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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

9-22-76

PROJECT PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

HAITI - Integrated Agricultural Development (Revised)

AID-DLC/P-2195

UNCLASSIFIED

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

UNCLASSIFIED
AID-DLC/P-2195
September 22, 1976

MEMORANDUM TO THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Haiti Integrated Agricultural Development Loan - Amended Project Paper

The subject project as reviewed by the DLSC on September 2, 1976, included a substantial element (i.e., \$2.6 million) of loan-financed technical assistance. While AID prefers to grant-finance technical assistance to Haiti in light of its low per-capita income, we were unable to grant-finance all of the technical assistance for this project, given limited availabilities and anticipated requirements of grant funds at the time the project was approved. However, subsequent to the DLSC meeting, our continuing analysis of funding requirements indicated that an additional \$300,000 of grant funds would be available during the Transition Quarter. We plan to use these funds, in conjunction with an additional \$400,000 to be obligated in FY 79 and FY 80, to increase the life of project grant financing by \$700,000. Technical assistance inputs totaling this latter amount is moved from the loan-financed to grant-financed category. We intend to maintain the loan amount at the originally planned level of \$8 million. This, of course, requires a change in inputs to be financed under the loan. These modifications are summarized below:

1. The technical assistance inputs related to Extension/Information (\$330,000) and Research and Development (\$370,000) are moved from the loan-financed to the grant-financed category.
2. The \$700,000 of loan funds which were originally budgeted for the Extension/Information and Research and Development technical assistance inputs are reallocated to increase loan-financing of local materials cost by \$344,000 and increase the loan contingency and inflation factor by \$356,000. The necessity for the latter increase became clear upon reexamination of the total project budget. It reflects the proposed five-year project life.
3. The GOH contribution is reduced by \$344,000 to reflect the shift of local materials financing from GOH to AID loan.

Those pages and tables of the Project Paper which are affected as a result of the proposed modifications have been amended accordingly. Pages which have been amended are: Face Sheet, pp's 3, 4, 5, 6, 7, 21, 24, 27, 29, 31, 36, 38, 55, 81, 82, 83, 84, 85, 86, 87, 90 and page 7 of the logical framework. Please note that a statement has been added to Section IV.B on page 55 indicating that AID loan and grant funds will not be available for financing salary supplements. This change was requested by the DLSC.

Insofar as the overall project elements, funded by whatever source, and project purposes remain the same and insofar as the amount of the loan is unchanged at \$8.0 million, no further DLSC vote is deemed necessary and the attached amended project paper is being reissued on an information basis only.

Please destroy all copies of the original project paper issued under cover of a DLC memorandum dated August 24, 1976.

Development Loan Committee
Office of Development Program Review

Attachment: a/s

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT PAPER FACESHEET
 TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE (CHECK APPROPRIATE BOX)
 ORIGINAL CHANGE
 ADD DELETE

PP
 DOCUMENT CODE
 3

2. COUNTRY/REGIONAL ENTITY/GRAANTEE
 HAITI

3. DOCUMENT REVISION NUMBER

4. PROJECT NUMBER
 521-T-008

5. BUREAU
 A. SYMBOL LA B. CODE

6. ESTIMATED FY OF PROJECT COMPLETION
 FY 8 | 1

7. PROJECT TITLE - SHORT (STAY WITHIN BRACKETS)
 Integrated Agricultural Development

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
 A. INITIAL MO. YR. 9 | 76 B. FINAL FY 7 | 9

9. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH)

10. ESTIMATED TOTAL COST (\$000 OR EQUIVALENT, \$1 = _____)

A. PROGRAM FINANCING	TQ			ALL YEARS		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	7,700	2,000	9,700	10,100	2,000	12,100
(GRANT)	(1,700)	()	(1,700)	(4,100)	()	(4,100)
(LOAN)	(6,000)	(2,000)	(8,000)	(6,000)	(2,000)	(8,000)
OTHER 1.						
U.S. 2.						
U.S. GOVERNMENT					10,501	10,501
OTHER DONOR(S)						
TOTALS	7,700	2,000	9,700	10,100	12,501	22,601

11. ESTIMATED COSTS/AID APPROPRIATED FUNDS (\$000)

A. PROJ. ORIGINATOR AGENCY CODE	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE	FY 70		FY 77		FY 78		ALL YEARS	
			D. GRANT	E. LOAN	F. GRANT	G. LOAN	H. GRANT	I. LOAN	J. GRANT	K. LOAN
EN			1,700	8,000	250		700		4,100	8,000
TOTALS			1,700	8,000	250		700		4,100	8,000
ESTIMATED EXPENDITURES			-0-		1,400	1,800	1,000	1,200		

12. PROJECT PURPOSE(S) (STAY WITHIN BRACKETS) CHECK IF DIFFERENT FROM PID/PRP

To develop institutional capacity of Ministry of Agriculture and community organizations to deliver productive resources and services to small farmers.

13. WERE CHANGES MADE IN THE PID/PRP FACESHEET DATA NOT INCLUDED ABOVE? IF YES, ATTACH CHANGED PID AND/OR PRP FACESHEET.
 YES NO

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: *[Signature]*

TITLE: Mission Director, USAID/Haiti

DATE SIGNED: MO. DAY YR. 0 | 7 | 2 | 9 | 7 | 16

16. DATE RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
 MO. DAY YR.

Project Paper
Haiti - Integrated Agricultural Development

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- *Exhibit 4 - Evaluation Annex
- Exhibit 5 - Project Performance Tracking System

*Annex available in Latin America Bureau, Office of Development Resources.

A. Borrower and Implementing Agency

The Borrower will be the Government of Haiti (GOH) and the executing agency will be the Department of Agriculture, Natural Resources and Rural Development (DARNDR). The Bureau of Agricultural Credit (BCA), a semi-autonomous agency of DARNDR will be responsible for implementing the agricultural credit element of the project.

B. Recommendations

Grant	\$ 4,100.00
Loan (5 year disbursement period) (Terms: 40 years, 10 years grace 2% during grace and 3% thereafter)	8,000,000
Total new AID obligation	<u>\$12,100.00</u>

Waivers: To permit AID financing of production inputs for cotton (See Action Memorandum, ANNEX I, Exhibit 1).

C. Description of the Project (See Log Frame, ANNEX I, Exhibit 2)

The goal of the project is to increase the production, productivity and incomes of the small farm sector in Haiti. The purpose of the project is to develop and test an institutional system and capacity for delivering such resources and services to Haitian small farmers. This will be achieved through the implementation of a prototype delivery system in four pilot areas, i.e., the Les Caye Plain, the area east of Jacmel, the Cul-de-Sac area and the northwest (See Map, Annex II, Exhibit 3). It is envisioned that the delivery system will be subsequently expanded to areas served by other district DARNDR offices.

The resources and services to be incorporated into the program include the following functional areas:

- Irrigation
- Soil Conservation
- Research and Development
- Agricultural Extension
- Agricultural Credit
- Agricultural Training

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The proposed system would be comprised of the Department of Agriculture, Natural Resources and Rural Development (DARNDR) which would be responsible for the flow of resources and services at the national and regional levels, and community organizations which would be responsible for the flow of resources and services at the community level. In addition, if such a system is to be maintained and expanded, there will be a need for a continued source of trained personpower, particularly at the DARNDR level. In view of this, the project will also provide for assistance to the Faculty of Agronomy and Veterinary Medicine (FAMV) to increase its capacity to supply skilled personpower in certain critical shortage areas, i.e., soil conservation and irrigation.

The specific activities to be undertaken as part of the project are:

1. Project Administration

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The proposed project involves a number of inputs and related activities which will require efficient administration and coordination to achieve the desired objectives. The DARNDR entity responsibility for this is its Administrative Group. The recently completed assessment of DARNDR's institutional capacity noted serious limitations regarding its ability to effectively carry out any large-scale agricultural development activity. These limitations are only exacerbated by the number of donor agencies looking to DARNDR as a vehicle for moving large amounts of resources into Haiti's rural sector. The proposed project will, therefore, provide \$138,000 of loan financing for commodities and \$2.0 million of grant financing for 19 personyears of technical assistance, in the form of a Management Implementation Team (MIT), to assist DARNDR's Administration Group in meeting the administrative requirements of the project (e.g., preparation of implementation plans, procurement of loan-financed goods and services, contract administration, reporting, evaluation, etc.). In addition, the MIT will assist DARNDR in upgrading its management systems (e.g., inventory, accounting, information, personnel, etc.). The MIT will also provide in-service training to counterparts in project administration.

2. Rehabilitation of Irrigation Systems

The project will provide \$3.8 million of loan financing for technical assistance and commodities to develop DARNDR's capacity to perform feasibility studies and rehabilitation of small irrigation systems and to provide continued services to water user associations. In addition, approximately 15 systems serving 9,000 hectares will be rehabilitated. The selection of specific systems to be rehabilitated will be based on the criteria set forth in Annex III Exhibit 4.

For each of these systems a water user association will be organized and members will be trained to ensure continued maintenance and effective operation of the system after the rehabilitation work is completed.

An Irrigation Rehabilitation and Soil Conservation Fund will be established under the project to finance the direct U.S. dollar and local currency cost of irrigation rehabilitation and soil conservation activities, (i.e. for materials and local labor). DARNDR will administer and disburse from this fund for eligible subprojects in a manner similar to that of an ICI.

3. Soil Conservation

The project will provide approximately \$0.8 million of loan financing for technical assistance, participant training and commodities to develop DARNDR's capacity to carry out soil conservation programs. Such programs will involve organization, training and supervision of farmer groups to implement soil conservation practices on watershed areas. It is anticipated that by the end of the project, soil conservation practices will be implemented on approximately 20,000 hectares.

4. Research and Development

The project will provide approximately \$1.1 million of loan and grant financing for technical assistance, participant training and commodities and construction of facilities to increase DARNDR's capacity for applied research and the development of improved plant materials. Two research stations will be established from which will flow improved plant materials and appropriate technical packages for small farmer cropping systems. Approximately 50 village nurseries will also be established and farmer groups will be trained in their operation. These village nurseries will provide the second tier in the system of propagation, multiplication and distribution of improved plant materials.

5. Agricultural Extension

The project will provide approximately \$1.0 million of loan and grant financing for technical assistance, participant training and commodities to increase DARNDR's extension capacity. Approximately

82 extension agents will be trained and facilities will be provided and personnel trained to produce audio-visual materials for extension work. In addition, training will be provided to approximately 580 farmer extension agents.

6. Agricultural Credit

Approximately \$0.4 million of loan financed technical assistance and commodities and \$1.0 million of agricultural production credit will be provided to the Bureau of Agricultural Credit (BCA) to develop its capacity to implement a credit program in the project regions. Twenty-eight credit agents and 18 support staff will be trained in order to organize and service 560 farmer credit groups in the irrigated project areas. The emphasis of the credit program will initially be on cash crops, although food crops will not be specifically excluded.

7. Faculty of Agronomy and Veterinary Medicine (FAMV)

The project will provide approximately \$1.4 million of grant financing and \$0.5 million of loan financing for technical assistance, participant training, commodities and construction to develop a fifth year program at the FAMV to provide training in the areas of soil conservation/erosion control and irrigation/watershed development and management. By one end of the project period, the FAMV should be able to train at the rate of 12 to 15 students per year. The school will initially function with an imported faculty while the off-shore training of permanent faculty is taking place.

The total estimated cost of the project, by element, is summarized below:

	(\$000)			
	AID Grant	AID Loan	GOH	Total
1. Project Administration	2,000	138	382	2,520
2. Irrigation		3,762	2,315	6,077
3. Soil Conservation		769	5,359	6,128
4. Research & Development	370	726	590	1,686
5. Extension	330	647	971	1,948
6. Credit		1,425	634	2,059
7. FAMV	1,400	533	250	2,183
TOTAL	4,100	8,000	10,501	22,601

It is proposed that the Mission be authorized to increase or decrease any of the loan-financed project elements by a maximum of 15% provided, of course, that the total amount of the loan is not exceeded.

D. Summary Findings

The project committee has reviewed the technical, economic, social and financial aspects of the project and concludes that the project is feasible and timely. It is, therefore, recommended that a loan be authorized to the Government of Haiti in an amount not to exceed \$8.0 million, and that a companion grant of not more than \$4.1 million be approved to assist the GOH in administration and implementation of the loan-financed activities.

The project meets all applicable statutory criteria (See ANNEX I, Exhibit 3). The USAID Mission Director's 611(e) certification is included as ANNEX I, Exhibit 4.

E. Issues

The DAEC cable on the results of the IRR is shown in Annex I Exhibit 5. The major issues are summarized below along with a reference to the appropriate sections of the PP in which they are addressed:

<u>Issue</u>	<u>PP Reference</u>
1. Economic Analysis and selection of irrigation systems	Section IV.A.1., "Technical Analysis of Irrigation Systems", and IV.C. "Economic Analysis."
2. Institutional Capacity of DARNDR and agricultural credit institutions.	Section V.A., "Institutional Analysis"
3. Profile of target group.	Section V.E., "Social Analysis"
4. Adequacy of GOH counterpart.	Section IV.F., "Financial Analysis"
5. Feasibility of including a regional development program.	Section IV, "Project Analyses."
6. Inclusion of soil conservation.	Section III.C.4., "Project Description Soil Conservation"

II. PROJECT BACKGROUND

A. Historical Perspective

Slave uprisings in the latter part of the 18th Century, which led to a general revolutionary effort, freed the country that is now known as Haiti from French domination in 1804. During the French colonial period the economy had been closely tied to the production of sugar and other industrial crops such as indigo, most of which were produced on fertile irrigated plains near the sea. Coffee was the principal product grown in the more common mountainous areas.

At the end of the hostilities, the population is said to have numbered no more than 200,000 individuals, nearly all of whom were directly descended from, and who themselves had been, slaves. The society was divided into an urban element composed of approximately five per cent of the total, while the remainder, the far greater majority, were agrarian. Some of the newly-independent rural populace were drafted to work on the large ex-French estates, while others were encouraged to establish themselves on land of their own choosing. Fortunately, the needs of the young Republic in terms of Foreign Exchange and national budgetary revenues were minimal, for the skills needed to continue the level of production established by the colonial farmers were generally lacking. It was of little concern then that the agricultural production base shifted away from industrial crops and over to a food-crop economy, the exceptions being the production of such crops as tobacco or fibers for domestic production.

The above facts are important since they bear strongly on several aspects of the strategy proposed by this project.

At the beginning of the 20th Century, Haiti became more aware of its dependence upon international trade. Coffee exports increased dramatically, and Haitian cotton, known as "Sea Island Cotton", was a favorite on many foreign markets because the exceptionally long staple gave the finished material the look and the feel of silk.

As one might expect, the irrigation infrastructure upon which depended the French colonials for a high rate of production, was deteriorating and was little used by the new population of farmers. It was not until 1938 that President Stenio Vincent obtained a loan of \$5 million from the Export-Import Bank which was used to bring in foreign engineers to reconstruct several of the systems.

More than one hundred years had passed since the departure of the colons and the rebuilding effort mentioned above. It is not then difficult to imagine the reasons that led to the demise of the irrigation infrastructure a second time--20 to 25 years later. Most of the skills relating to the use and upkeep of the irrigation networks had been lost by the inheritors, and little or nothing was being done to retrain the farmers in these basic principles. The attitude on the part of the GOH seems to have been, "here it is--use it", and because of that outlook, and also because no national institution had been developed to do the work if the farmers didn't, the irrigation systems have deteriorated again.

Meanwhile the population curve flows ever upward. From one million in 1900 to 2.5 million in 1948 and 4.5 to 5 million estimated in 1976. The ratio between urban and rural sectors remains almost the same--80 to 85 percent rural and the remainder of the people living in the cities. To this may be added one phenomenon of the last half of the present century--immigration--for fully five percent of the total Haitian population is estimated to live in New York City and its suburbs, and another five percent in other foreign countries.

Demands on the land for food, fiber, fuel and building materials have increased in direct proportion to the rising population curve. These demands, to which must be added the great loss of most of Haiti's natural forests, has produced a degree of soil erosion and water loss that is unknown in most of the world. One of the pressing urgencies of this project is to not only increase food production on the level lands not subject to erosion, but also to undertake treatment measures on sloping lands that will permit them to be used at least to a degree for food production, without damage.

B. Current Setting

With a per capita income estimated at \$140, (and much less than this national average in rural areas), Haiti continues as the poorest country in the Western Hemisphere. A recent study indicates that the Haitian people consume an average of 1,850 calories per day, one of the lowest caloric intakes in the world. Protein and fat consumption are equally deficient amounting to two-thirds or less of the normal requirements. Nutritional deficiencies, thus, are a major factor affecting worker productivity in Haiti. They also constitute a serious health hazard and directly contribute to an infant mortality rate that is 33 times that of the developed countries. The annual population growth rate is slightly more than 2%, excluding net emigration. The 4.5 to 5 million estimated population results in one of the highest densities in the world, and only slightly less than that of India.

The land area of Haiti equals approximately 10,000 square miles (roughly the size of Maryland) consisting of two mountainous peninsulas to the north and the south, a central plateau which is difficult to reach and of uncertain agricultural value, a large fertile irrigated valley along the Artibonite River north of Port-au-Prince, and the Cul-de-Sac area east of the capital. Of the total land area of about 6.9 million acres, only 370,000 are level or nearly so and, therefore, suitable for intensive cropping without special treatment. Actually, nearly 4 million acres are cropped and signs of deterioration in the country's physical resources are evident everywhere. Erosion is not only evident but is proceeding at an alarming rate.

Major industries, almost all of which are located near or in Port-au-Prince include processing of agricultural products such as sugar, cotton and wheat for flour, assembly operations producing for export to the United States, and tourism. The per capita income for the estimated one million members of the urban population is \$340, much higher than for the rural worker, but this "average" income is very unevenly distributed.

Constraints converge on the low productivity of human resources caused by malnutrition, overcrowding, lack of adequate health services and illiteracy; and upon the deteriorating physical resource base which must be called upon to produce more and more, even though to do so exacerbates and accelerates the problems of soil erosion and water losses.

The opportunity exists, however, to reverse the trend in both instances and help the rural communities to become more productive and, thereby, improve their level of living through programs of education, motivation and fuller employment by directing this largely under-utilized resource in a program to develop and protect the physical resources of the country.

C. Relationship to the DAP and Other AID Projects

The strategy articulated in the DAP for Haiti proposes a focus on the specific needs of the rural poor by attacking constraints to increased agricultural production as they relate to some unifying concept, such as the type of infrastructure, or farm practice to be improved, e.g., irrigation systems and erosion control, for example, or for a particular crop production program such as maize. Preference is to be given to provide an integrated array of services and support to small farmers in geographic regions with particular common characteristics such as an irrigation system. The assistance should be intensive and sufficient to have a lasting benefit. Production systems should be designed so as to be easily adoptable by the farmers and should be based upon more intensive farming techniques which increase the productivity of both the land and the labor and thus increase the incomes of the participating farmers. The project which follows adheres to those guidelines.

This project has been two years in the making. Many of the refinements have been tested on a small scale within the framework of AID's Project 521-069, Agriculture Development Support. Basic research on maize production has also been undertaken within that project. This new effort, in fact, will flow and expand from the work undertaken under the 069 Project without pause or noticeable difference. This will be important insofar as the rural communities that are already participating in the program are concerned.

The project is also allied with two other USAID undertakings. The Agriculture Feeder Road Loan was designed with the Integrated Agriculture Development Project in mind, and priority was given to the construction or repair of rural roads associated with the areas to be included in this project. The HACHO community development project of the USAID is located in an impoverished region

of Haiti where water resources are very limited. Project planners have placed the highest of priorities on the rehabilitation of all of the irrigated lands in the HACHO area in order to increase food production and stimulate the economy of that area.

D. Haitian Government Five-Year Plan

The general framework for the new five-year plan (1976-77 to 1980-81) has been completed in draft. The final document will be issued in mid-September but it is not expected to vary from the copy which has been reviewed. The document deals with the agriculture sector under two broad headings: (1) diagnosis and (2) agriculture policy, objectives and strategy. The diagnostic section provides a description of the agriculture sector in terms of institutions, levels of public investment, contribution to GNP, incomes, employment, production, export-import trade, land use, levels of productivity, availability and utilization of inputs, marketing and infrastructure. This diagnosis is in harmony with the analyses presented in this Project Paper.

The second section discusses general policies, objectives and strategy under much the same headings as in the diagnostic section. The means for pursuing the objectives are discussed in terms of investment requirements, institutional structure, regionalization of the DARNDR field offices, infrastructure and public services in agriculture (extension, research, credit and marketing).

In terms of broad policy objectives priority is given to:

1. Improvement of the socio-economic position of the rural population and the reduction of urban migration.
2. Investments into activities which increase production and which increase the efficiency of the use of land and water.
3. Development of human resources and the creation of employment.
4. Promotion of economic growth in the rural sector and reduction in urban/rural disparities.

E. Other Donors

Prospectively, the most important contributor to agricultural development in Haiti other than the U.S. is the Government of Canada. It is anticipated that they will provide approximately \$20 million over the next five years for integrated regional projects. The most ambitious of these is one in the area between Petit Goave and Petit Trou de Nippes in southern Haiti, which is still in initial planning stages. An Integrated Rural Development Project is being implemented in La Plaine de Nord by a non-governmental organization receiving Canadian financing. Canada is also helping the Faculte d'Agriculture by constructing and equipping several buildings, and proposes to exchange teachers and students with Canadian universities.

United Nations' activities have included a detailed study of the Trois Rivieres area in the northwest (by FAO) and proposal for an Irrigation Project for several sections of the Trois Rivieres Valley. Financing has not yet been obtained for this project. The FAO's long-time project in the Plain of Cayes (EDAPS) provided useful feasibility and background studies which have proved useful for the development of the proposed USAID project. Other projects include Reforestation and Erosion Control in the Port-au-Prince, Cap Haitien and Les Cayes areas. UNDP through FAO plans to provide assistance in agricultural extension. This will include the strengthening of six rehabilitation centers, training agronomes and farmers, development of a nationwide agricultural credit system and several small agro-industry demonstration projects. Other activities will include a Seed Multiplication and Distribution project and the Development of Rural Cooperatives. The FAO will be involved in Soil and Erosion Control and Reforestation projects as well as Agricultural and Statistical Planning at Damien during FY 1977.

The IBRD is developing an integrated project in the Plaine de Nord of about \$10 million which is essentially agriculture oriented.

The IDB has provided over \$1 million in agricultural credit to small farmers through l'Institute de Developpement Agricole et d'Industrie (IDAI) to stimulate the increased production of corn, beans and rice for local consumption. It is anticipated that an additional \$1 million will be provided to continue this activity. IDB is presently engaged in the development of irrigation projects in the Valle de l'Artibonite and in the Cul de Sac near Port-au-Prince.

Germany is providing assistance for an Irrigation Project in la Plaine des Gonaives valued at approximately \$1.5 million, with technical assistance from UNDP. A semi-governmental German organization

is providing approximately \$500,000 composed of food and cash for the development of small water systems for potable and irrigation projects in northwest Haiti in cooperation with the Haitian American Community Help Organization (HACHO).

France plans to work primarily in the area of agricultural research but is also providing limited technical assistance to the School of Agronomy and Veterinary Medicine and preparing some sub-sectoral studies. Several small irrigation systems are being developed in the immediate Jacmel area. Crops to be promoted would be fruit trees, cotton, cereals and coffee.

Israel is providing technical assistance for an integrated Rural Development Project in La Plaine de Cul de Sac (Bass Boen) and in cooperation with OEA is managing one of the Ilots of Development.

The Republic of China has had a modest project (with some USAID assistance) designed to increase rice yields by applied research and dissemination of results.

PVO activities include a proposed small development project in the northwest (Gros Morne) and an increasing allocation of CARE/HACHO resources to community-supported agricultural projects in the northwest.

There is, as can be seen, a large amount of other donor activity planned or underway in Haiti, most of it concentrated in the agriculture sector. Such activity cannot be effectively implemented or sustained without significant improvements in the institutional capacity of the GOH to do so. The proposed AID project, probably more than any other, is designed to address this institutional constraint and thereby increase the absorptive capacity of the GOH. Accordingly, the proposed AID project complements other donor activities in two ways: first, the pilot regions in which the AID project will be implemented are those in which other donor activities are minimal and, second, the institutional capacity of DARNDR will be increased, permitting the GOH to more effectively utilize the development resources being made available by other donors.

III. DETAILED DESCRIPTION OF THE PROJECT

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A. Goal and Purposes

The goal of the project is to increase the production, productivity and incomes of the small farm sector in Haiti. Per hectare yields in Haiti are presently among the lowest in the world, a fact attributable primarily to the primitive state of agriculture practices of Haiti's small farm sector. It is therefore anticipated that, in the Haiti context, relatively modest improvements in the agricultural technology applied by small farmers can provide significant improvements in crop yields. The expected increase in productivity will in turn increase total production and incomes in the small farm sector assuming small farmer selling prices are not adversely affected by pricing or other GOH policies, or an inadequate marketing system.* In view of the stated policy objectives of the GOH 5 year plan cited above and the improvements in the marketing system expected to result from other projects (e.g. AID's Small Farmer Marketing - FY 77 and Feeder roads projects) these assumptions appear reasonable.

In order to achieve the project's goal it will be necessary to increase the productive resources and services available to the small farmer. Thus, the project has a dual and interrelated purpose: first, to develop an institutional system and capacity for delivering the necessary resources and services to the small farmer and; second, to implement such a system on a pilot basis in four geographic regions in Haiti. The specific resources and services to be included in the delivery system are:

- Agricultural extension/information services
- Irrigation services
- Soil conservation services
- Research and development services
- Agricultural credit
- Agricultural training

Based on the sector assessment and other studies, the lack of services and resources have been identified as the major inadequacies existing in the small farm sector. Unless there is a significant increase in the resources and services to Haitian small farmers, no significant improvement in agricultural practices is likely to occur. The system

*The Haiti sector assessment concludes that "the traditional market system for food commodities, while very inefficient in terms of use of human effort, appears to discharge effectively the marketing function of balancing supplies and demand and maintaining margins at an acceptable level...there would seem to be little advantage to be gained by any attempt to bring about any substantial institutional changes or major efforts at improvements in centralized infrastructure." The full text of the assessment of the marketing system is attached as Annex II - Exhibit 1.

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proposed for increasing the availability of services and resources will be comprised of DARNDR, community organizations and the FAMV. DARNDR will be responsible for the flow of resources and services at the national and regional levels interacting with community organizations which are in turn responsible for the flow of resources and services at the local level. The FAMV will supply the human resources necessary for sustaining the system, after the project period, with adequately trained cadre. The second purpose, implementation of such a system on a pilot basis, will provide a learning experience which should reinforce the development of the system and at the same time provide an immediate impact in the pilot areas.

B. Project Strategy

By far, the major constraint faced by AID and other donors in attempting to develop a viable rural or agricultural development project in Haiti is the lack of an adequate mechanism, i.e. implementing agency, for carrying out such a project. A complex integrated program for rural or agricultural development requires relatively mature institutions to effectively administer and implement. As indicated in the institutional analysis section of this paper, DARNDR, the Ministry primarily responsible for rural development activities including those in agriculture and education, is seriously deficient in terms of human, physical and budgetary resources. Although DARNDR has a workable institutional structure and a core of well trained management and technical personnel, it would have difficulty in assuming the burden of any comprehensive integrated agricultural development scheme without significant improvements in institutional capacity. The problem is magnified when one considers the number of donors which are looking to DARNDR as the vehicle for moving large amounts of resources into Haiti's rural sector. For AID the problem simply stated is: how to have a significant near term impact on AID's target groups without an adequate institutional delivery system in place.

There are two basic alternative strategies available in the Haiti situation which represent the two extremes of a spectrum of compromise strategies:

1. Bypass indigenous institutions by importing large numbers of outside experts to implement development activities.
2. Accent that there can be no near term impact on the rural poor without adequate institutions and enter a long term institutional development program (e.g. participant training, technical assistance, etc.)

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Each approach has obvious deficiencies: the first while it may produce an immediate impact leaves nothing behind for sustaining the development activity after the project has ended. The second is not fully responsive to AID's mandate which calls for projects to have a clear and direct impact on the poor majority.

The strategy of the proposed project is a compromise of the two extremes in that it provides for initiation of the long term institution building process while at the same time beginning a program designed to increase the productive resources and services immediately available to the small farmer in 4 pilot areas* with the help of outside assistance in implementation. For example, the irrigation feasibility studies and supervision of rehabilitation required to achieve project targets will initially be performed by a U.S. engineering firm under contract with DARNDR. At the same time Ministry staff will be recruited and trained to assume these functions by the end of the 4th year of the project. These two activities are mutually supportive in that the U.S. engineering firm's role will become increasingly training-oriented and advisory in nature as DARNDR's capacity to perform this function is developed. The design of the other elements of the project are based on a similar approach of gradually increasing DARNDR responsibility for all project administrative and technical functions over the life of the project. By the end of the project, an institutional structure will have been made operational within DARNDR for identifying, evaluating, financing and implementing viable small-scale irrigation/soil conservation subprojects and other complementary agricultural production activities. As described below, this structure will function in a manner similar to that of ICI.

There is one very favorable force at work in Haiti. This is the traditional practice in rural areas of organizing into various types of community groups for a number of self-help activities. Such groups figure prominently in the strategy of the proposed project, for to the extent they can assume responsibilities for delivery of resources and services at the local level the burden placed on public sector institutions is reduced. Obvious examples are group credit and group extension work. Working through such groups greatly increases the number of farmers which can be reached by any one credit or extension agent. At the moment, however, there is not a strong linkage between DARNDR and community groups due to institutional deficiencies at both levels. Thus, one of the major objectives of the project is to assist DARNDR in reaching a little lower and to assist community groups in reaching a little higher. Once accomplished a strong institutional system should be in place for bringing resources and services to the small farm sector.

* In order to understand the scope of the term "pilot" it should be noted that the project will include 13% of Haiti's currently irrigated lands and 5% of the total non-irrigated areas suitable for annual crops.

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Besides reducing DARDP's institutional requirements at the local level, the use of community organizations in a vertically integrated system has other, possibly more significant, advantages. Such a system will tend to stimulate bottom-up rather than top-down planning. Communities will identify and prioritize their own needs which can then be more effectively communicated to government institutions. Resources will be "drawn" rather than "pushed" into the rural sector. In addition the strengthening of community organizations will greatly enhance the self-help capacity of the rural poor and increase the likelihood that development activities begun under the project will be self-sustaining: e.g. the maintenance of irrigation and soil conservation structures and initiation of community projects requiring no outside resources.

The long term viability of the proposed institutional delivery system depends to a large degree on a continuing source of trained man power, particularly at the DARDP level. The assessment identified critical gaps in trained manpower in such areas as engineering and management and a lack of indigenous institutional capacity to produce such skills. In keeping with the GOB policy of avoiding off-shore training where possible, a third tier activity has been incorporated into the project which is designed to develop the capacity of the FAW, in terms of curricula and resources, to produce the needed human resources for sustaining development in the agriculture sector over the long term.

The project is designed to address the social concerns that have been responsible for the lack of success with former and similar projects. It is a people project, directed towards involvement and training of people at the rural levels and in the national institutions as well. The technical tasks associated with the rehabilitation of irrigation systems and the construction of soil conserving terraces will be successful only insofar as the people who are to use them believe in them, and wish to protect them. If successful, the project will have created stronger, healthier institutions and financial mechanisms by which the proposed development activities can be effectively sustained and repeated after the project is completed. Furthermore, measurable improvements will have been introduced in the pilot regions in the form of improved water control, plant materials, and agricultural technology which should, in turn, result in increased productivity and incomes for the rural poor in these areas. This would represent the first step in implementing such a program on the national level.

C. Description of the Project

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1. Project Administration

The description of the various project elements which follows presents a complex project encompassing a number of functional activities spread over a wide geographic area and involving several institutions. Effective administration of such a project is essential to achieving the project's purposes and goals. Given the limited institutional capacity of DARNPP to undertake such a project (See Section V.A, Institutional Analysis), it is proposed that AFD grant-finance a Management Implementation Team (MIT) for the first four years of the project to work with DARNPP counterparts responsible for project management and administration, primarily those in DARNPP's Administration Group. The proposed MIT would serve in a dual capacity:

a. Institutional Development

The full-time MIT advisors supported by short term advisors would assist DARNPP in developing management systems and training counterparts in areas such as accounting, inventory control, personnel systems and information systems (the latter being critical to effective evaluation of the project).

b. Project Implementation and Evaluation

The MIT would be responsible for assisting DARNPP in carrying out and coordinating the various administrative requirements of the project such as procurement of technical services and commodities, arranging for off-shore training, and management of the loan financed technical assistance contracts. In addition, the MIT would have primary responsibility for project reporting and on-going evaluation activities.

The MIT would be comprised of:

- a. A chief of party with broad experience in agricultural administration and rural development (4 person years).
- b. Two administrative management specialists (8 person years).
- c. Supply and procurement specialist (4 person years).
- d. Short term specialists in management systems.

MIT and its functions are more fully described in Section V.B, "Implementation Strategy" and a detailed estimate of costs (summarized below) is provided in Annex II, Exhibit 2.

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The description of the various project elements which follows presents a complex project encompassing a number of functional activities spread over a wide geographic area and involving several institutions. Effective administration of such a project is essential to achieving the project's purposes and goals. Given the limited institutional capacity of DARNIP to undertake such a project (See Section V.A, Institutional Analysis), it is proposed that AFD grant-finance a Management Implementation Team (MIT) for the first four years of the project to work with DARNIP counterparts responsible for project management and administration, primarily those in DARNIP's Administration Group. The proposed MIT would serve in a dual capacity:

a. Institutional Development

The full-time MIT advisors supported by short term advisors would assist DARNIP in developing management systems and training counterparts in areas such as accounting, inventory control, personnel systems and information systems (the latter being critical to effective evaluation of the project).

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The MIT would be responsible for assisting DARNIP in carrying out and coordinating the various administrative requirements of the project such as procurement of technical services and commodities, arranging for off-shore training, and management of the loan financed technical assistance contracts. In addition, the MIT would have primary responsibility for project reporting and on-going evaluation activities.

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- a. A chief of party with broad experience in agricultural administration and rural development (4 person years).
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- d. Short term specialists in management systems.

MIT and its functions are more fully described in Section V.B, "Implementation Strategy" and a detailed estimate of costs (summarized below) is provided in Annex II, Exhibit 2.

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PROJECT ADMINISTRATION
Cost Summary
(In \$000)

	ATD Grant	ATD Loan	GOV	Total
Technical Assistance (100 % Long Term)	1615			1615
Technical Assistance (45 % Short Term)	395			395
Vehicles, Equipment and Materials		131		131
DARNDR Personnel			231	231
Operations and Maintenance			151	151
Sub-Total	2000	131	382	2513
Contingency and Inflation		7		7
Total	2000	138	382	2520

2. Reconstruction/Rehabilitation of Irrigation Systems

a. Implementation Strategy

The need in Haiti for rehabilitation of small scale irrigation systems and complementary soil conservation and agricultural production activities is much larger than can be met by any one project or by any one donor agency. Given the large number of potential small scale subprojects, and the relative small cost of each one, it is impractical to identify them all in advance and develop detailed feasibility studies for each one prior to the obligation of external funds. Under these circumstances the most effective approach is to establish a mechanism which can rationally select, evaluate, finance and implement, on a continuing basis small scale irrigation and soil conservation activities within integrated agricultural production programs. Thus, a primary purpose of the project proposed herein is the creation, within DARNDR, of an institutional structure and process for identifying and financing viable irrigation subprojects and complementary activities in a manner similar to an ICI. The basic characteristics of the proposed approach are summarized below:

- There are a large number of potential irrigation subprojects that can be implemented with complementary soil conservation and agricultural production activities.
- The design and construction standards for each irrigation system are quite simple and do not require extensive technical and economic studies.
- An Irrigation/Soil Conservation Fund will be established for financing these subprojects within an integrated approach to increasing agricultural production.

- The proposed project will develop in DARNDR an administrative and technical capability for identifying and evaluating sub-projects to be financed by the Irrigation Soil Conservation Fund.
- The criteria for subproject selection and the methodology to be used by DARNDR for conducting final feasibility studies for each subproject are described below in (b).

Thus, the primary purpose of this element of the project is the building of an institutional capability in DARNDR that is capable of providing resources for the irrigation/soil conservation component of integrated agricultural development projects, such as the one described in this paper.

Selection of Subprojects

The geographic focus of the project is on irrigation systems and their watersheds located in four regions in Haiti: the Les Cayes plain, the area east of Jacmel, the Cul de Sac area, and the Northwest. (See Map, Annex II, Exhibit 3). The project target with respect to irrigation is the rehabilitation of systems serving 4,000 hectares. The selection of specific systems to be rehabilitated under the project will be based on feasibility studies carried out in accordance with the guidelines and methodology set forth in Section IV.C., Economic Analysis and in Annex III, Exhibit 4.

The guidelines are designed to establish the technical and economic feasibility of individual subprojects. In addition, a review of the marketing system and land tenure patterns is incorporated into the guidelines in order to assess the adequacy of the marketing system to handle the anticipated increase in production and to provide a more detailed assessment of benefit incidence.

Systems serving 1,300 hectares have already been subjected to full feasibility study. Subsequent feasibility studies will initially be performed by a loan financed technical assistance contract team and eventually by DARNDR. The composition and phasing of the proposed technical assistance team is shown in Annex II, Exhibit 4. Over the life of the project DARNDR will gradually assume increased responsibility for performing the feasibility studies with the contractor assisting in an advisory capacity. It is anticipated that DARNDR will be able to perform such studies unassisted by the end of the fourth year of the project at which time it can begin similar studies in other regions of the country.

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The irrigation feasibility studies are scheduled to be completed (in terms of Nos. of hectares) at the following rate:

Performed by:	Year				
	1	2	3	4	5
Technical assistance team	6000 has		4000 has		
DARNDR				2000 has 3000 has	

Annex II, Exhibit 5 provides a listing in order of priority of 28 potential subprojects covering 16,709 hectares. The list is broken down in three categories:

- Feasibility Study completed (1300 hectares)
- Prefeasibility study completed (13,215 hectares)
- No prefeasibility study (2104 hectares)

The cost estimates included in the project budget are based on the 15 higher priority subprojects included in this listing which total approximately 9,000 hectares. These 15 preliminary identified systems involve approximately 6,600 hectares in the Les Caves plain, 1,500 hectares in the Jacmel area, 500 hectares in the Cul de Sac area and 400 hectares in the Northwest.

c. Rehabilitation

The preparation of designs, rehabilitation work plans and supervision of rehabilitation will, as with the feasibility studies, be performed by the contract engineering team with DARNDR gradually assuming increasing responsibility for this function over the life of the project. The actual rehabilitation work will be performed by local labor, primarily the water users themselves. Approximately 95% of the work will be done with simple hand tools. Laborers will be paid weekly as follows:

- 3 days pay at the minimum daily rate (\$1.30/day) directly to the worker.
- 1 day pay to the worker's council or irrigation district to capitalize operating fund.
- 1 day donated by worker.

Rehabilitation is scheduled to be completed at the following rate:

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<u>Supervised by:</u>	<u>Year</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Technical Assistance Team		1000	3500	3000	
DARNDR				500	1000

d. Method of Operation and Maintenance

The long term objective is to have each system operated and maintained by the appropriate community council or irrigation district. These organizations would employ watermasters and distributors to control water distribution and also assume responsibilities for repair and subsequent rehabilitation work assisted, as needed, by DARNDR. Such organizations must be organized, where they do not already exist, for all subprojects. For this purpose the consultant team will include a specialist in agricultural extension and farmer-water users associations.

Local organizations will be instructed in how operation, maintenance and repair should be organized and administered, including the keeping of financial and water records and the hiring/supervision of staff and contract assistance. Gate-tenders, watermasters, ditchriders, and farmers will be trained in effective control of water under their responsibility and in the maintenance and repair of structures.

Annex II, Exhibit 6 provides detailed cost estimates for the reconstruction/rehabilitation of irrigation systems. These are summarized below:

RECONSTRUCTION/REHABILITATION OF
IRRIGATION SYSTEMS

Cost Summary*
(In \$000)

	<u>AID</u>	<u>CON</u>	<u>Contributed</u>	<u>Total</u>
	<u>Loan</u>		<u>Labor</u>	
Technical Assistance (233 PM Long Term)	1149			1149
Technical Assistance (27 PM Short Term)	133			133
Vehicles, Equipment and Materials	2297			2297
DARNDR Personnel		312		312
Local Labor		2003	501	2504
Sub-Total	3579	2315	501	6395
Contingency & Inflation	183			183
Total	3762	2315	501	6578

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3. Extension/Information Services

The AID supported DARNDR Project in Integrated Agricultural Development will provide productive resources and services to approximately 3,000 farmers in irrigated areas and their watersheds. These resources and service will flow from DARNDR, through community organizations which plan a major role in the development process by serving as a principal mechanism for planning and implementing project activities at the local level. The extension Service serves as the principal entity of DARNDR responsible for working directly with Community Councils, and other local groups such as water user associations, seed growers, village nursery operators, soil conservation work groups and irrigation rehabilitation work groups.

For each technical or functional activity of the program, various other DARNDR entities such as the Research, Soil Conservation, Irrigation, Community Development, RCA, etc. will be involved in assisting Community Councils and other community groups in planning and implementing project activities. These functions of an extension type are described herein under two headings, i.e. (a) Extension and (b) Information/Community Development.

(a) Extension

The extension Service of DARNDR will be strengthened by the training of personnel provision of commodities, vehicles, materials and support budget to implement extension type activities at the local level. It is estimated that eighty two Extension Personnel will be required in the four districts which correspond to the four project areas. Two week courses for approximately 20 employees will be conducted in the first year of the project to prepare agents for field assignments. Additional courses will be conducted through the rest of the project period to update Extension Agents and Supervisors in group dynamics, technology, extension methodology and project implementation. Extension agents will provide 3700 training days for 580 farmer leaders representing the 23,000 target farmers in the project area. The project also provides for long term participants in extension methodology. Three person years of a U.S. specialist in extension methodology will be provided to assist DARNDR in implementing this element of the project.

DARNDR extension agents will assist in the development of plans for overall project implementation as will the agents and technicians of other Services of DARNDR. The principal role of agents will be to

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Provide technical information to farmer groups, utilizing standard extension methodologies such as the use of farmer group meetings, development of farm plans, conduct of farmer leader training, farm visits, distribution of information materials, provision of information on sources of inputs and their use, conduct of demonstrations, field days, agricultural fairs, identification of production problems and recommendations for their solution. Extension agents and Supervisors are to be provided with increased mobility to provide each agent with the capability of effectively working with an average of 8 local leaders and 150 farm families.

Resources to be provided for implementation of project activities will include transport, gasoline and maintenance costs of vehicles, per diem, materials and supplies and other miscellaneous expenditures. Transportation for agents will consist of motorcycles and mules. Nine supervisors will be provided with jeeps and 500 local group motivators will be provided with bicycles as an in-kind payment for their work in cooperation with the Extension Service.

b. Information Communication Development

In order to strengthen and provide support to the efforts of the Extension Service, as well as other services concerned with education and community development at the local level, the project will provide assistance to DAPNDP to:

(1) Develop capabilities of the Service du Matériel Educatif to produce and distribute information materials in the form of brochures, posters, handouts, slide presentations, films, photos, videotapes. At present the demand for audiovisual information materials cannot be fulfilled.

(2) Develop seminars for agricultural practices and community development for professionals and for farmers and their families.

The assistance to be provided will include appropriate A-V equipment and materials as well as two years technical assistance of a Communication/Education Advisor to support development of full range of communication services.

Annex II, Exhibit 7 provides a detailed cost estimate for the extension/information activities which is summarized below:

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EXTENSION/INFORMATION SERVICESEstimated Cost

(In \$000)

	AID		COF	Total
	Loan	Grant		
Technical Assistance (60 PM Long Term)		330		330
Participant Training, off-shore	173			173
In-country training			110	110
Vehicles, Equipment and Materials	403			403
NARNDR Personnel			674	674
Operations and Maintenance			187	187
Sub-Total	576	330	971	1877
Contingency and Inflation	71		-	71
Total	647	330	971	1948

4. Soil Conservation/Crop Production

The Soil Conservation/Food Production activities of the Project will involve farmers in non-irrigated areas which adjoin the irrigation systems being rehabilitated in the four project areas (watersheds). These areas may be either low land, intermediate or upland areas with respect to altitude, but all have common problems of poor soil fertility, water stress at some seasons of the years, low productivity, serious soil erosion and high density of people existing at an extremely low level of subsistence.

The overall objective is to initiate in selected geographic locations, a pilot project in soil conservation and food production, combined in one integrated approach to modify the production system of non-irrigated crops. The improvement to the system in non-irrigated (upland) areas will be accomplished by (1) adding new and traditional crops to the system, (2) providing for a low level of inputs such as seed and trees and (3) improving cultural practices within the system (weeding, mulching, better soil preparation, use of manures and modifications of the planting patterns) (4) land treatment to control soil erosion and water loss.

The improved upland production system will initiate fruit tree inter-cropping into existing sequential, relay and mixed cropping systems. Combinations of tree crops planted in single or sets of rows below rock, earth or bench terraces are expected to provide the mechanism for reducing soil erosion (See Section IV.A.2.b.).

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Briefly described, this element of the project will be conducted in the following fashion. Work by the Extension Service, Soil Conservation Service and other appropriate DAPNDP entities will be conducted to organize community Councils in planning, educating and motivating farmers to participate in soil conservation/food production activities in upland areas covered by the Project. Specific areas for implementation of soil conservation activities will be the watersheds of the irrigation systems being rehabilitated under the project. Plans will be developed for each area, including use of new planting materials and cropping systems to be used, development of simple plans for terrace structures of rock, earth and plant materials and development of plans for the use of farm labor in construction activities. Under the supervision of the Soil Conservation Service, construction of terraces, will be accomplished by farmers who will be paid on the same basis as that for workers involved in the rehabilitation of irrigation systems described above. Trees propagated in village nurseries and plant materials from other sources will be planted by participating farmers. Technical assistance in the form of farmer leader training, field days, communication media, demonstrations and personal contact will be provided to farmer groups to guide them in use of improved plant materials, cultural practices and farming systems designed to reduce soil erosion. While cropping systems will vary considerably from region to region, most regions will employ examples of cropping systems described in Annex II Exhibit 8 (Non-irrigated Cropping Systems). Where possible, cropping system example number 11 in this Annex will be promoted and recommended for use.

Essential staff requirements of the Soil Conservation Service are estimated to be 15 new middle level employees and 2 existing employees participating full time in project activities. Training of the following types will be conducted:

- Long term participant training (4 Soil Conservationists)
- Pre-Service training of 15 middle level technicians (2-3 months)
- In-Service on the job training by two long term U.S. Technicians i.e. 1 soil conservationist - 4 years and 1 conservation engineer - 3 years.
- Farmer leader training for 500 farmers in terrace construction and tree planting techniques.

Annex II Exhibit 9 provides a detail cost estimate for conducting soil conservation/crop production activities in uplands which is summarized below.

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SOIL CONSERVATION/CROP PRODUCTION
Estimated Costs
(In 000)

	ATP Loan	GOV	Contributed Labor	Total
Technical Assistance (72 M Long Term)	330			330
Participant Training off-shore	173			173
In-country Training		85		85
Vehicles, Equipment and Materials	203			203
BARDDR Personnel		206		206
Local Labor		4000	1200	6000
Operations and Maintenance		270		270
	Sub-Total 706	5359	1200	7265
Contingency and Inflation	63	-	-	63
	Total 769	5359	1200	7328

5. Research and Development (Improved Plant Materials)

Activities under this element of the project will involve introduction (procurement and importation) of large quantities of improved plant materials of many types considered to be appropriate for use in Haiti to meet project objectives. Materials in the form of seed, trees, budwood, rootstock, tubers, roots and cuttings will be purchased or will be obtained through plant material exchange as necessary, in quantities adequate to form foundation plantings for observation, testing (where necessary), and multiplication for later distribution. All known worldwide sources will be sought, but particularly those Caribbean and Central American countries with environments similar to those of Haiti.

Simultaneous with observation or testing of foundation plantings, tree species and other crops will be propagated for distribution to village nurseries in the four project districts. Selection of village nurseries will be made employing several technical and social criteria and in conjunction with other integrated project activities (community development, extension, soil conservation activities). A considerable level of education and motivational work will be performed by the Extension Service and other entities of BARDDR prior to initiating village nursery activities. Resources and services in the form of technical assistance, training, foundation stock, seed, materials and supplies will be provided to farmer groups within community councils. Construction

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of village nurseries on government or privately-owned land, will be largely the responsibility of villagers (farmers) who intend to participate in soil conservation/crop production activities in non-irrigated areas roughly adjacent to irrigation systems (in their watersheds).

Selected crops will be identified for full-scale adaptive research trials. Corn trials aimed at providing an improved local selection of maize are now underway within the framework of a contract with Virginia Polytechnic Institute. Rice trials have been conducted in Haiti by an agricultural team from Taiwan and the results of these efforts are available for almost immediate use. Within the framework of this project, adaptive research trials with improved varieties of millet are planned. Sugar cane trials aimed at increasing yields of cane per hectare and the sugar content per ton of cane will be undertaken. In that industrial crops will play an important role in the intensification of culture on irrigated lands, such plants as cotton, peanuts, and soybeans will be tested to determine adaptive varieties, seeding rates, cultural practices, water requirements, fertilizer needs and insects and disease problems.

Activities of research and development described above will be the responsibility of the Research Service, principally, working in an integrated manner with the Extension Service, Soil Conservation Service, Irrigation Service and the Agricultural Credit Office (BCA). Staffing requirements of the Research Service are estimated at 15 middle level, full-time employees and seven Agronomists working at least one-half time in the Integrated Agricultural Development Project.

Training of several types are envisaged.

- Long-term participant training for 2 agronomists and 2 horticulturists.
- Pre-service training prior to assignment for 15 new employees for 2-3 months.
- In-service, on-the-job training will be conducted by one long-term and several short-term U.S. agronomists/horticulturists over the life of the project.
- Farmer training in advanced crop technology will be provided for at least 500 farmer leaders. Extension Agents will be involved in participating in this training as assistants and as follow-on liaison contracts with farmers participating in project activities.

Detailed cost estimates for the research and development activities are shown in ANNEX II, Exhibit 10.

Research and Development Estimated Cost (In \$000)					
	AID Grant	AID Loan	GOH	Contributed Labor	Total
Technical Assistance (60 PM)	370				370
Participant Trg.-Off-shore		173			173
In-country Training			60		60
Vehicles, Equip. & Materials		266			266
Construction		200			200
DARNDR Personnel			300		300
Local Labor			140	20	160
Operations & Maintenance			90		90
Sub-Total	370	639	590	20	1,619
Contingency and Inflation		87			87
TOTAL	370	726	590	20	1,706

6. Agricultural Production Credit

a. General Purpose

The loan will provide approximately one million dollars for agricultural credit to be managed as part of the portfolio of the Office of Agricultural Credit (BCA), a semi-autonomous agency under the Ministry of Agriculture described in Section V.A under the Institutional Analysis. Loans will be made available to agricultural credit societies for sub-loans to their members. The Mission anticipates that sub-loans of not more than \$200 per family holding, will be made to help one farmer improve his production. Most of the demand will probably be for funds to buy such key ingredients as fertilizer, pesticides, tools, storage facilities, etc. Credit will begin to flow in about the third year of the project and will be restricted to the lowland regions of the Northwest, Cul-de-Sac, Jacmel and Les Cayes, specifically the areas which are served by the irrigation systems rehabilitated under the project.

Since loans would only be made to the farmer as a member of an agricultural credit society, an understanding of this administrative mechanism is important.

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b. Agricultural Credit Societies (Societes de Credit Agricole-SAC)

Since 1967 approximately 180 small farmer groups have been organized and set up by field personnel from IHPCADE, ONAAC, BCA and the cooperative office located in the Department of Agriculture. Objectives for establishing these small groups have involved a variety of attempts to work with people at the lowest levels of the rural sector in order to upgrade literacy, channel agricultural credit, and in general, promote community development.

In some respects, the SAC's are cooperative organizations and registered as such in the cooperative office of the Ministry of Agriculture, although they are not legal entities. In the past the group has had to have at least 7 members and no more than 15 at any one time. New enabling legislation of February 1974, however, fixes no maximum number. The membership elects its own president and secretary-treasurer who also serve as the credit committee for the group.

(1) SAC Credit Operations

The credit committee of the SAC prepares loan applications to the BCA with the assistance of extension agents and BCA personnel. Each SAC member is listed in the application by name. The purpose of the loan, the amount and date of repayment, and funds are sub-loaned to each participant in the project. The application has a "joint and several" guarantee provision which requires the SAC to repay the loan of any member failing to do so.

The loan is made to the SAC by BCA at 8% per annum (the maximum rate which BCA can charge by law) and the group sub-lends to its members at 12%. The 4% spread remains on deposit with the BCA for the benefit of the SAC and represents capitalization of the unit. No interest is paid on the deposit, however.

BCA lending to SACs has been substantial in numbers but relatively small in amount. Repayment records have been better than for individual loans and SAC credits have been much cheaper to administer. During 1973, BCA reported having made 285 loans to SAC's in the amount of \$43,781, or an average of \$150 per SAC and approximately \$20 per member.

Each BCA regional director has the authority to approve and disburse loans not exceeding \$100, with requests over that amount requiring

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headquarters approval in Damien. Within policy limitations, BCA's regional director writes a loan check payable to the SAC's president, secretary/treasurer or to himself. The check is then cashed at a regional bank, disbursed to each member in accordance with his requested share. If credit in kind is utilized, a coupon is issued to exchange for fertilizer or other farm supplies. All transactions are recorded in the member's passbook, the SAC's records and at the BCA.

In order to deal effectively with SAC's, the BCA has developed several basic written instructions and forms. These include:

- An abbreviated set of bylaws which the president and secretary/treasurer sign.
- An abbreviated "do-it-yourself" type of agenda for meetings of the SAC.
- A loan application
- A loan note which binds the SAC to BCA for the loan.
- A sub-loan note binding the member to the SAC.
- Simplified instructions for the accounting of money and deposit funds.
- A ledger record reflecting transactions between the SAC and BCA.
- A member passbook showing transactions with his SAC.
- A permanent individual ledger record maintained by the SAC showing transactions between the SAC and its members.

c. Technical Assistance and Training Requirements

The credit program anticipates addressing the needs of 7,000 lowland farm families. With BCA's existing SAC's averaging 12.5 members per SAC, the objective of reaching 7,000 farmers translates into 560 SAC's. The BCA is currently employing individuals with various skills and educational background to relate to the SAC's. Whether they are agronomists, agricultural technicians, or accountants, they all carry the title of "agent". Recent internal studies conducted in the regional offices of the BCA suggest that an agent can effectively relate to approximately 20 SAC's. Thus, 28 "agents" would be required to work with 7,000 farmers organized into 560 SAC's.

This approach requires the training of new field agents,

to train them. This time includes recruiting, theoretical training, practical supervised field work, placement and organization of local office.

In addition, regional level support personnel would be required for regional-level operations in support of field agents such as regional office accountants (5), mobile cashiers (5), and portfolio clerks (3). They would also need training. Two to three months training would be required for each of them.

Additional regional-level supervisory staff would be needed as well. Under present conditions, regional level supervisory staff individuals can relate effectively to a maximum of five field agents and required support personnel. Twenty-eight new "agents" and 13 additional support personnel would require at least 5 or 6 additional supervisory staff. In small operations, the regional director could fill the role of the supervisory individual. In larger offices such as Jacmel, the organization would have to be restructured with the new supervisory staff taking on such specialized roles as loan and technical officer, training officer and administrative officer, etc. Personnel in such jobs require good academic records, special skills and experience. At present, BCA is stretched thin for this type of personnel. While it is currently rebuilding, current staff individuals are two to three years away from this level of work. To pull them off sooner from present field assignments would be to receive less experienced persons for the supervisory level of work, plus slowing up the credit for one small farmer development effort for which they were trained.

The effect of this project on central office operations must be considered. While it is almost impossible to quantify the impact of such project objectives on the central office of the BCA, the project would most surely require an additional loan officer, training chief, administrative assistant, and inspector. In addition, the BCA central operations would require probably two additional accountants and portfolio assistants. The incidence of such project objectives would also be felt at the top management level, perhaps calling for an assistant director and, perhaps, a coordinator of regional operations.

d. Course of Action

The BCA has come to realize recently that the stability of the SAC's and the involvement of the SAC members, small farmers, has a direct influence on the stability of itself as an

institution. Consequently, the Bureau of Agricultural Credit is passing from its "do whatever we can" stage to a more orderly approach involving long-range organizational plans and commitments to fully develop the SAC structure leading to the eventual forming of viable, self-managed, local-level farmer organizations. Institutionalizing this approach throughout the BCA will be difficult to achieve in a short time period, even without additional demands being placed upon it, and the ramifications of this process should not be underestimated.

To assure that this project does not disrupt and overwhelm BCA and permits it at the same time to continue to execute projects emerging out of national priorities such as the one under discussion, the following technical assistance is proposed to start at the end of the first year of the project. This time frame will enable the regional offices and central office to be geared up for a new lending program of \$1 million beginning the third year of the project. It will include both classroom and on-the-job training on existing SAC and BCA operations. The on-going AID-financed technical assistance by CUNA to BCA will be expanded by an additional two CUNA staff for two years.

The additional staff to be trained and in place by the beginning of the third year of the project is as follows:

28 "agents to supervise 560 SAC's

Regional-level support

5 accountants
5 mobile cashiers
3 portfolio clerks

Regional supervisory staff

6 supervisory staff

Central BCA operations

1 loan officer
1 training chief
1 administrative assistant
1 inspector
2 accountants
2 portfolio assistants

Annex II, Exhibit 11 provides a detailed cost estimate for the credit program which is summarized below:

Agricultural Credit Program
Estimated Costs
(In \$000)

	AID		Total
	Loan	GOH	
Agricultural Production Credit	1,000		1,000
Technical Assistance (48 PM long term)	280		280
Vehicles, Equipment & Materials	29		29
DARNDR Personnel		594	594
Operations and Maintenance		40	40
Sub-Total	1,309	634	1,943
Contingency and Inflation	116		116
TOTAL	1,425	634	2,059

7. FAMV

To meet the anticipated requirement for Agronomists with sufficient engineering skills which will enable them to function in the areas of soil conservation/erosion control and irrigation water development and management, a post-graduate school will be established at the Faculty of Agronomy at Damien, providing training in the following areas.

Advanced mathematics to include plane geometry, differential leveling, survey and principles of soil conservation and irrigation water management, simple earthwork/construction, soil characteristics and soil management, small project administration and management. Present space limitations dictate the construction of a design-compatible structure containing approximately 8,000 square feet where this training will be principally conducted. The one exception to this will be the use of the soils fertility laboratory which, though presently constructed, requires additional equipment.

The school is to be considered as a non-degree institution at the post-graduate level. There are two reasons for considering the non-degree status of the institution. First, it is generally accepted that the level of training to be conducted would not satisfy the requirements of an institution for a post-graduate degree; and post-graduate status will permit the recruitment of students from the large body of former graduates of the FAMV who are currently employed by DARNDR and elsewhere.

The faculty is not receiving external assistance at the present time; however, the Canadian Government and the French Government have published proposed projects, neither of which will conflict with this proposal. The Canadian assistance is geared to assist with the training of sub-professional personnel in all agricultural disciplines and will build the foundation for three additional technical schools at, as yet, undefined locations in the country (there is currently one technical school located at Damien). The French assistance is geared entirely towards upgrading the professional school of veterinary medicine.

The AID effort is a direct result of an institutional analysis made in the light of the new GOH five-year plan and the planned projects of the foreign donor community. During that analysis, unusual weaknesses were discerned in the areas of rural engineering and project management, both of which are essential to the irrigation and soil conservation effort that is projected in this plan. The project will provide for construction of a classroom/lab/office facility of approximately 8,000 square feet (See ANNEX II, Exhibit 12) and equipment.

In the beginning the school will function with loan financed imported faculty from an institution such as CUSHWASH; however, loan financed training of permanent faculty abroad will begin as quickly as potential faculty can be identified.

In that the Faculty of Agriculture is located adjacent to the Ministry of Agriculture at Damien and in that the same complex includes the experimental station which is largely irrigated and contains approximately 120 acres, ample field exercises can be conducted thereon in the principal subject matter.

The training session will be divided into two semesters of four and a half months each, plus six weeks of practical experience in the field. Trainees will be limited to 12-15 per year, to be selected upon the basis of competitive examination and upon the completion of their study will be awarded specialist ratings which it is hoped will qualify them for a salary increase under the new incentive pay plan that is being prepared by the Ministry of Agriculture.

A detailed estimate of costs is contained in ANNEX II, Exhibit 13. These estimates are summarized below:

FAMV
Estimated Cost
(In \$000)

	<u>AID</u> <u>Grant</u>	<u>AID</u> <u>Loan</u>	<u>GOH</u>	<u>Total</u>
Technical Assistance	1,400			1,400
Training		130		130
Commodities		123		123
Construction		122		122
DARNDR Personnel			190	190
Operating Expense			60	60
Sub-Total	1,400	375	250	2,025
Contingency and Inflation		158		158
TOTAL	1,400	533	250	2,183

IV. PROJECT ANALYSIS

A. Technical Analysis

1. Irrigation Systems

a. Problems

All irrigation systems considered in this report are in a state of disrepair and urgently require rehabilitation and improvement to meet the need for increased crop production. The systems examined obviously have not had routine or regular maintenance for a considerable number of years, some probably not since the present systems were built or rehabilitated. This is the main cause of deterioration in many of these systems.

Ditch cleaning and especially canal repairs have apparently been partially undertaken in some cases by the farmers as best they know how. Some haphazard work was observed being done by farmers usually trying to improve the flow of water in their own immediate canal or lateral. In most cases the laterals above or below remained untouched.

The most seriously neglected part of most systems are the diversion structures. This is due largely to the inability of the local people to rehabilitate the diversion structures because of the complexity and size of the job, and the lack of financial resources to make the necessary repairs. The biggest damage usually occurs in major storms during the hurricane season.

In many instances the main canals that are masonry lined contain a considerable amount of rocks of various sizes and large amounts of silt. Also, most of the canals, both lined and unlined, have trees and brush growth which has been allowed to become established in them. Many of the earth canals and laterals banks have been eroded and in some places have even been removed by the farmers. Where the sections are eroded, it is usually due to the lack of grade control structures. However, the greatest need on the earth canals and laterals is the removal of silt, trees, weed growth and reshaping the channels to their required size to allow water to flow freely and smoothly.

Rehabilitation tasks include repair or reconstruction of diversion structures and canals. Diversion structures in some areas have been destroyed by flooding and must be replaced. Other important improvements are needed at some systems. In particular, structures for water distribution and measurement must be installed to make possible

the efficient allocation of water. Earth canals should be lined in some places to prevent infiltration losses. Few on-farm structures are found in these systems and there is little concern for land preparation (grading and leveling) to improve control and use of water on the farm. Drainage problems are often severe. The farmer lacks technical assistance for irrigation practices, agronomy and other areas where training is needed.

Most irrigation water is provided by diversion of stream flow. Some systems take water from a spring. Most streams are subject to flash floods and high sediment loads as a result of deforestation. It is likely that deforestation has also produced a reduction of base flow and, perhaps, spring flow. These problems are discussed in greater detail in ANNEX III, Exhibit 1, Water Resources and Drainage.

b. Proposed Method of Solution

The level of technical sophistication found in these small community irrigation systems is low, making the systems well adapted to rehabilitation using labor-intensive methods. In no case are structures found that cannot be repaired or reconstructed using a minimum of equipment. Local skilled labor (masons, carpenters) can be easily found and unskilled labor is abundant. Construction materials are available locally in all systems.

Not all of the solutions can be implemented simultaneously on any sub-project. Before water management and extension agronomy can have full impact, the physical systems must be rebuilt to allow an efficient control and distribution of water. Concurrently, watershed protection and data collection should be carried out.

c. Prefeasibility Studies

The J. G. White Engineering Corporation has performed prefeasibility studies on twenty-four priority systems in the project area which were initially identified by the GOH and USAID (See ANNEX II, Exhibit 4, Potential Irrigation Sub-Projects). Based on these prefeasibility studies the 24 systems were broken down further into priority A, B, C and D sub-groups, on the basis of the following criteria:

1. Sufficient irrigation water supply,
2. Soils which would support intensive agriculture under irrigation,

3. Local inhabitants desire to have and maintain an irrigation system,
4. Land ownership patterns which permit an irrigation system to benefit the largest possible number of individual farmers,
5. Prefeasibility level (order-of-magnitude) determination that benefits would exceed costs,
6. Relative poverty level of farmers served by system.

Of the thirteen systems identified as priority A, three relatively small systems were included even though it was not possible at the prefeasibility stage to establish economic viability solely on the basis of the benefits of increased production. In one case (Mole St. Nicolas) the sub-project is very small (only 15 hectares of irrigation), non-capital (cost about \$65,000), is located in an area of extreme poverty, and is considered essential for community water supply, sanitation, and health reasons. The second exception is Saint Louis du Sud. This sub-project is selected because a strong, well-organized community organization is presently in existence and, thus, over the long term, the project could be more economically viable. The third exception is a sub-project (Pedernales), located between Haiti and the Dominican Republic. Both countries already have a commitment to build a diversion structure on the Pedernales River. Haiti needs the technical assistance provided under this project to determine the feasibility of using the diverted water to irrigate an area of about 300 hectares. Actual rehabilitation of these systems will be financed under the project only if the full feasibility study subsequently demonstrates a positive benefit/cost ratio.

The prefeasibility studies consisted of order-of-magnitude estimates based on field inspection by a multi-disciplinary team from J. G. White Engineering Corporation, plus interviews, and a review of available data which in all cases was quite limited. Verification and additional data will be obtained during feasibility studies.

If any of the selected 13 projects are subsequently found to be infeasible, other alternates will be studied (including the eleven additional sub-projects which have already received prefeasibility study). Some of these alternates appear to have even greater economic potential but they have not been selected, thus far, in order to first select viable projects in the most depressed areas where poverty and health problems (tuberculosis and other diseases related to malnutrition) require more urgent action for economic development.

d. Feasibility Studies

An earlier feasibility report on the Debreuil Irrigation System rehabilitation done by Engineering Consultants Incorporated (ECI) contains estimates of costs and benefits in greater detail than was possible in the prefeasibility report cited above. After adjustment for certain items which should more properly be allocated to annual operation and maintenance, the estimated cost of rehabilitation for the Debreuil system is \$1,000/ha, or \$900,000 for the approximate area financed under this loan.

A second full feasibility report by J. G. White Engineering Corporation has been largely completed (will be complete August 15, 1976). This report is for the Jean Rabel project in the northwest, a system similar to those studied by the same consultant at the prefeasibility level. Costs for the Jean Rabel system (about 400 hectares) are estimated at about \$1,000/ha (\$400,000) although this is not yet a feasibility estimate.

Prefeasibility costs for the remaining priority A systems, about 7,835 hectares, are estimated at 4.2 million dollars. The per hectare cost is less than for Debreuil and Jean Rabel for several reasons. It is expected that rehabilitation of Debreuil and Jean Rabel will provide experience and technical training which will cut future costs. Also, some equipment will be available from these for other rehabilitation projects. In particular, several large systems in the Les Cayes area are adjacent to each other which will allow simultaneous use of personnel and equipment for several sub-projects.

e. Reconstruction/Rehabilitation Methods

The actual rehabilitation work on all systems to be financed under the project will be done by laborers paid by the community council for the particular sub-project. About 95% of the work will be done by these laborers under supervision of craftsmen and technicians supplied by the GOH and its contract engineering firm (borrower contract). U.S. technicians will assist the GOH in assuring the construction is carried out to adequate standards.

Labor provided by the sub-project water users will be compensated on the basis of four days paid for five days worked. Of the four days paid, three days earnings will be paid directly to the laborer and one day's earnings will be paid to the users' association to provide initial capitalization of an operations and maintenance fund. In addition, a field kitchen will provide one meal a day to workers.

This plan is based on experience gained from similar labor-intensive projects in Haiti. (Some wage payment is needed to provide incentive and to compensate for other forfeited income and for time which otherwise could be spent in food gathering or other activity. The one workday meal for the workers helps maintain efficiency on the job and also provides some additional incentive).

By working on the rehabilitation, local people will also learn the skills they need to maintain their system (masonry, concrete work, simple formwork, etc.). GOH and other technicians and craftsmen will also receive on-the-job training in technical skills, work planning and work supervision, organization and management.

Because there are only small structures involved (low diversion weirs, turnouts, division boxes, culverts, siphons, etc.), there will not be a separate design phase. However, feasibility designs will be improved and detailed prior to construction so that engineers and supervisors will know exactly how a facility is to be built and can organize the work efficiently and economically.

f. Operation and Maintenance

In most instances, water diversion into canals and laterals is currently arbitrarily regulated by the watermasters and ditchtenders without regard to uniform project distribution. Sometimes the farmers do it themselves. Another cause of unequal water distribution in many of the project areas is the lack of measuring devices, poor functioning of turnouts and headgates, and uncontrolled openings in canal banks. In many of the project areas, there is a lack of understanding and training in the practical principles of water use and management by those in charge of operating the diversion gates and distribution systems which further contribute to unequal distribution of water over the irrigated areas.

Project efficiencies appear to be in the range of 15 to 30 percent range during periods when crops are growing and much less when they are not. On most projects a certain amount of water is used for domestic purposes by the local people, for drinking, laundry and animals.

Present farm irrigation systems and methods of applying water are haphazard. However, in many instances they are doing quite good when one considers that there is almost a complete lack of technical assistance on most of the areas that were studied. Consideration must, therefore, be given not only to the rehabilitation or replace-

ment of diversion structures, but also to the operation and maintenance of the diversion dams, main canals, lateral systems and the drainage ways.

Improvement in water distribution on the project areas studied should improve water application to the land by the farmers, which will permit substantial increases in crop production.

In order to obtain optimum operational efficiencies, each of the systems will require trained and qualified personnel. It is not unreasonable to expect that future project efficiencies of 40 to 45 percent could be attained on most of these projects.

It is anticipated that community irrigation systems will have a council elected by the farmers/water users and the council will employ one or more watermasters to control diversions according to an approved irrigation schedule. The watermaster must be accountable to the council and thus, indirectly, to the farmers. In practice, watermasters have sometimes not been accountable to the farmers or to the council. A major role of the Ministry and the consultant will be to do everything possible to assure that the management and the people controlling the water distribution will remain accountable to the council; the council must be able to hire and fire watermasters. Both the council and staff employees of the council will be assisted and trained on an intermittent basis as necessary during the initial two years after rehabilitation. Sub-projects will be provided with the simple hand tools required for system maintenance.

The councils will have gradually increasing responsibility for maintaining the projects. A tax on irrigated land is currently collected by the GOH but little, if any, of the money is retained to pay for system maintenance.. A condition of the loan will, therefore, be that the GOH revise its rate structure and allocation of fees collected. In addition, a plan will be required setting forth the criteria and guidelines for increasing the user association's responsibility for operations and maintenance.

The ECI Feasibility Report estimated annual operation and maintenance costs at \$2,500 for 1,165 hectares of the Debreuil System or about \$2.14 per hectare for that system; however, certain costs carried as capital costs should more properly have been allocated to O&M. Similar estimates for other systems have not yet been made at feasibility level but for prefeasibility estimates a much higher and probably conservative estimate of 10% of construction costs was used. It is recommended that the 10% figure be used for all systems under this project in order to provide for a replacement fund. This replacement fund is necessary, in part, because of the frequency of flood

damage against which protection could not feasibly be provided. A more assured water delivery and increased production should permit additional amounts of taxes to be raised for retention by the council to accomplish maintenance. Feasibility studies will determine an amount which is sufficient and is still affordable by the farmers.

2. Soil Conservation/Crop Production

a. Feasibility

The problems of soil erosion in Haiti have been the subject of considerable study in Haiti in recent years. Chief among these are studies by Burns ^{1/}, Lewis and Feldman ^{2/} and Franklin and Snyder ^{3/}. Taken collectively, these studies are considered to be adequate investigation into the technical and scientific aspects of the soil erosion phenomenon, its degree of seriousness, its causes, its irreversible deterioration effects upon the renewable natural resources and its effects upon the present and future well-being of Haitians. Several proposals for remedial action were presented in all three studies to address needs for forestry programs with agriculture, research requirements to scientifically measure rates of erosion, determination of awareness perception of the problems by Haitians at varying levels of social and political strata, and other information needed to guide action programs for long term resolution. All three studies were consistent in their observations that immediate actions were necessary in beginning programs of soil conservation in conjunction with agricultural efforts.

The soil conservation element of the Integrated Agricultural Development Project is a synthesis of views of the three studies mentioned as well as those of USAID staff and various TDY experts familiar with the Haitian situation. The strategy of this project

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- 1/ L. Vinton Burns, Report to the Government of Haiti on Forest Policy and Its Implications, FAO, Rome, 1954.
 - 2/ Laurence A. Lewis and Stephen Feldman, Soil Erosion and Social Response - An Action Strategy for Haitian Development, Clark University, Worcester, Mass., 1975.
 - 3/ Alex W. Franklin and Stanley E. Snyder, Conservation Recommendations for Haitian Watershed Erosion Control, AID/W, October 1975.

element is to promote the planting of economic tree crops on highly erodible sloping land in contoured rows which will allow continued use of the land between rows for the food crop needs of hillside farm families.

This strategy is considered necessary because it is felt to be the only alternative remaining. The extreme population pressure on the existing arable land precludes traditional approaches to resolutions of soil erosion problems.

While farmers would not be willing to take land out of food production in order to save the environment, they could be convinced to terrace their land and plant fruit trees and other economic tree species if the economic benefits of their use could be demonstrated. The project activities in soil conservation and introduction of improved plant materials will provide for a tree crop/food crop mix of management practices that is technically sound.

Its feasibility for achieving project objectives rests largely on the interactions and successes achieved in the related project elements, especially the education of the farmers in use of more intensive management practices which includes tree crops on the hillsides.

While there are some unknown factors and some degree of risk in launching a soil conservation/food production program of this nature, the alternative of not launching such a program and allowing the crisis level resource degradation process to continue at its current pace cannot be tolerated by the Government of Haiti.

b. Conservation Techniques to be Utilized

The approach envisaged in implementing this project element is to provide resources and services to farmer groups located on sloping land within project watersheds and in some locations outside these watersheds to enable them to change to production methods and crop mixes which are more conducive to soil conservation.

(See ANNEX III, Exhibit 2, "Feasibility of cropping system improvement").

The current practice of producing annual food crops on steep hillsides encourages low production and further soil resource degradation. The operation of village nurseries to produce fruit trees and selected forest species will provide a source of planting materials to be used by hillside farmer groups. Where possible, areas will concentrate on certain types of fruit most appropriate to the ecological situation. For example, an orange production region, and other specific tree crop regions will be created to facilitate future marketing of uniform

types of fruits for local, urban processing or export markets. Adequate diversity of plant types in limited numbers will also provide a wide variety of foods for self-consumption. Small numbers of forest species will also be employed to meet specific needs, e.g., bamboo plantings for gully erosion control and for construction material; Australian and other pines for windbreak purposes or for firewood; mahogany and Eucalyptus species for firewood and other uses for sale of wood when trees mature. Other species for the specific uses would also be employed as appropriate. Farmer groups would be organized to construct contour furrows, bench terraces, basin terraces, flat channel terraces, or level terraces or fully control structures as technically appropriate for the slope, soil type and presence of rock for construction use.

Farmers would be paid on the same basis as for irrigation rehabilitation. Follow-on maintenance in future years would be a responsibility of individual farmers or groups of farmers.

Trees from village nurseries would be planted below terraces with a close spacing in the contoured rows with adequate distances between the rows to allow for continuation of planting vegetables, grains, legumes, oil crops and root crops. Annex II, Exhibit 7 provides a sketch of a mini-farm model (example) of the techniques to be used. The participation of all farmers on a particular slope would be required in order to connect all terraces on the contour. The incentive for their participation would be opportunities for earning income in the terrace construction and for improvement of their farm site.

No serious difficulties are envisioned in obtaining full farmer participation in this phase of the program.

3. Development of Improved Plant Materials and Technology
a. Feasibility of Use of Improved Plant Materials and Technology

The strategy for inclusion of this element in the Integrated Agricultural Development Project is based on the fact that good plant material is the basic first step for making any improvements in agricultural production and productivity. Haiti is poor in both its physical resource base and its biological resource base. The variety of plant materials in Haiti is very limited and the quality of varieties, clones and strains of crops is relatively poor. While it is true that some improvements can be made in yields of existing crops through better cultural practices by farmers, there are definite production and productivity limitations to intensifying management practices using poor varieties. The benefits from the use of improved plant materials with slight improvements in management practices is expected to substantially exceed those of current management practices on the traditional crops or of slightly improved

management practices on traditional crops. The strategy of employing improved crop varieties in a cropping system employing management practices that are within the capabilities of the small farmers in Haiti is viewed as a rational approach and one that is developmentally sound in the short, mid and long term. The project anticipates making improvements in the biological resource base through use of improved varieties of crops known to Haitian farmers as well as through the use of a limited number of new crops that are not yet known or cultivated. These crops are expected to be employed in a system of cropping that meets the farm family subsistence food needs, provides for opportunities to market production surpluses and lays the groundwork for development of other market outlets including processing and export markets. At the same time that this system is improving the production of a wider variety of food crops, it is also expected to provide a beginning effort in selected areas to resolve the serious soil erosion problems.

Crops expected to be introduced, multiplied and disseminated are the crops of major economic importance, with high nutritive value, with high acceptance in tropical countries and with potential for intensified use by small farmers within a system of irrigation or soil conservation practices. These crops will include fruit trees, non-tree fruits, nut trees and shrubs, specialty commercial crops, selected forest tree species, cereal grains, legume grains, oil seed crops, root crops, grasses with importance for soil conservation and vegetable crops. A comprehensive illustrative list of these plant materials and methods of propagation are provided in ANNEX III, Exhibit 3. These crops are considered as the most appropriate for use in Haiti because they have proved to be appropriate in similar environments. Each has been selected for its particular agronomic or economic merits and potential for meeting farm consumption needs, local fresh market needs, local processing needs and export fresh and processed food market opportunities. A certain amount of observation or testing will be required for some plant material types. For many types, however, only a minimum of calculated risk is involved in proceeding with multiplication and dissemination of plant materials for farmer use.

b. Level of Technology

Questions naturally arise concerning the interest of farmers in planting varieties different from those traditionally grown or in a system different from that currently employed. The degree of farmer participation in the use of improved plant material

and in more intensive cropping systems will depend, in large part, on successes with other elements of the project, specifically successes attained in improving farmer organizations, farmer involvement in irrigation system reconstruction and rehabilitation, soil conservation activities and the development of delivery systems to provide resources and services to farmers. On a reciprocal basis the degree of success of these project elements depend upon the availability of good plant materials that are essential for increasing production and productivity and stopping the serious soil degradation process on the hillsides.

The current level of agricultural technology employed by Haitian farmers is probably the lowest in the Western Hemisphere. Their system of growing crops involves a minimum of land preparation, elimination of weeds, control of insects or diseases, and other management operations. Usually, the cultural practices employed by most Haitian farmers are simply the use of the inferior plant material at hand, planting seeds when rains begin of corn, beans, squash or other crops often in the same hole dug with a wooden stick. Often these seeds, which farmers have saved from the previous crop, are not viable. Some seeds may germinate in a haphazard fashion producing a stand of mixed crops which may be of low population density and in the wrong proportions for family needs. The farmers may or may not replant missing areas within their small plot with other seeds or plants. The farmers usually provide minimum attention to their crops from that point to harvest time. One farmer may have two or three such parcels of food crops in separated locations which further tends to minimize attention given to cultural practices. This "extensive" type of crop management has most likely developed in Haiti because of the farmers' experience that increased levels of effort within such a system do not provide commensurate returns. The Haitian farmers have little experience or knowledge of more "intensive" cultural practices employing crop varieties that are responsive to fertilizer, are resistant to insects and diseases, are highly productive, are nutritious and tasty or could provide high economic value if handled well.

In addition to the introduction of improved plant materials a program of adaptive research will be supported by the project to develop simple technical packages of improved cultural practices for the more important crops. The use of improved plant materials within a slightly better management system is a necessary requirement for improving the status of agricultural production in Haiti. The strategy of this element of the project, therefore, is to attempt to bring about changes at the farm level in a system of gradual improvements in cultural practices employing viable seed or disease

free planting stock. Farmer education is a critical requirement in bringing about these changes and are discussed elsewhere in this paper. Recommendations providing simple instructions for the use of a minimum level of inputs will assure the highest returns per increment of input and will enhance farmer acceptance. Information will be in simple forms such as leaflets, pamphlets or posters with drawings to relay the technical information message rather than just the written word. Such techniques have been successfully used in other countries where the literacy rate is low. The development of appropriate information for use by small farmers will be carried out under the extension phase of the program. The approach to be employed is considered to be appropriate for Haiti at this stage of its development, and thus considered to be feasible for achieving project objectives.

4. Project Impact on Zone Ecosystems

A more appropriate title for this project would have been "Environmental Restoration". Every major component in this project is geared toward reversing hazardous environmental consequences effected by abuse from heavy population pressures and complete disregard for maintenance of soils and for man-made agricultural systems, such as irrigation schemes, now in inexcusable disrepair.

a. Consequences of Irrigation

Since this project does not purport to install, or construct new irrigation systems, it seems moot to discuss the environmental effects of small irrigation systems constructed many years ago. The environmental consequences of the decision to rehabilitate a system now in disrepair and stagnation provides the real issue of the project.

Presently, irrigation systems are operating at less than 30 percent efficiency. What does this inefficiency really mean in terms of its effect on the ecosystem and what are the environmental implications of these inefficiencies with respect to any decision to rehabilitate such systems?

The concept of a sunk cost is not new or novel to the economist, nor should it be confined to that art. Essentially, an investment impact on the environment executed several years ago should be considered an irreversible consequence of which the new decision has no bearing, other than to restore the resource to its original intent. At present, the systems are skewed toward harmful effects to the ecosystems,

because of their state of disrepair. Human population, flora and fauna are held in imbalance, because of the imperfections and disruptions of the present efficiency levels associated with these systems. The direct benefits of this project impact are undoubtedly apparent when comparing the existing system to the incremental improvements expected to result from the project.

As the irrigation systems have deteriorated several environmentally undesirable consequences have occurred. Accordingly, as the canal delivery systems gathered foreign vegetation on their linings, the coefficient of friction on these walls has increased. As friction increased, velocity decreases. This effect then plays an important role on the system as a whole in the following sequences.

As velocity decreases, sedimentation increases, i.e., small suspended solids precipitate out of the water, usually silts and other fine debris which reduces the ability of the canal to deliver a measured quantity of water. As the quantity of water is reduced, crops in areas associated with this allocation are reduced, *vis-a-vis* expected benefits. As the imperfect flow is perpetuated, velocity is reduced to a point of near stagnation providing undesirable health vectors brought about by the mosquito and other water-related insects that require ponds for breeding. Although slopes in most canal systems are sufficient to maintain velocities above the stagnation level, farm level ditches are such that perfect breeding grounds for mosquito are obvious. The reduction of the direct health vector due to mosquito breeding is so obvious that it hardly deserves amplification in a prevalent malaria region.

With regard to the disadvantages of lowland hydrological changes associated with irrigation, such as waterlogging and salinity, the existing systems have been adequately designed to provide drainage ditches to discharge the effluent of inferior water from the irrigated plot. Further, since the marled soils are relatively porous, build-up of salts and increases of water table levels which approach saturation are naturally negated.

As irrigation systems are rehabilitated under the project, full use of the water available in these systems will be possible. Protection of these systems from consequences of soil erosion is expected to be accomplished by the planting of fruit and selected forest tree species in the watersheds of these systems as explained previously.

Management arrangements for adequate maintenance, repair, operation and use of the irrigation facility and the water resource of the systems are expected to be achieved by the project. Technical

guidance will be provided in the proper use of water in farmers' fields. Proper use of water by quantities, over time periods and by using proper methods will assure that the physical environment within the irrigated perimeters is not endangered but rather that the environment will be improved for use by the Haitian small farmers.

The provision of inputs to small farmers might include for some crops such agricultural chemicals as fertilizers and insecticides. The rates of usage are expected to be low if used at all. Types of insecticides to be employed are expected to be those which are relatively safe for use by humans; i.e., they will have a low mammal toxicity rating. Instructional materials will be prepared for use of any toxic materials and demonstrations will be provided as necessary.

Under such circumstances of minimizing the use of agricultural chemicals, no dangers are foreseen in polluting the environment with toxic substances that do not degrade naturally within short periods of time.

The overall conclusion of the observations made herein is that operations of the project will be conducted in a manner that avoids any short and long term deleterious environmental effects of local, regional or global proportions.

b. Consequences of Soil Conservation Practices

Many qualified observers of the development community have commented on the crisis nature of the soil erosion problem in Haiti. The degree of severity of the problem is variable from location to location depending upon geophysical, climatic and human-influenced factors. For example, the erosion problem of a particular watershed area is exacerbated by such factors as high rainfall with high intensities, steep barren slopes, high temperatures which deplete soil of organic matter and thus influence soil fertility and vegetative growth, the presence of soils which are not permeable and soil management practices which do not promote water infiltration in soils. In many developed countries of the world, the erosion problem is traditionally resolved by maintaining steep slopes in uncultivated forests. Agricultural crops are planted under clean cultivation only on the best flat or slightly sloping land with soil conservation features. Under these conditions, vegetation on sloping land with its deep root penetration and ground cover of vegetative matter prevents rapid runoff of water promoting percolation. Addition of water in the soil increases the level of the water table. In turn, the rate of spring,

stream and river flows are increased to uniformly high levels throughout the year.

In Haiti, the population pressure on the land and the concurrent need for firewood has decimated the natural tree stand on most sloping terrain. In periods of intense precipitation, most of the water runs down the slopes rather than being retained by vegetative tree parts such as leaves, branches, extruding roots and forest floor litter. The relatively impermeable soils negate penetration enhancing the erosive velocity. Such increases in velocity generate enormous energy combined with loose soil, gravel, sand and rocks. Water-carried materials amplify the scouring force of the water which eventually creates rivelets within the farmable till.

The soil conservation element of the project, expected to be conducted in four geographic areas, will provide for a system of tree planting in contoured rows along constructed rock or earth terraces. In short, terracing will greatly reduce the erosion phenomenon described. The use of sloping land for cultivation of food crops for subsistence will continue, along with a system that will minimize degradation of soil resources maximizing percolation. Such a system will substantially reduce filling in of streams, rivers and irrigation systems by erosion debris. The environment will thus be improved within the watershed by allowing a more rational use of natural resources for food production within the short term, and restore the hydrological regime in the long term.

B. Policy Analysis

Five areas have been identified, where existing policy, or lack thereof, impact directly upon the objectives of the project. A discussion of each follows:

POLICY 1

Budgetary Support Received by the DARNDR

The annual operating budget received by the Department of Agriculture is inadequate, covering personnel salaries principally, with little or nothing remaining for administration and management. Prospects for receiving the large-scale increases that would be required are not promising, due to the limitations imposed by the sources of revenue, although there is reason to believe that productivity increases in certain areas, the coffee sector for example, will continue to provide increasing revenues to the National Treasury. The same may be

said for the present project, providing that the crops produced can be used in either import substitution or export markets. This will undoubtedly require several years.

In the meantime, if the production increases required are to be forthcoming, additional revenues must be made available to the Ministry of Agriculture. These funds would be used for two principal purposes.

a. Increasing Personnel Salaries

Much has been written regarding the lack of dedication of the staff of DARNDR, yet an assumption prevails that through increasing salaries to levels that would be high enough to eliminate inequities between income and the actual cost of living--productivity and esprit de corps could be markedly improved. A secondary assumption suggests that by providing an employee with a meaningful task and the basic tools with which to perform, apathetic performance will be transformed into professionalism.

At present, employees of DARNDR assigned to external donor programs are commonly paid a stipend in addition to their GOH salary. The rationale being that the worker must perform two tasks instead of one, e.g., his regular work plus the duties imposed by the project he is assisting.

From a U.S. point of view, this line of reasoning is extremely fragile and vulnerable to criticism; however, as a stop-gap measure it has produced the desired result and most external donors are subsidizing salaries of GOH employees assigned to their projects.

It is, therefore, recommended that as a Condition Precedent to disbursement of loan funds, the Government of Haiti present a detailed plan for the enactment of salary schedules for employees of the Ministry of Agriculture at levels designed to increase their productivity. These calculations should include approximations of the total costs for both salary increases of current staff, and also those to be attributed to enlarged staff to meet the national rural development objectives. Likewise, an expanded budget for operating costs over the next five years should be prepared. The plan should include the anticipated source of financing for the increased budget considering the anticipated annual budgetary allocations from the GOH and any extraordinary budgetary resources available to DARNDR.

There is, of course, likely to be a shortfall between the increased budget and GOH resources allocated to DARNDR. Such a shortfall could

be met from two sources: (1) At a meeting called by the Minister of Agriculture, all external donors would pledge their current and future salary supplements to the program; (2) Title I, PL 480 funds as available. In this context, it should be remembered that PL 480 funds are available on an annual basis, and there is no guarantee that they would be available for an extended period. For that and other reasons the DARNDR must determine that the Government of Haiti will agree to a time phased schedule to absorb these additional costs. Given the time-lag between project implementation and the actual production increases that are expected to accrue, the suggested timetable is:

Year 4 (1980) - GOH 25% of the shortfall
 Year 5 (1981) - GOH 50%
 Year 6 (1982) - GOH 75%
 Year 7 (1983) - GOH 100% of additional costs

The DARNDR must likewise determine that the payment of higher salaries to its employees will be sanctioned by other Ministers and authorities given the sensitive issues of personal income that are involved. Neither AID loan nor grant funds will be available for financing salary supplements of DARNDR personnel.

POLICY 2

Water Law

The Haitian Rural Code, Law No. 7, Chapter III, Articles 151-171 describe the conditions of water use and the operation of irrigation systems in the country.

a. It is recommended that DARNDR revise water laws to allow control of maintenance, repair, administration, personnel, and revenue received from water taxes to be the responsibility of irrigation districts (cooperatives) composed of all water users in any particular system. Syndics (or Controllers of Irrigation) should be phased out and such personnel should function under the direction of the water users organization.

b. In connection with the above recommendation, it is further recommended that DARNDR establish criteria under which irrigation districts (organizations) will function and provide such organizations material and technical assistance support.

c. It should be understood that (a) and (b) above represent optimum conditions, and that the present system will require time and experience to change. The project planners adhere

firmly to the maxim that the operation and maintenance of the irrigation systems can best be managed when there is farmer participation. Thus, it is proposed that as a condition precedent of the project the GOH be requested to prepare a plan for the gradual phasing over to water users associations of most of the functions now managed on their behalf by the GOH.

In making this recommendation the planners recognize that conditions vary considerably throughout the Republic, regarding this sensitive issue of farmer participation versus Government control. However, because it is the exception rather than the rule that farmers have a real voice in the selection of personnel to operate their systems, and because it is the exception rather than the rule that the farmers have access to the funds collected from them for the purpose of maintenance of their systems, a proposal should be formulated to give them a greater voice in this critical aspect of their operation.

POLICY 3

Community Groups

At the present time the responsibility for the organization and motivation of rural groups (Groupement Communautaire) is the responsibility of an autonomous institution called ONAAC. ONAAC was originally organized as an adult literacy program, however, its mandate is broad and springs from the very foundations of "Duvalierism" as it evolved in the mid-60's.

In recent years other organizations (principally Volags) have moved into this arena recognizing the value of developing natural groups and thereby increase the efficiency of their efforts and have been actively encouraging the formation of community groups. ONAAC is a weak institution but jealous of its prerogatives. It is judged totally incapable of undertaking a community action program the size and scope of the one proposed in this project. In recent months we understand a movement has started to place ONAAC under the guiding hand of the DARNDR (the institution from which it originally evolved). Such a change would be not only welcome, but may be necessary to prevent conflict between Extension Agents and ONAAC Agents concerning their respective responsibilities regarding community action.

POLICY 4

Cash Wage Payments to Unskilled Laborers

As in many developing countries, the concept of Food-for-Work pro-

grams is well known in Haiti. This project proposes similar intensive labor activities with the difference that the payment to the worker shall be in cash rather than in-kind according to a formula which it is believed will also include a significant input of self-help. The reasons for the preference of a cash wage rather than a food payment are not the subject of these paragraphs, but rather the effect of these cash payments on the local economy are.

Specifically, the GOH has set the minimum wage for unskilled labor at \$1.30 per day. In practice and in particular in rural areas, considerably less is customarily paid. In the Les Cayes area, a relatively "well-to-do" zone, day labor is paid from \$0.40 to \$0.60 per day. The question thus arises that if the GOH pays \$1.30 per day, will laborers in the area henceforth demand the same price from private agricultural entrepreneurs, and if so, what effect will this have on the economy?

Interestingly enough, within the activities of another USAID/GOH project, (Small Farmer Production), workers on rural roads are being paid at less than the minimum wage at the insistence of a GOH official.

Given the fact that there will be a substantial self-help element in the project, and given the fact that when the President of Haiti established minimum wages on a national scale, he obviously manifested a desire to improve the well-being of the rural population along with the urban workers, we believe that it is mandatory that the GOH pay minimum wages to the laborers on the project and if this, in fact, results in higher salaries being paid by private entrepreneurs, we must surmise that this was the purpose of invoking minimum wage laws and regulations.

The proposal as formulated will operate as follows: The workers employed on soil conservation (principally terrace construction) or irrigation repair projects will work a five day, 7 hours per day week. They will donate one day's work on their own behalf (receive no pay); they will donate one day's pay to their community council (such pay may be credited to a community's drawing rights; and they will receive three day's pay for themselves. $\$1.30 \times 3 = \3.90 per week in cash plus their community and self-help service.

POLICY 5

Rights-of-Way and Eminent Domain

Irrigation systems and soil conservation measures weave distinctive designs across the natural features of the lands they serve-- designs that cannot be altered or modified without destroying the effectiveness of the system. When such a system is superimposed over land-ownership patterns, it is obvious that many problems are bound to occur. Participation among resident land-owners must be 100% if land treatment is used, and one may anticipate such things as terraces and irrigation canals intersecting houses, favorite fruit trees, cemeteries and so forth. We can also anticipate relatively significant areas of land being used up in terrace construction and many farms may be cut in two by a meandering channel whose gradient cannot be disturbed. When conflict occurs, the technicians must have the means to resolve them. Rights-of-way and when necessary, eminent domain should be clearly promulgated. A system of indemnity may be required in some cases where substantial damage may be done to an individual's lands. The alternative is a redistribution of land following completion of land forming construction. Although many Haitian officials favor this approach, it is a difficult and drastic action that would require unusual participation of the rural communities.

One or the other of these means must be incorporated into the project plan to assure success. Thus, as a condition precedent, the GOH will be required to submit detailed guidelines and regulations to be applied in resolving issues of rights-of-way and eminent domain which may arise under the project.

C. Economic Analysis

1. Irrigated Farm Model

One of the major project objectives is to provide an economic analysis capacity within DARNDR, providing a much needed selection framework for future investment decisions. Economic analysis of potential sub-projects will be initially performed by a technical assistance team working with DARNDR counterparts. The team will be responsible for providing in-service training for these counterparts so that by the end of the project, the economic analysis will be performed wholly by DARNDR staff with the technical assistance team serving only in an advisory capacity. Prior to the disbursement of loan funds for any sub-project, feasibility studies will be submitted for AID/W review and approval.

The specific guidelines to be applied in the appraisal of irrigation systems are provided in ANNEX III, Exhibit 4. A general discussion of the methodology for the analysis is presented here for illustrative purposes.

Fifteen small irrigation systems have been examined in regards to their feasibility. The level of detail as set forth in the terms of reference for the consultant, provided the basis for the "pre-feasibility" level analysis. However, one study of the Dubreuil System in the Les Cayes area has reached the level of full study under separate contract.* Since detailed cost estimates and the major benefit components have been estimated and identified, the Dubreuil project has been selected as a model for illustrative purposes with inclusions of some additional measurements which highlight concerns relating to the Congressional Mandate. The analysis utilized two models. Each discussed under separate headings. One model addresses the irrigation systems, while the other addresses the upland farming scheme. Parenthetically, it is important to note that the upland farm analysis focuses on the micro-economic viability of the soil conservation practices proposed under the project.

a. Disaggregation of the Farm Complex

In brief, this paper calls attention to three elements of a proper project appraisal: (1) specific government policies in the district must be specified, (2) the investment constraints must be fully specified, and (3) district-level investment will be evaluated as part of an overall sector program.

Questions, such as the effects of variations in guaranteed price policies, are often avoided by assuming shadow prices for inputs and outputs. The introduction of the farm budget model concept will assure both financial and economic appraisal given the viewpoints associated with the target group and society as a whole. Of course, there are many ways of determining shadow prices, and consequently, there has been a well-documented and lengthy controversy in the profession. Implicitly or explicitly, a set of shadow prices refers to a desired or forecast long-run equilibrium. Nevertheless, implementation of a project that appears justified in a shadow price economic evaluation may require extensive short-run fiscal subsidies. For example, if the shadow wage of labor is assumed to be zero in the project evaluation, farmers who have to pay the actual wage to hired

*See Technical Analysis: Dubreuil Irrigation System

labor may receive low or even negative net income in the project area. In reality then, the fiscal measures required to implement a shadow-price project may not be feasible. Thus, in the type of analysis proposed, "fiscal feasibility" is insured by using shadow prices only when the market forces or policy instruments required to induce those price levels are identified and included in the model.

Toward this end, the small farm budget model distinguishes among three levels of spatial mobility for goods and factors: local, sectoral, and national. Local resources are land, irrigation water, and the labor of farmers and their families. Sectoral resources include, for example, fertilizers, draft animals, and farm implements. National resources include unskilled labor and short-term credit.

At the local level, the following assumptions are made for irrigation water: (1) farmers pay a water fee sufficient to maintain the facilities, (2) water is allocated over crops optimally, e.g., according to its marginal productivity in cash crop and class of soil, (3) the exclusion of amortized capital costs to the farmers will be reflected as a subsidy cost to the economy. These assumptions need not be inconsistent, given that water allocation is governed by a district-wide management committee, even though the actual price of water is below its marginal productivity. Thus, the water price (tax) becomes a policy instrument that can be varied in future alternatives. Land is assumed to be allocated over crops according to its marginal productivity in alternative uses.

b. The Place of Subsidies in Establishing Water Rates

The guideline for water rates (see ANNEX III, Exhibit 5) does not provide for permanent subsidies to water users. However, movement toward a self-sustaining system may involve a temporary subsidy in moving from present rates to those required to be self-sustaining.

Administration of subsidies involves time and effort which could be better utilized in maintaining an effective system, especially at the local level. Often times rigidities are introduced into subsidies and inequities are established which are not self-correcting.

c. Marginal Value Product of Water

The marginal value of water to the additional value of products obtained is not easily determined with present data available. Not only will it vary for the different crops for which water

is used, but it will vary as prices of commodities and the costs of other inputs used in producing different crops change.

Rough estimates of yield increases that might accrue solely from improved delivery of water without provision for other inputs have usually been less than 25 percent.

d. Consumer Surplus of Water Users

Land values within rehabilitated irrigation systems will almost inevitably increase due to the improvement of the absolute productivity level of land in the system, its improvement relative to land not receiving water, and the continuing pressure of population on the available food supply.

This unearned increment received by the land owners within an irrigation system is another reason why subsidized rates to water users do not seem justified. Furthermore, land owners should bear the costs of any future capital expenditures needed to keep the system functioning effectively, for they benefit not only from improved farm income, but from the rise in land values. Projections of increased land values are utilized in the farm budget; i.e., residual value.

e. Shifts in Cropping Systems

To the extent that greater quantities of water become available throughout the year, the production of more than one crop during the year becomes possible. Abundant evidence from other areas indicates that two or three crops may be grown per year. At this juncture it should be noted that the double cropping patterns are displayed in the model as Crop 1, Crop 2, etc. This possible increase in food production output becomes one of the strongest arguments favoring the rehabilitation of irrigation systems.

f. Family Labor and the Reservation Wage

The labor of farmers and their families is priced at least at a monthly reservation wage that is set at thirty percent of the minimum fixed market wage. In months in which farmer labor is fully utilized, the reservation wage may rise as high as the day labor wage, owing to the element of economic rent accruing to the use of farmer labor. This reservation wage accounts for only one-fifth to one-third of the total net farm family income, the rest deriving from economic rent to the land and water rights plus the rent to the family's labor that accrues over and above the reservation wage. The reservation wage clearly is a type of opportunity

cost. It is a short-term (monthly in this case) opportunity cost that the farmer demands as a minimal acceptable return to his labor before undertaking an agricultural task in the knowledge that, in the long run, he will receive substantially higher returns in the form of rent to fixed resources. His medium-term (e.g. annual) opportunity cost, translated to a monthly basis, would be substantial.

This discrepancy between the short-run and long-run opportunity wage reflects the farmers' lack of perfect job mobility in the short run: the decision to leave the farm is a major one. In particular, it would be more costly to leave in the middle of the crop year than to leave at the end of the crop year. About one third of the rural market wage is an appropriate reservation wage for irrigated agriculture in Haiti. It appears to be lower for non-irrigated agriculture. The level of the reservation wage is clearly quite important, for example, in the case of the decision regarding acceptance of an agricultural innovation that promises higher returns per hectare but also involves more labor by the farmer himself.

A set of cropping activities is defined under the heading--Land Use--for each water district established according to a fixed degree of efficiency in water use.*

The iteration of the farm budget accounts for an annual cash balance; which, when discounted, conveys the economic and financial viability of each sub-project and the potential for acceptance as perceived by the farm family. The logic of the sequence of tests is as follows. (See ANNEX III, Exhibit 6 for full farm format.) The economic rate of return indicates whether a sub-project is in the national interest. A rate of return above 15 percent satisfactorily meets this test, while a rate below 15 percent suggests that the sub-project is an inefficient use of the country's investment and other resources. Aside from welfare considerations, a sub-project with an economic rate of return below 15 percent would be rejected even if it were to have a small positive financial return to the farmers.

*Obviously, various factors determine efficiency in water use. For example, ceteris paribus, farms that are located further from the dam will incur more water losses through evaporation and seepage, since the water travels longer distances through canals. However, for simplicity, the water quantity is assumed to be measured at the root system.

For sub-projects passing the economic test, a review of the financial tests becomes necessary to determine if the financial rates of return will be sufficient to interest the farmers in carrying out the sub-project. Two financial tests are carried out for each sub-project: one that measures returns to farmers' labor, management and investment; a second in which labor is valued at the going farm labor rate; and a third test which shows the level of credit demand sufficient to generate the annual inputs is reviewed to determine whether projected expectations can reasonably be met. The end-of-year cash balance, another important measure of project viability is also calculated. It should not, however, be used as a measure of economic viability, since it does not measure the net increases in costs and revenues accruing to the farmer and to the economy.

Specific criteria for rates of return that will assure farmer participation are conjectural at present other than to note that values over 30 percent are intuitively attractive. However, should the ensuing financial returns be judged low, the GOH has the option of subsidizing the sub-project to increase the farmers' financial rate of return. The most obvious way to subsidize these sub-projects is for the government not to recover all of its investment; i.e., such as the capital costs of the irrigation improvements.

It should be noted that the economic returns from the computer runs under the illustrative models do not include such a subsidy; i.e., full investment costs are included. The economic outcomes of the irrigation model indicate a rate of return at 12 percent, a return to the farm family of over fifty percent and a net farm benefit of 16 percent.

As aforementioned, the line item in the farm budget model--Production Credit--is particularly useful for setting the level of production credit demand required to sustain the projected yield expectations. This is discussed in Section IV, D, below, "Impact of adopting improved cultural practices on credit needs".

2. The Highland Model

a. Introduction

In contrast to small scale farms in the lowlands of Haiti, highland farms are located in more difficult, less accessible and less fertile areas. One result of this is the greater social and economic isolation of the highland farmer, hence greater resistance to change. A major characteristic of the highlands is their

pasture land counteracting the forces of soil erosion. These protective land areas are in the danger of disappearance. Soil conservation measures as envisaged in the loan proposal would effectively preserve and increase the region's productive capacity before the situation becomes irreversible.

There is evidence that soil conservation measures in this area would also help to improve the functioning and maintenance of irrigation systems in adjoining lowlands which continue to suffer from soil sediments originating in the highlands.

According to Government estimates, Seguin has a considerable potential in livestock and dairy production which may be developed once the soil conservation measures become effective.

c. Nature and Quality of Data

Land use and production figures fed into the model were obtained from various documents in consultation with officials of the Ministry of Agriculture. Check was also made with documents available at the UNDP.

Corn and potato yields are relatively high due to the present quality of soil and the use of fungicides and manure in the production of potatoes. Farmers in this region already have some fruit trees of low yields and quality. These will be replaced or supplemented by high-yielding trees from project nurseries. Because of temperate climate (average temperature 16.6 degrees centigrade), the possibility exists to introduce temperate zone fruit trees such as apples, pears and others.

Vegetables in the region consists mostly of tomatoes, onions and cabbage.

Farm gate prices were also obtained from a number of documents and consultations. Farm gate prices in the Seguin region are in general, higher than comparable prices elsewhere in the highlands. The reason for this is the proximity of the markets in Port-au-Prince and Kenscoff. The latter is about 17 km. distant. In many instances surplus farm products such as vegetables and poultry are transported to these markets by women in baskets on their heads via mountain paths. In other instances where roads and terrain permits, use is made of small trucks and pickups.

While it was felt that the quality and coverage of data were sufficient for the present exercise it is clear that there is a definite

susceptibility to soil erosion which limits and gradually diminishes cultivable land and leads to lower per unit production, incomes and consumption.

To meet the objectives of the present loan proposal in a realistic way, modernization of traditional highland agriculture has to proceed gradually paying attention to soil conservation measures, productivity increases through improved plant materials, simple improved cultural practices and implements, and possible crop diversification. On the basis of discussions with Haitian officials, all that can be expected in the highlands in the next five years is an average yield increase of about 10% per unit of land. It must be pointed out that even such a modest increase in yields may have a significant impact at national level, at least for some crops, such as corn of which, according to the latest FAO/BID study*, 60% is grown in the highlands.

The use of commercial fertilizer in the highlands is presently unrealistic for several reasons: a) the present state of agriculture in Haiti is such that the farmer, especially the highland farmer, is not yet ready to adopt a yield increasing technology based on commercial fertilizer; b) when fertilizer use becomes feasible, fertilizer could be more profitably used in the lowlands increasing yields and incomes there, generating surplus for investment, increasing lowland incomes, and thus diminishing population pressure on the highlands.

Consequently, present highland activities financed by this loan proposal will be based on such measures as building of protective terraces, providing better seed and plant material (construction of nurseries), better cultivation, crop diversification, including the introduction of fruit and other trees, and the expansion of livestock activities in areas where such potential exists.

b. Choice of the Region

For purposes of the highland model, the region of Seguin, including Marigot and Belle Anse communities, was selected after discussing alternatives with the officials of the Ministry of Agriculture. The basic reason for this selection was the relative strength of data coverage and availability.

The region is subject to ever increasing erosion as a result of mounting population pressure on land. However, the area is still relatively fertile, there still exists patches of pine groves and

*Possibilities d'Investissement et Developpement du Secteur Rural en Haiti, FAO/BID, Washington, D. C. 1974.

need for data improvement. In contrast to lowland farming regions where farm sizes are more regular and constant, the situation on highlands is different. Here the farms are often located on steep slopes with highly irregular surfaces undergoing loss of cultivable land as a result of soil erosion. In the highlands crops are usually interplanted between trees, rocks and other crops, e.g., corn may not be harvested when sorghum is already planted. This makes the estimation of surface and yields of various crops extremely difficult. There is, therefore, a need to strengthen surveying and yield measuring techniques to improve the knowledge about highlands.

d. Results

ANNEX IV, Exhibit 7 illustrates the outcomes of the highland model which show a rather high rate of incremental return, i.e., 27%. However, these figures may, in fact, be conservative in that they do not reflect the full benefit of the conversation effort. Best estimates of that approach 5% and should be added to the economic returns associated with upland farming.

D. Impact of Adopting Improved Cultural Practices on Credit Needs

1. Increase in Cash Expenses

Increased quantities and improvements in distribution of irrigation water will permit substantial increases in yields in Haiti. Budgets prepared by UN-FAO and IDAI specialists project yields two to three times the present low levels on unirrigated land. Increases of such magnitude, however, are not achieved with water alone.

A breakdown of cash expenses estimated under traditional and improved methods is shown in ANNEX III, Exhibit 8. The amount of increases in different items of expenses varies among crops. For most crops the absolute increase in amount estimated for fertilizer is greater than that for any of the other four types of expenses shown. For plantain and cotton the largest increase is recommended for agricultural chemicals, and for sugar cane the increase projected for hired labor is large. Perhaps surprisingly, increases in hired labor are budgeted for nearly all crops. On some farms there may be adequate underutilized family labor to take care of increased labor needs, but even under traditional methods of culture small farmers often have cash expenses for labor (usually to pay for food and beverages supplied to work groups). This practice appears to be declining in importance in some areas.

Purchased seed constitutes a major cash expense in producing beans, and the assumed irrigation tax represents the biggest increase in cash needed for producing manioc.

To attain yield increases two or three times the present levels, increases in cash expenditures of 40 to 60 dollars per hectare are required for most crops, and for plantain and sugar cane they are much greater.

2. Relation of Increases in Expenses to Increases in Returns

The increases in gross value of product usually exceed 2.5 times the increase in cash expenses (ANNEX III, Exhibit 9); only for sugar cane is the ratio less than 2.

The extra labor required with larger yields would earn an especially high return per man day in plantain, and it would be above \$1.30 for manioc, beans and corn, but less than this minimum wage goal established by the Haitian Government in the case of pois inconnu, sugar cane, sorghum and sweet potatoes.

After subtracting all budgeted expenses, the amount remaining represents a return to capital and management, or a sum that could be used for savings, or to service a loan. The increase in net return was greater than the increase in cash expenses for five of the eight crops listed. It was highest for manioc.

One should not interpret these findings as a signal to put all the irrigable land in manioc, for a substantial increase in manioc production would almost surely bring lower prices. The market for manioc tends to be a local one, for the bulk and perishability of the crop and the relatively high cost of transport limit the distance this low-valued crop can move; moreover, the price of manioc has not increased as much as that of other staple foods (cereals and beans) in the past decade. Furthermore, the extra return per man day of labor is much higher for plantain than for manioc.

3. Rationing the Amount of Cash Expenditures

Despite the fact that the preceding estimates indicate that increased expenditures would be covered with greater increases in net income for five of the eight products, it is highly unlikely that cash expenditures in the immediate future will in fact increase by the amounts budgeted in ANNEX III, Exhibit 7. At least three constraints will cause the adoption of improved practices to be gradual

over several years rather than immediate. These are:

- a. The availability of the quantities of fertilizer, chemicals and improved seeds needed to reach the projected yields;
- b. The availability of money to make the purchases of these inputs;
- c. A lag among some producers in understanding the possible benefits from different practices, and being willing to make changes.

A few farmers now have resources that permit adoption of improved practices. Others have been able to borrow funds from various sources to finance purchases, and as incomes improve a greater number will qualify for loans. Some may have earnings from work on the rehabilitation of the irrigation system which can be used for farm expenses. The majority of the farms will not increase purchases of inputs to the levels indicated as profitable, and this fact, in itself, will reduce the yield increases (which, in turn, will reduce labor requirements).

More flexibility exists in fertilizer use than in chemical treatments of plants and products. The use of chemicals is not effective unless specific prescribed quantities are used (and overuse may be highly detrimental).

On the other hand, the first applications of fertilizer are nearly always accompanied with a greater yield response than the last applications. Use of only half the fertilizer budgeted would not reduce the increases in yields attained by one half. The response will not be the same in all crops; collection and study of data for Haitian conditions will be necessary before more than general recommendations on fertilizer use can be properly made.

For planning purposes it would seem feasible to provide for increased credit use as yield increases are projected. Based upon recent farm surveys in Les Cayes, credit demands on a farm basis tends toward 70% of those surveyed. Therefore, production credit as derived in the farm budget would approach limits of about \$13.60 per hectare if fertilizers are not utilized and up to \$60.00 where they are used. Based upon a sixty percent project adoption rate and a five year fertilizer introductory program, production credit should be made available at the following levels.

Credit Demand Without Fertilizer

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5 thereafter</u>
57,120	114,240	114,240	114,240	114,240

Credit Demand With Fertilizer

<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
168,560	337,120	505,680	674,240	842,800

E. Social Analysis

1. Overview (See Table 1 for total populations impacted by project)

An overall picture of the country suggests the ability of existing community organizations to support the implementation of the Integrated Agricultural Development Project. Despite regional differences in structure and effectiveness, these community organizations are sufficiently developed to provide a base of support for the planning, operation, management administration, and maintenance of new and improved water systems, and the new agricultural practices and social activities that will be stimulated.

The projected objectives and activities of the integrated agricultural program are compatible with the already established social environment because these activities will be introduced into already existing structures that have been established to promote innovation, community improvement and mutual support among farmers. Furthermore, the community organizational structure is considered the basic structure through which change can and will be introduced. There is ample evidence of the interests on the part of the farmers expressed through the activities of these community groups to improve production through the acceptance of new practices.

Over 65 percent of the farmers interviewed in a recent survey in the Plaine des Cayes area (southern region) stated that irrigation was their priority interest and that they were prepared to participate fully in the maintenance of the systems. In addition, nearly 50 percent asked for new cultivation practices and nearly 20 percent wanted agricultural machinery.

Another indication of openness to change was the great demand for greater educational opportunity for their children. Nearly 50 percent

saw this as their first concern, to increase their production to obtain the funds to send their children to secondary schools.

Again in the group sampled, 43% already participate in community groupements.

Interests are relatively similar in the northwest, but desperate environmental conditions forces the farmer to be open to any possible improvement, but caution him against actions that do not "guarantee" success.

However, any program for change, it is argued, must be channelled through these community groups rather than through individuals because of traditional group social controls that maintain the equilibrium of the community and prevent one member of community from self-agrandisement over the interests of the community.

Furthermore, it is primarily through the channels of community organizations that the poor farmers will be reached. These groups provide the principal channel of communication to and from the poor farmer to and from the donor and the government of Haiti agencies often with the intermediary of the church. Any other channel of communication and assistance will tend to move this assistance to the richer, more powerful elite and impede the delivery of these development resources to the level of the poor farmer.

The existing community groups, usually called, groupement or conseil, communicative building on traditional forms of community associations and social control, are available and appropriate channels and vehicles to transfer technical assistance to the target groups. The climate for development is, therefore, promising provided this social environment is understood and attention is given to possible difficulties and potential frustrations in the delivery of promised assistance resources.

TABLE I
Rural Population Affected by Regions (Watershed and Irrigation Projects)

<u>Region</u>	<u>Direct Project Participants</u>		<u>Total Population</u>	
	<u>Population</u>	<u>Farm House- holds</u>	<u>Population (1976)(adj.)</u>	<u>Farm House- holds (1976) (adj.)</u>
Cul-de-Sac	8,164	1,300	70,562	14,112
Southwest	106,132	16,900	68,050	13,610
Northwest	6,280	1,000	84,238	16,848
South	<u>23,864</u>	<u>3,800</u>	<u>138,252</u>	<u>57,650</u>
	148,240	23,000	511,102	102,220

Source (1967) - I.H.S.

Based on 1967 census and adjusted to 1976 population considering compounded population growth rate (2%/annum of 24.34% for the 11 intervening years)

2. Description of Target Groups

a) Farm Size

In general farms belonging to small farmers are approximately 1 carreau or 1.29 hectares in size. Holdings in the Northern part of the country tend to be somewhat larger - about 30% - Land in the north has historically consisted of large state holdings whereas in the south the Napoleonic Code introduced by the colonial French which allowed fractionalization of land holdings has caused farms to be constantly divided as they are passed on to all the heirs. However, throughout the country, farming is conducted on small parcels, one of the serious problems for agricultural development in Haiti.

In the Plaine des Cayes, considered the richest farming area of the country, 70% of the farms are less than 1 carreau or about 1 hectare in sizes.

b) Income

Although the accuracy of current statistical information is questionable, it is estimated that in 1971, the average income in the Plaine des Cayes is approximately \$68 per year; average income in the highlands and in arid areas is only about \$40. (FAO, 1973)

The Haitian farmer, especially in the Plaine des Cayes, gets his income from multiple sources. Primarily, of course, most farmers derive from their income from direct agricultural production (84 to 86%). However, income is also derived from activities related to rural industries and crafts: (6 to 7%); loans and exchanges (3 to 4%); domestic service (3 to 4%); and from various service and administrative functions (1 %).

The number of land owners is greatest in the Plaine des Cayes, approximately 70%. In the northwest area, one of extensive arid lands, there are large numbers of tenant farmers and "nomads" trying to eke out a living under the most severe and deteriorating environmental conditions.

c) Most of the country consists of subsistence farming with differences in cultivation according to regional and environmental differences. Subsistence crops include corn, beans, manioc, yams, millet, sorghum, bananas, mangoes, rice, some animal products such as milk, meat.

Sugar cane is grown primarily in the southern half of the country although there are only a limited number of large holdings that can profitably produce enough sugar cane for the market. Vetiver, an important source of essential oils, is grown primarily in the south. Coffee, one of the most profitable crops of the country and marketed through one of the few functioning cooperatives, is grown in higher country in the south and in the north. Rice is an important crop in the Plaines areas. Cotton was and is hoped to be again a profitable crop in the central areas of Haiti.

d) Current Agricultural Practices

Most farmers use simple tools such as the machete, hoe and pick for all agricultural cultivation. Plows pulled by animals are found principally in limited areas in the Plaine des Cayes, where one of the few rural agricultural equipment craftsmen can be found. For the most part only the large holdings owned by wealthy farmers or the state use mechanical equipment. The use of tractors is limited primarily to the zones in which sugar cane and tobacco

are grown in large holdings. There were no such plows observed in the Northwestern area.

There is an agricultural calendar when specific crops are cultivated, sometimes in association with others. In the very small parcels, a system called jardin creole produces a constant melange of crops primarily for basic subsistence.

Most of the farm work is done by the farm family itself. Farming is the principal activity of most of the men (about 85%) helped by their wives and children and by occasional hired help. In the sample of farmers interviewed in the Plaine des Cayes, the father spends 53% of his time in working in farm operations and 38% with the community groupement. The mother spends 62% of her time in commerce, only 2% in groupement activities. Traditional work groups such as the combite and escouade still provide farming labor although there seems to be a tendency for these to weaken and be replaced by salaried help. There was little mention of these groups in the South. The combite is a group invited to provide manpower to farmers upon invitation. The money paid the combite went to members of the group. The escouade was a hired work association. Today one of the serious social problems in all regions is the overabundance of available manpower, especially among the young. This creates a strong desire to find ways of migrating from the countryside to the cities and overseas, if possible. Over 30% of the farmers interviewed recently in the Plaine des Cayes had family in New York and other foreign cities. Over 52% had family that had moved to Port-au-Prince and to other cities in the country.

e) Land Ownership

Land ownership is a very complex problem because of the lack of clear titles and because of the constant division of lands at the death of the pater familias. There is a need for a national effort to establish ownership titles. Many farmers, especially in the Northwest, are in fact squatting on lands for which there is no clear title. Land ownership in irrigated areas is more clearly defined and controlled through registration both at the local and district level.

Currently, however, 70% of the land in the Plaine des Cayes is owned by specific proprietors. In the northwest, ownership is often unclear. However, as mentioned above, there are a large number of tenant farmers in that area.

Land is frequently rented out or leased because the owners do not have the capital to exploit it. Land is also frequently worked by share croppers, again especially in the northwest where there is constant migration.

The continued subdivision of land has resulted in farmers holding various parcels of lands that are often at considerable distances from each other. This prevents any efficiencies in crop productions.

3. Structure of Community Organizations

The proposed project relies heavily on the ability of community organizations to implement and maintain development activities at the local level. While such organizations are common in Haiti, they vary considerably from region to region in terms of structure, stability, resources and effectiveness. They all, however, share common problems including the lack of adequate technical knowledge and resources to undertake self-help activities on any significant scale. The project is based on the assumption that given appropriate knowledge and resources, a self-sustaining capacity for rural development can be created. Annex III, Exhibit 10 provides a detailed description of the types of community organizations in Haiti; their problems and their potential.

4. Role of Women

Generally, women in rural Haiti are responsible for house-keeping and child care and almost all of the commercial activities of the rural family. A recent survey indicates that in the south, the mother of the family spends 62% of her time in commerce. Her present participation in community groupements is limited, only 2% of her time. The groupement is generally seen as the activity of men, but more and more women are now beginning to participate. Special groupements are being formed that are concerned with home economics. Occasionally, it is reported, women are assuming leadership roles as chairpersons of groupement committees and in a few communities, women have been elected as vice-presidents of the groupement. However, so far, no women have been elected presidents.

Nevertheless, women participate in plenary meetings of groupements and will argue very strongly in public for their points of view. In the full group they provide important inputs into the decision-making process.

Any development project that affects increase in production will impact on the role of the woman. First of all, she may have to spend more time in the farming operation to help her husband unless he can afford to hire farm hands. Her most demanding responsibility is the transportation and sale of farm products and she is the major power in all such transactions. (This is also true at other more sophisticated levels of commerce beyond that of the farming household. Women are produce brokers and vendors, store owners, even major business directors.) To play enlarged roles in expanding commercial activities women may require training in business management and related skills. Therefore, consideration should be given in the development project to the formation of such training programs in the context of groupements, rural schools, and what is called promotion feminine, programs of special interest to women in rather traditional homemaking skills.

In rural Haiti, the father of the family is still the "boss", but the women play a nearly equal role in the total conduct of family affairs because of her importance as commercante. Improved income will help to provide her with new material goods, better transportation to market, better nutrition and easier access to medical care. More money will also mean better educational opportunities for young women.

There is a strong interest in family planning stimulated by the many church groups and the government. Most farmers interviewed in a recent study say they wish they could limit families to four children. Better health conditions and better planning capabilities and resources may make this possible. Smaller families and higher incomes may make significant changes in rural family life.

The following is a list of activities that should be integrated into the lives of rural women, proposed by Miss Marie-Carmel Lafontant, Director of the Centre Haitien de Recherches pour la Promotion Feminine.

- 1 - Agricultural extension and rural crafts programs;
- 2 - Health programs (improvement in nutrition, improved child care, disease control);
- 3 - Social development programs:
inventory of human resources, organization of leisure time, leadership training for both sexes;
- 4 - Civic education program
- 5 - Commercial Organization and management; fiscal management
- 6 - Organization of cooperatives

- 7 - Further study of role of women, especially of the constant movement of families in their search for subsistence: Haiti (Annex III, Exhibit 11 provides a statement on the role of women in Haiti by Miss Marie-Carmel Lafontant, Director of the Haitian Institute for the Promotion of Women)

5. Required Changes in Behaviors

The integrated agricultural project will require specific behavioral changes on the part of the farmers, community groups, and of government.

a. Irrigation: The new systems or those that will be repaired will have to be maintained by the communities affected. This will require training of community groups in maintenance, repair operations, management, and administration of the irrigation system and improved farm practices. The farmers must learn a new discipline. To assure this, the farmers must be made to see the systems as theirs and not as belonging to the government, to some foreign country, or as dominated by rich or politically powerful landowners. The farmer must become involved in the process of planning and implementing the agricultural project. He can only learn that it is his system through his early involvement in the development of the project. The role of the groupement then is clearly an immediate one. Community groups will also need to learn to work in confederation so that the water will not be blocked by any individual or community or by the lack of maintenance by a disaffected community.

b. Improved Agricultural Practices: The farmers will need to learn a number of new practices and must adapt to new cultivation conditions. He will need to learn better uses of fertilizers, insecticides, soil conservation techniques, etc. If crop production increases, there will then be the need for new storage facilities and practices.

Community groups will have to learn organizational and management practices, especially if they are given the responsibility for the maintenance of the water systems. The groupement will need to take on a new education role in educating its members in these new practices and responsibilities.

On the other hand, the government will need to make several difficult changes so that the community will develop new confidence in the ability of government to provide services. The government must provide adequate technical support to the farmers. But, the technicians, the agronomes will need to become part of the community, so that the problems within that community are understood and appreciated and distrust of outsiders minimized. Furthermore, the government must agree to awarding community groupements the funds collected from water taxes to be used to maintain the systems.

Nationally, there needs to be a well-publicized policy in support of community groups, establishing their role and legitimacy. The groupement in turn represents a stabilizing political force serving to avoid conflicts at the local and regional levels.

c. Two-way Communication to and from Community/Government/Foreign: To facilitate the development of local investment and participation in development projects and to promote the development of relevant assistance efforts, clear and easy communication between all parts must be established through conventional and direct mass media channels. Otherwise misinterpretation, lack of information, and hostility may develop and create disruption and destruction to project efforts.

d. Coordination of Existing Community Development Projects: At present, there are numerous foreign agencies churches involved in the development and support of community projects throughout the country. To introduce new projects and ignore these current efforts would create antagonism and remove the resources these on-going projects could bring to the new development effort. Instead, there must be some means of establishing communication with and between these current efforts to encourage a coordinated development effort. This will also bring new efficiencies to these various projects.

e. Participation in Development: Although the groupements are ready for participation in development projects, they lack some essential skills that must be developed so that participation is productive. Since they do not look to government agencies for assistance, they are prepared to look to their own resources - tete ensemble, as it is called in creole. This collaborative investment must, however, be trained so that there will be a capability that will respond to the new opportunities provided by the irrigation project. This means that the groups must be trained in the operation, administration, care and maintenance of these systems, in new agricultural practices, management skills, and communication with other groupements in other communities. If the systems are to work, there must be a sense of federation among groupements. Otherwise, there may be attempts to

block water from one community or from certain farmers. The project must be seen as a regional responsibility. There are some federations of groupements that have already been developed. This movement must be strengthened and the skills to maintain the social as well as technical skills necessary must be developed. Furthermore, the leaders of these groupements will take on an especially important role in the process and must have the opportunity for special training in those required skills of particular importance is the training of community leaders, who in turn, will demonstrate innovations and facilitate their incorporation into the existing social and economic life of the community.

At the same time, new attention should be given to the strengthening of organizations for young people. Most young people are jobless or unemployed in the rural sector, frequently seeking means to migrate. In the past year, however, there has been increased attention by DARNDR in encouraging youth activities, such as school gardens. The new conditions that the integrated agricultural development project will stimulate can create an environment for the establishment of roles for young people within the community context. The only organization that does exist although not in a very active today is the 4-C, (the 4-H clubs of Haiti), introduced in 1939 and sponsored by DARNDR. These organizations could provide enthusiasm and manpower to support some of the possible development projects and be a preparation for active participation later in the groupements communautaires.

6. Benefit Incidence

a) Direct economic benefits to small farmers

(1) Salaried Work on the irrigation project will provide direct and immediate increased income to farmers or members of farming rural families in the affected areas. Therefore, the project should be made accessible to a large number of the rural population.

(2) All farmers within the reach of the irrigation systems will benefit and careful design of the project could accomplish this;

(3) Because the project is working with community organizations, there will be a greater chance for the small farmer to benefit rather than the owners of large farms. It will be easier to reach the small farmer through the groupement not only with more water but with the new information and training that will benefit his farming productivity and subsequently the quality of his life and that of his community.

(4) Proper application of water and improved agricultural practices will provide increased production, better nutrition for the family and community, and larger surpluses for sales.

(5) Increased income will provide greater access to food supplies, farming supplies and equipment, greater access to educational facilities (ability to send more children to both primary, secondary schools), and strengthen the ability to increase land holdings.

(6) Increased use of land will provide additional employment in rural areas.

(7) Increased income will provide ability to increase storage and processing facilities ensuing better food stocks year round.

(8) Increased income and new cultivation practices will stimulate new agricultural industries in rural areas; this will provide greater access to equipment at lower prices and better storage and processing facilities.

b) Secondary Benefits

(1) Training of farmers will impact on rural education and create circumstances for the improvement of general education and literacy.

(2) Increased production will lead to demand for better marketing arrangements.

(3) Better control of water systems will create better water quality (fewer animals contaminating water, regulated water supply eliminating polluted pools, etc.)

(4) Increased income will reduce migration and increase local stability.

(5) Increased income will bring new schools and community centers with social and recreation programs.

(6) Better nutrition will bring reduced pressure on limited health services.

(7) Successful community group activity will strengthen the role of community groups and increase the political influence of the community.

(8) Increased income will enable rural families to obtain material goods such as new homes, radios and improved sanitary facilities, perhaps electricity.

(9) Increased communication facilities will produce more opportunities for education and information essential for rural development.

7. Possible Problems to be Monitored

a) Increased value of irrigated land may cause expropriation by landlords especially in areas with high ratio of tenant farmers such as in the northwest.

b) Increased value of land may stimulate speculators to buy up small parcels and displace small farmers, adding to problems in other areas and in urban centers.

c) Greater income may stimulate more migration especially by young; unless new job opportunities can be developed in rural areas.

d) Increased production without development of improved storage, marketing and processing facilities and price stabilization may reduce benefits of development.

e) To avoid the discontinuity, the Haitian government must project the means to support the rural development program beyond the duration of this assistance project.

8. Social Feasibility

It is, therefore, concluded that the project is socially feasible, given the existing and potential structure of community organizations used to the role of catalyzing community cooperative efforts for development. Despite various regional differences and differing environmental resources and problems, the community groupement or conseil represents a viable vehicle for channelling development assistance.

These organizations seem willing to contribute substantial human resources to all perceived priority development projects, but lack technical advice, guidance, and supervision. They seem to demonstrate willingness to become involved in and responsible for new projects, to respond to innovations offered by change agents but often lack access to technical advice and information, training, resources that would facilitate the accomplishment of specified projects or the establishment of significant new directions in social and economic development. Strengthening these community organizations through successful projects, training education, and improving the quality of rural life will result in strengthening the stability of rural life and the political resources of rural communities to obtain the services they require.

V. Financial Analysis

1. The total cost of the proposed 5 year project is estimated at \$22,601,200 of which \$4,100,000 will be financed by AID grant funds, \$8,000,000 by AID loan funds, \$10,501,200 by the Government of Haiti. An additional in-kind contribution of \$1,720,800 will be provided by community organizations in the form of contributed labor. The financial analysis is presented in the following tables:

1. Table 1: Summary Cost Estimate and Financial Plan
2. Table 2: Disbursement Schedule
3. Table 3: Input/Output Matrix

TABLE I

Summary Cost Estimates and Financial Plan

	AID Grant ^{1/}	AID Loan ^{1/}	GOH ^{2/}	Community Contribution (Labor)	Total
<u>Project Administration</u>					
Technical Assistance (192 PM Long Term)	1,615,000				1,615,000
Technical Assistance (45 PM Short Term)	385,000				385,000
Equipment & Materials		101,600			101,600
Vehicles		29,000			29,000
DARNDR Personnel			231,300		231,300
Operations & Maintenance			150,900		150,900
Contingency & Inflation		6,900			6,900
Sub-Total	2,000,000	137,500	382,200	- 0 -	2,519,700
<u>II. Irrigation</u>					
Technical Assistance (264 PM Long Term)		1,282,000			1,282,000
Equipment & Materials		2,265,600			2,265,600
Vehicles		31,000			31,000
DARNDR Personnel			312,000		312,000
Local Labor			2,003,000	500,800	2,503,800
Contingency & Inflation		182,900			182,900
Sub-Total	3,761,500	2,315,000	2,315,000	500,800	6,577,300

	AID Grant ^{1/}	AID Loan ^{1/}	COH ^{2/}	Community Contribut. (Labor)	Total
III. <u>Extension/Information</u>					
Technical Assistance (60 PM Long Term)	330,000				330,000
Training:Off-shore (4 persons)		173,000			173,000
Training:In-Country			110,000		110,000
Equipment & Materials		331,000			331,000
Vehicles		71,700			71,700
DARNDR Personnel			674,000		674,000
Operations & Maintenance			187,000		187,000
Contingency & Inflation		71,100			71,100
Sub-Total	330,000	646,800	971,000		1,947,800
IV. <u>Soil Conservation</u>					
Technical Assistance (72 PM Long Term)		330,000			330,000
Training:Off-shore (4 persons)		173,000			173,000
Training: In-Country			85,000		85,000
Equipment & Materials		120,000			120,000
Vehicles		83,000			83,000
DARNDR Personnel			204,000		204,000
Local Labor			4,800,000	1,200,000	6,000,000
Operation & Maintenance			270,000		270,000
Contingency & Inflation		63,000			63,000
Sub-Total		769,000	5,359,000	1,200,000	7,328,000

	AID Grant ^{1/}	AID Loan ^{1/}	GOH ^{2/}	Community Contribut. (Labor)	Total
<u>Research & Development</u>					
Technical Assistance (60 PM Long Term)	275,000				275,000
Technical Assistance (24 PM Short Term)	95,000				95,000
Training: Off-shore (4 persons)		173,000			173,000
Training: In-Country			60,000		60,000
Equipment & Materials		240,000			240,000
Vehicles		26,000			26,000
Construction		200,000			200,000
DARNDR Personnel			300,000		300,000
Local Labor			80,000	20,000	100,000
Operations & Maintenance			150,000		150,000
Contingency & Inflation		86,500			86,500
Sub-Total	370,000	725,500	590,000	20,000	1,705,500
<u>VI. Credit</u>					
Technical Assistance (48 PM Long Term)		280,000			280,000
Vehicles		29,400			29,400
Agricultural Credit		1,000,000			1,000,000
BCA Personnel			594,000		594,000
Operations & Maintenance			40,000		40,000
Contingency & Inflation		116,600			116,600
Sub-Total		1,426,000	634,000		2,060,000

	AID Grant ^{1/}	AID Loan ^{1/}	GOH ^{2/}	Community Contribut. (Labor)	Total
VII. FAMV					
Technical Assistance (192 PM Long Term)	1,120,000				1,120,000
Technical Assistance (48 PM Short Term)	280,000				280,000
Training:Off-shore (4)		130,000			130,000
Equipment & Materials		98,000			98,000
Vehicles		25,000			25,000
Construction		122,000			122,000
FAMV Personnel			190,000		190,000
Operations & Mainte- nance			60,000		60,000
Contingency & Inflat- ion		158,700			158,700
Sub-Total	1,400,000	533,700	250,000		2,183,700
GRAND TOTAL	4,100,000	8,000,000	10,501,200	1,720,800	24,322,000
	(16.9%)	(32.9%)	(43.2%)	(7.0%)	(100%)

1/ Entire amount of AID loan and grant are for foreign exchange costs with the exception of approximately \$322,000 of loan financed local construction and \$1,800,000 of loan financed local materials cost.

2/ Local currency costs.

NOTE: It is proposed that the Mission be authorized to increase or decrease any of the loan-financed elements (I through VII) by a maximum of 15%, provided that the total amount of the loan is not exceeded.

TABLE 2
Disbursement Schedule
(in \$000)

	YEAR					Total
	1	2	3	4	5	
Grant Technical Assistance	1,230	984	984	778	124	4,100
Loan Technical Assistance	568	426	426	334	138	1,892
Training: Off-shore		180	180	160	129	649
Training: In-country	100	100	55			255
Equipment Materials & Vehicles	1,000	1,000	852	300	300	3,452
Construction	161	161				322
Agricultural Credit			300	400	300	1,000
DARNDR Personnel Costs	501	501	501	501	501	2,505
Local Labor	643	1,560	1,560	1,560	1,560	6,883
Operations and Maintenance	98	190	190	190	190	858
Sub-Total	4,301	5,102	5,048	4,223	3,242	21,916
Contributed local labor						1,721
Contingency & Inflation						685
Total						<u>24,322</u>

TABLE 3

Input/Output Matrix (in \$000)

Inputs	Outputs	Project Administration	Irrigation	Extension Informat.	Soil Conserv.	Research & Devel.	Credit	FAMV	Total
AID									
Grant Technical Assistance		2,000		330		370		1,400	4,100
Loan Technical Assistance			1,282		320		280		1,892
Training:Offshore				173	173	173		130	649
Equipment, Materials and Vehicles		131	2,297	403	203	266	29	123	3,452
Construction						200		122	322
Agricultural Credit							1,000		1,000
Contingency & Inflation		7	183	71	63	87	116	158	685
Sub-Total		2,138	3,762	977	769	1,096	1,425	1,933	12,100
GOH & Communities									
Training:In-Country				110	85	60			255
GOH Personnel Costs		231	312	674	204	300	594	190	2,505
Local Labor			2,504		6,000	100			8,604
Operations & Maintenance		151		187	270	150	40	60	858
Sub-Total		382	2,816	971	6,559	610	634	250	12,222
Total		2,520	6,578	1,948	7,328	1,706	2,059	2,183	24,322

2. Analysis of Debt Service Capacity of GOH

Haiti's economic growth trend of recent years continued during 1974, but at a lower rate. Growth was also spotty, with some sectors performing better than others. The output of the light manufacturing industry increased by a large margin, while little growth was registered in the agricultural sector, still handicapped by a lack of infrastructure and organization. Some overall growth is foreseen for the economy in 1975 and 1976, but at rates only slightly higher than in 1974. Faced by the rising cost of petroleum products and other essential imports, the Haitian Government took steps in 1975 to conserve its foreign exchange reserves, partly by controlling imports. Adverse weather conditions in late 1974, however, produced a drought in the Northwest that necessitated extraordinary food imports. As part of the Haitian Government's effort to redress the country's deteriorating balance of payments, monetary policy will restrict domestic bank credit during 1975 and 1976, and this will depress the economy unless foreign investment increases. The high rate of inflation that characterized 1973 abated somewhat in 1974. The official cost of living index, which is weighted to reflect the purchasing patterns of lower income consumers, averaged 206.4 in 1974 (1948-100) compared with 178.6 in 1973, an increase of 15.6 percent. This compared with an average rate of inflation in 1973 of 19.3 percent. The price index for food increased 10 percent during 1974.

The total value of Haitian exports in 1974 (including products assembled from imported components) increased 96 percent, although the increase was due much more to increased prices than to extended production. The largest increases were registered by raw sisal (143 percent) and essential oils (179 percent). The value of light manufactured products exported to the U.S., most of which were assembled from imported components, increased 101 percent. Total imports jumped from \$65.8 million in 1973 to \$119.9 million in 1974, an increase of 82.7 percent (these figures include the value of components imported for assembly and re-export, as well as a growing volume of shipments financed by foreign aid). Despite the increase in exports and in remittances from Haitians abroad, the greatly increased import bill caused Haitian foreign exchange reserves to fall by over \$20 million during 1974.

The money supply increased at a slightly faster rate than in past years (30 percent), largely because of a rapid expansion of commercial bank lending to the private sector to finance imports.

Despite a 10.2 percent increase in Haitian Government revenues, expenditures increased 25.3 percent, resulting in a deficit of \$10.9 million.

The Haitian Government's development budget for FY 1976 shows an increase of 80 percent over the amount budgeted for the previous year and stresses transport, telecommunications, energy, potable water, and agriculture. This is the final year of the Haitian Government's current five-year plan.

Haiti's external debt burden is not regarded as a constraint. According to the IMF the debt service ratio for Haiti; i.e., the ratio of public loan amortization plus interest to exports of goods and non-factor services, declined from 11 percent in 1973 to 9.9 percent in 1974. These debt service levels are regarded as relatively modest and that with proper fiscal management additional medium and long-term loans can be served. Particularly given the probability of increased exports as a consequence of current infrastructural investments, a debt service ratio of from 15 percent to 20 percent should be within the capability of the Haitian economy.

3. Source of Counterpart Funds

The recent ABS review for Haiti (7/22/76) stated that optimum use should be made of PL-480 Title I local currency generations to support program objectives. In keeping with this decision it is recommended that future annual PL-480 agreements stipulate an amount of PL-480 proceeds which shall be utilized to meet the counterpart requirement of this project for the forthcoming year. The amount to be specified should be based on the total amount of PL-480 funds available relative to the counterpart requirements of this and other AID financed projects, however, in no event should more than 90% of the counterpart requirements be financed by PL-480 proceeds.

4. Irrigation/Soil Conservation Fund

The Fund to be established will provide for the direct costs of irrigation/soil conservation subprojects, i.e. materials and labor. The source of financing for the Fund is as follows:

	(in \$000)		
	<u>AID</u>	<u>GOH</u>	<u>TOTAL</u>
<u>Irrigation Rehabilitation</u>			
Materials	1,816		1,816
Local Labor		2,003	2,003
Subtotal	1,816	2,003	3,819
 <u>Soil Conservation</u>			
Materials	120		120
Local Labor		4,800	4,800
Subtotal	120	4,800	4,920
TOTAL	1,936	6,803	8,739

The indirect costs of the irrigation and soil conservation activities, such as technical assistance, training, and DARNDR personnel costs, are not included in the Fund.

Prior to the disbursement of AID loan funds DARNDR will submit for AID approval the guidelines for operation of the Fund including accounting and disbursing procedures. Particular emphasis will be placed on establishing adequate controls over disbursements made for payments of local labor.

Once established, the Fund will provide the necessary financial and administrative apparatus for effectively utilizing additional internal and external resources to carry out similar activities in other regions.

As indicated in Section II.E, other donors have expressed major interest in this type of integrated agricultural development project. It is therefore expected that by the end of the project, external and local funds will be made available for DARNDR's Irrigation/Soil Conservation Fund so as to maintain the Fund's operations at no less than the 1,000 hectares of subprojects that will be reached in the fifth year of the AID project.

V. IMPLEMENTATION ARRANGEMENTS

A. Institutional Analysis

The institutional base on which the project depends for implementation can best be described in systems terms. The system is comprised of three major elements each dependent on the successful operation of the other two components to assure a reasonable success of the project -- the Department of Agriculture, Natural Resources and Rural Development (DARNDR), the Community Organizations, and the Faculty of Agriculture and Veterinary Medicine. Each of them will be described and the impact of the project on them will be set forth.

1. The Department of Agriculture, Natural Resources and Rural Development (DARNDR)

a. Overview

The Department of Agriculture is a complex organizational structure performing the functions one would anticipate for its agricultural mission and, it has the added responsibility for administering the rural primary school system of the country. As with the latter function, the Ministry performs other traditional services which while essential are not targets of direct concern for the project. Nevertheless, all elements of DARNDR will be alluded to and those relevant to the project will receive more detailed attention. The following organization chart will give the reader an instant grasp of the Department's structure.

A discussion of DARNDR's overall resources and a judgment as to its status follows:

b. Physical Resources

The DARNDR central office is located at Damien, some 10 kilometers outside the capital city of Port-au-Prince. The physical resources available and under the control of the DARNDR consist of the complex of buildings at Damien, limited research and extension equipment and supplies plus vehicles and motorized equipment. For the most part, there appears to be at least

minimal office space, and the main building is in a fairly good state of repair. Except for tractors, no inventory of equipment was available for the reason that apparently no inventory listing is kept by the DARNDR. The number of vehicles was said to number 162 in addition to 2 buses to transport employees to and from Damien and Port-au-Prince. No figures or data on operating condition, age, or state of repair were available for any of the DARNDR controlled equipment or vehicles. No depreciation or replacement system is utilized; rather vehicles and/or equipment are junked when reaching the point of being beyond repair.

The Damien complex includes, besides the main administrative offices, the FAMV facilities, experimental plots and fields, the DARNDR garage plus structures housing one of the "Normal" schools.

c. Personnel:

Although precise figures were unavailable, it was clear that a very substantial proportion of the total DARNDR personnel excepting rural teachers and extension agents, was located at Damien. The MASI team estimated that of 110 to 120 Agronomes employed by the DARNDR, at least two-thirds are housed at Damien. Excluding rural school teachers and extension agents, a similar ratio apparently prevails for all other technical and non-technical personnel.

Because the number of position titles of the DARNDR numbers well over 100, it was not feasible to classify personnel into categories. In fact, it was impossible to determine how many of the 3,349 employees listed in the 1975-76 budget could be classified as technical and/or non-technical personnel. In great part this difficulty arose from the rather loose relationship between position titles and position roles or functions of incumbents. The same position titles have been carried on the books for years. So, in actual practice, personnel occupying the positions may or may not have a functional role even closely resembling the title his or her position would imply.

The total number of personnel of the DARNDR was available by Division (Table 1). Again, however, the relationship between actual numbers

TABLE 1TOTAL NUMBER OF SALARIED PERSONNEL IN DARNDR DIVISIONS FOR FISCAL YEARS1973 - 74, 1974 - 75, and 1975 - 76

DIVISION	Fiscal Year		
	1973-74	1974-75	1975-76
General Administration	. 254	290	332
Agriculture	577	565	561
*Natural Resources	330	347	328
Rural Development	<u>2,050</u>	<u>2,085</u>	<u>2,128</u>
TOTAL NUMBER	3,211	3,278	3,349

SOURCE: LE MONITEUR, Journal Officiel de la République D'Haiti, Numéro Extraordinaire, Budgets de Fonctionnement et de Développement, An XVII, XVIII, XIX Presses Nationales d'Haiti, Port-au-Prince, Haiti

* Does not include 14 salaried personnel in division during 1973-1974 and 1974-1975 and 17 during 1975-76 that are included in the budget of the Department of Public Works.

employed by a given Division and responsible to a given Division Chief is somewhat tenuous. For example, except for a few District Office personnel, most are listed as being employed under one of the three technical Divisions. Yet in fact, the great bulk of these employees report to the District Agronomes who in turn report to the Director General, directly or indirectly.

d. Financial Resources

The budgetary resources of the DARNDR for the last three fiscal years of 1974, 1975 and 1976 are analyzed in this section. It should be noted that the Haitian Fiscal Year extends from October 1 to September 30. Data utilized in this analysis were derived from Le Moniteur, the annual budget of the Haitian Government, and were verified and confirmed in interviews with the DARNDR personnel and administrators.

As shown in Table 2, financial resources appropriated for the DARNDR have increased absolutely over the past two fiscal years. However, taken as a percentage of the total Haitian Government budget, they have declined from 8.2 percent in FY 1974 to 7.1 percent in FY 1976. It should be noted, however, that the DARNDR budget does not include all governmental funding provided to the agricultural sector. The Budget de Developpement, a distinct and separate budget, incorporates a considerable amount of financial resources for agricultural development projects jointly funded by the Haitian Government and by international donors. Because the Development Budget includes appropriations to numerous autonomous and semi-autonomous agencies, it was not analyzed.

It is most pertinent to this analysis that the absolute increase in the DARNDR budget over the past two fiscal years, that is the increase in budgetary funding, has not kept pace with the rate of inflation in the nation. The Consumer Price Index rose some 17 percent during the 1975 fiscal year; it is estimated that it will rise by an estimated 14 percent in the current fiscal period. These rises in price levels compare to a 9.6 percent and a 2.6 percent increase respectively in the DARNDR budget for the past two fiscal years. Thus, on a real basis, the DARNDR budget for the current fiscal year represents a funding level of 84 percent of the 1974 fiscal year. This represents a sizable budget reduction, equivalent to nearly three million Gourdes, between the fiscal years 1974 and 1976.

TABLE 2

TOTAL HAITIAN BUDGET, DARNDR BUDGET,
AND PERCENTAGE DARNDR OF TOTAL

Fiscal Years 1973-74, 1974-75, and 1975-76
(In Gourdes)

Fiscal Year	Total General Budget	Total DARNDR Budget	% DARNDR of Total
1973-74	100,377,000	13,670,741	8.2
1974-75	194,583,100	14,981,817	7.7
1975-76	210,600,000	15,370,965	7.1

SOURCE: LE MONITEUR, Journal Officiel de la République
D'Haiti, Numéro Extraordinaire, Budgets de Fonctionnement et de
Développement, An XVII, XVIII, XIX Presses Nationales d'Haiti,
Port-au-Prince, Haiti

Data in Table 3 provide a breakdown of the DARNDR budget by three major categories. Personnel salaries alone have accounted for over 90 percent of the total budget during the past three fiscal years. Furthermore, as a percentage of the total budget, the salary category has increased each year.

The operating budget category, in turn, has declined from 5.2 percent of the total budget in 1974 to 4.7 percent in FY 1976. In fact, the operating budget as well as a third category - donations, subsidies and contributions to other agencies - have both declined on an absolute basis between the 1974 and 1976 fiscal years. The increase in the total DARNDR budget between these two fiscal periods can thus be attributed solely to the rise in the personnel salary category.

Although the rise in the personnel budget category might imply that salaries for DARNDR personnel are rising, such is not the case. For any given personnel position, no salary increases have been granted for many years. Hence, the rise in the personnel budget over the past three years is due only to an increase in the total number of employees, plus a small but undetermined number of promotions to higher salary levels.

Table 4 through 8 in Annex IV Exhibit 1 provide further insight into the internal allocation of the total DARNDR budget. Of interest is the fact that in FY 1976, the Rural Development Division will expend 48 percent and the Agriculture Division another 23 percent of the DARNDR total operating budget. But of the combined operating budget of both Divisions, student maintenance will account for some 91 percent of all operating expenditures (Tables 7 and 8). This, in turn, will amount to over 42 percent of the total DARNDR operating budget. Another 17 percent of the DARNDR operating budget will be expended by the Administration Division for gasoline, oil and repairs. Thus, only 41 percent of the DARNDR total operating budget will be available for all other operating expenses including office furnishings, equipment and supplies, communications and teaching, extension and research materials and equipment.

TABLE 3

DARNDR BUDGET BY CATEGORY

For

Fiscal Years 1973-1974, 1974-1975, and 1975-1976

(In Gourdes)

Category	: 1973-1974		: 1974-75		: 1975-76	
	: Amount	: %	: Amount	: %	: Amount	: %
Salaries and Wages	: 12,414,689	: 90.8	13,759,485	: 91.8	14,175,600	: 92.2
Operating Expenses	: 721,722	: 5.2	683,104	: 4.6	715,137	: 4.7
Donations, Subsidies, Contributions	: 534,430	: 3.9	539,230	: 3.5	480,228	: 3.1
TOTAL	: 13,670,841	: 100	14,981,817	: 100	15,370,965	: 100

SOURCE: LE MONITEUR, Journal Officiel de la République D'Haiti, Numéro Extraordinaire, Budgets de Fonctionnement et de Développement, An XVII, XVIII, XIX Presses Nationales d'Haiti, Port-au-Prince, Haiti

* Does not include G269,400 for 1973-74 and 1974-75, and G323,400 for 1975-76 for personnel salaries allocated to DARNDR, Natural Resources Division, Irrigation Section from Public Works Department.

Because personnel salaries comprise such a large proportion of the total DARNDR budget, it is useful to examine salary levels for selected professional and semi-professional positions. The highest salary is that received by the Director General, who earns a salary of 2,000 Gourdes or U.S. \$400 per month. The next highest salaries are for Division/Service Chiefs. Salary levels for these positions range from 1,350 Gourdes to 1,650 Gourdes monthly with a weighted average of 1,490 Gourdes per month. Annex IV, Exhibit 1, Table 9 also shows salary ranges and weighted monthly averages for other selected positions in the DARNDR. These positions represent important personnel categories in terms of the total number of professionals and semi-professionals employed by the DARNDR.

Finally, Annex IV, Exhibit 1, Table 10 shows average monthly salary levels by Division and for the entire DARNDR. (\$71.00 in FY 1976) Although these data perhaps obscure more than they enlighten, certainly some general indication of salary levels is provided. While the data imply salaries are rising, as noted previously, no salary increases have been granted for many years excepting as internal promotions. Thus, as noted, the changing composition of positions within DARNDR is the reason for the small rise in average salary levels.

e. Assessment

The preceding descriptive analysis of the organizational structure, functional role and resource base provides the basis for this brief assessment of major constraints facing the DARNDR. This assessment focuses on basic areas of interest for policy decisions.

The present organizational structure of the DARNDR is not a major constraint to the functional role of the organization. Although some minor reorganization of one or two sections under the technical divisions would appear in order, e.g. the Agricultural Chemistry Service might be more appropriately placed under the Division of Agricultural Production, such changes are almost insignificant importance.

One issue of much greater importance is that of general administration. However, this is more of an internal management question

than it is an organizational issue. Certainly, the DARNDR's administration is lacking in matters of inventory control, record-keeping, acquisition and disposal of equipment and supplies. Any outside input of funds, equipment and/or supplies to the DARNDR should be predicated on the establishment of a far stronger internal management/administrative control system. Basic to strengthening this element of the DARNDR would be such straightforward steps as bonding of personnel responsible for handling funds, establishment of a better accounting system, maintenance of more detailed financial and inventory records and similar steps.

The matter of personnel positions is also an issue which deserves serious attention. The very large number of position titles found in the budget is almost overwhelming. Too, the salary range for any given title is often extreme. Frequently, there are large overlaps in salaries from title to title. Again, before any outside funds are committed to the DARNDR, a very careful review and reorganization of positions, attendant salaries and functional roles of personnel are matters of absolute necessity. As a first step, the DARNDR should be assisted in organizing a civil service-like system which would provide not only more equitable treatment of personnel, but also incentives for "moving up" both in terms of salary and position. As the system now exists, there appears to be little or no incentive for personnel to become more qualified for their work, or to work harder and more efficiently. Realistically, of course, any new personnel system would require very strict and rigorous control to avoid or at least reduce the potential for political abuse. (It was recently learned that DARNDR has organized a study group to examine the personnel system).

In many respects, the question of adequacy of the organizational structure of the DARNDR is a false issue if taken alone. It can be argued that no amount of re-organization would in and of itself enhance the efficiency of the DARNDR organization. In part, this contention is based on the fact that the present structure appears satisfactory. But more importantly, the contention is based on the reality that most power and authority has apparently been vested in the hands of the Director General's office. So long as some of the work is not done elsewhere, any reorganization of the DARNDR is pointless, if the objective is to enhance the organization's

capabilities in the agricultural sector. It is essentially impossible for one man to make or be accountable for all of the decisions which have to be made by the Director General.

The descriptive analysis of DARNDR points out the very serious resource constraints of the DARNDR whether speaking of personnel, financial or physical resources. Obviously, all salary levels are far too low to attract and hold qualified personnel on a full-time basis. At minimum, salary levels should be doubled at all levels. But, it is very seriously questioned whether such a step, taken alone, would have significant impact on the output of the organization. While reasons for this contention are many and complex, in essence, it is felt that salary increases without other measures would be pointless as a means to enhance the performance of the DARNDR personnel. The entire problem of personnel incentives, including development of a professional mentality among technical staff and the provision of adequate financial and physical resources, must be considered along with salary increases.

The DARNDR already has a number of highly dedicated, well-trained and conscientious technical personnel. But the "system" precludes a high level of functional activity. Said another way, work "norms" have evolved which are now an integral part of the social organizational structure of the Ministry. These norms, among other things, include holding down one or two other jobs, in many instances, and a very short work day; offices officially closed at 2:00 p.m.

Norms which have become deeply embedded in a social structure can be changed, but rather drastic measures in the form of controls and regulations must be taken. In this regard, there is little doubt that positive steps such as salary increments, would go a long way toward restructuring the norms of the system, providing the proper control mechanisms, such as insistence on a full 8-hour work day, were designed and enforced.

f. Recommendations

A recently completed AID-funded study and analysis of the institutional capability of DARNDR by the Multinational Agribusiness Systems, Inc. (MASI) (Analysis of Institutional Capability of Haitian Ministry of Agriculture, July 1976) concluded that:

(1) Strategies to strengthen the capacity of the Ministry of Agriculture to deliver services are basic to realistic planning for the agricultural sector.

(2) The major institutional (organizational) restraints of the Ministry of Agriculture have been documented in such works as the AID Assessment Paper and the GOH Five-Year Plan. They stem primarily from a grossly inadequate budget and are reflected in the level of personnel and other resources which are afforded.

(3) The Ministry of Agriculture has a complex but basically logical organizational structure. However, this structure is largely theoretical in the sense that lines of authority are blurred and delegation of responsibility is not typical.

(4) The services and information delivery system to rural areas is non-functional to a large extent because of the above noted conditions.

(5) Despite its current problems, the Ministry is the logical organizational structure for implementing agricultural and rural development programs. It has a potential for reaching the entire rural population in given areas and nationwide which cannot be matched by self-administered local project-oriented programs under outside sponsorships.

(6) The infrastructure of the Ministry of Agriculture is susceptible to relatively rapid improvement in efficiency, given the necessary resources. There is a basic core of competent, dedicated professional staff which can be augmented with other qualified individuals; however, incentives, opportunities, direction, and controls must be provided.

(7) The donors with interests in increasing the efficiency and capacity of the Ministry will have to comprehend that such a process is by nature, long term. Programs of institutional subsidy and assistance which are terminated after a few years may actually do more harm than good.

This very brief overview of the organizational structure of DARNDR, as noted previously, is the MASI Study team's perceived view of the present organization. It is representative of the lines of communication and the authority structure within DARNDR. As implied above, two offices within DARNDR - that of the Secretary and that of the Director General - appear to be the points of power and authority. Further elaboration of the detailed organizational structures within DARNDR is contained in Annex IV, Exhibit 2.

2. The Bureau of Agriculture Credit (BCA)

In view of the fact that BCA will administer the production credit element (\$1 million) of the project which will make funds available to the Agricultural Credit Societies (SAC) at the local level in the four demonstration areas, a more detailed statement follows on the history of agricultural credit in Haiti and its reflection in current BCA operations.

a. History

For more than a century following independence, no financial institution in Haiti provided commercial or agricultural credit, and farmers depended on private sources such as speculators, local businessmen and well-to-do farmers. This informal system of credit operated without legal constraints, and excessive interest rates were charged in order to cover high risks and losses. The natural result was perpetual indebtedness for the farmer, including the pledging of crops for indefinite periods of time. When financial emergencies arose, farmers were forced to sell their crops at unfavorable prices and mortgage their small parcels of land. This usurious type of credit has been one cause of the perpetual poverty of the Haitian farmer and has been one cause of stagnation in the agricultural sector.

In effects to remedy the situation, from 1910 to 1917 special loan windows were opened in existing banks to serve the agricultural and commercial credit needs. These failed because of administrative difficulties and the lack of trained technical personnel.

During the 1930's, the agricultural extension service of the Department of Agriculture (DARNDR) started a loan program to provide seeds to farmers to be repaid in kind at harvest time and in 1948 a credit program was started to provide tools to small farmers. These programs were not successful as the credit recipients tended to accept such help as "donations" from the Government. In 1951, the Haitian Institute for Agricultural and Industrial Credit (IHCAI) was created to make credit more accessible to farmers. In practice, however, small farmer could not qualify for credit under IHCAI's traditional banking criteria. In 1961, IHCAI was replaced by the Institute for Agricultural and Industrial Development (IDAI) with a more flexible policy for reaching small farmers than its predecessor, but in practice the Institute has turned in large part to the financing of larger commercial enterprises -- both rural and urban. It finally became evident that a financial institution was needed which could make credit available to small farmers while at the same time safeguarding its funds, and in September 1956, the Department of Agriculture introduced a system of supervised credit as a pilot project. The program was financed by the Haitian Government and U.S. Point IV. The U.S. contributed \$100,000 to be used as a loan fund along with a Haitian counterpart contribution of approximately \$80,000. One of the fundamental points of the program was to prove the feasibility of a rural supervised credit organization in order to gain the support of private financial institutions. The Bureau of Supervised Rural Credit (BCRS) was set up to develop this program among small farmers in Marfrane (Southwest), Borgne (North), Fonds des Negres (South). Between 1956 and 1959 progress under the program proved to the Haitians that such an institution could be viable and additional staff was added for expansion of the program to new areas.

In June 1959, the Bureau of Supervised Rural Credit (BCRS) was reorganized and the Bureau of Agricultural Credit (BCA) emerged. Its objectives were broadened to include financing agricultural cooperatives, irrigation projects and other agricultural programs, and to accept the savings of individual farmers and cooperatives. At the time (1959-1962) BCA received U.S. assistance totaling slightly over US \$1 million for agricultural credit and some \$40,000 for office equipment and vehicles. The Haitian counterpart contribution was \$185,000, mainly in salaries.

b. Structure

The BCA is a "semi-autonomous" financial bureau in the Department of Agriculture, Natural Resources and Rural Development (DARNDR) and is administered by a seven-man government board of directors as follows:

- Minister of Agriculture
- Director General of Agriculture
- Director of BCA
- President
- Vice President
- Secretary

With representatives from:

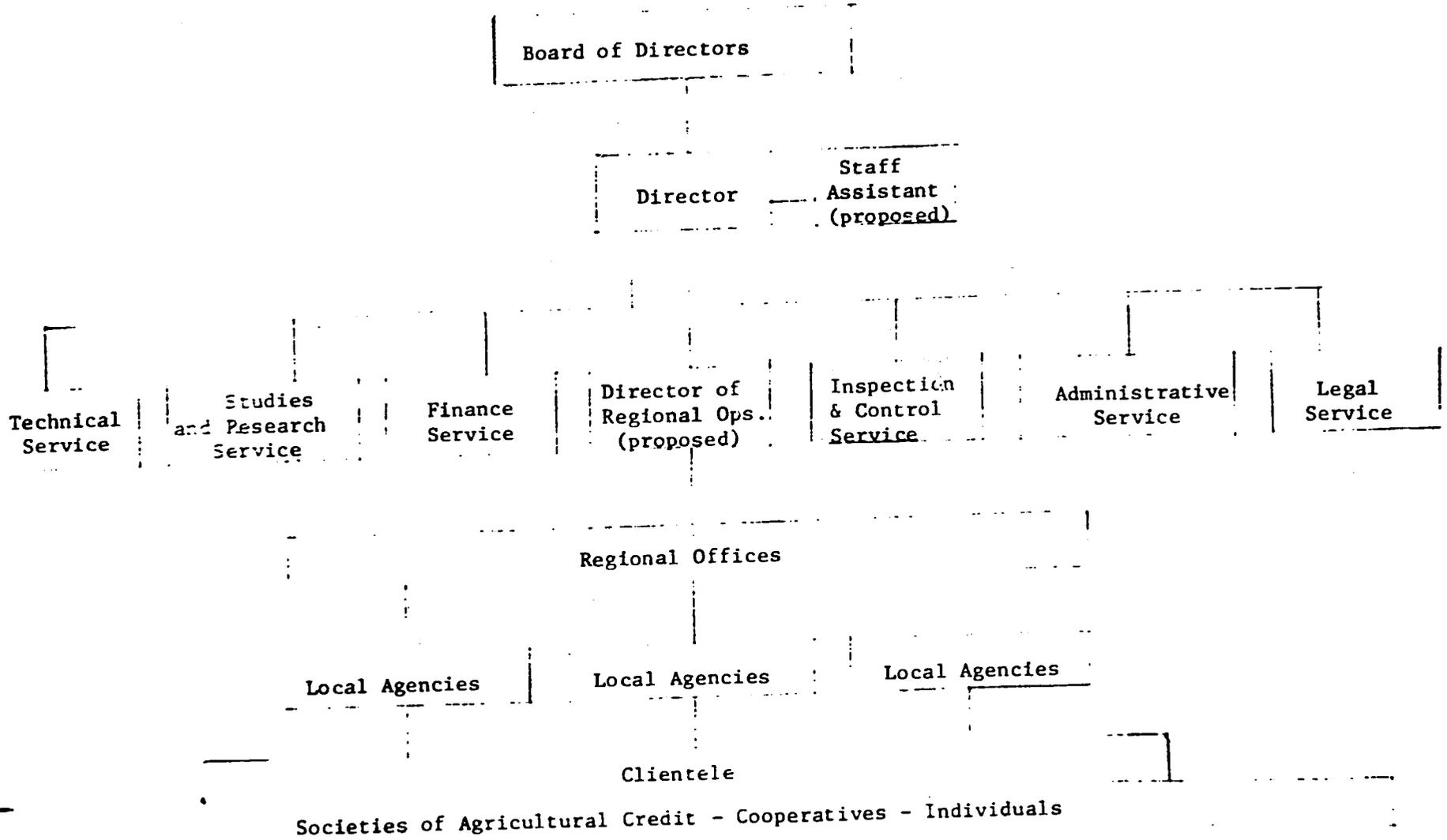
- Department of Commerce and Industry
- Department of Finance and Economic Affairs
- National Bank of The Republic of Haiti
- Institute of Agricultural and Industrial Development (IDAI)

BCA initiated operations in 1959 with headquarters in Port-au-Prince and now is located at Damien with DARNDR. As the organization chart on the following page indicates, the Director of BCA manages six services at the headquarters of the organization: technical, studies and research, finance, inspection and control, administration, and legal. As part of the countrywide operations of the BCA, there are nine (9) regional offices located at Cap Haitien, Gonaives, St. Marc, Port-au-Prince, Hinche, Thiotte, Jacmel, Jeremie and Fonds des Negres.

c. Personnel

In 1974 total personnel in the organization amount to 27 employees but as a result of the AID Small Farmer Improvement Loan signed in the summer of that year, the number of employees showed a rapid increase so that at the present time there are 46 full-time employees and 5 part-time. In terms of job categories, there are 13 agronomists, 12 accountants, 3 agriculture technicians, 5 lawyers, 7 secretaries and 11 additional support personnel. The dramatic increase in staff reflected a capitalization of more than \$900,000 (\$645,000 U.S. and \$297,000 GOH) to implement a credit program in behalf of the small farmer.

ORGANIZATION CHART
BUREAU OF AGRICULTURAL CREDIT



d. Financial Operations

BCA is financed in two ways: (1) interest income and (2) budget support from the national treasury. (BCA officials state that since their mandate is to serve as a public sector instrument of development for small farmers and not a commercial enterprise, public funds are needed to support its budget). It is obvious that the interest income is not adequate to sustain the operations of BCA. In 1975, \$6,663 in interest was collected representing only 13% of total revenues. GOH support of BCA in recent years has ranged in its coverage from 43% to 64% of the budget. Some income is received from CONADEP, the national planning agency for the management of their small farmer loan program.

With respect to credit policy, the BCA must adhere to the general practices of the Ministry of Agriculture which encourages increased production of basic food crops as well as exportable cash crops, which serve to improve the country's foreign exchange position. (BCA loans, thus far, have been heavily weighted on the side of basic food crops. However, in 1973, coffee loans were made through three agricultural credit societies of very small farmers in the Jacmel region).

All loan applications submitted to the BCA are reviewed against the following criteria: (i) capacity to repay, (ii) marketability of the crop at reasonable prices, and (iii) collateral of the applicant. In practice, this comes down to an assessment of the honesty, character, good faith and ability of the small Haitian farmer who has few, if any, tangible goods and must depend totally on farm work for income. In case of default, the only recourse of the BCA is to deny future credit to the defaulting borrower.

Almost all actual and potential borrowers from the BCA are small relative to AID's criteria in other countries of Latin America with almost no access to institutional credit or technical assistance. Credit in the rural areas is available in limited amounts from informal sources at exorbitant rates of interest, and many farmers are in constant debt. It is common for the small farmer to sell his crop at unfavorable prices to the same money lenders.

BCA, by regulation, is specifically to serve these small farmers and larger borrowers are referred to other financial institutions. Priority is given to loans of \$2,000 or less and no loan can be made in excess of \$5,000 without approval of the Board of Directors. BCA reported to its Board of Directors that with its reduced staff, it would have been impossible to control the thousands of small loans made to small farmers if it had not worked closely in the field with the Department of Agriculture's Extension Service. BCA has viewed the role of the extension agents as that of insuring that loan funds are properly utilized by the farmer.

Repayment terms depend on the reason for the loan and on the harvest cycle. Farmers waiting for more favorable prices for their crops are given payment extensions for reasonable periods of time. Short-term credit for foodstuff crops are to be paid in one year. Loans to agricultural cooperatives for capital and equipment improvements are made for up to 15 years.

Maximum interest rates on all loans is 8% per annum. Loans to coffee growers for capital and equipment improvements only are charged 4% per annum and loans to members of "Clubs de Jeunesse Rurale" are 6% per annum. Interest is collected at the time of repayment. However, in case of loans made to Agricultural Credit Societies which will be described in Section III, E, Credit of the Project Description, a rate of 12% is permitted for sub-loans made to its members. The 4% difference remains in an account managed by BCA on behalf of the particular Society to whom the loan was made.

With respect to savings and capitalization, BCA capitalizes 5% of each loan. No dividend or interest payments are made on these accumulated funds. While this provides the base for building a viable, farmer-owned rural credit system, incentives will have to be provided to encourage voluntary regular savings as a norm for the small farm borrower member.

A review of the BCA's portfolio as of December 31, 1975, for the period 1970-1975 inclusive indicated that a total of \$703,927 was in outstanding loans. Of this amount, \$122,266 was lent during the 1970-1975 period. The remainder of \$581,661 which was loaned prior to 1970 was described as delinquent with \$43,768 actually

written off thus far. This record is hardly encouraging but with additional technical assistance and training, putting off lending under the project until after three years into its life, and lending limited to Agricultural Credit Societies, a radical improvement in BCA's operations is anticipated.

3. Community Organizations

The second component of the system, namely, the community organization structure is the recipient of the benefits of the project. Its membership constitutes the target group -- the small farmers living on 9,000 hectares of irrigated land and on 20,000 hectares in the upland regions bordering those irrigated valleys. These areas are located in les Cayes, Jacmel and Cul-de-Sac in the southern part of Haiti and in Jean Rabel, the northern most portion of the country.

A full discussion of the community council concept and the role it plays in rural Haitian life will be found in Section IV.D., Social Analysis. There is no need to repeat the description of these social and economic units. However, from an institutional point of view, it is the Mission's judgment that the project is feasible at the local level. The real question to be concerned with is the strategy that will be adopted to upgrade this traditional community mechanism and make it work effectively. The problems are different in the north than they are in the south as the Social Analysis and Annex III, Exhibit 9 make clear. Mechanisms must be devised that are socially compatible to coordinate the various groups in the community. The potential use of HACHO as a project should be considered as part of the implementation strategy. The inputs of technical assistance and training to impact positively on the community council structure must be carefully devised. Credit policies to facilitate the movement and availability of fertilizers, insecticides, tools, storage facilities, etc. also will be formulated for beneficial effect on the community aggregations.

4. Educational Institutions

The third element of the institutional system that is required to give it viability is the educational institutions that will provide the human resources for its management. Although such an impact by its very nature is longer term, that fact does not diminish its importance to the success of the project. The reality of the Haitian agricultural sector reveals that the professional and para-professional personnel now available, as has been documented in earlier discussions, fall considerably short of current needs. It is, therefore, basic to the success of both the proposed AID Integrated Development Project and the GOH Five-Year Plan that steps be taken to assure a

sufficient flow of graduates trained in agricultural and related specialties. This section is devoted to an evaluation of the capacity of the major indigenous educational institutions responsible for supplying the human resources necessary for the sustained development of Haiti's agriculture sector, namely the Faculte d'Agronomie et de Medecine Veterinaire (abbreviated as FAMV), of the University of Haiti.

The FAMV corresponds to what would be identified as the college of agriculture of a state university in the United States. However, it has several distinguishing features. The first is that it has one faculty which offers both two year and four year programs; the second is that about all of the faculty have what would normally be considered full time positions in the Ministry of Agriculture or elsewhere; and the third is that students are almost totally subsidized. Each of these features will be discussed in some detail in the context of the evaluation of the FAMV which follows. A review of the physical plant facilities, financial resources and qualifications of the faculty is necessary to provide a perspective for this evaluation.

a. Physical Resources

The buildings which house the FAMV are adjacent to the quarters of the DARNDR and located about 10 kilometers, in a northwest direction from downtown Port-au-Prince. These buildings are two stories in height and form a quadrangle with an inner dimension of approximately 100 yards on each side. The four major buildings which form the quadrangle are utilized for classrooms, laboratories, the library, dormitories for the students and offices for the Dean, Vice Dean, and Librarian. Campus buildings were designed to accomodate approximately 80 four-year students, 40 two-year middle school students and 20 Vet program students. Most were financed and built under foreign aid programs. They range in age to about 25 years, although the major buildings are relatively new (less than 10 years old). The major buildings are in a reasonably good state of repair, and would be susceptible to relatively low cost renovation and maintenance. The furnishing of classrooms is minimal but adequate for about 150 students. Desks, tables and blackboards, with some exceptions, are in a reasonable state of repair. Laboratory space in most cases is adequate for about 20 students per class, but facilities and equipment are minimal at best and nonexistent in many instances. Conversations with faculty members suggest that the level of laboratory experience possible is far less than what they consider desirable. The Veterinary Science Laboratory seems to be something of an exception in that it is has more space and equipment.

The dormitory space is best described as large barracks type rooms with little in the way of furnishings. Students provide their own beds and bedding, although laundry service is provided for them. Bathing and bathroom facilities show signs of hard use and the need of repair. Students apparently have little in the way of study space in their dormitories.

A college level educational program must be supported by a good library, one which provides access to the latest works in subject matter specialties and the latest journals of a professional nature. Despite the valiant efforts of a dedicated librarian, the library of the FAMV is charitably described as grossly inadequate. An inventory of some 35,000 volumes is claimed, but it is doubtful if one-tenth this number are current enough to be of more than historical importance. Some journals are available but these are few, and there does not appear to be complete sets or current issues in most instances. According to the librarian there is not one penny allocated in the FAMV budget for library acquisitions. It is a compliment to the dedication of the librarian that she works at IICA part time and takes her pay in materials for the library. She conscientiously prepared a "realistic" list of needs for servicing the programs and needs of the DARNDR, FAMV, and the Middle School which is appended to this report.

The administrative space for FAMV includes , as noted, office space for the dean, and two secretaries. Faculty members have no office or working space outside of their classrooms and laboratories, although most have desks in the nearby DARNDR building. Record keeping is not a major task by virtue of the fact that enrollment is small. However not too much detailed information appears to be recorded. Furnishing and equipment of the administrative offices are not elaborate. For example telephones are not in evidence, and the file cabinets, stores of supplies and office machines, which are common to such offices, are not present.

b. The Faculty

The teaching and research faculty of the FAMV includes 36 individuals. The administration includes a dean, a vice dean, and three department heads. Sub-administrators have responsibilities in connection with the Middle School and Vet-Program.

There is a considerable range in the formal education and professional experience of the faculty and administrators. Only four, as far as could be determined, have a doctorate of some type, and two of these are MD's (with veterinary training). Approximately six have a master's degree or

equivalent. The remainder have what was judged to be a bachelor's degree or equivalent. A few faculty persons list attendance in professionally related short courses of one or another type.

Most of the faculty have had a relatively long tenure at FAMV. Apparently resignations are not frequent, with replacements usually being made for death or retirements. Most of the faculty persons interviewed exhibited a strong dedication to and a great concern for their students. They also seem to enjoy the status of a faculty person.

Presently faculty salaries are budgeted in the DARNDR and other government agencies to a maximum of \$400 per month. The Dean reported virtually no allowances for travel, supplies, equipment or research activity. The total GOH budget for FAMV is about \$25,000 per year, including allowances of \$20,00 per student for all three student groups. An additional \$100,000 is received from a foreign donor.

c. Enrollment and Curricula

The students enrolled for the four year curriculum (Agronome Diplome) offered by FAMV are theoretically selected, after a testing and screening process, from graduates of secondary schools throughout the nation. However, in actual practice only about 20 of each entering class is selected on the basis of competitive scores. The larger block of entering students, as many as 30, is admitted on the basis of recommendations from important and influential persons. The latter can be referred to as "political " admissions, and some are characterized as lacking in both qualifications and motivation. Since both facilities and budget allowances are designed for entering classes of 20 students, the admission of 50 or more individuals each year places great stress on limited available resources. The effectiveness of the training program is obviously reduced to a considerable extent.

The choice of curriculum currently available to students in the four year program includes the following: Phytotechnie (Grandes cultures et horticulture, Zootechnie et Medecine Veterinaire, and Ressources Naturelles (eaux forets, sols). These "degree" programs are serviced by nine specialty areas administered through three departments - Department des Sciences de Base, Departement des Sciences Agronomiques, Departement de Medecine Veterinaire.The specialty areas are: 1. Agronomie et Horticulture, 2. Medecine Veterinaire et Bacteriologie, 3. Zootechnie, 4. Botanique, Genetique et Phytopathologie, 5. Entomologie et Zoologie, 6. Chimie et Physique,

7. Genie Rural, 8. Sociologie Rural, 9. Biblioteconomie. Courses and examination requirements are formally worked out in what appears to be a rather traditional instructional sequence, and are designed by the faculty.

For one reason or another, not all of the courses listed are taught on a regular basis. There is almost a total absence of textbooks for individual students (except for mimeographed course outlines prepared by instructors), and a very inadequate library, as noted. The conglomerate of inadequate laboratory and other equipment, the lack of faculty access to professional meetings and to short courses on new methods and developments, and the fact that much material comes to students in languages not indigenous to Haiti sets up restraints which are most difficult to overcome. The most common assessment which faculty persons and ex-students give of the College is that the teaching deals almost wholly with what was termed "theory". There appears to be little opportunity for applied experience or research.

One final observation is in order. There appears to be little "weeding out" of students once they are enrolled. Only a few students do not complete their four year course of study, once they are admitted to the College.

The FAMV also services the Middle School and Veterinary training programs. Both are two year programs designed to train technicians at what might be termed a para-professional level. The Middle School has a budget designed for an enrollment of 20 secondary or vocational school graduates each year. Apparently, a few additional students are taken on the basis of outside recommendations. All students matriculate through a general agricultural curriculum which is designed to acquaint them with basic knowledge for serving as agricultural extension agents.

About 10 students are admitted each year to the Veterinary program, which has the purpose of providing specialized training at the sub-professional level of a veterinary science nature. After graduation from this two year program, students normally take jobs as technical assistants in the various agricultural districts.

The students in both two year programs are taught by faculty members who also teach in the four year or " higher " degree program, as noted. They share the same facilities-instructional, dormitory, library - as the four year students, and are subsidized at approximately the same level by the GOH. Four year students must work on assignments approved by the GOH for two years after graduation, and two year students must work on such an assignment for one year.

d. Assessment

FAMV Program is divided into three divisions; recommendations for each program will be made separately. A prefatory note to the assessments and recommendations which follow is in order. The FAMV was judged to be functioning well for the level of budgetary support which it receives. However, the idea is to provide a basis for increasing the capacity of the FAMV to a level commensurate with the needs of the nation.

The Planning Section of DARNDR completed a study in 1975 in which they projected the needs for agronomes, agricultural technicians and veterinary technicians. After careful research, it was concluded that, for an intensive agricultural development effort, there should be one agronome for every 1,000 family size farm operations, one agricultural technician for every 250 such operations, and one veterinary technician for every 6,000 animals. Animals average about one per farm.

It is estimated that there are around 617,000 farm holdings in the nation, which means that approximately 617 agronomes, 2,400 agricultural technicians and 100 veterinary technicians would be needed to provide adequate service at the present time. There were, according to the above mentioned report, only 203 agronomes in the nation in 1974, of whom only 109 are employed by DARNDR. The number of Agricultural technicians was 158, while the number of veterinary technicians was 19.

Taking into consideration factors such as out-migration, death, and in-migration, the Planning Unit estimated the need to train 335 additional agronomes during the next 10 years, or about 33 per year. The recommendations made for the FAMV are thus in keeping with an increment of about 10 to the currently authorized entering classes for agronomes.

The need for agricultural technicians is much greater than would normally be expected because of the few now available (many persons working as extension agents lack formal training as technicians). The Planning Unit envisioned a training program which would level off to about 300 graduates by 1978-79. This number appeared reasonable and has been used as a basis for recommendations.

The present rate of approximately 10 veterinaires "technologistes" graduates per year appears sufficient to satisfy current needs (approximately 57 will be available in 10 years). However, if and when animal production increases, there will be need for more such trainees.

There are three major restraints which must be overcome before the FAMV can begin functioning at the level necessary to service the needs implied in the goals of the AID Integrated Development Program and GOH Five-Year Plan. These are: (1) Budget, (2) Curricula, including both offerings and range; and, (3) Research. In one sense, curricula and research problems are inherent in budget limitations, but the focus of attention makes separate consideration advisable.

The assessment of the College of Agriculture facilities may be elaborated as follows: buildings and space appear to be minimally adequate, especially in light of the proposal to move to a commuter rather than resident student operation. Such a move will free additional space for classroom and other use. The number of faculty persons also is judged adequate, if arrangements are made, as planned, to place most faculty persons on full-time appointments.

Budgetary needs are of relatively large proportion. In a specific sense to achieve the goal outlined in the AID project and GOH plan, it will be necessary to:

- Augment the salary of faculty members, administrators and support personnel to full-time status. This implies screening and/or retraining for professional competence and better defined work roles and hours of work.
- Improve the library to the point of a minimally acceptable standard as judged by qualified consultants.
- Upgrading of teaching resources, such as laboratories, texts and visual aids.
- Provision for a wider range of experience for students, such as field trips and visiting lecturers.
- Provision for faculty to engage in research.
- Provision for faculty participation in professional meetings and to attend short courses.

Curriculum needs, in a general sense, are manifested in the necessity to bring subject matter up to date and to add critical course

offerings. It is apparent that, because of the low budget, faculty members cannot avail themselves of the latest information in their fields, also some disciplines common in colleges of agriculture are missing, such as agricultural engineering, aspects of research methods and procedures, and certain agribusiness areas, including marketing.

The Mission is aware of the fact that the Canadian Government is planning a rather extensive program of support to FAMV. The objectives of this program are outlined as follows:

- 1) restructure the study programs of the FAMV,
- 2) study the possibility of reorganizing the administration of the faculty,
- 3) create a core of 10 full time professors,
- 4) establish a program for retraining agronomes and technicians presently in the service of the Department,
- 5) train 20-50 additional technicians per year, and
- 6) provide the foundation for building four additional middle schools in the nation.

An expenditure of \$3,600,000 over a five year period is contemplated to support the project, with the GOH being asked to provide \$2,000,000 in matching funds.

B. Implementation Strategy

The overall institutional assessment of the Ministry of Agriculture (DARNDR) paints a picture of logically structured organization that needs very little redesigning but does require resources and a reorientation in carrying out its mission. The resource demands include: a more competent staff to strengthen top management especially the Office of the Director General and the technical services such as extension, soil conservation, irrigation research, and economics and statistics; and physical elements including office equipment, furniture, vehicles, etc.

Perhaps the most difficult change to accomplish is the redirection in the nature of the DARNDR's operation from one of a "top down" approach in servicing the Haitian farmer to one of a partnership that is needed in resolving the agricultural problems of the country.

To impact on these problems three elements have been identified that together make up an implementation strategy:

1. Management Implementation Team

A grant-funded management implementation team will be attached to the Administrative Unit which reports to the Director General of DARNDR. The team will have institutional backstopping from its parent organization and supported by short-term personnel on a need basis. It will be staffed by four experts and will remain in place for most of the life of the project. Included in the staff will be the following personnel with the general qualifications indicated:

a. Chief of Party

The Chief of Party should have broad experience in agricultural management at the highest levels and involvement in rural community development projects with a stress on agriculture.

b. Administrative Management Specialists (2)

Both specialists will have extensive training and experience in organization and methods at the highest levels and degree of complexity with an understanding and ability to apply the knowledge base of the administrative sciences and principles of management. One of the specialists should have relevant experience in information systems especially as it pertains to monitoring and evaluation.

c. Supply and Procurement Specialist

The specialist should be well grounded in supply and procurement systems with specific experience in commodities relevant to the project, e.g., fertilizer, insecticides, vehicles, office equipment, etc. The expert should have extensive experience in installing supply systems, and accounting and control methods to assure its integrity and also modifying organizational structures to make the systems effective.

The Management Implementation Team (MIT) will provide staff assistance to help manage through critical path methodology all the inputs as they are scheduled to enter into the implementation scheme, and to the extent possible will train counterparts on-the-job to take over their functions. It is visualized that, for example, once it is decided that the time is right to provide technical assistance to the Agricultural Economics and Statistics Service in the Division of Agriculture, MIT will prepare the scope of work, get it approved and call on their home office to recruit a qualified technician to do the work. After the work is completed, MIT will help implement the findings and recommendations if the TA requires it.

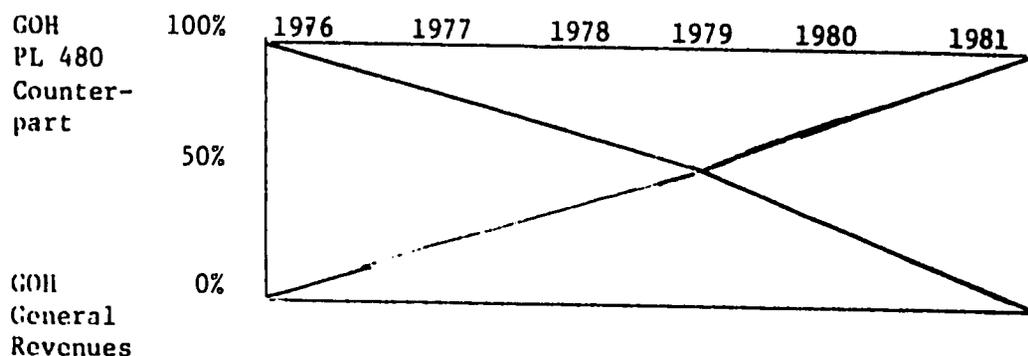
Other examples can be cited. Once fertilizer is needed to phase into the project, MIT would devise a procurement plan if one is required and help install it in the Ministry. MIT will devise a monitoring and evaluation system and install it. If it is not able to handle the workload itself, the basic contract will provide adequate short-term assistance.

2. Salary Reform and Salary Support

One of the major institutional restraints which is documented in the AID Assessment Paper, the GOH Five-Year Plan and most recently by the MASI Report referred to earlier is an inadequate salary schedule for DARNDR. Increasing of salary support is absolutely essential to the ability of DARNDR to recruit and retain competent personnel. The Programming Unit of DARNDR has already been charged with studying the problem and preparing a proposal to remedy the situation. A first draft to get at the issues involved is made part of this Project Paper as Annex IV Exhibit 3. CONADEP has endorsed the DARNDR effort and intends to make funds available from the development budget to make salary reform possible.

If such funding is not available, the Mission endorses the salary revision principle in accordance with a reasonable schedule decided upon by DARNDR and will negotiate an agreement with the GOH that will permit the use of GOH General Revenues in an ever-increasing scale and PL 480 project counterpart funds in an ever-decreasing scale so that after five years by the end of the project the GOH will be supporting the increased salary level from General Revenues. A covenant will be included in the loan agreement setting for the GOH commitment to continued support beyond the life of the

project. The diagram below puts in graphic form the arrangement described above.



3. District Agronome System

As described in the Institutional Analysis, for DARNDR agricultural management purposes Haiti is divided into 13 District Offices each headed by a District Agronome who has rather extensive responsibilities for overseeing all DARNDR activities in his district. Included in his oversight functions is the activities carried on by the agents from the three major technical divisions. Although the relationship between any given District Agronome and the technicians working in his district vary, the District Agronomes are apparently considered by the Director General and by themselves to be "field representatives" of the Director General.

In the past and up to the present time, the relations between the District Agronome, the other DARNDR technical personnel and the farmers, both as individuals and as part of the community councils have been estranged. In the first instance, the resources DARNDR has available are meager, thus it had nothing to offer the farmer. Secondly, the lack of competence of the technical outreach of the Ministry has created a skepticism about what it could offer. Finally, the management and operating style of DARNDR personnel has been on a "we know best" basis, neglecting to hear the definition of the problem from the small farmers' point of view.

The Mission believes that the district structure and the role of the District Agronome makes sense and should be left unchanged. The District Agronome through increased resources and more qualified performance would define and implement a district agricultural plan

and coordinate its administration, calling on the managerial and technical help he needs from DARNDR. However, the Mission and the Ministry both agree that the image of DARNDR at the district level will have to be changed by consulting and coordinating its effort with the participation of the community organizations. This will require training, technical assistance and resources to impact not only on Ministry management, but on the community organizations themselves to promote a partnership effort.

C. TYPES OF CONTRACTS ENVISIONED

After considering the backstopping and institutional support requirements of the various types of technical assistance to be provided by the project, the following contract types are recommended:

1. Institutional Contracts for:
 - a. Management Implementation Team
 - b. Irrigation Technical Assistance Team
 - c. Credit Advisors
 - d. FAMV instructors/advisors
2. Personal Services Contracts for
 - a. Extension advisors
 - b. Research advisors
 - c. Soil conservation advisors

D. MONITORING/EVALUATION PLAN

The following main topics are discussed in presenting the plan for monitoring and evaluating the activities of the project:

- 1) detailed design of the comprehensive information system;
- 2) guidelines for development of the system: main features and data requirements;
- 3) operation of the system: responsibilities for and timing of data collection and analysis.

The attached Evaluation Annex*discusses detailed format and procedures --- variables, indicators/targets, collection instruments, frequency, and responsibilities -- for monitoring and evaluation of project activities in relation to the stated Program Goal, sub-Goal, Project Purpose, and Project Outputs.

1. Schedule for Design and Introduction

The first step in implementing the monitoring/evaluation plan will be to design in detail a comprehensive information system that will provide baseline and time-series data. This detailed system design should begin as soon as the Management

*The Evaluation Annex is attached as Annex IV, Exhibit 4.

Implementation Team (MIT) and local staff are in place, early in Year 1 of the project. The Administrative Management Specialist (AMS) who will be responsible for monitoring/evaluation will be assisted in the design phase by four man-months of consultant services in the form of information specialists. Meeting with representatives of DARNDR, FAMV, and community organizations, the design team will develop the format of the data collection and reporting instruments, assign responsibility for collection and reporting to specific individuals or offices, formulate the data analysis routines necessary for the various functions of the system, and indicate any requirements for participant or local training for the counterpart of the AMS or his supporting technical staff.

Procurement of equipment and supplies related to monitoring/evaluation should take place concurrently, according to the schedule for establishing the MIT.

Introduction of the fully fledged system should begin by the middle of Year 1. This will involve briefing and orientation visits by the AMS and his staff to the headquarters and field offices of DARNDR and the other organizations concerned.

Effective operation of the system should be achieved by the end of Year 1.

As the project develops, it will be desirable to refine the system by deleting data or reporting procedures that have proven to be of little practical management value. Improvements of data analysis techniques will no doubt be called for as well. For this, short-term specialist advice will be provided under the project.

2. Guidelines for Development of the System

a) General: Given the multiple objectives of the project (increased production and incomes, benefits to the rural poor, local self-help capacity, and stronger national institutions), and its quasi-experimental nature, the operational and policy decision-making requirements of project staff will be best satisfied by a comprehensive information system. The system will be

comprehensive in two respects: first, data for annual project evaluation will flow regularly from the continuous project monitoring system; and second, the monitoring and evaluation data requirements of the project will be thoroughly integrated with the existing reporting procedures of DARNDR and FAMV.

Bringing such a comprehensive system into being means determining the information requirements of each level in the hierarchy -- from farmer and community groups through District DARNDR offices, to FAMV, MIT, and USAID staff in Port-au-Prince -- and rationalizing the system so that only essential data is collected, processed, and transmitted. This must be done through detailed consultations with decision-makers and other data users.

In addition to the monitoring of physical deliveries and financial flows, and evaluation of the effects of the project on the target population, the system will have several other important features as well:

- it will permit project decision-makers to spot upcoming problems, diagnose their causes, and prescribe what might be done to alleviate them;
- it will provide for two-way information flows, so that the results of monitoring and evaluation can be used by lower as well as upper echelons;
- beyond the immediate needs of project staff, the system will also provide information on whether and how to replicate project activities elsewhere.

In contrast to traditional feedback loops where data is passed upward directly to top decision-makers who then pass the information back down to the bottom level through lower echelon staff (see Figure 1), the feedback mechanism here will be a tiered system of information recycling (see Figure 2) which will enable lower level decision-makers to process and use information more quickly, while ensuring that the necessary data for higher level policy decisions is passed up the line. At each level, the data is further refined so that only the necessary data is sent to the next higher level.

Adopting a comprehensive approach will not burden the project with a costly and difficult-to-operate system. Skilled specialists will be needed during the detailed design phase for the precise purpose of developing a simple system -- one that is selective and sparing in its data requirements, with modest low-cost survey and reporting techniques that do not strive for unnecessary statistical elegance.

b) Special Information Needs: For two reasons, the Haiti project has special requirements for monitoring and evaluation. First, there are uncertainties, as with any project, however, excellent its planning and preparation. There is uncertainty about yields under new technology, about the performance of irrigation and soil conservation works, about the best methods of assisting local organizations at the community level, and about who will participate readily in project activities. Thus, it is inevitable that mistakes will be made; if the project is to hold its course toward eventual success, these mistakes must be quickly identified, diagnosed, and their resulting problems ameliorated or eliminated.

Second, some components of the project will be quasi-experimental, or initiated on a pilot basis, in order to learn what processes of development are most effective, and to avoid expensive set-backs. The information requirements of such a project, particularly when it also involves the integration of institution-building, research, production, and engineering activities, are far more complex than for routine, single-function projects.

c) Data Required: It is not obvious in the beginning of data collection which variables should be recorded and which can be ignored. The guiding principle is "optimal ignorance"; do not waste resources collecting data that you can live without. Determining the optimal data set prior to the project is impossible; a generous amount must be collected in the initial phase, and then pared down to the essential items as actual experience with the project dictates. Time is also required to permit decision-makers to play a role in the design and refining of the monitoring/evaluation system, which must suit their needs rather than the interests and capabilities of the information specialists.

Baseline, monitoring, and evaluation data are the principal categories.

Figure 1

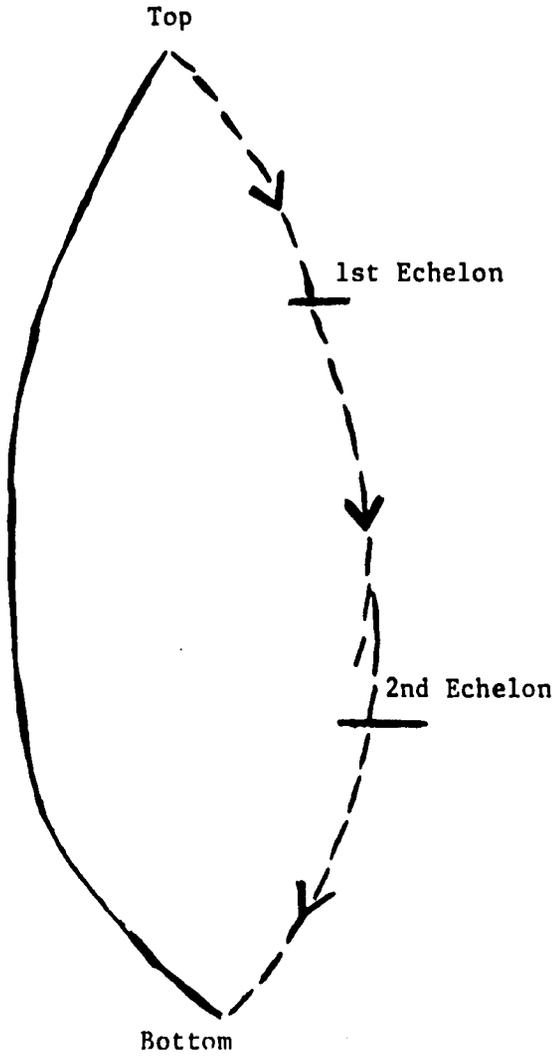
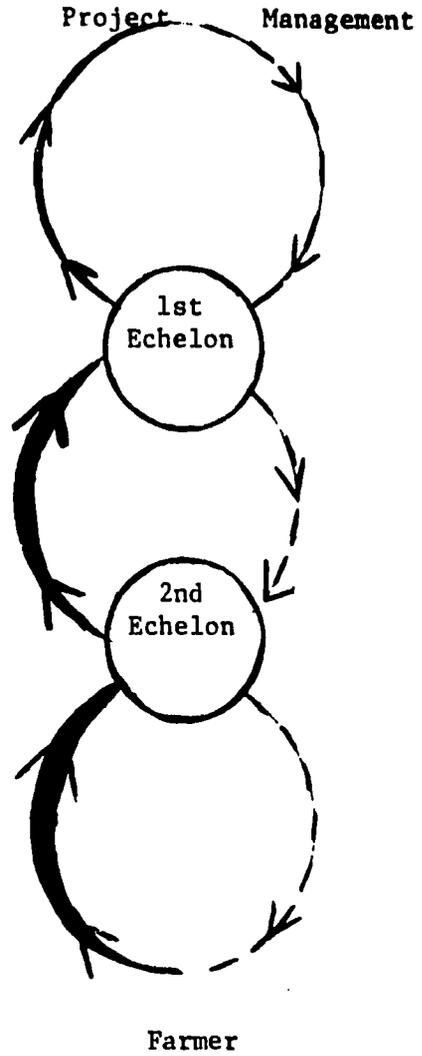


Figure 2



Flow of data _____

Flow of information _____

1) Baseline: To permit changes brought about by the project to be measured in relation to the pre-project state. Unfortunately, much baseline data is often wasted when subsequent data collection efforts use different data points and collection techniques. Massive baseline data collection should, therefore, be avoided, in favor of more tightly focussed retrospective interviewing of farmers combined with occasional small-sample surveys as a cross-check on accuracy.

2) Monitoring: the physical and financial data involved here are relatively easy to identify and collect; they can be drawn from the PPTN, the Logical Framework, and from detailed implementation plans that will be prepared on an annual basis. (See Evaluation Annex). It is far harder to specify the sorts of reporting data for monitoring behavior change, but some preliminary suggestions are made in the Evaluation Annex. Adoption of improved crop husbandry, water use, and soil conservation practices, and membership and participation in community organizations, are examples of key behavior changes that must be monitored and verified.

3) Evaluation: data is required to measure the project's impact on small farmer productivity, output, and income; small farmer and group self-help capacity, efficiency of water use and irrigation maintenance, and reduction in soil erosion. At the same time, it is essential to identify the types of data needed to analyze why events happened as they did. Why did some farmers adopt improved practices and others not? Why did some participate actively in community organizations and others not? Why were soil conservation programs more successful in one area than another? Why did some water user associations operate effectively and others not? Answers to these questions will improve project design while it is still underway, and provide lessons for future projects. (See Annex for a fuller discussion of the evaluation problem.)

At least two important trade-offs are involved in the type of data to be collected. Cost/accuracy is the first. "Hard" data (that derived from direct measurement) is usually more expensive than "soft" data (obtained from proxies or indicators). This is true of farm management data--amount and value of farm inputs and outputs. Income is particularly difficult to measure directly. For this project, it will probably suffice to use proxies to infer

increased income from the use to which it is put (expenditure on visible consumption goods, home improvements, etc.), or from estimates of increased farm output. During the initial phase, further design inputs will be provided to pin down what are the most useful proxies and indicators in the Haitian milieu. (See Annex for some suggestions.)

A second trade-off is between cost and what might be called decision value. Information is of use only if project management (local, donor, and host government) have sufficient decision space or latitude to make changes in the project. Political, socioeconomic, or environmental factors may limit what can be done, and in this case amassing information to permit choices among a broad range of alternatives is inappropriate. This trade-off will be carefully considered by the design team.

3. Operation of the System

a) Responsibilities: Although the overall responsibility for monitoring and evaluation will belong to one of the two Administrative Management Specialists in the MIT, at the same time, the district and headquarters staff of DARNDR, FAMV, and community organizations will also have important roles. These are spelled out in more detail below, and in the Evaluation Annex.

b) Data Collection: With cost, management value, and local manpower constraints in mind, the following types of data collection will be incorporated in the system:

- i) a combination of small-sample surveys and indepth interviews in the principal zones for baseline estimates of agricultural practices, incomes, water use, group activities, etc., and to provide a standard for judging the accuracy of proxies and other indirect data estimation methods. (Note that some worthwhile information has already been collected by Haitian, U.S., and other donor investigators, especially for Les Cayes and Jean-Rabel, hence certain sections of the baseline can be filled from existing sources.)

- ii) for monitoring and operational control of the project, a simple reporting procedure will be used by participating agencies, under the direction of the MIT. This will be the primary instrument of accounting control and measurement of performance against the targets preset in the annual implementation plans (delivery of inputs, recruitment and training of personnel, construction, extension activities, etc.)
- iii) under the direction of MIT and District DARNDR staff, reporting by farmer and community groups and water user associations, based on work plans and indicators established for their activities. Overall data on membership, participation, finances, and major targets achieved will be useful at higher levels, but the local groups themselves will require information on accounting, inventory, etc. for their own management purposes.
- iv) use of DARNDR extension staff and trained community group volunteers to collect, on a continuing basis, information relating to farmer behavior changes in agriculture (including irrigation and soil conservation) and participation in community organizations.
- v) use of formal or informal meetings of farmer participant groups to obtain regular feedback on their perceptions (favorable and unfavorable) and actions related to the project. Experience in other countries shows this method to be inexpensive and remarkably effective; field-level DARNDR staff should be responsible for conveying the gist of such meetings to higher levels. (A further possibility that would require careful development is farmer journals. With appropriate incentives and supervision, even illiterate farmer participants can record useful information on farm practices, nutrition, child care, etc.)

vi) to supplement the evaluative data flowing from the above sources, the monitoring/evaluation system should include the capacity for special studies for trouble-shooting or difficult evaluation problems that cannot be anticipated in advance. Possible sources of skilled manpower for these studies include Haitian researchers, outside consultants, or TDY specialists from AID/Washington. Such a special studies capacity will permit the bulk of the project's information requirements to be satisfied with a modest, low-cost system, without sacrificing the ability to meet sophisticated analytical needs if and when they arise.

c) Timing of Monitoring/Evaluation: In general the system will provide a continuous source of information for both monitoring and evaluation, though not all of the necessary evaluative data can be collected in this regularized fashion. Subject to possible revision by the detailed design team, the following timing categories will be observed:

i) daily records, with monthly and annual summaries:

- . activities of field extension staff
- . all financial transactions, including credit
- . -all movement of personnel, equipment, supplies, including agricultural inputs
- . meetings and other activities of farmer and community groups

ii) monthly records with annual summaries:

- . progress of engineering work in relation to target
- . progress of research programs in relation to target
- . progress of training programs
- . reports on crop conditions, rainfall, etc.

iii) annual reporting:(in addition to (1) and (2) above)

- . crop acreages, yields, production
- . farmer incomes
- . loan repayment
- . improved agricultural package-adoption--rates
- . self-help capacity indicators

Specific evaluations will be carried out on an annual basis, largely based on data collected through the on-going monitoring system. Less frequent evaluation would not be desirable, given the uncertainties involved and the project's multiple objectives and quasi-experimental nature. If it were justified in the eyes of the project management team, a particularly rigorous evaluation could be carried out at the end of Year 2 or Year 3, employing AID/Washington or outside consultant specialists.

Provision for special studies will allow unanticipated evaluation problems or questions to be investigated on an ad hoc basis, as recommended by the MIT. This assures an important element of flexibility.

d) Data Analysis: Data analysis options range from hand tabulation/calculation, to programmable calculators, desk-top mini-computers, and full computerization. Making the appropriate choice depends on data quality, analytical and decision-making needs, and financial and manpower resources available. Just where within this range the needs of the Haiti project lie is difficult to specify exactly in advance of the detailed design of the information system, but it is unlikely that initial requirements will exceed the capacity of a programmable desk-model calculator. Accounting, statistical calculations, and some multivariate regression analysis will be the main data processing functions. Special data process requirements will be handled by AID/Washington.

Aside from the modest costs involved, an important advantage of basing data analysis on a programmable desk-model calculator, which can be located in the MIT office in DARNDR, is that data analysis can be quickly carried out, without relying on time-consuming transmission to and from the U.S. Also, the credibility of the results will be enhanced when MIT staff can explain what has been done, and can perform additional analysis on the spot at the request of Haitian decision-makers.

e) Staffing and Costs: personnel, equipment, and data processing costs have been shown in the budget for the Management Implementation Team.

E. Implementation Schedule

As indicated above, all of the loan implementation and evaluation activities are keyed off the grant-financed Management Implementation Team (MIT). It is, therefore, essential to the timely implementation of the loan that the MIT be contracted and in place as early as possible to begin preparation of detailed procurement, technical assistance and training plans for loan financed activities. The schedule of events leading up to the first disbursement of loan funds is as follows:

	<u>Loan</u>	<u>Grant</u>
August 1976	Loan authorized	Grant approved
September 1976		Project agreement signed
October 1976		PIO/T signed--Synopsis published in Commerce Business Daily
December 1976	Loan agreement signed	
January 1977		Technical proposals received and contractor selected.
February 1977		Contract for MIT signed
March 1977	CP's satisfied	MIT in place
June 1977	First disbursement of loan funds	Procurement, technical assistance and training plans completed by MIT.

The balance of the implementation schedule is reflected in the PPTN attached as ANNEX IV, Exhibit 5.

F. Conditions and Covenants

In addition to the normal conditions and covenants, the project committee recommends that the following be included in the Loan Agreement:

1. Conditions Precedent

a. The GOH shall submit a plan for implementing increased salary schedules for DARNDR employees and the proposed sources of financing for such a plan.

b. The GOH shall submit a plan for operating and maintaining irrigation systems rehabilitated under the project. Such plan shall provide criteria and guidelines by which individual water user associations may assume greater control and responsibility for the maintenance and operation of irrigation systems as their capacity to do so is increased. Such plan shall also include a description of the water rate structure and the proposed allocation, between the GOH and water users' associations, of water fees collected by the GOH.

c. The GOH shall submit the guidelines and regulations to be applied with respect to issues of eminent domain and rights-of-way which may arise as a result of the projects.

d. The GOH shall submit the criteria and methodology to be applied in the appraisal of irrigation sub-projects.

e. The GOH shall submit the proposed organizational structure staffing pattern, functions and delegated authority for the District Offices involved in the implementation of the project.

f. The GOH shall establish an irrigation/soil Conservation Fund and shall submit for AID approval the guidelines and procedures to be applied in the administration of the Fund.

g. The GOH shall submit a plan for AID-financed offshore training including the measures to be taken to help ensure that participants return to Haiti and serve in the capacity for which they were trained.

h. The GOH shall submit a report for the agricultural production credit element of the project indicating the steps being taken to minimize decapitalization and default, and maximize savings mobilization.

2. Covenants

a. The GOH shall covenant to provide full-time counterpart personnel to work with each U.S. advisor financed by AID.

b. The GOH shall covenant that credit funds made available under the Loan shall be provided to individual small farmer subborrowers at not less than 12% per annum.

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

Life of Project: _____
 From FY _____ to FY _____
 Total U. S. Funding: _____
 Date Prepared: _____

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: (A-1)	Measures of Goal Achievement: (A-2)	(A-3)	Assumptions for achieving goal targets: (A-4)
Project Purpose: (B-1)	Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)	(B-3)	Assumptions for achieving purpose: (B-4)
Project Outputs: (C-1)	Magnitude of Outputs: (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
Project Inputs: (D-1)	Implementation Target (Type and Quantity) (D-2)	(D-3)	Assumptions for providing inputs: (D-4)

010 1010-20 (1-78)
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

INSTRUCTION: THIS IS AN OPTIONAL
FORM WHICH CAN BE USED AS AN AID
TO ORGANIZING DATA FOR THE PAR
REPORT. IT NEED NOT BE RETAINED
OR SUBMITTED.

Life of Project
From FY 1980 to FY 1981
Total U.S. Funding \$10,000,000
Date Prepared: July 29, 1978

Project Title & Number: HAITI INTEGRATED AGRICULTURAL DEVELOPMENT 521-T-008

PAGE 1

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: (A-1)</p> <p><u>SUB-GOAL</u> (Continued)</p>	<p>Measures of Goal Achievement: (A-2)</p> <ul style="list-style-type: none"> - Decrease in administrative overhead as % of value of inputs/credit supplied by group. - Staff hired by groups. - Breakdown of group participants by farm size. 	<p>(A-3)</p>	<p>Assumptions for achieving goal targets: (A-4)</p>

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PROJECT DESIGN SUMMARY
 LOCAL FRAMEWORK

Project Title & Number: Haiti Integrated Agricultural Development 521-T-008

ANNEX I
 Exhibit 2

3 of 7

Life of Project: TO 1981
 From FY: 1980
 Total U.S. Funding: \$10,000,000
 Date Prepared: July 27, 1979

PAGE 2

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>To develop the institutional capacity of DARNDR and community organizations to deliver productive resources and services to small farmers.</p>	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <ul style="list-style-type: none"> - Irrigation feasibility studies performed by DARNDR - Rehabilitation and maintenance plans developed by DARNDR with communities. - Irrigation rehabilitation work performed by DARNDR - Water user associations participating in water and maintenance scheduling - Soil conservation construction and maintenance plans developed by DARNDR with community groups - Farmer groups participating in planning and implementing soil conservation programs - Technical packages developed. - Farmer groups assisted by DARNDR extension staff - Community volunteers providing technical advice to farmers - Community groups supplying members with agric. inputs 	<p>(B-3)</p> <ul style="list-style-type: none"> - Project monitoring/evaluation system - existing DARNDR, FAO records 	<p>Assumptions for achieving purpose: (B-4)</p> <ul style="list-style-type: none"> - High priority assigned to project by GOH, especially DARNDR - Improved salaries and terms of work are introduced - Non-formal training for community volunteers can be effectively carried out
	<ul style="list-style-type: none"> - Increase in enrollment at agron. and engineering school. 		

PROJECT DESIGN SUMMARY
LOCAL PRIMER...

Life of Project: 1981
From FY: IQ
Total U.S. Funding: \$10,000,000
Date Prepared: JULY 29, 1978

OPR 1020-20 (12-78)
SUPPLEMENT 1

Project Title & Number: HAITI INTEGRATED AGRICULTURAL DEVELOPMENT 521-T-008

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Sub-purpose</p> <p>To implement an integrated agricultural development program initially in four regions (Les Cayes, Jean Rabel, Jacmel and Cul-de-Sac).</p>	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <ul style="list-style-type: none"> - 15 irrigation systems serving 9,000 ha. rehabilitated. - 4 regions covered by improved agricultural packages developed through research. - Improved agricultural practices introduced to 23,000 farmers covering 30,000 ha. - 20,000 ha. protected by soil conservation works. - Improved soil conservation practices adopted by 15,000 farmers. - 500 community groups supplied with credit of \$1 million. - DARNDR extension coverage improved to reach 23,000 farmers and 20 groups per agent. 	<p>(B-3)</p> <ul style="list-style-type: none"> - Project monitoring/evaluation system. 	<p>Assumptions for achieving purpose: (B-4)</p> <ul style="list-style-type: none"> - Staffing and training programs implemented on schedule - Research program not hindered by major climatic disaster. - No difficulties in procurement of equipment or supplies.

AID 1979-20 11-78
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1979 to FY 1981
Total U.S. Funding \$10,000,000
Date Prepared: JULY 29, 1978

Project Title & Number: HAITI INTEGRATED AGRICULTURAL DEVELOPMENT 521-T-008

PAGE 3

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Outputs (C-2)	(C-3)	Assumptions for achieving outputs (C-4)
A. Irrigation			
1. DARNDR staff trained	- 26 staff trained.	- Project monitoring/evaluation	- Training programs on schedule.
2. DARNDR staff assigned to project.	- 26 staff assigned at national and regional levels.	- DARNDR field and headquarters reports.	- Budgetary resources supplied by DARNDR on schedule.
3. Water user associations organized and staffed.	- 15 associations. - 45 staff trained.	- BCA records.	- No difficulties in procurement.
4. Community staff trained for water user associations.	- 45 staff trained.	- Community credit group records.	- No major climatic disasters.
B. Soil Conservation			
1. DARNDR staff trained	- 15 in-country versus 4 long term off-shore.	- FAMV records.	- Farmer acceptance of on-farm trials.
2. DARNDR staff assigned to project.	- 17 staff assigned.		- Farmer willingness to work with DARNDR extension staff.
3. Upland farmer groups organized for soil conservation activities.	- 50 groups affected; 15,000 farmers involved. - 50 leaders trained.		- Availability of inputs to groups.
4. Leaders trained for farmer groups.	- 50 nurseries established.		- BCA commitment of staff and resources according to schedule.
5. Community nurseries established.			- No delays owing to statutory or other legal problems.
C. Agricultural Research and Development			
1. DARNDR staff trained	- 15 in-country; 4 long-term off-shore.		- Faculty freed from on-going duties to participate in project related programs.
2. DARNDR staff assigned to project.	- 15 staff assigned at regional and national levels.		- Teaching materials and outside advisory assistance provided on schedule.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY 10 to FY 1981
Total U.S. Funding \$10,000,000
Date Prepared: July 29, 1976

AID 1024-20 (1-75)
SUPPLEMENT 1

Project Title & Number: HAITI INTEGRATED AGRICULTURAL DEVELOPMENT 521-I-008

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Outputs (C-2)	(C-3)	Assumption for achieving outputs (C-4)
3. Research at District station a) fertilizer response b) varietal improvement c) water control d) soil management/conservation e) other: insecticides, etc	- 50 trials		
D. Agricultural Extension			
1. DANRDR staff trained	- 80 in-country; 4 long term off-shore.		
2. DANRDR staff assigned to project.	- 82 staff assigned.		
3. Demonstration farm activities	- 20 demonstration farms		
4. Farmer extension agents trained.	- 500 trained		
E. Group Credit/Savings			
1. Farmer credit groups organized.	- 500 groups organized. - 7000 farmers involved.		
2. Farmer production loans	- \$2,000 value per group loan.		
3. BCA staff trained and assigned to project.	- 45 staff trained and assigned to project.		
F. Faculty of Agriculture (FAMV)			
1. Faculty trained.	- 4 faculty trained		
2. Course curricula developed.	- 2 curricula packages developed.		
3. Library and classroom space expanded.	- 8,000 square feet.		

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY 70 to FY 1981
Total U.S. Funding \$10,000,000
Date Prepared: July 29, 1976

AID 102-20 11-76
SUPPLEMENT 1

Project Title & Number: HAITI INTEGRATED AGRICULTURAL DEVELOPMENT 521-T-008

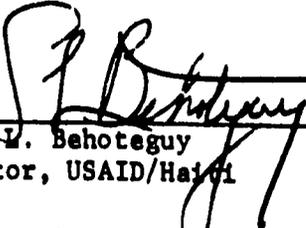
PAGE 4

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Inputs: (D-1)	Implementation Target (Type and Quantity) (D-2)	(D-3)	Assumptions for providing inputs: (D-4)
	<u>MAGNITUDE (In \$000)</u>		
	AID AID		
<u>Inputs</u>	<u>Grant Loan GOH Community</u>		
Technical Assistance (LT)	3,340 1,892		
Technical Assistance (ST)	760 -0-		
Training	649 255		
Equipment	3,157		
Vehicles	295		
Construction	322		
Agricultural Credit	1,000		
GOH Personnel	2,505		
Local Labor	6,883 1,721		
Operations & Maintenance	858		
Contingency & Inflation	685		
	<u>4,100 8,000 10,501 1,721</u>		

CERTIFICATION PURSUANT TO
Section 611(e) of the
FOREIGN ASSISTANCE ACT
As Amended

I, Scott L. Behoteguy, the principal officer of the Agency for International Development in Haiti, do herewith certify that in my judgement, Haiti has both the financial capability and human resources to maintain and utilize effectively goods and services procured under the capital assistance project entitled the Integrated Agriculture Development Loan.

This judgement is based upon the record of implementation of AID-financed projects in Haiti and the results of the consultations undertaken during intensive review of this new project.



Scott L. Behoteguy
Director, USAID/Haiti
7-29-76

Date



REPUBLIQUE D'HAITI

DEPARTEMENT DE L'AGRICULTURE, DES RESSOURCES NATURELLES
ET DU DEVELOPPEMENT RURAL

SECRETARIE D'ETAT

No. Am2 / D-2-c: 3003

PORT-AU-PRINCE, LE 29 JUILLET 1976

M. Scott L. BEHOTEGUY
Director
USAID Mission to Haiti
c/o American Embassy
PORT AU PRINCE -

Monsieur le Directeur,

Nous avons l'avantage de vous transmettre, par la présente, la requête officielle du Gouvernement de la République d'Haiti à l'Agence pour le Développement International du Gouvernement des Etats Unis d'Amérique, pour le financement, d'un Programme de Développement Agricole Intégré, au moyen d'un prêt de Huit Millions de Dollars (\$8.000.000) et d'un don de Deux Millions de Dollars (\$2.000.000).

L'exécution de ce programme, prévue pour cinq ans, devrait demarrer dans les premiers mois de l'exercice fiscal haitien 1976-1977 qui débute le 1er Octobre 1976. Les principales activités envisagées dans le cadre du programme comprennent:

- La remise en état de l'infrastructure d'irrigation d'environ 9000 hectares de terres localisées dans diverses régions du pays;

- la protection d'environ 20.000 hectares de montagnes et de collines dominant les périmètres irrigués au moyen de travaux pour la conservation du sol et de l'eau orientés vers la mise au point d'une agriculture de montagne hautement spécialisée;

- l'assistance technique à court et long terme à fournir au Département de l'Agriculture, des Ressources Naturelles et du Développement Rural au moyen d'un programme de formation de personnel et la fourniture du matériel et d'équipement à la Faculté d'Agronomie et de Médecine Vétérinaire et aux Divisions et Services suivants: les Services d'Irrigation, de la Production et de la Vulgarisation Agricoles, de la Production et de la Santé Animales, de la Recherche Agronomique, de la Conservation des Sols, des Forêts et de la Protection de la Faune, la Division de l'Administration et le Bureau de Crédit Agricole.

Une des caractéristiques primordiales de ce Programme sera la promotion des groupements communautaires en vue de leur participation active et efficace à toutes les phases du processus de développement socio-économique,

Le coût total du Programme se chiffrera à Vingt Deux Millions Cinq Cent Mille Dollars (\$22.500.000) dont Dix Millions (\$10.000.000) en devises étrangères et la balance de Douze Millions Cinq Cent Mille Dollars (\$12.500.000) en monnaie nationale pour couvrir les dépenses locales.

Convaincu de la disponibilité pour la période de fonds du PL 480 titre I, le Gouvernement haïtien a l'intention d'utiliser, moyennant l'accord de l'AID, les ressources de ce fonds pour couvrir une fraction appréciable de sa contre-partie en espèces au programme, s'élevant à Soixante Deux Millions Cinq Cent Mille Gourdes (Gdes: 62.500.000).

Les objectifs du Programme sont:

- de fournir des facilités de production à approximativement 23.000 petits producteurs travaillant sur des superficies irriguées et non irriguées; ceci devra guider la conduite de projets similaires dans d'autres régions rurales d'Haïti;

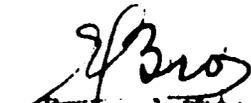
- de favoriser l'organisation de 200 groupements communautaires dont les membres doivent participer au processus du développement de leurs communautés respectives particulièrement au bon fonctionnement de l'infrastructure agricole et à l'application de toutes les méthodes améliorées de production;

- de développer les facilités nationales de formation et d'entraînement de spécialistes en Conservation de Sols et en gestion et entretien des systèmes d'irrigation;

- d'apporter des améliorations réelles et durables au bien-être des populations concernées par le Programme.

En vue d'atteindre les objectifs sus-cités, le Gouvernement est décidé à prendre, en accord avec l'AID, toutes les dispositions relatives à la gestion des fonds, à l'affectation du personnel et à l'utilisation du matériel et de l'équipement qui ont été mis à la disposition du projet.

Nous vous prions de recevoir, Monsieur le Directeur, l'assurance de notre considération distinguée.


Emmanuel BRO;
Secrétaire d'Etat
des Finances et des
Affaires Economiques
Secrétaire Executif
du CONADEP


Rémiot LEVAILLE
Secrétaire d'Etat
de l'Agriculture, des
Ressources Naturelles
et du Développement
Rural

.../yd

Loan No. 521-T-008

LOAN AUTHORIZATION

Provided From: FAA Section 103

HAITI: Integrated Agricultural
Development

Pursuant to the authority vested in the Deputy U. S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended ("the Act") and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan ("Loan") pursuant to Section 103 of said Act to the Government of Haiti ("Borrower") of not to exceed eight million United States dollars (\$8,000,000) to assist in financing the United States dollar and local currency costs of a project to develop the institutional capacity of the Ministry of Agriculture and community organizations to deliver productive resources and services to small farmers ("Project"). The loan shall be subject to the following terms and conditions:

I. Interest and Terms of Repayment.

Borrower shall repay the Loan to A.I.D. in United States dollars within forty (40) years from the date of the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter on the disbursed balance of the Loan and on unpaid interest.

II. Source and Origin.

Goods, services (except for ocean shipping) and marine insurance financed under the Loan shall have their source and origin in countries included in Code 941 of the A.I.D. Geographic Code Book. Marine insurance may

be financed under the Loan only if it is obtained on a competitive basis, and any claims thereunder are payable in freely convertible currencies. Ocean shipping financed under the Loan shall be procured in any country included in A.I.D. Geographic Code 941.

III. Local Currency Costs.

United States dollars utilized under the Loan to finance local currency costs shall be made available pursuant to procedures satisfactory to A.I.D.,

IV. Conditions Precedent to Initial Disbursement.

Prior to the first disbursement or the issuance of any commitment document under the Loan, Borrower shall submit to A.I.D., in form and substance satisfactory to A.I.D.:

- A. A plan acceptable to Borrower for implementing increased salary schedules for employees of the Ministry of Agriculture including the proposed sources of financing for such plan;
- B. A description of the organizational structure adopted by Borrower for project implementation including staffing patterns, functions and delegated authorities for District Offices of the Ministry of Agriculture.

V

V. Condition Precedent to Disbursement for the Irrigation Component.

Prior to any disbursement or the issuance of any commitment document under the Loan for the purpose of financing the irrigation component of the Project, Borrower shall submit to A.I.D., in form and substance satisfactory to A.I.D., an implementation plan for this component.

VI. Condition Precedent to Disbursement for the Irrigation or Soil Conservation Component.

Prior to any disbursement or the issuance of any commitment document under the Loan for the irrigation or soil

conservation component of the Project, Borrower shall submit to A.I.D., in form and substance satisfactory to A.I.D.:

- A. evidence that Borrower has established an Irrigation/Soil Conservation Fund; and
- B. guidelines and procedures issued by Borrower for administration of such Fund.

VII. Condition Precedent to Disbursement for Offshore Participant Training.

Prior to any disbursement or the issuance of any commitment document under the Loan for offshore participant training, Borrower shall submit to A.I.D., in form and substance satisfactory to A.I.D., an implementation plan for such training including a description of measures taken to assure participants' return to Haiti and service to the Borrower after training.

VIII. Condition Precedent to Disbursement for Agricultural Credit.

Prior to any disbursement or the issuance of any commitment document under the Loan for agricultural credit, Borrower shall submit to A.I.D., in form and substance satisfactory to A.I.D., a report describing measures taken to minimize decapitalization and default and to maximize savings within the Office of Agricultural Credit.

IX. Covenants.

Borrower shall covenant:

- A. To provide full-time counterpart personnel to work with each advisor financed by A.I.D.; and
- B. To make available loans funded by Loan proceeds to participating small farmers at not less than 12% interest per annum.

X. Other Terms and Conditions.

The loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

Acting Deputy U. S. Coordinator

Date

Clearances:

GC/LA, JKessler _____	Date _____
LA/Car, ERhodes _____	Date _____
LA/DR, Weinberg _____	Date _____
LA/DR, Stukel _____	Date _____
PPC/DR, MHandly _____	Date _____
SER/PP/C, TBlacka _____	Date _____

GC/LA, TGeiger:lb:8/20/76

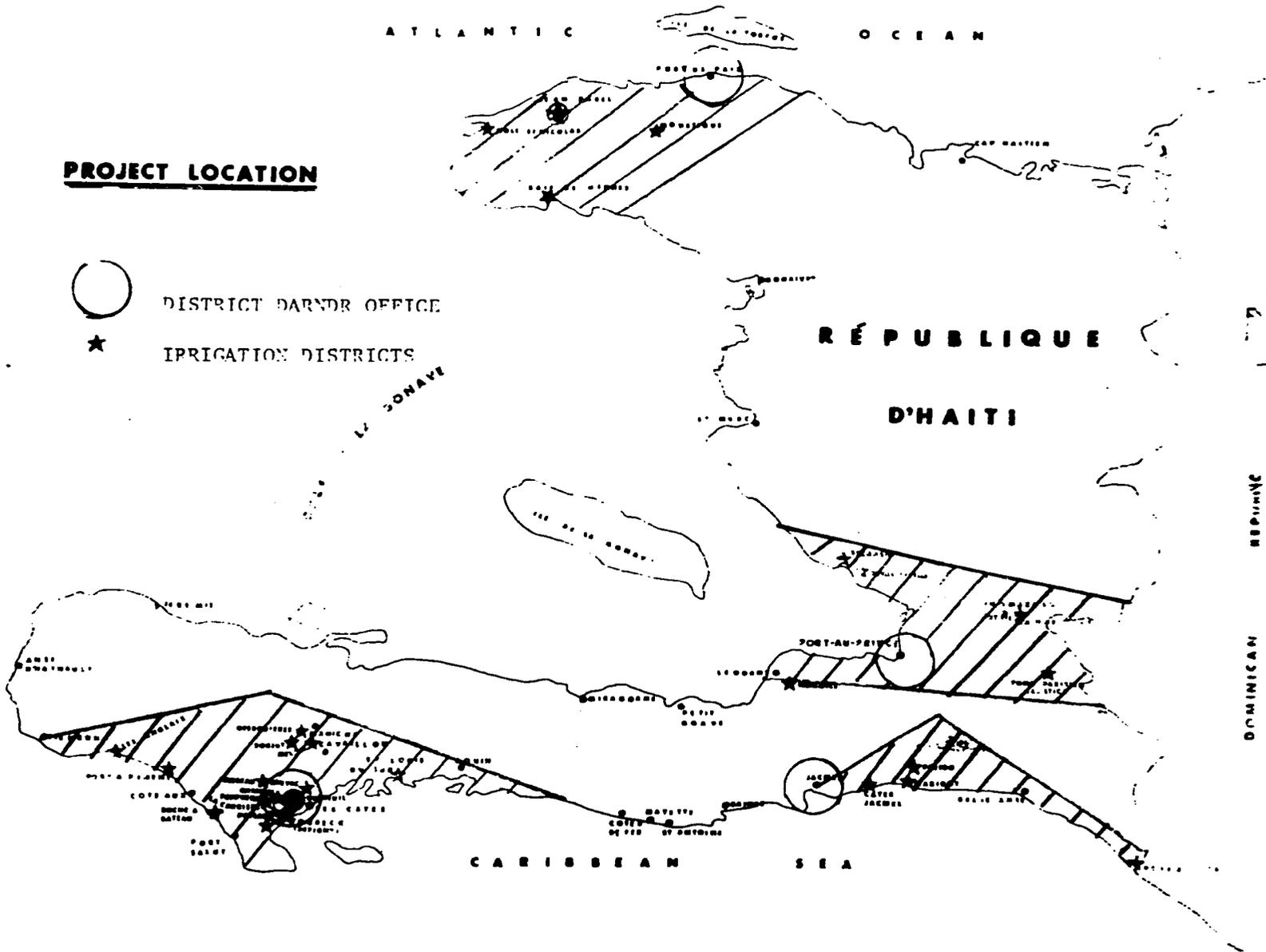
PROJECT LOCATION



DISTRICT DARNR OFFICE



IRRIGATION DISTRICTS



	FY77	FY78	FY79	FY80	FY81	TOTAL
<u>Dubreuil Rehabilitation</u>						
Irrigation Engineer	12	12	6			30
Construction Engineer	12	12	6			30
<u>Feasibility Studies and Rehabilitation</u>						
Project Manager (Civil Engineer)	6	12	12	6		36
Irrigation-Drainage Engineer	6	12	12	6		36
Hydrologist	6	6				12
Rural Sociologist- Cytensionist	6	12	12	6		36
Agronomist-Soil Scientist	6					6
Agricultural Economist	6					6
Livestock-Fisheries Expert	5					5
Topographer-construction Engineer	6	12	12	6		36
<u>Other Short Term Services</u>	6	9	9	3		27
TOTAL (MAN-MONTHS)	110	81	69			260

REHABILITATION/RECONSTRUCTION OF IRRIGATION SYSTEMS
US TECHNICAL ASSISTANCE
REQUIREMENTS

POTENTIAL IRRIGATION SUB-PROJECTS

	Area (Hectares)	<u>Preliminary Estimate of Benefit/Cost</u>
<u>I. Feasibility Established</u>		
Dubreuil	900	
Jean Rabel	400	
Sub Total	<u>1,300</u> 1/	2.55
<u>II. Pre-Feasibility Study Completed or Underway</u>		
<u>Priority A</u>		
Marigot-Peredo	1,400	4.02
Pedernales	230	N/A
Duthill-Manneville	470	2.27
Mole St. Nicolas	15	.50
Moreau-Fonfrede	900	6.91
Chantal	300	1.96
St. Louis du Sud	180	.66
Roche-a-Bateau	205	2.56
Les Anglais	900	1.44
Avezac	2,700	3.21
Desrodières	250	2.84
Melon	165	1.48
Robert	120	1.30
Sub Total	<u>7,835</u> 1/	
<u>Priority B</u>		
Moustique	1,130	N/A
Perigny (Torbeck)	1,600	7.40
<u>Priority C</u>		
Cayes-Jacmel	500	4.16
Fond Parisien-Lastic	510	N/A
Baie de Henne	250	N/A
La Corriere	860	N/A
Port-a-Priment	130	N/A
Poteau	200	6.00
<u>Priority D</u>		
Momance	200	N/A
Arcahaie		
Duvalierville		
Sub Total	<u>5,380</u>	
<u>III. No Pre-Feasibility Study</u>		
Fond Parisien	400	
Andre	957	
Ennery	427	
St. Michel de l'Atalaye	410	
Sub Total	<u>2,194</u>	
Total Potential Sub-Projects	<u>16,709</u> *****	

1/ Used as basis for cost estimates

METHOD OF ANALYSIS SUGGESTED FOR DARNDR ANALYSIS OF IRRIGATION SUB-PROJECTS

A user manual for the small farm budget program published by LA/DR will provide the Economic Analysis Division, within DARNDR, an algorithm of analytical procedure for the remaining analysis. Translation in French will be provided along with technical assistance from LA/DR/EAD.

Although cognizant of the absence of computer facilities, this model can be hand calculated providing the professional staff with an exposure to computer capabilities. The following topics are presented to highlight the focus of analysis and to outline the computer model used in the illustrative case for an irrigated farm in Les Cayes.

Farm Income

The term farm income has been used interchangeably with such expressions as revenue, receipts, sales, earnings, benefits and profits. But these words have different meanings. Quite often also, no distinction is made between cash and non-cash elements in farm income and it is not clear from the context whether cash income only or whether cash as well as non-cash income is intended. The distinction between cash and non-cash income is particularly important on subsistence-oriented farms where a large part of the output is consumed on the farm and does not pass through market channels. But even on a subsistence-oriented farm, the family has to purchase items which are not produced on the farm, and it is necessary to know how much actual cash is available for such purposes. Therefore, any analysis must show the cash position of the farm before and after provision is made for loan repayment to ascertain whether the farmer can meet his loan commitments, and whether they have enough to live on, plus something left over for savings and investment.

In Haiti, where most of the farms are small-scale, the farm is a place of business as well as a place of residence, and an almost inseparable relationship exists between these two functions. It is imperative in any analysis of farm income to keep these two functions separate. Thus, before analyzing the farm business, certain adjustments must be made to the accounts to ensure that all entries relating to the operations of the farm as an enterprise are included and entries not related to the farm in this sense are excluded. The value of all farm produce consumed in the home should be included as though it were actually sold. Other necessary adjustments must be made where expenses are shared between the farm and the home such as transport, electricity, fuel, etc.

It should be noted that for programs that rely on scattered farm data, a singular "synthesized" budget might suffice. This approach has been used successfully to develop rather generalized estimates of farm income where large number of small farmers are used. Spot sampling would be required to develop this approach.

The farm family will be defined as consisting of the farmer, his wife and other members of the household. Where payment is not actually made, an adjustment must be made in the accounts to reflect the value of such labor as though it were actually paid for at the prevailing rate for equivalent labor. The value of manual labor performed by the farmer and his family is deducted after calculation of farm income to see what surplus, if any, remains.

Usually in the typical small scale operations found in Haiti, the farmer does not keep any formal records. Family labor is usually the main input. Cash expenditure is generally quite low and relatively specific to "cash crops", or those crops which are produced primarily for sale off the farm. The exception of community group credit facilities finance purchased inputs by short term loans from cooperatives or other marketing agencies which may buy the crop, recover the loan and remit the balance to the farmer with some statement of account showing the quantity and value of the physical inputs and output of the crop.

Where the farmer is responsible for financing his operation, data collection is facilitated by the seasonality of production, since expenditure is concentrated at the beginning of the season and sale is concentrated at the end, making it easier for the farmer to remember. Thus, it is often possible to trace the quantity and value of physical inputs and outputs for the bulk of "cash crop" production.

Where the bulk of the crop is used for home consumption, data collection becomes quite difficult as the revenue from off-farm sales grossly understates production. To arrive at reasonable estimates of production and income, the consumption habits of the farm family must be carefully analyzed to obtain some estimate of the quantity of the various items consumed on the farm. The estimate of total production on the farm can be checked by calculating the yield per hectare obtained on similar farms or by carrying out a physical measurement of production by sampling randomly selected plots before the completion of the harvest to estimate the average yield per hectare.

Basically, the general approach in undertaking farm budget studies is to allocate all cash and non-cash elements of costs and returns to

their appropriate enterprises. Returns are easily isolated but costs present some difficulty.

Variable costs (also referred to as allocable costs) are incurred only when a specific crop activity is actually undertaken. The amount of these costs varies with the scale of operation and yield. These costs can generally be allocated quite easily. For example, feed purchases can be allocated to the appropriate livestock item; while seed, fertilizer, spray materials, and labor hired for specific operations can be readily allocated to specific crops.

On the other hand, fixed costs are those which, in the short run, must be met whether production takes place or not. These costs generally cannot easily be assigned to particular crops. They include such items as taxes, insurance, interest, machinery repairs, general maintenance and hired labor. The computerized budget model handles these costs separately and adjusts the expenditure matrix according to land use per crop.

Usually, each cropping cycle produces an output which can be sold off the farm or consumed by the farm family. Problems arise with intermediate products, or those items which are produced as inputs for a further stage in the production process. These include pasture crops, feed grains, etc. There are two alternatives in dealing with these crops: (a) integrate them with the pasture or crop that requires them as an input in producing the final output, or (b) treat them separately, assess the value of output based on prevailing market prices and sell the output to the enterprise that uses them.

Gross Sales (Output)

The gross output of the farm is the total volume of production within a production period multiplied by the average farm gate price. It includes the value of all sales and the imputed value of all amounts lost, consumed in the home, given away or used as feed and seed. Since it is often possible to produce more than one short-term crop within a calendar year, it is necessary to distinguish between the crop sequence or its seasonality. Where stocks are carried forward from one production period to another, it is more precise to define gross output as the difference between the closing valuation plus sales and the opening valuation plus purchases.

Net Farm Income

Net farm income is the principal measure of the annual profitability of the farm as a whole. It represents the sum available for the

reward of the farmer and his wife for their labor, management and capital contributed during the financial year. It is calculated by subtracting expenditures from gross sales revenue.

The value of subsidies, crop bonuses and payments are also included in the gross revenue for the farm. Loans are not included in calculating gross revenue. Similarly, repayment of loans are not included in expenditures. However, interest must be considered a legitimate item of expense when calculating the true profitability of the farm for income purposes.

The net farm income for the farm model selected is \$120.60 in the fifth year. It is calculated by subtracting expenditures totaling \$118.70 and \$ 1.60 for interest payments from gross sales amounting to \$240.90. It represents the amount available to the farmer and his wife as compensation for the labor, capital and management they contributed to produce the gross output accruing during the year.

Returns to Labor and Management

a. Family Labor Income

Family labor income is the value of the manual labor contributed by the farmer and his wife, calculated at the prevailing wage rate. It represents the amount that could be paid to the farmer and his wife purely in their capacity as laborers on the farm. It does not include remuneration for management or a return on their own capital invested in the farm.

Where family labor income is greater than net farm income, the farm is actually operating an an "accounting loss", because income is not adequate to pay the farm family for its labor. This assumes that the family would have been able to obtain employment for the same number of days in the area at the going wage rate. In Haiti, generally, this is not so and, therefore, farmers continue to have an incentive to keep their farms under cultivation since this represents the best available alternative.

Cash Flow

Cash flow, as the name implies, reflects the flow of cash resources through the farm during a year. The on-farm (incremental) net benefit stream, is obtained by subtracting costs from benefits on a year-to-year basis and then discounting to calculate the internal rate of return in the economic and financial analysis of agricultural projects.

Net farm income is a measure that reflects the profitability of the farm for a financial year. But, whether it is derived from a model designed to predict the outcome of future operations, or is the result of a previous year's operations, it does not indicate the cash position of the farm at any point in time. For example, the gross output from which it is derived includes the value of food consumed in the home and the inventory of unsold stock. It excludes the farmer's cash investment and the proceeds of loans received during the year. Cash costs should not include depreciation, which is not a cash item. Costs exclude the purchase of capital assets and the repayment of loans.

Regardless of how profitable the business might turn out to be for the financial year, it is also important to know whether the farm can meet its financial obligations promptly, and whether the family will have enough money to meet its personal commitments during the year. This must be handled separately, giving full consideration to the seasonality of the planting (when farmers require production credit) and the harvest (when farmers repay their loans).

The monthly cash flow translates into financial terms the physical activity taking place on the farm during the year. It reflects the cash and credit transactions relating to the operations of the farm. Private expenses should be excluded. In-flows will include only that portion of output which is expected to contribute to output; the farmer's investment; and loans, grants and subsidies received in cash. Outflows will include debt servicing and all cash and credit transactions. Depreciation, unpaid family labor, and other non-cash expenses should be excluded.

A negative balance between the inflows and outflows of the net benefit stream will have no relevance in assessing the profitability of the farm. For example, on farms which specialize in seasonal enterprises, expenditure builds up during the production period and the sales are not made until the end of the season. The monthly cash flow will, therefore, indicate the need to introduce supplementary income, or the necessity to obtain financial accommodation during the cropping season. Nevertheless, production may be quite profitable.

Credit

Since the typical farm detail in the farm budget model includes disaggregation of the farm by the amount of credit provided for each crop (including garden, pasture and fallow); yields; crop losses; farm gate prices; production costs; hired labor; seed; fertilizer; insecticide; and other costs, it is possible to ascertain the need

for production and intermediate credit. Production credit, for example, is used for the purchase of fertilizers and pesticides, the amount of credit demand is automatically calculated by taking the per hectare needs for each crop, multiplying by the number of hectares planted and summing the needs for all crops. Given interest rates and credit terms, the cost of the credit is also calculated. Intermediate credit is treated in a like fashion, but is identified within the model as a purchase. At the discretion of the analyst, automatic repayment schedules are calculated.

Financial Return on Investment

Generally, the incremental farm family net benefit is negative in the early years of the project and positive in the later years. The discount rate which will make the present worth of the incremental farm family net benefit stream over the life of the project equal to zero is called the Financial Rate of Return, or Return on Investment.

Since the amount of the farmer's own funds committed to investment in the farm is usually a small proportion of the total, the financial rate of return is sometimes in excess of 50 percent in projects where the benefits begin to accrue early in the life of the project.

Economic Analysis (Returns to Society as a Whole)

The economic analysis reflects the total return to the whole society on all the financial resources invested in the project regardless who made the investments and who are the beneficiaries, that is to say, unlike the financial analysis which is concerned with a particular interest group, it is concerned with the total society. The purpose of carrying out the economic analysis for all projects is to be able to rank the relative productivity of projects and to identify the projects which will make the greatest contribution to economic development.

The preparation of the economic analysis introduces the use of shadow or accounting prices. Although a more complete explanation of certain shadow prices of particular concern has been made in earlier stages of this report, it should be noted that in the illustrative model for Cayes, an economic analysis section was incorporated to include shadow wages.

Land Tenure

During the technical and economic analysis period, farm ownership will be identified, primarily to ascertain farm stratification, their mean sizes, tenantry/ownership ratios and the relative income levels of the tenants and/or owners. The purpose of this determination is to identify the direct beneficiaries in terms of the degree of resident small holders (owners) to non-resident or large non-target group owners.

As described in the Haiti Rural Sector Assessment, the most characteristic feature of Haitian agriculture is the smallness of farm units with 75% or more of Haitian farms being 10 acres or less. Given this analysis plus data on potential project sites, it is not expected that land ownership patterns will be a major problem during the final development of individual subprojects. Nevertheless, if the land tenure analysis conducted during subproject development indicates that non-resident owners or highly concentrated land ownership prevail in any subproject, a special in-depth land tenure analysis of the individual subproject will be required. Should this analysis indicate that target group farmers will not be the major beneficiaries of the subproject, the subproject will not be approved for financing.

Marketing

The feasibility study shall include a marketing review and/or survey which shall consider the following:

- 1) Anticipated increases in production by crop.
- 2) Effective demand for the individual crop within the marketing area of the subproject.
- 3) Adequacy of the transportation system for the subproject.
- 4) Adequacy of on-farm storage.
- 5) Potential pricing policy interventions or lack thereof.
- 6) Such other factors that may affect farm gate prices for the small farmer target group.

TABLE 1. COMPARISON OF CASH EXPENSES PER HECTARE IN DOLLARS WITH TRADITIONAL AND IMPROVED METHODS OF CULTURE 1/

CROP	HIRED LABOR 2/			SEEDS OR PLANTS			FERTILIZER			CHEMICALS			IRRIGATION TAX			TOTAL INCREASE
	TR	AM	INC	TR	AM	INC	TR	AM	INC	TR	AM	INC	TR	AM	INC	
Banane																
Plantain	14.00	26.60	12.60	3.20	8.33	5.13	--	160.00	160.00	--	233.67	233.67	60.78	60.78	--	414.40
Canne a Sucre																
	81.20	133.00	51.80	4.25	5.10	.85	--	72.00	72.00	--	--	--	--	28.60	28.60	159.25 3/
Coton 4/																
	30.80	44.80	14.00	3.20	3.20	--	--	32.00	32.00	--	34.00	34.00	--	3.58	3.58	83.58 4/
Mais																
	30.80	44.80	14.00	2.08	2.91	.83	--	24.00	24.00	--	14.96	14.96	--	10.73	10.73	64.52
Sorgho																
	30.80	44.80	14.00	.96	1.28	.32	--	24.00	24.00	--	12.36	12.36	--	10.73	10.73	61.41
Soja 4/																
	30.80	44.80	14.00	4.20	4.20	--	--	24.00	24.00	--	8.24	8.24	--	14.30	14.30	60.54 4/
Manioc																
	30.80	44.80	14.00	--	--	--	--	18.00	18.00	--	2.06	2.06	--	21.45	21.45	55.51
Haricot Rouge																
	30.80	44.80	14.00	37.28	44.27	6.99	--	24.00	24.00	--	4.12	4.12	--	3.58	3.58	52.69
Patate																
	30.80	44.80	14.00	--	--	--	--	18.00	18.00	--	2.06	2.06	--	10.73	10.73	44.79
Pois																
Inconnu																
	30.80	44.80	14.00	10.71	12.61	1.90	--	24.00	24.00	--	--	--	--	3.58	3.58	43.48
Sesame 4/																
	30.80	30.80	--	.96	.96	--	--	24.00	24.00	--	16.48	16.48	--	--	--	40.48

1/ Based on budgets prepared by PNUD for Vallee des Trois Rivieres, preliminary report, Dec. 1975.

2/ Labor rate in PNUD budget reduced from \$1.30/day to \$0.70/day.

3/ Total includes \$6.00 for tractor power hired.

4/ PNUD budgets available only for improved method of culture; expenses for labor and seed under traditional culture assumed.

TABLE 2. RELATION OF POTENTIAL INCREASES IN GROSS PRODUCT AND NET RETURNS TO INCREASES IN CASH
EXPENSES, FOR SELECTED CROPS, PER HECTARE 2/

Crop	Improved Yield Divided by Traditional Yield	<u>Increase in Gross Product 2/</u>		Return to Man Day of Labor 3/ (dollars)	<u>Net Return to Capital and Management</u>		
		with Improved Practices (dollars)	divided by Increase in Cash Expenses		with Improved Practices (dollars)	Increase over Traditional Practices (dollars)	Increase divided by Increase in Cash Expenses
Manioc	2.0	384	6.9	2.50	551	247	4.4
Haricot Rouge	2.8	326	6.2	1.47	222	150	2.8
Mais	3.1	312	4.8	1.36	208	127	2.0
Patate	2.0	204	4.6	1.25	201	77	1.7
Benane	1.9	1046	2.5	7.58	1577	583	1.4
Sorgho	2.7	200	3.3	1.17	177	61	1.0
Canne a Sucre	2.2	255	1.6	.93	153	45	.3
Fois Inconnu	2.0	119	2.7	.61	19 ^{4/}	- 12	- .3

1/ Based on data given in Table 1 and PNUD report cited therein with labor rate adjusted.

2/ Yield per hectare multiplied by PNUD assumed prices.

3/ Increase in gross product less all expenses except labor divided by extra Man-days of labor

4/ Low Return is due partially to much lower price than for haricot rouge.

STRUCTURE OF COMMUNITY ORGANIZATIONS

Traditionally, Haitian farmers have participated in work associations, such as the combite and the escouade, similar in some ways to cooperative associations in the rural areas of the United States. The costs of not only paying these work groups but feeding and often entertaining them seems to be causing their gradual diminution. There was little reference to them in the Plaine des Cayes; moreso in the Northwest, a more traditional and conservative region. There is also the societe, which prevails in the eastern part of the country, organized in a military structure usually around specific interests. More recently, and it is argued, developing from these traditional associations, the groupement communautaire or, as they are called in the northwest, the conseil communautaire have appeared. These have been stimulated and supported by various churches, by rural development officers, and encouraged by the government of Francois Duvalier, and given formal recognition by ONAAC. In fact, by-laws, were drawn up to provide a common organizational structure. Even those groups developed by the Catholic and Protestant churches tend to follow the structure promulgated by ONAAC. They represent the most promising base for community support for the integrated agricultural project and appear to be strong enough as a concept and as an existing institution in many areas to be looked to as the vehicle for channels of development assistance. They provide a source of community commitment and manpower for development projects.

There are some differences in groups in the regions of the country, provoked by differing social and environmental conditions and by the different organization that have stimulated their development.

The community organizations in the Plaine des Cayes and in the Northwest have been studied more in depth for this report. The description of those in areas is included to show contrasts in motivation and preparation

Groupements in the Plaine des Cayes

Groupements have been organized throughout the region in large but not always enduring numbers. They are relatively easy to

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organize because there is an established basis for this kind of mutual support activity from early traditions imported from Africa as well as in modern times, often expressed in form of combites and escouades. These are work associations usually brought together at the invitation of a farmer for the purpose of preparing the soil, for planting, or for harvesting. Members of these groups are usually paid and fed, with considerable festivities, with music and dance connected to the event. There are fewer and fewer of these forms in the South these days because they are expensive. Rather, the groupement communautaire, an association of members of the community organized for the purpose of implementing community projects - road building, school construction, some joint farming, and now irrigation projects - are becoming more and more frequent. These associations have been actively stimulated by local priests, rural development officers, foreign missionaries, or local Haitian leaders. They are easily formed because they play an important social role in the community and provide status roles for members of the community. Each groupement has a president, vice president, secretary, and three advisors and treasurer. In addition, there may be subcommittees and their chairmen, project leaders, etc. Groupement members established rules and regulations pay small monthly dues of one or two gourdes (20 - 40¢). Frequently there is a Grand Conseil of several groupements which provides some federated intergroup coordination. Membership in the groupements is usually between 20 to 30, but occasionally one encounters a groupement that is exceptionally large, stimulated by some recent success. One in Tuffet has 600 members. Groupements sometimes have specialized groupements within their structure, for example, a groupement for irrigation or school construction. Plenty of opportunity exists for prestige and status in an acceptable context.

It seems clear that all development work should be conducted through these groupements rather than with individual farmers. Individualism is a very risky business and threatens the stability of the community if carried to what would be considered extreme, that is, surpassing or outdoing fellow members of the community. Only within the context of the group can this individualism be expressed. Leadership in the group seems to be closely associated with the amount of land owned and farmed with education being the apparent correlation to such wealth. Although officers are elected

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and rules and regulations argued and adopted during regular groupement meetings, decisions seem to be made primarily by the president and other primary leaders. Therefore, any project that AID may stimulate directly or indirectly must be developed by and through these groupements with the support of the leadership.

In most of the communities, the religious groups, Catholic and Protestant, often foreign, play a key role in stimulating and supporting the groupements. Often these efforts are not coordinated with other religious voluntary and governmental agencies. In the northwest, the Haitian American Community Help Organization has stimulated numerous conseils communautaires. The Department of Agriculture also sponsors groupements through local animateurs. The presence of these organizers suggest that there is an important role for third party agents in the stimulation during the part of and assistance to these groupements. For one thing they serve as a kind of buffer between groups and as a source of resources in training and sometimes money for the realization of projects. Because of the meffiance that permeates all aspects of Haitian life, these clergymen and foreigners tend to be safe people to deal with and are more trustworthy and less political. Although the objective of development should stress the encouragement and strengthening of Haitian governmental resources, there is a useful role that these third party agents can continue to play. What is needed in Haiti are some immediate success projects to begin to turn meffiance and suspicion into more rewarding relationships. Concurrently, more well-qualified Haitian technicians are needed to produce useful and effective services that bear fruit and contribute to a greater confidence in government.

Resources for Development

One senses throughout the region a growing dynamism and eagerness to get involved in serious agricultural and community development projects. This is due in part to the encouragement of those involved in community development, such as the clergy, partly because there has been an easing of political tension, and curiously, an expression of recovery from the past hurricane.

Everyone is ready to get to work, but they all express concern about lack of technical assistance, to design simple irrigation systems or new agricultural practices. In Masse, a large rice-growing area very near Les Cayes, members of the groupements help each other work on adjoining lands. Though worked in common, the lands belong to individual farmers who profit as individuals. The groupements have offered 2,000 men to contribute their time to dig irrigation canals, if someone will provide the technical design and instruct them on proper construction and maintenance. It seems that there is significant energy and organization available among the existing groupements communautaires to get moving. The need for simple low technology, irrigation systems is apparent in several of the communities studied and the potential seems reasonable for the effective development of such systems with the cooperation and manpower of these groupements. In addition to providing technical advice about construction of these systems, the groupements will need training in operation, management, administration and maintenance of the systems. Water taxes should be diverted to the local groupement to help pay for the maintenance.

Once these systems are functional, the impact of irrigation should then stimulate a wide variety of activities and projects for the introduction of new agricultural practices, new storage and marketing efforts to deal with potentially expanded production, and related social activities such as health, literacy, etc. These activities should then begin to add new jobs in the region, a critical concern especially for the young people. The salaried jobs that the irrigation work will produce should contribute to easing this job problem.

Northwest Region

- Jean-Rabel
- Fond Ramadou
- Colette
- Mole St. Nicolas
- Les Moustiques
- Bombardopolis
- Baie de Henne

In the Northwest, the groupement communautaire is generally known as the conseil communautaire. The Northwest seems to lack the

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"dynamism" of the South but, of course, the Northwest is disadvantaged with the most difficult of physical conditions. As one of the community leaders interviewed said, "Le pays est ingrat et pas genereux".

The population in the Northwest does not seem to be stable: there is much nomadism brought about by the drought and the difficulty in finding subsistence. It is, therefore, not surprising that the region remains more encased in traditional conservative structures than the more dynamic South. This conservatism helps maintain some element of stability in a region where stability is difficult to maintain. An important element in that conservatism is the presence of what is known as the parrain system, similar to the padron or even the "godfather" pattern of Sicily. What this means is that all major decisions are made by or with the approval of those who hold the wealth and political control of the locality. In the Jean Rabel area, the depute and major land holders play key roles in deciding what will happen.

The conseils in the Northwest do not seem to be as well organized as in the South and are relatively unstable. The population is "passagers" and the conseils are constantly changing. Participation in the conseils seems to depend on the farmers' relationship to the land he is working. If he is a proprietaire, his leadership depends on the amount of land he owns. If he is a share cropper or if he leases the land, there is no stability for him and he plays no significant leadership role in the conseils.

Another example of the instability of some conseils are those that have been organized around very specific and limited projects supported by Food for Work. These conseils usually have disbanded when that project is completed or when the Food for Work has been withdrawn.

Also, the more traditional paid work associations, the combites and the escouades, still exist in the Northwest whereas they seem to be rare in the South.

The conseils were frequently described as being more social in function than project effective. This seems to be especially true for the conseils that HACHO has organized where there is much

emphasis on the establishment of a development rhetoric and "conscientization", creating a sense of self-worth. Among a group of conseils developed by the Catholic Church in Jean-Rabel, however, there seems to be more vitality in project activity. The Church also runs periodic training sessions for its conseil leaders.

Southwest Region (Cayes-Jacmel-Marigot-Parado-Pedernales)

In this region, as elsewhere, the irrigation systems are in serious need of rehabilitation because of deterioration from both natural causes as well as lack of proper maintenance. There are conseils in the region but they are described as "lacking incentive". Leaders exist but they too are described as being unmotivated. The reasons for this stagnancy is traced to a history of false promises of assistance, activities that were disrupted, a general disbelief in the ability of the government to deliver adequate assistance, and the lack of technical assistance for the development of major projects, such as irrigation. However, discussions with farmers in the region suggest that they are interested in committing their involvement when there is a realistic possibility of the realization of some of these promises of assistance. In general, the conseils are similar in structure and activity to those in the Plaines des Cayes. Some of the same agents of church and government have worked in both areas.

Western Region (Duthil Manneville-Fonds Parisien-Lastic)

This area has been "organized" by several different church and government agencies, including DARNDR, Church World Service, the Division of Family Health, the Bureau of Nutrition, and the Mennonites. In Fonds Parisien, there are at present 10 groupements organized by the Mennonites. However, in several localities in the region, participation in community groupements is very weak, again, because of the lack of realistic stimulants. Nevertheless, the farmers in the area are accustomed to contracting with one another for mutual assistance and would work as groupements in development projects. But at present, they do not see any reality to these projects. Motivation of both leaders and followers is frustrated; there is no perception of innovations that would increase local incomes. However, given the resources-material and

educative they express their interest and ability to work cooperatively to adopt new techniques that will bring visible rewards.

Problems and Constraints

a) Instability

As indicated above, it is relatively easy to stimulate the formation of a community organization but unless there are specific projects that can within a reasonably short time produce visible accomplishments, the organization tends to become inactive and eventually disintegrate. The reasons for frustration may be derived from lack of skilled internal leadership or may derive from one or more of the following constraints:

b) Lack of Technical Assistance

For most community organizations technical assistance is not available. Despite commitments from government agencies, very little technical support is in reality ever provided. Church groups may provide some organizational and management assistance but rarely any technical assistance on agricultural or irrigation problems, for example.

Frequently, efforts from government agencies to provide technical support are frustrated by lack of transportation for field workers, their lack of adequate skills, and unfortunately, a lack of interest and motivation to help the farmers. Furthermore, local government employees suffer from exceedingly low salaries \$50 a month, for example, creating personal as well as professional obstacles to adequate job performance.

Community organizations want to take on substantial technical projects designing and digging irrigation systems, for example, requiring skills and resources that must come from outside. Both community leaders and church community development agents agree that the most important contribution that an outside donor could make is the provision of technical assistance. The community would provide the manpower.

Training of Government Agents

Failure to correctly identify problems and formulate appropriate solutions on the part of most agricultural agents responsible for these functions indicate a serious lack of training and experience. Except for a handful of demonstration farms, Fermes Ecoles, and theoretical training at the higher institutions at the national level, the bulk of training in practical experience for these agents has been through facilities provided by religious groups with varying degrees of thoroughness and applicability to the agents or technicians requirements. The low level of funding provided for operation of government sponsored institutions which provide training produces a low level of activity from which prospective agents can realize the experience necessary to prepare them for the evaluation, planning, organizational work, project implementation, training, as well as social and economic considerations. Such training and experience is required to enable these agents to successfully provide incentives to farm families and to motivate them to adopt new practices. Complicating these constraints is the inability of the government to adequately finance the numbers of such agents required and to provide the mobility necessary to adequately serve the rural population.

c) Lack of Funds

Despite monthly dues, most community organizations do not have funds to buy materials needed for projects, such as iron, cement, tools. Frequently, projects are frustrated because the community cannot afford to even rent equipment.

d) Lack of adequate two-way communications between government and community organizations. Requests to government agencies for assistance often are delayed or may never be acted in because of the centralization in Port-au-Prince of approval for all requests of assistance. There is no feedback to the community and project requests may go from one office to another creating nearly endless delays. There is no regional decision-making process. Also, Government agencies DAN-GNAAC often duplicate responsibility introducing another block to the delivery of services. Furthermore, community groups, often do not know how to prepare and submit proposals, creating another impediment to obtaining any service.

Representations of the appropriate Government Agencies do not live in the rural community creating gaps in understanding local needs and in establishing commitments to the community.

e) Lack of Ability to Register Influence

Local political leaders, especially in the Northwest, tend to dominate decision-making in rural areas. Lack of two-way communication weakens the ability of the community group to communicate its will and influence. But more and more community groups are developing local political strength, backed by a sense of national encouragement introduced by President Duvalier. In some cases, the groups have been able to cause the removal of undesirable local government officials.

f) Educational Levels

One of the persistent problems for rural community development is the widespread lack of literacy low level of education, and lack of training in agricultural practices, irrigation, improved family living practices, and an absence of education in life sciences at all levels. There is some effort to encourage domestic arts programs for women, but there are few programs that provide to the community organizations skills that are vital to their organizational as well as project activity success.

g) Limited Utilization of Women in Organizational Leadership

With few exceptions, women are not included in the leadership structure of community organizations. However, if the development projects are successful in increasing agricultural production and family incomes, the impact in areas that are the responsibilities of women, home, children, commerce - will be significant. At present, there is little opportunity for training and preparation of women in these new developments nor for assuming leadership roles that will influence community support for the charges in these traditional areas of concern to women.

Possible Solutions

1. Animation Rurale

Thoroughly trained local community development agents capable of training groups in effective organizational skills: problem identification, development of solutions, group dynamics, communication, and other skills needed to promote development activities of the group and motivate the individual within the group.

2. Farmer/Government Relations and Communications

Successful experiences with government agents will create confidence in the ability of government to provide needed services. Farmers must understand the process by which applications for assistance are made and government must simplify and decentralize these processes.

Government agencies must introduce a system of periodic rural meetings to listen to the complaints and needs of the farmers. There is much fear in criticizing the government fear of serious reprisal. This fear must be overcome by positive actions.

Representatives of community groups should be invited periodically to meet (in a two-way communication sense) with high ranking officials of DARNDR to strengthen the expressed commitment to the farmers and to reassure the farmers of the interest of their government.

3. Lack of Funds

Funds for community projects should be processed through a proper but simple application system. Included in these funds should be movies to permit visits to other communities to exchange information and to observe progressive activities.

Government sources of funding will probably continue to be augmented by other private voluntary and church sources.

Government involvement in developmental projects will accelerate demand for services and activities. Considering the economic feasibility of this development project, the resulting increased productivity should form the base to provide additional revenue to government which should be designated to finance continuation of the project.

4. Education

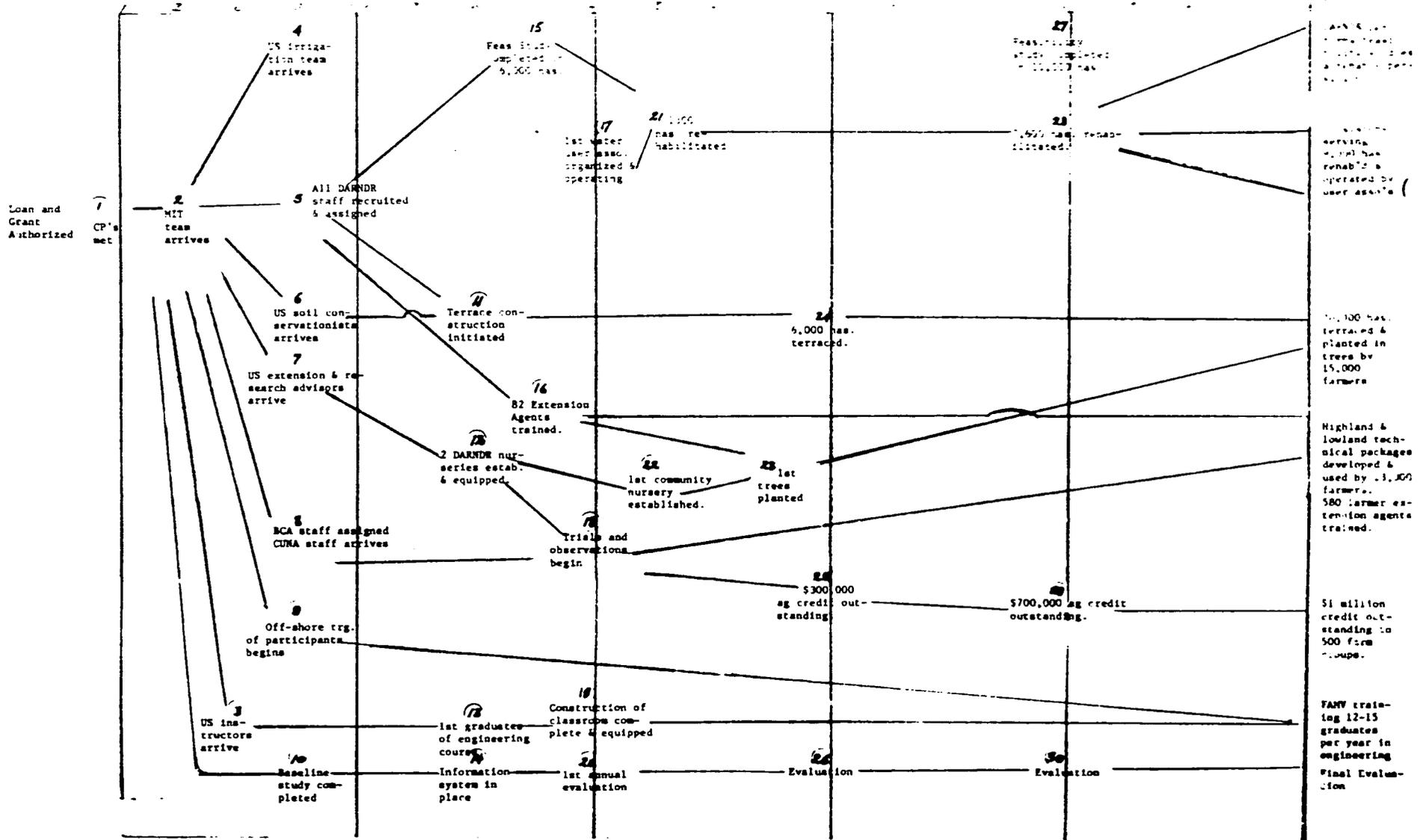
Given the fact that DARNDR is responsible for rural schools, there is a good opportunity to strengthen rural educations with practical project related training programs, including practical literacy.

The skills for improved agricultural practices, improved life styles, for women, etc. can be introduced through the rural schools, strengthening the totality of rural education as well as delivering skills specifically required by the development project.

5. Technical Assistance

This, of course, is the issue addressed by the total integrated agricultural project. In addition to strengthening the capabilities of DARNDR to provide technical assistance, considerable attention should be given to extensive training of local moniteurs, paraprofessional extension agents. With the support of a proposed radio information/training project, these moniteurs can become an important resource for communicating technical assistance. The addition of a well-trained agronome to back-stop this paraprofessional cadre can substantially strengthen the total technical assistance resource within practical possibilities.

FAMV: SCIENTIFIC INTERAGENCY AGRICULTURAL DEVELOPMENT 1954/6



PPT FORM

Country:	Project No:	Project Title:	Date:	/x / Original / / Revision #	Approved:
HAITI	521-T-008	INTEGRATED AGRICULTURAL DEVELOPMENT PROJECT	7/29/76		
CPI DESCRIPTION					
1. January 1977:	All Conditions Precedent satisfied.	16. September 1978:	82 extension agents complete training.		
2. March 1977:	Grant financed Management Implementation Team arrives in country.	17. December 1978:	First water user association organized and operating.		
3. June 1977:	U.S. instructors for FAMV arrive in country.	18. December 1978:	Trials and observations initiated at DARNDR nurseries.		
4. September 1977:	U.S. contract irrigation team arrives.	19. December 1978:	Construction of classroom facilities at FAMV completed and equipped.		
5. September 1977:	AFI DARNDR staff recruited and assigned to appropriate Divisions.	20. December 1978:	First annual evaluation.		
6. September 1977:	U.S. soil conservation advisors arrive.	21. March 1979:	Irrigation systems serving 1,300 hectares rehabilitated. <u>1/</u>		
7. September 1977:	U.S. extension and research advisors arrive.	22. March 1979:	First community nurseries established.		
8. September 1977:	BCA staff assigned and CUNA staff arrives.	23. September 1979:	First trees planted in upland areas.		
9. September 1977:	Off-shore long-term training of participants initiated.	24. December 1979:	Terracing of 6,000 hectares completed.		
10. December 1977:	Base line study completed.	25. December 1979:	\$30,000 of agricultural production credit outstanding.		
11. June 1978:	Terrace construction program initiated.	26. December 1979:	Evaluation		
12. June 1978:	Two DARNDR nurseries established and equipped.	27. December 1980:	Feasibility study completed on irrigation systems serving 10,000 hectares. <u>2/</u>		
13. June 1978:	First students complete fifth year engineering course at FAMV.	28. December 1980:	Rehabilitation of systems serving 7,600 hectares completed. <u>2/</u>		
14. June 1978:	Information system in place and operating.	29. December 1980:	\$700,000 of agricultural production credit outstanding.		
15. September 1978:	Feasibility study completed of irrigation systems serving 6,000 hectares. <u>1/</u>	30. December 1980:	Evaluation		

1/Major portion of work undertaken by contractor

2/Major portion of work undertaken by DARNDR

HS 3, App 36, Part 1

ANNEX IV
Exhibit 3