municipalities of the Central Region to the public agricultural extension services in the Central Region and other parts of Ghana. Farmers in the study areas were generally content with the monitoring and evaluation of planned extension activities of the NGOs. Our finding that the quality of monitoring and evaluation by NGOs was effective in the two districts suggests that measures used to achieve this effectiveness in monitoring and evaluation by NGOs could be examined by public

extension services for their adoption where feasible. Our current study had a limited objective of assessing of various quality attributes of extension services provided by NGOs. Future studies could evaluate the actual impact of the extension services including direct comparison with those services provided by the national government in those two municipalities and in general across Ghana.

5. Conclusions

The quality of agricultural extension services provided by four NGOs was assessed in two municipalities of the Central Region of Ghana (Mfantseman and Komenda–Edina–Eguafo–Abrem). This assessment was based on random sampling of beneficiary farmers in the two municipalities. Beneficiary farmers indicated their perceptions of the quality of services provided by NGOs in the areas of agricultural information support, input supply, training, technology transfer, credit and monitoring and evaluation of extension activities. We concluded that farmers generally perceived the services to be relevant to their operations. However, the respondents had differing opinions concerning these services with respect to their adequacy, availability and their timeliness of supply. Farmers were generally content with the quality of monitoring and evaluation of extension activities. The adequacy and availability of credit were cited as weak points of the services provided even though available credit was supplied timely.

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