

## Local Community Perspective about Challenges Affecting Farmer Organizations. Case of Selected Socioeconomic Characteristics of Members in Fish Farmer Organizations in Central Malawi

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### ABSTRACT

This study examines challenges affecting fish farmer organizations in relation to socioeconomic characteristics of members within farmer organizations. The objective of the study was to determine perceptions of members with varying socioeconomic characteristics about challenges affecting fish farmer organizations. Data collection comprised face to face interviews and focus group discussions with members of the farmer groups. In addition, key informant interviews with leaders of farmer groups and extension workers were conducted during the study. Data were analysed using content analysis, critical discourse analysis and descriptive statistics. Descriptive statistics comprised Chi-square ( $X^2$ ) test, means and percentages. Results show that the challenges facing fish farmer organizations affected the members differently, with some of them showing significant differences ( $P < 0.05$ ) according to the varied socioeconomic characteristics. In a few instances though, all members appeared to be affected by the challenges despite their varying income levels. Another study with a larger sample of farmers and farmer organizations should be carried out as a follow-up to this study.

**Keywords:** Challenges, socioeconomic characteristics, gender, age and income

### INTRODUCTION

The growth of aquaculture or fish farming in sub-Saharan African region faces many challenges Hara (2007). In Malawi, fish production is low with small-scale fish farming operations having fish productivity of as low as  $750\text{kg}^{-1}\text{ha}^{-1}$  annum instead of  $1500\text{kg}^{-1}\text{ha}^{-1}$  annum (Kaunda *et al.*, 2010). The constraints affecting fish farming include technological as well as institutional challenges. Technological challenges range from unavailability of quality fingerlings (Kaunda *et al.*, 2010), high cost of feed (Shitote *et al.*, 2012) as well as inability to manipulate pond environment to improve fish growth (Russell and Dobson, 2009). Marketing of fish is also hampered by several factors including lack of proper market infrastructure especially for fresh fish which are highly perishable; poor road network particularly feeder roads in rural areas which normally translates into high transportation costs and inadequate market information system with producers having limited knowledge on quantities required, where and at what price to sell (Wetengere, 2010; Stockbridge *et al.*, 2003)]. In addition, fish farmer organizations tend to be more common in communities where extension service has been active in mobilising farmers to form clubs or developing income-generating activities, or where there has been external support (Kapanda *et al.*, 2003). Whilst some may operate effectively, many have a loose organisational structure, have poor leadership and have limited business. In general, a significant proportion of the community, including women and the poorer members do not belong to any groups (Kaunda *et al.*, 2010; Stockbridge *et al.*, 2003).

However, literature reports that members of farmer organizations with varied socioeconomic characteristics perceive the challenges affecting their organizations differently (Mapila *et al.*, 2010; IFAD, 2009; Eliasi *et al.*, 2009; Abaru *et al.*, 2006). Against this background, the study was conducted in order to examine the challenges affecting the fish farmer organizations in relation to the socioeconomic characteristics of the members of the fish farmer organizations. It was conducted based on assumption that the socioeconomic characteristics of members of an organisation may determine or predict challenges that could affect capacity of such an organisation to achieve its

objectives (Adong *et al.*, 2012; Ostrom, 2011; Bernard and Spielman, 2008; Charness *et al.*, 2007). The aim was to determine whether there were any significant differences in members’ responses about the challenges in relation to their socioeconomic characteristics. The socioeconomic characteristics of the members that were assessed were gender, age and level of income of the members of the fish farmer organizations.

## MATERIALS AND METHODS

The study was carried out in Mchinji and Dowa districts. The sampling frame comprised five fish farmer organizations which operated under Community Action Research Programme (CARP) Fish Project. The farmer organizations comprised a total of 68 farmers. The EPAs were locations where CARP Fish Project implemented its activities. Considering the farmers’ experiences in fish farming as a result of the previously implemented fish farming projects, it was assumed that members of the fish farmer organizations would be appropriate to provide necessary information for the study. Purposive sampling method was therefore employed to select the five fish farmer organizations and the members of the farmer organizations. Both qualitative and quantitative data were collected for the study. The data collection methods comprised focus group discussions (FGDs), key informant interviews and face to face interviews. The FGDs were carried out among members of the farmer groups. The aim of the FGDs was to collect general information common to all members within the groups. Key informant interviews with leaders of the farmer groups and the District Fisheries Officers (DFOs) were further conducted to collect data on insights of the challenges affecting the organizations. Lastly, face to face interviews were conducted in order to understand perceptions of farmers on challenges affecting the organizations. Data were analysed using content analysis, critical discourse analysis and descriptive statistics. Descriptive statistics comprised Chi-square ( $X^2$ ) test, means and percentages.

## RESULTS AND DISCUSSION

Results in Table 1 show that the farmer groups were affected by both institutional and technical challenges. Institutional challenges entail challenges which directly involve governance of farmer organizations while technical challenges refer to challenges which affected application of key recommendations for fish farming (Table 1). The challenges have been discussed according to the three socioeconomic parameters of the members assessed in this study.

**Table1.** Responses on challenges according to gender, age and level of income of members (n=68)

| Challenges  | Percent of members according to gender, age and income levels |       |      |        |        |        |                                     |         |         |         |
|---|---|-------|------|--------|--------|--------|-------------------------------------|---------|---------|---------|
|   | Gender  |       | Age  |        |        |        | Level of income in ‘000 MK per year |         |         |         |
|   | Female  | Male  | < 20 | 21- 40 | 41- 60 | > 60   | <100                                | 101-200 | 201-300 | 301-400 |
| <b>Institutional challenges</b>   |   |       |      |        |        |        |                                     |         |         |         |
| Inadequate knowledge on appropriate recommendations for organisational development*                     | 82.3  | 88.2  | 70.4 | 40.4   | 12.4   | 4.7    | 74.4***                             | 18.4    | 6.8     | 0.4     |
| Inadequate commitment of members in governance of the farmer organizations in fish farming operations** | 58.8*   | 68.6* | 66.7 | 54.3   | 5.7    | 2.8*** | 27.6                                | 25.6    | 76.3    | 79.5    |
| Inadequate trust among members**  | 88.2***   | 54.7  | 56.4 | 30.3   | 19.5   | 6.7    | 18.9                                | 19.5    | 21.3    | 40.3    |
| <b>Technical challenges</b>   |   |       |      |        |        |        |                                     |         |         |         |
| Inadequate knowledge in fish farming*   | 70.5  | 78.4  | 45   | 38.5   | 17     | 8      | 78.5***                             | 66.4    | 17.1    | 8.0     |
| Inadequate inputs such as fingerings and tools and equipment**  | 92.3  | 96.1  | 50.2 | 51.4   | 50.8   | 52.1   | 77.3                                | 73.4    | 67.8    | 51.5    |

\* Indicates the challenges which affected the fish farmer organizations only before the CARP Fish Project.

\*\*Indicates the challenges which affected the fish farmer organizations both before and after the CARP Fish Project.

\*\*\* = significant at  $P < 0.05$

### **Members’ Responses about the Challenges Affecting the Farmer Organizations by Gender**

This section presents the members’ responses about challenges affecting the fish farmer organizations in relation to gender of members. The aim was to understand whether or not there were any significant differences in the proportion of female and male members being affected by the challenges facing their organizations. This answers the question “Which section between female and male members was highly affected by various challenges in their organizations?” Findings in Table 1 show that 82% and 88% of the female and male members, respectively mentioned lack of knowledge and skills on organisational development as one challenge affecting the fish farmer organizations before the CARP Fish Project. This finding suggests that both women and men perceived, with no significant differences in their responses, that lack of knowledge and skills was a challenge that constrained effective performance of the farmer groups in promoting fish farming before CARP. It entails that the challenge of lack of knowledge and skills in organisational development and fish farming equally affected both female as well as the male members. The lack of knowledge and skills was attributed to inadequate access to extension services by members of the fish farmer organizations. Hence, both female and male members equally had poor access to extension services, hence the low level of knowledge on organisational development. Similar finding was reported by Halfyard *et al.* (2005) who in their study found that in Malawi, lack of knowledge and skills in fish farming was a general problem affecting the farmers regardless of gender. They attributed this challenge largely to local communities’ inadequate access to extension services. However, this is a converse to Kapanda *et al.* (2003) who argued that since in Malawi, fish farming is perceived to be a man’s activity rather than a woman’s operation, there was a high likelihood that men would have more access to extension services on fish farming than women.

The study further showed that apart from District Forestry Officers (DFO), there were no other extension workers as well as lead farmers who had specific expertise in organisational development and in fish farming techniques at the local level. This shows that poor access to extension services significantly affected fish farming in the study areas. Evidence from various literature (Adesoji and Kerere, 2013; Shitote *et al.*, 2012; Kaunda *et al.*, 2010) suggest that inadequate extension workers and lead farmers with expertise in organisational development and in fish farming is one of the challenges constraining effective performance of fish farmer organizations in Malawi and other sub-Saharan African countries. This is because most of the extension workers are usually trained in crop farming and animal husbandry while very few are trained in fish farming (Halfyard *et al.*, 2005). This has contributed to reduced number of extension workers who are well trained to disseminate messages on organisational development for promoting fish farming at the local level. Consequently, this affects the level of knowledge of members of the fish farmer organizations. It appears therefore that as a result of poor access to extension services, the fish farmer organizations in Malawi face both institutional as well as technical challenges to effectively promote fish farming practices at the local level.

In terms of inadequate commitment of members in the governance of farmer organizations and management of fish ponds, results show that the proportion of female members (58.8%) who mentioned this problem was significantly less than the male members (68.6%). This implies that more male members than the female members mentioned lack of commitment as one of the priority challenges affecting performance of their organizations before and even after the CARP Fish Project was implemented. This finding means that the problem of lack of commitment was greater among the male members than it was among female members. This result was consistent with findings from key informant interviews with DFOs and direct observation which revealed that despite being few (25% of members), the female members appeared to be more committed both in organisational development and in managing the fish ponds as compared to their male counterparts. This was evidenced through reduced absenteeism during organisational meetings and increased participation in pond management such as in fish feeding and fertilisation and pond maintenance by female members.

This finding implies that despite being perceived as a man’s activity, given their specific responsibilities, roles and obligations, female members showed that they were more committed than their male counterparts in carrying out most of the fish farming activities. However, since fish farming was perceived as a man’s activity, the women’s commitment both in organisational development and in actual fish farming operations appeared not to be appreciated by the male members. This is made worse because fish farming is traditionally under the male domain. Consequently, programmes for

enhancing capacity of farmers in fish farming automatically imply that men should be running the high echelons of the fish farming operations. Also, although Malawi has made progress in women's issues, the pursuit of gender mainstreaming in fish farming has yet to be seen or realised.

It was further noted that while the female members were generally involved in more activities related to maintenance and management of the fish ponds such as fish feeding and fertilising the ponds, the male members took a leading role largely in fish harvesting and marketing and selling of fish. As a result, since, the male members focused much on fish harvesting and marketing, the low quantity of fish being harvested acted as a disincentive for them to be committed in the fish farming operations. Hence, although they were members of the fish farmer organizations, most of the male members were committed in other perceived more profitable investments such as tobacco farming and other businesses rather than fish farming.

Further, results show that 88% of the female members mentioned lack of trust as a challenge constraining performance of the organizations unlike about 55% of the male members. This was another challenge which affected the farmer groups both before and after the CARP Fish Project. The higher proportion of female members was attributed to the fact that the female members were sceptical and felt uncomfortable to participate alongside men within the groups. For example, some female members of Phindulathu group stated that they did not fully trust and were not comfortable to operate alongside their male counterparts as they were in minority while the men were in majority and the latter exercised dominance in most of activities. This agrees with Sanginga *et al.* (2001) who observed that culturally, women in rural areas are sceptical to participate and take leading roles in the midst of men. There is therefore consistent mistrust between men and women.

The other reason for lack of trust among members was that the groups had recently been established and members had not been participating together for a longer period of time to fully trust one another. It appears the farmer groups were still in the forming and storming stages of their group development processes. In these stages, members tend to behave quite independently and lack of trust among the members is often inevitable (Nwachukwu, and Onuegbu, 2008). It appears that at this stage, members had different ideas and competed for consideration within the organizations where they confronted each other's ideas and perspectives. It was therefore inevitable to have inadequate trust amongst the members which eventually affected performance of the groups in carrying out fish farming operations.

In terms of the technical challenges, results showed no significant differences in the proportion of female and male members who mentioned about the challenges of inadequate knowledge in carrying out fish farming activities and scarcity of inputs for the period before CARP and during the period after CARP, respectively. This entails that both male and female members felt that inadequate knowledge in carrying out fish farming activities and scarcity of inputs were some of the major challenges affecting capacity of the farmer organizations to promote fish farming. This finding agrees with Shitote *et al.*, (2012) who assert that the participation of local communities in fish farming is largely hampered by lack of adequate knowledge and lack of adequate inputs to invest in fish farming. Lack of knowledge and inputs is therefore one of the major factors affecting farmer organizations to promote fish farming at the local level.

### **Members' Responses about the Challenges Affecting the Farmer Organizations by Age**

Results (Table 1) show that there were significant differences ( $P < 0.05$ ) in the proportion of members by age with regard to responses to challenges facing their organizations. This implies that there were differences in perceptions of members of different age groups on prevalence of challenges affecting the organizations. The results revealed various scenarios. First, the results indicate that 70%, 40%, 12% and about 5% of the members in age groups of < 20, 21-40, 41-60 and > 60 years, respectively suggested that lack of knowledge and skills on appropriate recommendations for organisational development was the major challenge before the CARP Fish Project. This shows a decreasing trend in the percentage of respondents on this challenge as age of members increases. This indicates that the younger members (< 41-60 years age class) appeared to have less knowledge and experience on organisational governance and leadership as compared to the older members of the farmer organizations, hence the disparity between the younger and the older members in their perceptions about lack of knowledge as a challenge affecting the farmer groups. This finding was consistent with



results from key informant interviews with the DFOS which revealed that the elderly members had more experience in undertaking activities of the farmer groups as opposed to the relatively younger members.

Further analysis showed that most of the older members were affiliated to other organizations at the local level through which they obtained knowledge and experience in undertaking organisational governance. The other organizations at the local level included village development committees (VDCs) and village natural resources management committees (VNRMCs). With their experience, most of the older members did not perceive lack of knowledge in organisational development and governance of the farmer organizations as one of the challenges affecting the organizations before the CARP Fish Project. This finding is consistent with Akpabio, 2008) who found that in Nigeria, elderly members (>40 years) had more experience and therefore were relatively more knowledgeable in undertaking activities of the farmer groups as opposed to relatively younger members. In addition, considering their ages, many of the older members are highly respected within their local communities, to the extent that they are usually allowed to take decision-making and leadership roles. In the process, they acquire more knowledge and skills in organisational governance than the relatively younger members.

Second, results also show that about 67%, 54%, 6% and 3% of members of the age groups of < 20, 21-40, 41-60 and >60 years, respectively indicated that there was inadequate commitment of members in carrying out activities in governing their organizations and in managing the fish ponds during both periods before and after the CARP Fish Project. As the differences in these responses according to age group are also significant ( $P < 0.05$ ), this probably implies that the younger members (< 20 and 21-40 years) appeared to be less committed in undertaking activities of the organizations as compared to the older members (41-60 and > 60 years). It would appear that the older members were more committed in the running of the organizations and in undertaking fish farming operations because they had previously been members of the fish farmer organizations established under the Presidential Initiative for Aquaculture Development (PIAD) before implementation of the CARP. As a result, these members had accumulated more experience in the governance of the various organizations and had experienced the benefits of participating in local groups within the local communities. It shows that the involvement of the older members in various local development institutions offered an opportunity for them to get experience in governing the organizations. Such knowledge and experience were applied by the older members in the governance of the fish farmer organizations. As such, they were more committed. This agrees with Anandajayasekeram *et al.* (2008 who reported that individuals with multiple group membership extend knowledge derived from other associations into the activities and operations of the local organizations under focus. In contrast, the younger members did not have such experience and they were not optimistic on the benefits to be achieved following their participation in the farmer organizations. Consequently, they showed little commitment in the fish farmer groups. It implies therefore that the involvement in other local organizations had a significant influence on the members' knowledge and experience in the governance of the fish farmer organizations. Thus, the older the members, the higher the level of their participation in group activities. This is attributed to the fact that an older individual normally tends to more focused in his or her desires and would not affiliate in their organizations for mere fun.

Third, about 56%, 30%, 20% and 7% of members within the age groups of <20, 21-40, 41-60 and >60 years, respectively reported that lack of trust among members was one of the challenges affecting performance of the fish farmer organizations before and after the CARP Fish Project. Further assessment showed that there were significant differences ( $P < 0.05$ ) in the proportion of members within the various age groups who mentioned lack of trust as one of the challenges. These findings suggest that a higher proportion of younger members had mentioned lack of trust as one of the challenges affecting the farmer groups as compared to the older members for the periods before and after the CARP Fish Project. During the study, most of the younger members indicated that since they had just joined their organizations with inception of the CARP Fish Project, they had not participated in the operations of their organizations for a long time to fully gain confidence and trust in the other members of the organizations. This was the reason for their skepticism to trust other members.

In contrast, further results indicated that only a few (6.7%) older members of the organizations pointed out that lack of trust was one challenge affecting their organizations. This shows that most of the older members were more confident and optimistic in cooperating with the other members

because they had been participating in their groups for a longer period of time even before reconstitution of the new groups by CARP. Conversely, younger members within the <20 and 21-40 years age groups were more skeptical on collaborating with fellow members.

The other challenge examined in Table 1 relates to inadequate knowledge in fish farming. This challenge was existent before the CARP Fish Project. Results show that 45%, 39%, 17% and 8% of the members in age groups of <20, 21-40, 41-60 and >60 years, respectively mentioned this problem. The significant differences ( $P < 0.05$ ) noted in the percentage of respondents among all age groups with reference to this challenge, imply that more (>39%) of the younger members of between <20 years and 21-40 years perceived about this challenge as opposed to the older members. Focus group discussions with the members echoed this sentiment where the younger members explained that since establishment of their organizations during PIAD, they had not been trained in technical aspects of fish farming. This had a negative influence on the level of knowledge and experience in fish farming that the younger had in their fish farmer organizations.

The younger members had not attained adequate experience in undertaking fish farming as compared to the older ones. This was largely a result of the inadequate access to extension services during establishment of the farmer organizations during the time of PIAD. The results showed that the institutional challenges largely originated from the manner in which the farmer groups were formed. It was noted that staff from the funding organizations, mobilised the local communities to form farmer groups as a precondition for the farmers to receive aid or assistance. This was done through coercion or persuading the members using the top-down approach to form the farmer groups. Farmers were therefore persuaded through provision of incentives such as money and subsidised agricultural inputs without proper consultations. Inadequate and or inefficient consultations with local communities before establishment of the farmer groups were therefore a major shortcoming for the funding organizations both before and during the CARP Fish Projects. Chambers (2003), as quoted by Sanginga *et al.* (2001) argues that it is naïve to assume that local people will always make rational choices if they are only given the facts as is the case with instrumental participation. The local communities should be guided in order for them to determine their own needs and problems and to come up with possible solutions (Bennett, 2004). Hence, if the farmers were consulted, they would have an opportunity to ask questions, provide answers and also provide their insights on how best their organizations would be established and governed based on socio-economic context of the local communities (Diaw *et al.*, 2009; Crowley *et al.* 2005). This appears to be the reason why despite the various interventions that the CARP Fish Project implemented in order to enhance performance of the fish farmer organizations, some of the challenges that the project intended to eradicate were still persistent within the farmer groups. In addition, most farmer organizations in sub-Saharan Africa face challenges related to hasty and simplistic establishment processes. With haphazard formulation of the farmer organizations, the farmers form the groups without knowing the rationale as to why establishment of the organizations is essential to their livelihoods. As such pessimism on the importance of establishing the farmer organizations is a disincentive to cultivate full willingness of the members to commit themselves in governing and managing such organizations. If members are unclear on the rationale for forming their farmer groups, proceeding with establishment of the groups is tantamount to wasting time and efforts for both the farmers as well as the external organizations.

Furthermore, by being told what to do using the top-down approach, the farmers did not fully own the fish farming operations. Consequently, they could not commit themselves totally to undertake their responsibilities in the organizations as they did not internalise the rationale for the establishment and development of the organizations. Thus, establishment of farmer organizations is useless if the farmers are only mobilised to form their groups without empowering them so that they can undertake effective organisational governance of their institutions through their own initiatives.

Inadequate inputs was one of the challenges for both periods before and after the CARP Fish Project. Results show that 50.2%, 51.4%, 50.8% and 52.1% of the members in the age groups of < 20, 21-40, 41-60 and > 60 years, respectively reported about the existence of this challenge within their organizations. It was further shown that there were no significant differences in the proportion of respondents on this challenge across the age groups. Key informant interviews with the two District Fisheries Officers (DFOs) however, revealed that some of the farmers mentioned about the challenge of inadequate inputs in order to get assistance from the CARP project or any other outside funding source although they had some considerable inputs and resources e.g. hoes for pond construction to

carry out the fish farming activities. This was attributed to the member's overdependence on external donations such as project funding. Nevertheless, direct observation during the study showed that a considerable percentage of members of the farmer clubs indeed did not have adequate inputs for fish farming. For instance, most of the members had inadequate capital to undertake fish farming activities effectively. This indicates that, in reality, lack of inputs was one of the factors which affected the capacity of the fish farmer groups.

The problem of inadequate inputs was reported by a considerable percentage (at least 50%) of members of all the age groups across the farmer organizations. This suggests that this challenge affected most of members across the farmer groups regardless their age differences. The major scarce inputs were fingerings, feed and fertilizer and manure. Tools and equipment for undertaking fish farming operations such as hoes, wheelbarrows and shovels were also reported to be inadequate. Inadequate financial resources owned by the members was the major reason for lack of adequate inputs among members across the farmer groups. The low financial status had eventual negative effect on implementation of fish farming activities such as pond construction and pond management. It was noted that inadequate inputs invested into fish farming resulted in the reduction of fish produced. This, in the final analysis, acted as a disincentive for members to be fully committed in their farmer groups because of low returns obtained from the fish farming investment.

Alongside the challenge of inadequate inputs was the problem of pond drying. Though it did not come out very strongly in the results, members across the farmer groups faced the problem of drying up of fish ponds during the dry season, especially between September and November. The drying-up of ponds and the subsequent break of actual technical aspects of fish farming activities as a result of pond drying acted as a disincentive for the farmers to keep momentum both in governing their organizations as well as in carrying out the fish farming activities. Therefore, the break from active participation in fish farming activities when the fish ponds had dried up posed serious implications on the general performance of the fish farmer organizations.

### **Members' Responses about the Challenges Affecting the Farmer Organizations According to Annual Incomes of Members**

To further examine the challenges affecting capacity of the fish farmer organizations, responses of members were examined against their respective levels of incomes per annum. The major question that this section addresses is "Do members of the fish farmer organizations get affected differently by the challenges as a result of their varied income levels"? Results in Table 1 show significant differences ( $P < 0.05$ ) in the percentage of members with varying levels of incomes on their responses on the challenges. This finding entails that the members' responses about the challenges affecting the fish farmer organizations were varied according to their income levels per annum. This means that the members of the fish farmer organizations perceived some challenges as having important influence on capacity of the farmer organizations while the others were not considered as important challenges depending on the levels of incomes. A brief discussion on each of the challenges in relation to income levels of members is provided.

Firstly, in terms of inadequate knowledge and skills on appropriate recommendations for organisational development, 74% of the members whose incomes were <MK100, 000 indicated that this was one major challenge affecting the organizations while only 0.4% of the members who had incomes between MK301, 000 and MK400, 000 mentioned inadequate knowledge in organisational development as one of the challenges affecting the farmer groups. For the middle incomes of MK101, 000-200, 000 and MK301, 000, only 18.4% and 6.8%, respectively of the members in these income categories, mentioned this challenge. This shows that the challenge of lack of knowledge on organisational development was mentioned largely by a high proportion of members who earned low incomes per year.

These findings imply that the problem of lack of knowledge in organisational development appeared to largely affect members of lower incomes as opposed to those who had higher incomes. Most of the farmers who had incomes ranging from MK301, 000 to MK400, 000 or more were elderly who also had more experience in fish farming and in governing the organizations. It was therefore the farmers who had lower income levels who also happened to be the relatively younger members who complained much about lack of knowledge as a challenge affecting performance of the organizations. However, since the younger members were more than the elderly members with 68% and 32%,

respectively, this posed potential sustainability challenges of the organizations as it meant that there were a few members who had adequate knowledge to undertake effective governance of the farmer organizations. Similar results were reported by Sanginga *et al.* (2001) who argue that in Nigeria, most members of the fish farmer organizations had inadequate knowledge to manage the organizations and had meager financial resources to effectively and sustainably undertake fish farming activities.

Further, inadequate knowledge was attributed to inadequate access to extension services that members faced in their local communities. The study further showed that inadequate access to extension services was a constraint that members across the fish farmer groups regardless their varying income levels faced both in governing their groups and in undertaking the actual fish farming activities. Various factors were attributed to this problem. One factor was the inadequate number of trained extension workers with expertise in fish farming. The two DFOs who were the only specially trained extension workers in fish farming appeared to be insufficient for the provision of extension services while most of the extension workers at the local level were subject matter specialists in other areas such as crop farming and animal husbandry but not in fish farming.

This consequently resulted in a large extension worker to farmer ratio which was worsened due to lack of field extension staff with expertise in fish farming at the local level. The other factor that affected extension services on fish farming was the inadequate resources in terms of inputs such as operational funds and transport for the DFOs to effectively perform their extension roles. This constrained members' access to extension services which consequently affected performance of the groups in promoting fish farming. Similar findings were reported by Masangano and Mthinda (2012) who indicated that in the pluralistic system of extension in Malawi, the major challenges included the inadequate number of trained extension workers and the inadequate resources for the field extension workers which resulted in a large extension worker to farmer ratio. In addition, in Malawi, inadequate outreach programmes and inefficiency in dissemination of technology transfer to farmers also play a key role in the backwardness in performance of the fish farmer organizations. Again, low funding of the aquaculture sub-sector activities by the government and low investment by the private sector are major constraints to the fish farming sector which also affects extension services that are key to successful fish farmer organisational development. These assertions therefore imply that inadequate extension services are an important factor hampering capacity of the farmer organizations to promote fish farming.

Secondly, in terms of lack of commitment, a high proportion (at least 76%) of the members with higher levels of incomes ranging from MK201, 000 to MK400, 000 had mentioned lack of commitment among members as one challenge facing the farmer groups. It was further noted that most of the members with incomes >MK200, 000 were elderly who also had experience in undertaking fish farming activities. As a result of the experience, they appeared more committed in fish farming than the members with lower income levels. Still, it was further observed that members of relatively younger ages, who also had lower income levels appeared not committed to undertake the fish farming operations.

Similar result was reported by Adesoji and Kerere (2013) who found that in most farmer organizations in Nigeria, members with higher levels of income and were older than 50 years appeared to be more committed in aquaculture than the relatively younger members who also had low levels of income. The low levels of income among the younger members also affect the level of investment invested in fish farmer organizations. Among the low level income earners, the low level of investment in fish farming is compounded by inadequate entrepreneurship skills by the farmers and lack of credit (Barham and Chitemi, 2009).

This shows that the level of income among the members has an important bearing on the level of commitment of the members and on the capacity of the organizations in promoting fish farming. The commitment is ensured among members with high levels of income since they are generally able to adequately invest enough resources into the fish farming operations. The adequate investment ensures high production with eventual high profits from fish farming which also acts as an incentive for the farmers in this age group to commit themselves in the fish farmer organizations.

On lack of trust, a considerable percentage (40%) of members who had incomes ranging from MK301, 000 to MK400, 000 mentioned this challenge as one of the factors affecting capacity of the farmer groups to promote fish farming. In contrast, a lower percentage (between about 19% and 21%)



of members with lower incomes mentioned this challenge. Further, key informant interviews with the DFOs revealed that farmers who had high incomes per annum were those who had been members of the farmer groups for at least three years. It was further revealed that because of experience and some wealth they had accumulated over the years, members with higher incomes appeared to be looked upon with jealousy by some of their fellow members who were less endowed financially. This eventually acted as a source of mistrust and animosity between the more wealth endowed members and the less endowed. It is for this reason that the higher income earners had skepticism on trusting their fellow members. This resentment towards other members was effected to avoid free riding and social loafing amongst members of their groups.

On the challenge of inadequate knowledge on fish farming, results revealed significant differences ( $P < 0.05$ ) in the proportion of respondents with varying levels of incomes who mentioned about this challenge across the farmer groups. Results indicate that most members (over 65%) who had lower incomes of less than MK 200,000 felt that this was one of the challenges affecting their organizations. In contrast, only a few members (17.1% and 8.0%) with annual incomes ranging between MK201, 000-300, 000 and MK301, 000-400,000, respectively mentioned about this challenge. This implies that the challenge of lack of knowledge on fish farming was more pronounced among the farmers with low income levels than it was among members with relatively higher income levels.

Further, the challenge of lack of knowledge on the technical aspects of fish farming was more pronounced among members with low income levels than it was among members with higher income levels. It was noted during the study that members with relatively higher levels of incomes were treated as elite farmers by the extension service providers within local communities. The elite members often had more regular visits by the extension workers and therefore had a higher chance to have better knowledge in fish farming than the average farmers. At the local level, farmers who are regarded as elites are regularly visited by extension workers as they are normally considered more responsive and productive in agricultural development.

This implies that regular visitations by extension workers to elite farmers afforded them the opportunity to get more knowledge about fish farming as opposed to the other farmers with relatively lower incomes. It is against this background that most members who had higher incomes did not mention inadequate knowledge in fish farming as a challenge affecting their organizations. This finding indicates that at the local level, financially endowed farmers have more access to extension services which enhances their knowledge in agricultural practices including fish farming than the less wealth endowed farmers.

Further results revealed significant differences ( $P < 0.05$ ) in the proportion of members on their responses about the challenge of inadequate inputs to carry out fish farming across members with varied levels of incomes. This finding implies that while most members of varying income levels were affected by the challenge of scarcity of inputs across the farmer groups, significantly higher proportion (77.3%, 73.4% and 67.8%) of respondents with incomes of <MK100, 000, MK101, 000-MK200, 000, and MK201, 000-MK300, 000 mentioned about this challenge as compared to members with incomes in the range of MK301, 000-MK400, 000 per year. As expected, this implies that the challenge of inadequate inputs affected more members of lower income levels than those with relatively higher levels of income. Similar sentiments were reported by Dorward *et al.*, (2008) and [3] who emphasised that for effective implementation of fish farming activities, there is need for adequate financial capital to ensure sustained availability of inputs. Lack of the necessary inputs such as certified quality fingerlings and commercially produced feeds is among the main problems constraining the development of fish farming. Further, in Malawi, low funding of the aquaculture sub-sector by the government and low investment by the private sector in fish farming are major constraints to the availability and affordability of the required inputs for fish farming. Therefore, adequate inputs and resources have an important bearing on fish farming practices. As such, adequate capital investment is prerequisite for a viable fish farming investment while poor capital investment poses a high likelihood of failure in the fish farming activities.

Results in this study have shown that inadequate commitment of members in the governance of farmer organizations and management of fish farming operations and inadequate trust among members had significant effect on the performance of the fish farmer organizations in Dowa and Mchinji. Similarly, inadequate knowledge and inadequate inputs in fish farming were the other challenges affecting the farmer organizations to promote fish farming within the local communities.

## **CONCLUSION**

It has been noted in this study that lack of knowledge on appropriate recommendations for organisational development, inadequate knowledge on recommended practices in fish farming and inadequate inputs are the challenges that equally affect both female and male members in their organizations. Further, the challenges of inadequate commitment of members in governance of the farmer organizations and management of fish ponds and inadequate availability of reliable fish markets affect men more than they affect female members. Conversely, lack of trust among members and inadequate access to extension services appeared to affect the female members more than their male counterparts. Findings further show that the challenges facing the farmer organizations affected some proportions of the members according to their age groups. This implies that age of members has significant influence on member responses on challenges affecting the fish farmer organizations. It has also been revealed that lack of knowledge on appropriate recommendations for organisational development and inadequate knowledge in fish farming appears to largely affect members with low income endowments. On the other hand, inadequate commitment of members in the governance of the farmer organizations and management of fish ponds was a challenge which was mentioned mainly by members with high income levels. Lastly, inadequate access to extension services and lack of trust among members were mentioned by members across the organizations despite the differences in income levels.

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