

**MICROCREDIT AS AN INSTRUMENT OF SUSTAINABLE ENTERPRISE DEVELOPMENT: AN IMPACT ASSESSMENT CASE STUDY OF SMALLHOLDER LIVESTOCK PRODUCTION PROGRAMME IN WA MUNICIPALITY IN GHANA**

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**ABSTRACT**

Although livestock production is widespread in almost every part of Ghana, the output is about 8 percent of the country's requirement. It is estimated that US \$100 million is used on the import of livestock and livestock products annually in Ghana. In an attempt to close the gap between demand and supply of livestock products in the country, Ministry of Food and Agriculture (MoFA) granted credits to livestock farmers in 25 districts in Ghana including Wa Municipality under the Livestock Development Project (LDP). Government microcredit schemes in Ghana, however, suffered high rate of default and seems not to be making the desired impact. This paper sets out to assess the impact of the microcredit on smallholder livestock production, and identify the challenges and constraints confronting smallholder livestock farmers in Wa Municipality in running sustainable enterprises. Before assessing microcredit as a sustainable instrument for social and economic development, the viability of microcredit programmes and businesses had to be addressed. Sustainability is an important key to the viability of microcredit as a strategic instrument for the promotion of small enterprises' growth and contribution to overall development. Sustainability, which refers to the potency of continuity as a closed, self-generating system, is therefore important. The credit in cash component of the project suffered a high default rate represented by 53.8 percent of the total amount expected from the recovery. As much as 47.5 percent of the credit in cash beneficiaries diverted the credit either in part or in full from purchasing livestock into other activities. Livestock production in Wa Municipality is constrained by high mortality rate, limited supply of feed, limited veterinary services and the type of livestock breed. In view of these findings, it was recommended that smallholder livestock farmers should be trained on fodder preparation, veterinary training institutions should be expanded and all veterinarians should be directly employed by Government, monitoring should be extended to cover every aspect of future projects, and demonstration should be carried out in future projects. Despite an overall general positive impact made on smallholder livestock production, the high default in repayment does not promote the sustainability of the LDP and poverty reduction among smallholder livestock farmers.

**Keywords:** Impact, Microcredit, Smallholder, Livestock Production, Wa Municipality.

## INTRODUCTION

In spite of Ghana's vast resources of forage, its livestock resource base is modest with about 1.3 million cattle, 2.5 million sheep, 2.7 million goats, over 10 million poultry, including guinea fowl, and 0.37 million pigs. The per capita consumption of livestock products in Ghana is 1.08 kg for beef, 0.70 kg each of small ruminants and poultry meat, 0.49 kg of pig meat, 1.46 litres of milk and 18.9 eggs per year. These levels of consumption are only 6.7 percent of the averages for Africa and only 2 percent of the Food and Agriculture Organization (FAO) recommended levels (Republic of Ghana, 2001).

According to Government of Ghana (2002), livestock production in Ghana is low by all international standards. Though livestock production is widespread in almost every part of the country, its output is just about 8 percent of GDP compared to about 75 percent in many countries particularly the developed nations. The yield of livestock in Ghana is approximately 20 percent of that of exotic breed. It is estimated that US \$100 million is used on the import of livestock and livestock products annually.

In an attempt to close the gap between demand and supply of livestock products in the country, the Government of Ghana through the Ministry of Food and Agriculture (MoFA) undertook a Livestock Development Project (LDP) in twenty-five districts located in seven regions, namely Upper East, Upper West, Northern, Ashanti, Brong-Ahafo, Greater Accra and Volta regions of Ghana (Ministry of Finance and Economic Planning, 2010). The project was jointly funded by the Government of Ghana, the African Development Bank and beneficiaries in the project areas. It was initially a six-year project (2002-2008) but was extended to December 2010. The project began with credit-in-cash which was instituted to enable farmers access loans to undertake production, marketing or labour savings activities. Farmers were provided with loans for the improvement in livestock housing, purchasing of breeding stock, processing of milk or meat, kit and veterinary drugs etc. and are required to pay back the loan in kind, for instance animals (MoFA, 2008). However, in 2010, the project shifted away from credit-in-cash to credit-in-kind. According to Ministry of Finance and Economic Planning (2010) 2,584 livestock of various improved species were supplied to livestock farmers in order to improve the performance of local livestock breeds.

The goal of the project is to increase the supply of meat, animals and dairy products of domestic production from the current aggregate level of 30 percent to 80 percent by the year 2015; and contributing to the reduction of incidence of poverty among farmers (who are also livestock keepers) from 59 percent to 30 percent by the year 2015 (MoFA, 2007). MoFA granted credits to individuals and groups of farmers involved in livestock production in the twenty-five districts in Ghana, including Wa Municipality under the LDP which started in 2002. According to the Republic of Ghana (2001), the overall cost of the LDP was UA 22.07 million (GH¢19.87 million) with the credit component being UA 4.14 million (GH¢3.73 million).

Meanwhile, over the years, government microcredit schemes in Ghana suffered high rate of default and seems not to be making the desired impact. According to Quainoo (1997), government launched a number of special credit schemes since 1989 at subsidized rates, reaching very few people and with extremely poor recovery rates. The Programme of Action to Mitigate the Social Cost of Adjustment (PAMSCAD), launched in 1989, reached only some 1,200 clients and struggled to achieve an average 83 percent cumulative recovery by 1996. Four other programmes being administered by the National

Board for Small-Scale Industries (NBSSI), none of them was able to achieve a 70 percent recovery rate (Steel and Andah, 2008).

Quite recently, officials of the Microfinance and Small Loan Centre (MASLOC) were seeking the assistance of Ghana's Anti-graft Agency and the Serious Fraud Office (now Economic and Organized Crime Office) to help them recover more than GH¢80 million owed it by defaulting beneficiaries (Shalom Radio, 2010). Management of MASLOC in the Volta Region has processed over 200 loan defaulters for court (Agbewode, 2011). Some of these customers default either because of their inability to manage the credit properly to expand their enterprises or they perceive the credit as gift from government, due to politicization. According to Steel and Andah (2008), these "revolving funds" are steadily depleting, involve substantial costs to operate, and have negligible outreach as a result of the poor repayment. These culminate into low impact of these microcredit programmes.

The implication of the above is that government microcredit programmes in Ghana are simply not sustainable. According to the United Nations Development Programme (UNDP) (1999), providing credit at subsidised rates through the project approach was problematic, and one of the reasons was that it turned out to be costly and unsustainable because loans were viewed as charity and were rarely paid back. The funds were quickly depleted before they could reach many people.

This research therefore seeks to assess the impact of this microcredit on smallholder livestock production and identify the challenges and constraints confronting farmers in their production process in Wa Municipality in the Upper West Region of Ghana. The main objective of this paper is to assess the impact of microcredit on smallholder livestock production; and identify the challenges and constraints confronting farmers in their production process. Specifically, this paper seeks to: (i) describe the nature of operation of the microcredit scheme; (ii) assess how smallholder livestock farmers utilized the credit received; (iii) assess the impact of the microcredit on smallholder livestock production; and (iv) identify the challenges and constraints confronting smallholder livestock farmers in their production process.

## **LITERATURE REVIEW**

### **Sustainable Development, Microcredit and Enterprise Sustainability**

The concept of sustainable development has high priority and therefore far-reaching significance on the international political and scientific agenda. It is also a cross-boundary issue, since any problem derived from the relation between the environment and development will not stop at a country's borders. There is an international obligation to carefully weigh the benefits of economic development against the environmental and social costs (Poschet *et al.*, 2005). According to the Department for International Development (DFID) (1999), economic inequality, social instability and environmental degradation are common features of unsustainable development. Poor people bear the brunt of these problems because their livelihoods are precariously balanced on volatile economic opportunities and environments vulnerable to change. They lack opportunities for meaningful participation in the decisions that affect their livelihoods. There can be no sustainable development if governments, donors and civil society choose the short term view. To effectively eliminate poverty, all aspects of sustainable development should be taken seriously. This means not only focusing on vigorous economic growth, but encouraging economic growth that benefits the poor and is based on sound environmental management. More specifically, this means creating sustainable livelihoods for poor people. It is the government together with its development partners that can create the right political and economic framework for sustainable development.

Before assessing microcredit as a sustainable instrument in achieving food security in terms of social and economic development, the viability of microcredit programmes and businesses needs to be addressed. Sustainability is an important key to the viability of microcredit as a food security strategy (Anslinger, 1997). In order for microfinance to be valuable as a tool for poverty alleviation, it must continue. Sustainability – the potential to continue as a closed, self-generating system – is therefore important (Social Enterprise Associates, 2006).

The Microenterprise Division of the Inter-American Development Bank (1994) defines a sustainable bank as “one that covers all of its expenses with operational income and generates sufficient surplus to maintain the real value of its equity base.” The sustainability of microcredit institutions is often questioned because they have not been created by market demand similar to that of a commercial bank. Islam (1997 cited in Anslinger, 1997) noted that interest rates, low operating costs and high repayment rates are key factors among the issues that determine the sustainability of banks.

Microcredit programmes can serve several thousand borrowers or less than a hundred borrowers while remaining sustainable. The sustainability of microcredit banks is also achieved through the efforts of many organisations that improve the quality of microcredit banking services (Microcredit Campaign, 1997). From bankers’ perspective, a microfinance institution is said to have reached sustainability when the operating income from the loan is sufficient to cover all the operating costs (Sharma and Nepal, 1997). This definition adopts the bankers’ perspective and sticks to the ‘accounting approach’ of sustainability. To Shah, the concept of sustainability includes, amongst other criteria, obtaining funds at market rate and mobilisation of local resources. Therefore, his performance assessment criteria for the financial viability of any microfinance related financial institution are: repayment rate, operating cost ratio, market interest rates, portfolio quality, and ‘demand driven’ rural credit system in which farmers themselves demand the loans for their project. From banker’s perspective, sustainability of microfinance institution includes both financial viability and institutional sustainability (self-sufficiency) of the lending institution (Sharma and Nepal, 1997).

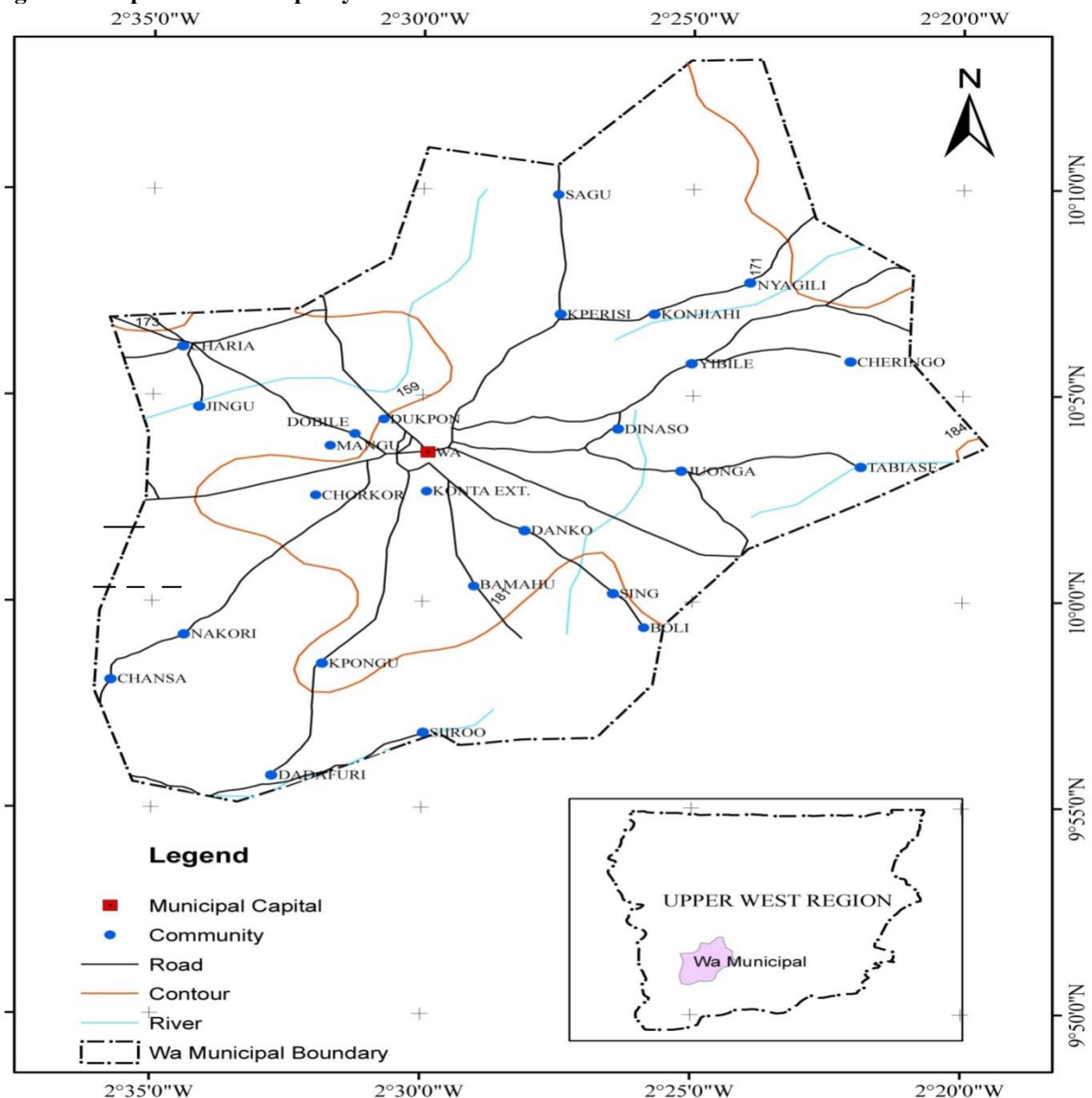
A policy guideline to enhance the sustainability of both agriculture and natural resources in rural development is the enhancement of farmers’ capacity by providing quality education and training that include conservation of agriculture and natural resources. This must be complemented by access to external sources of income or credit, either through investment in nonfarm enterprises or through provision of subsidised credit (Asefa, 2005).

## **RESEARCH METHODOLOGY**

### **The Study Area**

The Wa Municipality is one of the nine District/Municipal Assemblies in the Upper West Region of Ghana which shares administrative boundaries with Nadowli District to the North; Wa East District to the East and South; and Wa West District to the West and South. It lies within latitudes 1°40′ N to 2°45′ N and longitudes 9°32′ W to 10°20′ W with a landmass area of approximately 234.74 kilometres square, which represent about 6.4 percent of the total landmass area of the Upper West Region [Wa Municipal Assembly (WMA), 2010]. Figure 1 depicts the Wa Municipality.

**Figure 1: Map of Wa Municipality**



**Source:** Authors' Construct (2012).

According to Ghana Statistical Service (2012), the Wa Municipality has a total population of 107,214 which comprises of 49.4 percent males and 50.7 percent females. Considering the total population and the total land area of the Municipality, it has a population density of 457 persons per square kilometre.

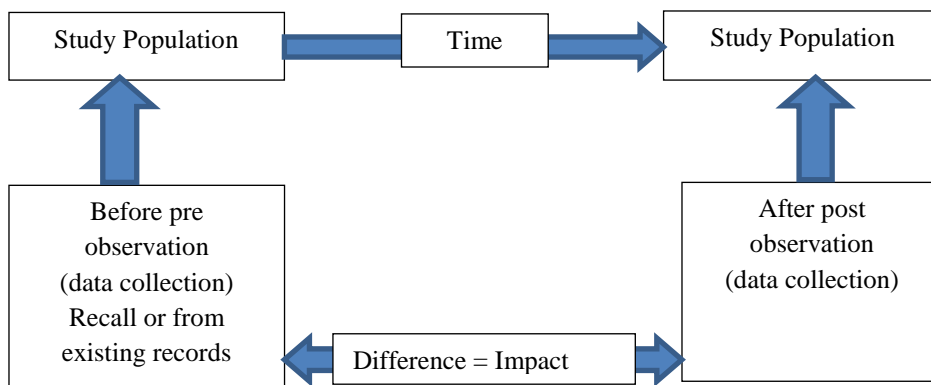
The Wa Municipality is found in the dry equatorial continental climate which is characterised by long windy and hot dry season and usually followed by a short and stormy wet season. The dry season usually spanned from November to April recording high temperatures between 40°C and 45°C. The wet season also last averagely between April and October annually, with an annual mean rainfall between 840-1400 millimetres. The rainfall pattern is generally erratic and marked by prolong droughts and floods which generally affect agricultural productivity.

The Municipality is also located in the interior wooded savannah vegetation which is characterised by predominantly short trees and shrubs. However, the vegetation and the climatic conditions in the area are very conducive for livestock production due to the abundance of pasture and non-availability of tsetse flies which is a major constraint to cattle production in the forest regions in Ghana (WMA, 2010).

**Research Design**

The after only research design was adopted for this study since no base-line studies have been conducted. According to Kumar (1996), in an after-only design the researcher knows that a population is being, or has been exposed to an intervention and wishes to study its impact on the population. In this design, information on base-line (pre-test or before observation) is usually ‘constructed’ on the basis of respondents’ recall of the situation before the intervention, or from information available in existing records. The change in the dependent variable is measured by the difference between the ‘before’ (base-line) and ‘after’ observations (see Figure 2).

**Figure 2: ‘After Only’ Research Design**



**Source:** Adapted from Kumar (1996).

One of the major problems of this design is that it measures total change, including change attributable to extraneous variables; hence, it cannot identify the net effect of an intervention. However, this design is widely used in impact assessment studies. In real life, many programmes operate without the benefit of a planned evaluation of the programme at the planning stage. In this case, it is just not possible to follow strictly the sequence – collection of base-line information, implementation of the programme, and then programme evaluation. An evaluator therefore has no choice but to use this design (Kumar, 1996). In the light of the above, the results of this paper should be interpreted within the strengths and weaknesses of the ‘after only’ design.

**Sampling**

The complete list of all credit beneficiary smallholder livestock farmers of the Livestock Development Project was obtained (i.e. the sample frame) from Municipal Agricultural Development Unit (MADU). The statistical method was used to determine the sample size of the study at a significance level of 0.10. According to Ahuja (2001), an acceptable error level traditionally is up to ± 0.05 or ± 0.10 (i.e., 5 or 10 percentage point). The formula is given by:  $n = \frac{N}{1+N(e)^2}$ ; where: n = sample size; N= sample frame; and e = error or significance level (Yamane, 1970 cited in Ahuja, 2001). In

this study,  $N=265$  (i.e. total number of clients on the microcredit scheme) and  $e=0.10$  (i.e. significance level chosen). Using these figures in the formula, it gives a sample size of seventy-three (73).

Since the sample frame is not homogenous in terms of the type of credit received, stratified random sampling was used to classify the population into two homogenous strata – those who benefited from credit in cash and those who benefited from credit in kind. Samples were therefore drawn from each stratum proportionally – forty credit in cash beneficiaries representing 55 percent of the total sample (seventy-three) and thirty-three credit in kind beneficiaries representing 36 percent of the total sample.

Simple random sampling was used to select respondents from each stratum using the lottery method since the list of all beneficiaries was available. Beneficiaries who were selected but could not be found were replaced through the same process. Purposive sampling was used to select the officer in-charge of the Livestock Development Project in the Wa Municipality. This is because she was directly involved in the implementation of the project and has adequate knowledge about the nature of its operation.

Primary data were collected from smallholder livestock farmers who received credit (both in cash and in kind) under the LDP in Wa Municipality. Secondary data sources include the loan disbursement and recovery report and the project monitoring report. The instruments used for the collection of primary data are questionnaire and field observation. The questionnaire consists of both open-ended and close-ended questions which administered to the farmers through personal interviews. Field observation as a qualitative data collection tool was also used to complement the questionnaire. It was used for objective assessment of on-site situations such as livestock housing, livestock population, breeds and their physical condition. The Statistical Package for the Social Scientists (SPSS) version 16.0 and Microsoft Excel 2010 were used to analyse the primary data obtained from the field.

## **RESULTS AND DISCUSSION**

### **Nature of Operations of the Project**

The implementation of the LDP in the Wa Municipality started in 2002 with the credit in cash component which saw the advancement of loans to groups of smallholder farmers to undertake livestock production, specifically small ruminants. The disbursement of the loans to farmers started in 2005 through the Agricultural Development Bank. In 2010, the project plans shifted from credit in cash to credit in kind. With the credit in kind, sheep were distributed to beneficiary farmers instead of given them cash to buy the animals.

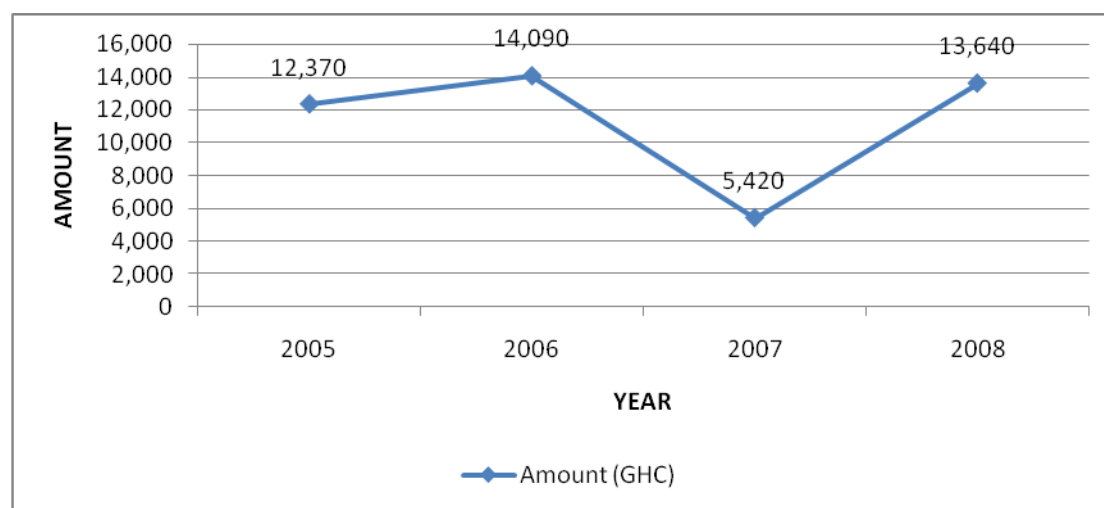
The selection of the project beneficiaries was based on certain criteria which consist of the following:

- i. The interest of the farmer in livestock production which should be expressed through tendering an application which should be done in a group;
- ii. Possession of a pen by the farmer to house the animals;
- iii. The ability of the farmer to feed the animals adequately;
- iv. The ability of the farmer to provide health care to the animals (veterinary services); and
- v. The ability of the farmer to repay the loan.

A total amount of GH¢45,520.00 was disbursed between 2005 and 2008 to 145 farmers under the LDP. The farmers were given only one year grace period to repay the loans at an interest rate of 15 percent per annum which is lower as compared with commercial banks' interest rates for the agricultural sector, which according to Bank of Ghana (2003-2007, cited in MoFA, 2011) ranged from 26 percent to 32.8 percent per annum between 2005 – 2010. A one year grace period seems not to be adequate enough for the livestock to multiply in numbers to enable the beneficiary smallholder livestock farmers to repay the loans.

Farmers were made to form groups with membership ranging from five to fifteen. The groups were used as social collateral for the loans because if a group member default in repayment, the rest of the group members would be held responsible for the repayment. This is a major characteristic of many microcredit schemes. The trend of the loan disbursement is being depicted by Figure 3.

**Figure 3: Trend of Loan Disbursement (2005 – 2008)**



**Source: Agricultural Development Bank (2008)**

From the figure above, the disbursement fluctuated over the period (2005-2008) with the highest disbursement being in 2006 with an amount of GH¢14,090.00 representing 31 percent of the total disbursement whilst the lowest disbursement occurred in 2007 with an amount of GH¢5,420.00 representing 12 percent. Also, in 2008 an amount of GH¢13,640.00 was disbursed and in 2005 GH¢12,370.00 was disbursed. These represent 30 percent and 27 percent of the total disbursement respectively. The amount received by each group varied because it depended on the amount the group applied for. However, farmers within the same group received the same amount. The average amount of credit received by each farmer was GH¢313.93.

In 2010, the second phase of the project shifted from credit in cash to credit in kind which saw the distribution of sheep of improved breeds to smallholder farmers. Under this phase of the project, a total of 1,191 sheep was distributed to 120 farmers between 2010 and 2011 which were to be repaid after a grace period of two years unlike their credit in cash counterparts who were given only one year. In addition, the credit in kind beneficiaries would not pay any interest because they would repay with the number of animals they were given. These show unfair treatments to the credit in cash



beneficiaries. Each farmer received ten sheep and was expected to repay with ten sheep after the grace period. Unlike the credit in cash which was disbursed to farmers in groups, the credit in kind was given on individual basis.

Recovery for the credit in kind had not yet started because the grace period was yet to elapse in June 2012. With regards to credit in cash, the recovery was generally poor. Out of a total amount of GH¢52,348.00 expected from the recovery, only GH¢24,180.00 which represent 46.2 percent was recovered whilst an amount of GH¢28,168.00 representing 53.8 percent remained outstanding. Some respondents attributed their inability to repay the credit to high mortality among the livestock. According to the Municipal animal production officer, this high default rate is the main challenge facing the project implementation. However, this high rate of default is not surprising because it has been a major trait of government credit schemes in Ghana. For instance, Steel and Andah (2008) reported that among four other programmes being administered by NBSSI in Ghana, none of them was able to achieve 70 percent recovery rate. Quite recently, Shalom Radio (2010) also reported that officials of MASLOC were seeking the assistance of Ghana's Anti-graft Agency and the Economic and Organized Crime Office (EOCO) to help them recover more than GH¢80 million owed it by defaulting beneficiaries. However, from the field survey, it appeared no conscious effort has been made by MoFA to recover the money because many respondents indicated that they had not yet been contacted by the project officials to repay. This impedes the sustainability of the project since no revolving fund would be made available for other smallholder livestock farmers to also benefit from.

According to the Wa Municipal Animal Production officer who is in-charge of the LDP, the project has a monitoring team within the Municipality that usually go on monitoring monthly. However, the monitoring covered only farmers who received credit in kind. This is because during an interaction with some of the Agriculture Extension Agents (AEAs) in the Municipality, they indicated that they were part of the monitoring team. But they admitted that they did not know those farmers who received the credit in cash. This was further confirmed by the monitoring report which covered only the credit in kind beneficiaries. The non-monitoring of the credit in cash beneficiaries is probably one of the contributory factors to the high rate of default among the credit in cash beneficiaries.

### **Credit Utilisation**

The credit in cash beneficiaries were required to use the money to purchase any livestock specie of their choice for rearing. Livestock species that were purchased by beneficiaries include goats, sheep and pigs. Majority of the project beneficiaries (74 percent) were engaged in sheep production, followed by 15.1 percent who were engaged in goat production whilst only 11 percent engaged in pig production.

Among the credit in cash beneficiaries, 40 percent of them used their credit to buy three to four animals, 35 percent bought five to six animals, while 12.5 percent and 2.5 percent bought one to two and nine to ten animals respectively. Comparing them with the credit in kind beneficiaries, one could say that the credit in kind beneficiaries were better off than the credit in cash beneficiaries in terms of the number of animals received or bought since all the credit in kind beneficiaries received ten animals each. However, it was revealed that 47.5 percent of the credit in cash beneficiaries diverted the credit either in part into other activities such as crop farming, purchasing of drugs and/or payment for animals' vaccination, rehabilitation of pens or construction of new pens, payment of children school fees and resolution of other family problems. This created their inability to buy many animals but rather have to buy just a few.

With regards to the type of livestock breeds, all respondents who received credit in cash representing 55 percent admitted that they bought local/indigenous breeds while those who received credit in kind (45 percent) were given improved breed. The low non-patronage of improved livestock breed by credit in cash beneficiaries was in contradiction with one of the project objective which seeks to promote the adoption of improved livestock breeds among smallholder farmers.

### Impact of the LDP on Smallholder Livestock Production

The LDP intended to increase the supply of meat and dairy products which cannot be achieved without increase in the livestock population. Assessment of the livestock population using the before and after approach, shows that there has not been significant increase in livestock numbers of the project beneficiaries. Before the project, 16.4 percent of respondents did not have any animal, but this has been reduced to 5.5 percent currently and those who had 1-5 animals before the project also reduced from 35.6 percent to 12.3 percent. The number of respondents who had 6-10 animals before the project remains unchanged after the project; and those who had 11-15 animals increased by 11percent after the project. Also, the number of respondents who had higher livestock numbers before the project increased modestly as those who had 16-20 animals, 21-25 animals and 30+ animals increased by 6.8 percent, 8.2 percent and 6.8 percent respectively. However, those who had 26-30 animals increased slightly by 1.3 percent as shown by Table 1.

**Table 1: Livestock Ownership of Respondents before and after the Project**

No. of Animals	Before		After		Percentage Change
	Frequency	Percent	Frequency	Percent	
None	12	16.4	4	5.5	-10.9
1-5	26	35.6	9	12.3	-23.3
6-10	14	19.2	14	19.2	0.0
11-15	10	13.7	18	24.7	11.0
16-20	4	5.5	9	12.3	6.8
21-25	6	8.2	12	16.4	8.2
26-30	1	1.4	2	2.7	1.3
Above 30	-	-	5	6.8	6.8
<b>Total</b>	<b>73</b>	<b>100.0</b>	<b>73</b>	<b>100.0</b>	

**Source:** Authors' Field Survey, April 2012.

The slight increase in the general population of the livestock was attributed by respondents largely to high mortality rate and other factors such as theft. From the field and the project monitoring report (for credit in kind), the mortality was caused by diseases such as worm infestation, heartwater, diarrhoea, pneumonia and Pest des Petits Ruminants (PPR). According to International Livestock Research Institute (ILRI) (2002), “the diseases with the highest impact on smallholder livestock keepers in Sub-Saharan Africa are ecto and endo-parasites, respiratory complexes, newcastle disease, trypanosomosis, Contagious Bovine Pleuro-Pneumonia (CBPP), Rift Valley Fever (RVF), and tick-borne diseases such as heartwater and theileriosis”. Other causes cited by respondents and the monitoring report include stress, dystocia, eating of polythene, accident, food poisoning and miscarriage. Among these other causes of mortality, all respondents who benefited from the credit in kind (representing 45 percent) cited dystocia as the major cause which seems to be a peculiar trait of that kind of livestock breed. Theft was also cited by 37 percent of respondents who lost at most ten animals each through it. However, some of the farmers also consumed some of the animals either by using them

to perform a ceremony and/or rite or by selling them. From the field, 32.5 percent of the respondents sold at most fifteen animals each whilst 25.5 percent also used at most four animals each to perform a ceremony and/or rite.

Labour is a very important factor of production in every enterprise and livestock production is not an exception. Before the project, the main source of labour for farmers was their owned labour and their families as indicated by 74 percent of respondent which increased to 78.1 percent after the project. Before the project, 11 percent of respondents were using their owned labour only, 1.4 percent was using hired labour only, and 5.5 percent was using both family and hired labour. But after the project, 9.6 percent was using their owned labour only, 1.4 percent was still using hired labour only and 2.7 percent was using both family and hired labour. These show marginal reductions because farmers were gradually shifting from these sources in favour of using their owned and family labour. Also, 8.2 percent of respondents did not source labour at all before and after the project because they did not have livestock.

Respondents who used hired labour cost between GH¢20.00 and GH¢60.00 per month. The low patronage of hired labour does not come as a surprise because agriculture in general is often undertaken for subsistence and largely depended on family labour. In describing a popular system of management of smallholder commercial livestock production system, Smith and Olaloku (1998) stated that “labour was required mainly for feed procurement and distribution, as well as animal house sanitation, and was provided by family members”. Availability of a pen was one of the criteria for selecting the project beneficiaries. However, before the project, 17.8 percent of respondents did not have pens while majority of respondents (82.2 percent) had pens. This means that the above criterion was not fully complied with.

Among those who had animals before the project, majority of them (72 percent) used to confine them partially (i.e. they open them to go out during the whole day and return to the pen in the evening), 16.2 percent confined them completely (i.e. they housed them for 24 hours) and 11.8 percent do not confine them at all (i.e. they allow them to roam for 24 hours on their own). However, after the project, the partial confinement reduced very marginally from 72 percent to 71.4 percent; “free range” reduced significantly from 11.8 percent to 2.9 percent; whilst complete confinement increased significantly from 16.2 percent to 25.7 percent. The significant reduction in the practice of the “free range” system which is associated with some losses and the marginal reduction in the practice of partial confinement, which all translated into significant increase in the practice of complete confinement, indicate a positive impact of the project on livestock confinement.

After the project implementation started, 61.6 percent of respondents undertook rehabilitation of their pens in order to put them in good condition whilst 15.1 percent built new pens because they did not have pens before the project started. In terms of pen rehabilitation, majority of respondents (26.7 percent) spent GH¢50.00 - GH¢99.99 on the rehabilitation, followed by 20 percent who also spent GH¢100.00 - GH¢149.99. Those who spent below GH¢50.00 constituted 15.6 percent while those who spent quite higher amounts (GH¢300.00 - GH¢349.99 and GH¢400.00+) only constituted 1.4 percent each. Also, 17.8 percent and 11.1 percent spent GH¢150.00 - GH¢199.99 and GH¢200.00 - GH¢249.99 respectively. For those who put up new pens, they spent GH¢50.00 - GH¢500.00 depending on the size and the kind of construction materials used.

These rehabilitations and putting up of new pens might not have happened had the project not been implemented. This is because having a pen was even a pre-condition for selecting participants. Therefore, it was incumbent on those who did not have pens to put up new ones and those whose pens were not in good condition to rehabilitate them. This is why some beneficiaries who received credit in cash used part of the money to construct or rehabilitate their pens.

Feeding is a very important input in livestock production because the animals cannot survive without feed. As a result, before the project, 80.8 percent of respondents used to supply their animal feed which has increased to 97.3 percent after the project. Also, 19.2 percent of respondents used not to feed their animals before the project because they were either practicing the ‘free range’ system or they did not have animals. But after the project, this reduced significantly to only 2.7 percent as shown by Table 2.

**Table 2: Cost of Feeding per Month before and after the Project**

Amount	Before		After	
	Frequency	Percent	Frequency	Percent
None	32	43.8	18	24.7
Less than GH¢10.00	10	6.8	3	4.1
GH¢10.00 - GH¢19.99	5	13.7	7	9.6
GH¢20.00 - GH¢29.99	7	9.6	9	12.3
GH¢30.00 - GH¢39.99	7	9.6	6	8.2
GH¢40.00 - GH¢49.99	3	4.1	10	13.7
GH¢50.00 - GH¢59.99	7	9.6	9	12.3
GH¢60.00 - GH¢69.99	1	1.4	2	2.7
GH¢70.00 and above	1	1.4	9	12.3
<b>Total</b>	<b>73</b>	<b>100.0</b>	<b>73</b>	<b>100.0</b>

**Source:** Authors’ Field Survey, April 2012.

The farmers usually get this feed through various sources including kitchen waste, leaves from the bush, farm produce and purchasing as Smith and Olaloku (1998) stated that ‘producers fed their animals with a variety of feeds, some of which were purchased’. These sources remained unchanged before and after the project. Feeding is done by farmers who practice complete or partial confinement. For those who practice partial confinement, it is done as a supplement to what the animals themselves are able to get and feed on during the day. Therefore, in most cases the animals are fed only in the evening. Before the project, 35 percent of respondents used to feed their animals once a day, but this reduced to only 11 percent after the project. Also, before the project, 30.1 percent and 22.9 percent of respondents used to feed the animals two and three times per day respectively. However, these increased significantly to 41.1 percent and 32.9 percent respectively after the project. Again, a small proportion of the respondents representing 10.3 percent and 1.7 percent who used to feed their animals four and five times a day respectively before the project, increased marginally to 11 percent and 2.7 percent respectively.

Over the period, there has been a slight increase in expenditure on livestock feeding among the project participants who have been purchasing feed. First, there was a reduction in the number of farmers who used not to buy feed from 43.8 percent before the project to 24.7 percent after the project. The general trend was that the number of farmers who used to

spend less on feeding per month before the project reduced after the project while those who used to spend more on feeding per month increased. While 6.8 percent and 13.7 percent of respondents used to spend less than GH¢10.00 and GH¢10.00-GH¢19.99 respectively on feeding per month before the project, after the project the number of farmers reduced to 4.1 percent and 9.6 percent respectively. Also, while only 4.1 percent, 9.6 percent and 1.4 percent of respondents used to spend GH¢40.00-GH¢49.99, GH¢50.00-GH¢59.99 and GH¢70.00+ respectively on feeding before the project, these increased to 13.7 percent, 12.3 percent and 12.3 percent respectively after the project.

Generally, the expenditure on feeding was usually incurred during the dry season when there is no pasture for the animals to graze except those farmers who were practicing complete confinement. Hence, feeding of animals during the dry season is supplementary. Besides, farmers are raising these animals for subsistence purpose and therefore would not invest much on feeding as portrayed by the general expenditure on feeding. In describing a subsistent production system, Smith and Olaloku (1998) asserted that little or no investment is made into the feeding or health care of the animals. The animals scavenge for a large part of their required feed, but are supplemented with household kitchen wastes, as and when available.

One of the factors that determine the health of livestock is access to veterinary services. Before the project, 79.5 percent of respondents used to vaccinate their animals and this increased to 97.3 percent after the project; while 9.6 percent who used not to vaccinate their animals before the project reduced to only 2.7 percent after the project. Generally, the number of respondents who were accessing veterinary services increased from 89.2 percent before the project to 97.3 percent after the project. However, this issue of accessing veterinary services was not applicable to 11 percent of respondents before the project because they did not have animals, but after the project it applied to all.

In terms of the type or source of veterinary services accessed by farmers, before the project, 39.7 percent of respondents used to access government or public veterinary services only while 17.8 percent used to access only private veterinary services. Also, 20.5 percent used to access both public and private veterinary services. Besides, 2.7 percent of respondents used not to access any kind of veterinary services though they were having animals. On the other hand, after the project, 49.3 percent and 24.7 percent of respondents were accessing public and private veterinary services respectively which show slight improvement over those before the project. Also, the number of respondents who were accessing both public and private veterinary services increased marginally from 20.5 percent to 21.9 percent while those who did not access veterinary services at all also increased marginally from 2.7 percent to 4.1 percent after the project.

The cost of vaccination per animal ranged from GH¢0.20 to GH¢1.00 for public veterinary services whilst that of private veterinary services ranges from GH¢1.50 to GH¢3.00 depending on the kind of disease or treatment. For example, if an animal is vaccinated and dewormed by MoFA veterinary officers, they charge GH¢1.00; but if it is only vaccination they charged either GH¢0.20 or GH¢0.50 depending on the disease. The public veterinary services were lower in terms of cost than the private veterinary services because it is subsidised by government. However, farmers sometimes resort to private veterinary service because of limited number of government veterinary officers in the Municipality.

The total cost of vaccination which depends on the number of animals involved and the amount charged per animal ranges from less than GH¢10.00 to GH¢39.99. Before the project, 45.2 percent of respondents used to vaccinate their animals at a total cost of less than GH¢10.00. But the number of respondents reduced slightly to 37.2 percent after the

project. Also, before the project, 20.6 percent, 6.9 percent and 4.1 percent of respondents used to vaccinate their animals at a total cost of GH¢10.00-GH¢19.99, GH¢20.00-GH¢29.00 and GH¢30.00-GH¢39.99 respectively. After the project, the number of respondents increased slightly to 24.7 percent, 15.1 percent and 18.2 percent respectively. Besides, the number of respondents who used not to vaccinate their animals at all reduced significantly from 23.3 percent before the project to 4.1 percent after the project. It is therefore evident from the above analysis that the project has made a slight positive impact on livestock vaccination.

### **Challenges and Constraints Confronting Smallholder Livestock Farmers**

During interactions with smallholder livestock farmers in the field, they outlined several challenges and constraints confronting them in the areas of housing, feeding, and access to veterinary services.

In terms of housing, many respondents explained that their pens are not in good condition because they leak whenever it rains which affects the health of the animals. Most of these pens are built with local materials. Some respondents indicated that their pens have become too small and therefore the animals are usually crowded which could also affect the health of the animals because of limited ventilation. Other respondents said their pens collapsed during the rainy season. All respondents expressed their desire to reconstruct the pens and roofed them with zinc. However they were constrained by lack of funds.

With regard to feeding, respondents admitted that they were unable to buy enough feed for the animals due to inadequate funds and increasing prices of the feed. Besides, there is usually scarcity of leaves and pasture during the dry season due to rampant bush burning. These make adequate feeding of the animals during the dry season very difficult. According to FAO (2006), feed supply constraint is more acutely felt in the drier regions, where the quantity of forage is often insufficient for the livestock, and where the availability of feed is subject to pronounced seasonal patterns.

With respect to veterinary services, respondents lamented their limited access to veterinary services due to limited number of government (MoFA) veterinary officers in the Wa Municipality. According to the Municipal Veterinary Officer, there are only six veterinary officers in the Municipality, meanwhile they required not less than ten veterinary officers. This is further compounded by logistical constraint facing the veterinary unit. As a result, whenever an animal or animals are sick and farmers called on the veterinary officers, they either do not usually get their response or they respond very late when the animal or animals are dead because they are usually engaged somewhere or do not have the necessary logistics to respond to the call. Some respondents even cited instances where they have to hire a vehicle and carry their sick animal from the village to the veterinary office in order to secure treatment. In some cases, this effort could not still save the animal from death. In addition, respondents complained of the high cost of veterinary services particularly the private veterinary services which they sometimes resort to as a result of the limited access to public veterinary services. According to the FAO (2006), Government-operated veterinary services have shown their limitations in providing comprehensive animal health services needed for livestock development, mostly because of issues related to under-funding. This has led to weak implementation of programmes for disease surveillance and vaccine production, and control measures for epidemic diseases are inadequate.

## **SUMMARY OF FINDINGS**

Recovery for the credit in kind had not yet started because the grace period was yet to elapse in June 2012. With regards to credit in cash, the recovery was generally poor. Out of a total amount of GH¢52,348.00 expected from the recovery, only GH¢24,180.00 (46.2 percent) was recovered whilst an amount of GH¢21,340.00 (53.8 percent) remained outstanding. According to the Municipal animal production officer, this high default rate is the main challenge facing the project implementation. But it appeared no conscious effort was made by MoFA to recover the money because many respondents admitted that they had not yet been contacted by any of the project officials to repay.

The project had a monitoring team within Wa Municipality which goes on monitoring monthly. However, the monitoring covered only credit in kind beneficiaries as revealed by the monitoring report. The non-monitoring of the credit in cash beneficiaries is probably one of the major contributory factors to the high rate of default among the credit in cash beneficiaries.

As much as 47.5 percent of the credit in cash beneficiaries diverted the credit either in part or in full from purchasing livestock into other activities e.g. crop farming, payment of children school fees etc. Therefore, they purchased only few animals as compared to those who received credit in kind.

All respondents who received credit in cash bought local/indigenous livestock breeds which contradicted one of the project aims which seek to promote the adoption of improved livestock breeds among smallholder farmers.

There was a slight increase in the general population of the livestock which was attributed by respondents largely to high mortality rate and other factors such as theft. From the field and the project monitoring report (for credit in kind), the mortality was caused by diseases, stress, dystocia, eating of polythene, accident, food poisoning and miscarriage. However, dystocia was the major cause of mortality among all credit in kind beneficiaries and seems to be a peculiar trait of that kind of livestock breed.

There was low patronage of hired labour which was not surprising because agriculture in general is often undertaken for subsistence and largely depended on family labour. In describing a popular system of management of smallholder commercial livestock production system, Smith and Olaloku (1998) stated that labour was required mainly for feed procurement and distribution, as well as animal house sanitation, and was provided by family members.

Availability of a pen was one of the criteria for selecting the project beneficiaries. However, before the project 17.8 percent of respondents did not have pens. This means the criteria for the selection of the beneficiaries was not strictly followed. Therefore, 15.1 percent of respondents built new pens because they did not have pens before the project started, whilst 61.6 percent rehabilitated their pens in order to put them in good condition. These rehabilitations and building of new pens might not have happened had the project not been implemented. This is because having a pen was even a pre-condition for selecting participants. Therefore, it was incumbent on those who did not have pens to put up new ones and those whose pens were not in good condition to rehabilitate them.

There was a significant reduction in the practice of the “free range” system which is associated with some losses; and a marginal reduction in the practice of partial confinement, which all translated into significant increase in the practice of complete confinement. This indicates a positive impact of the project on livestock confinement.

Feeding is a very important input in livestock production because the animals cannot survive without feed. As a result, the number of respondents who supplied their animals feed increased from 80.8 percent before the project to 97.3 percent after the project; whilst those who used not to supply their animals feed reduced significantly from 19.2 percent before the project to 2.7 percent after the project.

Over the period there was a slight increase in expenditure on livestock feeding among the project participants who have been purchasing feed. There was a reduction in the number of farmers who used not to purchase feed from 43.8 percent before the project to 24.7 percent after the project. The general trend was that the number of farmers who used to spend less on feeding per month before the project reduced after the project while those who used to spend more on feeding per month increased. Generally, expenditure on feeding was usually incurred during the dry season when there is no pasture for the animals to graze except those farmers who were practicing complete confinement.

One of the factors that determine the health of livestock is access to veterinary services. The number of respondents who were accessing veterinary services increased from 89.2 percent before the project to 97.3 percent after the project. Majority of livestock farmers were patronizing only public or government veterinary services which increased from 39.7 percent before the project to 49.3 percent of respondents after the project. This was due to the fact that the public veterinary services were lower in terms of cost than private veterinary services because it is subsidised by government. However, farmers sometimes resort to private veterinary service because of limited number of government veterinary officers in the Municipality.

The major challenges confronting livestock farmers were in the areas of feeding and access to veterinary services. With regards to feeding, respondents were unable to buy enough feed for the animals due to inadequate funds and increasing prices of the feed. Besides, there is usually scarcity of leaves and pasture during the dry season due to rampant bush burning which make adequate feeding of livestock during the dry season very difficult. With respect to veterinary services, respondents lamented their limited access to veterinary services due to limited number of government (MoFA) veterinary officers in the Wa Municipality because they are only six officers instead of at least ten. Sometimes, farmers hire a vehicle and carry their sick animal from the village to the veterinary office in order to secure treatment.

## **RECOMMENDATIONS**

Based on the findings made, the following recommendations are made for consideration by MoFA and Government as a whole to ensure improvement and sustainability in future projects. First, MoFA should ensure that monitoring is not limited to a segment of future projects, but rather it should cover every aspect and every participant or beneficiary in the project. Monitoring is very important in project management. Continuous monitoring promotes project performance because it ensures efficiency and effectiveness. It ensures that inputs are put into the right use by project participants and therefore minimize diversion of inputs which characterised the credit in cash component of the LDP.



Considering the limited nature of veterinary officers in Wa Municipality and the country in general, as a matter of policy, Government needs to expand the veterinary training institutions to train more veterinary officers in the country. Besides, a policy change is required to ensure that all the veterinarians are employed by MoFA after completing the veterinary college just as Teachers are employed by Ghana Education Service after completing training college. In addition, the veterinary units should be equipped with the necessary logistics to enable carry out their duties. These would help address the veterinary service related challenges facing livestock farmers in the Wa Municipality and the country as a whole.

To address the feeding challenge confronting smallholder farmers particularly during the dry season, MoFA should train livestock farmers on fodder preparation and encourage them to always prepare them at the latter part of the rainy season when grass is still in abundance. This would enable livestock farmers to continue to feed their animals adequately during the dry season without incurring any financial cost.

The type of livestock breed that was given to the credit in kind beneficiaries was characterised by high mortality caused by dystocia. It is therefore recommended that in subsequent projects, MoFA should carry out a demonstration in the area where the project would be implemented to make sure that they are satisfied with the results of the breed performance during the demonstration before distributing them to the farmers.

## **CONCLUSIONS**

Livestock production is a major feature of agriculture in Ghana, contributing largely towards meeting food needs, providing draught power and serves as a major source of income for farmers, particularly in northern Ghana. Therefore, promoting livestock production among smallholder farmers who dominates the agricultural sector in Ghana is a clear strategy towards poverty reduction and overall sustainable development in the country. However, poverty reduction cannot be achieved without ensuring sustainability in the management of projects geared towards the poor. As noted by DFID (1999), to effectively eliminate poverty, all aspects of sustainable development should be taken seriously focusing vigorous not only on economic growth, but encouraging economic growth that benefits the poor and creates sustainable livelihoods for poor people.

It is evident that the credit in cash component of the LDP was challenged with high default rate (53.8 percent) just like other Government microcredit schemes such as MASLOC which was seeking the assistance of Ghana's anti-corruption agencies to help in recovering more than GH¢80 million from defaulting beneficiaries. This high default rate is partly as a result of the failure to monitor the credit in cash beneficiaries after the credit disbursement; therefore 47.5 percent of the credit in cash beneficiaries diverted the credit either in part or in full from purchasing livestock into other activities. This was further compounded by high mortality of the livestock as a result of diseases and other factors.

The high default in repayment does not promote sustainability of the LDP in the Wa Municipality because diversion of the credit impacted negatively on smallholder livestock production and default in repayment constrained the availability of revolving fund for other smallholder livestock farmers to also benefit from, so as to expand their livestock enterprises. Therefore, the ultimate goal of contributing to the reduction of the incidence of poverty among smallholder livestock farmers from 59 percent to 30 percent by 2015 could remained a mirage.

Livestock farmers in Wa Municipality were still confronted with challenges which include limited access to veterinary services due to limited number of veterinary officers; and inadequate supply of animals with feed, particularly during the dry season. Generally, the LDP made a positive impact on smallholder livestock production in Wa Municipality despite the above challenges. However, the impact was relatively moderate. This lends support to other impact assessment results on small enterprise operations and growth in the promotion of sustainable development.

To effectively eliminate poverty, all aspects of sustainable development should be taken seriously. This means not only focusing on vigorous economic growth, but encouraging economic growth that benefits the poor, such as livestock production, based on sound environmental management. More specifically, this means creating sustainable livelihoods for poor people. It is the government together with its development that can create the right political and economic framework for sustainable development. Before instituting microcredit as a sustainable instrument for social and economic development, the viability of microcredit programmes and businesses must be assessed. Sustainability is an important key to the viability of microcredit as a strategic instrument for the promotion of small enterprises' growth and its contribution to overall development. Sustainability, which refers to the potency of continuity and a self-generating system, is therefore important.

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