

UNIVERSITY OF CAPE COAST

EFFECTS OF ACTION AID, GHANA LAND RECLAMATION
PROGRAMME ON FOOD PRODUCTION IN THE GA WEST
MUNICIPALITY OF THE GREATER ACCRA REGION, GHANA

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this University or elsewhere.

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Supervisors' Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

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ABSTRACT

The Ga West Municipality was formally serving as a food basket of Accra but now, has become a net importer of all kinds of food. This issue has surfaced due to the high rate of sand winning and estate development activities. The study assessed the effects of the Action Aid Ghana land reclamation programme on food security and the livelihood of the people in the Ga West Municipality in the Greater Accra Region, Ghana. Interview schedule was used for collecting data from a sample of one hundred clients of Action Aid Ghana in Ga West Municipality.

The study revealed that residents believe farming creates a sustainable income and therefore more lucrative than sand winning which only brings bulk amount of money for a short period. It was also found that farming can help solve food related issues and ensure food security rather than sand winning activities.

It may be concluded that sand winning activities has made Ga West Municipality to become a net importer of all kinds of food. It can also be concluded that the reclamation exercise by Action Aid Ghana resulted in increase in food production and a better livelihood of the people. It is recommended that Action Aid Ghana and other NGOs should carry out the exercise in other communities and regions where sand winning is on the rampant. Also, Sand contractors as well as land owners should be given proper education by the EPA on the reclamation of land and its effects on food security.

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DEDICATION

To my two daughters, Tracy Naa Atswei Adjei and Audrey Naa Ayorkor

Adjei.

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LIST OF ACRONYMS

CEFLA	Community Empowerment for Land use Accountability
EPA	Environmental Protection Agency
FAO	Food and Agriculture Organisation
GDCA	Ghana Developing Communities Association
IFPRI	International Food Policy Research Institute
ISSER	Institute of Statistical Social and Economic Research
KASA	Knowledge, Attitude, Skills and Ability
MME	Ministry of Minerals and Energy
MoFA	Minister of Food and Agriculture
NREG	Natural Resource and Environmental Governance
SLM	Sustainable Land Management
SPSS	Statistical Product and Service Solutions

CHAPTER ONE

INTRODUCTION

Background to the Study

At the 1996 World Food Summit, a new international definition for food security was formulated: “Food security exists when all people at all times have physical and economical access to sufficient safe and nutritious food preferences for an active and healthy life”. This definition is based on three core concepts of food security: availability (physical supply), access (the ability to acquire food) and utilisation (the capacity to transform food into the political, social and economic environment). To achieve and monitor food security therefore requires good coordination of efforts and communication between all these core areas.

Developing sustainable mechanisms and systems for enhancing the communication, collaboration and linkages between development organisations services governmental institutions and communities or “beneficiaries” and amongst development organisation is an ideal pursued in different forms and different ways by various development actors. In recent decades, the rapid growth of urban poverty in developing countries has quickly overwhelmed efforts to address the unique problems associated with poverty in the cities. Meanwhile the problems of the urban poor have become more pressing, including their difficulty on food security and nutrition, particularly for children. Like many developing-country cities, Accra has seen a dramatic rise in its population and a corresponding decline in the quality of

livelihoods and food security. Research findings from 1996 to 1997 by International Food Policy Research Institute (IFPRI) (1998) revealed that:

- Households in Accra rely heavily on their labour for income. Both individuals and households strive to diversify their income sources. The average number of income-generating activities per household was 1.9 and it was significantly lower for female-headed household.
- Urban agriculture does not play as large a role in household livelihood strategies within the city of Accra as in some other African cities. This is due to the fast rate at which agricultural lands are being used for physical expansion in Accra.
- Childhood malnutrition is lower in Accra than in other rural areas of Ghana but it is still high with close to 18 percent of children younger than three years of age suffering from linear retardation (low height-for-age).
- Poor child-feeding practices may be responsible to some extent for high levels of malnutrition in Accra.

Problem Statement

The Ga West Municipality was formally serving as a food basket of Accra but now, has become a net importer of all kinds of food. This issue has surfaced due to the high rate of sand winning and estate development activities. The Ministry of Minerals and Energy (MME) and the Environmental Protection Agency (EPA) are responsible for overseeing the

extraction of sand, but are apparently powerless to enforce agreements pertaining to land reclamation (Antwi & Deakin, 1995).

Action Aid Ghana in collaboration with MME and EPA initiated the reclamation of such lands that have been destroyed. Under the programme land contractors are made to pay upfront fees before they carry out their sand winning activities. This fine is returned to them after reclaiming such lands. On the contrary, if they default the money is given to the owners of the lands. Has the recent Action Aid Ghana reclamation of land programme brought about increase in food production in the said district?

Research Questions

The study looked at the following questions:

- Why do people engage in sand winning activities in the study area?
- What is the level of awareness of the effects of sand winning on farming and food production?
- What is the level of awareness of the effects of sand winning on the livelihood of the people in the community and the environment?
- What has been the effect of the land reclamation program by Action Aid Ghana on food production and food security?

Objectives of the Study

The general objective of the study was to assess the effects of Action Aid, Ghana land reclamation programme on food production and food security among the people of Ga West Municipality in the Greater Accra Region.

The specific objectives were to:

1. assess the reasons why people engage in sand winning activities in the Ga West Municipality.
2. understand the perceived relevance of sand winning to farming in terms of food security.
3. describe the effects of sand winning on farming and food production, livelihood of the people and the environment.
4. assess the role sand winning regulatory bodies play in the study area.
5. assess the effects of the land reclamation programme by Action Aid Ghana on food production and food security.

Justification of the Study

It can be seen clearly that good quality and quantity of food are needed for development of every country. Food plays a vital role in the growth of a nation. For food to be secured farmlands must be made available to farmers for use. It is therefore important to find out whether the people of the Ga West Municipality have benefited from the said reclamation programme carried out by Action Aid Ghana. It is also important to ascertain the degree of contribution the said programme plays in food security in the Ga West Municipality.

Limitations of the Study

The sample size was chosen due to unavailability of time and resources as compared to the large size of population available. The exercise is also

primarily for academic purpose hence less work was performed than an ideal job.

Delimitation

Geographically, the project was conducted within the Ga West Municipality and therefore its outcome cannot be generalised. Contextually, the study focused on the relationship between land reclamation and food production. The study also used the Action Aid Ghana's Land Reclamation Programme.

Definition of Terms

The following terms have been defined in the context of this work:

1. Land reclamation: The process of restoring up a site that has sustained environmental degradation such as those by natural cause (desertification) and those caused by human activity (strip mining).
2. Food security: Physical and economic access to food that meets people's dietary needs as well as their food preferences.
3. Sand winning: A type of open-cast mining of sand that provides materials for the construction sector in Ghana.
4. Regulatory body: A professional body and its primary activity is to protect the public against the destruction of public natural resources. It is established on the basis of legal mandate.
5. Food production: The cultivation of crops and livestock for human consumption.

6. Livelihood: A means of supporting one's existence, through financial or vocational means.
7. Anti-poverty agency: An agency created with the intension of alleviating poverty
8. Agriculture: The science, art, and business of cultivating soil and producing crops and livestock.
9. Land degradation: Deterioration in the quality of land, its topsoil, vegetation, and/or water resources, caused usually by excessive or inappropriate exploitation.
10. Desertification: The transformation of arable or habitable land to desert, as by a change in climate or destructive land use.
11. Soil erosion: Removing of the top soil faster than the soil forming process can replace it, due to human activity or natural causes such as rain or wind.
12. Agricultural land: Land under annual crops, such as cereals, cotton, other technical crops, potatoes, vegetables, and melons; also includes land left temporarily fallow and for grazing.
13. Self-sufficiency: The state of not requiring any outside aid, support, or interaction, for survival.

Organisation of the Study

The study consists of five chapters. Chapter One which is the Introduction deals with the background to the study, problem statement, research questions, objectives of the study, justification of the study,

limitations and delimitation, and definition of terms used in the study. Chapters Two is the Literature review and it touches on Action Aid in Ghana, land tenure system, marketing and market facilities, post-harvest, demographic characteristics in the Ga West Municipality, sand winning and depletion of farm lands.

Chapter Three contains the methodology which captures the study area, research design, target population, sample and sampling procedure, research instrument, data collection and data analysis. Chapter Four presents the results and discussion, while chapter five contains the summary, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The Ga West Municipal Assembly is the second largest of the six Municipalities and Districts in Greater Accra Region. It lies within latitude 5°48' North 5°29' North and longitude 0°08' west and 0°030' West. The Municipality shares common boundaries with Ga East Municipal and Accra Metropolitan Assemblies to the East, Akwapem South, Suhum Kraboa Coalter and West Akim Municipal to the North, Awutu-Efutu Senya to the West and the Gulf of Guinea to the South. It occupies a land area of approximately 710.2 square kilometres with about 1028 communities.

The agricultural sector has not seen growth within the past few years in spite of several government initiatives aimed at facilitating the growth of the sector. This has basically been caused by the loss of existing farmlands to sand winners as well as growth in estate development and acquisition of land for private housing projects. It has been observed that incomes accrued from lease of lands to private and estate developers are generally higher than for agricultural purposes hence, the preference of landowners to lease out lands for purposes other than agriculture.

Action Aid International

Action Aid is an international anti-poverty agency whose aim is to fight poverty worldwide (Antwi, 2006). Formed in 1972, for over 30 years it has been growing and expanding to where it is today – helping over 13 million

of the world's poorest and most disadvantaged people in 42 countries worldwide. In December 2003, Action Aid established a new head office in Johannesburg, South Africa, and began the process of making all its community programs equal partners with an equal say on how it operates.

They work with will local partners to fight poverty and injustice worldwide, helping them fight for and gain their rights to food, shelter, work, education, healthcare and a voice in the decision that affect their lives. Their partners range from small community support groups to national alliances and international networks seeking education for all, trade justice and action against HIV/AIDS.

They have a unique vision and direction. They don't impose solutions, but work with communities over many years to strengthen their own efforts to throw off poverty. They constantly seek new solutions and ask themselves where they can make the greatest impact with their resources. They make the most of their skills and abilities by working at many levels – local, national, regional and international.

Vision

A world without poverty and injustice in which every person enjoys their right to a life with dignity.

Mission

To work with poor and excluded people to eradicate poverty and injustice.

Values

- **Mutual Respect:** To recognise the innate worth of all people and the value of diversity.
- **Equity and Justice:** To work to ensure equal opportunity to everyone, irrespective of race, age, gender, sexual orientation, HIV status, colour, class, ethnicity, disability, location and religion.
- **Honesty and Transparency:** Being accountable at all levels for the effectiveness of actions and open in judgments and communications with others.
- **Solidarity with the poor, powerless and excluded** as the only bias in commitment to the fight against poverty.
- **Courage of Conviction:** To be creative and radical, bold and innovative – without fear of failure – in pursuit of making the greatest possible impact on the causes of poverty.
- **Independence from any religious or party – political affiliation**
- **Humility in presentation and behaviour, recognising itself as part of a wider alliance against poverty.**

Action Aid in Ghana

Action Aid began operating in Ghana in 1990. Their key focus areas are education, water health and livelihoods. Action Aid works with communities to establish informal centres where children can gain basic literacy and numeracy skills. Classes are organised to fit around children's other duties. They also help parents to repair and improve state owned primary

school buildings and support teacher training and provide much-needed teaching materials. Action Aid's adult literacy programme has proved far more successful than conventional approaches.

With Action Aid's support many communities have dug wells and installed hand pumps, giving access to safe drinking water. Action Aid is supporting the Ministry of Health in its efforts to improve rural services. They are educating traditional birth attendants and the community in matters of basic health, hygiene and sanitation. They train farmers in agriculture, run a seed credit programme and provide savings and credit facilities to enable women to invest in small businesses to increase family incomes.

Agricultural Production and Services in the Ga West Municipality

Agriculture supports about 55 percent of the economically active population in the Municipality directly or indirectly through farming, livestock development, fisheries, and distribution of farm produce and provision of services to the sector. About 95 percent of the farmers are small holders with five percent being large-scale holders. Approximately 70 percent of those in the rural areas depend on agriculture and agricultural related activities for their livelihood. Commercial holdings are mainly into non-traditional export crops such as pineapple, chilli peppers, pawpaw and some Asian vegetables such as tinda and marrow.

Productivity in the Municipality is rather low due several factors. These include high illiteracy rate, poor soil conservation and improvement management skills, low capital, and high cost of inputs. There is high

incidence of pests and diseases, high post-harvest losses (25-30%), persistent use of traditional farming methods and over-dependence on rain-fed agriculture. Rainfall is insufficient and erratic and irrigation infrastructure is almost non-existent due to high cost.

Land Tenure System in the Ga West Municipality

Land as a factor for agricultural production is under siege from the estate development sector either for physical structures or for sand winning or stone quarrying. Land sizes for production are small and over exploited without any meaningful soil conservation and improvement practices. Chiefs are the custodians of land and hold them in trust for their subjects. However, direct ownership is in the hands of clan or family heads. Anyone in the lineage could inherit from the grandparent/parents. Land could be owned either by direct purchase or lease. Share cropping tenure arrangement for a period of one farming season is also common operation of land. Land sale is one of the quickest ways of making money and the major cause of conflict is land ownership.

Marketing and Market Facilities in the Ga West Municipality

Even though there are ready markets available for farm produce, crop farmers, especially do not control the pricing of their goods. The highly perishable nature of most agricultural produce couple with the glut at immediate harvest times account for the low prices of produce, leading to low prices. There is lack of information on prevailing market prices and the

inability of farmers to freely enter established markets due to the presence of powerful market queens continue to permit the exploitation of farmers by market women and middle men.

Post-harvest in the Ga West Municipality

Significant post-harvest losses particularly cassava; cowpea, maize and vegetables are recorded in the Ga District. The average annual post-harvest loss for maize is estimated to be between 20 to 25 percent. The loss is even higher in cowpea, vegetables and cassava. Aside of a few traditional silos, warehouse with drying facilities are virtually absent.

Demographic Characteristics in the Ga West Municipality

Census figures from the Ghana Statistical Service (2000) indicate that there are 96,809 persons within the Municipality. Out of this, 46,550 (48.2%) are males and 50,259 (51.8%) are females. Based on this figure and the current district growth rate of 2.1 percent per annum, it is estimated that the population of the district presently stands at 107,532. This annual growth rate (2.1%) has not changed over the last three censual periods (1970, 1984 and 2000). With relative stability in fertility rates and the appreciable reduction in death rates nationwide, the general expectation was that the Municipality would record an increase in the population given the availability of land.

This did not happen due to the inadequate number of secondary and tertiary activities/facilities and the stagnation in agricultural production and productivity. These are pull factors that attract population into regions.

Availability of cheap agricultural lands is forcing these developers into converting the district into dormitory towns for workers in Accra. This is going to have a profound impact on the population of the district sooner or later. Additionally, some of the major interventions of the agriculture led Millennium Challenge Account (Ghana) programme are the construction of a pack houses at Agomeda and the development of educational, health and other social infrastructure. These are expected to attract labour into the district and alter the demographic pattern in the Municipality.

According to the Ghana Statistical Service (2000), the population of Ga West Municipality is estimated at 348,926, with growth rate of 3.4 percent. The projected population for the year 2006 is 426439. The growth rate is as a result of the Municipality's closeness to the capital city Accra where there is a lot of inflow of migrant workers. The female population as at year 2000 is 174,030 representing 49.9 percent of the total population; Males make up the other 50.1 percent i.e. 174,896.

The population is mainly concentrated along the peri-urban areas of the Municipality, particularly on the border with the Accra Metropolitan Assembly and Ga East District Assembly. The urban population of 236,709 inhabitants constitute 67.8 percent with the remaining 112,217 which is 18.9 percent residing in the rural portion of the Municipality. The Population growth rate of the Region is 4.4 percent as against 2.7 percent for the National.

While the growth of the population at the national level is largely the result of the lowering, but still high fertility (4.5 children per woman) and stable, fairly low mortality, that at the fast developing areas of the district such

as Taifa, Weija and Mallam are mainly the influence of migration inflows. The District remains predominantly urban. The classification of localities as urban or rural was based on the size of the population. Hence, all localities with population of 5000 were classified as rural.

Urban growth has a number of direct and indirect consequences on food supply and distribution. All are relevant in any assessment of urban food security. For example, urban growth increases the demand for marketed food but reduces the availability of productive land. It modifies food-purchasing habits and makes existing market area and infrastructure inadequate, both in rural and urban areas.

Urban growth also increases the price of land, intensifies traffic, alters the location of consumers, and modifies food consumption habits (Argenti, 1998). Kufogbe (1996) notes that urban sprawl in Greater Accra Metropolitan area is having considerable impact on contiguous peri-urban, resulting in the conversion of agricultural land to residential uses, and suggest to institute stringent measures to protect peri-urban agricultural land.

Age and Sex Structure in the Ga West Municipality

The age structure is typical of less development economies, which are characterised by large proportion of children (under 15 years) and a small proportion of elderly persons (over 64 years). The proportion of the population under 15yrs in 2000 (34.8%) is a reflection of high fertility. The proportion of the elderly which is (3.0%) is also a reflection of low life expectancy. For instance the dependency level is lower for males, mainly because the younger

dependency group (under 15 years) is lower (34.0 as against 35.0 females). Males constitute 50.2 percent of the population translating into a sex ratio of 99.1 females to 100 males.

A study by Amar-Klemesu and Maxwell (1998) revealed that more than 60 percent of farmers in Accra are men. Habitat International (2002) also reported that male farmers predominate in urban food cultivation in Accra. A study conducted in Kenya, Uganda and Zambia by Sanyal (1984) revealed otherwise. It reported that there are more women than men in urban farming in cities of these countries. Trip (1990) and Mvena, Lupanga and Mlozi (1991) in Tanzania were of the same view.

Household Size in the Ga West Municipality

The average household size of the Municipality as at year 2000 is 5.0 persons even though female adolescent (15-19 years) here have much higher fertility than that of Accra Metropolitan Assembly, Ga West and East and Tema Municipal Assemblies. This is supported by evidence based on life time fertility. The mean number of children born to adolescent (15-19) years in Dangme West (0.216) is higher than the regional average of (0.090). This larger average household size (44.9%) has implications for housing policy and housing development in the Municipality.

Educational Attainment in the Ga West Municipality

While literacy can be acquired through reading and private informal channels, the formal schooling system remains the best process for improving

access to information and broadening the horizon of the people. The proportion of the population (3 years and over) in pre-school is encouraging and a reflection of the significant role these pre-school institutions play in providing child care services and giving the children a jump-start towards the preparation for entry into primary level of basic education.

As compared with the national average of 18.6 percent, the Municipality has a smaller proportion (6.2%) of the population that attained primary education at the highest level. This is encouraging, however there should still be the challenge for the full implementation of the Free Compulsory Universal Basic Education programme, since the effects of education do not begin to manifest until beyond the basic level.

Food and Agriculture in Ghana

Agriculture is predominantly practiced on smallholder, family operated farms using rudimentary technology to produce about 80 percent of Ghana's total agricultural output. It is estimated that about 2.74 million households operate a farm or keep livestock. According to the Ghana Statistical Service (2000), 50.6 percent of the labour force, or 4.2 million people, are directly engaged in agriculture. About 90 percent of farm holdings are less than 2 hectares in size. Larger scale farms and plantations produce mainly oil palm, rubber and coconut and to a lesser extent, maize, rice and pineapples. Agricultural production is generally dependent on rainfall, although an estimated 6,000 farm enterprises nation-wide were using some means of irrigation in 1999.

Agricultural Land and Degradation

Land degradation, desertification and soil erosion hit hardest at the local level and those most affected are the poor women and men who depend on natural resources for their survival. Women's work, particularly work performed by poor women, is strongly affected by environmental degradation. Communal ownership of land and absence of demarcated grazing lands result in over-grazing and conflicts between livestock keeping and crop farming. Practice of bush burning for crop production is a source of loss of fodder for livestock during the critical dry season period.

Unfortunately, however, most farmers in Ghana are not aware of the linkage between inappropriate tillage and water management practices on one hand, and environmental degradation on the other. With an estimated 64 percent of the natural wealth of Ghana locked up in crop lands, there is the need for more focused attention to address poor agricultural land management. The prudent management of agrochemicals and drainage is crucial in sustaining the natural resource base.

In spite of the existence of rules and regulations environmental management for agricultural land use activities, major stakeholders are unaware of these and enforcement is weak. Past efforts by the Government and its partners have yielded some positive results. However, scaling up of these SLM practices has been faced with a number of barriers, including cost and limited access to relevant inputs within an environment of limited credit, and land tenure systems that do not favour investments in improvements to land.

Food Security

Food security is a concern to a variety of actors at District level, starting from the farming families who aim to improve their livelihoods, and their community institutions which provide local leadership as well as support to the access and availability of resources and assets. The Ministry of Food and Agriculture (MoFA) leads in agriculture development and addresses all three areas of food security through production storage processing and marketing. Development NGOs address specific development, food security and agriculture issues in specific geographical locations and services are available through the private sector.

Access to food is now a problem due to several factors. Young people are now moving away from the farming areas for non-existent jobs in the city. No wonder hunger is still a problem. Antwi (2006) reported that over 950 million people across the globe go hungry everyday, despite the fact that there is more to feed everyone. Everyday, almost 16000 children die from hunger related cause (one child every five seconds). One every five people in developing country is chronically undernourished (Antwi, 2006). Food prices have increased to 83 percent in the last two years. Food security depends upon available income, consumers' food habits and the costs faced by urban consumers in accessing food in hygienic conditions (Argenti, 2000).

MoFA defines food security as good quality nutritious food, hygienically packaged and attractively presented, available in sufficient quantities all year round and located at the appropriate places at affordable prices (Argenti, 2000). The key elements of the definition, as is the case with

other definitions, are nutritive quality of food, self-sufficiency and physical and financial availability. For example, FAO defines food security as a situation where all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The element of food safety will be a concern in Ghana's pursuit of food security. Although the objective of attaining food security is national, it is the poor that are most vulnerable to food insecurity.

Emergency preparedness is an assessment of the country's readiness to respond to the needs of victims of natural hazards and other calamities. In the case of food and agriculture, it is the ability to provide food to affected persons in times of disaster. As noted above, it is the poor risk prone small holders who are most ill equipped to cope with disasters.

Ghana faces the challenge of making substantial progress in food security because average yields have remained stagnant. Commercial food imports and food aid have constituted about 4.7 percent of food needs in the last 15 years. According to MoFA, food production fluctuates from year to year due to frequent variations in the magnitude of rains during and between growing seasons. This recurrence of climatic stress destroys crops and livestock (Argenti, 2000). Rainfall is a major determinant in the annual fluctuations of household and national food output. This creates food insecurity at household levels, which can be transitory in poor communities and chronic in distressed areas. In high population density areas such as the Upper East Region, the situation is cyclical and severe for three to five months

each year. There are therefore regional disparities in food insecurity due to seasonal food deficits in the three northern regions.

A significant proportion of food insecure Ghanaian households in rural, as well as, urban localities produce some of the food they consume. For most households, hunger is frequently associated with poor harvests resulting from environmental degradation, poor weather, natural disasters, or conflict. Almost all families supplement their food requirements with significant amounts of purchased staple crops. Gender is also an important dimension of poverty, especially in northern Ghana where there is a sharp disparity between the income earning opportunities of women and men.

While Ghana can be classified as generally food secure, pockets of food insecure populations exist in all regions because of acute resource limitations and lack of alternative livelihood opportunities for some individuals and households to meet their dietary needs with purchased food. Malnutrition is a serious problem among children, adolescents and pregnant women due to insufficient levels of food intake and or diets not providing an adequate nutritional intake. Results from the 2003 Ghana Demographic Health Survey indicate that malnutrition contributes 40 percent to mortality among children less than five years.

In that survey, 29 percent of this group of children were chronically malnourished, an increase of three percentage points over the 1998 rate. Seven percent of children were wasted (through acute malnutrition) and this reflected a two percentage point decline from the 1998 level. Twenty-two percent were under-weight (with 5% severely under-weight) in 2003, a decline of

three-percentage points from 1998. However, in spite of the improvements in proportion of children wasted and underweight, the rate of wasting is 3.5 times that expected in a healthy population while the proportion of under-weight children is times the level expected in a well-nourished population.

The availability of food varies considerably from year to year, depending on the level of production. Adverse weather conditions often exacerbate drought-related crop failures, especially through bush fires that have a disproportionately severe impact on smallholder farm enterprises. Food insecurity is more prevalent in high population density zones, where women and children have specific dietary needs but are at higher risk of hunger than adult males in the household.

Climate changes and other natural hazards expose Ghana to various types of natural and manmade hazards, which have occurred with increasing frequency in the last twenty years. Natural phenomena, especially floods and droughts, regularly result in disasters that cause severe food insecurity, and disruption of livelihoods. These disasters disproportionately impact on enterprises of poor smallholders and increase their vulnerability to food insecurity. Further-more, the land degradation aggravates the impact of these disasters.

Urban agriculture is a major component of the livelihood strategies of the urban poor, particularly migrant populations. Practitioners are confronted with problems of access to land and irrigation water, and access to extension services, particularly on the safe use of agrochemicals. Since the commodities

are mainly vegetables that are in most cases consumed fresh, the lack of access to quality extension services also has food safety implications for consumers.

Access to Land

Available agricultural land is declining due to population pressure and urbanisation. This is increasingly limiting access to land and causing changes in the spatial distribution of crops such as the shift in cocoa production from the Ashanti, Eastern and Brong Ahafo Regions to the Western Region and replacement of yam by cassava in the transitional zone. Insecurity of tenure is widespread, largely because of customary land tenure systems in which there are no legal titles. Boundaries are unclear, and communal ownership invests rights in all but gives responsibility for management to none. Insecurity of land rights could limit investment, and is a threat to livelihoods of migrant populations, farming communities and sustainable use of land through intensification.

Land Degradation and Food Security

Food security is the secure and sustainable access to sufficient food for active and healthy lives, whether access derives from production or exchange. Most studies of the effects of land degradation focus on selected measures of productivity, but land degradation may also affect food security, through its impacts on food production as well as on incomes and food prices. Citing studies in Africa, Asia and Latin America, Scherr (1999) notes that poor farmers tend to rely disproportionately on annual crops cultivated on marginal

lands, often with insecure tenure characteristics associated with a higher vulnerability to both land degradation and food insecurity.

Sand

Sand is a type of sediment produced by the mechanical and chemical breakdown of rocks. Once disaggregated from the original source rock, it is then eroded and transported by wind and water, often ending up at the deposits of rivers or lakes as sand dunes, or ultimately as sediments in the sea. The composition of sand is largely dependent on the source material. It ranges between the following minerals: calcite, feldspar, galena, graphite, hematite, magnetite, muscovite-mica, pyrite, quartz and talc.

In areas where there is no good source of sedimentary materials from mountains and volcanoes, sand is often entirely composed of organic material, that is, shell fragments, coral and the tests (skeletons) of small planktonic organisms. The texture of sediment is largely determined by the transportation process. The three important parameters used to assess the texture of sediment are size, rounding and sorting. The size connotation for classifying sand is in the range of 0.6 mm and 2.0 mm. This is further subdivided into very coarse, coarse, medium and fine. In practical terms, very fine sand is about the smallest grain size one can see with the naked eye.

Sand Winning

Sand winning is a type of open-cast mining that provides materials for the construction sector in Ghana. Its contribution to Ghana's industrial output

has increased from 17.4 percent in 1986 to 20.8 percent in 1993 (Mensah, 1997). The activity of sand winning, carrying and transporting sand, and has resulted in a number of physical, socio-economic and environmental problems including land use and land ownership conflicts, damage to feeder roads and use of child labour (Mensah, 1997).

Demands for Sand

A research work carried out by Action aid Ghana revealed that sand is one of the basic raw materials in the construction industry and essential in every developing nation. Large quantities of sand are employed everyday in the nation's infrastructural development, and there is no substitute for it. Accra being the nation's capital, increasing urbanisation, coupled with rapid population growth has created an acute demand for housing and consequently for sand. The government's infrastructural development has been mainly rehabilitation of existing infrastructure and construction of new ones. The developments are in the areas of roads, drains, culverts, bridges, school buildings, hospital buildings, public buildings and physical upgrading of cities and regional capitals.

These works require substantial quantity of sand. In addition to the Government's infrastructural development works, residential accommodation, especially in the urban areas, is one of the acute problems that the nation is encountering. The capital city of Ghana, Accra, being the centre of industrial, commercial and academic activities, experience high influx of people, in pursuit of jobs and education. This has created acute demand for residential

accommodation, and hence demands for sand, which is a basic component in concrete mixture.

Ghana consumes an average of 2.4 million tons of cement per annum (Ghana Statistical Service, 2000), and 40 percent or 960,000 tons of this is consumed in Greater Accra Region alone. Based on the average cement to sand ratio of 1:4 by weight in a concrete mixture, this implies that Accra alone consumes about 3.84 million tons of sand per annum. This huge quantity of sand is sourced from Ga and the surrounding districts.

During the last two decades, Accra used to source for its sand requirements from the beach resulting in rapid degradation of the coastline. This presented some grave environmentalists; sand winning from the beaches of Accra was abolished. Additionally, beach sand was known to be corrosive due to the salty sea water and not suitable for construction where iron rods are involved. Sand winners therefore turned onto the nearby farmlands in the Ga District and the depletion has been very rapid since. It is expected that a substantial percentage of the total sand consumption of 3.8 million tons per annum in Accra is sourced from the Ga District.

Causes of Sand Winning

Socio economic factors are the main reason why people mine sand for sale. These factors are discussed as follows:

Lack of adequate employment

Mensah (1997) believes that unemployment and underemployment compel people to become sand carriers loaders and tally clerks in order to

make ends meet. The agricultural sector is not lucrative due to high input costs high, high risk and inefficient traditional methods of production. Fertilizers and seedlings are expensive provides an alternative means of survival with relatively few entry barriers.

High Profit Accruing to Sand Contractors

Another factor that promotes uncontrollable sand winning is the high profit accruing to sand contractors. Compared to the national minimum daily wage rate of US\$1.22 in 1993, a contractor made minimum net profit of US\$55.47 per day while a sand carrier and loader made a daily net income of US\$1.54 and US\$2.16, respectively. The high profit margin to contractors may explained by the high demand for sand (Mensah, 1997). Since 1998, the relative importance of sand winning was increased in Ghana while the contribution to industrial sector of manufacturing has declined (Institute of Statistical, Social and Economic Research, 1994). Today, the growing urban population has accelerated the construction of houses and business premises on lands that were hitherto unoccupied.

Low Environmental Concern

According to Mensah (1997), more than 55 percent respondent did not care about the chain of consequent hazards caused by sand winning on other natural resources such as plants and animals. Keating (1994) notes that many people do not understand the close ties between human activities and the environment because they have inaccurate or insufficient information.

High Community Desire for Development Projects

Due to limited amenities rural dwellers have taken it upon themselves to underrate development projects including the provision of electricity, potable water and basic school and health facilities – to modernise their communities. Sand winning is a major source of funding for such projects (Mensah, 1997).

Effects of Sand Winning

Sand winning has a number of effects, both positive and negative.

Negative Effects of Sand Winning Activities

The negative effects of sand winning activities include depletion of farmlands, food security, noise making and dust pollution.

Depletion of Farmlands:

The research work of Action Aid revealed that depletion of farmlands was very serious in their communities. Some of the communities claimed there were no farmlands at all and farmers had to depend on other neighbouring communities for farmlands. Destruction of mature soils will limit the extent and development of some vegetative communities.

Food Security:

According to the findings of Action Aid, the availability of food in the Ga West, and Accra on the whole would be marginalised if sand winning

should be allowed indiscriminately (Antwi, 2006). A recent report by the Ghanaian News Agency (2010) has cited sand winning as a contributing factor to falling production in the Upper West Region.

Noise Making:

Residents claimed that the sand carting trucks and caterpillars disturbed a lot, especially in the night. Sand winning activities go on throughout the night, thus giving them sleepless nights.

Dust Pollution:

Residents living along the roads where the said carting trucks pass suffered a lot from dust pollution, resulting in various diseases.

Positive Effects of Sand Winning Activities

The positive effects of sand winning activities include indirect employment, reduced cost of sand and compensation for land.

Indirect Employment:

The study of Action Aid revealed that sand winning had not given any positive impact on indirect employment.

Reduced Cost of Sand:

The difference in cost of sand was only slight and this did not make any significant positive impact. Moreover, the majority of residents did not

have the means to put up houses, and any such reduction in cost of sand would not benefit them much.

Compensation for Land:

Farmers did not receive any compensation for their farmlands, and those who received said it was insignificant as compared to what they had lost.

Overall Effect of Sand Winning on Individual Interviewee

Residents claimed that sand winning activities in their communities have had very bad impact on their livelihood.

Overall Effect of Sand Winning Activities on the Communities

All respondents were of the opinion that sand winning activities had had very bad impact on the communities.

Banning or Permitting Sand Winning in the Communities

The report revealed that residents were in favour of banning sand winning activities in their communities. A research work carried out by Nunoo and Evans (2007) reported that there is a need to limit sand winning to specific areas and also increase the tariffs of sand winning.

Depletion of Farmlands

According to a survey conducted by Action Aid Ghana, sand winning activities have laid fallow the greater portion of farmlands in the communities.

Some communities do not possess any farmlands; all have been depleted by sand winning activities. The farmlands in the other communities were being depleted at the rate of 400 hectares or 1,000 acres per annum. At this rate, the entire District would be left with virtually no farmlands in some few years. Some farmers had been discouraged to till their lands because of the risk involved in farming such lands earmarked for destruction. They claimed that their crops destroyed were insignificant – sometimes GH¢10.00 compensation for crops worth about GH¢30.00.

One major problem was that in most cases, these depleted farmlands were sold out to land developers, without any hope of re-using them for farming activities. All residents interviewed were of the opinion that the problem of depletion of farmlands was a very serious one, which, if not addressed immediately, would have very negative repercussions in the near future. The rate at which farmlands in the Ga West Municipality are being destroyed by sand winners is on the increase and must be checked.

Land Reclamation or Land Rehabilitation

Land reclamation or land rehabilitation is the process of cleaning up a site that has sustained environmental degradation such as those by natural cause (desertification) and those caused by human activity (strip mining). Land reclamation is often done in these sites to allow for some form of human use (such as housing development) or to restore that area back to its natural state as a wildlife habitat home (Geoffrey, 2007).

Reclaiming Desert Land

Land reclamation in deserts involves:

- setting-up reliable water provisioning (e.g. by digging wells or placing long-distance water pipes).
- stabilising and fixating the soil.

Stabilising and fixating the soil is usually done in several phases. The first phase is fixating the soil to such extent that dune movement is ceased. This is done by grasses, and plants providing wind protection such as shelterbelts windbreaks and woodlots Shelterbelts are wind protections composed of rows of trees, arranged perpendicular to the prevailing wind, while woodlots are more extensive areas of woodland (Geoffrey, 2007).

The second phase involves improving or enriching the soil by planting nitrogen-fixating plants and using the soil immediately to grow crops. Nitrogen fixating plants used include clover, yellow mustard, beans, and food crops include wheat, barley, beans, peas, sweet potatoes. Regardless of the cover crop used, the crops (not including any trees) are each year harvested and/or ploughed into the soil (e.g. with clover). In addition, each year the plots are used for another type of crop (known as crop rotation) to prevent depleting the soil on specific trace elements.

Benefits Derive from Reclamation of Farm Lands

The benefits gained from reclamation of abandoned lands include protection of life, health, and safety; improved environmental and social conditions; and better use of natural resources (Geoffrey, 2007). Several

abandoned mines in Western Maryland create conditions hazardous to human health and safety or property. If hazardous conditions related to abandoned mines develop during the life of the programme, they will be expeditiously evaluated and abated as appropriate.

Many of the abandoned lands in Western Maryland cause environmental and aesthetic problems, damaging land and water, thereby limiting their usefulness. The benefits derived from eliminating these types of problems are many and varied. The land oriented benefits include hunting, recreation, aesthetics, and timber production, agriculture, and land values. Water oriented benefits include fishing, re-establishment of natural stream biota, non-fishing stream recreation, and reduction in water treatment costs.

Reclamation of abandoned lands in rural areas, particularly in wild life habitat management is implemented to encourage the presence of game species, is having a positive impact on hunting. Introduction of game food vegetation and fringe areas created through diversity of re-vegetative planting increase the availability of food to game and non-game species while providing excellent habitat for wildlife. Reclaiming abandoned land may not only enhance wildlife habitat, but increase its aesthetic appeal and accessibility to farmers (Geoffrey, 2007).

Interest in nature walks, hiking, wildlife photography, bird watching, picnicking, and camping are high in Western Maryland. Reclamation of abandoned mine lands can open up new areas to these pursuits by eliminating unattractive acreage in an otherwise desirable location. Under used abandoned

mine areas may be revitalised by the improvement of an undesirable and environmentally damaging landscape.

Financial benefits from forest production on abandoned mine lands are potential reclamation benefits in Western Maryland. There are local markets for paper pulp, mine timbers, studs, wood chips, and fence posts. Christmas tree production is a growing business in Western Maryland, and Christmas tree farms have been successful as a reclaimed land use.

With careful planning, the needs of both wildlife and timber management may be met on reclaimed lands. Trees and other woody plant materials provide food and cover for a variety of wildlife species while providing timber and wood products. The use of reclaimed surface mines for agriculture primarily pasture is likely to occur when the land is owned and utilised by a farmer. The local Soil Conservation Districts indicate that the seeding mixture currently used to re-vegetate reclaimed mines is better for pasture than the original pre mine vegetative cover. Associated benefits may include food and cover for wildlife.

Eco Reclamation Benefits

Most people will agree that reclaiming land possesses many benefits, but what are the actual benefits? The benefits seem limitless and continue to expand with the innovation of creative developers. The companies and developers who undertake mine reclamation promote land sustainability and the availability of usable land to future generations. Some of the benefits that humanity and the environment receives from reclaiming land include the

creation of nature parks, the purification of water, and the creation of increased habitat for wildlife, and natural preserves for fauna.

Many mining companies donated reclaimed land to local cities and forest services. Because the land undergoes reclamation, cities and people take advantage of previously unusable land and convert such property into parks and recreational areas. Butchart Gardens on Vancouver Island, Canada serves as a typical example. Mr. Butchart previously mined limestone on the land for the Portland Cement Company. When mining terminated, Mr. Butchart filled the quarry with topsoil and began his “Sunken Garden”. The fifty-acre Sunken Garden transformed into a Japanese Garden, Italian Garden, and Rose Garden. What previously served as a rock quarry now serves as the premier garden on the West Coast, admitting over one million visitors a year.

Golf courses also benefit from mine reclamation. The Parfet Clay Pits in Golden, Colorado produced large amounts of clay in the 1900’s. During mining, many fossils emerged from the walls of the pit. Lagoons also appeared, created when mining pits filled with water. After mining completed, the landscape of the pit created a perfect setting for a golf course. The lagoons served as water hazards, the fossil walls create a landscape that only exists at the Fossil Trace Golf Club, and the topography creates a challenging course layout. The Club would not exist if people did not take the time to reclaim the site, creating something useful out of disturbed land.

Reclamation also creates new sources of water in the form of reservoirs. Climax Mine, in Colorado, previously functioned as a molybdenum mine, but has since converted into the Eagle Park Reservoir. Pits were left in

the earth collecting snowmelt from the mountains surrounding the site. To create the reservoir, Climax removed contaminated soil and purified the water. The Eagle River Water and Sanitation District monitored the supply for contamination and deemed it safe for consumption. The reservoir, now the largest of its kind in the area, supplies fresh water to local towns during dry months (Geoffrey, 2007).

Regulatory Bodies of Sand Winning

The Ghana Developing Communities Association (GDCA), a non-governmental organisation working in northern Ghana, is implementing a programme to check granite stone mining and sand winning in some parts of the Northern Region. The programme, dubbed the Community Empowerment for Land use Accountability (CEfLA), seeks to control the, exploitation of natural resources by ensuring equitable access, accountability and transparency in the use of natural resources. It is being implemented in some communities in the Tamale Metropolis and Tolon-Kumbungu and Savelugu\Nanton districts.

The GDCA project forms part of the KASA project, which is a The NREG programme is a five-year budget support programme, which was introduced in 2007 to leverage communities to check the exploitation of natural resources in their domain to ensure that it is environmentally friendly and brings returns mechanism developed by some development partners to increase civil society involvement in attaining the goals of the Natural Resource and Environmental Governance (NREG)

programme. The programme will ultimately help maximise government revenue from natural resource mobilisation and reduce social conflicts over natural resource exploitation.

As part of the implementation of the CEfLA project, the GDCA organised an interface meeting which brought together various stakeholders to share and discuss research findings on the subject and propose measures to help deal with gravel and sand winning. A Project Officer of the GDCA-CEfLA project, Mr. Hardi Tijani, explained that the KASA project sought to promote evidence-based research and advocacy on the implications of natural resource exploitation. He said in line with this, the GDCA had gathered some preliminary findings regarding granite mining which is used for gravels and sand winning in the three districts and their impact on the livelihoods of the people.

The research, he noted, had revealed that there were no rules and regulations governing sand winning and granite mining in the respective communities and there were, therefore, no records of these activities. He said what existed was the haphazard exploitation of gravel and sand resources by individuals and groups who gave very little money to the chiefs in return for the huge resources they exploited.

Mr Tijani further indicated that even though some of the districts had environmental management committees, these never functioned effectively, as there was no monitoring. He noted that other activities that were being undertaken under the CEfLA project included sensitising the communities to

draw land-use plans and also encourage the district assemblies to incorporate those plans into their development plans.

The Project Officer also said the GDCA would engage the district assemblies, traditional authorities and environmental regulatory institutions in the development and enforcement of bye-laws and other statutes concerning the environment. “Increasing civil society’s capacity to undertake research, monitor and evaluate impacts, and influence NREG policy would contribute to better governance of Ghana’s renewable and non-renewable natural resources”, he observed.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter deals with the population, sample, research instruments, and design of instrument and data collection procedures. It as well deals with the validity and reliability of research instruments used for the study.

The Study Area

The Ga West Municipal Assembly was carved out of the erstwhile Ga Municipal which was created in 1988 in pursuance of the government decentralisation and local government reform policy. In 2004, the Ga Municipality was divided into two with Amasaman the former municipal capital remaining the capital for the newly created Ga West Municipal.

Research Design

The researcher adopted descriptive survey design and a case study in the mentioned locality. A case study method is an approach to studying a social phenomenon through a thorough analysis of an individual case. This study broadly examines the effects of Action Aid reclamation and conservation of farmlands programme on food security in the Ga West Municipality, and hence the choosing of the case study approach.

Target Population

The target group consists of residents in the Ga West Municipality, a suburb of Accra occupying there from August 2009 to January 2010.

Sample and Sampling Procedure

One hundred clients from Action Aid Ghana in Ga West Municipality were selected for this study. This large number of respondent represents the sample size. The large sample size helped in minimising sampling error and the results shows the true views of the entire population. Stratified random sampling was used as the sampling procedure to select the respondents. The stratified random sampling was used to reduce the heterogeneity in characteristics that exists in the population. The population was stratified into homogenous strata with respect to the exiting characteristics. The selection was then done disproportionately. The sand winning communities have been grouped into four zones. Each zone is made up of five communities. Five respondents were picked randomly from each community using the lottery method.

Instruments of Data Collection

Structured interview schedule was used as the instrument for the data collection. The interview schedule was design to cover the following areas:

- background of the respondents
- why people engage in sand winning activities in the Ga West
- the perceived relevance of sand winning to farming in terms of food security
- the level of awareness of the effects of sand winning on farming and food production, the livelihood of the people in the community and the environment

- are any sand winning regulatory bodies in the study area and the role they play
- assess the effect of the land reclamation programme by Action Aid Ghana on food production and food security.

The structured interview schedule was made up of both closed and open ended questions. The content of the instrument was validated by the supervisor while the face validity was determined through pilot testing. To ensure that the research tool is consistent, stable and accurate, the researcher administered the instrument once, and then again, under the same or similar conditions on the same population giving a time-span of one month between the first and second interview. Reliability was measured based on the difference between results of the two results. The difference between the two results was very low signifying how reliable the instrument is. The implication is that, the researcher used the test and re-test procedure to ensure the reliability of the research tool.

Data Collection/Fieldwork

The researcher visited the communities and other points and locations to interview respondents that have been selected. This was done with assistance from the Field Officer of Action Aid Ghana who would introduce the researcher to their clients to establish the rapport between the researcher and the respondents. The researcher then used one month for the field

exercise. Research questions were translated into local dilates for respondents to answer and they were later converted into English.

Data Processing and Analysis

The completed questions were collected, checked and properly edited before data entry was carried out. The data was analysed with Statistical Product and Service Solutions (SPSS) version 16 software. Descriptive statistics such percentages and frequencies were used to represent the data in the form of tables.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter deals with the presentation and discussion of the results as provided by the respondents. The results are presented according to the objectives of the study.

Socio-demographic Characteristics of Respondents

This section highlights the socio-demographic characteristics of respondents. These include sex, age, marital status, family size and educational background.

Table 1: Sex of Respondents

Background	Categories	Frequency	Percentage
Sex	Male	60	60.0
	Female	40	40.0
Total		100	100.0

Source: Field survey, 2009

The study reveals that out of the one hundred residents interviewed, 60 (60%) were males and the remaining 40 (40%) were females. This finding agrees with the study of Amar-Klemesu and Maxwell (1998) which also revealed that at least 60 percent of farmers in Accra are men. Habitat International (2002) also reported that male farmers predominate in urban food cultivation. According to the Ghana Statistical Service (2000), female

population constitutes 49 percent as against 50.1 percent as males. The change in this trend may be as a result of the invasion of estate development and sand winning which attract more labour, mainly men than women. There has been a diversion from farming, which was patronised by women, to sand winning and hence the upsurge in the male population.

Table 2: Age of Respondents

Background	Categories	Frequency	Percentage
Age	20 and below	22	22.0
	21 – 30	18	18.0
	31 – 40	21	21.0
	41 – 50	23	23.0
	51 – 60	14	14.0
	Above 61	2	2.0
Total		100	100.0

Source: Field survey, 2009

As can be seen from table 2, 22 percent of the respondents are in the age range of 20 and below. This agrees with the results obtained by the Ghana Statistical Service (2000) which indicate that the communities are economically less developed. Only two percent of the respondents are above 61 years. Additionally, the high number of people ranging between ages 41 – 50 must be as a result of the influx of the sand wining activities. The two percent of elderly signifies low life expectancy.

Table 3: Marital Status of Respondents

Background	Categories	Frequency	Percentage
Marital Status	Single	10	10.0
	Married	74	74.0
	Divorced	11	11.0
	Widow/Widower	5	5.0
Total		100	100.0

Source: Field survey, 2009

About 74 percent of the respondents are married with only 10 percent who are single. Table 3 also shows that 11 percent of the respondents are divorced and the remaining five percent are widows or widowers. It can therefore be inferred that majority of the respondents are married with the minority either being widows or widowers. This may be as result of the farming nature of the communities.

Table 4: Family Size of Respondents

Background	Categories	Frequency	Percentage
Family Size	1 – 3	43	43.0
	4 – 6	34	34.0
	7 – 9	19	19.0
	10 and above	4	4.0
Total		100	100.0

Source: Field survey, 2009

It can be deduced from table 4 that majority of the respondents have a family size ranging from 1 – 3 which forms 43 percent of the participants. This is in disagreement with the work carried out by the Ghana Statistical Service (2000). Of the entire respondents, only four percent has a family size of 10 or more.

Table 5: Educational Background of Respondents

Background	Categories	Frequency	Percentage
Education	No formal education	20	20.0
	Primary	48	48.0
	Junior High School	25	25.0
	Secondary/Vocational/ Technical/Commercial	7	7.0
	Total		100

Source: Field survey, 2009

Table 5 again shows that majority of people questioned had formal education, but with different levels of educational backgrounds. It is clear from table 5 that out of the 100 residents interviewed, 48 (48%) people had primary education with 25 percent and 7 percent attending Junior High School and Secondary/Vocational/Technical/Commercial School, respectively. Almost 20 percent respondents have not had formal education. The high proportion of respondents with primary level of educational background might be due to poverty. However, the high level of literacy is in line with a survey

the Ministry of education which used the Criterion Reference Test as a benchmark.

Reason Why People Engage in Sand Winning Activities in the Ga West Municipality

To understand the underlying causes why people take part in sand winning activities as a livelihood, the study sought to explore the people's knowledge about the business. The results are presented in table 6.

Table 6: Respondents Knowledge on Sand Winning

Response	Frequency	Percentage
Yes	98	98.0
No	2	2.0
Total	100	100.0

Source: Field survey, 2009

It was discovered that nearly all (98%) participants claim they are fully aware of sand winning activities in the area. From table 6, it can be concluded that respondents are fully aware of sand winning activities in their communities. This may be as a result of the high intensity with which the operations of sand winning activities are going on in the area.

Table 7: Perceived Intensity of the Sand Winning Activities

Intensity	Frequency	Percentage
Low	3	3.0
Moderate	2	2.0
High	95	95.0
Total	100	100.0

Source: Field survey, 2009

The perception of the respondents as presented in table 7 shows that sand winning activities are highly intensive. Over 90 (95%) people complained that such activities are intensive, with two and three respondents saying that the activities are moderate and low, respectively. This agrees with the work carried out by Action Aid Ghana in 2005, which reported that sand winning is very lucrative. This may largely account for its intensity which implies that people care less about their environment. This agrees with what was reported by Mensah (1997). According to Keating (1994), many people do not understand the close ties between human activities and the environment because they have inaccurate or insufficient information.

Table 8: Main Factors Contributing to Sand Winning

Factor	Frequency	Percentage
Ready market	98	49.0
Lucrative	97	48.5
Increase in estate development	5	2.5

Multiple responses

Source: Field survey, 2009

The study reveals that there is ready market for sand and the business is highly lucrative as well. Increase in estate development had a significant influence on the rate of sand winning. This shows that the ready market for sand work together with its lucrative nature as the main contributing factors for sand winning in the Ga West Municipality. A research work carried out by Ofori-Parku (2009) revealed that people give out their farmlands for sand winning because of the huge amount of money they received.

Perceived Relevance of Sand Winning to Farming in terms of Food Security

Another important objective of the study sought to achieve was to find out the perceived threat of sand winning to farming and food security in the Municipality. About 95 percent of the respondents claim that farming is more relevant in securing food than sand winning with only five percent saying otherwise. The outcome of this result may be due to the devastating effects of sand winning on their environment and the fact that it is actually making it difficult for them to farm and resulting in food insecurity.

Awareness of the Effects of Sand Winning on Farming, Food Production and the Environment

The study assessed the respondents' awareness of the effects of sand winning on farming, food production and the environment and the results have been displayed in table 9.

Table 9: Effects of Sand Winning on the Livelihood of the People in the Community

Effect	Frequency	Percentage
Poverty	6	3.4
Hunger/Famine	43	24.2
Conflict	7	3.9
Increase in food prices	25	14.0
Respiratory Diseases and malaria	13	7.3
Rural Urban Migration	4	2.2
Increase cost of living	10	5.6
Land owners get huge sum of money	9	5.1
Create job for the youth	27	15.2
Renders farmers jobless in the long run	34	19.1

Multiple Responses

Source: Field survey, 2009

Table 9 displays the various effects of sand winning on the livelihoods of residents. It reveals that some (24.2%) respondents believe sand winning will lead to hunger. This supports the findings of Action Aid Ghana (2005) that intense sand winning can lead to hunger. Only 2.2 percent of participants complained that it results in rural urban drift with most people responding that it renders farmers jobless. Some of the communities claimed there were no farmlands at all and farmers had to depend on other neighbouring communities for farmlands. Only 3.4 percent of participants said it results in

poverty among residents. The activity may also lead to increase in food prices, malaria and respiratory diseases. The pits dug during sand winning may serve as breeding place for mosquitoes and dust from sand may result in the above disease, respectively.

Almost 5.6 percent stressed that the activity will bring about increase in cost of living. This point buttresses the issue of hunger raised by majority of respondents. Nearly 5.1 percent however claimed that the activity will provide land owners with huge sum of money. About 15.2 percent of the study group is of the view that sand winning create jobs for the youth. Despite all the negative and positive effects raised it can be concluded that sand winning could in the long term lead to food insecurity.

Table 10: Effects of Sand Winning on the Environment

Effects	Frequency	Percentage
Pits serves as breeding grounds for mosquitoes	23	11.9
Land degradation	15	7.8
Destruction of natural vegetation	4	2.1
Water pollution	39	20.2
Air pollution	48	24.9
Destruction of wind break	21	10.9
Erosion	30	15.5
Dumping of refuse	8	4.1
Noise pollution	2	1.0
Renders soil infertile	3	1.6

Multiple Responses

Source: Field survey, 2009

Table 10 shows the effects sand winning has on the environment according to the respondents. Majority of the respondents complained that air pollution is the main environmental defect that comes out of sand winning. Almost 25 percent of the participants supported this with only one percent mentioning noise pollution as an effect sand winning has on the environment.

Table 11: Effects of Sand Winning on Farm and Food Production

Effects	Frequency	Percentage
Reduce availability of farmland	19	14.7
Food shortage	71	55.0
Renders the soil infertile	12	9.3
Increase in food price	27	21.0

Multiple Responses

Source: Field survey, 2009

Table 11 reveals that 55 percent of the respondents claim that sand winning leads to food shortage. Nearly nine percent of the group relates the issue as the cause of losses of soil fertility with about 15 percent saying that the act may result in the reduction on availability of fertile land for farming. About 21 percent also said that the sand winning will ultimately lead increase in food price. It can be inferred from all the above findings that sand winning in the Ga West Municipality has reduced farming activities and therefore a steady continuous reduction in food production.

Regulatory Bodies for Sand Winning

The study looked at the role played by regulatory bodies in controlling sand winning and the results have been presented in table 12.

Table 12: Existence of Regulatory Bodies to Regulate the Activities of Sand Winners

Response	Frequency	Percentage
Yes	40	40.0
No	60	60.0
Total	100	100.0

Source: Field survey, 2009

Table 12 shows that about 60 percent of the respondents are not aware of any regulatory body controlling sand winning activities in the Ga West Municipality, while the remaining 40 percent claim they are aware of such bodies. The large number of respondents claiming they are unaware of such existing bodies may be as a result of poor monitoring by the bodies which was mentioned in the case of the Community Empowerment for Land use Accountability (CEfLA), in Tolon-Kumbungu, in the Northern Region.

Table 13: Sand Winning Regulatory Bodies in the Study Area

Regulatory body	Frequency	Percentage
Police	39	39.0
Mining Department	25	25.0
Municipal Assembly	36	36.0
Total	100	100.0

Source: Field survey, 2009

Table 13 reveals that 39 percent of respondents are of the view that the police are the main regulatory body with 25 percent and 36 percent insisting that it is mining department and the Municipal Assembly, respectively. The police happen to be the main regulatory body because they are most frequently seen in the pits.

Table 14: Role Played by the Regulatory Bodies

Role	Frequency	Percentage
Ensure proper contractual documentation	33	33.0
Regulate the depth at which sand can be mined	15	15.0
Arresting and persecuting contractors without permit	24	24.0
Payment of reclamation fees	28	28.0
Total	100	100.0

Source: Field survey, 2009

About 33 percent of the respondents believe that regulatory bodies ensure proper contractual documentation, while 15 percent claim that they regulate the depth at which sand can be mined. Additionally, 24 percent believe that the police arrest and persecute contractors without permit, while 28 percent believe that the regulatory bodies ensure payment of reclamation fees upfront. This amount will serve as a guarantee for reclamation and when contractors default the amount is given to the land owners.

Table 15: Intensity of the Sand Winning Regulations

Intensity	Frequency	Percentage
Not intensive	26	26.0
Moderately intensive	51	51.0
Very intensive	23	23.0
Total	100	100.0

Source: Field survey, 2009

Table 15 shows that majority of the respondents are of the view that the intensiveness of the actions taken by regulatory bodies is moderate. About 26 percent and 23 percent of the participants believe that the actions taken by regulatory bodies to control sand winning activity is not intensive and very intensive, respectively. This may account to the rate at which farm lands are being destroyed by land contractors.

Land Reclamation Programme by Action Aid Ghana on Food Production and Food Security

An important objective of the present study was to access the effects of Action Aid Ghana, Land reclamation programme on food production and food security in the study area. The evaluation started with finding out the level of awareness of NGOs engaged in land reclamation in the area. It came out that over 40 percent of the people are not aware that Action Aid Ghana has carried out some reclamation exercise. However, it can be concluded that majority (54%) of the respondents are aware of the exercise.

Table 16: Outcome of the Action Aid Ghana Land Reclamation Programme

Outcome of programme	Frequency	Percentage
Very successful	50	50.0
Quite successful	26	26.0
Not successful	24	24.0
Total	100	100.0

Source: Field survey, 2009

Table 16 shows that 50 percent of the respondents were of the view that the programme was successful, 26 percent said it was quite successful with the remaining 24 percent saying that it was not successful. Respondents were of the view that the programme was intensive and very fruitful since sand contractors are now cautious on how sand winning should be done and have now started the reclamation exercise

Table 17: Benefits of the Action Aid Ghana Land Reclamation Project to Farmers

Benefits	Frequency	Percentage
More land were made available for farming	12	12.0
Increase in food production	30	30.0
Farmers who were jobless were re-engaged	35	35
Food prices were reduced	16	16.0
Improvement in purchasing power of farmers	7	7.0
Total	100	100.0

Source: Field survey, 2009

From table 17, it can be inferred that the exercise yielded good results. About 35 percent respondents said the farmers were re-engaged, 30 percent responded that it increase food production. In Western Maryland with careful planning, the needs of both wildlife and timber management were met on reclaimed lands. Trees and other woody plant materials provide food and cover for man and a variety of wildlife species while providing timber and wood products.

Some respondents (16%) also believe that it led to reduction in food prices. Some seven (7%) of the group also were of the view that the programme improved the purchasing power of farmers. A research work in Western Maryland also showed that there are financial benefits from forest production on abandoned mine lands when reclaimed. For instance, local markets for paper pulp, mine timbers, studs, wood chips, and fence posts. About 12 percent of the respondents were of the view that the programme resulted in making more lands available for farming. This expressed view is in line with a findings carried out by Vulcan Materials Company in Germany which also reported that reclamation promote land sustainability and makes land available for agricultural usage. In conclusion, it can be said that the entire programme contributed to a steady enhancement in food security.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter concludes the study by presenting the summary, key findings, drawing some conclusions and making some recommendations.

Summary

The aim of the study was to assess the effects of Action Aid, Ghana land reclamation programme on food production and food security among the people of Ga West Municipality in the Greater Accra Region. A sample of 100 residents from the 20 communities in the Municipality was selected to respond to the interviews. The major findings of the study are presented in the next section.

Main Findings

The study revealed among others that

1. Majority of residents are males, most residents are married with a family size of three or below and completed their formal education at the primary level.
2. Residents are aware of the intensity of sand winning activities in the Ga West Municipality. This economise activity is very intensive and there is a ready market available for sand due to the expansion of real estate development.

3. Farming creates a sustainable income and therefore more lucrative than sand winning which only brings bulk amount of money for a short period.
4. Farming can help solve food related issues than sand winning activities can and it will ensure food security rather than sand winning that will result in food insecurity.
5. Residents are fully aware of the negative effects of sand winning on the environment and on their livelihood as well. Residents pointed out that the negative effects far outweigh the positive effects.
6. On the contrary, only few residents are aware of regulatory bodies controlling the activities of sand contractors in the mentioned communities.
7. Residents are aware of Action Aid Ghana and its reclamation exercise it is carrying out in the Ga West Municipality and a fairly good number think it is resulting in replenishing farm lands and making them available for farming after they have been winned of sand.
8. The intervention by Action Aid Ghana also led to the reduction of mosquito breeding sites.

Conclusions

Based on the findings of the study, these conclusions were drawn concerning the effects of the Action Aid Ghana land reclamation programme on food production in the Ga West Municipality in the Greater Accra Region:

That sand winning activities has made Ga West Municipality to become a net importer of all kinds of food. The effect of sand winning can only be alleviated by a proper and an intensive reclamation exercise and also putting in place effective regulatory bodies to monitor the activities of sand winners; and that the reclamation exercise by Action Aid Ghana was successful and resulted in increase in food production.

Recommendations

On the basis of the findings and conclusions drawn from the study, the following recommendations are made:

Action Aid Ghana and other NGOs should carry out the exercise in other communities and regions where sand winning is on the rampant.

Regulatory bodies such as Ministry of Mines, Environmental Protection Agency (EPA) and the Police should intensify their duties in controlling the activities of sand contractors.

Sand contractors as well as land owners should be given proper education by the EPA on the reclamation of land and its relation on food security.

Sand contractors should be made to pay higher upfront fees to the Municipal Assembly which should be timely released to land owners for default in reclamation by the contractors.

To promote land sustainability, the reclamation exercise should be carried out more than at 10 years intervals.

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APPENDIX A

INTERVIEW SCHEDULE

This interview schedule is designed to collect data in the Ga West Municipality to assess the effect of Action Aid, Ghana, reclamation and conservation programme on food security.

Date of interview.....

Name of Interviewee.....

Name of Community.....

SECTION A: DEMOGRAPHIC CHARACTERISTICS

1. Sex (a) Male..... (b) Female.....
2. How old are you? (a) Under 20..... (b) 20-30.....
(c) 31-40..... (d) 41-50..... (e) 41-50.....
(f) 61 and above.....
3. Marital status (a) single (b) married (c) divorced (d) widow (e) widower
4. Family size (a) 1-3..... (b) 4-6..... (c) 7-9.....
(d) 10 and over.....
5. What is your highest level of education? (a) Primary..... (b) JSS.....
(C) Secondary/Vocational/Technical..... (d) Tertiary.....
(e) None..... (f) Others specify.....

SECTION B: INCREASE IN SAND WINNING

6. Is sand winning activities taking place in your community?
(a) Yes (b) No.....

7. If yes, how intensive is this? (a) High..... (b) Moderate..... (c) Low.....
8. What has contributed to the sand winning activity?
 (a) Lucrative (b) Land not fertile (c) due to increase in estate development
 (d) poor weather pattern
9. Is there ready market for sand? (a) Yes..... (b) No.....

SECTION C: SAND WINNING AND FARMING

10. Is sand winning easier than farming? (a) Yes..... (b) No.....
11. Is sand winning more lucrative than farming? (a) Yes..... (b) No.....
12. Is sand winning having effect on the availability of land for farming?
 (a) Yes..... (b) No.....
13. Do you believe in food security? (a) Yes (b) No.....
14. If yes, which of the above is relevance in terms of securing food?
 (a) Sand winning..... (b) Farming.....

SECTION D: AWARENESS OF THE EFFECTS OF SAND WINNING

15. Are you aware of the effects of sand winning on the livelihood of the people in the community? (a) Yes..... (b) No.....
16. If yes, what are the effects?

17. Are you aware of the effect of the act on the environment?
 (a) Yes (b) No.....
18. If yes, what are the effects?

19. Are you aware of the effects of the act on farming and production of food?

(a) Yes..... (b) No.....

20. If yes, what are the effects?

.....
.....

SECTION E: REGULATORY BODIES

21. Are there regulatory bodies intervening in the said issue?

(a) Yes (b) No.....

22. If yes name such bodies

.....
.....

23. Can you mention any of such recent intervention undertaken by such bodies

.....
.....

24. How intensive is the intervention? (a) Very intensive (b) moderately intensive (c) not intensive

25. Do you have any specific problem in dealing with such bodies

.....
.....
.....

SECTION F: RECLAMATION PROGRAMME

26. Are you aware of any NGO intervening in reclaiming farm lands back to farmers? (a) Yes (b) No.....

27. If yes, name some of such NGOs
.....
.....

28. What was the outcome of the reclamation programme carried out by Action Aid Ghana?
.....
.....

29. What is the impact of the reclamation and conservation program of Action aid Ghana?
.....
.....

30. Was the said programme useful in terms of food security?
.....
.....

31. Was the results worth the cost of the programme?
(a) Yes..... (b) No.....

32. Can the project be replicated in other locations?
(a) Yes (b) No.....

33. Did the farmers benefit from the project?
(a) Yes..... (b) No.....

34. If yes, how and what ways

.....

.....

35. In your view was the programme successful?

(a) Yes.....

(b) No.....

THANK YOU