I. INTRODUCTION

The world's total fisheries production as reported by the Food and Agriculture Organization (FAO) in 1985 is 83 million metric tons contributed by 160 countries. Of these 160 contributing countries, the Philippines ranked 12th largest fish producer of the world.

Fisheries as an economic sector makes an important contribution to the economy in terms of employment and export earnings. Its contribution to the country's GNP in 1987 is five percent and 20 percent to gross value added of agriculture, fishery and forestry.

On export, the Philippines had a positive balance of trade in fish and fishery products since 1975 to present and the value of fisheries exports steadily increased from P532M (48,482MT) in 1978 to P6.44B (112,382MT) in 1987.

The annual growth rates achieved by the Philippine fisheries from 1978 to 1987 were registered at 3.8 percent and 16.4 percent in quantity and value, respectively. For 1987, the total fish production reached 2.2 million metric tons.

On employment, the fishing industry directly employs an estimated one million fishermen and fishfarmers throughout the country.

1/ Presented by Anselma S. Legaspi during the Seminar on Fishery and Aquaculture Information held at Bangkok, Thailand Feb. 7-10, 1989.
II. BACKGROUND

Prior to the implementation of Executive Order 116, reorganizing the Bureau of Fisheries and Aquatic Resources (BFAR) and converting it from a line to a staff bureau, two out of the 14 divisions, namely the Information Division and the Extension Division are responsible for information reproduction and dissemination, and technology packaging and transfer and/or extension.

In the present set-up of the BFAR, (Figure 1) the functions of the Information Division and the Extension were assumed by the Fisheries Development Support Services Division (FDSSD).

The Fisheries Development Support Services Division has four sections, namely, the Institutional Assistance Section, the Manpower Development Section, the Extension Development and Advisory Section and the Technology Packaging and Publication Section (Figure 2).

The Manpower Development Section assesses the manpower requirement of the fisheries industry to serve as basis in the formulation of manpower development programs. The Institutional Assistance Section establishes linkage with the research institutions and fisheries associations and cooperatives to facilitate the transfer of technologies through an effective feedback system. The Extension Development and Advisory Section serves as the broker of technologies that are ready for transfer to the end users. The Technology Packaging Section is primarily responsible for packaging appropriate fisheries technology for dissemination by the 13 regional offices of the Department of Agriculture to the fisheries clientele.
III. THE FISHERIES INFORMATION PROGRAM

Cognizant of the fact that extension is basically communication, the BFAR as a staff bureau through the FDSSD has for its information program several projects that are geared towards facilitating the flow of fisheries information and the preparation of technology packages for dissemination to the end users. Among these projects are:

1. Intensification of Fisheries Technology Transfer thru Packaging and Information Production
2. Fisheries Extension Development and Advisory Services
3. Collection and Evaluation of Fish Marketing Data
4. Fisheries Institutional Assistance
5. Strengthening the Governments' Support Services to the Fisheries Industry
6. Creation of a Technical Board to Review and Approve Technical Papers for Publication

In addition to the above on-going projects, the BFAR and the College of Fisheries University of the Philippines in the Visayas (UPV) submitted to the German government (GTZ) for financial assistance a project proposal entitled "Fisheries Information and Extension Program." This project has three main components namely:

1. Information Dissemination
2. Pilot Project
3. Human Resource Development

The proposed project aims to improve the standard of living in the fisheries community by increasing the income and profitability of the small-scale fishermen, fishfarmers and fish processors. The project is also envisioned to strengthen the information and extension capabilities of BFAR and UPV personnel. Likewise, it also aims to provide and disseminate appropriate fisheries technology as well as propagation techniques/schemes, marine resources/environmental management in specific pilot areas which can be replicated in other areas.

This proposal is still awaiting approval of concerned offices and governments.
IV. THE FLOW OF FISHERIES TECHNOLOGY FROM SOURCE TO END USER
(Figure 3)

In support to policy formulation, four divisions of BFAR conduct studies and generate fisheries technology relating to aquaculture, fishing, post-harvest and marine resources. Technologies that need verification are field-tested in the different fisheries facilities.

The Aquaculture Division conduct studies on matters relating to the culture and development of cultivable fish and other aquatic resources which are verified either at the Freshwater Research Center or at the Brackishwater Research Center. The research vessel is utilized for marine resources studies being conducted by the Marine Resources Division. The National Commercial Fishing Research Center serves as the verification facility for fishing technologies generated by Fishing Technology Division and the Pilot Fish Processing Plant for the verification of technologies generated by the Post-Harvest Technology Division. Technologies generated by other research institutions are also, jointly verified and packaged for distribution to our clientele.

The Fisheries Development Support Services Division in coordination with the technical divisions and Research Centers package and reproduce research papers in such a way that it will be easily understood by the field technician and the clientele.

The field technician of the Department of Agriculture in the 13 regional offices act as the transfer agents of the technology to the fisheries industry i.e., the fishfarmers, fishermen, fish processors/fish handlers and vendors and also the consumers.

On the other hand, problems of the industry that need to be studied by the research division are reported by the field technicians for appropriate action. The BFAR maintains a library which serve not only the BFAR personnel but also students and people engaged in fishing industry.
V. THE BFAR PUBLICATIONS

The BFAR publications include the following:

1. Fisheries Journal - This journal is a yearly technical publication which is composed of original Fisheries Scientific paper with new critical information based on original research and with conclusive results based on terminated study.

2. Fisheries Newsletter - This is a quarterly publication which include original articles on general information and technical subjects, precise writing of current trends and development in the fishing industry specially from abroad, observations, recent and planned activities of the Bureau of Fisheries.

3. Technical paper series - This is published in memograph form. The papers published are technical reports of BFAR personnel to the Director mostly results of specific studies, investigations and surveys undertaken, and constructive articles on organizational effectiveness, efficiency and economy.

4. General Information series - This is a monthly publication in memograph form. This publication include original articles of general application to the industry or any industry information that will accelerate Philippine fisheries development both local and abroad and also the Fisheries Administrative Order's rules and regulation.

5. Extension Series - This publication is being produced by the BFAR Fisheries Extension Division now the Fisheries Development Support Services Division. The fisheries information published
are derived from other publications. The target audience are the industry people, students, housewives, and extension workers. Each publication is package of technology information for one specific commodity.

6. Handbooks/Manual - This publication are more of techniques or "how-to" in adopting a particular fisheries technology to guide the field technician as well as the clientele when they apply the technology.

7. Posters - These are printed information with illustration that are posted in strategic places to disseminate the message to people in the fisheries industry and also to the general public who in one way or another are also concerned or have something to do with the message.

In addition to the printed materials/publication, BFAR also make use of other audio visual materials in the dissemination of fisheries information. Some of these are the following:

1. Slides and filmstrips and video tapes - These are used during training to supplement the lectures given by the resource person. Most of these slides and filmstrip are taken in actual work situations in the technology verification centers.

2. Mass media - The mass media such as radio, television and newspapers are also used to inform the public on matters that need immediate dissemination.
VI. PROBLEMS IN IMPLEMENTING FISHERIES INFORMATION PROGRAM

Disseminating information is not without problems specially if you are targeting a population of more than 57 million residing in more than 7,000 islands and speaking more than 70 dialects. Following are some of the problems that in one way or another hamper our information dissemination.

1. High cost of printing aggravated by limited funds allocated for this purpose
2. High cost of time slots for television and radio broadcast
3. Most of the fisheries technology print materials are in English and could not be effectively used by some target users
4. There is a poor linkage between research institution and the technology transfer agencies/agents.
5. Some research output are not responsive to the needs of the industry
6. Target clients are in remote and isolated islands making it difficult for the field technicians or even print materials and radio broadcast to reach them
7. Transportation and communication in fishing communities are relatively poor.

Inspite of the above mentioned problems, fisheries information dissemination to the fisheries industry is being carried out by the BFAR and the Department of Agriculture extension workers.
FIGURE 1

BFAR ORGANIZATIONAL STRUCTURE
(AS REORGANIZED)

OFFICE OF THE DIRECTOR

AQUACULTURE DIVISION
FISHERIES POLICY
RESEARCH AND
ECONOMICS
DIVISION
FISHERY
RESOURCES
AND ALLIED
SERVICES
DIVISION
EEZ FISHERIES
AND ALLIED
SERVICES
DIVISION
INTERNATIONAL
LICENSES
DIVISION
POST-HARVEST
TECHNOLOGY
DIVISION
FISHERIES
DEVELOPMENT
SUPPORT
SERVICES
FISHERIES
RESOURCES
RESEARCH
DIVISION
FISHING
TECHNOLOGY
DIVISION

NATIONAL
FRESHWATER
FISHERIES
TECHNOLOGY
RESEARCH
(MUNOZ,
NUÉVA ECJA)
TANAY
FRESHWATER
EXPERIMENTAL
STATION
(TANAY, RIZAL)
FISHERY
BIOLOGICAL
STATION
COMPLEX
(BUTON, TAAL,
BATANGAS)
NATIONAL
BRACKISH-
WATER AQUA-
CULTURE
RESEARCH
CENTER (PAG-
BILAO, QUEZON)
NATIONAL
COMMERCIAL
FISHERIES
DEVELOPMENT
CENTER
(SANLEY PT,
CAVITE CITY)
FIGURE 3

FISHERIES TECHNOLOGY FLOW CHART

GENERATION

- AQUACULTURE DIVISION
- FISHERIES RESOURCES RESEARCH DIVISION
- FISHING TECHNOLOGY DIVISION
- POST-HARVEST TECHNOLOGY DIVISION

VERIFICATION

- FRESHWATER FISHERIES RESEARCH CENTER
- FISHERY BIOLOGICAL COMPLEX
- BRACKISHWATER AQUACULTURE RESEARCH CENTER
- RESEARCH VESSEL
- NATIONAL COMMERCIAL FISHERIES DEVELOPMENT
- PILOT FISH PROCESSING PLANT

PACKAGING

- FISHERIES DEVELOPMENT SUPPORT SERVICES DIVISION

TRANSFER

- REGION 1
- REGION 2
- REGION 3
- REGION 4
- REGION 5
- REGION 6
- REGION 7
- REGION 8
- REGION 9
- REGION 10
- REGION 11
- REGION 12
- C A R

ADOPTION

- AQUACULTURE/FISHING AND POST-HARVEST FISHERIES INDUSTRY

FEEDBACK