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IMPACT ASSESSMENT OF PARTICIPATION IN SELF-RELIANCE ECONOMIC ADVANCEMENT PROGRAMME ON INCOME OF SMALL-SCALE FISH FARMERS IN OYO STATE, NIGERIA

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Abstract

The study assessed the impact of participation in the Self-Reliance Economic Advancement Programme (SEAP) on income of small-scale fish farmers in Oyo State, Nigeria. A multistage sampling procedure was employed to select 283 respondents comprising 140 participants and 143 non-participants. Primary data were collected with the aid of a structured questionnaire and analyzed using descriptive statistics, and propensity score matching (PSM). Results revealed that majority 90.7% of the respondents were males with a mean age of 41 years. Majority (74.3%) were married, while 56.4% had secondary education. Findings showed that the average income of participants was significantly higher than that of non-participants by ₦9,785.71 ($p < 0.05$). The study concluded that participation in SEAP enhanced the income of small-scale fish farmers in the study area. It was therefore recommended that the programmer should be expanded and strengthened to cover more farmers, thereby improving their livelihood and reducing poverty.

Keywords: *Impact, assessment, income, small-scale fish farmers, Participation.*

1.0 Introduction

Self-Reliance Economic Advancement Programme (SEAP) is a business oriented, non-profit sharing, non-political, non-religious and Non-Governmental Organization (NGO) that started operations in 1998 with voluntary membership but was officially registered in 2000(SEAP, 2017). SEAP is dedicated primarily to economic empowerment of the underprivileged, capacity building, and improvement of the socio-economic condition of the poor. SEAP is a committed organization to the promotion of Small and Medium

Scale Enterprises (SMEs) in Nigeria. SEAP has long been playing a pivotal role for small and medium-sized enterprises in the consolidation of viable market-oriented enterprise' structures. SEAP seeks to promote sustainable livelihood for the less privileged in the society (SEAP, 2017). Fish farming is the growing or rearing of selected fish species under controlled conditions in natural or artificial environment for economic and social benefits. It involves the construction of ponds, cages, tanks, reservoirs or dams and stocking them with fingerlings or juvenile fish, which are grown to table size (Rantlo, 2022). Fish farming as a business helps to improve the purchasing power due to income generated from selling fish and creates job opportunities (Kassam and Dorward, 2017). Fish farming in rural areas has gained special attention in this regard, especially in Sub-Saharan Africa (Bene *et al.*, 2016). Studies have shown that over 80 percent of global fish production is from small-scale producers and most of them are operating in rural areas with inadequate facilities (Gupta, 2018). Fish farming started in Nigeria over 40 years ago and the Nigerian government recognized the importance of the sub-sector, and they made several attempts over the years to increase its productivity through institutional reforms and various economic measures. Despite these efforts by the government, there is still a deficit in the supply and demand for fish by the teaming population (Iroegbu *et al.,* 2021).

Small-scale fish farmers play a crucial role in ensuring food security and promoting rural development in Nigeria. According to the Food and Agriculture Organization (FAO), small-scale fish farmers contribute significantly to the country's fish production, accounting for over 80 precent of the total fish produced (FAO, 2020). In Nigeria, small-scale fish farming is an important source of income and employment for

many rural households, particularly in areas with abundant water resources (National Bureau of Statistics, 2020). However, small-scale fish farmers in Nigeria face numerous challenges, including limited access to credit, inadequate infrastructure, and poor market access (CBN, 2020).

Income is a fundamental concept in economics, referring to the flow of money received by an individual or household over specific period (Mankiw, 2020). It is a crucial determinant of an individual's standard of living, influencing their ability to purchase goods and services (Krugman and Obstfeld, 2018). Furthermore, income is a key indicator of economic development, with higher income often associated with improved health, education, and living standard, (World Bank, 2020).

Participation of small-scale fish farmers in decision-making processes and development programs is crucial for improving their livelihoods and communities (FAO, 2020). Effective participation enables farmers to contribute to decision-making, access resources and services, and benefit from development initiatives (Kiptot et al., 2018). However, small-scale fish farmers often face challenges in participating in decision-making processes due to limited access to information, education, and resources (IFAD, 2020)

Income remains a key economic indicator, influencing consumption, welfare, and standard of living (Mankiw, 2020; Krugman & Obstfeld, 2018). Despite several government and NGO interventions, small-scale fish farmers in Nigeria continue to face livelihood challenges (Olojede et al., 2020). SEAP was introduced in Oyo State to support fish farmers and improve their income. However, empirical evidence on its impact in the study area remains limited.

2.0. Objectives of the Study

The broad objective of this study was to assess impact of participation in SEAP on income of small-scale fish farmers in Oyo State.

The Specific objectives were to:

1. describe the socio-economic characteristics of small-scale fish farmers in Oyo State; and
2. determine the impact of participation in SEAP on their income.

3.0. Methodology

The study was conducted in Oyo State, Nigeria. A three-stage sampling procedure was adopted. In stage one, six Local Government Areas (Ido, Atiba, Egbeda, Oluyole, Akinyele, and Iseyin) were randomly selected from the ten that benefited from SEAP loans. In stage two, two fish farming communities were purposively selected from each LGA, making a total of 12 communities. In stage three, the Slovin's formula was applied to determine a sample of 283 small-scale fish farmers (140 participants and 143 non-participants).

Primary data were obtained through structured questionnaire and interviews. Descriptive statistics were used for socio-economic characteristics, while Propensity Score Matching (PSM) was employed to estimate programme impact.

Table 1: Sample Sizeselection plan

		Participants		Non –participants	
LGAs	Communities	Sampling frame	Sample size (65%)	Sampling frame	Sample size (65%)
Ido	Ido	26	17	20	13
	Omin – adio	20	13	21	13
Atiba	Ashipa	15	10	15	10
	Alubata	23	15	23	15
Egbeda	Kasumu	17	11	18	12
	Egbeda	12	8	19	12
Oluyole	Arapaja	25	16	25	16
	Idiayunre	24	15	24	15
Akinyele	Moniya	20	13	23	15
	Alabata	9	6	8	5
Iseyin	Joloko	9	6	10	7
	Afonja	15	10	15	10
Total		**215**	**140**	**221**	**143**

4.0. Results and Discussion

4.1 Socio-economic Characteristics of Respondents

Table 2 shows that majority (90.7%) of the respondents were male participants; while 89.5% were non-participants. This confirmed the findings of Olojede *et al. (*2020), who affirmed that fish farming is primarily a male- dominated activity in the study area. The low representation of females in small scale fish farming could be attributed to their involvement in off-farm activities such, as food vendors, hairdressing, tailoring and petty trading. The mean ages were 41 years (participants) and 43 years (non-participants). These findings imply that the majority of the respondents belonged to the active young and middle age. This simply explains the full involvement of the active age group in fish farming. This aligned with assertion of Akerele *et al*. (2019), who affirmed that fish farmers in the study area were predominantly middle age and active. Majority of the

(74.3%) of the respondents were married participants; while 77.6% were non-participants. This shows that, there were many married farmers in the study area. This is in agreement with the findings of Akerele *et al*. (2019), who found that most small scale fish farmers were settled family men and women with responsibilities.

The majority (56.4%) of the participants and non-participants (50.4%) had secondary education. Iroegbu *et al*. (2021) found that all the respondents had one form of formal education or the other, and it is very important to say here that the level of education influences their awareness in modern fish farming practice. Household size ranged from 0–6 persons, with majority (99%) of the respondents having 1–4 members. This is a negative indication that there would be need for more hired labour for farm work and it is not in agreement with Enimu *et al*. (2016) who upheld that the larger the family size, the more likelihood of sustainable labour, as these family members become part of the labour force. Participants had better access to credit (92.1%) compared to non-participants (89.5%). Access to extension services was also higher among participants (62.9%). This is not in agreement with Odunjo *et al*. (2018),who reported that most small scale fish farmers lacked access to credit due to shortage of loanable funds. Instead, this study suggests that beneficiaries should have better access to credit, potentially due to their involvement in the programme.

Table 2 shows that, years of fish farming experience among the small scale fish farmers in the study area ranged from 6 to 40 years, almost half of the participants (48.57%) had 1-10 years of experience and majority (60.14%) of the non-participants had 11-20 years of experience. The participants had the mean of 14 years of fish farming

experience with minimum of 6 and 40 years, respectively, while the non-participants had mean of 15 years of fish farming experience, with minimum and maximum of 7 and 40 years, respectively. This implied that small scale fish farmers in the study area had considerable years of experience in fish farming. This suggested that small scale fish farmers in the study area had developed expertise in fish production, which is critical to the success of fish farming, which is full of many challenges.

This finding aligned with Okidim and Obe-Nwaka (2021), who stated that experienced fish farmers can effectively utilize credit facilities and are well versed in farming fundamentals. The years of experience among small scale fish farmers in the study area is a positive indicator of their efficient production and success in the industry.

The average fish farming income for participants was ₦2,145,714.00 compared to ₦1,178,671.00 for non-participants. The data revealed that beneficiaries tend to have higher average income from fish farming compared to non-beneficiaries, This agrees with Olojede *et al. (*2020), that microcredit programmes can enhance small scale fish farmers' annual income. Stocking density was also higher for participants (mean = 4,762 fingerlings) compared to non-participants (mean = 3,241 fingerlings). This implied that the credit facility from SEAP had positive influence on stocking density of the beneficiaries.

Table 2: Demographic characteristics of Oyo State SEAP small scale fish farmers (n=283)

Variables	Participants		Non-participants	
Sex	**Frequency**	**Percent**	**Frequency**	**Percent**
Female	13	9.29	15	10.49
Male	127	90.71	128	89.51
Total	**140**	**100**	**143**	**100**
Age (years)				
21-30	27	19.29	13	9.09
31-40	54	38.57	61	42.66
41-50	32	22.86	33	23.08
51-60	20	14.29	26	18.18
61-70	7	5.00	10	6.99
Total	**140**	**100**	**143**	**100**
Mean	41		43	
Min	27		28	
Max	70		70	
Marital status				
Not married	14	10.00	12	8.39
Married	104	74.29	111	77.62
Divorced	18	12.86	15	10.49
Separated	4	2.86	5	3.50
Total	**140**	**100**	**143**	**100**
Level of education				
Non formal education	1	0.71	0	0
Primary education	5	3.57	5	3.50
Secondary education	79	56.43	72	50.35
Tertiary education	55	39.29	66	46.15
Total	**140**	**100**	**143**	**100**
Household size				
0-4	139	99.29	142	99.30
5-8	1	0.71	1	0.70
Total	**140**	**100**	**143**	**100**
Mean	2		2	
Access to credit				
No	11	7.86	15	10.49
Yes	129	92.14	128	89.51
Total	**143**	**100**	**143**	**100**
Access to extension services				
No	52	37.1	56	39.16
Yes	88	62.9	87	60.84
Total	**140**	**100**	**143**	**100**
Stock size (stock density)		**Yes**		
Mean	4,762	Total	4,762	
Min	200		200	
Years of fish farm ing experience		1-10	75,000	

4.2 Impact of SEAP Participation on Farmers' Income

Table 3 shows that participation in SEAP had a positive and significant impact on income. The Average Treatment Effect on the Treated (ATT) from Nearest Neighbour Matching (NNM) revealed that, participants earned ₦9,785.71 more than non-

participants ($p < 0.05$). Although Radius Matching (₦26,832.37) and Kernel-Based Matching (₦55,891.45) indicated positive but insignificant effects, overall results confirmed that SEAP enhanced farmers' income.

This finding was corroborated by Olojede et al. (2020), who reported that microcredit programmes improved household income and welfare among smallholder farmers.

Table 3 :Impact of Participation in Self-reliance E conomic Advancement Programme (SEAP) on the Income of the Fish Farmers.

Variable s	Sample	Participating farmers	Non-participating farmers	Difference	S.E.	T-stat
Radius Matching						
Income	Unmatched	3,165,642.86	3,034,685.31	3,034,685.31	172,470.297	0.76
	ATT	3,219,606.3	3,192,773.93	26,832.3647	203,990.797	0.13
	ATU	3,059,666.67	3,085,367.79	3,085,367.79		
	ATE			26,282.7742		
Nearest Neighbour Matching (NNM						
Income	Unmatched	3,165,642.86	3,034,685.31	130,957.542	172,470.297	0.76
	ATT	3,165,642.86	3,155,857.14	9,785.71429	222,324.784	0.04
	ATU	3,034,685.31	3,003,986.01	-30,699.3007		
	ATE			-10,671.3781		
Kernel Based Matching (KBM)						
Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Income	Unmatched	3,165,642.86	3,034,685.31	130,957.542	172,470.297	0.76
	ATT	3,218,384.62	3,162,493.17	55,891.449	191,637.959	0.29
	ATU	3,031,408.4	3,074,763.86	43,355.412		
	ATE			49,346.9006		

Source: Field survey (2024)

5.0 Conclusion and Recommendations

5.1 Conclusion

The study concluded that SEAP positively impacted the income of small-scale fish farmers in Oyo State. Participants recorded significantly higher income compared to non-participants.

5.2 Recommendations

It was recommended that:

1. SEAP should be expanded to cover more small-scale fish farmers.

2. Linkages between farmers and credit sources should be strengthened.

3. Extension services should be scaled up alongside credit provision to ensure better adoption of modern fish farming technologies.

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