Assessment of Government Support to Cultured Fish Production in Kwara State

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Abstract: This study examined cultured fish farms in Kwara State were an upsurge in the number of new entrants into the cultured fish business. Specifically, the study identified the nature of government support to cultured fish production in the study area assessed the level of government support to fish farmers; and highlighted the constraints to cultured fish production. Data used for this study w collected over one production cycle in 2012 using a well structured questionnaire. A total of total 63 were drawn through random sampling technique from a sampling frame of 121 registered cultured fish farmers. Analytical tools used for the study were descriptive statistics, correlation analysis, hi-square analysis and Likert-type scale. The findings of the study revealed there was a significant relationship between fish output and government intervention strategies ($p<0.05$) and that constraints limiting cultured fish production among the respondents were problems of poor access to electricity (90.5%), inadequate credit facility (96.8%) poor quality of water (61.9%) and lack of government support for sourcing (87.0%). The study therefore recommends that government should step up on its current level of intervention to fish farmers and create a support system by establishing a number of one-stop shops at convenient locations, so that farmers can easily access subsidized fish inputs. This support should be complemented with provision of adequate extension/advisory services on best practices in cultured fish production.
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Introduction

Since Nigeria's independence in 1960, fishery one of the major sub-sectors has not been given much priority as crop counterpart. In attempt to boost cultured fish production, the Federal Government had in the past put in place a number of programmes, notable among which are: **The Aquaculture and Inland Fisheries Project (AIFP)**, an intervention project being executed in collaboration with FAO. The Project is operating presently under the umbrella of the National Programme on Food Security which is a global initiative of the FAO to address the problem of hunger in poor developing countries. The National Food Reserve Agency/Agricultural Development Projects ADPs were directly responsible for the implementation of this project (Atanda, 2007). **The Nigerian Micro, Small & Medium Enterprise Scheme (MSMES),** an FGN/IDA (WORLD BANK) initiative being executed by the Nigeria Investment Promotion Council (NIPC). It aims at increasing the performance levels of **MSMES** in selected non-oil sectors. It has an Aquaculture component, which will mobilize increase in private sector investments in cultured fish farms (FAO, 2008, FMARD, 2003, 2008). **The National Fadama Project** being co-financed by the World Bank and the African Development Bank also had part objective of developing the fishery sub-sector through the provision of assistance in the area of assets/ input supply at subsidized rates and provision of relevant advisory services (FADAMA PAD, 2003, 2008). The establishment of three fisheries research institute in 1975: Lake Chad Institute. Maiduguri (1975), National Institute for Oceanography and Marine Research (NIORMR) Lagos (1975), Kainji Lake Research Institute, New Bussa (1976) and a full-fledged Federal Department of Fisheries (FDF) in 1976 with its headquarters in Lagos, accorded priority to Fisheries production (Olayiwola, 2013).

It is particularly worrisome, considering the expected government's contribution to cultured fish production that most research works on culture fish production neglected the assessment of specific roles played by it; and this of important note, in the light of recent evidence of government support to this sub-sector in recent times (The Punch Newspaper, 2014). Of particular note to this research work therefore are cultured fish farms that had at one time or the other enjoyed one form of government support or the other in Kwara. On occasions when government had cause to intervene in the fishery sub-sector in the state, not enough attention was paid to the effect of its interventions on the enterprise. This is particularly true of cultured fish farmers benefitting from one form of government's intervention/assistance or the other. The study therefore examines the level of government support to cultured fish farmers, and as well, the constraints faced by cultured fish farmers in the state.

Methodology

The Study Area: Kwara State shares boundaries with Oyo, Osun and Ekiti to the South, Kogi and Niger to the North, Kogi to the east and Republic of Benin on the west side. The State which happens to be located in the North-Central Geo-political Zone of Nigeria has sixteen Local Governments Areas. It has an estimated population of about 2.3 million people (census 2006). The daily average temperature ranges between 21^{o}C to 33^{o}C. The State has two distinct climatic seasons, the wet (Rainy) and dry (Harmattan) seasons. The rainfall extends between November and February. This climatic condition as well as fertile soil makes the States favourable for arable crop production such as rice, millet, yam, cowpea etc. (KWARA Ministry of Agricultural Natural Resources, 2010).

Data Collection: The data used in the study were obtained from both primary and secondary sources. Primary data were collected using a structured-questionnaire. Secondary data were obtained from publications, journals, internet, newspapers and State Ministries of Agriculture documents. The primary data were collected between the months of December, 2011 and June, 2013. A minimum of three visits were occasioned to the identified farms in the two States under consideration; the first was to pre-test the data, while the latter were to administer the fine-tuned questionnaire. A total of total 63 were drawn through random sampling technique from a sampling frame of 121 registered cultured fish farmers.

Analytical Techniques: The data collected for the study were analyzed using descriptive, correlation analysis, Student t-test and a Five-point Likert scale.

Correlation analysis

According to Weisten, on a scatter diagram, the closer the points lay to a straight line, the stronger the linear relationship between two variables. To quantify the strength of the relationship, to calculate the correlation, the data took the form of n pairs (i.e. [x_1, y_1], [x_2, y_2], [x_3, y_3] ... [x_n, y_n]), then the correlation coefficient was given by the following equation:

$$r = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2 \sum_{i=1}^{n}(y_i - \bar{y})^2}} \quad 3.5$$

where: y =output of cultured fish farms
x_1 = provision of fingerlings
x_2 = provision of direct credit facilities
x_3 = provision of feed subsidy
x_4 = provision of land facility
x_5 = provision of harvesting input
x_6 = provision of market outlet
x_7 = provision of extension services

Where $\bar{X}$ is the mean of the x values and. Y is the mean of the y.

This is the product moment correlation coefficient (or Pearson correlation coefficient). The value of r always lies between -1 and +1. A value of the correlation coefficient close to +1 indicates a strong positive linear relationship (i.e. one variable increases with the other; A value close to -1 indicates a strong negative linear relationship (i.e. one variable decreases as the other increases). A value close to 0 indicates no linear relationship; however, there could be a nonlinear relationship between the variables

Chi-squared test,

The example of chi-squared test adopted in this study was where the chi-squared distribution is only approximately valid: Pearson's chi-squared test, also known as the chi-squared goodness-of-fit test or chi-squared test for independence.

Likert Scale Analysis

The most widely used is the Likert-type Scale**.** Likert Rensis (1932) developed the principle of measuring attitudes by asking people to respond to a series of statements about a topic, in terms of the extent to which they agree with them, and so tapping into the cognitive and affective components of attitudes. The Likert-type scale was given consideration in this study to help the farmers come up with relative ease the constraint to production particularly in areas that bother on Government expected interventions and to large extent this objective was achieved. A five-point Likert-type Scale was adopted in determining the constraints to cultured fish production in the study area. The scale is one-dimensional ordinal level of measurement. The responses from the respondents were ranked in a specified dimension. The responses indicating the most serious constraint were assigned the highest score while the reverse is the case with less debilitating constraints. Responses on constraints to cultured fish production were disaggregated as follows:

1 = strongly disagree
2 = disagree
3 = undecided
4 = agree
5 = strongly agree

The final score for the respondent on the scale is the sum of the ratings for all of the items (this is why it is sometimes called a "summated" scale).

Results And Discussion

Type of Government Support accessed by Farmers

The results from the State's government intervention showed that 32.8% of sampled fish farmers were assisted with provision of fingerlings in Kwara State benefited from provision of fingerlings

by the government. Direct credit support was another focus of government intervention programme. The study shows that 23.8% of the sampled registered cultured fish were given direct credit support. Subsidy for feed input was granted to 46% of the sampled fish farmers in Kwara State. Provision of extension service is another vital focus of government intervention programme. Extension agents were recruited to educate and guide them on how to manage the established fish culturists. More than half of the sampled fish farmers (68.3%) in Kwara State benefited from government extension service providers (Table 1) shows the frequency distribution of impact of government support on cultured fish production in the study areas.

Table 1: Distribution of Respondents according to access to Government Support

Government Intervention/Assistant		*Kwara*	
	Response	**Freq.**	**%**
1. Provision of Fingerlings/Juvenile	No	42	66.7
	Yes	21	32.8
	Total	63	100.0
2. Provision of Direct Credit Support	No	48	76.2
	Yes	15	23.8
	Total	63	100.0
3. Subsidy on Feed Input	No	34	54.0
	Yes	29	46.0
	Total	63	100.0
4. Provision of Land Facility	No	47	74.6
	Yes	16	25.4
	Total	63	100.0
5. Provision of Harvesting Input	No	47	74.6
	Yes	16	25.4
	Total	63	100.0
6. Provision of Market Outlet	No	45	71.4
	Yes	18	28.6
	Total	63	100.0
7. Provision of Extension Services	No	20	31.7
	Yes	43	68.3
	Total	63	100.0

Source: field Survey, 2012

Direct credit support was another focus of government intervention programme. The study shows that 23.8% of the sampled registered cultured fish were given direct credit support. Subsidy for feed input was granted to 46% of the sampled fish farmers in Kwara State.

Provision of extension service is another vital focus of government intervention programme. Extension agents were recruited to educate and guide them on how to manage the established fish culturists. More than half of the sampled fish farmers (68.3%) in Kwara State benefited from government extension service providers. Chi-square analysis was used to capture the overall impact of government support based on table 1. Fifty percent (50%) was the conceptualized threshold used in the chi-square analysis. The mean values were thus derived.

Table 1a: Mean Values for Government Support to Culture Fish Farms

S/N	KWARA	
	Yes	No
1.	21	42
2.	15	48
3.	29	34
4.	16	47
5.	16	47
6.	18	45
7.	43	20
Total	158	283
Mean	22.6	40.4

Hypothesis tested:

H_0: that the Government support variables have no significant impact on cultured fish production in the study area.

H_1: that the Government support variables have significant impact on cultured fish production in the study area.

Chi test capturing the overall impact of government support based Table 1b Kwara analysis

	Yes					No				
	F_o	F_t	F_0-f_t	$(f_o-f_t)^2$	$\frac{(f_0-f_t)^2}{f_t}$	Fo	Ft	Fo-ft	$(fo-f1)^2$	$\frac{(f_0-f_t)^2}{f_t}$
1	21	22.6	-1.6	2.56	0.11327	42	40.4	1.6	2.56	0.06337
2	15	22.6	-7.6	57.76	2.55575	48	40.4	7.6	57.76	1.4297
3	29	22.6	6.4	40.96	1.81239	34	40.4	-6.4	40.96	1.01386
4	16	22.6	-6.6	43.56	1.92743	47	40.4	6.6	43.56	1.07822
5	16	22.6	-6.6	43.56	1.92743	47	40.4	6.6	43.56	1.07822
6	18	22.6	-4.6	21.16	0.93628	45	40.4	4.6	21.16	0.52376
7	43	22.6	20.4	416.16	18.4142	20	40.4	-20.4	416.16	10.301

$\frac{(f_0-f_t)^2}{f_t}$ = 27.6867

$\frac{(f_0-f_t)^2}{f_t}$ = 15.4881

Chi-square, χ^2 test, 0.01, 6 = 16.812

0.05, 6 = 12.592

Total χ^2_{Cal} = 27.6867 +14.4881 = 43.1748

Accept the alternative hypothesis. More support needed.

Effect of Government Support on Production: he test on the correlate shows significant relationship between fish Output and the various government intervention strategies (table 2). Provision of fingerlings was positively and significantly correlated with fish output (82.4%). This suggests that government intervention programme targeted at provision of fingerlings significantly improve cultured fish production in the study areas. Credit supply was also found to be significantly correlated with fish output implying proportional relationship. This means that more direct credit input will lead to more fish output. It can also be inferred that with adequate provision of credit supply, other inputs such as seedlings, harvest inputs and feed inputs will be boosted. The reason is not farfetched as credit facilities give farmers power to purchase any other inputs that is needed to expand the farm. Subsidized feeds input shows significant and positive relationship with cultured fish farm output. Optimal feeding of fingerlings/juveniles is a vital part of fish production and respondents identified feed inputs as one of the

most expensive items to deal with in fish production hence farmers that enjoyed subsidy element were able to produce on competitive basis. This explains why any measure of subsidy on feed inputs will significantly affect the overall output of fish produced. Furthermore, table 2 indicated that government extension agents had significant impact on the total production of fish output. Respondents indicated to have benefited from visits of government extension agents for the purpose of educating and guiding them on them how to manage the established fish culturists.

Constraints/Problems of Cultured Fish Production.

Empirical results are as presented in Table 4 respondents strongly agree (73%) that there is poor power. Lack of institutional-educational framework is another problem to contend with. Respondents also decried the lack of adequate government support for fish input sourcing as one of the major factors inhibiting the growth of cultured fish farming. As a result of ineffective government policy as well as participation in cultured farming, other problems such as poor access to capital and extension agents become evident. Respondents agreed that there is scarcity of labour. Furthermore, access to pollution-free water is another serious problem as most respondents agree to this item.

Table 2: Correlation Analysis on impact of government support on fish production

	Fish Output (kg)	
	Kwara	Kogi
Provision of Fingerlings/juveniles	0.824*	0.8212*
Provision of direct credit support	0.643*	0.5674*
Provision of feed subsidy	0.492*	0.5447*
Provision of land facility	0.244	0.1630
Provision of harvesting/processing input	0.239	-0.1409
Provision of market outlet	0.037	0.0271
Provision of extension service	0.455*	0.5675*

**significant at 5% level*

Table 3: Distribution of Respondents by Constraints and Perception

		Kwara State	
Constraint	**Perception**	**Frequency**	**Percent**
Lack of Electricity	Strongly disagree	1	1.6
	Disagree	4	6.3
	Undecided	1	1.6
	Agree	11	17.5
	Strongly agree	46	73.0
	Total	63	100.0
Lack of Institutional Education	Strongly disagree	11	17.5
	Disagree	17	27.0
	Undecided	9	14.3
	Agree	21	33.3
	Strongly agree	5	7.9
	Total	63	100.0
Access to pollution-free Water	Strongly disagree	5	7.9
	Disagree	13	20.6

	Undecided	6	9.5
	Agree	17	27.0
	Strongly agree	22	34.9
	Total	63	100.0
Lack of Government Support for fish -input sourcing	Strongly disagree	4	6.3
	Disagree	3	4.8
	Undecided	1	1.6
	Agree	18	28.6
	Strongly agree	37	58.4
	Total	63	100.0
Scarcity of Labour	Strongly disagree	11	17.9
	Disagree	19	30.2
	Undecided	8	12.6
	Agree	20	31.7
	Strongly agree	5	7.9
	Total	63	100.0
Lack of Extension Agent	Strongly disagree	13	20.6
	Disagree	14	22.2
	Undecided	8	13.0
	Agree	22	35.0
	Strongly agree	6	9.5
	Total	63	100.0
Insufficient Capital	Strongly disagree	-	-
	Disagree	1	1.6
	Undecided	1	1.6
	Agree	11	17.5
	Strongly agree	50	79.3
	Total	63	100.0

Source: field Survey, 2012

Conclusion and Recommendations

The inaccessibility of the farmers to the appropriate modern technology and modern innovations such as improved fingerlings/juvenile, improved fish feeds, lack of fund and inadequate extension services poses serious threat in the general supply of fish now and in the near future. Consequently, the production of cultured fish production can considerably be improved in the study area if the supply of quality fish fingerlings from the government hatcheries is increased. Unlike states in South West of Nigeria, private hatcheries in Kwara have not fully developed. It is therefore recommended that policies be directed to the establishment hatcheries for the supply of quality fish fingerlings as well as other fish inputs at reduced cost to the farmers. Government should create a support system by establishing of a number of one-stop shops at convenient locations, so that farmers can easily access fish inputs. If possible, these inputs should be supplied at subsidized rate. It is not out of place for governments in Nigeria to subsidize farm inputs, if production is to be increased. In addition, fish farmers should be provided with services of well trained extension workers in the study area, especially in the management aspect. This is imperative, as it would enable farmers make informed decision particularly in allocating production inputs more efficiently, and thereby boost the current production of fish.

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