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~~NSAID/RECIFE~~ RIO DE JANEIRO

SUBJECT -

NONCAPITAL PROJECT PAPER (PROP)

REFERENCE -

Fish Production, Processing and Marketing (NE)
MO. 1025.1 May 29, 1967

COUNTRY: BRAZIL (NE)

PROJECT NO: 512-15-180-247.4

SUBMISSION DATE: December, 1969

ORIGINAL: X

PROJECT TITLE: Fish Production, Processing and Marketing (NE)

U.S. OBLIGATION SPAN: FY 1964 through FY 1971

PHYSICAL IMPLEMENTATION SPAN: FY 1965 through FY 1973

GROSS LIFE OF PROJECT FINANCIAL REQUIREMENTS:

U.S. Dollars \$ 616,000

U.S. owned Local
Currency

Country owned Local
Currency 207,000

Cooperating Country Cash 933,000
Contribution

TOTAL \$1,956,000

PAGE 1 OF 5 PAGES

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I. SUMMARY

In the drought polygon of Northeast Brazil, even in non drought years, the shortage of rainfall from June to December causes frequent crop failures and in general tends to cause a shortage of feed for cattle, hogs, poultry and other ~~me~~ animals. Thus, periods of chronic, irregular rainfall reduce the production of plant protein which must be present in abundance to provide for animal protein production.

As a result of the dam and reservoirs building program of the Government of Brazil over the past 60 years, there now exist in the northeast a fairly large number of permanent bodies of fresh water that, even in drought years, are capable of producing high-quality animal protein in the form of fish. The development of these fishing resources is consistent with the priority needs of the region and with the objectives of USAID to alleviate hunger and increase the production of basic foods.

II. SETTING OR ENVIRONMENT

In the Brazilian northeast, the acute shortage of animal protein, linked to chronic irregular rainfall and rapid rate of population increase requires that available sources of animal protein be developed as rapidly as possible. The freshwater fishery resources of the northeast constitute such a protein source and their development fits in well with the priority needs of the region and with the objectives of USAID.

The Superintendency for the Development of the Northeast (SUDENE), recognizing the potential of fisheries for increased food production, requested the assistance of USAID in determining the development needs of the northeast fisheries. Accordingly, in 1962, USAID arranged for a preliminary survey by a specialist from the U.S. Bureau of Commercial Fisheries (BCF). This survey indicated that there were certain areas susceptible to rapid development of the fisheries. As a result of the survey, SUDENE, in a ~~an~~ letter to USAID dated May 30, 1963, requested that U.S. technicians come to the northeast and investigate more closely the possibility of increased protein production through development of the fishery resources of the interior. USAID contracted a PASA team of five fishery specialists from BCF and a second survey was conducted in 1964, which resulted in program recommendations to SUDENE and USAID, concentrating on freshwater fisheries development through technical assistance.

The potential for freshwater fisheries development in the northeast is based on the existence of a large number of public and private reservoirs. Originally the reservoirs were used chiefly for the storage of water to enable the inhabitants and livestock to survive periods of drought without having to migrate from the region.

The Brazilian governmental entity responsible for the reservoir construction program is the National Department of Works Against the Droughts (Departamento Nacional de Obras Contra as Sêcas - DNOCS). DNOCS operates within an area established by law as the drought polygon (Polígono das Sêcas) which includes all or parts of the States of Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia and part of Minas Gerais an area of approximately one million square kilometers. Within ~~this~~ this area DNOCS has the possibility for conducting programs of dam building, irrigation, well drilling, production, and distribution of electrical energy, improvement of agriculture, road building, and fish culture.

DNOCS has completed construction of 254 public reservoirs with a total capacity of 11.4 billion cubic meters of water and has provided assistance to other public and private entities in the construction of 596 other with a total capacity of over 2.2 billion cubic meters. In addition, thousands of small dams have been built without governmental assistance. The number of these can only be estimated, but the study group for the Jaguaribe Valley in Ceará reported the presence of 8,000 dams in their area.

The administrators of DNOCS visualized as early as 1931 the possibility of rearing fish in the lakes created by the dams and in 1933 a fishculture service was created within DNOCS. It began functioning in 1937 and by 1950 it had been successful in acclimating ten species of fish from the Amazon, Paranaíba, and San Francisco Rivers and introducing them into the artificial lakes. The first fish culture station for the production and distribution of fish for stocking the impoundments was completed at Lima Campos reservoir in Ceará in 1949. A second, at Amanari reservoir, also in Ceará, was completed in 1957. In 1968 a third station was completed at Itans reservoir in Rio Grande do Norte and a fourth is under construction at Jacuricy reservoir in Bahia.

Even in its relatively undeveloped state, the freshwater fishery resource makes a significant contribution to the protein needs of the northeast. In 1968, the harvest of fish from the 66 larger public reservoirs on which DNOCS keeps statistics was about 12,000 tons. The total annual production from fresh water in the northeast is probably at least 50,000 tons.

The magnitude of public and private impoundments guarantee the fresh water resource and establish fish and fish products as an important animal protein resource in the area. For the potential of this resource to be realized, a continuing program of research and extension services is required. Research and extension services are just as essential to provide a base for increased production in fisheries as they are in agriculture.

There is a basic lack of knowledge of the characteristics of the northeast reservoirs and of their fish populations. Without this knowledge, modern management practice cannot be applied. New or improved methods of preserving and transporting the catch in order to reduce spoilage need to be developed and demonstrated. The introduction of intensive pond fish culture has the potential of greatly increasing production and creating a new industry; however, before a successful fish farming industry can be established in Northeast Brazil it will be necessary to develop the technology, demonstrate the commercial feasibility, and provide extension services to persons who desire to invest in fish farming.

III. STRATEGY

The long-range goal of DNOCS is to substantially increase, in measurable terms, the production of animal protein from freshwater resources. The strategy of this project is to develop within DNOCS the capacity to conduct the research and extension services which are necessary for this increased production.

As the result of the activities of this program since its beginning in February 1966, there now exists within DNOCS a research institution dedicated to the development of freshwater fisheries. At present DNOCS has assigned a staff of 28 to this institution of which 12 are at the professional level. Eight of these technicians have already received or are receiving in-service academic training in the U.S. About one third of the financial

support of the institution now comes from CONTAP. In addition, funds are being used to construct a research and demonstration center for intensive fish culture at Pentecoste, Ceará.

IV. PLANNED TARGETS

The anticipated goal of this project is the successful establishment of a permanent research institution within DNOCS, dedicated to the utilization of freshwater fishery resources. This will be the first such institution in Brazil and the information and techniques which it can ~~develop~~ develop are expected to have application not only in the northeast but throughout the country.

Another integrated target of the project is to provide DNOCS with a staff of qualified technicians through on-the-job and U.S. institutionalized training. The DNOCS personnel trained in the U.S. will have formal training in the fundamentals of Fishery Biology and Limnology, Fish Processing and ~~Marketing, Extension~~ Marketing, Intensive Fish Culture, and Fish Hatchery Management. The institution should also have the physical facilities to carry out ~~research~~ research and extension in those disciplines. Specifically, by June 30, 1971 the following conditions should exist:

- 1) DNOCS should have at Fortaleza, Ceará, an adequately equipped biological and technological laboratory with a staff capable of conducting research and ~~extension~~ extension programs in Fishery Biology and Limnology, Fishery Technology, and Intensive Fish Culture.
- 2) DNOCS should have at Pentecoste, Ceará, an intensive fish culture research and demonstration center in operation with a full-scale research program underway.
- 3) Preliminary decisions should have been made on the desirable species for pond culture and on levels of feeding, fertilization, etc.
- 4) DNOCS should be actively encouraging participation by the private ~~sector~~ sector in pond fish culture and be prepared to provide extension services.
- 5) The capacity of DNOCS to supply stock fish to private ponds should be double its 1967 levels.
- 6) The institution should be wholly financed from the regular budget of DNOCS.

V. COURSE OF ACTION

The goal of this project is the successful establishment in DNOCS of a permanent institution adequately staffed and capable of conducting the research and extension programs necessary for the development of freshwater fishing resources.

For such an institution to develop and continue as a viable institution after USAID support is withdrawn the following inputs are necessary during FY 1970 and 1971.

1. Technical assistance from four U.S. technicians for continued training of the staff and development of a strong research program.

2. Training of twelve additional participants in the U.S.
3. On-the-job training of Brazilian technicians in the laboratory and in the field.
4. Provision of limited amounts of fisheries research equipment not available in Brazil.
5. Encourage and assist, ~~subject~~ subject to the availability of COMTAP funds the ~~construction~~ construction of a research and demonstration center for intensive fish culture.

ETBRICK

NONCAPITAL PROJECT FUNDING (Obligations in \$000)

Table 1

Page 1 of 2 pages
COUNTRY: BRAZIL (NE)

PROP DATE: Dec, 196

ORIGINAL: X

Rev. N9:

Project Title: Fish Production, Processing and
Marketing (NE)

Project N9: 512-15-180-247.4

Fiscal Years	Ap	L/G	Total	Cont ^{1/}	<u>Personnel Serv.</u>			<u>Participants</u>		<u>Commodities</u>		<u>Other Costs</u>	
					<u>AID</u>	<u>PASA</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>	<u>U.S. Agen.</u>	<u>Cont</u>
Prior thru Actual FY 69	AG	G	540	36	83	259	36	77	-	40	-	45	-
Operational FY 70	AG	G	186	72	-	53	51	50	-	6	-	5	21
Budget FY 71	AG	G	90	-	-	55	-	30	-	-	-	5	-
B + 1 FY 72													
B + 2 FY 73													
B + 3 FY 74													
All Subs Yrs.													
Total Life	AG	G	816	108	83	367	87	157	-	46	-	55	21

^{1/} Memorandum (nonadd) column

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Fiscal Years	AID-controlled Local Currency		Other Cash Contribution Cooperating Country	Other Cash Contribution Cooperating Country	Total for Freedom Commodities		
	U.S. owned	Country owned			Metric Tons (000)	CCC Value & Freight (\$000)	World Market Price (\$000)
Prior thru Actual FY 69		92	140	150			
Operational FY 70		77	93	100			
Budget FY 71		78	50 ^{2/}	100			
B + 1 FY 72			50 ^{2/}	100			
B + 2 FY 73				150			
B + 3 FY 74							
All Subs Yrs.							
Total Life		207 ^{1/}	333 ^{3/}	600			

1/ Trust Fund
2/ Subject to the availability of funds
3/ CONTAP

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