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Youth Engagement and Inclusiveness in Fish Farming in the Fako Division Southwest Region of Cameroon

Relindis Ekanya[1,2], Geneva O. Nkongho[1,3*],,Jack Dickson Arreytabe[1], Gordon Takop Nchanji[2], Yvonne Nchong Etchutakang[1], Ebanje Ndassa[1], Nelson Neba Suh[1,3], Roland Ndi Mbongko[1], Ebobisse Marcel[1]

[1]*Institute of Agricultural Research for Development (IRAD)-Batoke, Limbe, Cameroon*
[2]*Department of Microbiology and Parasitology, University of Buea,Cameroon*
[3]*Faculty of Agriculture and Veterinary Medicine, University of Buea, Cameroon*

Corresponding Author:** ***Geneva O. Nkongho, *Institute of Agricultural Research for Development (IRAD)-Batoke, Limbe, Cameroon; Faculty of Agriculture and Veterinary Medicine, University of Buea, Cameroon*

Abstract: *The wild fish catch keeps declining in the midst of a constant growing population and aquaculture has been identified as the major alternative to meeting fish need. To this effect, this study was carried out to assess the involvement of the youthful population of the Fako Division of Cameroon as the youths remain the backbone of every economy. Guided questionnaires were administered to youths; most of which were within the ages 16 and 35 years.*

Majority (56.4%) of the respondents were males and 64.9% of them were unmarried. 52.1% of respondents had an idea on fish farming, but only 17.0% of them were actually involved in the activity. However, the study revealed that up to 52.1% of the sampled population showed interest in fish farming with 38.3% of the respondents agreeing strongly that fish farming is a good source of employment. Notwithstanding, 50% of the respondents strongly agreed that limited access to quality information on fish farming technologies and slow transfer of information on best management practices through extension and training hamper greater involvement in fish farming. Meanwhile, inadequate and affordable fish feed was highlighted as one of the major limiting factors. Interestingly, respondents with physical disability revealed that fish farming is not a strenuous activity, but could be a good economic activity for them. This suggests that with more training, sensitization and community and government support, more youths in this part of Cameroon would be involved in fish farming.

Keywords: *Aquaculture, employment, food security, inclusiveness, youth involvement*

1. INTRODUCTION

Capture fisheries and aquaculture provide 3.0 billion people with almost 20 percent of their average per capita intake of animal protein, and a further 1.3 billion people with about 15 percent of their per capita intake [1]. Fish farming is viewed as a vital growing sector within food production worldwide because of its ability to provide inexpensive protein while allowing over depleted capture fisheries to replenish, reduce unemployment, and fight against food insecurity. The role of fish farming in the Cameroon economy was marginal as the sector employed only about 3500 to 4200 people with annual production of about 870 tones [2]. The contribution of fisheries and aquaculture production in Cameroon is less than 1% of GDP and the potential contribution of aquaculture to national economy was estimated at 85,7million FCFA in 2004. Cameroon is experiencing a steady decline in national production of capture fisheries. Indeed, the Ministry of Livestock Fisheries and Animal Industries (MINEPIA) of Cameroon recently indicated that, fish imports remain significant (249,857 tonnes.) with a budget implication of 114.3 billion FCFA [3]

Although fishing is a major activity in the Fako Division; being along the coast of Cameroon, fish remains expensive especially for the average Cameroonian mainly due to limited supply. However, feasibility studies have shown that great potentials exist for fish farming activity[4]; with a projection of 20000 tonnes/year [2]. This can contribute significantly to closing the deficit in fish imports which stands at 120,000 tonnes of fish/year [5]

In recent times in Cameroon, the fish farming sector is being driven by the youth population resident mostly in the Littoral and Centre Regions. However, Fry *et al*.,in 2021 [6] assessed small-scale fisheries, aquaculture and associated value chains in Africa, Asia and the Pacific revealing that increasing youth involvement in the sector requires some effective measures such as provision of loan scheme for graduates and school leavers, development of participatory programs and effective extension work which will result to reduction of unemployment among the youth. According to Adelodunin 2015 [7], the fish farming sector has great opportunities to be tapped. The potential of fish farming in the country cannot be overlooked. As the rate of unemployment keeps growing and thereby leading to high crime rate and other social vices among the youth, supporting the sector may create job opportunities and curb crime rate, enhance food security and economic development of the nation since the youthful population constitute the backbone of the economy. This study was therefore designed to assess the current state of youth involvement in fish farming particularly in the Fako Division which is presently a refuge ground for the several internally displaced persons due to the long socio-political crisis in the North West and South West Regions of the Country.

2. MATERIALS AND METHODS

2.1. Study Design

This study was carried out through survey; collecting of information from a sampled population through their responses to questions [8].Close-ended questionnaires which the respondents were just expected to the suitable answer were administered to 94 youths randomly selected in the Fako Division.

2.2. Instrument for Data Collection

The questionnaire had four sections A,B, C and D. "A" was the demographic data,"B" was thegeneral information on fish farming**,** "C"Major fish farming constraints and "D" questions for people with special status only" Under each variable, investigation was done using the Likert scale that had four points; Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

2.3. Validation of the Instrument

Validity of the questionnaires (instrument) was assessed in two phases: face and content validity. According to Amin (2005) [8], validity of an instrument is the appropriateness of the instrument or the extent to which the instrument measures what it intended to measure. For face validity, the questionnaires were first presented to an aquaculture expert for review to ensure the questions were clear and not boring to the respondents. For content validity, the questionnaires were given to some aquaculture specialists who checked for the content to ensure the questions were objective and in relation to the variables to be studied.

2.4. Experimental Procedure

A pre-test was then carried out on some 5 youths in the study area; with the objective to assess the comprehensiveness and the reaction from the participants to ensure the objective of the study is appropriately and effectively met. Thereafter, the direct delivery technique (DDT) was adopted to administer the questionnaires to ninety-four (94) respondents selected by simple random sampling method. This technique was preferred because it was thought that direct contact with the respondent enhance the quality of data collected.

The data collected included: socio-economic characteristics (age, gender, and marital status), involvement of youth in fish farming, factors that limit youth involvement in fish farming and inclusiveness of the sector.

2.5. Data Analysis

Data collected was entered in Microsoft excel and analyzed using SPSS(Statistical Package for Social sciences) version 25.Descriptive statistics was done to identify the socio-economic characteristics of the respondents in relation to: the age, educational level, etc. and the problems plaguing the fish farming sector in the area.

2.6. Ethical Statements

It was clearly stated in the opening of the questionnaire that the respondent's responses were to be used only for the purpose of research and their confidentiality and animosity were guaranteed. Names or any form of identification were not included as this made it easier for the respondents to provide accurate and honest responses. Participation on the research was voluntary, non-respondent was coerced and all participants were competent in giving their responses.

On the part of the researcher, ethical considerations were made to avoid bias such as the use of appropriate research method, correct reporting of findings without falsification and appropriate use and management of data collected. Verbal consent was given by respondents through their acceptance to answer the questionnaire

3. RESULTS

3.1. Demographic Information

Majority of respondents were males; 56.4% of the studied population. Most of the respondents had completed the primary education and had attempted secondary education. Most of them were between the ages16-25 and 26-35 years; with 64.9% of them being single. The demographic information is presented in Table1.

Table1. *Demographic information of respondents describing the Gender, Age class and Marital status of the study participants. Majority of the study participants were male; the highest age class was 16-25years and majority of study participants were single.*

Gender	**Percentage composition (%)**
Male	56.4
Female	43.6
Age class (years)	**Percentage composition (%)**
16-25	41.5
26-35	40.4
36-45	14.9
46-55	2.1
NR	1.1
Marital status	**Percentage composition (%)**
Married	27.7
Single	64.9
Widow	1.1
Widower	1.1

3.2. Respondents' General Know-how on Fish Farming

Based on the knowledge and attitude of youths towards fish farming as presented in Table 2, 52.1% of respondents understand what fish farming is all about, but only 17.0 % was somehow involved in fish farming. 29.8% of the respondents strongly agreed to the fact that fish farming could pay well like other good jobs, but just 12.8% thought it otherwise. Upon more probing, 52.1% indicated interest and would have loved to be involved in fish farming and up to 38.3% of the respondent agreed fish farming is a good source of employment. This suggests that with favorable conditions in place, more youths will likely get involved in fish farming.

Table2. *General knowledge of youth involvement in fish farming. Most of the study participants disagreed to know what fish farming is all about and the opportunities within the aquaculture sector.*

Item	**Strongly agree (%)**	**Agree (%)**	**Disagree (%)**	**Strongly disagree (%)**
I understand what fish farming is all about	19.1	52.1	19.1	9.6
I am in some way involved in fish farming	5.3	17.0	45.7	31.9
For those who are not involved: I would have loved to be involved in fish farming	19.1	52.1	16.0	8.5

Fish farming does not pay like other jobs	12.8	25.5	29.8	29.8
Fish farming is good only for consumption purposes	10.6	14.9	30.9	41.5
Fish farming is a good source of employment	50.0	38.3	10.6	1.1
I can be involved in fish farming mainly for leisure	10.6	21.3	35.1	29.8

3.3. Constraints in Fish Farming

Some of the probable constraints that respondents aligned with to have been the hindrances preventing youth's involvement in fish farming are presented in Figure1.Most of the respondents either agreed or strongly agreed to the constraints. 50% agreed that inadequate fish seed and fish feeds, and the high cost of imported fish feeds were the main constraints faced in the sector. Poor understanding of fish market dynamics and general pond management also hinder many youths from engaging in fish farming. About 50% strongly agreed that lack of access to quality information on fish farming technologies and slow transfer of information on proven practices through extension and training is one of the reasons why they are not involved in fish farming.

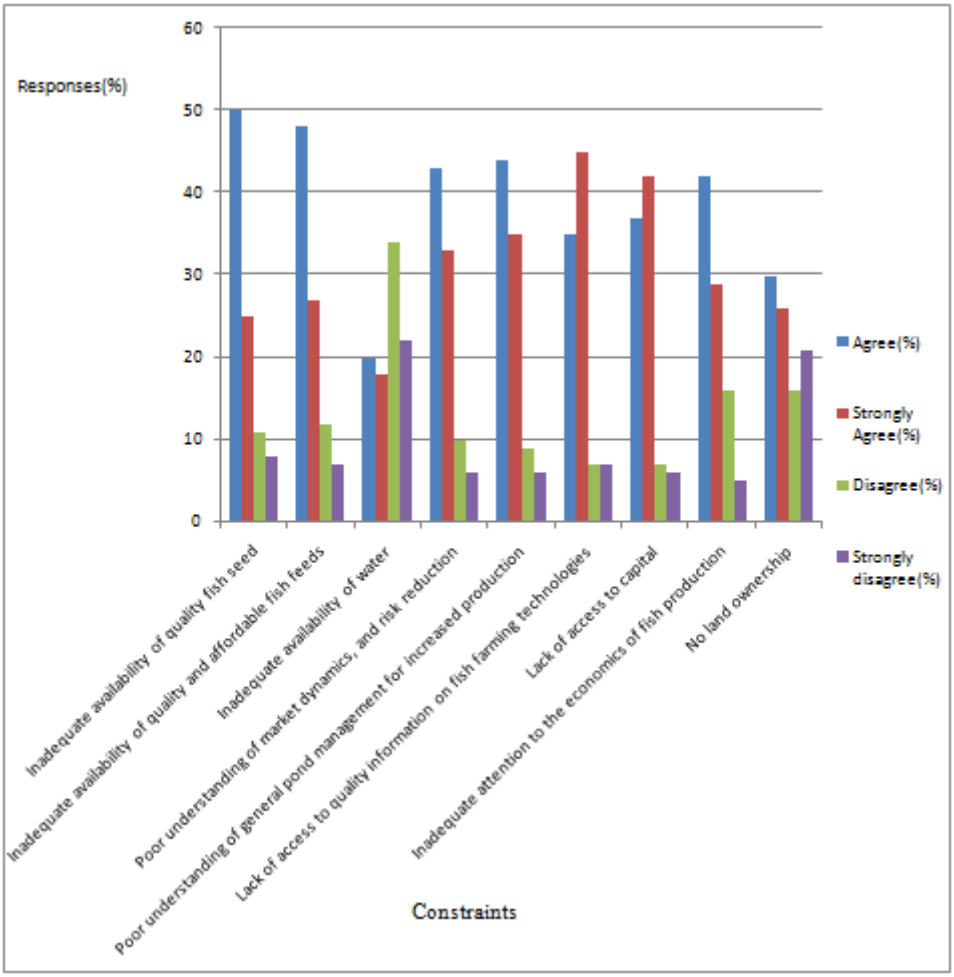

Figure1. *Probable constraints hindering youth involvement in fish farming*

3.4. Inclusiveness of Fish Farming

Fish farming is an agricultural activity which poses no problem to the special needs of the individual. This was confirmed by the respondents with disabilities, who revealed that their conditions could not hinder them from fish farming activities as shown in Figure 2. Also, the studies revealed that financial assistance will likely stir up the engagement in fish farming as shown in Figure 3. This study also revealed more female involved (62.5%) in fish farming when compared to males.

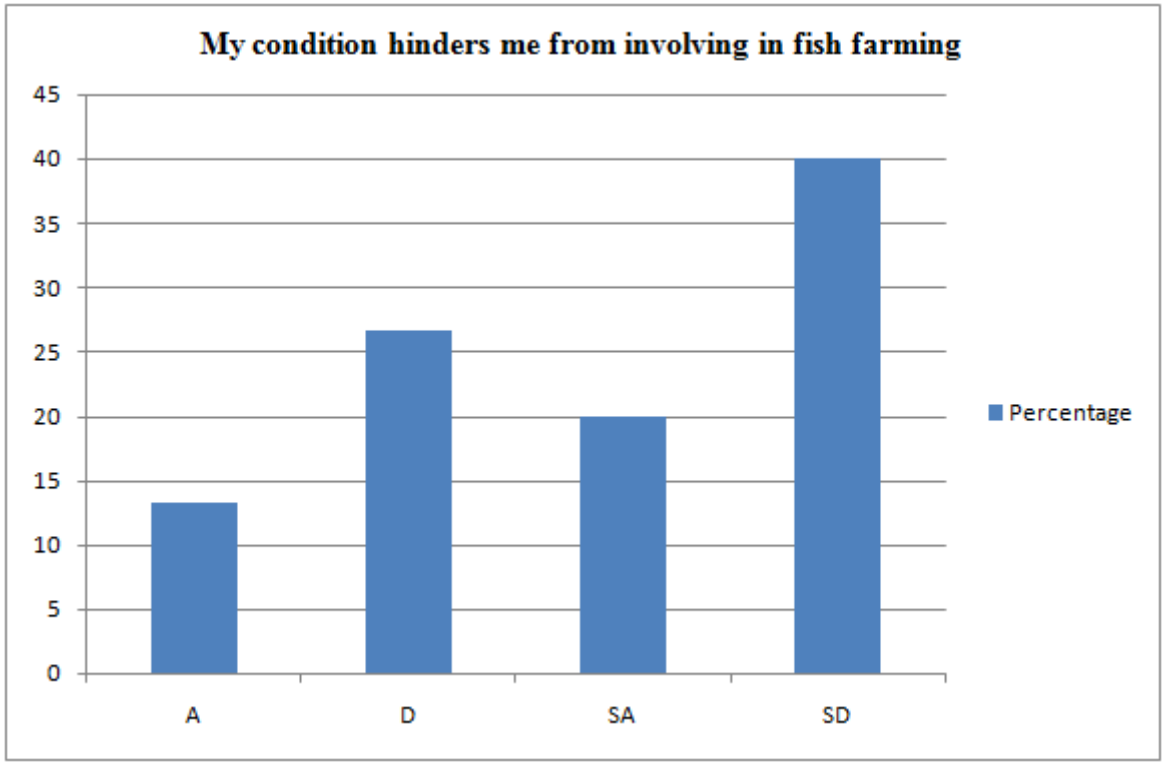

Figure2. *Agreement of no hindrance to fish farming based on special needs*

A= Agree; D= Disagree; SA= Strongly agree; SD= Strongly disagree

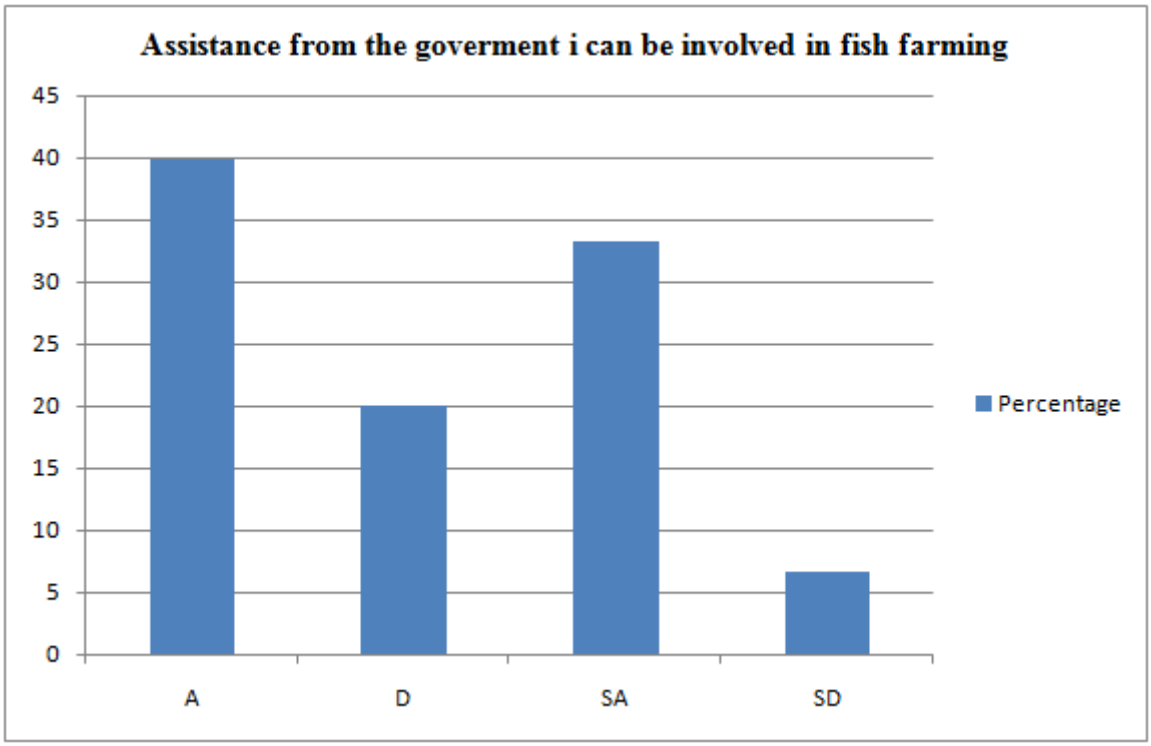

Figure3. *Agreement of involvement in fish farming if there is assistance*

A= Agree; D= Disagree; SA= Strongly agree; SD= Strongly disagree

4. DISCUSSION

More males accepted to participate in the study compared to females and majority were singles between the ages of 16 and 35 years. Differences in gender, social class and ability influence livelihood aspirations, opportunities and challenges. Globally, labor force participation rate for the

males is generally higher when compared to the females as females are often occupied with taking care of children and other domestic activities, but the gap in labour force participation rate between males and females in Sub-Saharan Africa and the Developing countries Regions is smaller when compared to other regions[9].According to Quddus *et al*. (2017) [10], Women in Bangladesh were initially engaged in activities like sorting of fingerlings, repairing and maintaining fishing gears, fish processing and transportation, but this complementary role of women is changing and pond fish culture activities like feeding and other management activities including marketing are increasing. In Rwanda, women make up 53% of the population and participate in agriculture more than men, with women of ages between 15 and 60 years spending one-third of their time in agriculture including aquaculture [11].In the same way, this study revealed that more females than males were involved in fish farming in this part of the country than males.

This study revealed 17% involvement of youths in fish farming while 38% agreed to see a potential employment opportunity in fish farming in a country like Cameroon where youth unemployment is high fish farming is great opportunity to increase youth employment. Young men tend to produce fish, where they may assume some power and financial benefit, while young women tend to process and trade fish, where, despite their strong involvement, they often lack influence and are exposed to other exploitative conditions. This challenge is intensified for young women, who are often restricted further by cultural and social norms. These challenges likely contribute to declining interest among youth in aquaculture.

About 50% strongly agree that lack of information on fish farming especially through training prevents them from engaging in fish farming. This is inline with a study carried by Dauda and colleagues in 2015 in the North Western part of Nigeria [12] who recorded a majority of respondent who agreed that lack of information is a constraint to fish farming. Also, this result was agreed with what was found by Shaalan et al. (2017) [13] who cited lack of technical training as one of the constraints faced by aquaculture in Egypt. In this study, 50% of respondent agreed that unavailability of fish seed is a major constrain to their engaging in fish farming. This study agrees with a study in Nigeria where 45% of respondent agreed that lack of fingerlings is a major hindrance to their fish farming [14] This is to suggest that if fisheries and fish research stations would put more effort in training youths then probably more youths will be involved in fish farming.

The nature of youth involvement depends heavily on their access to resources as about 50% agree that fish feed is not available and even when they are available, they are not affordable as such if subsidies are made to fisheries stations for the production of fish feed then the feed will be readily available and affordable. Most of the respondents also agree that lack of capital also influence their involvement in Aquaculture just like the studies in Northern Nigeria and Egypt [12,15].Youth typically do not own the assets required for production, including land for aquaculture. These constraints restrict the access of youth to financial services and technical advice. These results are agreed with El-Sayed (2014) [16], who found that the main constraints faced by fish farmers in Egypt were: lack of accessibility to credit and financial support, the high prices of feeds, and the feed's poor quality. Efforts to improve youth engagement require acoherent and integrated response from governments private companies, development partners, research institutes and youth organizations. Addressing the current challenges faced by young men and women who want to be involved in small-scale fisheries and aquaculture is crucial to inclusive development of the sector. Governments and development partners can help reduce these challenges by establishment of cooperatives that improve youth access to land and water rights, inputs, markets and financial services; updates to curricula and training tools, development and enforcement of protections from exploitative employment conditions and formation of organizations that create a formal pathway for youth to engage in decision-making processes.

All Participants with special statues agreed that their condition does not hinder them from involving in fish farming. Considering their handicap nature, fish farming is a good opportunity for such people as it does not require them moving a lot or carrying heavy loads. Most of them agreed that with government assistance they would be more involved in aquaculture. This study agrees with the study carried out in Zambia [17] where it was observed that aquaculture could be inclusive if government, research, and developmental organizations could consider to support smallholder farmers. Inclusive, equitable and sustainable development of small-scale fisheries and aquaculture may better satisfy

youth livelihood aspirations. Governments, private companies and research institutes can contribute to changing youth perceptions of the sector through increased integration of information and communication technologies, perhaps through a wider access to technical advice and training opportunities.

The involvement of the youths in the aquaculture sector is still low and some factors are responsible for this[12] The factors include: Expertise: As aquaculture involves the rearing of aquatic organism (fish) in a confined environment, some technicalities are involved in the successful culture of the organisms. Many of the youths lack the skill and knowledge necessary on the field. Even the graduates of the field do not have the practical knowledge, as there may be limit to what can be known in the four corners of the classroom. Capital investment: Every business sector requires a capital investment and aquaculture sector is not an exception. The high cost of fish feed plays a big part in the requirement of substantial capital to practice aquaculture. Based on this, most youths find it difficult to raise the funds needed to start even when the interest is there. This was the same thing observed in a study in Egypt by Sherienand colleagues. (2022) [15], where one hundred and five out of one hundred and ten fish farmers considered high feed prices as a severe problem. Preference for the white-collar jobs: Many youths in Cameroon prefer to work with the public sector rather than be self-employed. The younger generation prefers the "neat" white collar job with the attractive working environment to farming. Therefore, we now have more of the aged ones involve in all types of farming activities including fish farming and this could be a serious threat to the food security of the country

Successful engagement of youth in aquaculture requires that policies, must be addressed to improve youth access to assets, finance, knowledge and decision-making power. Governments, private companies, development partners and research institutes all play key roles in enhancing youth participation in aquaculture. Findings from this study indicate that to develop appropriate policies and investments (i) youth must be recognized as a diverse group with differing livelihood aspirations, opportunities and challenges, (ii) issues of intersectional and intergenerational equity, especially regarding access to assets and resources, must be addressed and (iii) the meaningful participation of youth in decision-making processes must be facilitated and legitimized.

5. CONCLUSION

Youth's engagement in Aquaculture in Cameroon is low as most youths have knowledge of what fish farming is all about but far lesser number are involved. Several reasons like unavailability of quality fish seeds, lack of capital, lack information and technical knowhow contribute to them not engaging in Aquaculture and It is possible to engage youths especially women and people with special needs in aquaculture through sensitizations, government interventions and community support.

6. AUTHOR'S CONTRIBUTIONS

Conceptualization: RE, GON; **Data curation:** RE, GON, GTN, JDA, YNE, EN; **Data analysis:** RE, GTN, NNS; **Administration of questionnaires:** RE, JDA, YNE, EN, ME,RNM ; **Supervision of Activities**: GON; **Resources:** RE, GON; **Wrote the draft manuscript:** RE, JDA,GTN, NNS, YNE, EN,RNM; **Review and editing of manuscript:** RE, JDA, YNE, EN, ME, NNS, GTN,GON

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