

THE ROLE OF RESEARCH AND RESEARCH
INSTITUTES IN FISHERIES DEVELOPMENT
IN THE 1980s

by

V.O. Sagua
Director
Lake Chad Research Institute
Maiduguri.

INTRODUCTION

This paper is merely an outline of some ideas the author hopes to develop further in the near future, and therefore, cannot pretend to have dealt exhaustively with this important subject in a symposium of this nature. If however, it succeeds in generating the expected discussion and if it leads to the formulation of research strategies for fisheries development in the 1980s, it would have fulfilled its immediate objective.

Fisheries research in Nigeria, unlike agricultural, livestock, and forestry research, started rather late. A review of these beginnings and of the earlier works of WAFRO (West African Fisheries Research Organisation) in Freetown, the Federal Fisheries Service etc., is found in ANON (1974). Trained Nigerians were not engaged in actual fisheries research until the late 1950s and early 1960s, and some of the pioneers in this field are with us at this Conference. Perhaps it may be correct to say that organised fisheries research in Nigeria by Nigerians is not more than 30 years old, and the more dynamic and productive periods would be from about 1960 till now. This is, relatively speaking, a very short time. Furthermore, the numbers of research workers devoted to fisheries research has been and is still very small. In 1980, while compiling a register of fisheries research work and researchers it was found that fisheries researchers were less than 200. Some of them could not really be called fisheries scientists because they had not received specialised training on the subject. The traditional base source of many of these fisheries researchers was a first degree in zoology, botany or some related natural science and without further exposure, training and experience one knows little about fisheries after these degrees. Consequently, most of the more experienced fisheries researchers have invariably undergone post-graduate courses in Overseas and more recently in local institutions. However, most of these courses have led to the production of fishery biologists and ecologists. Those who have qualifications and expertise in fish marketing, fish processing and preservation technology, fishing gear and craft technology, and aquaculture technology or any other kind of technology of fish production, are still very few indeed.

Science and Technology

It was the famous Indian scientist, Dr. Swaminathan, FRS, in a lecture at the Research Management Workshop for Directors of Research Institutes at ASCON in 1980, who defined the difference between science and technology as follows:-

- "Science is the advancement of knowledge,
- Technology is the advancement of production".

Although technology progresses from advances in science, without it production is hampered. There is no doubt at all that inspite of the few research workers, inadequate research institutions and funding, Nigerian fisheries scientists have made enormous contributions in advancing our knowledge of our marine and fresh water fishes and fisheries. Some of these achievements especially in knowledge of biology, abundance and distribution of some of the marine continental shelf fish and shrimps have had desired impact on stimulating the growth of industrial and artisanal fisheries. In the fresh water sector a great deal still has to be done in resource inventory survey and on the knowledge of the biology of fish species suitable for culture. By contrast our contribution in the area of technology has been smaller and only in the last decade have some significant achievements been made in fish processing technology.

Fisheries Research in the 1980s

Since there is still a great deal to be done in the area of the science of fishes and fisheries, researchers in these areas must continue in their efforts to contribute further to the knowledge of our fish resources and their ecology and the best ways of exploiting or cultivating them. The effort must, however, be focussed on fish species of commercial importance. Also studies on the environmental pollution control and regulation must be further enhanced, in order to protect the fish resources of our waters.

However, it is in the field of fish and fishery technology i.e., research on the promotion of fish production that emphasis should be placed in 1980s. The following are some areas worthy of research priority in the 1980s.

1. Fish Resources Surveys

Marine Resources

- New resources in the EEZ
- Pelagic resources of the sea
- Tuna resources
- A comprehensive book of marine fishes and fisheries.

Brackish

- Oysters, clams, periwinkles and shrimp resources.

Inland

- General inventory of fishes;
- A book on Nigerian Inland fishes and Fisheries, well illustrated to replace Reed *et. al.* and Irvine, should emerge in the 1980s.

Lake Chad

- Resource re-appraisal. There is the problem of access due to weeds
 - Aerial survey and satellite monitoring of Lake Chad shore line and lake area is needed to assist planning of projects.

2. Fishing Technology

Fishing Gears

- Development of new and improved fishing gears, to increase catching power. - Trawling gears design and mesh size studies to catch shrimp and yet protect small juveniles of commercial fish species.

Fishing Craft

- Continue work on developing boats that can beach land in surf; boats that can overcome weed problem; weed harvesting crafts/gears for Lake Chad and research on use of weeds as fish and livestock feeds.

3. Fish Processing and Preservation Technology

- Reduction of post harvest loss.
- Utilization of thrash fish and wastes.
- Continue the good work at NIOMR.
- Strengthen it to make it a centre of excellence in processing technology and channel more fund to that sector.
- Need to up-date the several smoking kilns developed by NIOMR, LCRI,

KLRI and FIIRO; Need for inter-institute collaboration.

- Find alternatives to the use of poisonous (e.g. Gamalin) chemicals for fish preservation.
- Develop new methods of drying e.g. solar drying for Lake Chad fish and other fishes to save fuel.

4. Aquaculture

- Emphasis on production - oriented research biology and ecology of fish cultured. Select, breed, multiply and distribute as agriculturists do for crops.

Aquaculture Technology

- Produce packages and models for pond culture practices for Nigeria in the 1980s. Emphasis on technology of pond design, pond construction, pond fish harvesting, ways of reducing drudgery and labour intensive harvesting methods.

Breeding and Genetics

- Artificial breeding; genetic engineering to improve culture species; mass production of fingerlings of say Clarias, Heterotis and the Cyprinids, such as Labeo and common carp. Attempt to breed Heterobranchus by induced methods as for Clarias.

Fisheries Research Institutions in the 1980s

Federal Research Institutes

We do not have in Nigeria any research institute that has fish in its name. None of the three Institutes (NIOMR, KLRI, LCRI) devotes all of its efforts and resources to fisheries research. Kainji Lake Research Institute and Lake Chad Research Institute are multi-disciplinary. Even NIOMR has components such as marine geology.

Re-organisation of Research Institutes

We need to re-organise existing fishery-based research institutes to give more emphasis, time, funds and manpower to fisheries research. Fish is important enough to merit three research institutions (consider: CRIN, RRIN, NIFOR, NCRI which are devoted to specific crops or groups of related crops).

Because of its wide disciplinary mandates and restricted ecological defined coverage, Lake Chad Research Institute and Kainji Lake Research Institute are not able to cover the inland fisheries completely. Kainji Lake Research Institute has mandate for man-made lakes and major rivers. What of other natural lakes and minor rivers of the country? Who does the fishery research on them? No one has special responsibility.

It is therefore, proposed that for effective research organisation, the Federal Government should re-organise the Research Institutes as follows:-

- (1) NIOMR to become MAFRI (Marine Fisheries Research Institute) with mandate for marine and brackish water fishies research with Headquarters in Lagos.
- (2) Inland Fisheries Research Institute (INFRI) with mandate for all inland fisheries research. It will take over the fisheries components of KLRI and LCRI but with Headquarters at Abuja.

The fisheries laboratories and research facilities of Kainji Lake Research Institute at New Bussa and Lake Chad Research Institute at Maiduguri and Baga together with their attached Fisheries Schools will become Inland fisheries stations of INFRI each to be headed by a Director (GL. 14) or Assistant Director (GL. 15).

(3) A third Institute; Aquaculture Research Institute (ARI) should be set up because of the importance of aquaculture in the 1980s with its headquarters in Port-Harcourt (Aluu).

For the effective co-ordination of these three fisheries research institutes, there should be a Director-General of Fisheries Research based in the parent Ministry controlling Fisheries Research. The location of the parent Ministry for the time being should be the Federal Ministry of Science and Technology until such a time when a Ministry of Fisheries is created. If this happens then Fisheries Development Department (FDD) and the Research Institutes could come under the same Ministry.

Fisheries Research in Universities and Institutions of Higher Learning

The Universities will continue to provide a forum for detailed basic research in support of fisheries development. Specialized areas like fish physiology, nutrition, breeding genetics, fish diseases, parasites and their control, fishery limnology and ecology are some areas that come to mind. The primary and most important role of these institutions will be to develop worthwhile fisheries degree programmes to produce functional fisheries officers for the development and research needs of this country. Graduates from our Universities in the traditional zoology, biology, and natural sciences do not have the knowledge to apply in fisheries as for example, Agricultural, Veterinary and Forestry graduates. Even those Universities which have started courses in fisheries still need to revise their course content to produce more functionally effective graduates. The research Institutes need people who can carry out research if possible with minimum supervision and those seeking to join them should at least have a minimum of an A.Sc. degree in Fisheries. But the Fisheries Development Departments will be happy to have B.Sc. graduates if they are equipped to do fisheries work. It is suggested to increase the length of the B.Sc. Fisheries course to make it a professional course like Agriculture or Engineering i.e. 5 years and such graduates will enter the service in CL. 09 or CL. 10 and be more useful to the development of Nigerian fisheries in the 1980s.