PD-AAS-875

UNCLASSIFIED
CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) — PART I

Report Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
Fish Production System Development	532-0059	ARDO

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)

☐ REGULAR EVALUATION ☒ SPECIAL EVALUATION (FIN

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING		7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY ____	B. Final Obligation Expected FY ____	C. Final Input Delivery FY 85	A. Total	$ 3,273,000	From (month/yr.) 6/79
			B. U.S.	$ 3,415,000	To (month/yr.) 11/84
					Date of Evaluation

8. ACTION DECISIONS APPROVED BY M

A. List decisions and/or unresolved issues; cite those items needing fur (NOTE: Mission decisions which anticipate AID/W or regional office ac... should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	RESPONSIBLE FOR ACTION	TO BE COMPLETED
Decision needs to be made on what post-project activities if any, is USAID most likely to support in the area of freshwater aquaculture.	J. Correa, ARDO	May, 1985.

Clearances: Executive Committee

ARDO: WHMcCluskey (in drft)
OEEE: CMathews (in drft)
OPDS: EKadunc (in drft)
OPEP: JJones (in drft)
OHNP: JCoury (in drft)
OEHR: JCarney (in drft)
DDIR: JSchlotthauer (in drft)
CONT: RLeonard

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

☐ Project Paper
☐ Financial Plan
☐ Logical Framework
☐ Project Agreement
☐ Implementation Plan e.g., CPI Network
☐ PIO/T
☐ PIO/C
☐ PIO/P
☒ Other (Specify) Mission Strategy
☐ Other (Specify) _____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A. ☐ Continue Project Without Change
B. ☐ Change Project Design and/or ☐ Change Implementation Plan
C. ☐ Discontinue Project

NOT PERTINENT AT THIS TIME

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Jaime Correa
Project Officer
USAID/Jamaica

Roy Moo Young
Project Director
Ministry of Agriculture

12. Mission/AID/W Office Director Approval

Signature

Typed Name: Martin V. Dagata
Acting Director

Date: 18 May 85

AID 1330-18 (3-78)

13. SUMMARY

The overall objective of the Fish Production System Development (FPSD) Project was to establish a commercially viable inland fishing industry in Jamaica focusing on extension and production of freshwater Tilapia. The FPSD (1) provided a large complement of technical assistance furnished by Auburn University, (2) provided funding for construction of new facilities at two different locations and (3) increased training for existing and future Project staff. The major emphasis of the Project was on expansion of pond acreage and increased production of Tilapia.

The project's most important achievement has been to establish a successful new industry in Jamaica. The technology and skills involved in freshwater Tilapia production have been successfully transferred to a government research and extension agency as well as to private industry. A number of farmers have adopted the technology and have been able to increase their incomes through their Tilapia production and sales. Since Jamaican Tilapia competes well with fresh fish imports, domestic production should eventually reduce foreign exchange outflows, although production is still too small to have a noticeable effect on the external account.

The evaluation also found out (1) that the FPSD unintentionally did not turn out to be a small farmer development project since many owners of the small farms (less than 5 acres) are, in fact, medium-sized farmers or business or professional people for whom fish farming is one of several business ventures; (2) that the continued growth of the industry requires a steady supply of trained aquaculturits for some time to come, and Jamaica has not acquired its own capacity to produce such qualified specialists and, that (3) it may have exacerbated saltwater intrusion and shortages of fresh drinking water.

The evaluation's principal recommendation is to continue to monitor the progress of the aquaculture industry and respond favorably to future requests for specific short-term assistance.

14. METHODOLOGY

The evaluation was carried out by a two-person team from Development Alternatives, Inc. (DAI). Field work took place November 7 - 14, 1984.

During the eight days of field work, the team obtained information from a number of written sources, including the internal documents of the Inland Fisheries Unit (IFU) and the reports of the technical assistance team from Auburn University. The team also visited several fish farms and interviewed key respondents in the public and private sectors. In addition to the IFU staff, the team met with officials of the Ministry of Agriculture (MOA); Agro 21, which is a special secretariat of the Prime Minister's office responsible for the promotion of agriculture; the Urban Development Corporation (UDC) and Aqualapia Jamaica, Ltd., which are parastatal enterprises involved in fish farming; and seven private fish farmers (corporations and individuals).

15. EXTERNAL FACTORS

The evolution of FPSD from a project aimed at working primarily through small farmers to a project in which the principal actors are large commercial enterprises was due to two major external factors: (1) the distribution and marketing advantage of large entities in an aquaculture industry which results in economies of distribution (i.e., large farms are more likely than small farms to have their own transport, and since they also have more frequent harvests they are able to guarantee a more regular supply to buyers); and (2) shift in government policy with the change of leadership in both the U.S. and Jamaica. Reacting to adverse economic conditions, the Jamaican Government placed greater emphasis on increasing production and growth and relatively less on distribution of benefits. Furthermore, it was easier to conduct extension work with a small number of large farmers than with a large number of small farmers.

16. INPUTS

There exists a problem related to the continuation of training for extension officers and specialized senior project staff. The evaluation has suggested the following short and long term solutions to the training problem:

Short-Term:

a. Identify personnel within the Project (and possibly Agro 21) who are effective educators, and attempt to have them establish seminars or training programs designed to review current world literature, as well as research results from Twickenham Park, Aqualapia Jamaica, Ltd, and Aquaculture Jamaica, Ltd. Students could be identified at the University of the West Indies (UWI) or good secondary schools who have an interest in or aptitude for biological science, especially aquaculture.

b. Make every effort to contact and convince the people responsible for reorganizing the Jamaica College of Agriculture (JCA) to include a broader curriculum than only one or two courses in Aquaculture. Offer to provide some temporary teaching assistance and perhaps research demonstrations at Twickenham Park if needed.

c. Although not a planned part of the FPSD, exploit the interest of UWI faculty in marine science to offer training that would enhance the abilities of undergraduates who might consider a technical career in oyster farming, shrimp culture, or polyculture. This area has great potential for growth in Jamaica.

Long Term:

a. Use every effort to convince both private and public sector decision makers that the continued growth of aquaculture is dependent on a continuing supply of trained technicians. Perhaps Agro 21 could help identify support for scholarships or additional faculty at either JCA or UWI.

b. Although in-country university training is preferable, support for foreign training is available and should be sought both in the USAID Latin American/Caribbean scholarship program and other international donor programs, i.e., Organization of American States. This is especially important in speciality areas that might be needed as aquaculture becomes more sophiscated. Examples might be fish processing and handling, food technology, nutrition, and marketing of fish products.

17. OUTPUTS

		TARGETS 1979	REVISED TARGETS 1983	ACCOMPLISHMENTS AS OF 12/84
A.	Fingerlings (Numbers)	13,000,000	2,300,000	5,533,961
B.	Project Staff	160	160	127
C.	Training			
	(a) Long term	5	---	8
	(c) Short term	932	---	297
	Project Staff	12	---	5
	Farmers	920	600	291
D.	Students Trained	50	45	75
E.	Participating Farmers	1,280	600	360
F.	Acreage Ponds	1,186	580	525
G.	Foodfish (lbs).	6,000,000	1,323,000	1,138,780

The large difference between expected level of participating farmers and actual performance was due to the fact that most participating farmers had larger farms than those originally contemplated in the original and revised project estimates.

18. PURPOSE

Project Purposes: A. To develop the capacity of Government of Jamaica institutions to increase fish production throughout the country.

B. To establish freshwater fish farming as a viable farming activity in Jamaica.

The most salient accomplishment of the project has been the successful transfer of aquaculture technology and skills resulting in the establishment of an inland fish farming industry in Jamaica.

19. GOAL/SUBGOAL

Project Goal:	Increase food production.
Subgoal:	(A) Reduce foreign exchange drain of food imports.
	(B) Increase income and employment and improve nutrition in rural areas.
	(C) Establish the foundation for a regional training program in fish production.

Tilapia production has been enthusiastically embraced by a large number of private farmers, as well as by several public and private enterprises thus establishing a sound basis for increased food production. The transfer of technology was accomplished through a combination of training, technical assistance, and capital support. Farmers have reported yields of at least 2,000 lbs/15 week production cycle, which, given predation and other constraints, is considered high.

The FPSD Project aimed at reducing fish import expenditure to U.S.$22 million. In 1982, which is the last year for which external trade statistics were available, the fish import bill was the Jamaican dollar equivalent of about U.S. $29 million. However, the 1982 fish import bill was much more expensive in terms of Jamaican dollars since the Jamaican currency underwent an effective 95 percent devaluation between 1976 and 1982.

It is difficult to pinpoint the factors that have contributed to the decrease in the foreign exchange outlays for fish. However, domestic Tilapia production did not contribute significantly; the total value of Tilapia production in 1982 was only J$391,000 (about US$220,000), which is only 1.3 percent of the import bill. The most important factor contributing to the decrease in fish imports is the increased price, which is itself attributable in great part to the devaluation of the Jamaican dollar.

The subgoal of establishing a foundation for a regional training program in fish production was not achieved. The Jose Marti Secondary School has provided some training but it is not adequate. Courses promised by the University of the West Indies (UWI) are not available, with the exception of a six-week overview of aquaculture for senior students. The Jamaica School of Agriculture (JSA) was closed down in mid-project. Although the school was relocated and reopened after several months as the Jamaica College of Agriculture, there is no current provision for extensive training in aquaculture.

20. BENEFICIARIES

The ultimate project beneficiaries were intended to be the low income people of Jamaica and the strategy of the Inland Fisheries Division was to have been directed towards this target group. The low income group was defined as "the 31 percent of the labor force which earns less than J$520 annually," which, given an average household of 4.3 persons, translates into a per capita annual income of J$121. The Project Paper also stated that "the principal effort will be directed toward farmers with ponds averaging 1/4 acre". In the Project Paper's social analysis, the target group is further described as the 80 percent of Jamaica's farmers with fewer than 5 acres of land.

The 1984 profile of principal project beneficiaries differs from that drawn by the original project designers. Most of the island's Tilapia production is now in the hands of public or private enterprises or relatively affluent individuals whose primary income does not come from farming.

21. UNPLANNED EFFECTS

The project had several unplanned effects: First, FPSD was not a small farmer development project.

Second, at least two large commercial operations have begun to use a Tilapia farming technology that is potentially more productive than the technology employed by the project.

Third, in the southeastern parishes served by the project, the production of Tilapia has increased so rapidly that existing distribution and marketing channels are unable to handle it.

Fourth, the continued growth of the aquaculture industry will require a steady supply of trained aquaculture specialists for some time to come.

Fifth, in St. Catherine Parish, where the largest concentration of fish farming exists, the project may have exacerbated two related environmental problems: saltwater intrusion and shortages of fresh drinking water.

22. LESSONS LEARNED

1. Tilapia farming has the potential to become a viable industry in Jamaica and potentially in similar developing countries in the Caribbean and elsewhere.

2. In trying to develop an industry around smallholder production, specific plans (that is, a strategy) must be developed early on to keep large farmers from seizing control of the industry.

3. Production is easier to set in motion than marketing, which must overcome social, cultural, and economic barriers. Assumptions of ready markets for fish products is the single most common mistake made in fish expansion programs in developing countries.

4. Aquaculture is such a relatively new and inexact science that new technology may appear constantly.

5. Most universities have a tendency to use in-house expertise to the extent that certain objectives, often business-oriented, and ideas are often neglected. It is not likely, for example, that a successful fish farm operator would accept assumptions of unlimited market and no distribution problems without careful pre-study.

6. Changes in project direction must include environmental reassessment, especially when new technologies are involved.

7. Activities such as research and training, which are not directly remunerative, are difficult to sustain beyond the time when donor funding for a project is withdrawn. Government commitment to sustain these facilities should, therefore, be obtained early in a project, and the commitment should be monitored throughout its life.

23. SPECIAL COMMENTS

The FPSD project paper reflected a generally sound planning process. The overall concept of promoting inland fisheries in Jamaica in the mid-1970s was timely and feasible. The strategy of starting with a small research and institution-building project followed by a production project was clearly correct as it permitted flaws in procedure and technology to be corrected at an early stage before sunk costs became prohibitive; the most salient example of this was the decision to switch fish species from T. mossambica to T. nilotica in about 1979. The benefit-cost analyses that were carried out in 1976 and again in 1979 proved remarkably accurate, notwithstanding the soaring prices, plummeting currency, and other economic problems that Jamaica faced during project implementation.

The design also had flaws, however. The most egregious was the lack of a strategy to ensure that small farmers would become the main producers and beneficiaries of the project. Rather than evolving an extension strategy that focused on outreach to the smallholder, the planning documents simply stipulated that this would happen. It should have been foreseen that the industry, once its feasibility had been demonstrated, would inexorably be taken over by large corporate and private interests unless a strategy was developed to prevent it.

Passing mention has been made already of two other somewhat less serious design flaws. One concerns the lack of an environmental assessment, which should have been prepared for a project that planned to utilize such large amounts of land, and, especially, water. The other concerns the levels at which targets were set. It is difficult to know in retrospect whether the designers really believed that more than 1,000 farms would, by 1983, produce several million pounds of Tilapia or whether these figures were generated to impress higher levels of decision making. In any case, they were unnecessary since the actual figures were sufficient to qualify the project as a success.

Mission is expected to offer future support of Aquaculture through the Agro 21 Program.