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Alternative Income-Generating Activities among the Fishing Communities of Siavonga District in Southern Province, Zambia

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ABSTRACT

A study to assess the alternative income-generating activities (AIGAs) among the lakeshore communities of Siavonga District of the Southern Province, Zambia was conducted. Simple random sampling technique was used. About 50 fishers were sampled; 10 from each of the following Camps: Kamimbi, Kabbyobbyo, Chilongo, Mpango and the landing sites of Kanyerere. Structured questionnaires with social-economic parameters such as gender, age group of fishers were administered to selected males, aged between 26 and 45 years. Besides, the types of AIGAs, their contribution towards sustainable livelihood such as food security were collected. Data analysis was done using the statistical package for social science (SPSS) version 17.0 to come up with frequency tables, whilst Microsoft Excel was used to formulate pie-charts and histograms. Results revealed that the majority of respondents were semi-literate, which made them lack in technical skills/training in some alternative income-generating activities to enable them to take good care of their families. Most of the respondents were married and had between 1 and 3 children. Some of the AIGAs they were engaged in included: small grocery shops, gardening, poultry, livestock rearing, boat building and maintenance, crop farming, net mending and charcoal burning and vending. The study further showed several reasons advanced for engaging in AIGAs; (i) to raise extra income to educate their children, (ii) to invest in other family activities, (iii) to purchase nutritionally rich foodstuffs and (iv) AIGAs were seen as a prestigious symbol by other villagers, especially if one owned a shop or kept cattle. They further acknowledged that high dependence on fishing hurt their wellbeing, especially during times of drought, market fluctuations and weather changes. It was also established through this research, that the respondents' initial source of funds for their AIGAs came from the income that they earned from fishing and other fishing-related activities. The major drawback why they were unable to improve or run their AIGAs successfully included: poor road networks, lack of loans, power and the proper market for their products.

Keywords: *Alternative Income, Generating Activities, Fishing Communities, Siavonga District, Southern Province*

INTRODUCTION

Alternative Income Generating Activities (AIGAs)

Alternative livelihoods are seen as a way to help and encourage fishers dependent on fishery resources to move away from unsustainable harvesting practices (Asiedu and Nunoo, 2013). Alternative Income Generating Activities (AIGAs) refers to any activity which can provide a source of income which is not directly dependent on natural resources, or which can reduce dependency on natural resources (Roche, 2007). With the current rate at which fish catches are declining in Lake Kariba's strata, it is imperative to understand the contribution of alternative income-generating activities for the communities around the association zones (Maulu and Musuka, 2018). Rural households usually tend to find other alternatives income sources and earn money from other activities especially when their current income sources are declining due to some factors including environmental changes (Asiedu and Nunoo, 2013). Hence, it is a necessity that most rural communities diversify their income to sustain or enhance their livelihoods.

The promotion of alternative income-generating activities helps to improve the financial situation of small-scale fishing households at large (Seilert and Sangchan, 2001). The authors

emphasized that the activities can be divided into two types, the ones which were related to the aquatic environment or to the equipment used in fisheries such as aquaculture and secondly the ones that were not related to the aquatic environment such as gardening, poultry and working in nearby factories or opening a shop to support other village members (Seilert and Sangchan, 2001).

Livelihood Diversification in Fishing Communities

Income diversification is reported to have been practised in many rural poor communities to cope with poverty and income variability (Yuerlita, 2013). Promoting income alternatives has been suggested by several studies on rural areas and poverty (Pittaluga *et al*., 2003).

They earn money not only from one source of income such as agriculture but also from others such as collecting non-timber forest products and fishing or vice versa. Livelihoods diversification is a way for rural households to cope with changes in a way that enables them to survive and enhance their livelihoods (Ellis, 1998).

According to Allison and Ellis (2001) encouraging alternative livelihoods within the fishing community with a complementary or substituting non-fishery activity would have better results. Livelihood diversification might be combined with other resources (Seavanen *et al*., 2005). However, fishers cannot be easily persuaded to go into such diversification of their livelihood. They need some kind of technical and financial assistance until the products will have been accepted by the market continuously (Asiedu *et al.*, 2013). Fishers often engaged in alternative livelihoods in addition to fishing although the percentage of them is usually very low (Asiedu *et al*., 2013). These activities may include; crop farming, livestock rearing, teaching and trading in non-farm items.

In Tanzania and Kenya, varying degrees of dependence on fishing and associated activities were highlighted, with a higher dependence in Tanzania than in Kenya, but no surveyed household depended solely on fishing as their mainstay. Farming, small businesses, trading, self and wage employment and fisheries-related activities all complemented households' fishing income (MRAG, 2003).

Materials and Methods

Study Area

Siavonga district is located in the Southern Province of Zambia lying on the north shore of Lake Kariba (Chibesakunda, 2013). It is characterized primarily by an escarpment zone, which drops sharply from the plateau in the North to the valley area that is now largely covered by Lake Kariba (Chibesakunda, 2013).

The Location of Siavonga District

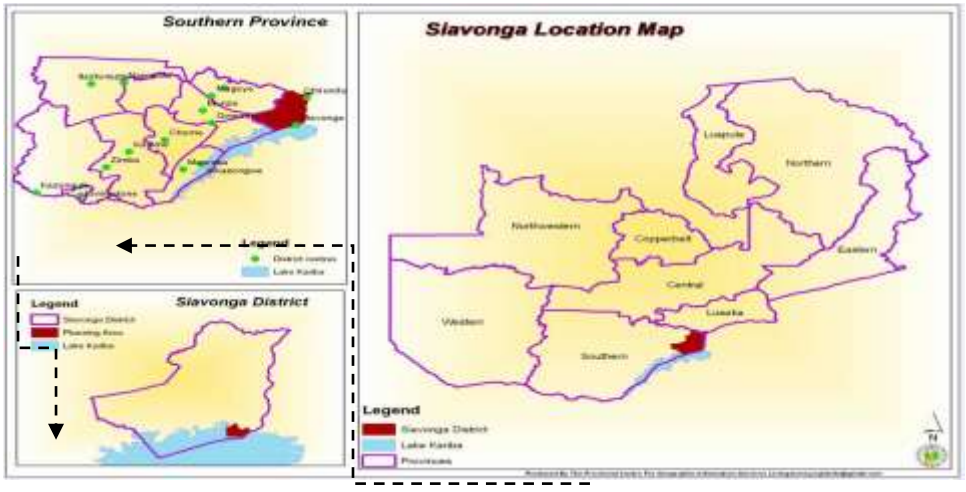

Figure1. *The Zambian Map showing the location of Siavonga District (Source: CRIDF, 2016)*

Climate in Siavonga District

According to Chibesakunda (2013), climate is greatly influenced by altitude. It is generally warm and dry most of the year. The mean annual temperature is 25°C (77°F) and it experiences one long rainy season per year (rainfall begins in the middle of November and lasts until mid-March). Siavonga is a rain shadow area, it belongs to Agro-Ecological Region 1 (those geographic areas where average annual rainfall is between 650 and 850 mm (26

and 33 inches) (Chibesakunda, 2013). Rainfall is always erratic and generally insufficient for most field crops.

Sampling Design

Simple random sampling technique was used; this involved sampling fishers from each household. The Ministry of Fisheries and livestock were consulted to help with the sampling frame. About 50 fishers were sampled; 10 from each following Camps; Kamimbi, Kabbyobbyo, Chilongo, Mpango and the landing sites of Kanyerere.

Data Collection

Both primary and secondary data were used to satisfy the objectives of the study.

Primary Data Collection

Social-economic parameters such as gender, age group of fishers, AIGAs and the challenges faced in AIGAs were collected through questionnaires and direct interviews. Besides, the types of AIGAs, their contribution towards sustainable livelihood such as food security A semi-and challenges faced in AIGAs were collected. A semi-structured questionnaire was administered to the respondents (fishers) and detailed interviews were conducted with the fishers in line with the study. The questions used in the questionnaire were closed-ended because they were easier to analyze and time-efficient.

Secondary Data Collection

Secondary data was collected by reviewing books, journals, articles, reports, and other internet resources.

Data Analysis

Data collected on gender, age group of fishers and AIGAs was entered and coded to convert it to numerics and facilitate statistical analysis. Each response was given a numerical code to enable data to be standardized and correctly processed. The analysis was done using the statistical package for social science (SPSS) version 17.0 to come up with frequency tables, whilst Microsoft Excel was used to formulate pie-charts and histograms.

RESULTS AND DISCUSSIONS

Respondents General Information

Gender Composition of Fishers

In this study, a total number of 50 male fishers from various fishing villages/landing sites namely; Kamimbi, Kabbyobbyo, Chilongo, Mpango and Kanyerere were interviewed; which clearly showed that fishing was mostly done by men and females only assisted in fish trading. In the case of those who have decided to invest in fishing, they hired fishers to catch fish for them. According to Medard *et al*., (2001) processing is the one sub-sector where women were over-represented, but mainly because they predominated in low-grade unskilled jobs.

Age Range of Fishers

The study showed that 48% of the fishers were in the age range of 26-45 years, 22% between 46 and 55 years, 18% were in the age range of 15-25 years old, and 12% were 55 years and above (Fig. 2).

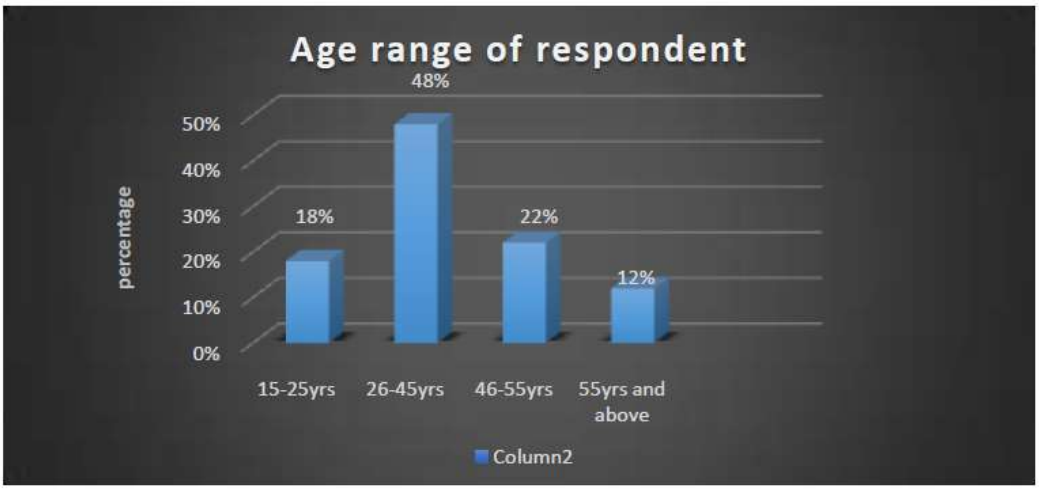

Figure2. *Age range of the fishers*

Marital Status and Number of Children

Most of the respondents were married (Fig. 3) and had between 1 and 3 children (Fig. 4).

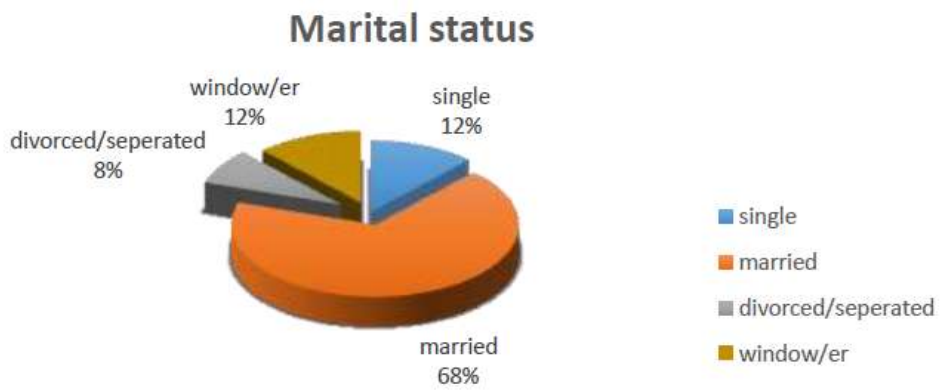

Figure3. *Marital status*

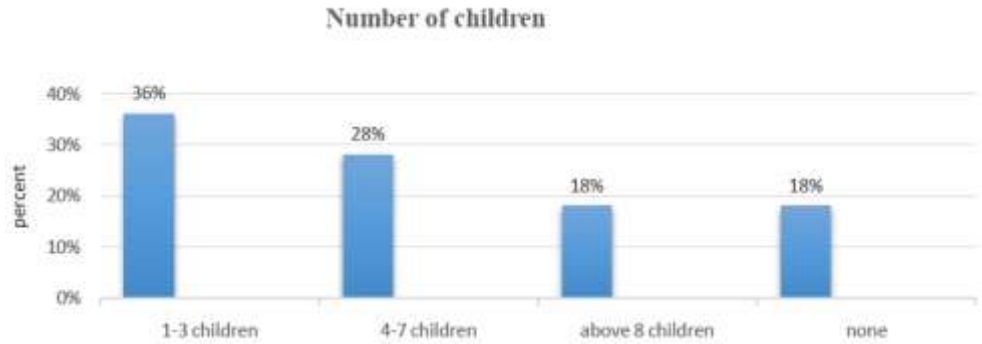

Figure4. *Number of children*

Level of Education

It was noted that most of the respondents were not that educated (Fig. 5), which made them lack in technical skills/training in some alternative income-generating activities to enable them to take good care of their families.

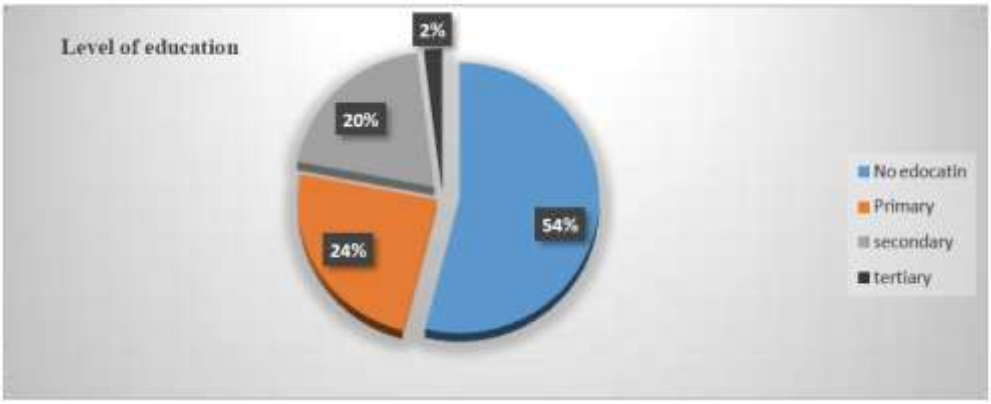

Figure5. *Level of education*

In a study by Noviyanti *et al*., (2015), low levels of education will hinder the transfer of fishing technology, as well as creating work patterns that are not disciplined and less accountable According to the authors, most of the respondents realized that getting formal education for them or for the children and their descendants was very important (Noviyanti *et al*., 2015). For those who do not have the opportunity to study at school with various reasons, non-formal education is required as a substitute for equal education in earning a living , while for those who have an opportunity to study at school, non-formal education serves as complement and gains additional knowledge and particular skill because at school they only obtain a little knowledge and skill or even not at all (Wantah *et al*., 2018).

Fishing as a Source of Livelihood

A livelihood is commonly defined from an economic perspective as an occupation, work or other means by which one earns income to provide the necessities of life and to be

sustainable, a livelihood requires the capability to respond to changes and to continually renew and develop adaptive strategies (Asunga *et al*., 2000).

Among the various sources of protein, fish stands out as the most important in terms of food security because its price, relative to the price of other high-quality protein sources such as milk, meat and eggs is very competitive (Francois *et al*., 2013). Fisheries are very important in the national economy and contribute significantly to employment, food production and the Gross Domestic Product (GDP) (Maulu and Musuka, 2018). However, most experts agree that many fisheries around the world are under a serious crisis (Asiedu and Nunoo, 2013). Fish catches in Lake Kariba's strata for the species of economic importance such as Tilapia species are reported to have declined in recent past of which fishing pressure among others is the major contributing factor (Maulu and Musuka, 2018). This has negatively affected the fishers who largely depend on the resources of these fisheries.

Challenges Faced in Fishing as a Source of Livelihood

Of the challenges outlined by the fishers, 34% complained about the poor road network, 26% the lack of power, 16%, lacked a proper market, 14%, lack storage facilities and 10%, lack of refrigerated trunks (Fig. 6).

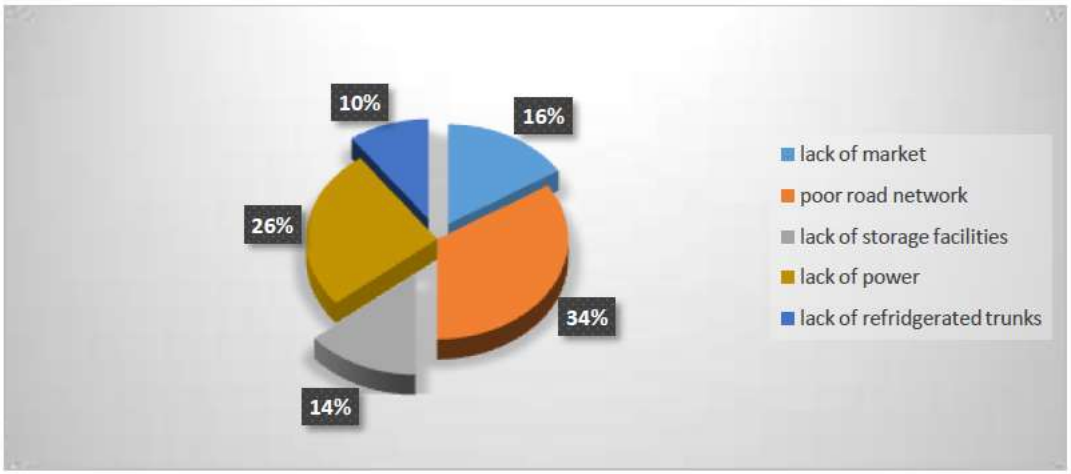

Figure6. *Challenges faced in fishing as a source of livelihood*

Alternative Income Generating Activities and their Contribution towards Livelihood

Alternative Income-Generating Activities

This study revealed that AIGAs of the majority of the respondents in Siavonga District included; small grocery businesses, charcoal burning, livestock rearing, poultry, crop farming, gardening, net mending, boat repairing and painting (Fig. *7*).

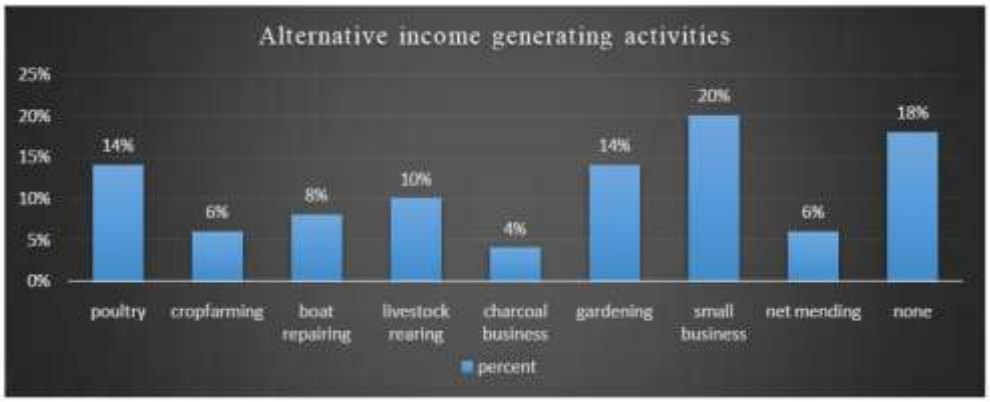

Figure7. *Alternative income generating activities*

Running small businesses constituted 20% while charcoal burning was the least at 4%. Charcoal burning was vital in most of the fishing villages because they lacked power and some used firewood for cooking. Grocery shops were very beneficial to other villagers, although they also

sold fritters and airtime from within their homes, as well as phone and battery charging for other villagers. Some were involved in block manufacturing, whilst others also picked and sold wild fruits such as Tarmaridus indica commonly known as 'Busika.' This agrees with Asiedu and Nunoo (2013), who reported that most activities that fishers were mostly engaged in were; crop farming, livestock rearing, teaching and trading in non-farm items.

Some respondents in the study area were into poultry and others into livestock rearing. Poultry included; ducks, chickens, pigeons and guinea fowls, these animals are free-range birds and hence needed less management attention which made it easier and cheaper for the fishers to raise them. Livestock reared included; goats which were reared by the majority and cattle only being reared by a few fishers. Goats were reared by the majority because of their profitable nature (e.g. goat meat, milk and manure) and they required very low investment. The results of the study were in agreement with Chibesakunda (2013), who reported that goats were the most resilient and adapted very well to the harsh climatic conditions of the Zambezi Valley and hence the African Wildlife Foundation (AWF) designed Goat Husbandry and Production initiative in the District.

In a similar study conducted by Franchoise *et al.*, (2013), to assess livelihood status and the challenges facing fishermen in Ada district in Ghana, out of all the respondents, 62% of them were into poultry farming, 13% were into cereals and tubers, 7% were into crop farming, furthermore, 6% were into small business and 3% were into block making and handicraft respectively below. The main field crops grown in the area included maize, plantain, cassava and cocoyam.

In this study, crop farming was seasonal with only a few fishers growing maize mostly for home consumption because Siavonga district usually gets dry with an average annual temperature of 25.5°C, precipitation averages 712 mm and it was hilly, which made it unsuitable for agriculture. According to Chibesakunda, (2013), the semi-arid conditions, with generally poor soils, and the previous history of tsetse fly infestation render it difficult for local communities to sustain livelihoods on crop production and large livestock production and as a result, communities were reliant upon unsustainable land-use activities such as charcoal production and crushed quarry stone as their sources of income.

Reasons for Engaging in Alternative Income-Generating Activities

Results of the study revealed that 34% of the fishers were engaged in AIGAs to make extra income, 26% for food security, 14% were involved for nutritional benefits and 8% for social status while 18% were not involved in any AIGAs (Fig. 8).

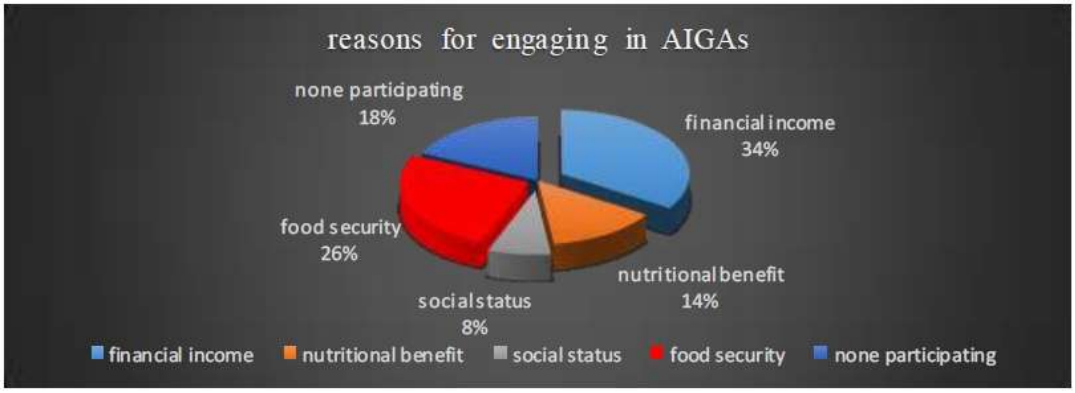

Figure8. *Reasons for engaging in AIGAs*

There were several reasons advanced for engaging in AIGAs. Some respondents indicated that AIGAs was seen as a prestigious symbol (Fig. 8) for the other villagers especially if one owned a shop or kept cattle. This agrees with Chibesakunda (2013), who reported that cattle were not seen as an alternative source of livelihood but was considered to be a status symbol for wealth. It also noted that venturing into AIGAs enabled fishers to deal with issues of food security because the Siavonga district was prone to food insecurity, which was partly due to erratic rains (Chibesakunda, 2013). As such many opted to be involved in poultry farming and vegetable cultivation, which contributed to their nutritional (health) status.

In a study to identify potential alternative income-generating activities that would reduce dependency on fishing and fish resources on the selected islands of Lake Victoria in the riparian countries, the results showed that the fisher communities were primarily concerned with, in order of priority: health; declining fish catches; safety on the lake; credit access, and education (Kirema-Mukasa *et al*., 2013). The fishers further acknowledged their high dependence on fish stating that during times of drought, market fluctuations and weather changes the communities were more vulnerable.

Asiedu and Nunoo (2013) examined alternative livelihoods in small-scale fisheries of Ghana to reduce pressure on fishery resources and enhance sustainable management of fish stocks. The results of the study indicated that over 73% of fishers interviewed were willing to switch jobs, with 27% indicating that they would not consider it. The implication was that there is good potential for well-designed alternative livelihood schemes to succeed. The results further revealed that about 50% did not have the required skills to work outside the fishing and agriculture-related areas.

The Initial Startup Cost of the Alternative Income-Generating Activities

It was also established through this research, that the respondents' initial source of funds for their AIGAs came from the income that they earned from fishing and other fishing-related activities (Fig. 9). These proceeds ranged from K500 to K1000. According to Chilima (2008), fish provides income for other activities and is an important source of food for poor fish farming families.

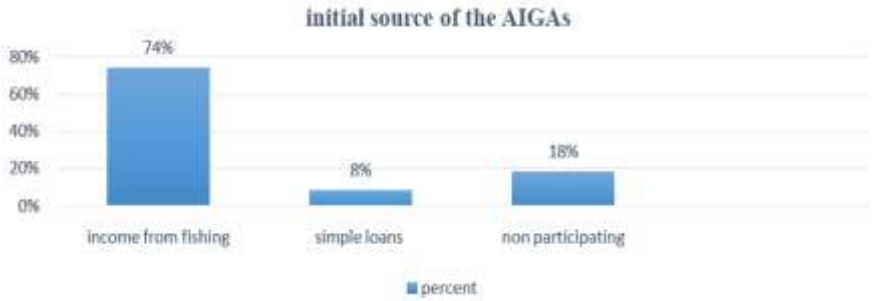

Figure9. *Initial startup source of the AIGAs*

The Profitability of the Alternative Income-Generating Activities

According to the study it was noted that 38% of the respondents indicated that the AIGAs was very profitable, 32% profitable, 12% not profitable and 18% non-participating (Fig. 10).

Figure10. *Profitability of the AIGAs*

As earlier stated, the promotion of alternative income-generating activities helped to improve the financial situation of small-scale fishing households at large (Seilert and Sangchan, 2001).

Utilization and Areas Improved by AIGAs

The study revealed that 38% of the respondents involved in AIGAs sold their products, 32% sold and consumed some of their products at home, 12% consumed their products and 18% were not involved in AIGAs (Fig. 10). And Figure 11, shows that 26% of the respondents used their earned income from the AIGAs for their children's education, 20% for nutrition (health), 16% for food security, 12% invested in different activities, 8% were of the view that it

reduced domestic violence and 18% were not involved in AIGAs.

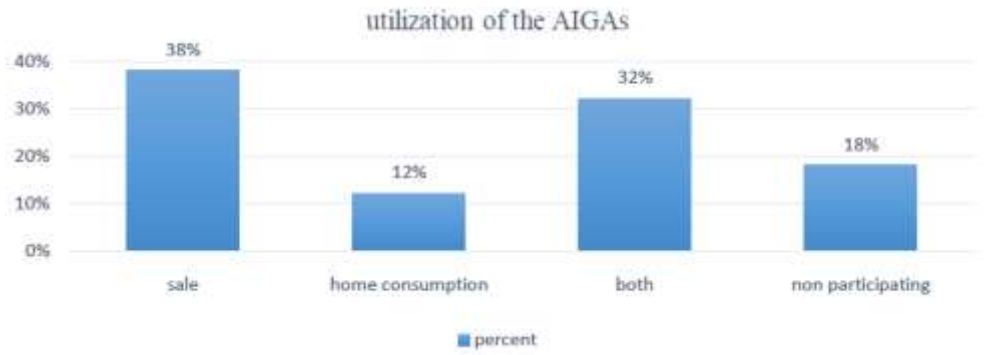

Figure10. *Utilization of the AIGAs*

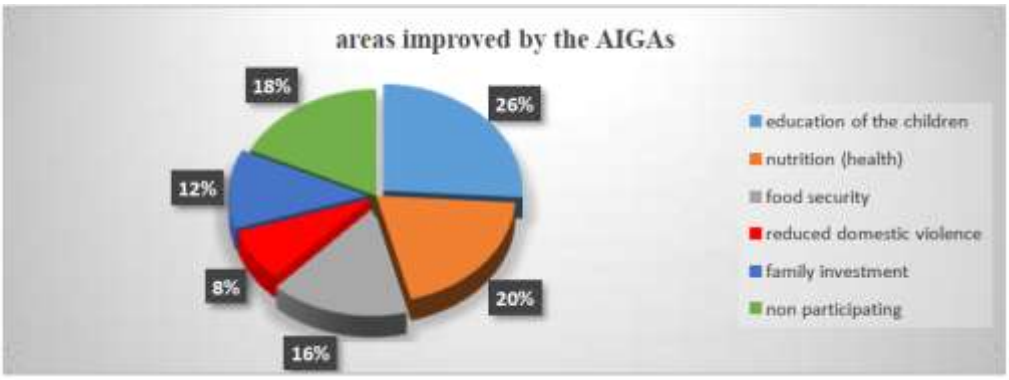

Figure11. *Areas improved by the AIGAs*

Those who were involved in AIGAs wanted to make an extra income to enable them to educate their children as well as to invest in other family activities. This agrees with Asiedu and Nunoo, (2013), who reported that incomes derived from alternative livelihoods jobs were used to supplement fishing income since most fishers complained that income from fishing was marginally low.

Challenges Faced in Alternative Income-Generating Activities as a Source of Livelihood

The study clearly showed that 30% of the respondents complained about the poor road networks, which had a toll on AIGAs as they sourced some of their merchandise as well as on marketing their fish outside Siavonga district (Fig. 12).

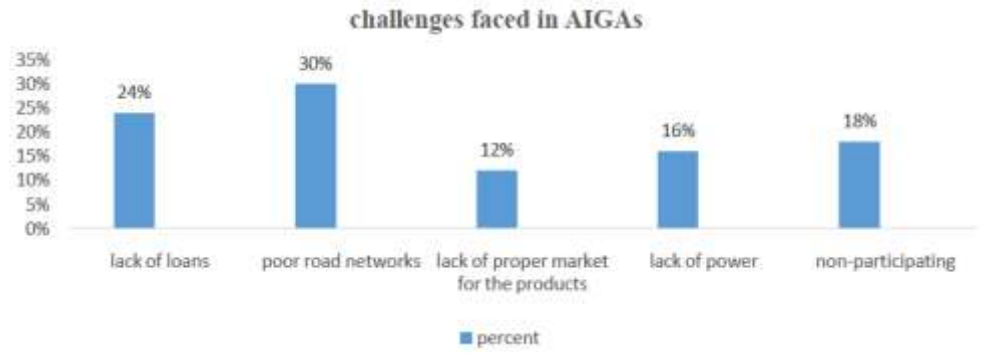

Figure12. *Challenges faced in conducting AIGAs*

According to Purvis (2002), the fisher folk cite poor quality of roads as one of the main problems facing their business and hence that took a heavy toll on vehicles which made both private and public transportation to be expensive. About 24% complained about their inability to have access to credit facilities to enable them to grow their businesses. The results obtained were in agreement with Akon (2013), who reported that although policies and programs for credit to the poor and marginal fishers were available from formal financial institutions, most fishers did not benefit from those programs and they ended up borrowing

money from local money lenders with higher rates.

However, those that were not involved in AIGAs, indicated that they did not only lack startup capital but also knowledge on how to go about running businesses. In a study by Asiedu and Nunoo (2013), it was discovered that about 50% of the interviewed fishers did not have the required skills to work outside the fishing and agriculture-related areas.

The respondents also complained about the lack of proper market for their products as the distances to the main market in Siavonga town, was very far away from the fishing villages/landing sites and the water transport that was available only made three trips in a week. Lack of power was also among the challenges that were being faced in those fishing villages. Seavanen et al., (2005), emphasised the need for fishers to be given some kind of technical and financial assistance until their products were accepted by the market continuously. Non-Governmental Organizations (NGOs) could also help in the provision of training programs for fishers (Asiedu and Nunoo, 2013). Similarly, Franchoise et al., (2013), recommended for the development of the livelihood of the fishermen, expansion of education, loan facilities from government agencies and improved management of the local resources.

Participation in Any Organization/Association

It was further noted that none of the respondents was a member of any association, although some were once members in some defunct cooperatives. As at the time of the research only female associations were still thriving in most villages, such as the BUYANTASHI women group in Kamimbi fishing camp. The women's group was very vibrant as it offered financial support to its members, owned a grocery shop as well as carried out cage culture operation on Lake Kariba.

CONCLUSION

From the results obtained, it can be deduced that AIGAs had massively contributed to improved livelihoods of fishers, hence less dependence on the fishery in Siavonga District. There were adequate resources for home usage and education of the children. The nutritional benefits that were obtained from the AIGAs ensured good health for most families, which promoted harmony resulting in reduced gender-based violence (GBV) among households due to the availability of adequate food and finances, derived from AIGAs throughout the year

However, some respondents fished throughout the year because fishing was their main source of income considering that Lake Kariba was not affected by the fishing ban. The deplorable road networks greatly affected their activities as it caused a lot of damage to vehicles. Similarly, their inability to have access to credit facilities affected the growth of their businesses and those that were not involved in any AIGAs complained of lack of start-up capital. Also, the said respondents were willing to invest more in AIGAs given the right training as most of them felt they lacked knowledge on how to go about running businesses.

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