Information Needs and Utilization of Fish Value Chain Actors in Girei and Yola North Local Government Areas of Adamawa State, Nigeria

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ABSTRACT

The study examined information needs and utilization of fish value chain actors in Girei and Yola North Local Government Areas of Adamawa State, Nigeria. Primary data were used for the study which was obtained with the use of a questionnaire. Snowball sampling technique was used to sample 81 fish farmers while random sampling technique was used to sample 133 fish processors, fresh fish marketers and 84 fish consumers. Descriptive statistics was used to analyze the data. The information needs and utilization responses of the value chain actors include: feeding operation, marketing technique, storage and preservation technique. Efficient utilization of information on different fish technologies among value chain actors will always translate into efficiency in fish production, processing and marketing and help increase productivity. Information is shown to be an important element in creating awareness which generate interest in new and improved innovations in different life's' endeavours. The study therefore, recommended that fishery extension services be provided across the value chain and capacity building activities should be conducted for fish value chain actors on how to overcome the information needs and how to articulate their information needs in a more coherent manner.

Keywords: Fish Farmers; Processors; Marketers; Consumers

Introduction

Fish value chain describes a high-level model of how fishery businesses receive raw materials as input (capture and culture fishery), add value to the raw materials through various processes and sell finished products to customers. Value chain focuses on the actors (private and public, including service providers) and the sequence of value adding activities involved in bringing a

product from production to the end consumer. In agriculture and fisheries they can be thought of as a 'farm to fork' set of inputs, processes and flows [6]. [14] value chain refers to actors connected along a chain to produce and deliver goods and services through a sequenced and coordinated set of activities that adds value at all stages (production, processing, and distribution). Value chains approaches have been used to describe the interactions of variety of firms so as to examine the inter-relationship between different firms and actors involved in bringing products from its initial stage of production to final consumption through identifiable channels. These interactions among fish value chain actors involve the flow of information across the chain. Information applies to facts told, read, or communicated that may be organized, unorganized and even unrelated. The concept Information need is seldom, if ever, mentioned in the general literature about needs, but is a common term in the literature of information science. According to [4] information need and utilization is closely related to the concept of relevance: If something is relevant for a person in relation to a given task, we might say that the person need the information for that task. It is often understood as an individual or group's desire to locate and obtain information to satisfy a conscious or unconscious need. The 'information' and 'need' in 'information need' are an inseparable interconnection. Needs and interests call forth information. Information is vital for increasing production and improving marketing and distribution strategies [9].

Information also opens windows of sharing experiences, best practices, sources of financial aids and new markets. Information has an important role to play in improving and sustaining agricultural production of any nation. Fish value chain actors (farmers, processors, marketers and consumers) would need information on fish farming technologies, construction and management, breeds and spawning, processing, storage and marketing and financing [8]. Access to information is very essential for increased productivity by fish enterprises. Value chain partners are increasingly sharing more information with each other on parameters such as product demand, inventory and production schedules. However, the sharing of sensitive information may lead to undesired outcomes such as information leakage and hold-up costs [15]. [2] Showed that inefficiencies could also exist within a highly sophisticated and collaborative value chain with high levels of information transparency and collaborative planning and forecasting. Despite these common trends and risks, little is known about how buyers and suppliers in the supply chain decide what information to share with partners. Information and knowledge should be shared hand in hand for the mutual benefit of participants in a value chain [13]. Emphasis should be put on companies working for more than buyer and seller relations, but trade

partners with an aim of improving value for the customer [3]. This requires a seamless flow of information and knowledge which is key in innovation and performance [12]. Some actors hold onto information so that this scarcity of information and knowledge through intentional actions gives the holder an upper hand in business and usually becomes a barrier of entry for other players [5].Therefore, it is against this background that the study sort to examine the information needs and utilization among fish value chain actors with the following specific objectives:

   i.   to identify the socio-economic characteristics of fish value chain actors;
   ii.   to ascertain the perception of information needs of the actors along the value chain;
   iii. to ascertain the level of information utilization among various value chain actors.

Materials and Methods

The Study Area

The study was conducted in Yola North and Girei Local Government Areas of Adamawa State. The study area lies between Latitude 7°and 11° North of the Equator and between Longitude 11° and 14°E of the GMT [1]. The wet season commences in April and ends in late October, while the dry season starts in November and ends in April. The mean annual rainfall of the area is about 1000mm [1]. The study area falls within the Northern Guinea Savannah Zone with land mass of 2,310.05km^2 and a population of 522,849 [7]. The area is bounded by Fufore, Song, Yola South and Demsa Local Government areas to the south and east, to the north and to west respectively, the major occupations of the people are crop farming, animal rearing and fishing. There are a lot of fishing activities in the study area as one of the two major rivers in Nigeria, river Benue links through the study area with two major dams (Njuwa and Gerio) located also within the study area.

Sources of Data, Sampling and Analytical Techniques

Data for this study were derived from primary source which were collected with the use of a questionnaire. Snowball sampling technique was used to sample 81 fish farmers in the study area. One hundred and thirty three (133) fresh fish marketers and fish processors were randomly selected from four markets in a ratio proportional to the market size these were: Jimet aultra-modern market and Jimeta by pass market from Yola north local government area and Viniklang fish market and Labondo markets from Girei local government area.Random sampling technique was used to select 84 fish consumers. Descriptive statistics

were used for the study which includes means, tables, percentages, frequency distribution and 3-point likert scale.

Result and Discussions
Socio-economic Characteristics of Fish Value Chain Actors

The result in Table 1 shows the socio-economic characteristics of the respondents. It indicates that Many (54%) of the fish farmers were within the active age bracket of 31-50 years as against (60%) of the fresh fish marketers, (62%) of the fish processors and (66%) of the consumers who fell within the same age bracket. Most (77%) and (69%) of the sampled fish-farmers and consumers were male.[10]reported that fisheries production activities are mostly dominated by male, while majority (79%) and (62%) of the sampled fresh fish marketers and processors were female. This indicates that male dominate the production and the consumption node whereas, female dominate the marketing and the processing node of the chain. Majority of the fish farmers, fresh fish marketers, fish processors and consumers (68, 65, 76 and 73%) were married with an average household size of 8, 4, 6 and 5 persons respectively. Most of the fish farmers (91%) had one form of formal education or the other as against (68%) of fresh fish marketers, (68%) of fish processors and (86%) of consumers; Education enhances the acquisition and utilization of information on improved technology by farmers which tend to positively influence productivity [11]. Many of the respondents had a great number of experience in their occupation with an average year of experience of 4, 10 and 13 years for fish farmers, fresh fish-marketers and fish processors respectively, experience is important in determining the level of profitability obtained by a marketer. The main occupation response of the respondents reveals that majority (62%) were fish processors, (55%) were fresh fish marketers while (48%) were fish farmers and (56%) of the consumers were civil servants with personal savings and salaries/business (59, 58, 79 and 39%) as their main source of capital and income respectively for financing their business operations.

Information Needs of Fish Value Chain Actors

All the items listed were perceived to be information needs of fish value chain actors at different nodes in the study area. The perception responses on information needs among fish farmers in Table 2 reveals that 98.8% of the respondents agreed that they needed information on fish feeding operation while 1.2% of them were undecided; moreover, 97.5% agreed that water treatment technique was one of the major information needs in fish production in the study area whereas, 2.5% of the respondents were undecided on the need for information on water treatment technique in fish farming. On the other

hand, 93.8% perceived the need for information on stocking operation, 6.2% of the respondents were undecided. Preservation technique was perceived to be the least (24.7%) information needs of fish farmers. Similarly, the perceived information needs responses of fish processors and marketers in Table 3 indicates that 89.5% of the respondents agreed that information on sources of credit facilities was the highest ranked information needs among them, 8.3% were undecided about the need for information on the sources of credit facilities; 88.7% of the fish processors and marketers agreed that improved marketing and microbial reducing techniques were the second highest ranked perceived information needs in the study area whereas, 9.0% of them were undecided on the need for improved marketing and microbial reducing techniques. Improved fish sorting technique was the least ranked information needs by the respondents in the study area. The perceived information needs of fish consumers in Table 4 shows that 86.9% of the respondents agreed that fish price was the major information needs of the respondents whereas, 13.1% of the respondents were undecided. Furthermore, it reveals that 84.5% of the respondents agreed that information on nutrient content of fish was the second most important information needs of fish consumers. Information on the form of fish product was the least perceived information needs of the consumers in the study area.

Information Utilization of Fish Value Chain Actors
The information utilization responses of fish value chain actors shows the frequency of usage of various information by different actors along the fish value chain in the study area. Table 5 shows that 55.6% of fish farmers always utilize fish pond management information, 40.7% often and 3.7% rarely use it. In addition, 58.0%, 38.3% and 3.7% always, often and rarely use feeding operation information in their fish farming activities. Whereas, information utilization responses of fish processors and marketers in Table 6 indicates that 79.7% always use information on improved storage techniques, 8.3% often use it and 9.8% rarely use it. Frequency of utilization responses on fish procurement strategies shows that 73.7% always, 12.8% often and 11.3% rarely use this information in their business operations. 69.2%, 19.5% and 9.0% of the fish processors and marketers always, often and rarely use information on improved marketing technique respectively. Similarly, consumers' information utilization responses in Table 7 reveals that 82.3% always, 11.9% often and 5.9% rarely use information on price of fish, moreover, 79.8%, 16.7% and 3.6% of the consumers always, often and rarely use information on storage and preservation methods respectively in the study area. The utilization responses above shows that fish

value chain actors use more of information that help them maximize their business operations for optimum benefits along the value chain.

Conclusion and Recommendations

Majority of the fish value chain actors were within the active and productive age bracket and had one form of formal education or the other which help in understanding complex and technical information on various fish enterprises. The information needs and utilization responses of the value chain actors shows that fish value chain actors need more information that help them maximize their business operations for optimum benefits along the chain. Information is shown to be an important element in creating awareness which generate interest in new and improved innovations in different life's' endeavours. Effective utilization of information on different fish technologies among value chain actors will always translate into efficiency in fish production, processing and marketing and help increase productivity. Therefore, the study recommend that fishery extension services be provided across the value chain; stakeholders' meeting be convene to discuss and concretize plans of action to revamp fish marketing activities in the study area and capacity building activities should be conducted for fish value chain actors on how to overcome the information needs, how to articulate their needs in a more coherent manner.

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Table 1: Socio-economic Characteristics of Fish Value Chain Actors

Variables	Fish farmers		Fresh Marketers fish		Fish Processors		Consumers	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Age (Years)								
≤30	14	17.30	15	24.19	16	22.54	15	17.86
31-40	20	24.70	24	38.71	24	33.80	25	29.76
41-50	24	29.60	13	20.97	20	28.17	30	35.71
51-60	18	22.20	8	12.90	9	12.68	13	15.48
>60	5	6.20	2	3.23	2	2.82	1	1.19
Total	81	100.00	62	100.00	71	100.00	84	100.00
Mean	**42.33**		**35.77**		**39.50**		**40.27**	
Gender								
Male	62	76.50	13	20.97	27	38.03	58	69.05

Female	19	23.50	49	79.03	44	61.97	26	30.95
Total	81	100.00	62	100.00	71	100.00	84	100.00
Marital Status								
Married	55	67.90	40	64.52	54	76.06	62	73.81
Single	23	28.40	16	25.81	11	15.49	13	15.48
Widowed	3	3.70	6	9.68	6	8.45	9	10.71
Total	81	100.00	62	100.00	71	100.00	84	100.00
Household Size								
1-5	28	34.60	41	66.13	35	49.29	52	61.91
6-10	41	50.60	17	27.42	31	43.66	4	4.76
11-15	12	14.80	4	6.45	5	7.04	1	1.19
Total	81	100.00	62	100.00	71	100.00	84	100.00
Mean	**8**		**4**		**6**		**5**	
Educational Level								
No formal education	7	8.60	20	32.26	23	32.39	12	14.29
Primary	13	16.00	23	37.09	16	22.54	10	11.91
Secondary	15	18.50	14	22.58	21	29.58	13	15.48
Tertiary	46	56.80	5	8.06	11	15.49	52	61.91
Total	81	100.00	62	100.00	71	100.00	84	100.00

Source: Field Survey, 2015

Table 1 Cont'd.

Experience								
≤2	21	25.90	2	3.23	3	4.23	--	--
3-5	40	49.40	7	11.29	7	9.86	--	--
6-9	15	18.50	19	30.65	13	18.31	--	--
≥10	5	6.20	33	53.23	48	67.61	--	--
Total	81	100.00	62	100.00	71	100.00	--	--
Mean 4.41			**10.02**		**12.60**			
Source of capital								
Personal savings	64	79.00	36	58.07	42	59.15	--	--
Family and friends	15	18.50	26	41.94	29	40.85	--	--
Loan/Credit	2	2.50	--	--	--	--	--	--
Total	81	100.00	62	100.00	71	100.00	--	--
Main Occupation								
Fish Sellers/buss.	17	31.00	34	54.84	45	62.38	26	30.95
Civil service	39	48.10	--	--	--	--	47	55.95
Farming	12	14.80	15	24.19	20	28.17	11	13.09
Student	13	16.10	13	20.98	6	8.45		
Total	81	100.00	62	100.00	71	100.00	84	100.00
Source of Capital								
Personal Savings	64	79.00	36	58.07	42	59.15	--	--
Family & Friends	17	21.00	26	41.94	29	40.85	--	--
Total	81	100.00	62	100.00	71	100.00	--	--

Source: Field Survey, 2015

Table 2: Fish Farmers' Responses on Information Needs

Information	Responses			Remarks
	D	**U**	**A**	**Rank**
Pond management	0	10(12.3)	71(87.7)	4
Stocking operation	0	5(6.2)	76(93.8)	3
Water treatment technique	0	2(2.5)	79(97.5)	2
Credit facilities	0	11(13.6)	70(86.4)	5
Disease prevention	0	20(24.7)	61(75.3)	7
Feed formulation technology	0	34(41.9)	47(58.0)	9
Feeding operation	0	1(1.2)	80(98.8)	1
Fingerlings	0	12(14.8)	69(85.2)	6
Market information	0	28(34.6)	53(65.4)	8
Preservation techniques	0	61(75.3)	20(24.7)	10

Source: Field Survey 2015

Note: A = Agreed, U = Undecided, D = Disagreed, Figures in parentheses are (%)

Table 3: Fish Processors' and Marketers' Responses on Information Needs

Information	Responses			Remarks
	D	**U**	**A**	**Rank**
Sources of credit	0	11(8.3)	119(89.5)	1
Improved marketing techniques	0	12(9.0)	118(88.7)	2
Microbial reduction activities	0	12(9.0)	118(88.7)	2
Record keeping techniques	0	12(9.0)	118(88.7)	2
Improved processing techniques	0	13(9.7)	117(87.9)	5
Improved storage methods	0	13(9.8)	117(87.9)	5
Environmental hygiene techniques	0	13(9.8)	117(87.9)	5
Fish hygiene techniques	0	14(10.5)	116(87.2)	8
Fish procurement strategies	0	15(11.3)	115(86.5)	9
Use of innovative smoking devices	0	16(12.0)	113(84.9)	10
Prevention of insect/rodent attack	0	17(12.8)	113(84.9)	10
Improved packaging techniques	0	30(22.5)	103(77.4)	12
Improved fish sorting techniques	0	37(27.8)	96(72.2)	13

Source: Field Survey 2015

Note: A = Agreed, U = Undecided, D = Disagreed

Table 4: Information Need Responses of Fish Consumers

Information	Responses			Remarks
	D	U	A	Rank
Price	0	11(13.1)	73(86.9)	1
Nutrients	0	13(15.5)	71(84.5)	2
Storage/Preservation	0	14(16.7)	70(83.3)	3
Availability	0	17(20.2)	67(79.8)	4
Form	0	17(20.2)	67(79.8)	4

Source: Field Survey 2015

Note: A = Agreed, U = Undecided, D = Disagreed

Table 5: Information Utilization among Fish Farmers

Information	Frequency of Usage			
	Always	Often	Rarely	Rank
Pond management	45(55.6)	33(40.7)	3(3.7)	2
Stocking operation	40(49.4)	38(46.9)	3(3.7)	4
Credit facilities	41(50.6)	34(41.9)	7(8.6)	3
Water treatment	38(46.9)	33(40.7)	10(12.3)	5
Disease prevention	37(45.7)	37(45.7)	7(8.6)	6
Feed formulation technology	15(18.5)	23(28.4)	43(53.1)	9
Feeding operation	47(58.0)	31(38.3)	3(3.7)	1
Fingerlings	33(40.7)	45(55.6)	3(3.7)	7
Market information	25(30.8)	35(43.2)	21(25.9)	8
Preservation techniques	8(9.9)	30(37.0)	43(53.1)	10

Source: Field Survey 2015

Table 6: Fish Processors' and Marketers' Responses on Information Utilization

Information	Frequency of Usage			
	Always	Often	Rarely	Rank
Sources of credit	80(60.2)	39(29.3)	11(8.3)	5
Improved marketing techniques	92(69.2)	26(19.5)	12(9.0)	3
Microbial reduction activities	70(52.6)	48(36.1)	12(9.0)	7
Record keeping techniques	48(36.1)	70(52.6)	12(9.0)	12
Improved processing techniques	89(66.9)	28(21.1)	13(9.7)	4
Improved storage methods	106(79.7)	11(8.3)	13(9.8)	1
Environmental hygiene techniques	30(22.6)	87(65.4)	13(9.8)	13
Fish hygiene techniques	64(48.1)	52(39.1)	14(10.5)	9
Fish procurement strategies	98(73.7)	17(12.8)	15(11.3)	2
Use of innovative smoking devices	71(53.4)	42(31.6)	16(12.0)	6
Prevention of insect/rodent attack	66(49.6)	47(35.3)	17(12.8)	8
Improved packaging techniques	53(39.8)	50(37.6)	30(22.5)	11
Improved fish sorting techniques	62(46.6)	34(25.6)	37(27.8)	10

Source: Field Survey 2015

Table 7: Fish Consumers' Responses on Information Utilization

Information	Frequency of Usage			Remarks
	Always	**Often**	**Rarely**	**Rank**
Price	69(82.1)	10(11.9)	5(5.9)	1
Nutrients	61(72.6)	13(15.5)	10(11.9)	4
Storage/Preservation	67(79.8)	14(16.7)	3(3.6)	2
Availability	63(75.0)	17(20.2)	4(4.8)	3
Form	50(59.5)	17(20.2)	17(20.2)	5

Source: Field Survey 2015