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Transformation of The Fishery Subsector of Nigeria: The Need for Fishery Extension Program

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ABSTRACT: The inclusion of fishery subsector as one of the priority subsectors in the agricultural transformation plan of Nigeria stems from the increasing demand-supply gap for fish; which continues to constitute a colossal loss of foreign exchange in Nigeria. In view of the foregoing, this study was carried to examine the programs of the fishery subsector transformation plan in the achievement of self-sufficiency in fish production which is the principal goal of the fishery subsector transformation plan. Secondary data were employed in this study. Despite the laudable programs of the fishery transformation plan namely: (i) fish farm estate development program (ii) fish seeds and feed mill development program (iii) fish pen and cage culture development program (iv) fish post-harvest management and marketing program, the exclusion of fishery extension program in the programs of the fishery transformation plan was identified as a major weakness of the fishery transformation plan that could mar the achievement of the goal of achieving self-sufficiency in fish production. Therefore, it is recommended that fishery extension program should be included as a component of the fishery transformation plan of Nigeria so as to facilitate the delivery of fishery extension services to fish farmers, fish marketers, fish feed millers and other actors in the fish value chain.

KEYWORDS: Aquaculture, Transformation plan, Fishery, Extension, Self-sufficiency.

1. INTRODUCTION

Fish farming is a feasible activity for small scale farmers to generate extra income and to add highly nutritious food to the daily diet[1]. It can be combined with crop, animal husbandry and irrigation practices which can lead to a better utilization of local resources. Nigeria is reported to have aquaculture potential which constitutes 75% of 923,768km^2 of the landmass and 14 million hectares of inland freshwater, but less than 1% is utilized for fish production [2]. Although the contribution of fisheries to the G.D.P is small (3-4%), it occupies a very significant position in the primary sector providing employment for over five hundred thousand people and contributing to over 40% of the animal protein intake of the people particularly the resources poor[3]. Nigerians are high fish consumers and offer the largest market for fish and fisheries products in Africa. Fish farming has thus become an important venture in the quest for food security and eradication of malnutrition especially among infants[4]. With an annual fish demand in the country of about 2.66 million tonnes, and a paltry domestic production of about 780,000 tonnes, the demand-supply gap stands at a staggering 1.8 million tonnes. Despite the popularity of farming in Nigeria, the fish farming industry can best be described as being at the infant stage when compared to the large market potential for its production and marketing[5].

The Nigerian fishing industry comprises of three major sub sectors namely the artisanal, industrial and aquaculture of which awareness on the potential of aquaculture to contribute to domestic fish production has continued to increase in the country[6]. This stems from the need to meet the much needed fish for domestic production and export. Although aquaculture in Nigeria has the potential for satisfying the increased demand for protein and has been experiencing unprecedented growth during the last decade, question remains regarding the sustainable development of the industry[7]. Despite the potential in fisheries, this sector is faced with constraint that hinder the full harnessing of the resources but if proper attention is given to this sector through extension and training, the better for the unemployed in our immediate environment[8].

Nigeria spends ₦100 billion on fish importation annually and the current fish demand consumption in Nigeria stands at over 2.66 million tonnes per annum, while the present importation rate is over 750,000 metric tonnes[9]. The continuous importation of fish portends a colossal loss of foreign exchange earnings to Nigeria. In order to bridge the demand-supply gap, an aquaculture transformation agenda plans to increase annual fish production from the current production of 0.78 million MT to 3.0 million tonnes in order to achieve self-sufficiency in fish production and supply by the year 2015[10]. The aquaculture transformation agenda is a laudable action plan put forward by the aquaculture value chain group of the federal ministry of agriculture and rural development, Abuja, Nigeria. This study was designed to review the action plan for the transformation of the fishery sub-sector in order to identify possible gaps that needed to be addressed towards ensuring that the self-sufficiency in fish production and supply by the year 2015 is achieved.

2. BLUEPRINT FOR THE TRANSFORMATION OF NIGERIAN FISHERY SUB-SECTOR

The fish value chain is essentially made up of three sub-categories: production, processing and ancillary[11]. Fish fingerling hatcheries, fish production, fish feed production, fish farm supplies are some of the activities which make up the production category, while fish processing includes filleting, drying, gutting, scaling and deboning, smoking, production of fish paste and production of fish oil. Ancillary activities include storage, packaging, warehousing, marketing, haulage, distribution, freighting and all export related activities. The value chain group believes that the major areas to increase fish production are:

1. Fish cage culture systems
2. Water recirculatory systems (WRS)
3. Flow-through systems
4. Integrated Fish farming

2.1 Objectives of the Aquaculture Transformation Agenda

1. To reduce importation of aquaculture products and inputs
2. To increase production of aquaculture products to arrive at over 1 million metric tonnes in 5 years
3. Employment generation for food security of Nigerians
4. Development of the various products along the aquaculture value chain
5. Establish the chain linking up the market to consumers
6. Establish, maintain and enforce quality standards along all the value chains backed up by appropriate regulation for the purpose of fish farms certification
7. To improve cultural, social and economic benefits from Nigeria's aquaculture resources
8. To generate foreign exchange through export of aquaculture products
9. To create enabling environment for small scale fish farmers to be part of the value chain

10. To encourage clusters of farmers to produce fish that will service fish processing and packaging plants

2.2 Expected Outputs of Aquaculture Transformation Agenda

1. 1.25 billion fish seeds per annum
2. Production of 400,000MT of fish feed per year
3. Production of 250,000MT of table size fish in a year
4. Creation of 100,000 jobs per annum for the next five years

The aquaculture transformation agenda plans to increase annual fish production from the current production of 0.78 million MT to 3.0 million MT in order to achieve self-sufficiency in fish production and supply by 2015[10]. This will be achieved through the following:

1. Fish Farm Estate Development Program: This program will basically involve establishment of large estates of fish farms across the nation. This will boost the production of aquaculture immensely towards the attainment of self-sufficiency.

2. Fish Seeds and Feed Mill Development Program

Fish Seeds Component: This will involve the following:

i. Production of 2 billion fingerlings per annum;
ii. Providing premium quality brood stocks with fast growing disease resistant seed for the fish production value chain.
iii. Establishment of 20 hatcheries per annum over 5 years giving an industry base of 100 hatcheries.
iv. Creation of 10,000 hatchery jobs in 5 years
v. Creation of a₦ 50 billion industry.

Feed Mill Component: This will involve the following:

i. Production of over 1.8 million MT of aquaculture fish feed per annum in 5 years:
ii. Establishment of 90 top grade fish feed mills (of 20,000 tonnes per annum) at 18 per Year for 5 years;
iii. Creation of over 2,500 new jobs;
iv. Creation of a ₦230 billion industry.

3. Fish Pen and Cage Culture Development Program: This will involve the following:

i. Production of over 1 million tonnes of raw aquaculture fish within 5 years:
ii. Installation of 22000 fish cage culture systems across, dams, reservoirs and rivers nationwide at 500 cages per annum
iii. Installation of additional 50 water recirculatory aquaculture systems nationwide and encouraging more people go into flow-through systems and integrated fish farming; designated fish processing zones and aquaculture parks ;
iv. Creation of over 500,000 jobs in the production sector
v. Creation of an industry size of over ₦500 billion.
vi. Creation of a new market in Organic fish for the local and lucrative export markets.

4. Fish Post-Harvest Management and Marketing Program: This will involve the following:

i. Production of an output of over 1 Million tonnes of processed fish in 5 years:
ii. Establishment of one medium-sized processing plant of 60,000 MT per zone initially for the first year annum;
iii. Creation of a ₦900 billion industry;
iv. Boom in the various sub sectors of the value chain: this will entail filleting, smoking, canning, production of fish paste, production of fish oil, spice preparation, cooking and grilling.

However, success of the value chain development depends on sustainable and profitable production at the same time guaranteed good market. To ensure these, production and processing chain levels will be linked up with some definite markets such as the fast food chains, food industries, school feeding programme, hospitals and prisons feeding.

The key targets in line with the program designed for the attainment of self-sufficiency in fish production and supply by 2015 are as follows:

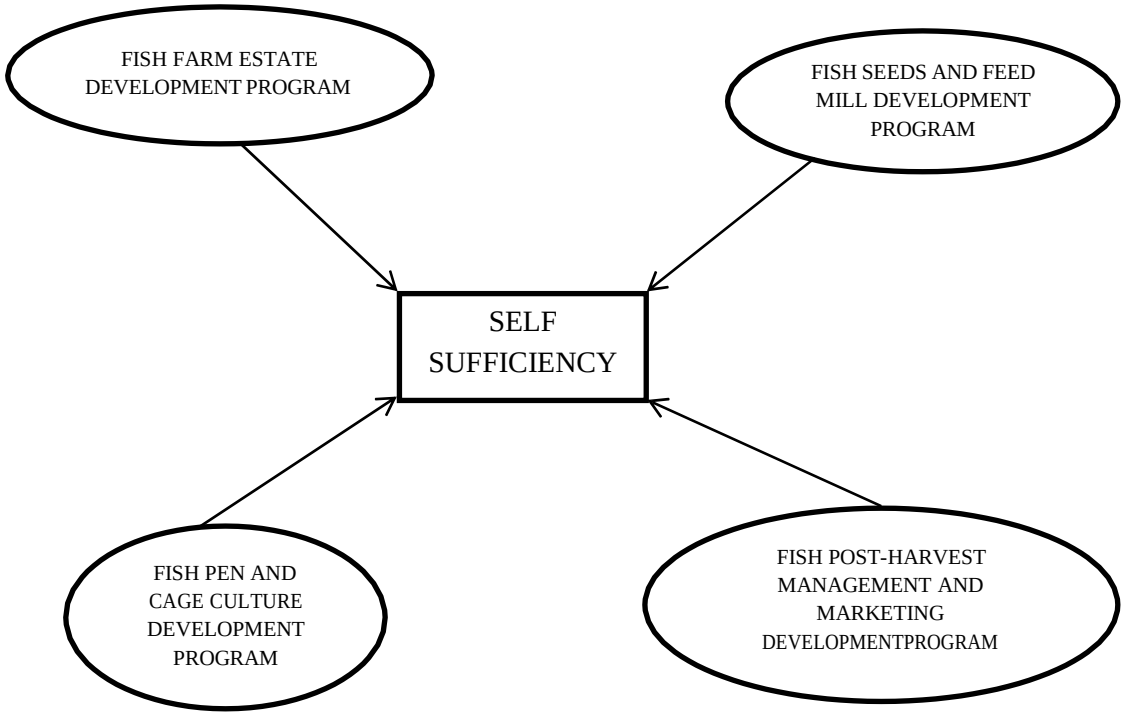
Production target

1. Fish production from aquaculture 1 million tonnes per annum
2. Fingerling production 2 billion fingerlings per annum
3. Processing 1 million tonnes per annum
4. Fish feed 1 million tonnes per annum

Fiscal targets

1. Fish value chain total industry value of over ₦1 trillion within 5 years
   a) Hatchery industry ₦50 billion
   b) Fish production industry ₦500 billion
   c) Fish processing industry ₦900 billion
   d) Feed mill industry ₦230 billion
2. Fish value chain industry job creation of over 500,000 jobs within 5 years
   a) 10,000 Hatcheries jobs
   b) 500,000 Fish production Jobs
   c) 3,700 Fish processing jobs
   d) 2,500 feed mill jobs

Figure 1: Model of the Programs for Attainment of Self-Sufficiency in Fish Production



Despite the laudable efforts of the aquaculture value chain group of the federal ministry of agriculture and rural development in setting up these programs for attainment of self-sufficiency in fish production in the year 2015 as shown in figure 1, the exclusion of yet another vital program would constitute a major setback to the goal of the fishery transformation plan. The excluded

program is the fishery extension development program; which is the program that should facilitate the delivery of fishery extension services to fish farmers, fish processors, fish marketers, fish feed millers and other actors in the fish value chain. To buttress the need for fishery extension development program, [3] opined that in order to use fisheries/aquaculture management as an entry point to achieving the millennium development goals of combating hunger and reducing poverty in Nigeria, proper management of the extension component of fisheries is imperative. [12], also noted that agricultural extension is a vital element in the transformation plan and state government through the ADP should strengthen the extension delivery system. Generally agricultural extension has the potential to facilitate technology transfer and management at low cost to the farmer, and can also relay farmer needs back to innovators and policy makers to ensure that innovations meet local needs[13].The role of fishery extension program is therefore necessary to facilitate the adoption of new fishery technologies by fish farmers, processors and fish feed millers for enhancement of fishery production and processing, provide marketing information to fish farmers, processors and marketers, provide information on accessing credit to fish farmers, processors, fish feed millers and marketers through their cooperatives and link fish farmers to processors, marketers and fish feed millers amongst others. This task is achievable through effective training and retraining of fishery/aquaculture extensionist for good performance. The model of programs for attainment of self-sufficiency of fish production is therefore modified as a result of the identified weakness(exclusion of fishery extension development program) in the programs set up for achieving the aquaculture transformation agenda. The modified model of programs for attainment of self-sufficiency of fish production in line with the aquaculture transformation plan is given in figure 2.

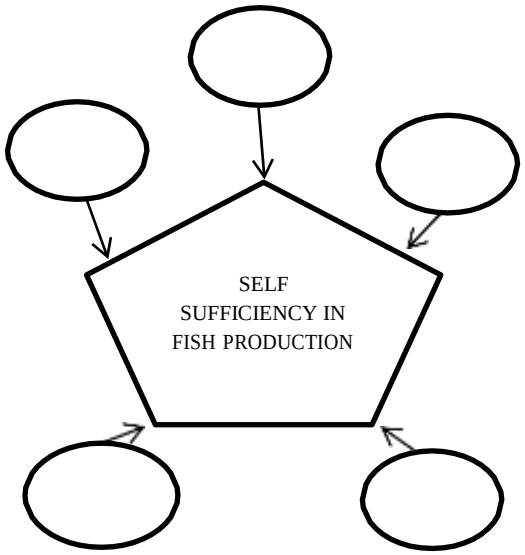


Figure 2: Modified Model of the Programs for Attainment of Self-Sufficiency in Fish Production

3. CONCLUSION AND RECOMMENDATION

This has been able to review the action plan for the transformation of the fishery sub-sector put together by the aquaculture value chain group of the federal ministry of agriculture and rural development, Abuja, Nigeria. Five laudable programs(fish farm estate, fish seeds and feed mill, fish pen and cage culture, fish post-harvest management and marketing development programs) were designed to foster the attainment of self-sufficiency in fish production and supply by 2015.The exclusion of fishery extension service was identified as a major weakness in the action plan for the transformation aquaculture in view of the integral role of extension services in fishery production, processing and marketing. It is therefore recommended that fishery extension development program should be incorporated in the fishery transformation agenda so as to facilitate the delivery of fishery extension services to fish farmers, fish marketers, fish feed millers and other actors in the fish value chain.

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