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CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

1. PROJECT TITLE Fisheries Training Center			2. PROJECT NUMBER 931-0042	J. MISSION/AID/W OFFICE DS/AGR 4P
3. KEY PROJECT IMPLEMENTATION DATES A. First PRO-AG or Equivalent FY <u>74</u> B. Final Obligation Expected FY <u>78</u> C. Final Input Delivery FY <u>79</u>			4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	
5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING A. Total \$ <u>287,000</u> B. U.S. \$ <u>287,000</u>	
			7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>1/1/78</u> To (month/yr.) <u>3/31/78</u> Date of Evaluation Review <u>12/14/78</u>	

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
1. The decision has been made to terminate this contract at the end of the present agreement (March 31, 1979). FEB 29, 1979	Meeting of the following: F. Campbell, D. Jones M. DiLegge A. Hankins M. Krantz	August, 19
2. The primary basis for this decision is that: (a) Brazil is a graduate country and the AID role in Brazil is being phased out; and (b) the Latin American Bureau does not support the concept of a Regional Fisheries Training Center as a high priority item.	-	-
3. Contract performance has been excellent, progress toward goals very good and the shift toward Brazilian operation of the training center has gone well. Training of biologists, research on key problems and implementation of research findings in fishery management and aquaculture are all rated as highly successful.	R. Neal DS/AGR/F	complete
4. No further action required.		

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS			10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT		
<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____	A. <input type="checkbox"/> Continue Project Without Change		
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	_____	B. <input type="checkbox"/> Change Project Design and/or		
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Change Implementation Plan		
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P	_____	C. <input type="checkbox"/> Discontinue Project		

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)		12. Mission/AID/W Office Director Approval	
<p><i>Richard A. Neal</i> <i>John R. Peterson</i></p> <p>DS/AGR/F Richard A. Neal DS/AGR, Dean Peterson</p>		<p>Signature <i>John R. Peterson</i></p> <p>Typed Name John R. Wilson</p> <p>Date <u>1/19/79</u></p>	

Background: U.S. fisheries assistance to Brazil dates back to the 1930's when the U.S. Bureau of Commercial Fisheries provided technical assistance with fish farming in the Northeast. Again during the 1960's, Bureau of Commercial Fisheries teams worked with DNOCS (Departamento Nacional de Obras Contra a Secas) to develop fish farming capabilities and facilities. During the period 1965-1969 AID assistance, carried out by the Bureau of Commercial Fisheries, laid the groundwork for later activities by Auburn University. The first AID contract with Auburn University was initiated in 1968. This contract led to construction of the Pentecoste Intensive Fishculture Research Station by Brazil and the provision of technical assistance by Auburn beginning in 1969.

A series of contracts with Auburn have made possible continuing assistance with one or two fishery experts in country since 1969. The Brazil Mission funded the Auburn contract until 1974 and TAB (now DSB) funded the project since 1974. Early work was oriented toward stocking reservoirs and managing fishing from these reservoirs. This work continues to be an important function of the Pentecoste Station today and related hatchery and fishery management practices are part of the coursework offered. As a functional reservoir management program was implemented emphasis has shifted to research on aquaculture. The fundamental objectives of the Auburn-DNOCS project have been (1) to develop aquaculture technology to permit the commercialization of freshwater fish culture, and (2) to increase the availability of animal protein for the people of Northeast Brazil.

As technical expertise improved (presently 16 Brazilian professional research biologists plus support staff), as research and training facilities were developed (well over \$1,000,000 has been spent by Brazil on facilities) and as important research findings emerged and were applied, it became apparent that this center had something unique to offer in terms of tropical fisheries and aquaculture in a drought zone. The Center has assumed an international training function and in recent years has offered an annual 6 to 8 week practical training course. An additional thrust of the AID contract for Auburn assistance has been to build Brazilian capabilities to carry on the Center's international training function after the outside assistance has been terminated.

With U.S. assistance, which has dwindled to one full time technical expert in recent years, Brazil has established important fisheries in the NE reservoirs, a small but significant and profitable fish farming industry, a fine research and hatchery capability and an international training center. Research activities have produced breakthroughs of international significance in two areas: (1) the development of an all male hybrid tilapia with exceptional characteristics as a culture fish, and (2) the selection of certain

species of Amazon fishes which are particularly well-suited for fish farming. The process of building Brazilian training capabilities has not been completed and was the purpose of a planned extension of this project.

Evaluation Procedure: This evaluation was conducted by Fisheries Division personnel in the Office of Agriculture based on reports, discussions with Auburn and LA Bureau personnel, a previous visit to the project site, and discussions with officials in Brazil.

Other Project Evaluations: Several informal reviews have taken place during the last few years. Greenfield, Lira and Jensen completed in 1974 an "Economic Evaluation of Tilapia Hybrid Culture in Northeast Brazil." Bromley and Lin conducted a survey of "The Role of Fisheries - Aquaculture in Latin America" later in 1974 and included an analysis of the work in Pentecoste as a part of the study. Roedel and Witt visited the project site and reviewed progress in 1975. In 1976 Hesser and McDermott reviewed AID R&D activities in Brazil including the Pentecoste project. An evaluation of Auburn contract activities in 1978 included a visit to Brazil by Henshaw and Kimsey to re-view this project.

Progress Toward General Objectives: Good progress has been made toward both of the general objectives, development of viable aquaculture technology for NE Brazil and increasing the availability of animal protein in the NE. Evidence of progress toward the first objective is the existence of 16 profitable tilapia farms and the demand for many more fingerlings than the hatchery can produce for additional fish farms. The availability of animal protein is complicated by the rapid population growth rate in the NE region (2.9% per year); however, a large increase in fish production has been realized through hatchery rearing of fingerlings, stocking of reservoirs and management of the fish harvest from the reservoirs. More than 6000 reservoirs have been built and data collected from 103 of the largest have shown that 17,000 tons of fish per year are harvested from these alone.

Progress Toward Specific Objectives

1. Training Fish Culturists and Fishery Biologists --
A total of 145 biologists have been trained at the Pentecoste Center (22 of these were from 10 foreign countries).

2. Domestication of Selected Amazon Fish Species --
Three species with apparent culture potential have been reared and spawned in captivity and are being used in rearing experiments.
3. Production of Monosex Hybrid Tilapia --
The cross of selected strains of T. nilotica and T. hornurum developed at Pentecoste produces all male offspring with hybrid vigor and is now used as the principal farm fish.
4. Develop Fish Production Systems to Utilize Livestock Manure -
Dairy farm wastes are used as the only feed/fertilizer on several commercial farms. Production from these systems and from similar systems designed to use pig or chicken manure has been excellent.
5. Develop Uses for Specific Agricultural Waste Products Available Locally --
Fish production systems using species combinations and feed mixtures have been developed to efficiently use palm nut cake, castor bean meal, cottonseed cake, wheat bran and other grain wastes.
6. Strengthen International Training Capabilities of the Pentecoste Center Staff --
Teaching skills and technical knowledge of the Center staff have improved continuously during the project.

Overall Evaluation: Major inputs have been from Brazil rather than AID; nevertheless, AID inputs have had a catalytic effect, and the results of small investments on AID's part have been excellent. The project must be given an overall rating of outstanding.