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UNCLASSIFIED

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

PROJECT PAPER

DOMINICAN REPUBLIC

AFRICAN SWINE FEVER ERADICATION

AID/LAC/P-007

Project Number:517-0135

UNCLASSIFIED

Dec 1 12 03 PM 78

NOV 30 1978

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: ES

THRU: AA/PPC, Alexander Shakow

FROM: AA/LAC, Abelardo L. Valdez

Problem: Authorization of the $6.2 million African Swine Fever loan/grant Project in the Dominican Republic.

Discussion: The purpose of this two and one-half year, $6.2 million project is to eradicate African Swine Fever (ASF) from the Dominican Republic through the complete depopulation of swine and decontamination of their premises; and the initiation of a repopulation process. The overall project includes the following four components: (1) a mass education/information campaign, (2) an ASF disease eradication program, (3) a compensation program, and (4) the initial phase of repopulation.

The AID project will focus on three main elements of the overall ASF eradication project: (1) an eradication component (AID-$6,154,000; GODR-$683,000) which includes disease detection depopulation and decontamination, follow-up and control post activities, (2) a compensation component (AID-$18,000; GODR-$20,000,000) which includes technical assistance and a fund to compensate pig farmers for sacrificed animals, and (3) a repopulation plan component (AID-$28,000) which includes the development of a repopulation strategy for implementation upon complete eradication of the disease. The proposed project includes a loan of $6.0 million and a grant of $200,000. AID will finance commodities, technical assistance, and staff support. The LAC Bureau's Development Assistance Executive Committee (DAEC) reviewed the project on November 22, 1978. Changes recommended by the DAEC have been incorporated in the PP.

A waiver of formal bidding procedures in the procurement of vehicles (i.e., utility) is requested pursuant to Chapter 3C9, Handbook 11 in order to avoid serious delays in project implementation. The vehicles will be used to support the project's field operations throughout the country. The project is designed to begin with a pilot phase to determine the effectiveness of total swine depopulation. Bids have been informally solicited from a number of suppliers and, following good commercial practices, the contract will be awarded to the lowest responsive

bidder. However, if a firm order is not placed before December 4 1978, delivery of the vehicles will be delayed for more than two months due to seasonal closings of U.S. production facilities. This will result in an increased cost for new-year production and could cause a serious delay in project implementation.

The project was not included in the FY 1979 Congressional Presentation, however, an Advice of Program Change was forwarded to Congress on November 17, 1978 and the waiting period expires on December 1, 1978.

The Initial Environmental Examination conclusion that the project will not result in any significant impacts on the human environment was approved on November 14, 1978.

Recommendation: That you sign the attached Project Authorization for the African Swine Fever Project thereby (1) authorizing a loan of $6.0 million and a grant of $200,000; and (2) approving the above requested waiver of formal bidding procedures.

Attachment: a/s

Clearance:
GC:MBall Date 11/29
PPC/PDPR:EHogan Date 11/30

LAC/DR:GWachtenheim:mlw:11/29/78 ext. 29163

DEPARTMENT OF STATE

AGENCY FOR INTERNATIONAL DEVELOPMENT

WASHINGTON

Loan No. 517-T-031
(Ref: AID/LAC/P-007

THE ADMINISTRATOR

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: Dominican Republic

Name of Project: African Swine Fever Eradication

Project Number : 517-0135

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Loan and a Grant to the Dominican Republic (the "Cooperating Country") of not to exceed Six Million Two Hundred Thousand United States Dollars ($6,200,000) (the "Authorized Amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the project described in the immediately following sentence. The project is designed to eradicate African Swine Fever from the Dominican Republic through the complete depopulation of swine and decontamination of their premises so that the process of repopulation of swine can be initiated (the "Project"). The four components of the Project are (i) mass education/information, (ii) eradication, (iii) compensation, and (iv) repopulation. Of the Authorized Amount, Six Million Dollars ("Loan") will be loaned to the Cooperating Country to assist in financing certain foreign exchange and local currency costs of goods and services required for the Project.

I hereby authorize the initiation of negotiation and execution of the Project Agreements by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority, subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

A. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in United States Dollars within twenty-five (25) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay to A.I.D. in United States Dollars interest from the date of the first disbursement of the Loan at the rate of (i) two percent (2%) per annum during the first ten (10) years; and (ii) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

B. Source and Origin of Goods and Services (Loan)

Except for ocean shipping, goods and services financed by A.I.D. under the Loan shall have their source and origin in the Dominican Republic or in countries which are included in Code 941 of the A.I.D. Geographic Code Book, except as A.I.D. may otherwise agree in writing. Ocean shipping financed under the Loan shall be procured in the United States or in the Cooperating Country.

C. Source and Origin of Goods and Services (Grant)

Goods and services financed by A.I.D. under the Grant shall have their source and origin in the United States, except as A.I.D. may otherwise agree in writing.

D. Conditions Precedent to Initial Disburseme. (Loan)

Prior to any disbursement, or to the issuance of any commitment documents under the Project Loan Agreement, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(i) a time-phased implementation plan for the initial phase of the Project, including the timing for the necessary technical assistance and equipment, the disposition of field brigades and a Project reporting/information system;

(ii) evidence that arrangements have been made for adequate and timely compensation with respect to the depopulation of swine under the Project;

(iii) a time-phased implementation plan for a stepped-up mass media campaign, as well as evidence of the provision of budgetary resources necessary to implement the campaign; and

(iv) evidence that the Cooperating Country has arranged for providing the Directorate of Livestock with the funding necessary for the eradication component of the Project.

E. Conditions Precedent to Subsequent Disbursement (Loan)

Prior to any disbursement, or to the issuance of any commitment documents under the Project Loan Agreement, for subsequent phases of the Project, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., a time-phased implementation plan for each such phase of the Project.

F. Covenants

Except as A.I.D. may otherwise agree in writing, the Cooperating Country shall covenant and agree:

(i) to hold periodic joint evaluations of the Project with A.I.D., including an evaluation upon the completion of the initial phase of the Project to assess the social, economic and environmental impact of the Project on the eastern region; and

(ii) to make all payments required to be made in connection with the compensation component of the Project referred to in Section D(ii) above.

Clearance:

Asst. Administrator

GC/LAC,JLKessler Date 11/29
LAC/CAR,HBuckley Date
LAC/DR,GWachtenheim Date 11/29
LAC/DR,HBassford Date
LAC/DR,WSigler Date
LAC/DR,MBrown Date
AA/LAC,AValdez Date
GC,MBall Date
PPC/PDPR,EHogan Date 11/30
SER/COM:PHagan (phone) Date 11/30

12/1/78
Date

GC/LAC,GMWinter:lb:11/28/78
X29183

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: [A] (A = ADD, C = CHANGE, D = DELETE) — PP

2. DOCUMENT CODE: 3

3. COUNTRY/ENTITY: Dominican Republic

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): 517-0135

6. BUREAU/OFFICE: A. SYMBOL: LAC; B. CODE: 05

7. PROJECT TITLE (Maximum 40 characters): African Swine Fever Eradication

8. ESTIMATED FY OF PROJECT COMPLETION: FY 81

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 79; B. QUARTER 1; C. FINAL FY 79 (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 - RD$1.00)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL			6,200			6,200
(GRANT)	(200)	( )	(200)	(200)	( )	(200)
(LOAN)	(2,880)	(3,120)	(6,000)	(2,880)	(3,120)	(6,000)
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		10,350	10,350		20,700	20,700
OTHER DONOR(S)						
TOTALS	3,080	13,470	16,550	3,080	23,820	26,900

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY ___ F. GRANT	E. 1ST FY ___ G. LOAN	H. 2ND FY ___ I. GRANT	H. 2ND FY ___ J. LOAN	K. 3RD FY ___ L. GRANT	K. 3RD FY ___ M. LOAN
(1) FN	113	078	078	200	6,000				
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY ___ O. GRANT	N. 4TH FY ___ P. LOAN	Q. 5TH FY ___ R. GRANT	Q. 5TH FY ___ S. LOAN	LIFE OF PROJECT T. GRANT	LIFE OF PROJECT U. LOAN
(1) FN					200	6,000
(2)						
(3)						
(4)						
TOTALS						

12. IN-DEPTH EVALUATION SCHEDULED: MM YY

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

[1] 1 = NO, 2 = YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: P. F. Morris

TITLE: Mr. Patrick F. Morris, USAID/DR Director

DATE SIGNED: MM DD YY

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (3-78)

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: [A] A = ADD, C = CHANGE, D = DELETE

PP

2. DOCUMENT CODE: 3

3. COUNTRY/ENTITY: Dominican Republic

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): 517-0135

6. BUREAU/OFFICE: A. SYMBOL: LAC; B. CODE: 05

7. PROJECT TITLE (Maximum 40 characters): African Swine Fever Eradication

8. ESTIMATED FY OF PROJECT COMPLETION: FY 81

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 79; B. QUARTER 1; C. FINAL FY 79 (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 - RD$1.00)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. TOTAL	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL			6,200			6,200
(GRANT)	(200)	( )	(200)	(200)	( )	(200)
(LOAN)	(2,880)	(3,120)	(6,000)	(2,880)	(3,120)	(6,000)
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		10,350	10,350		20,700	20,700
OTHER DONORS						
TOTALS	3,080	13,470	16,550	3,080	23,820	26,900

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY ___ F. GRANT	E. 1ST FY ___ G. LOAN	H. 2ND FY ___ I. GRANT	H. 2ND FY ___ J. LOAN	K. 3RD FY ___ L. GRANT	K. 3RD FY ___ M. LOAN
(1) FN	113	078	078	200	6,000				
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY ___ O. GRANT	N. 4TH FY ___ P. LOAN	Q. 5TH FY ___ R. GRANT	Q. 5TH FY ___ S. LOAN	LIFE OF PROJECT T. GRANT	LIFE OF PROJECT U. LOAN
(1) FN					200	6,000
(2)						
(3)						
(4)						
TOTALS						

12. IN-DEPTH EVALUATION SCHEDULED: MM ___ YY ___

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

[1] 1 = NO, 2 = YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: P. F. Morris

TITLE: Mr. Patrick F. Morris, USAID/DR Director

DATE SIGNED: MM DD YY

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (3-76)

AFRICAN SWINE FEVER
ERADICATION PROGRAM

Table of Contents

II. PROJECT BACKGROUND AND DESCRIPTION

A. Background

1. Project Setting

a. Country Overview

The Dominican Republic occupies the eastern two-thirds of the island of Hispaniola, second largest of the Greater Antilles situated between Cuba on the west and Puerto Rico on the east. The country extends 240 miles from east to west and 170 miles north and south. It has a coast line of 979 miles, and a common border with Haiti of 193 miles. The terrain is rugged as four almost parallel mountain ranges traverse the country in essentially an east-west direction with fertile valleys and well-watered lands in the central and eastern areas.

Temperature in the country seldmon exceeds 90°F owing mainly to the constant trade winds. The annual average in the coastal cities is about 78°F with seasonal variation throughout the year of 5 to 8 degrees. Temperatures in the internal areas generally decrease at higher altitudes. However, many areas are situated in such a manner that there is a wide range in temperatures at similar altitudes. The rainfall pattern varies from region to region with an annual average of 57.47 inches. The country lies within the hurricane belt which constitutes a weather hazard from June through October.

In mid-1973 the country had an estimated population of approximately 5.1 million that was growing at an estimated annual rate of 3%. With an area of 18,704 square miles, the population density is approximately 274 per square mile, one of the highest in the hemisphere.

b. The Economy

The Dominican economy grew at an extraordinary rapid pace from the late 60's through the mid 70's. From 1968 through 1974 the real GNP grew at a compound annual rate of 8.95%. This performance was exceeded only by that of Brazil and Ecuador within Latin America. Since then, however, the growth of the economy has slowed appreciably. The real GNP has grown at a compound annual average rate of only 3.18 since 1975. Significantly, this experience has been contrary to that of the great majority of LDC's whose growth rates have improved since 1975.

The principal sources of growth during the late 60's and early to mid-70's were increasing export earnings, attributable mainly to rising world sugar prices and substantial increases in investment, both public and private. Foreign lending played an instrumental role in the latter by contributing, on an annual basis, between 25 and 50% of total investment funding. The great majority of the foreign funding-roughly 75%-came from private sources.

The GODR contributed to the rapid growth by providing a stable political environment and economic policies designed to encourage business investment as well as by making substantial investments in the economy. By holding real expenditures for public services and defense nearly constant, it was able to devote its rapidly growing revenues to a wide variety of public infrastructure projects. These included, inter alia, investment in dams and irrigation, public housing, ports and highways, schools and hospitals, etc.

The marked decline in growth in the GNP after 1974 has been the result of several factors. These include precipitous declines in the price of sugar - the leading export - with an attendant decline in GODR revenues, the increased price for petroleum imports, and severe droughts in 1975 and 1977. The latter seriously damaged the nation's crops and livestock and reduced the output of hidroelectric energy. Due to prevailing low prices and reduced prospects for the leading exports, a continuation of the current low growth rates for the next two or three years is likely.

Rapid growth during the 1965-74 period was accomplished at the expense of inflationary pressures which have proven difficult to control, despite the recent slowdown in GNP growth. From a period of remarkable stability during the 1960's, which saw prices rise by only 27% from 1960 to 1971, prices climbed by 15% per year. With the exception of a 7.2% annual increase in 1976, it has hovered between 10% and 15% per year since 1971. At the end of 1977, prices were increasing at an annual rate of 12.8%.

Despite the rapid growth of the GNP prior to 1975, unemployment and underemployment remain serious problems. The 1970 census reported a nation-wide rate of unemployment of 24%. It is estimated that if underemployment were measured in units of unemployment, the nation-wide rate would approach 40%. After its analysis of the nation's employment situation, the ILO concluded that while the rapid rate of growth had had some favorable impact upon underemployment, unemployment had not been substantially affected. It attributed the failure to the capital intensive bias of investments in the production process in ~~the~~ face of rapid growth of the labor force.

There are not sufficient data available to make definite judgements as to the impact of the nation's recent economic progress on the distribution of income. A 1969 household survey indicates that income was then very unequally distributed with the lower half of income recipients earning about 20% of national income and the top 10% earning 36%. Most observers believe that the distribution of income has worsened during the past decade. A recently completed household survey by the Central Bank disclosed that the lowest 10% of income recipients earn 1.2% of total urban income and 1.6% of total rural income. In contrast, the top 10% of income recipients earn 36.7% of total urban income and 35.6% of total rural income.

c. The Agricultural Sector

Although its share in GDP is declining, the agriculture sector plays a significant role in the Dominican economy. In 1976, this sector produced about 19% of GDP, employed about 50% of the active labor force, and accounted for about 65% of the value of total exports. In addition, the processing and sale of agriculture products provides a major source of income and employment for the commercial and industrial sectors.

i) Crops

In 1975, the production of crops accounted for 11.4% of the GDP with a value of $226.9 million. Sugar cane production is the single largest activity in the crop sub-sector, is the pivotal commodity for the economy as a whole, and as such makes the largest contribution of any crop to the GDP. During 1976, this activity occupied approximately 12% of the total cultivated area, provided the basis for 40.3% of export earnings, 75% of total export duties, and close to 20% of GODR revenues. After rising at an annual average of 4% during 1970-74, sugarcane production fell by 7% in 1975 but recovered sharply in 1976 by 17% and reached 10.9 million tons for the year, yielding a record of 1.4 million tons of raw sugar. The major factor responsible for the production increase was expansion into marginal cane lands as prices began to rise in 1974, an effort which was intensified during 1976 in order to increase export volumes in an effort to compensate for falling world prices. At existing world market prices, the Dominican sugar industry -- mainly the State Sugar Council (CEA) and two major private companies, Gulf & Western and Vicini -- is currently operating at a loss.

The coffee and cocoa crops provide the country with additional export earnings. Coffee cultivation, which is generally carried out in rough mountainous terrain, currently covers approximately 300,000 acres. Previously very little attention was given to its culture, the pruning of trees, and fertizier use; however, with increasing world market prices, the GODR, through its assistance program, has stepped up rehabilitation, and for the crop year ending September 1976, production reached a record 62,000 metric tons or 17% above the previous year. Favorable weather and higher prices were the principal factors in the higher level of production of cocoa beans, which was estimated at 34,000 tons in 1976. As in the case of coffee, the GODR intensified its rehabilitation program to take advantage of rising world market prices (average prices to

producers rose from $70 per 50 kilogram bag in 1976 to $155 in 1977).

ii) Livestock

In 1975 all livestock production amounted to about 6.1% of the GDP with a value of $121.3 million. Between 1973-77 beef, pork, poultry, and milk products have contributed, on an average, approximately $104.0 million to the GDP.

(a) Overview

Cattle production is the major livestock contributor to the GDP. The contribution of beef and milk and milk products have been relatively constant and contributed about $53.0 and $18.3 million, respectively, in 1977. The contribution of pork to the GDP increased from $11.2 million in 1973 to $12.8 million in 1977; however, the largest increase has come from poultry which grew from $17.7 million in 1973 to $23.0 million in 1977. While production of principal livestock products between 1973 and 1977 registered increases in pork and poultry production and relative stability in beef and milk production, these trends may or may not continue. Poultry production increased from 25,900 MT in 1973 to 33,727 MT in 1977, an increases of 30%. Pork production increased from 11,090 MT in 1973 to 12,636 in 1977, an increase of 14%. Beef production reached 45,000 MT in 1977, which was only a 1% increase compared to a 2% increase in the production of milk which amounted to 286 million liters.

(b) The Swine Sub-Sector

The 1971 census showed 787,052 pigs on 162,404 farms in the country. The major type of pig is the criollo but many of these have been bred to Durocs, Yorkshires, and Hampshires. During 1973-77, pork production is estimated to have increased at an annual rate of approximately 3%. The August 1977 inventory was about 909,000, it rose to 1,049,000 in December 1977, and increased to 1,130,000 in June 1978 - a 24% increase in the past year.

The 1976 sector analysis indicates that 84% of the people who raise pigs have between 1 and 10 head and another 11% have between 10 and 20 head. Fifty-six percent of the small farms had pigs. The average on all farms was 4.4 pigs per farm. All small producers had average annual revenues of RD$110. Sale of live animals contributed 59%, inventory change 19%, slaughtered and sold 16%, and meat consumed 6% of this revenue. Of the revenue from all animals on small farms, 38% came from pigs, poultry contributed 28%, dual purpose cattle 18%, and dairy cattle 12%.

In the Dominican Republic, there are four major systems of swine production.

Extensive Pasture System - Some 20% of all pigs are produced under this system. There is little control on feeding of the animals. This is the "root hog or die" process where animals exist from feeds that are in season, including fruit of the palm, avocados, mangos, and citrus. They wean about 4 pigs per litter and reach 80 kg in about 12 months. Some may be sold for fattening when they are 6 to 8 months of age and weigh 50 kg.

Household System - This system involves about 10% of the pigs produced. One or two females are fed kitchen wastes and allowed to forage for themselves in the vicinity of the owners living quarters. Up to 50% of the production may be consumed by the owner but often times the pigs are sold to others when they reach 40 to 50 kg.

Semi-Extensive System - About 30% of the pigs are produced under this system. It is a modification of the ones above. Basically some shelter is provided at farrowing time and additional feed provided during more critical times in the life cycle. Females wean about 5 pigs per litter and pigs reach market at 8 to 9 months of age.

Modern Intensive System - This system has developed rapidly over the past 10 years and involves about 20% of the pigs produced. Improved breeds are used and the improved levels of feeding and management result in 1.7 to 1.8 litters per year, 6.5 to 7.0 pigs at weaning, and market weight reached at 6.5 to 8 months of age.

Swine sold under these systems are slaughtered in three basic types of facilities: the industrial plants in the Capital (9), the municipal slaughter houses (242), and the unofficial slaughter outlets (no. unknown). Those under official control number 251 which are estimated to handle approximately 65% of all slaughtering while it is estimated that the unofficial outlets handle about 35% It is estimated that the industrial slaughter facilities process approximately 113,000 head annually.

Prior to African Swine Fever the major disease problems were hog cholera and brucellosis. Tuberculosis, cysticercosis, leptospirosis, virus pig pneumonia, and atrophic rhinitis are present but the incidence and severity are unknown. External and internal parasites were observed to produce major economic losses due to the ways in which the pigs are raised and to the absence of routine control programs.

Total meat consumption is about 18 kg per person per year. This is about 3 kg pork, 8 kg beef, and 7 kg of poultry. Some 400 tons of pork products were being imported annually. These include 100 tons of smoked ham, 116 tons of canned ham, and 113 tons of salchichón (sausage). Imported products usually represented less than 10% of the total pork consumption.

Some 14.0 million kg of pork meat is produced in the country annually. The majority of the meat is sold and consumed as fresh pork. However, it is interesting to note that 2,600,000 kg of sausages, 300,000 kg of salchicha (wieners), 212,000 kg of mortadela (bologna), and 175,000 kg of ham are produced annually.

2. The Problem

a. African Swine Fever (ASF)

ASF is a highly contagious, virtually 100% fatal virus disease in its classic form that is species specific for swine and for which neither cure nor prevention exists at this time. The disease is a severe problem in infected countries because of the extreme durability of the virus both within and outside of the animal's body. In spite of the years of research, no effective vaccine has yet been developed, meaning that isolation and destruction of infected swine is the only way of controlling or eradicating the disease. Infected swine which survive remain carriers of the virus. Uncooked pork products may contain the infective virus and when fed to pigs will cause disease. Mechanical transmission by people and things readily spreads the disease from farm to farm.

ASF spread from Africa to Portugal and Spain twenty years ago and remains endemic in these countries. From there it has spread to other countries in Southern Europe. The first outbreak in the Western Hemisphere was in Cuba in 1971 which caused the slaughter of more than 400,000 swine. That outbreak was eradicated. In early 1978 the disease broke out in Brazil and the Dominican Republic. These outbreaks have been attributed to movement of uncooked pork products (salamis, sausages, hams, etc.) which eventually were fed to swine.

b. Status of the Outbreak

In February 1978, a large number of swine in the Dominican Republic became sick and died from what was thought to be hog cholera - a disease which has existed in the country for some time. Vaccine was administered but deaths from the disease continued,

raising doubts as to the original diagnosis. As a result, tissue and blood samples were sent to the USDA research facility at Plum Island. On July 6, 1978, ASF was confirmed by the Plum Island Facility.

Because there is no known method of controlling ASF, and after consultation with FAO and others, the GODR immediately decided to completely eradicate the disease in foci by destroying swine from infected and exposed herds. Technical consultants from the USDA, the Pan American Health Organization, and the FAO (from U.S., Spain and Cuba) arrived and helped establish laboratory diagnostic capability and plans for ASF eradication. As field reports of disease and laboratory confirmation were compiled, it became apparent that the disease had already spread throughout the country. Therefore, the GODR decided to change its strategy to complete eradication throughout the country. The government estimated at the end of August that, of an estimated 1.4 million swine population, 120,000 swine had died of ASF, and an additional 150,000 had been sacrificed for disease control purposes.

The earlier acute wave of disease with high morbidity and mortality had, by the end of September, somewhat subsided. Disease was no longer reportedly being diagnosed in large commercial farms with good sanitation. The Secretariat of State of Agriculture (SEA) attributes the lesser mortality to the evolution of a subacute, or chronic, form of the disease. When the circulating virus is in the acute form, 50% or more of infected swine will die. When it becomes subacute, a larger percentage of affected animals survive infection.

c. Current GODR Activities

The activities currently being undertaken by the GODR can be divided into two categories: those along the Haitian border and those in areas of outbreak (foci) spread throughout the country.

In September 1978, the GODR initiated a depopulation program along the entire length of the Haitian Border. Through a bilateral agreement with the Haitian government, it was agreed that both sides would completely depopulate swine from 15 kms. of its side of the border. 22 brigades of the SEA, originally established to carry out the T.B., Brucellosis and Hog Cholera eradication program, have been transferred to the three regions adjacent to the frontier to carry out the depopulation and decontamination activities. Known infected herds are being sacrificed and buried and the premises are being disinfected. A census of the healthy herds is being taken and the swine are then being slaughtered for consumption. Feral (wild)

swine, which exist in the border depopulation area, are being shot by the military stationed in these regions. It has been reported that Haiti has already depopulated the swine within the 15 km. belt inside the border. In addition to these actions, the GODR has closed the border to all products except petroleum and indicates that it will be reopened when the border area is depopulated and vehicle disinfection tunnels (already under construction) are completed and in use.

Throughout the remainder of the country, 23 brigades are investigating all reported cases of swine sickness. These are being utilized to assist in the ASF eradication activities on an emergency basis (while continuing to perform their regular functions). When the symptoms of the disease are similar to those of ASF, the herd is quarantined and samples are sent to the SEA veterinary laboratory in San Cristóbal. When diagnosed as positive, these brigades have been slaughtering and burying the swine, disinfecting the premises with chemicals and by the destruction of materials which can't be disinfected, and appraising the value of the slaughtered animals.

It it currently estimated that approximately 120,000 animals have died from the disease since its outbreak in February and that another 150,000 animals have been sacrificed through depopulation activities.

3. Rationale for U.S. Assistance

Given the nature and pervasiveness of the ASF outbreak in the country as described immediately above, there are several fundamental reasons for providing U.S. assistance to a program aimed at the eradication of the disease. These reasons include:

a. Importance to the Small Farmer

For the traditional small producer, pig production represents a major source of ready cash and an opportunity to utilize waste material at little or no opportunity cost. No land is required for grazing and pigs are relatively easy to raise in small numbers with a minimum of capital outlay. Additionally, hogs provide a source of meat products for home consumption which in terms of economic value accounts for a part of total imputed annual income.

The existence of endemic ASF in the Dominican Republic would seriously affect the small traditional producer of pigs since he has no way of protecting his pigs (under his management system - see above) from the disease. Thus, continual reinfection and high death rates among his herd is likely to occur on a regular

basis. In addition, these small producers cannot readily shift to production of the next best return livestock option (e.g., goats, sheep, or cattle). Thus, if not eradicated, ASF will cause the small pig farmer to suffer considerable economic and social losses over an indefinite period.

On the other hand, the impact of endemic ASF on medium and large commercial producers would be much smaller because they can more easily shift their resources to other activities. It is also likely that commercial (capital intensive) producers, who use modern technologies and management including strict quarantine measures, would be able to continue to produce pigs with a minimum of economic loss in an ASF endemic situation.

Thus, if not eradicated from the Dominican Republic, ASF will have the gravest impact on the small farmer's income and diet, while, for the most part, leaving the commercial pig farmer relatively unaffected.

b. Importance to Dominican Economy

In terms of the Dominican economy as a whole, the seriousness of the ASF outbreak is indicated by the GODR plan of action to eradicate the disease from the entire country at an estimated program cost of approximately $27.0 million over a 27 month period. This cost compares favorably with the probable cost to the country if endemic ASF is allowed to continue. (See Part III, Section E, Economic Feasibility). Over the past 18 years, the decision not to eradicate the disease has cost Spain 10% of the swine population each year - nearly all on small farms. Experiences in other countries also demonstrate the economic advantage of eradicating the disease as compared with the long term impact of permitting the disease to become endemic.

Since 1969, pork production, especially processed pork products, increased rapidly, yet it was only beginning to satisfy local effective demand at relatively high prices. In addition, prior to the ASF outbreak and its subsequent spread throughout the country, the "modern" pork industry was gearing up to start processing pork products for the export market. Commercial firms such as Hormel and Plum Rose have merged with local firms to work in this venture. Faced with the possible loss of both their domestic and export markets - due to the absence of an adequate and uniform supply of slaughter hogs - the industrial plants may experience serious disruptions in their business operations. These plants could be bankrupt or be forced to significantly curtail operations unless an adequate supply of pork can be assured during future shortage periods.

Thus, the elimination of ASF from the Dominican Republic should not only save the country considerable future economic costs but is intended to protect an important industry which provides a considerable amount of protein for domestic consumption and makes a significant contribution to the GDP. However, to have the latter effect, it would appear that the problem of medium term shortages of pork for processing must be solved.

c. Importance to Other Latin and U.S. Economics

The possibility that ASF might spread further in the Western Hemisphere is real due to the recent outbreaks of ASF in Brazil and the Dominican Republic. Should this happen, the probability of either control or eradication of ASF will be significantly lessened. This would be especially true for the less developed countries with limited capital and technical resources and which can ill afford further economic loss and social hardships.

An outbreak of ASF in the U.S. would have major economic consequences. Because of the large size of the U.S. swine industry, the large volume of domestic consumption, and the importance of exports of pork and related products, the economic impact of endemic ASF could run into the billions of dollars. It has been estimated that the impact of endemic ASF in the U.S. in terms of higher prices alone would be $2.25 billion or more. Furthermore, a multi-billion dollar loss in exports could result from the outbreak of ASF in the U.S. The loss of pork as a U.S. export would further increase the trade deficit beyond its current level and could cause inflationary pressures in our domestic economy. If pork export markets were lost as a result of endemic ASF, a good share of the supplies normally entering export channels would be diverted to the domestic retail market. This would likely reduce the price of pork and shift a part of the losses, in the form of higher prices, from the U.S. consumers to U.S. producers by way of lower hog prices.

Thus, the eradication of ASF in the Dominican Republic would not only help to protect the immediate economic and social interests of the other nations in the Western Hemisphere, but it should provide them with time to develop emergency plans for control or eradication as well as time to implement necessary surveillance and disease prevention measures.

B. Description of Project

1. Project Design

The Project is designed to eradicate ASF from the Dominican Republic by the complete depopulation of swine and

decontamination of their premises so that the process of repopulation of swine can be initiated. The eradication of swine in the country is to be accomplished by undertaking a Project containing four major components. Given the nature and breadth of the activities contemplated under each, the Project will provide grant funds to cover the costs of approximately 22 person months of the services of a Disease Control Generalist who will assist the SEA to select and coordinate the inputs provided by A.I.D. and provide TA in various phases of disease control ($134,000). In support of the overall Project effort, the GODR will provide the general operating costs ($100,000) of the Project.

The budget to cover these implementation/administration support activities can be summarized as follows:

(US$000)

	AID			
	Grant	Loan	GODR	Total
1. T.A.	134.0	-	-	134.0
2. General Operating Costs	-	-	100.0	100.0
Total	134.0	-	100.0	234.0

a. Mass Education/Information Component

One of the basic problems confronting the GODR is to develop an understanding among the public about ASF and to gain its support for the government's ASF eradication efforts. Recognizing the importance of addressing this problem, the Secretariat of State for Agriculture (SEA) has already designed and begun to implement a mass media campaign within the country. The campaign is aimed specifically at swine farmers, other owners of swine, the general public (with special emphasis on the consumer), and veterinary personnel located throughout the country.

The principal objectives of the SEA's mass media campaign are:

i) To keep the general public informed about the actions being taken to control ASF;

ii) To inform the consumer that all pork being sold has been examined by medical veterinaries to insure that it has not been infected by ASF and, therefore, can be eaten without danger;

iii) To convince swine producers, both large and small, of the need both to eliminate healthy pigs while they can still be marketed rather than risk further spread of the disease to their herds and to adapt preventive measures to stop ASF from infecting their animals; and

iv) To keep veterinaries and medical auxiliary personnel informed about the various aspects of the disease.

The campaign will be carried out using various media within the country including radio, television, posters, brochures and flyers, sign boards, and theaters. In addition, the video monitors contained in SEA mobile units will be used to present T.V. and theater video tapes on ASF subjects to meetings of small farmers and at días de campo, etc. The government has recognized the need to deal as directly as possible with the owners of pigs in their own surroundings.

Further effort must be made to assure the effectiveness of the campaign with respect to the small swine producers, many of whom are illiterate. USAID will work with SEA to see that the campaign makes appropriate use of influential members of local communities such as clergy, agriculture extension agents, teachers, and health promoters. In addition, the services of a sociologist/anthropologist will be contracted for out of loan funds (approx. two man-months) to, inter alia, review SEA's mass media plan and suggest any changes or additions which may increase its effectiveness.

In order to carry out its education/information activities throughout the country, the GODR has initiated a mass media campaign estimated to cost $174,000 and will finance salaries necessary to carry out the media support activities described above. These salary costs, however, have not been included as a GODR contribution to the Project.

The budget for the Mass Education/Information Component of the Project can be summarized as follows:

(US$000)

	AID			
	Grant	Loan	GODR	Total
1. Salaries	-	-	*	-
2. Media Campaign	-	-	162.0	162.0
3. TA	-	12.0	-	12.0
Total	-	12.0	162.0	174.0

* Salaries not included.

b. Eradication Component

This critical component of the Project is aimed at the problem of eradicating ASF from the Dominican Republic. In order to achieve this end, four principal activities are to be undertaken.

The Detection Activity - The objective of this activity is to isolate and examine all suspicious and reported outbreaks of disease and to confirm positive ASF diagnosis where there is a need. In order to achieve that purpose, two organizations within the SEA Livestock Sub-Secretariat will require strengthening: the regional offices and the Central Veterinary Laboratory.

At present, the seven regional offices of the Livestock Sub-Secretariat lack the services of full time epidemiologists except on an ad hoc, emergency basis. These people are expert in analyzing the incidence and distribution of animal diseases and in dealing with their control and/or eradication. They are indispensable to the campaign of eradication of ASF in the country since they provide the focal point in the field for ASF detection and follow-up activities. It is their task to investigate disease outbreaks in the country and to assist medical veterinaries with their diagnosis when they are in doubt.

Based on information existing at the time of Project Paper preparation, an assessment was made of the possibility of wild pigs and of non-swine species being carriers of the disease. Two types of research will be conducted early in the project to further evaluate these possibilities. Although one particular tick which is a carrier of the disease has never been reported to exist in the DR, a program of systematic research will be undertaken early in the Project to more definitely determine whether or not it exists. Similarly, although there have been no cases of laboratory diagnosed ASF in wild pigs, the possibility of ASF in wild pigs under various conditions will also be researched during the initial phase of the Project.

Given the importance of this task, the Project will provide loan inputs to cover the salary and per diem costs of 7 epidemiologists ($94,500), seven vehicles including operational and maintenance costs ($82,000), field equipment and supplies ($65,700), and 12 months of technical assistance (TA) from a livestock epidemiologist ($72,000), 2 months of technical assistance from a wild pig specialist ($12,000), and 2 months of technical assistance from an entomologist specializing in ticks and other insect vectors of swine diseases ($12,000).

Samples taken in the field which require confirmation of an ASF diagnosis are sent to the Central Veterinary Laboratory located in San Cristóbal, a town just outside Santo Domingo. Although it is one of the best veterinary labs found in Latin America (See Part III, B,4 for a detailed description), the laboratory is not yet prepared to handle

a large volume of ASF samples, due to equipment, space, and reagent shortages in the ASF testing activities. Actions are now being taken to move the ASF laboratory activities out of the San Cristóbal facilities because of the space problem as well as the concern that the vaccines being produced at the central lab might become contaminated with ASF. In order to strengthen the new ASF lab's capability to diagnose ASF as well as other diseases which affect pigs, Project inputs will include loan funds to cover the salary costs and per diem of a Bacteriologist ($12,200) and equipment and supplies ($38,900), and grant funds to provide 8 person months of TA ($48,000) to assist with lab organization and the diagnosis of sicknesses affecting pigs. The GODR will continue to provide salaries for other ASF lab personnel who will be transferred from the central lab facility. These costs, however, have not been included as a GODR contribution to the Project.

The Depopulation/Decontamination Activity - The objective of these activities is to destroy all swine which are sick with ASF or have been exposed to sick animals, disinfect the premises where they lived and roamed, and encourage the expeditious but orderly marketing of all remaining healthy animals.

In order to carry out these objectives, 86 field brigades will be created and distributed among the 7 regions of the country. Each brigade will be headed by a medical veterinary or agriculture technician and will range in size from a minimum of 2 to a maximum of 9 depending on the nature and size of the problems it will be addressing. (See Part III, B,3 for a detailed breakdown of their composition). Each brigade will be equipped with a pick-up for transporting the brigade and its equipment, including boots, coveralls, spraying equipment, etc. (See Annex III for a list of vehicles and equipment.) At least one member of each brigade will receive short-term training designed to make him better aware of the cultural constraints to obtaining the cooperation of small swine producers, and thereby increase the effectiveness of the brigade in locating and sacrificing sick and exposed swine. Training will be given by experienced field operators such as promoters from the Dominican Development Foundation or the Office of Community Development. The sociologist/anthropologist whose services will be used in connection with the media campaign will also assist with the training including instruction in how to deal with sensitivities of the small farm sector.

As outbreaks of ASF are determined by the detection system described earlier, the brigade will be dispatched to sacrifice both the sick and exposed domestic animals, bury the carcasses, and then decontaminate the premises using chemicals desinged to kill the ASF virus as well as other methods. Materials which can't be effectively disinfected, such as the palm frond roofs used to shelter pigs, will be burned. It should be noted that the brigades' activities on small farms will be much more labor intensive than on large farms where heavy equipment will be used to assist in the disposal of pigs. In addition to domestic pigs, 60,000 feral (wild) pigs are estimated to live within the country - primarily in the western and eastern regions.

In the west, soldiers will continue to shoot them and lab tests will be run to determine whether this population is infected with ASF. In the east, the area chosen by the government to initiate the ASF Eradication Program, other methods for eliminating wild pigs will be tested including, inter alia, the use of the brigade and a bounty program.

Uninfected animals will be allowed to be marketed in the normal way with some important exceptions, which are intended to protect the "cleansed" area(s) from recontamination:

i) pigs and pig products from outside the area(s) where the ASF Eradication Program has been initiated may not be marketed within the Program area.

ii) Pigs and pig products from within the area(s) where the Eradication Program has been completed may be marketed anywhere.

iii) All marketing of pigs must take place within a certain stipulated period of time, e.g., in the initial phase within 3 months of the initiation of the eradication program.

Following a phased marketing approach for eliminating the healthy swine from the country has several advantages. It brings pork onto the market under more normal circumstances, thus mitigating the problem of glut and scarcity of pork. It uses the private sector channels for processing and distributing pork instead of involving the GODR in meat purchase, storage, and distribution. It significantly reduces the manpower demands on the SEA which the sacrifice of all pigs by the brigades would have required. One disadvantage to the marketing approach is the problem of controlling the movement of swine in the country. This is addressed below under the Control Activities heading.

The pilot phase will explore the possibility of using aerial photography to determine the total number and location of the swine population before the depopulation phase and to evaluate the success of the depopulation activity.

To enable the SEA to carry out the depopulation/ decontamination activity, Project Loan funds will be provided for salaries and per diem ($1,956,100), 86 vehicles including operational and maintenance costs ($1,104,700), heavy equipment rehabilitation ($210,000) and field and office equipment and supplies ($647,500), aerial photography ($41,000), 12 person months of TA of a Doctor of Veterinary Medicine (D.V.M.) with experience in decontamination ($72,000), and costs of short-term training ($7,000 for salaries and other costs of trainers). The GODR will pick-up the salary costs for heavy equipment operators ($60,000) and the per diem for military personnel on the brigades ($41,700).

The Follow-up Activities - The objective of this activity is to insure that ASF has been eradicated and if not, determine why not. This objective will be undertaken by the brigades in the area as well as by the regional epidemiologist. Once the area covered by a Project phase has been depopulated and thoroughly decontaminated, it will be allowed to "lay fallow" (i.e., without any pigs) for a period of 3 months. This is to provide time for the elements - especially rain and sunlight - to destroy any remaining ASF virus which might not have been eradicated through Project activities. To insure that the area remains "clean" of pigs and pork products, SEA Control Posts (see below under Control Activity for details) will close off each major area of the country as the eradication program is initiated therein. In addition to these protective measures, brigades will continue to operate in the area during the follow-up period by searching for pigs which may have been missed or brought illegally back into the area.

After the 3 month follow-up period has passed, the SEA will undertake an active effort to determine if ASF has been fully eradicate from the area where program activities have been carried out. The method for making such a determination is to introudce a limited number of "sentine pigs" into the area of previous contamination. These pigs will not only be free of ASF, but will also come from countries free of hog cholera. Thus, this project to eradicate ASF will also result in the development of a new swine herd free of hog cholera and other economically important swine diseases. The sentinel pigs, generally in units of 6, will be placed on premises which experienced outbreaks of ASF. Their health will be closely followed by the small brigades stationed in the area and headed by a medical veterinary, whose findings will be closely monitored by the regional epidemiologist. Any reoccurrence of ASF in these animals will require that the source of the ASF virus be ascertained and that efforts be made to eliminate that source of infection whether it be from from inside or outside the area. An additional period of waiting would then be required before sentinel pigs would again be introduced to the premise where the outbreak occurred. (For details about the Sentinel Pigs, see Annex III.)

Since this activity will be undertaken by the support units described above under the Detection System, many of the costs were included in the detection system budget. However, in addition to those costs, loan funds will be provided to purchase sentinel pigs ($600,000). In addition, grant funds will be provided in the Repopulation Component discussed below which will assist in the design and monitoring of the sentinel pig activity.

Control Post Activity - The objective of this activity is to protect the country from the threat of the reintroduction of ASF and other animal diseases. To attain this objective, two control systems are contemplated.

To stop ASF from entering the country from a foreign source, the country's existing 2 tiered customs inspection program will be strengthened. The 4 Haitian border posts, the first tier, will be strengthened by constructing a "disinfection tunnel" at each border crossing point. In addition, the military personnel now stationed there will be supplemented with the addition of an agriculture technician and 3 laborers. Each vehicle entering or leaving the Dominican Republic will be required to pass through the disinfecting tunnel and to have its interior inspected and disinfected as necessary. Pigs and pork products will not be allowed to cross the frontier. The Frontier Service, the second tier, consistss of the Dominican Republic's 4 major airports and 12 principal seaports. The custom teams stationed at each of these major entry points will be strengthened by more than doubling its present size to 48, including 32 inspectors and 16 military personnel. In addition, each point will be equipped with a high efficiency incinerator for disposing of commodities confiscated from entering passengers and crews.

To stop ASF from entering an area within the country cleared of ASF, 40 control posts will eventually be established along the borders of cleared areas to stop the entry of pigs and pork products and insure that entering vehicles, especially trucks, are clean of any possibly ASF contaminated materials. Each of these posts will be "personed" 24 hours a day with laborers/inspectors and military personnel. During the peak travel hours, an agriculture technician will be stationed at the post and at no time will there be less than 3 persons on duty. In addition, minimal field equipment and supplies will be provided to each post to assist the inspectors carry out their inspection duties.

Project loan funds will be provided to undertake this activity including partial salary and per diem costs ($743,400), field equipment and supplies ($168,000), and fuel oil for incinerators ($15,000). The GODR will provide resources to provide for salaries and per diem ($454,300) for the remaining control post personnel.

Budget for Components - The budget for the Eradication Component of the Project can be summarized as follows:

(US$000)

	AID			
	Grant	Loans	GODR	TOTAL
1. Salaries & Per diem	-	2,806.2	556.0*	3,362.2
2. Vehicles, Operation & Maintenance	-	1,186.7	-	1,186.7
3. Equip. Rehab.	-	210.0	-	210.0
4. Field & Office Equip. & Supplies	-	935.1	-	935.1
5. TA	48.0	168.0		216.0
6. Sentinel Pigs	-	600.0	-	600.0
7. Training	-	7.0	-	7.0
Total	48.0	5,913.0	556.0	6,517.0

* Salaries of lab personnel not included.

c. Compensation Component

This component is aimed at the problem of providing not only compensation to pig farmers for animals sacrificed under the Eradication Program but also an incentive price to small farmers to facilitate their reporting of diseased swine and their marketing of healthy ones. To achieve this end, the GODR has established a compensation fund in the Agriculture Bank which is designed to address both concerns and thereby increase the effectiveness of the eradication program.

The amount of compensation has been set at RD$1.00 per kilo live weight for all pigs officially sacrificed. This set price is easily administered and provides incentives to small pig farmers (1-10 pigs) based on prices received in the past. A two tier system of indemnity payments is to be used during the Project. Small pig farmers whose pigs are sacrificed under the program will receive full payment from the Agriculture Bank upon presentation of completed forms provided them by the Agriculture Bank Tasador (estimator) at the time of slaughter. Larger pig farmers (more than 10 pigs) will receive 50% of the value of their animals when they present their forms and the remaining 50% within a year. For the small pig farmer who markets his animals, the GODR is attempting to work out a price guarantee program which would provide him with the difference between the price he receives from the market and the floor price of RD$1.00 per kilo. However, the assistance of an economist experienced in price support policy and mechanisms will be necessary to develop this guarantee program.

To date, the GODR has authorized RDS10.0 million of an estimated RDS20.0 million needed for the compensation fund. Approximately RDS500,000 has been disbursed to small pig farmers against the RD$10.0 million authorized. Project grant funds will be provided to finance the TA of an economist for 3 person months to assist in the creation of a price guarantee program ($18,000).

The budget for the Compensation Component of the Project can be summarized as follows:

(US$000)

	AID			
	Grant	Loan	GODR	Total
1. Compensation Fund	-	-	20,000.0	20,000.0
2. TA	18.0	-	-	18.0
Total	18.0	-	20,000.0	20,018.0

d. Repopulation Plan Component

The sole reason for eradicating the country of ASF is so that one day it can be repopulated with pigs without the fear of ASF. In that context, the problem at which this component is aimed is, will the GODR be able to implement a sound and reasonable repopulation plan when that day arrives?

To try and insure that the GODR is ready with a repopulation plan or strategy, the Project would assist the SEA to develop such a plan by providing loan funds for the TA of a swine specialist for about 6 months ($34,000). That plan should address, inter alia, the following questions:

i) Where should the pigs come from?

ii) What breeds or strains should be considered?

iii) What number of animals should be imported?

iv) What means of transportation should be utilized for shipping the pigs?

v) How should the pigs be handled upon arrival?

vi) How should the pigs be distributed (on what basis)?

vii) What TA, if any, will be needed during the repopulation period?

viii) What are the alternative sources of financing for such a program?

ix) What role should the sentinel pigs have in the repopulation of the country?

For greater detail concerning the Repopulation Plan, see Annex III.

It has been estimated that 10,000 sentinel pigs, imported from countries free of ASF and hog cholera, could be available at the time repopulation activities are initiated in the country. These animals are likely to play an important role in that repopulation effort since they will have become adapted and exist in fairly large numbers. As indicated in the Economic Section below, these sentinel pigs plus another 25,000 animals could be the stock necessary to repopulate the country within 5-10 years from the eradication of the disease.

The budget for the Repopulation Plan Component of the Project can be summarized as follows:

(US$000)

	AID			
	Grant	Loan	GODR	Total
1. T.A.	-	34.0	-	34.0
Total	-	34.0	-	34.0

2. Project Operational Plan

Utilizing the basic components described above, the GODR has developed a plan or strategy for eradicating ASF from the country. The dynamic element within the plan is its phasing feature.

a. The Phasing of the Project

The GODR has chosen to eradicate ASF in 4 phases. The first phase will be the most crucial and will determine when the next three phases will be undertaken. This initial phase will be implemented in the eastern region of the country which was selected for several reasons:

i) It has had significant diagnosed disease;

ii) It includes both commercial and traditional farms;

iii) It contains, relative to other regions, easy to control borders;

iv) Its pig population is considerable, but not too large, for the Project start up (=12% of the national total); and

v) It contains both free roaming and feral pigs.

At present time, it is expected that the second phase will be in the northern region of the country, the third in the west, and the last in the central region which contains Santo Domingo and nearly all of the "modern" meat processing facilities. See Annex II for a map indicating the basic lines of division between the regions for phasing purposes.

b. The Initial Phase

Although the primary objective of the initial phase is to eradicate ASF from the eastern region, other important objectives of this phase are to provide a training ground for SEA personnel (both professional and non-professional) and to evaluate the methods and procedures being followed. In the area of training, the livestock epidemiologist and environmental sanitation specialist (probably a D.V.M.) provided under the Project will provide intensive instruction and on-the-site training in, inter alia, diagnosis of disease and proper decontamination procedures for the first 9 months of the Project. Also at least one member of each brigade will receive short-term training designed to enable him to overcome cultural constraints to the success of the depopulation activity.

The initial phase is programmed to last 9 months. During the first 3 months, the SEA field brigades will be involved in the depopulation of infected and exposed pigs and the decontamination of their premises. At the same time, SEA will be encouraging owners of healthy pigs to market them within about 3 months after the initiation of the phase. It is anticipated that this approach to

marketing of healthy pigs will lead to a more orderly and smooth selling of animals and achieve complete depopulation within the time allocated.

Once the region has been depopulated and decontaminated, the region will be required to be free of pigs for a period of 3 months. This is to allow the elements time to destroy any remaining ASF virus. It should be noted that there is some disagreement among experts over what period of time is appropriate for this "fallow" period. However, disease control specialists have indicated that, while the 3 month period may be short, it will be subject to verification during the initial phase and that the period can be increased if it proves too short. During this period, brigades of reduced size will monitor the region to insure that all pigs have been eliminated and that none have been broughtback illegally.

After the fallow period has successfully passed, sentinel pigs will be brought into the region and placed on premises which previously were contaminated. This is to determine if the individual premises, which had once been infected, are fit for repopulation. During this period, these pigs would be the subject of close scrutiny by the regional veterinaries, agriculture technicians, and epidemiologists in the region as well as by the brigades personnel. If the 3 month period passes without a reoccurence of ASF, the area will be considered clean and the GODR would then be in a position to decide to go forward with the eradication program in the rest of the country. If a reoccurrence should take place, the program would have to be modified and the sentinel pigs reintroduced for another three month period or longer.

Beside carrying out the eradication program in the eastern region, the SEA will be undertaking concurrently two other, more limited depopulation/decontamination activities. By agreement with Haiti, the Dominican Republic must depopulate a 15 km. zone on its side of the border of all pigs. This activity has already been initiated and may well be completed before the initial phase actually begins. In addition, SEA field brigades will continue to depopulate/decontaminate foci throughout the country where ASF breaks out. This is done primarily to limit the incidence of the disease in the country and thereby reduce the number of pigs which must be sacrificed and thus allow greater numbers of pigs to get to market.

c. Evaluation

At the end of nine months, the SEA together with the USAID Mission will undertake a joint evaluation of the initial phase of the Project. The basic purpose of that evaluation would be to determine whether the eradication program as implemented was

successful. If it was, the evaluators would determine what changes might prove useful or necessary for effectively completing the last 3 phases. In addition, they might want to look at the economic and social impact of the program on the people of the region to support their decision. If the program was not successful, they would determine what factors caused its failure and whether, with adjustments, the eradication program would be successfully completed. If it is concluded that it can, the program would be modified and allowed to go on. If it is determined that it cannot, then other alternatives would be laid out including, inter alia, undertaking an ASF control program.

d. Subsequent Phases

Once the evaluation has been completed and the determination to go forward has been made, the SEA would develop individual implementation plans for carrying out the remaining phases. Prior to initiating any subsequent phase, the GODR would develop these plans and submit them to the Mission for approval. Since the amounts provided for salaries of brigade members were based on assumptions about the number of brigades and the mix of its members required during each phase (see Annex V for these assumptions), these plans should review the adequacy of the brigades provided to insure that they can efficiently (in a financial sense) and effectively (in a disease control sense) carry out the eradication program in each region. If funds provided for brigades appear insufficient, the GODR should be asked to provide additional salary support to the program.

III. PROJECT ANALYSIS

A. Technical Soundness

1. Project Approach

To deal with the ASF outbreak in the Dominican Republic, the GODR has decided to employ an approach which calls for the eradication of the disease through complete depopulation and decontamination, in four phases, over an 18-21 month period. The initial phase will be used to test and evaluate methods and procedures and provide the GODR with experience and positive results necessary to enable it to carry out the program in the rest of the country.

a. Alternative Approaches

Two other approaches were considered by the GODR before deciding on the approach selected. The first of these could

be termed a Control Approach. No total depopulation of any area of the country would take place; however, intensive eradication in infected foci would be pursued in an effort to reduce the incidence of the disease to the point that it could be eradicated. This approach has several drawbacks. Under this approach, medium to large commercial producers can protect themselves with increased security and management techniques. The small, traditional farmer on the other hand has no such way of protecting himself and thus suffers the greatest losses when it is employed. In addition, this approach has been pursued for 20 years in Spain and Portugal without success and with high losses. Further, given the pervasiveness of ASF once detected, this approach was not considered appropriate in the D. R.

The other approach would be termed the slow, methodical model. An area would be chosen and large numbers of outside technical advisors (10-20) together with Dominican counterparts would saturate the area and progressively eradicate the disease by destroying all sick and exposed swine and controlling the movement of other swine and pork products. The primary drawback to this approach is the length of time it would take to execute throughout the country. This would put tremendous strain on the GODR's control and quarantine system, which, over a long and sustained period of time, was thought likely to break down thereby undermining the eradication program. In addition, a lengthy program of this sort could create significant unrest among the general public whose acceptance of program actions is essential to its success.

As a result of the drawbacks of these two approaches and the strengths of the approach ultimately chosen (see b, immediately below for a discussion of these strengths), the GODR chose the eradication - over-a-shorter-time-frame approach as the best solution to the problem.

b. Appropriateness of the Approach Selected

After it had become apparent that ASF had spread throughout the country and discussions had been held with FAO and USDA technicians, the ASF High Commission decided that complete depopulation of the country's swine herd was the best way to eradicate the disease from the country. Although no country has ever completely depopulated its swine herd in order to eradicate a disease, the GODR approach for eradicating the disease, as described in II,3, 1 and 2 above, is supportable from a technical standpoint. Besides addressing the shortcomings of the alternatives outlined above, several other factors support the decision.

i) ASF is a disease of one species only which thereby reduces the threat of reintroducing the disease to pigs from another carrier

species (a tick which can be a "carrier" of the disease is believed not to exist in the DR);

ii) The elimination of swine on a significant scale and the eradication of ASF has been successfully carried out in Cuba and Italy;

iii) Being an island, the Dominican Republic has only one exposed border where "carriers" could cross and reintroduce the disease; and

iv) An Animal Sanitation Veterinary Service and the Veterinary Laboratory (both described below) exist and appear to be well staffed, capable, and enthusiastic for carrying out the eradication program described herein.

Therefore, it has been concluded that the approach selected by the GODR, i.e., totally depopulating the country of swine in from 18-21 months utilizing a 4 phased approach is a reasonable one.

Probability of Program Success

Disease control experts believe that the Project as designed has a high probability of success. The total depopulation of the nation's swine herd appears to be the surest and most economical means of achieving eradication. This approach should be tested and evaluated in an initial area and if successful there be continued throughout the rest of the country. (See Annex III for additional details concerning their findings.)

2. The "Haitian Relation"

a. Status of ASF in Haiti

The actual status of ASF in Haiti is unknown. However, the GOH reports no unusual sickness or death of swine. A limited number of samples have been sent to the U.S. for diagnosis and have been ASF negative. Informal reports indicate that no further sampling will take place since the GOH has no funds with which to pay for indemnity of sick swine if the disease is found. The GOH has already reportedly killed all swine, more than 20,000, within 15 km. of the Dominican border and is unwilling to expend further resources on the disease. Apparently the Haitian swine owners involved were not compensated.

Between February 1978, when the disease first occurred in the Dominican Republic, and July, when the disease was first diagnosed, Haiti imported pork commercially from the Dominican

Republic and, almost certainly, traditional local trade across the borders occurred. Since some of this pork could have been infected by ASF, the U.S. declared (for pork import purposes) Haiti ASF infected based on this likelihood. At least some of the commercially imported pork from the Dominican Republic has been seized and destroyed by Haitian authorities.

b. Relevance of ASF in Haiti

With a long, difficult-to-control border between the two countries, infection in one country will always be an obvious danger to the other. If Haiti has very fortunately been spared infection, the Dominican Republic will be a risk to them until it eradicates ASF. If Haiti is infected and has no resources to eradicate, and the D.R. does, the opposite risk will be present. The possible risk of disease from Haiti is an important factor but is not sufficient reason in itself to recommend the Dominican Republic not to attempt to eradicate, particularly if reasonable border controls are taken to stop the reintroduction of the disease. Even if reintroduced, it can again be brought under control. For example, France has a long and difficult-to-control border with Spain which has endemic ASF. By being alerted to the risk and by stamping out foci, France has quickly stopped the disease from establishing itself there on two occasions. If the Dominican Republic eradicates ASF, it should become familiar with the disease an anyone in the world and veterinary surveillance should be able to detect it in time to eradicate before it spreads throughout the country.

c. Border Security Provisions

There are only 4 legal border transit points between Haiti and the Dominican Republic. At each of these points, the GODR should institute the following security provisions:

i) The prohibition of pork and pork products be strongly enforced;

ii) All private and commercial vehicles should be inspected for pigs and pork products;

iii) All products of animal origin should be inspected for contamination (dirty livestock carriers should be cleaned and disinfected); and

iv) The contents of baggage should be inspected for pork products such as sausage, etc.

In addition to these measures, it is preferable that the 15 km. strip along the border not be repopulated with pigs until the disease is eradicated and until it is known that ASF does not exist in Haiti.

d. Conclusion

Although it is not known if ASF exists in Haiti, this is not grounds to wait to institute an eradication program in the Dominican Republic. While the border with Haiti is long, the country is rugged limiting traffic to the 4 border crossings. The GODR has stopped all traffic between Haiti and the Dominican Republic (except for the transit of petroleum) and is constructing disinfecting tunnels through which all vehicles must pass. It has developed adequate inspection procedures which will be applied when traffic once again resumes. In addition, the area is being depopulated of all swine which is intended to stop the contact of swine in the adjoining countries. Thus, while the Haitian border is a factor for serious concern, it is judged that it does not jeopardize the feasibility of the eradication program.

B. Institutional Soundness

1. ASF High Level Commission

On July 12, 1978, the GODR created a High Commission charged with establishing policy, planning, organizing and implementing all necessary measures to rid the Dominican Republic of ASF in the shortest time possible, and preventing the spread of the disease to other countries of the world.

The ASF High Commission is comprised of the Secretaries of Agriculture, Armed Forces and Public Health, the Governor of the Central Bank, the Administrator General of the Agriculture Bank, the Director of the Agrarian Reform Institute and the Director General of Livestock (SEA) who acts as Executive Secretary reporting directly to the High Commission and who is responsible for all ASF activities at the Central and Regional levels.

At the Central level, the Director General of Livestock is supported by a general coordinator, an official representing the Armed Forces, a veterinary epidemiologist, and a group of veterinary specialists in charge of the following operational support divisions.

a. Frontier Services

b. Compensation (indemnification)

c. Disease Diagnosis

d. Administration and Supply

e. Education/Information

f. Statistics and Communications

At the field level, emergency ASF activities are assigned to the seven SEA regional directors of agriculture, who in turn are supported by regional livestock sub-directors in charge of animal health and sanitation programs (usually graduate veterinarians). The livestock sub-director manages brigade activities at the local level, i.e., necropsy, depopulation, disinfection, vigilance, etc. The SEA regional directors also have under their control various support personnel to assist with indemnification payments, administration and supply, military coordination, disease diagnosis, sanitation, disease detection and vigilance, and auxiliary support staff.

The existence of the High Commission is of particular importance to the GODR ASF Eradication Program for two reasons. First it places the responsibility for the eradication program clearly in the hands of the General Directorate of Livestock (DGG) of the SEA and, second, it provides the mechanism for bringing direct coordination between the DGG and the principal governmental entities involved in the program - essentially the Central and Agricultural Banks and the military. To date this role has been successfully carried out. (The organizational structure of the High Commission is provided in Annex VI.)

2. Animal Sanitation Unit

a. Current Organization

The General Directorate of Livestock (DGG) is one of five important working components of the Secretariat of State for Agriculture (SEA) and is headed by a Director General with the status of Sub-Secretary. The DGG is served at the upper management level by an advisory group, legal counsel and an administrative department. Under this structure there are two major departments: The Department of Animal Production and Development and the Technical Department composed of 3 major sub-divisions designated as Animal Disease Prevention, Inspection and Control, and Laboratory (diagnosis/vaccine production). The Animal Sanitation Unit (Sanidad Animal) is one of four units under the Division of Disease Prevention and is charged with the responsibility for administration and implementation of a program to reduce the incidence of important animal disease affecting the development of the livestock sector (e.g., brucellosis, tuberculosis, parasites, hematological diseases, and ASF eradication). The unit administers the Animal Sanitation Subproject financed under an IDB Loan (350-SF/RD) which is better known as PIDAGRO. The remaining

units of the Disease Prevention Division (Control and Inspection and Veterinary Laboratory) provide supporting assistance to the Animal Sanitation subproject through vaccine production, animal disease diagnosis and epidemiology surveillance. (See Annex VI for an Organization Chart which illustrates both the Animal Sanitation Unit and the Laboratory.)

b. Capacity of the Unit

Currently there are a total of 11 graduate Veterinarians working at the central level of the Animal Sanitation Unit charged with administering, executing and/or providing advisory services and technical assistance to the Animal Sanitation subproject. The central level program is supported by an administrative unit of 14 employees headed by a graduate in Business Administration and a CPA in charge of accounting. Working in the field are 7 graduate Veterinarians serving in the capacity of subdirectors of zones, and 13 Veterinarians in charge of sanitary brigade activities. The field programs are supported by 34 trained vaccinators, 9 vaqueros, and 10 auxiliary personnel working at the quarantine station.

Under the Sanidad Animal subproject there are a total of 98 people employed, of which 31 are graduate veterinarians and an additional 20 hold degrees in other fields. Most of the veterinarians employed under the project are graduates of local schools of veterinarian medicine at the Universidad Autónoma de Santo Domingo and Nacional Pedro Henríquez Ureña. Both of these schools are considered to be well above the average for the hemisphere and by reputation have consistently turned out excellent graduate veterinarians. (See Annex VI for a breakdown by profession of the Animal Sanitation Unit and Central Laboratory.)

Since initiation of the PIDAGRO subproject in 1973, personnel have been hired based on a system of personal qualification which places the newly hired employee in a position and salary level according to his academic and professional experience. This system has worked well by matching the employee to job qualifications. This has also helped to reduce hiring of unqualified people for political reasons. A recent evaluation of the PIDAGRO subproject and visits by FAO and U.S. veterinarian/microbiologists have indicated that the Dominican professionals are well qualified.

Prior to the ASF outbreak in February, 1978, the DGG had been carrying out an impressive program to reduce the incidence of brucellosis and tuberculosis in cattle and hog cholera (classic swine fever) in swine. The Animal Sanitation Unit, with the support of an IDB loan, was making impressive in-roads in achieving their program objectives. During the past five years,

brucellosis has been reduced from 12% of animals under the program to 4.4%. In the same time, tuberculosis incidence was reduced from 3.4% to 3.34%. Reduction of the incidence of these major diseases could not have been achieved without a high level of technical competence, institutional coordination, and a strong professional commitment by the Unit. Other activities carried out included the cattle tick eradication program, a very popular project supported by the private sector in coordination with the DGG.

c. Conclusion

According to FAO/USDA administrative evaluations, it has been concluded that the technical and administrative structure developed by the Animal Sanitation Unit under the PIDAGRO program was adequate for covering the whole country. At the same time, the Animal Sanitation Unit has developed a level of maturity and experience necessary for accomplishing established goals in an efficient and effective manner.

The ASF epidemic is a genuine animal disease emergency with which the Dominicans and very few other veterinary services in the hemisphere have had any experience. However, based on the qualifications and past experience of the Animal Sanitation Unit, it is judged that it has the capability and capacity to effectively deal with ASF and/or future animal disease emergencies.

3. Field Brigades

a. Current Make-Up

As noted immediately above, the DGG has primary responsibility for development, execution and evaluation of the animal sanitation sub-activity under the PIDAGRO program. Project activities at the field level are organized around "Sanitary Brigades" with diagnostic and supporting assistance provided by the Central and Regional Veterinarian Laboratories. These brigades are established in each of the 7 regions and prior to the ASF problem, consisted of one veterinarian and 2 field assistants. The Sanitary Brigade is the basic field unit responsible for execution of the livestock health and disease prevention program.

Following confirmation of the ASF outbreak, 23 of the existing 46 brigades were transferred from their original duties to the ASF outbreak and were strengthened to carry out depopulation, burial and disinfection in the foci of infection. These fortified brigades are composed of the following personnel:

1 animal scientist or agricultural expert

1 appraiser (compensation)

2 soldiers

2 laborers (local workers)

The 22 brigades stationed along the Haitian border (Northwestern, Southwestern, Southern) are organized to carry out depopulation and burial within a 15 km. zone on the Dominican side of the border. The brigade located in the central region is organized to investigate disease outbreaks, depopulate infected herds and carry out cleaning and disinfection activities.

b. Equipment

The brigades are not sufficiently equipped to operate effectively. The brigades presently deployed along the Haitian Border do not have adequate cleaning and disinfection equipment. Every man should have a brush and bucket for holding water and disinfecting solutions so that he can clean his footwear and hands between premises. There is also a need for basic diagnostic equipment for veterinarians assigned to each brigade so that they can properly carry out necropsy examinations. In addition, the brigades have inadequate transportation required to move both brigades and equipment to work locations.

c. Procedures/Methods

The brigades are assigned to a particular region and operate under the supervision of the Assistant Regional Director for Livestock. A brigade may be given a unit assignment or its members given irdividual assignments to carry out eradication activities such as:

i) Information and educational activities.

ii) Inspection of premises, animal areas.

iii) Disease investigations and field diagnostic activities.

iv) Epidemiology investigations.

v) Appraisals.

vi) Depopulation and sacrifice of infected and exposed animals.

vii) Cleaning and disinfection of premises, equipment, etc.

viii) Placing and monitoring sentinel animals.

ix) Operation of security posts and quarantine stations.

c. Conclusions and Recommendations

The brigade concept for organizing to carry out the African Swine Fever eradication effort is good. It makes use of an existing operational structure in the SEA and provides maximum flexibility in the assignment of personnel and resources to meet program needs when the disease situation changes. To increase its capacity and effectiveness to carry out the ASF eradication program, the following changes will be made under the Project:

i) The number of brigades will be substantially increased to provide adequate coverage of the country.

ii) Each ASF brigade will have transportation to provide it with mobility to enable it to cover the area assigned to it;

iii) The amount of protective clothing and operational equipment will be increased to cover the needs of additional brigades; and

iv) At least one member of each brigade will receive short-term training designed to enable him to deal with cultural constraints to the success of the depopulation activity.

In addition, during Project implementation, consideration will be given to the appropriateness of truck mounted power sprayers with approximately a 1,500 gallon capacity for disinfection purposes.

4. Laboratory

The Central Veterinary Laboratory in the División de Diagnóstico of the DGG has the responsibility for Disease Diagnosis, Production of Vaccines and Antigens, and Applied Research. The Laboratory has a staff of 20 veterinarians, 35 technicians, and 10 laboratory assistants. In addition to this staff, a Veterinary Epidemiologist and a Veterinary Virologist have been assigned to the Laboratory by FAO for a four month period. The epidemiologist and virologist are both USDA employees.

Significant capability for the diagnosis of ASF has already been developed. However, the laboratory is not yet prepared to handle a large volume of ASF examinations due to equipment,

space and reagent limitations. The outbreak of ASF has placed a heavy strain on the laboratory. The need to move ASF diagnostic work out of the present facilities has been recognized and efforts are being made to find other facilities. There is concern that biological products being produced at this time might become contaminated with ASF. It is simply not a good practice to conduct diagnostic work in a laboratory where vaccines are being produced. The laboratory has suspended the production of hog cholera vaccines.

It should be noted that the Dominican Central Veterinary Laboratory is one of the best of its kind in Latin America and that considerable competency exists there for carrying out ASF examinations and diagnosis. However, to carry out the volume of serological and pathological examinations required, assistance will be provided in the following areas.

a. For the purchase of laboratory equipment and supplies sufficient to allow the lab to carry out its examination/diagnosis activities; and

b. For technical assistance to assist in the organization of the new ASF lab (which will be pulled out of the central lab structure) in the establishment of proper testing methods and procedures, as well as in the training of personnel.

5. Agriculture Bank

The Compensation Mechanism - The GODR has developed criteria for determining which pigs will be subject to compensation. The owner must report to an official of the SEA that his pig is sick. Once this has been done, the local SEA veterinary must examine the animal to establish whether ASF is the cause. Once this determination is made, the brigade arrives to depopulate and decontaminate the premises. However, prior to the depopulation activities, the assessor (see below) determines the weight of all live pigs. These animals are the ones subject to compensation. In practice these criteria may be bent in favor of the owner when an animal has died between the time of the reporting of the outbreak and the arrival of the team. None the less, the assessor must see the carcass if compensation is to be made under those conditions.

The specific procedures followed in the compensation program are as follows:

- Assessor, assigned to the depopulation brigade, counts pigs to be sacrificed, estimates total weight and enters these amounts on a four part form (see Annex VI for copy of form).

- Form is signed and officially stamped by assessor, brigade technical leader and owner of pigs.

- Original is kept by owner. One copy is kept by assessor, batched and sent to BAGRICOLA headquarters office. Two copies are kept for statistical purposes.

- BAGRICOLA copy is used as the basis for calculation of compensation and the preparation of a list by branch bank showing owner, number of pigs sacrificed, weight, compensation and debts owed the Bank.

- List is forwarded to the branch bank and is used as the control mechanism for payment.

- Owner presents original copy to branch bank in his region, this is copy matched against master list and owner receives check.

The Assessor - BAGRICOLA, the state owned agriculture bank, is the major implementing agency for the compensation component. The bank has 24 branches located in all seven regions of the country. (See Annex VI for list of branches.) These branches serve as the regional compensation centers and provide the pool of assessors assigned to the depopulation brigades. Assessors are drawn from the credit agent staff of the bank which numbers approximate 300 at the present time. As a bank credit officer, duties include inspecting and appraising property, equipment and livestock of the bank's clientele before the granting of a loan. This experience, plus assistance from brigade leaders when needed in estimating weights, is sufficient to carry out the functions assigned to the assessor.

Compensation Amount - Compensation amount is set at RD$1.00/live weight kilo. Payment of compensation is based on number of pigs owned: those owners with ten pigs or less are to be paid in total upon presentation of papers at the bank while those with more than ten pigs are to be paid in two equal installments, one upon presentation of papers at the bank and the other at the end of one year.

Compensation amounts and payment system were established taking into account equity and operational considerations, i.e., a premium price to small producers whose pigs are much more difficult to detect than those of large producers.

Compensation amounts provide favorable incentives to the small owner. Before the outbreak of swine fever, prices paid per kilo to the small producer ranged from RD$0.60 to RD$0.90. Thus the RD$1.00 offers a premium range of 11% - 67%. In many cases a small holder is also allowed to keep a healthy, but sacrificed pig for his personal consumption, an incentive not reflected in price. Prices paid to the large producers before the outbreak of swine fever ranged from RD$1.10 - RD$1.25 reflecting general quality differences between pigs from small owners vs. large owners. Present procedures call for the BAGRICOLA to deduct from compensation payments due, the amount of any debt owed by the owners to the Bank. While this approach seems reasonable with respect to debts owed on swine loans, it may prove a serious disincentive to owners with sick swine who have other non-swine related debts. Accordingly, USAID/DR will attempt to negotiate a change in the procedures whereby deductions from compensation are limited to swine loans only.

Status of Compensation Funding - The GODR has authorized the issuance of RD$10.0 million in government backed bonds. These bonds have a ten year term, draw 5% interest in semi-annual installments, are tax free, and can be used in meeting reserve requirements for commercial banks, financieras, and insurance companies. $5.0 million of these bonds have been passed from the central government to BAGRICOLA. BAGRICOLA has placed these bonds in the Central Bank for marketing, as the Central Bank is the only government institution allowed to market state bonds. These bonds have not yet been placed in the market, but with the incentives mentioned above, they should be marketable to financial and insurance institutions. The Central Bank has had no major difficulties in marketing state bonds in the past.

BAGRICOLA received an advance of funds from the Central Bank on October 25 in the amount of RD$500,000. Claims processed to date by BAGRICOLA and ready for payment total about RD$4.5 million on 65,000 pigs sacrificed, thus indicating a substantial short fall in initial funding. Pipeline amounts are not available; however, BAGRICOLA indicates that these amounts were not of material importance. Two factors which would lower the initial cash requirements, include the compensation formula for owners with more than ten pigs and subtracting debt owed to BAGRICOLA from compensation amounts.

BAGRICOLA is now in the process of determining amounts due to owners with ten pigs or less. Once completed, this list is to be sent to the Central Bank as the basis for an additional cash advance. The original RD$0.5 million advance is to be used to meet small owner compensation payments only.

The Government has lost some credibility because of the delay in making compensation payments. Fast payment is critical to the success of the overall program.

Conclusion - Procedures appear to be adequate from a control standpoint; however, faster payment could be made if branches were allowed to process paperwork prior to payment instead of sending it to its headquarters in Santo Domingo for clearance for payment. A reporting system should be developed to aggregate actual compensation payments in one report.

Funding for immediate compensation requirements is inadequate and needs to be made as soon as possible. BAGRICOLA is now in the process of preparing a listing of immediate cash requirements to pay small producers. Long run funding of compensation is estimated at RD$20 million of which RD$10 million has been provided for thru legislation authorizing the issuance of central government bonds. Thus, the GODR long run funding must be increased by an additional RD$10.0 million. Appropriate conditions will be included in the Loan Agreement to assure timely and sufficient funding.

The compensation system, on balance appears both to provide a fair price and to be efficient to administer. Biases built into the price favor the small producer based on historical prices. The procedure calling for deducting all BAGRICOLA debt, however, may be a serious disincentive. USAID will attempt to negotiate a change in procedures whereby deductions are limited to swine loans.

The set compensation price was based on the original concept of sacrificing all the pigs in the country over a short period of time, freezing good pork and marketing it over a longer period of time. This concept has now changed to a marketing/sacrificing approach. Technical assistance is needed to develop a government strategy for dealing with market distortions in supply and demand, if any, its effect on market prices, and incentives of compensation price.

C. Social Soundness

1. The Target Group

a. Description of Poor Majority in Dominican Republic

The broad target group comprises a large proportion of the rural poor and many unemployed/underemployed urban dwellers. Actual numbers are hard to quantify because of differences in land quality, seasonal nature of employment and the fact that the unit of land required per pig raised is primarily determined by the level/mix of management practices provided and the production system followed.

Population density in Dominican Republic, some 88 inhabitants per square km., is among the highest in Latin America. This population density is reflected in the intensive use of land and reduced farm size. Of the estimated 1975 rural population of 2.6 million, 50,000 families (comprising 6 members each) farmed

less than 0.5 hectares, and an additional 185,000 farmed an average of less than two hectares. Both the quantity and quality of the land resource are often inadequate to satisfy basic family needs following traditional subsistence technological farming practices. According to the 1976 sector analysis, average annual net income from farm sources for families with holdings of under 0.5 ha. is little more than RD$100, and only about RD$475 for .5 to give hectare holdings. The landless rural laborer and unemployed/under-employed urban squatter fares even worse since they lack a measurable land base for ultimate support.

The target group is in generally poor health. It is estimated that 75 percent of the rural population is below adequate nutritional standards and that over three-quarters of the preschool children have protein-calorie malnutrition. Average daily calorie intake is only 76 percent of minimal INCAP recommended levels. The child mortality rates (one to four years old) is about 17 times that of the same U.S. age group.

Levels of educational attainment among the target group are also low. Fourty-three percent of all rural inhabitants are illiterate and only 12% of the rural students who start grade one complete grade six.

b. Description of Swine Producers

The overall group that will be most affected directly by ASF includes those who keep or produce pigs, those involved in various aspects of marketing/processing, and others in associated agroindustries. However, the primary target group is designated as the traditional pig keeper who accounts for about 80 percent of national production.

Because the amount of land required per pig unit is largely determined by the system of production he employs and details of management, the primary target group cannot be characterized by either the number of pigs produced or the amount of land controlled. The following summation does indicate a number of relationships as regards farm/herd size and source of revenue from all farm animals:

Farm Size (in ha.)	Percent Farmers Keeping Pigs	Ave. No. Head Per Farm	Annual Revenue Derived from Pigs (RD$) Annually	Annual Revenue % of Total Derived from All Animals
Small (.5 - 5.0)	55.8	4.2	110	38
Medium (5 - 31)	58.1	6.5	92	17
Large (31 +)	63.5	11.0	216	6

Compiled from 1976 Sector Analysis Summary.

It appears that both small and large land holders raise pigs primarily for cash income; whereas, medium size holders probably seek income as well as meat for home consumption. It is also noteworthy that some 43% of all farmers do not keep pigs, while a considerable but unknown number of the rural landless and urban poor do maintain one or more head seasonally per household as a means of savings and eventually as a source of cash income.

Exhibit 1 in Annex VII undertakes to rationalize by production system, various details pertaining thereto such as percent of national production accounted for by the various management levels and practices, occupational relationships of producers, relative amount of land utilized, and finally a rough estimate of average herd size. However, figures on herd size cannot be used for drawing inferences about the percentage of national production because little is known relative to the number of herds actually contained in each herd size category. The target group includes the producers utilizing the extensive and intermediate systems of production.

2. Main Cultural Constraints to Project Success

a. Incentives

The adequacy of compensation for sacrificed pigs is critical to Project success. In theory and as originally envisioned by the GODR, compensation based on market class (i.e., age and sex), grade (chiefly quality), weight, and use (i.e., slaughter versus breeding), would be the most equitable. However, in practice this would be very hard to execute and incentives could be misdirected in terms of assuring depopulation. Many of the more progressive and modernized farms have been voluntarily depopulated with shifts to other undertakings (e.g., poultry). The more conversative primary target group, having fewer options and less capital, is not expected to move so rapidly towards this end.

Although less equitable, the standard RD$1/kg. live weight rate of compensation for all condemned swine represents a good average price for small producers. Pre ASF rural market prices ranged from 60-90 centavos/kg. Since the compensation rate is in excess of the market value for the bulk of the animals maintained by the primary target group, it provides a special one-time incentive to small farm producers to better assure depopulation. While this is not to say that such incentive will guarantee success, it is judged to be appropriate and realistic.

b. Hidden Movement and Keeping of Swine

One can only speculate on the action/reaction of people in the more remote areas of Dominican Republic as regards swine depopulation. Certainly, there is little experience to draw on in democratic societies where an entire species of livestock has been systematically depopulated.

The history of pigs on the island dates from the second voyage of Columbus in 1493. For many of the rural poor a pig around the home represents his only investment which can be redeemed when cash is needed for an emergency or for festival occasions. It is safe to assume that some producers will part with their last animal with considerable reluctance, compensation/incentives notwithstanding. However, any stashing away or hiding of animals would probably be undertaken with one or the other of two basic motives. One would represent speculators who would hope to cash in on higher prices as pork supplies decline under the advanced stages of depopulation. The other would be individuals in the most inaccessible and more remote areas who endeavor to seclude a nucleus of breeding stock.

The clandestine import of swine is always a possibility, especially from Haiti, but this is judged to be less of a constraint that internal hoarding of local animals since all pigs within 15 kms. of both sides of the border have been or are being depopulated.

On balance, the incidence of hidden animals, including remnants of feral herds, is a possibility and will require concerted effort by government to assure complete depopulation. As mentioned above, to address this concern, the GODR has instituted a mass media/education program for the general public, will institute surveillance activities once depopulation has commenced and is providing an incentive price for all swine slaughtered under the program. The mass media campaign will be strengthened so as to make it more effective with small swine producers, particularly the illiterate, by, inter alia, making use of key elements of the rural social infrastructure, such as clergy, extension agents and health promoters. One member of each brigade will receive short-term training designed to make him more effective in overcoming the cultural constraints to a successful depopulation effort. The services of a sociologist/anthropologist will be financed with loan funds to assist with the media campaign and the training, and to help in other ways to deal effectively with the rural social structure.

c. Fear/Distrust of Government

The underlying feelings and attitudes of people towards their government is difficult to assess by an outsider and possibly even more so by government itself. While a credibility gap no doubt exists among the primary target group towards government, there is no indication that this is excessive and a major constraint to Project success. To the extent that fear/distrust of government does exist, it would be expected to be more pronounced among the poorest of the poor and least apparent at higher income levels. The efforts described in paragraph b, above, will be designated to deal more effectively with this constraint.

3. Conclusion

As evidenced by the media campaign, government is aware of the socio-political implications contained in the Project. While the marshalling of public opinion and general support at the

national level are fundamental to success, assurances and convictions at the primary target group level must ultimately be obtained. Since in swine depopulation the campesino is giving up a goodly measure of his immediate livelihood and cannot survive on promises, the task of obtaining his reasonable conviction will not be easy. The brigades will have to approach farmers in such a way as to obtain their full cooperation; training will sensitize them to the various aspects of the problem. Influential members of the rural social infrastructure will have to be enlisted in the campaign. Cash compensation will have to be made within a short time period (7-14 days). If this is not done the small farmer might become more sceptical of the program which would thereby undermine its credibility.

Disincentives to own pigs might need to be instituted in the final stages of depopulation, but would need to be handled with decorum and delicately applied. This might involve various forms of peer pressure or localized public opinion, and only as a last resort an outright bounty on the swine species.

As an additional incentive, the compensation package offered to the target group might include alternate animal species, e.g., goats, hair sheep, rabbits, poultry (chickens, ducks, turkeys and guinea fowl) and in some cases cattle. The need for such an alternative will be assessed during the evaluation of the initial phase of the eradication program.

The services of a sociologist/anthropologist, to be procured with loan funds, will help SEA to develop approaches which will be effective in dealing with these concerns.

D. Financial Analysis and Plan

1. Total Project Requirements

Total Project requirements are estimated at $27.045 million and are summarized in the three tables shown in Section D.5. Detailed estimated costs are shown in Annex V.

AID's contribution to the Project is $6.2 million, representing 23% of total costs and including a $200,000 grant and a $6.0 million loan. AID's funding will cover all foreign exchange costs estimated at $3.080 million and local currency costs estimated at $3.120 million. Of the $7.045 of the Project for personnel, equipment, operating costs and some TA, AID will finance $6.2 million or 85% due to the current budgetary crunch being experienced by the government (see item 3 below). Approximately one-half of the technical assistance costs of the Project are grant funded by AID at $0.2 million.

The GODR contribution to the Project is estimated at $20.845 million, representing 77% of total costs. The GODR budgeted amount covers the compensation fund of $20.0 million and operating costs not financed by AID ($0.845 million) including the mass media campaign ($162,000), administrative supplies ($100,000), military per diem ($352,000), some salaries ($204,000), and inflation ($27,000). These operating costs are spread over the 27 month life of the Project and approximate $375,000 on an annual basis.

Project costs are incremental and do not include laboratory, central, and regional administration, and related salaries and costs already being incurred in carrying out the program. Brigades now being used to combat African Swine Fever, or their replacements, will concentrate on original duties and responsibilities once the Project begins.

One unknown variable in the cost estimates is the number of disease foci to be encountered during the first 21 months of the Project and, thus the resultant effect on the cost of day laborers assigned to brigades. A doubling in the number of foci to be eradicated over budgeted levels would result in an increase in salary and per diem costs of $76,000. Employment of fully staffed brigades must be closely administered.

Recurring costs to the GODR upon completion of the Project are estimated at $225,000 including inspection at major ports and airports and border control. Pig repopulation costs will no doubt be substantial. The government has reportedly had preliminary talks with IDB regarding possible financing.

2. Adequacy of Compensation Fund

Originally, the GODR ASF High Commission estimated compensation payments at the level of RD$40.0 million based on the concept of sacrificing approximately 800,000 pigs and compensating owners at RD$1.00/kilo live weight at an average estimated weight of 50 kilos. The pork was to be butchered, frozen and sold in order to offset the costs of compensation. Due to technical and administrative reasons, a combination marketing/sacrifice strategy has been adopted. Using this approach, it is estimated that only 300,000 pigs will be sacrificed. Assuming an average live weight of 50 kilos and a commission set price of RD$1.00/kilo, RD$15.0 million would be required. Another RD$4.5 million is required to compensate owners for pigs already sacrificed bringing total compensation fund requirements to approximately RD$20.0 million. The government has authorized $10 million in bonds and a condition precedent will be required to assure adequate and timely compensation funding.

3. Host Country Financial Capability

The GODR, due to a combination of declining revenues- principally the abolition of taxes on coffee and cocoa and the low worl price for sugar- and rising expenditures through military pay increases is expected to run a budget deficit in the range of RD$50.0 million to RD$100.0 million for 1978. This budget deficit is the principal justification for AID financing of 88% of the Project's operating costs including $3.275 million in local currency costs. While the GODR position is not an enviable one, it should be placed in proper perspective. The GODR ran budget surpluses for the past 3 years. While some of the accumulated reserves have recently been allocated to irrigation projects, approximately RD$35 million, according to officials in the Secretaría de Finanzas, still remain. Moreover, the GODR has pursued a conservative borrowing policy both domestically and internationally. By LDC standards, budget deficits of the magnitude discussed above could be financed for many years before becoming a matter of concern to lenders.

GODR financing of the additional RD$10.0 million of the RD$20.0 million compensation fund would add approximately RD$3.3 million, or a 3.3% increase to the budget deficit if the 1978 deficit situation were to continue over the next three years. The GODR has already authorized RD$10 million in state bonds to finance the fund. Additional counterpart requirements appear reasonably assured although a CP should be included to insure this critical Project input.

4. Host Country, Repayment Capability

The central government has historically followed a policy of financing a major portion of its capital expenditures from current revenues and more recently from the proceeds of selling off assets. It has as a consequence not relied heavily on external borrowings. At the end of 1977, external debt guaranteed by the State totaled $1.077 billion. 1977 debt service amounted to $68.0 million on total annual exports of $781.0 million, ir 8.7%. A ratio of 15% of debt service to exports is common for developing countries. 1978 debt service projections are set at $69.5 million, slightly higher than the 1977 debt service amount. Amortization of the AID loan of $6.0 million for this Project over 25 years would amount to an average annual payment of $240,000, or 0.24% of current debt servicing requirements. Based on the above, loan repayment prospects appear reasonable.

5. Financial Plan/Budget Tables

SUMMARY COST ESTIMATE AND FINANCIAL PLAN
$000's

PROJECT INPUTS	AID GRANT FX	AID LOAN FX	AID LOAN LC	GODR LC	TOTAL
Salaries	-	-	2,264	204	2,468
Per Diem	-	-	543	352	895
Vehicles	-	595	-	-	595
Field equipment & supplies	-	908	-	-	908
Equipment rehabilitation	-	-	210	-	210
Gas & oil	-	379	-	-	379
Spare parts & maintenance	-	131	96	-	227
Sentinel pigs	-	600	-	-	600
Office equipment	-	12	-	-	12
Other	-	41	-	20,262	20,303
Technical assistance	200	214	-	-	414
Training	-	-	7	-	7
Inflation	-	-	-	27	27
Total	200	2,880	3,120	20,845	27,045

EXPENDITURE CALENDAR
$000's

	YEAR 1	2	3	Total
A.I.D.	3,290	2,311	599	6,200
GODR	7,030	7,048	6,767	20,845
Total	10,320	9,359	7,366	27,045

COSTING OF PROJECT INPUT/COMPONENTS
$000's

PROJECT INPUTS	IMPLI/ ADMIN	MASS MEDIA	DETECTION FIELD SYSTEM	DETECTION LAB	DEPOP/ DECONT.	FOLLOW UP INSP.	FOLLOW UP SENT. PIG	CONTROL INT.	CONTROL FRONT	COMPEN.	REP. PLAN	G & A COSTS INFLATION	TOTAL
Salaries	-	-	76	11	1,562	-	-	560	259	-	-	-	2,468
Per Diem	-	-	19	1	496	-	-	353	26	-	-	-	895
Vehicles	-	-	45	-	550	-	-	-	-	-	-	-	595
Field equipment & supplies	-	-	66	37	637	-	-	8	160	-	-	-	908
Equipment rehabilitation	-	-	-	-	210	-	-	-	-	-	-	-	210
Gas & Oil	-	-	26	-	338	-	-	-	15	-	-	-	379
Spare parts & maintenance	-	-	11	-	216	-	-	-	-	-	-	-	227
Sentinel Pigs	-	-	-	-	-	-	600	-	-	-	-	-	600
Office equipment	-	-	-	2	10	-	-	-	-	-	-	-	12
Other	-	162	41	-	-	-	-	-	-	20,000	-	100	20,303
Technical Assistance	134	12	96	48	72	-	-	-	-	18	34	--	414
Training	-	-	-	-	7	-	-	-	-	-	-	-	7
Inflation	-	-	-	-	-	-	-	-	-	-	-	27	27
Total*	134	174	380	99	4,098	**	600	921	460	20,018	34	127	27,045

* Column totals vary slightly from totals in "Detailed Cost" tables due to rounding.

** Line item costs contained in Detection Column line items.

E. Economic Feasibility

1. Summary of Economic Impact of Project

a. Slaughtering (glut and scarcity)

When assessing the effect of slaughter on glut and scarcity of pork under the Project, account must be taken of normal consumption patterns, product distribution, and alternate sources of meat available to the consuming public. Pork consumption, although less favored than beef and poultry, traditionally accounts for about 20% of national meat intake. Most estimates of pork consumption are limited to carcass meat (3 kg.) leaving unaccounted for the offals and by-products of slaughter which are choice items in most cases. The bulk of pork is consumed "hot" in major urban centers with the efforts of the target group largely directed at satisfying this expanding market. Recently there have emerged some highly commercialized producers who were gearing up for pork exports and supplying a growing local demand for processed pork products.

There will be periods of scarcity of pork and other periods of possible glut during the life of the Project. Exhibit 1 of Annex IV indicates the estimated swine population prior to ASF (December 1977), its distribution among the nation's regions and provinces, and swine density per square kilometer for each region and province. Exhibit 2 of Annex IV estimates the number and distribution of swine by region at the time of Project initiation after allowance for herd declines between June 78 and December 78. Exhibit 3 of Annex IV depicts the disposition of the national swine herd under the first 21 months of Project life, including best estimates of recent year pork consumption. The overall average monthly kill of 50,000 head suitable for consumption would represent about 0.9 million kgs of pork and offals/by-products (50,000 pigs weighing 50 kg live weight and yielding 37.5 kg of edible product). This is assumed to be on a par with normal consumption levels in recent years based on a national herd of at least one million head with a 60% annual extraction rate or offtake.

Regular depopulation is scheduled for the Eastern region commencing December 15, 1978. Of the Eastern region's estimated total swine herd of 111,000 head, it is assumed that about 37,000 head would be condemned as unfit for human consumption. This would leave over 74,000 head to be consumed over the three month depopulation period, or about 25,000 head monthly. Since this represents about one-half of normal monthly consumption, it could be absorbed on the market providing voluntary sales in other regions did not materially exceed this number. This would warrant special scrutiny by government and possibly some action (e.g., media campaign or even outright controls) giving priority to Eastern region

swine arriving on the market.

The systematic depopulation of the Northern and Northeastern regions under phase II would begin about one year later, i.e., January 1, 1980. During this period, it is expected that pigs arriving on the market would be in plentiful supply. However, no particular glut is envisioned under phase II, except possibly at the very outset. Thereafter, as depopulation continues in the remaining regions, cumulating in a zero pig population, pork scarcity will be increasingly manifest, even with large scale imports.

In summary, during depopulation, gluts of pork on the market are a possibility during phase I in the Eastern region and at the outset of phase II in the North and Northeast. Pork scarcity will be evident late in the phase II depopulation period and onward until restocking is complete. This suggests the need for regular pork imports starting in early 1980 and continuing until repopulation is well advanced.

b. Compensation Method

The method being followed is immediate compensation at the rate of RD$1/kg live weight per pig condemned for holders of up to 10 head. Those having over 10 head would receive one-half value immediately and the remainder within one year. It would appear that this method is open to manipulation, since herd size can be readily adjusted by temporary transfer of ownership.

Assuming that pigs represent wealth, the smaller owner has an apparent advantage in that he receives compensation in full at the time of condemnation. Of even greater importance is the disposition of such one-time funds. The worst possible case would be for frivolous expenditures, incidental to earning a livelihood. Most preferable is that compensation be retained in animal resources through investment in other animal species. Because compensation may represent the largest amount of cash money ever held at any one time by some producers, the need for education and special guidance is suggested.

c. Loss of Income

The income streams generated by swine production in the past will be lost under depopulation. Various middlemen in the marketing chain dealing exclusively with swine will also be affected as will slaughter facilities. The slaughter/processing facilities most seriously affected will be private commercial plants processing pork products for the elite urban market and/or those

gearing up for export. These will be forced to close their pork product lines and lay off personnel unless sufficient pork carcasses/ parts can be imported.

Exhibit 7 of Annex IV provides an indication of labor inputs into sales revenue generated fro· swine enterprises on different sized farms. The total average annual sales revenue for all such farms is about RD$341 and is about RD$284,* RD$350, and RD$544, respectively, for small, medium and large farms. These figures represent only sales and do not include pork consumed at home. Since relatively more of the small farmers total income is derived from swine, the short-term loss due to swine depopulation would be most adverse among this segment of the target group. However, under conditions of continuing endemic ASF, the small and medium sized farmers will be the most adversely affected in the long-run. The small farmer's labor input into pig production, i.e., the animal value per work day expended on swine is RD$6.80. This is about double the 1975/76 wage rate for casual farm labor.

2. Analysis of Costs and Benefits

The proposed Project's rate of return to the Dominican economy was calculated by comparing the estimated costs and "benefits" of (a) the Project's depopulation, decontamination, follow-up, control post, and repopulation activities, and (b) a situation in which ASF indefinitely continues to be endemic within the country. The calculated internal rate of economic return is considerably more than 13%. It should be recognized that the economic feasibility analysis for the Project entails more assumptions than for most other projects. There are a number of uncertainties with eradicating ASF by the complete nation-wide depopulation of the species - an approach which has not been tried before. The assumptions related to the Project's economic analysis are described below.

Alternatives: The GODR has two alternative approaches for dealing with ASF - minimize the effects of endemic ASF, or undertake a program to eradicate the disease. Exhibit 4 of Annex IV compares characteristics and productive performance of the national swine herd under pre-ASF, endemic ASF, and ASF free situations.

Endemic ASF: Rather than suffer the costs and consequences of the depopulation phase of a program to eradicate ASF, the GODR could make a conscious decision to minimize the effects of endemic ASF. This would entail a control program that would depopulate areas where there are new outbreaks of the disease and control the domestic movement of swine and swine products. As shown in column (3) of Exhibit 5 of Annex IV, the cost of an ASF control program is estimated to be approximately RD$500,000 annually. (Note: pre-ASF

* This sample includes only farms that have swine ; CF figure elsewhere of RD$110, which is average for all farms, including those without swine.

government expenditures on swine health and sanitation activities were approximately RD$200,000 per year).

The value of the offtake from the national herd shown in column (2) is assumed not to increase under conditions of endemic ASF. Many small and medium farmers will quit raising swine because of the higher risks of complete loss due to ASF. In addition, many of the large commercial producers who were increasing production destined for the export market through modern processing plants will entirely cease production because the export market has been eliminated.

ASF Free: Columns (4), (5) and (6) of Exhibit 5 present the estimated direct and indirect benefits, and the costs of the Project. Column (4) presents the Project's benefits, i.e., the value of the offtake from the national herd. It also indicates the cost to the economy of complete depopulation (years 3-9). Thereafter, with ASF eradicated and the country repopulated with improved swine herds, the value of the offtake of the national herd will be greater than with endemic ASF and will be able to continue to increase. (The basis for the repopulation and buildup of the national herd is set forth in Exhibit 6 of Annex IV.) The indirect benefits of eradicating ASF, Column (5), are the export "gains" to the economy of beef and pork products once ASF has been eradicated.

As noted earlier in the paper, the Dominican Republic was just preparing to initiate processed pork exports when ASF broke out. It is estimated that by the tenth year after initiation of the Project, the industry could be producing enough pork to satisfy the domestic market and once again be able to initiate exports. The value added of pork product exports is projected to grow to RD$500,000 by the last year of the analysis. The second indirect benefit is beef exports that would not be possible under endemic ASF because of importing country restrictions. Pre-ASF beef exports were approximately RD$10 million per year. Once the country is declared ASF free, these exports may once again build-up to pre-ASF levels and continue to expand at a rate of about 5% per year - a lower growth rate than beef exports have been expanding during the last decade.

Program costs, Column (6), are the costs of eradicating the disease and then maintaining the country free of ASF.

Sensitivity Analyses to the IRR: The internal rate of return to the Dominican economy of the ASF free approach is 13.7% under the above assumptions. The sensitivity of the IRR to several modifications in the above assumptions are as follows:

a. If the cost of the eradication/repopulation program is 20% more than expected the IRR is 12.9%.

b. If the eradication of ASF were to take an extra year, thus setting back the direct and indirect benefit streams by one year the IRR would be 10%.

c. If, under endemic ASF, beef exports could be continued at 50% of their current rate, the Project's IRR would be 8.7% ;if at 100%, the IRR would be 6.5%.

d. If the cost of an effective control program is RDS1.0 million annually (4.5% of the annual offtake under endemic ASF), the IRR of the Project is 14.2%.

e. Finally, if the Project is not successful in eradicating ASF even after total depopulation, and the GODR switches to a "controlled endemic ASF" policy, then the national swine herd will eventually build back up to the level assumed in the "endemic ASF" case. In this situation, the Project would not have a positive rate of return. (This indicates the importance of the initial phase, to test and evaluate the effectiveness of the program.)

Conclusions: A review of the productive performance by the national herd under endemic ASF is indicative of a stagnant industry whereas an ASF free situation will result in an industry which is viable and expanding. With the Project it is expected that the total value of the offtake of pork production would be back to pre-ASF levels by as early as 1988. The calculated internal rate of return to the economy is more than 13%. Although not spectacular it is judged to be in line with most undertakings in the country. Thus, the Project is deemed to be economically feasible.

F. Environmental Impact

The primary actions to be undertaken by the Project which will impact on the environment are the application of chemicals to premises where infected pigs lived and the digging of burial pits for pigs sacrificed under the eradication program.

Approximately 30,000 gallons of disinfectant chemicals will be purchased under the Project. These will be applied to the premises of the pig owners, principally the land surface, including pens and general surface area where pigs roamed free. As indicated in the IEE (see Annex III), the chemicals to be purchased have been approved by the EPA. In addition, the Project provides for 6 months of an expert (probably a D.V.M.) who will be a specialist in the use and application of disinfectant chemicals for decontaminating premises of ASF.

Although it is difficult to estimate the number of burial pits that will be required over the life of the Project, it is not believed that more than 35 large pits will be needed. The animal Sanitation Unit of the SEA has worked with engineers from the Dominican Public Works Agency in selecting large burial sites and have followed the recommendations of USDA and FAO in establishing the dimensions of these pits. Sites have been selected in areas of low water tables and dense clay to prevent contamination of sub-surface water. In addition, burial sites will be of suficient depth and width (3 mt. x 3 mt.) and cover so that no contamination will result from the carcasses. These practices have been proven through the USDA's experience in eradication of hoof and mouth disease.

As a result of the above considerations, it is believed that the ASF Eradication Program to be carried out by the GODR will have no lasting negative impact on the environment including water and land resources.

IV. IMPLEMENTATION PLAN

A. Schedule of Major Events

It is anticipated that the ASF Eradication Program will be executed in accordance with the following schedule.

1. The Project will be authorized o/a November 25, 1978;
2. The Project Agreement will be signed and Implementation Letter No. 1 will be issued o/a November 30, 1978;
3. A stepped-up mass media campaign will begin o/a December 1, 1978;
4. The initial grant funded technical assistance will commence o/a December 15, 1978;
5. The Conditions Precedent to Initial Loan Disbursement will be met o/a January 30, 1979;
6. The initial phase of the eradication component will begin o/a February 15, 1979.
7. The Control Post activity will be in full operation by May 15, 1979.
8. The sentinel pig activities will be initiated o/a August 15, 1979 in the Eastern region.
9. The evaluation of the initial phase will begin o/a February 15, 1980.
10. The second phase of the eradication program will begin o/a February 15, 1980.
11. The third phase of the eradication program will begin o/a May 15, 1980.
12. The fourth phase of the eradication program will begin o/a August 15, 1980.
13. The eradication program will be completed o/a May 15, 1981.

B. Technical Assistance

The Project will provide a total of $414,000 for TA of which $200,000 will be grant funded and the balance will come from the A.I.D. loan.

Grant funds are intended to provide the services of three specialists. A Disease Control Generalist, probably a DVM and with prior experience with ASF, will be provided for approximately 2 years. He would be the full time Project Manager and also assist the GODR in all aspects of Project implementation. Thus, his services would be required from the inception of the Project. In addition, two animal laboratory specialists, one with a strong background in lab organization and the other in virology, will be provided for 4 months each. The organization specialist should arrive once the ASF laboratory has been established. An economist who has had considerable experience in price quarantine programs will be provided for a three month period. His services are also required fairly early in the Project.

Loan funds will provide the services of an additional 6 specialists. The livestock epidemiologist will be provided for 12 person months. In order to assist the GODR in orienting and training the 7 regional epidemiologists to be brought on board, his services are required near the initiation of the Project. The decontamination specialist, probably a DVM and preferably with experience with ASF, will also be provided for 12 person months. It may prove beneficial to divide his services into two periods. The first period would commence with the decontamination activities initiated early in Phase I of the Project and continue to the end of the Phase I follow-up activities, and the second period could be provided when the depopulation of foci is in full swing in the remainder of the country. The services of a wild pig specialist and an entomologist (two months each) will be provided early in the Project to further research the possible existence of wild pig and of non-swine carriers of ASF. The swine specialist will be provided for about 6 person months. His services will assist the GODR with all aspects of the sentinel pig activities and the development of its repopulation plan/strategy. Thus, as above, his services may prove most useful in three tranches: the first early in the program to help select the appropriate types or breeds of pigs to be purchased and to assist in all phases of their purchase, transportation and handling; the second at the time of the release of sentinel pigs into the decontaminated areas; and the third, perhaps 18-21 months into the program, would be aimed at developing the repopulation plan. The sociologist/anthropologist will provide two months of services with respect to the mass media campaign, training of brigade members, and assisting SEA to develop socially effective approaches in its eradication campaign.

C. Disbursement Procedures

U.S. dollar disbursement will be made using standard A.I.D. procedures such as reimbursement or issuance of letters of commitment

and making payment through letters of credit.

Peso funds will be disbursed quarterly. The first disbursement will be made in an amount based upon the estimated requirements of the Project during the succeeding 90 day period. Subsequent disbursements will be made on the basis of a report submitted by the borrower presenting the status of the funds previously disbursed and specifying the needs for the ensuing 90 day period.

D. Procurement Proceedings

Because it is important to initiate the implementation of the ASF Eradication Program as soon as possible, a waiver of formal bidding is being requested for the purchase of the three-quarter ton pick-up trucks. If this request is approved, award will be made on the basis of informal price solicitation. In anticipation of the waiver being approved, and in view of consideration of time, and the importance of having dependable service and maintenance, offers have been already solicited and received from the major U.S. manufacturers' representatives in Santo Domingo. The equipment specialist contracted by A.I.D. to assist in the preparation of this PP has reviewed these offers and has recommended placing orders with one of the representatives. He has found the prices offered reasonable and their maintenance capabilities to be excellent. Delivery should take place within 90 days after an order is placed. All Project procurement will be undertaken by the borrower/grantee except for any technical service procured from other government agencies which will be done by A.I.D. through the PASA device.

E. USAID Monitoring Device

Managing and monitoring the Project will be performed by Mission personnel including members from the Agriculture Development Division, Capital Resources Division and the Controller's Office.

The Project manager will be the grant funded Disease Control Specialist. It is anticipated that this technician will be obtained under a PASA with the USDA and will be assigned to the Mission Agriculture Division. He will also have the responsibility for the technical management and monitoring of the Project.

F. Required Reports

The borrower/grantee will be required to submit quarterly progress reports during Project implementation. These reports will accompany requests for disbursement for local currency.

G. Evaluation

As indicated previously, a major joint evaluation will be conducted after completion of the Initial Phase of the eradication program. A final evaluation will be made upon completion of the eradication program.

Estimated time of implementation will be o/a May 15, 1981. This evaluation will focus on the achievements of the program and will indicate any areas where further institutional assistance to SEA will be appropriate.

This evaluation schedule is based upon the present schedule for Project implementation. Should the implementation be delayed for any significant period, another evaluation of Project progress will be made o/a February 15, 1981.

H. Conditions and Covenants

In addition to the standard conditions and covenants associated with A.I.D. lending, the Loan Agreement should include the following:

1. Conditions Precedent to Initial Disbursement

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

a. evidence of a time phased implementation plan for carrying out the Initial Phase of the Project including the arrival of necessary TA and equipment, the disposition of field brigades, and a project reporting/information system;

b. evidence that arrangements have been made for making adequate and timely compensation for swine depopulated under the Project;

c. evidence of a time phased implementation plan for carrying out a stepped-up mass media campaign including evidence of the provision of budgetary resources necessary in implementing the campaign; and

d. evidence that the Borrower has made provision for providing the Directorate of Livestock with the counterpart financing necessary to carry out the ASF Eradication Program.

2. Conditions Precedent to Subsequent Disbursements

Prior to the disbursement of any funds for subsequent phases of the Project, the Borrower shall submit in form and substance satisfactory to A.I.D. evidence of a time phased implementation plan for each phase.

3. Covenants

Except as A.I.D. may otherwise agree, the Borrower covenants that joint evaluations will be held periodically to evaluate the progress of the Project.

In view of the need to initiate procurement under the program as soon as possible, the loan agreement will provide that A.I.D. funds can be used to reimburse the borrower for goods and services for which commitments were made after Project authorization and before loan signature.

LIST OF ANNEXES

*Available in LAC/DR

LIST OF ANNEXES (Cont'd)

Certification Pursuant to Section 611 (e) of the Foreign Assistance Act of 1961, as Amended

SUBJECT: Dominican Republic - Capital Assistance - African Swine Fever Eradication Program

I, Patrick F. Morris, as Director of the United States A.I.D. Mission to the Dominican Republic, having taken into account, inter alia, the maintenance and utilization of projects in the Dominican Republic, previously financed or assisted by the United States, do hereby certify that, in my judgment, the Dominican Republic has both the financial capability and the human resources to maintain and utilize effectively the proposed African Swine Fever Eradication Program.

This judgment is based primarily on the facts developed in the project paper for the proposed loan of $6.0 million and A.I.D.'s review of the financial assistance previously provided to the Dominican Republic.

P. F. Morris

Patrick F. Morris
Mission Director

November 6, 1978
Date

6C(1) - COUNTRY CHECKLIST

GENERAL CRITERIA FOR COUNTRY

1.	FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in consistent pattern of gross violations of internationally recognized human rights?	Yes, assistance will directly benefit the needy.
2.	FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics, drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?	The Dominican Government has instituted adequate measures for the control of narcotics and other controlled substances.
3.	FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?	The Secretary of State has determined that the Dominican Republic is not controlled by the international communist movement.

4.	FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?	According to the information available, the Dominican Republic is not known to be so indebted.
5.	FAA Sec. 620(e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?	No.
6.	FAA Sec. 620(f); App. Sec. 107. Is recipient country a Communist country? Will assistance be provided to the Democratic Republic of Vietnam (North Vietnam), South Vietnam, Cambodia or Laos?	No.
7.	FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?	No.
8.	FAA Sec. 620(i). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?	No.
9.	FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?	The Dominican Government has signed and instituted such agreement.

9. FAA Sec. 620(o); Fisherman's Protective Act, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters,	No
a. has any deduction required by Fishermen's Protective Act been made?	Not applicable
b. has complete denial of assistance been considered by AID Administrator?	Not applicable
11. FAA Sec. 620(q); App. Sec. 504. (a) Is the government of the recipient country in default on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds, unless debt was earlier disputed, or appropriate steps taken to cure default?	No
12. FAA Sec. 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC.)	Total defense expenditures as percentage of government expenditures were 8.3% in 1975 and 10.9% in 1976. Preliminary 1977 data shows defense expenditures at 12.6% and the 1978 budget expects this percentage to drop to 8%. As percentage of GNP, defense expenditures are running around 1.9%. The amount of foreign exchange spent on military equipment is very small, none of which is for sophisticated weapons.
13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?	No, diplomatic relations have not been severed.

14. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?

GODR is current on U.S. obligation.

15. FAA Sec. 620A. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism.

No.

16. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?

No.

17. FAA Sec. 669. Has the country delivered or received nuclear reprocessing or enrichment equipment, materials or technology, without specified arrangements on safeguards, etc.?

No.

18. FAA Sec. 901. Has the country denied its citizens the right or opportunity to emigrate?

No.

FUNDING CRITERIA FOR COUNTRY

1. Development Assistance Country Criteria

a. FAA Sec. 102(c), (d). Have criteria been established, and taken into account to assess commitment and progress of country in effectively involving the poor in development, on such indexes as: (1) small-farm labor intensive agriculture, (2) reduced infant mortality, (3) population growth, (4) equality of income distribution and (5) unemployment.

Yes, criteria have been established by the GODR in their agricultural, health-work, education sector analysis.

b. FAA Sec. 104(d) (1). If appropriate, is this development (including Sahel) activity designed to build motivation for smaller families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor?

Not applicable.

c. FAA Sec. 201(b)(5), (7) & (8); Sec. 208; 211(a)(4), (7). Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.	At present, the Dominican Republic is making a concerted effort to increase food production as well as to upgrade marketing and storage facilities.
(2) Creating a favorable climate for foreign and domestic private enterprise and investments.	The Dominican Republic has taken numerous steps to improve the private investment climate, as evidenced by its support for expanded industrial and agricultural credit, participation in the AID investment guaranty and housing guaranty programs, the passage of an updated Industrial Incentive Law, and more recently, a new Dominican Tourism Incentive Law, all designed to encourage foreign and domestic enterprise and investment.
(3) Increasing the public's role in the developmental process.	The public's role is increasing through various means. Some specific examples are the programs under the Dominican Development Foundation, savings and loan associations, credit unions, and agricultural cooperatives.

(4)	(a) Allocating available budgetary resources to development	The Dominican Government is allocating substantial budgetary resources to development. The total capital budget has averaged over 43% of the total expenditures. Over 93% of all budgetary surpluses are destined to investment projects.
	(b) Diverting such resources for unnecessary military expenditures and intervention in affairs of other free and independent nations.	
(5)	Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.	The Dominican Republic permits free expression; tax collection methods are improving; an active reform program is in progress; a free press exists, an active land reform is underway; the country is in compliance with the other criteria.
(6)	Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	The Dominican Republic is maintaining a reasonable balance in its development program. Increasing emphasis is being placed in the development of programs to help the rural poor.
d.	FAA Sec. 201(b), 211(a). Is the country among the 20 countries in which development assistance loans may be made in this fiscal year, or among the 40 in which development assistance grants (other than for self-help projects) may be made?	Not applicable
e.	FAA Sec. 116. Will country be furnished, in same fiscal year, either security supporting assistance, or Middle East peace funds? If so, is assistance for population programs, humanitarian aid through international organizations, or regional programs?	Not applicable

2. Security Supporting Assistance Country Criteria

a. FAA Sec. 520B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights? Is program in accordance with policy of this Section?	Not Applicable - this is not supporting assistance.
b. FAA Sec. 531. Is the assistance to be furnished to a friendly country, organization, or body elegible to receive assistance?	The same as above.
c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?	The same as above.

6C(2) - PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECT

1. App. Unnumbered; FAA Sec. 653(b) (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that figure plus 10%)?	These committees were notified through the Congressional Notification procedure The assistance is within the OYB level established for the country.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	(a) Yes (b) Yes
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment or purpose of the assistance?	No - No further legislative action needed.
4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated September 5, 1973 (replaces Memorandum dated May 15, 1962; see Fed. Register, Vol. 38, No. 174, Part III, Sept. 10, 1973)?	Not Applicable
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction) and all U.S. assistance for it will exceed $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?	Not Applicable

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or plans to the maximum extent appropriate?	The project cannot be executed as part of a regional project.
7. FAA Sec. 601(a); (and Sec. 201(f) for development loans). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	Not applicable.
8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	Not applicable.
9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services. and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.	Counterpart contribution will be used.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?	There is no excess, U.S. owned local currency available for this program.

11. ISA 14. Are any FAA funds for FY 78 being used in this project to construct, operate, maintain, or supply fuel for, any nuclear powerplant under an agreement for cooperation between the United States and any other country? No.

FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria:

a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

Once the infected swine population of the country has been eliminated, the project will

b. FAA Sec. 103; 103A, 104, 105, 106, 107. Is assistance being made available:

(1) - 104 - for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor.

c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Yes. See Financial Plan under Section D The GODR contribution to this project is approximately 77% of total project costs.

d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing?	No
e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on: (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and voluntary agencies; transportation and communication; planning and public administration; urban development and modernization of exisitng laws; or (6) integrating women into the recipient country's national economy.	This project responds to an outbreak of African Swine Fever in the Dominican Republic. Once the disease is eradicated from the country, the project will initiate the process of repopulating the country with swine and thus contribute to the countries' self-help efforts to meet its food needs.
f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	The program addresses an area of the highest priority to the Dominican government by assisting it to carry out a program designed to eliminate African Swine Fever from the country (see Annex I, Exhibit 3).
g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development: of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide	Not applicable.

h. FAA Sec. 201(b)(6): Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.	No adverse effects on the U.S. economy is expected.
2. Development Assistance Project Criteria (Loans only).	Other principal International donors have indicated they do not contemplate financing any of the proposed activities.
a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.	Financing from private funds are unavailable for this purpose.
b. FAA Sec. 201(b)(2); 201(d). Information and conclusion of (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.	(1) The prospect for repayment is good. FAA 611(e) Certification by the Mission Director (2) The terms are legal and reasonable under U.S. and Dominican laws.
c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds $100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?	Yes, see (letter from the Secretariat of Agriculture.)
d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?	Yes, see Section
e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?	Not Applicable

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?	Not applicable.
3. Project Criteria Solely for Security Supporting Assistance.	
FAA Sec. 531. How will this assistance support promote economic or political stability?	Not applicable.
4. Additional Criteria for Alliance for Progress.	(Principles of Act of Bogota and Charter of Punta del Este are taken into account).
Note: Alliance for Progress Projects should add the following two items to a project checklist.	
a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?	The program does not relate to international regional development or economic or political integration.
b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?	Yes.

REPUBLICA DOMINICANA

SECRETARIADO TECNICO DE LA PRESIDENCIA DE LA REPUBLICA

STPR/No. Santo Domingo, D. N.

Señor
Patrick Morris
Director Misión USAID en la
República Dominicana
Ciudad.

Estimado señor Morris:

Nos place remitirle anexa, la comunicación suscrita por el Agron. Hipólito Mejía D., Secretario de Estado de Agricultura, mediante la cual dicho Departamento plantea una solicitud de préstamo por valor de US$6,000,000.00 bajo los más favorables términos, y una donación de US$200,000.00 de parte de la USAID al Gobierno Dominicano, para financiar una proporción importante del programa de erradicación de la Fiebre Porcina Africana, y que este Despacho cursa a Ud. cortésmente, con nuestra recomendación favorable.

Muy atentamente,

Arq. Leopoldo A. Espaillat Nanita
Secretario Técnico de la Presidenci

LAEN/xhr

REPUBLICA DOMINICANA
SECRETARIA DE ESTADO DE AGRICULTURA

Santo Domingo, D.N.

9280

21 NOV. 1978

Señor
Arq. Leopoldo Espaillat Nanita,
Secretario Técnico de la Presidencia,
Palacio Nacional,
SU DESPACHO.

Distinguido Sr. Secretario:

Muy cortésmente le informamos que esta Secretaría de Estado de Agricultura ha iniciado un programa de emergencia cuya meta es la total erradicación de la Fiebre Porcina Africana del territorio nacional para así poder repoblar nuevamente al país con cerdos libres de la Fiebre Porcina Africana. A este respecto, estamos interesados en solicitar a la Agencia para el Desarrollo Internacional (AID), un préstamo por valor de $6,000,000 bajo los más favorables términos y una donación de $200,000, a fin de contribuir con la ejecución de este programa a ser ejecutado por nuestro Gobierno.

En los pasados meses desde que fue detectado el brote de la Fiebre Porcina Africana, miembros de esta Secretaría de Estado de Agricultura en coordinación con representantes de la AID, han diseñado un programa para la erradicación de la Fiebre Porcina Africana con una duración de dos años y medio. A continuación, tengo a bien enumerar a Ud. los puntos sobresalientes de este Programa, para el cual solicitamos su asistencia.

1) Información y educación de masa para enfrentar el problema básico que tiene el Gobierno de educar al público sobre la Fiebre Porcina Africana y así obtener respaldo para el esfuerzo de erradicación. Esta campaña estará dirigida principalmente a los productores de fincas porcinas, otros dueños de porcinos, al público en general con énfasis especial sobre el consumidor y al personal veterinario del país.

2) La erradicación de la Fiebre Porcina Africana la cual es el componente más crítico del proyecto lo cual se obtendrá mediante la ejecución de las cuatro actividades principales siguientes.

   a. <u>Actividad de Detectación</u>

      El objetivo de esta actividad será el de aislar y

2/

examinar todos los brotes de la enfermedad que se sospechen o sean reportados y confirmar diagnóstico positivo de la Fiebre Porcina Africana.

b. Actividad de Despoblación y Descontaminación

El objetivo de esta actividad será la destrucción de todos los cerdos enfermos con la Fiebre Porcina Africana o que hayan estado expuestos a ésta, la desinfección de las pocilgas, y estimular el mercado rápido y ordenado de todos los animales sanos restantes.

c. Actividad de Seguimiento

El objetivo de esta actividad es asegurarse que la Fiebre Porcina Africana ha sido erradicada y si no por qué no se ha logrado este objetivo?

d. Actividad Post Control

El objetivo de esta actividad es proteger al país de la amenaza de la reintroducción de la Fiebre Porcina Africana y enfermedades de otros animales mediante controles adecuados.

3) Compensación a los productores porcinos por los animales sacrificados bajo el programa de erradicación y además incentivar los precios a los pequeños productores y para facilitar que informen de cerdos enfermos o el mercadeo de los sanos.

4) Asistir a la Secretaría de Agricultura a desarrollar un plan para la repoblación porcina mediante asistencia técnica con especialistas en esta materia.

Para la ejecución de este Programa, el Gobierno de la República Dominicana podrá hacer disponible la suma de por lo menos RD$21,000,000. De esta cantidad, una suma no menor de RD$1,000,000 se usará para sufragar los costos operacionales del Programa anteriormente descrito. El resto se utilizará en la compensación de los productores de cerdos cuyos animales sean sacrificados bajo este Programa.

El Gobierno, mediante Decreto Núm.909, ha autorizado le emisión de bonos por un valor de RD$10,000,000 para éste propósito.

Esperamos que las negociaciones correspondientes para la ges-
t[illegible] de este préstamo que en principio ha sido bien acogido por
AID se realice a la mayor brevedad posible.

Sin otro particular, y agradeciendo sus gestiones al res-
pecto, quedo de Ud.,

Muy atentamente,

AGRON. R. HIPOLITO MEJIA D.
Secretario de Estado de Agricultura

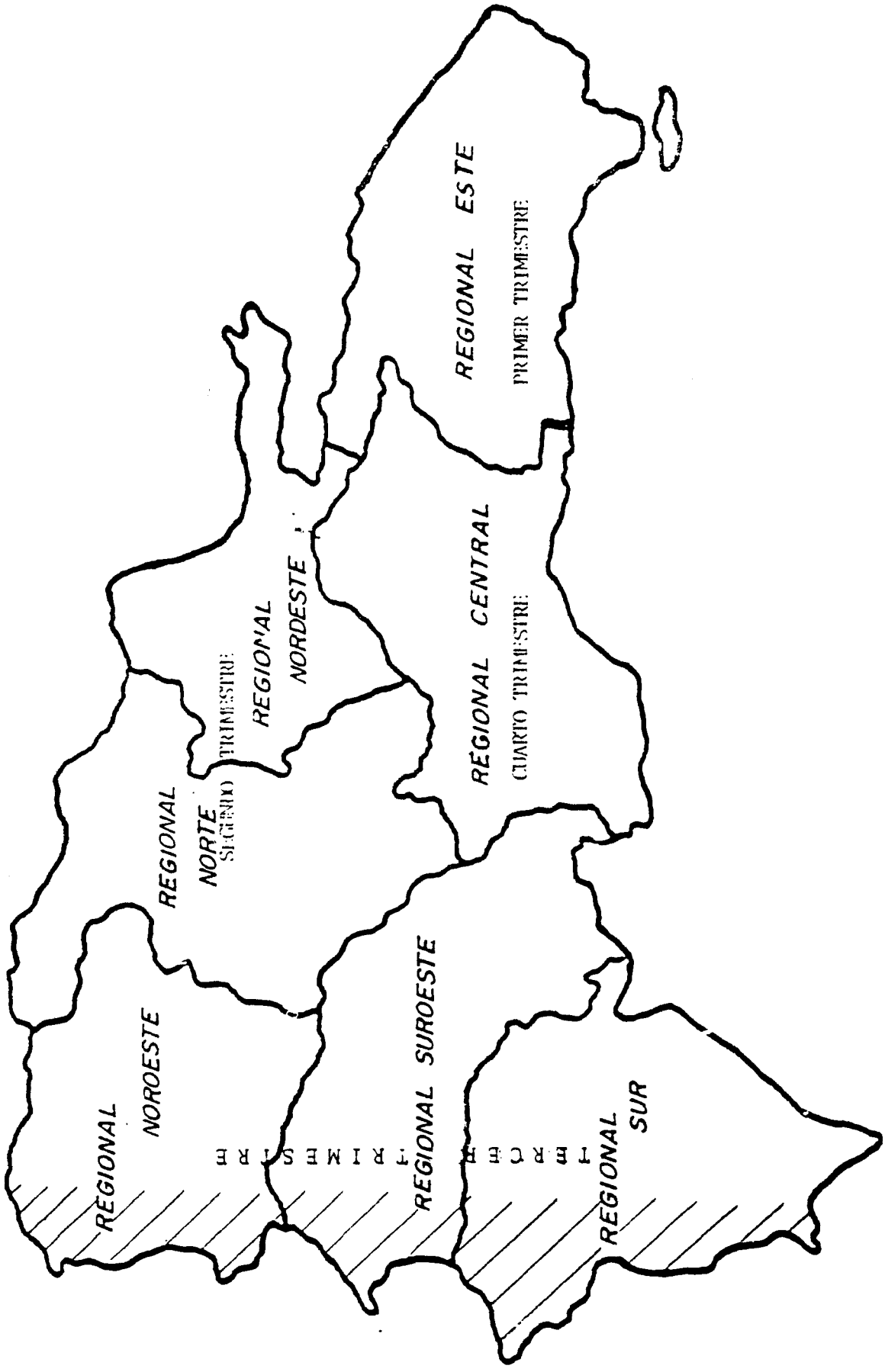
RHMD/

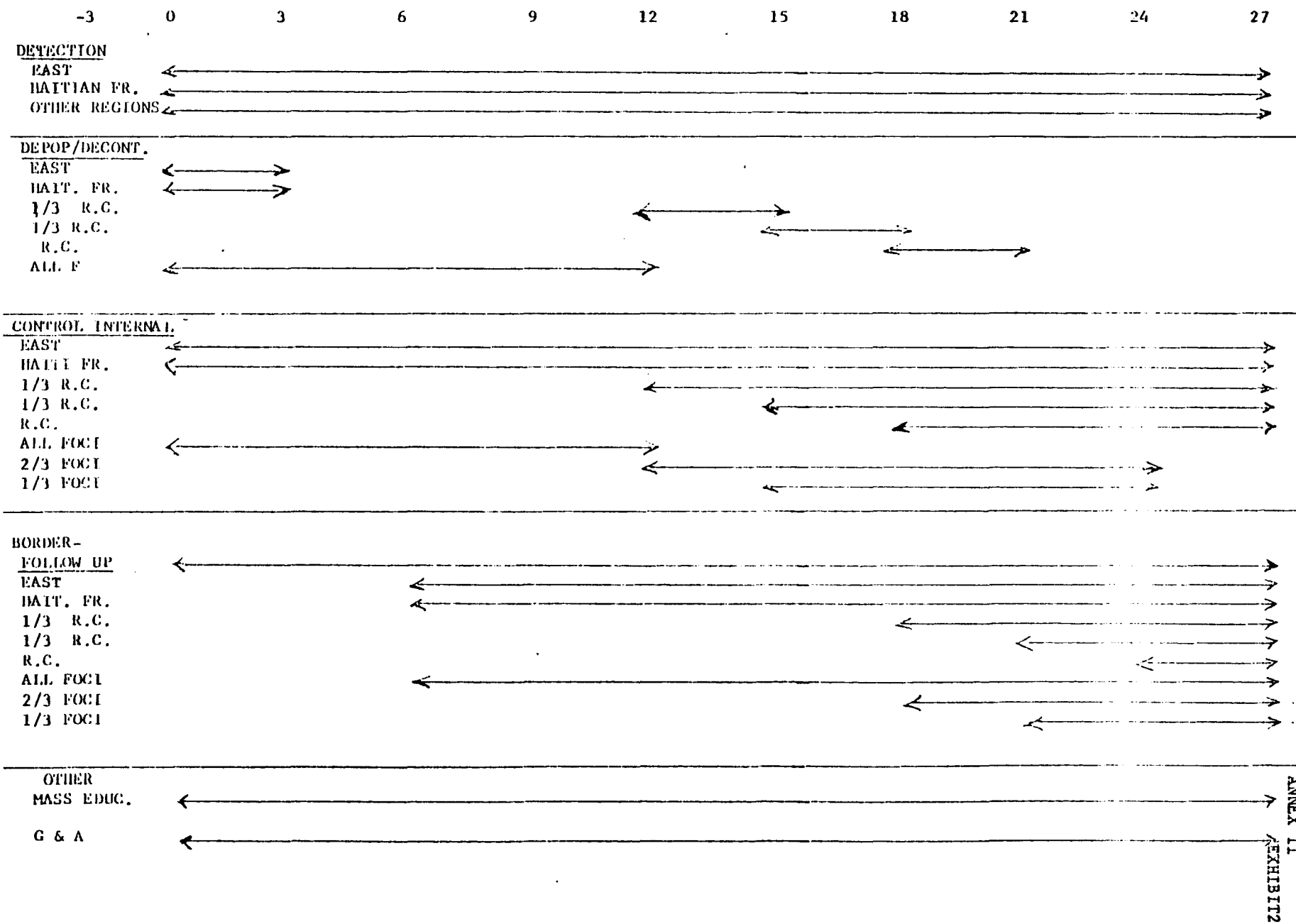
Anexo: Borrador del Programa.

CONSUME
CARNE DE CERDO

COMISION DE ALTO NIVEL PARA LA ERRADICACION DE LA
"PESTE PORCINA AFRICANA"

ANNEX II
EXHIBIT 1





ANNEX II
EXHIBIT2

AID 1025-3 (7-71)

LOGICAL FRAMEWORK MATRIX - PROP WORKSHEET

Summary	Objectively Verifiable Indicators	Important Assumptions
A.1. Goal 1. To improve the economic standards of the rural poor. 2. To increase the level of agricultural productivity, with particular regards to the needs of the small farmer.	A.2. Measurement of Goal Achievement 1. Real income of small farmers owning 0.5 to 50.0 hectares increases by 5% between 1976 and 1980. 2. The number of persons employed in full and part-time positions in rural areas increases 5% between 1976 and 1980. 3. One percentage point decline in the projected rate of rural to urban migration by end of FY-1980.	A.3. *(as related to goal)* 1. No exceptionally adverse short-term climatic developments. 2. GODR domestic pricing policies will not disfavor small farm producers. 3. Rate of growth of the economy is sufficient to expand rural employment opportunities. 4. Access to markets will continue to improve for small farmers.
B.1. Purpose 1. To eradicate ASF from the Dominican Republic; achieve complete depopulation of swine and decontamination of their premises; and to initiate the process of repopulation.	B.2. End of Project Status 1. GODR has carried out a successful mass media campaign to achieve the following objectives: a. Make all citizens aware of the problem, and the need for full cooperation from all sectors to eradicate ASF. b. Attain full cooperation from producers of pork and pork products to implement the eradication plans as well as to guarantee the quality of the products reaching the market.	
	c. Stimulate consumption of pork and pork products. 2. SEA Livestock Sub Secretariat has been strengthened to be able to fulfil its planned role in detection and eradication efforts. 3. SEA has designed and is implementing a compensation program which adequately deals with the problem of producers and stimulates their cooperation with the program.	
	4. SEA has the capability to design and implement a sound and effective repopulation program which involves minimizing risks of any reoccurence of ASF, and selection of the most efficient alternative to start production systems again.	

ANNEX II
EXHIBIT 3
Page 1 of 3

Summary	Objectively Verifiable Indicators	Important Assumptions
C.1. Outputs 1. Eighty-six fully equipped detection-eradication brigades formed. 2. Fifty control posts established, including four border control posts. 3. Sixteen special control posts equipped with incinerators, one in each of the twelve ports and four airports.	C.2. Output Indicators 1. First Year - border area depopulated. Second Year - rest of the country depopulated. 2. All traffic accross the border will be thoroughly inspected and decontaminated. 3. Pork and pork products imported into and exported from the D.R. thoroughly inspected to avoid further contamination.	A.3 *(as related to goal)*
4. One ASF Laboratory. 5. Repopulation Strategy prepared. 6. Price control, compensation plans prepared and implemented.	4. Detection program in operation, samples from the field being processed. 5. Repopulation plans implemented in several areas of the co....., three months after decontamination activities were completed. 6. Producers receiving compensation for their losses.	B.3. *(as related to purpose)*
D.1. Inputs LOAN INPUTS Detection Activities A. Salary and per diem costs of seven epidemiologists ($94,500). B. Seven vehicles, including operational and maintenance costs ($82,000). C. Field equipment and supplies ($65,700). D. Six months TA from a livestock epidemiologist ($36,000). E. Salary costs and per diem of bacteriologist ($12,200).		C.3. *(as related to outputs)*
F. Bacteriology equipment and supplies ($38,900). II. Detection, Eradication Activities G. Eighty six vehicles including operational and maintenance costs ($1,104,700). H. Heavy equipment rehabilitation ($210,000). I. Field Office equipment and supplies ($647,500). (Continue on page 3)		D.3. *(as related to inputs)*

ANNEX II
EXHIBIT 3
Page 2 of 3

LOGICAL FRAMEWORK MATRIX – PROP WORKSHEET

Summary	Objectively Verifiable Indicators	Important Assumptions
D.1. Inputs J. Six person months of TA of a Doctor of Veterinary Medicine ($36,000). III. Control Post Activities K. Partial salary and per diem costs ($743,400). L. Field equipment and supplies ($168,000). M. Fuel oil for incinerators ($15,000).	A.2. Measurement of Goal Achievement	A.3. *(as related to goal)*
IV. Repopulation Activities N. Purchase of sentinel pigs ($600,000). GRANT INPUTS I. Technical Assistance in various phases of disease control ($134,000) II. Other Technical Assistance to cover areas of depopulation, repopulation, compensation-pricing strategies, etc. ($66,000).	B.2. End of Project Status	B.3. *(as related to purpose)*
TOTALS (U.S. $ 000) Total A.I.D. Loan - 6,000.0 Total A.I.D. Grant- 200.0 Total GODR - 20,845.0	C.2. Output Indicators	C.3. *(as related to outputs)*
	D.2. Budget/Schedule	D.3. *(as related to inputs)*

ANNEX II
EXHIBIT 3
Page 3 of 3

INITIAL ENVIRONMENTAL EXAMINATION

PROJECT LOCATION: Dominican Republic

PROJECT TITLE: African Swine Fever Eradication

FUNDING: FY-1979, $6 million loan, and $200,000 grant funds

LIFE OF PROJECT: Three years, FY-1979/FY-1981

IEE PREPARED BY: John H. Clary, Mission Environmental Officer

Signature Date

ENVIRONMENTAL ACTION RECOMMENDED: Negative Determination

(See Page 7)

CONCURRENCE: Patrick F. Morris, Director USAID/DR

Signature Date

I. EXAMINATION OF NATURE, SCOPE, AND MAGNITUDE OF ENVIRONMENTAL IMPACTS

A. Description of Project

1. Background

The Dominican Republic has suffered an outbreak of African Swine Fever (ASF), a particularly virulent disease for which there is neither cure nor prevention through innoculation at the present time. ASF affects swine only, and in its classic form is almost 100% fatal. The few animals which survive are carriers of the disease. In addition to direct contact with diseased animals, ASF can also be spread by excreta and excreta contaminated water, and by pork products prepared from infected swine. Although the cause of the outbreak of ASF in this country is not known, popular speculation has it that the disease was introduced through infected pork products from a European country in which ASF is widespread.

In the field, ASF has many of the characteristics of hog cholera. With both, apparently healthy hogs suddenly sicken and die, and the fatality rate is almost 100%. Both spread rapidly, destroying almost all the swine in each herd touched and jumping on from farm to farm. A major field difference, however, is that vaccines exist to prevent hog cholera.

When ASF first appeared in isolated instances early in 1978, it was thought to be an outbreak of hog cholera which is endemic in the Dominican Republic. ASF had never been known in the country. Vaccination against cholera was stepped up as a preventative measure. When protective measures against cholera soon proved to be ineffective, the GODR's first reaction was that the country was faced with a new type of that disease, and a full list of cholera vaccines was tried. Failure to recognize ASF allowed the disease to spread. It is possible that cholera vaccination teams, from their contaminated clothing and instruments, transmitted ASF to healthy herds. Further, the time lost in identifying ASF permitted the disease to extend over all of the country.

In June, the GODR requested assistance from the USDA in diagnosis of the swine epidemic. Laboratory analysis of Dominican specimens at the USDA's facility at Plum Island, New York, identified

the contagium. The GODR's initial response to the disease was immediate. To prevent the spread of ASF to the Dominican Republic's neighboring country, Haiti, the border was sealed against the movement of swine. Both countries are establishing a fifteen kilometer "sanitary zone" on their respective sides of the border, in which swine are not permitted. The Dominican military is engaged in destroying domestic and wild pigs within the Dominican zone, and similar activities are underway by Haitian officials in that country' zone. The GODR has also banned the export of pigs and pork products in an effort to prevent the spread of ASF to other countries.

Other early steps to address ASF include destruction and burial of diseased animals, the beginning of an indemnity program, efforts to stimulate consumption of pork from healthy animals so as to reduce the swine population, and a publicity campaign to inform both producers and consumers of the government's actions. The GODR has also requested A.I.D. assistance to develop a project to eradicate ASF from the Dominican Republic.

2. The Project

The project has been developed with the collaboration of the GODR, and with the advice of private consultants and USDA officials expert in disease control. The overall project contains four major components:

a. Mass Education/Information - This activity is fully funded by the GODR, and is aimed at three groups. First, at all swine producers from large operators down to the campesino with only one pig, to explain the nature of ASF, the rationale and timetable for government actions, and GODR plans for re-introducing swine when the disease has been eradicated. Second, at the consumer to reassure the public that all pork sold has been inspected by veterinarians qualified to certify that the meat can be eaten without danger. Third, at the GODR staff who need instruction in respective responsibilities for implementing the project.

b. Eradication - This activity is largely funded by an A.I.D. loan for GODR salaries and per diem, vehicles and their operation and maintenance, rehabilitation of equipment, field and office supplies and equipment, healthy pigs, and a technical assistance grant to fund USDA consultant services. Four sub-components are included:

1) Detection - To isolate and examine all suspicious and reported outbreaks of swine disease, and to verify if the disease is ASF. A.I.D. will finance the salary and per diem costs of seven epidemiologists, and related vehicle and field equipment needs and operational costs, and provide the services of a livestock epidemiologist for six months.

2) Depopulation/Decontamination - To destroy all swine which are sick with ASF or have been exposed to sick animals, bury carcasses of animals which have died from ASF, disinfect the premises where infected animals lived and roamed, and encourage the expeditious but orderly marketing of swine within the area of exposure.

In terms of A.I.D. financial involvement, this sub-component will claim almost two-thirds of the loan, and will receive six months of technical services of a veterinarian. A.I.D. will finance the costs of 86 field brigades who will be located throughout the country. Each brigade will be headed by a veterinary or college trained agricultural technician. Chemicals used for disinfection will be EPA approved, and their use will be closely supervised. Burial sites will be of sufficient depth and cover that no contamination will result from the carcasses. Sites will be in areas of dense clay to prevent possible contamination of sub-surface water. These practices have been proven through the USDA's experience in eradication of hoof and mouth disease, which have successfully eliminated that disease in several areas without harm to the environment.

3) Follow-Up - To insure that ASF has been eradicate from locations in which its presence has been verified. If the disease reappears, the cause for its reoccurence will be determined and the cause addressed. The brigades and the epidemiologists mentioned in the two previous paragraphs will share responsibility for this sub-component. After an area with ASF has been depopulated and decontaminated, no swine will be introduced for at least three months. This period is considered sufficient for any remaining ASF virus to "die". Then, disease free pigs purchased outside of the Dominican Republic will be introduced into locations of previous contamination. Their health will be closely monitored, as a means of verifying that the area is free of ASF.

4) Control Posts - To protect the country from the re-introduction of ASF and other animal diseases. Two systems are planned, one at the border and ports, the other within the country.

At the four Haitian border posts, each vehicle entering the Dominican Republic will be required to pass through a disinfectant pit and will have its interior inspected and disinfected as necessary. Entry of pigs and pork products will not be allowed. The country's major ports and airports customs teams will be doubled in size and equipped with high efficiency incinerators. Suspect materials from entering passengers and crews will be confiscated and destroyed.

Within the country, 40 control posts will be established to inspect and control the movement of pigs and pork products.

c. Compensation - To provide compensation for animals sacrificed, and at an incentive price to small farmers to encourage their reporting of diseased swine or their marketing of healthy pigs. The GODR's Agricultural Bank will implement compensation, which is currently estimated to require $20 million of GODR funds. A.I.D. will supply a grant funded economist for three months to assist in development of a price guarantee program.

d. Repopulation Planning - To develop plans for the reintroduction of swine when infected areas have been determined to be free of ASF. This is a small component of the project but is of importance to insure the prompt and orderly expansion of the swine population as circumstances permit. A.I.D.'s direct support to this component will be limited to grant funding three months of consultant services from a swine specialist. However, an additional repopulation resource may be provided from the healthy pigs to be imported through loan financing, previously mentioned under "Follow-Up". Assuming that most of those animals survive, they could provide an important source of stock for repopulation.

3. General Area Affected by the Project

The Dominican Republic has an estimated total of 430,000 rural households. Within this figure, there are 345,000 small farmers and landless farm laborers who make up the poor majority. Approximately 84,000 small farmers raise pigs, averaging fewer than 10 pigs per farm. Small farms are found throughout the Dominican Republic, and unfortunately, ASF is now also found practically throughout the country.

About 160 sites of ASF infection have been identified thus far. However, the number of locations reported has diminished significantly. Now, only three or four are reported monthly, which

may indicate the disease has gone into its endemic state. If not controlled and eradicated, all of the pigs in the Dominican Republic could be destroyed by the disease, and the production of pork would not be possible.

Heroic measures are needed to protect swine not yet infected, to eradicate ASF so that swine can be re-introduced in areas where it has occured, and to prevent the spread of ASF to other countries.

B. Identification and Evaluation of Environmental Impacts

By its nature, ASF has important impact, both domestic and international. Any program which attempts to address the problem of ASF has similar implications. The Dominican Republic shares a common border with Haiti, and is near Cuba and Puerto Rico. Commercial contact with Cuba is limited, but the Dominican Republic has active trade with, or is a port of call for ships and planes to all of the countries in the region. The United States is the country's leading trading partner, and ships and planes arrive daily in the U.S. from the Dominican Republic discharging thousands of tons of cargo and hundreds of passengers. The chances of transmitting ASF through the contamination of ordinary commerce is a serious threat to all countries which deal with the Dominican Republic. If the disease were to spread to other countries, its cost could be in the hundreds of millions of dollars. Therefore, the prompt control and eradication of ASF is of international environmental concern.

Within the Dominican Republic, farmers large and small are concerned about the safety of their pigs. For farmers whose herds have been infected and lost, or destroyed under the GODR's initial control efforts, the concern is over how compensation will be provided, and how and when swine can safely be grown again. Consumers of pork are worried about whether or not the pork available in the market is free of ASF, even though the disease does not affect humans. Consumers are also concerned about the future available of pork, and its price. Although subsiding, the fear of pork and pork products has increased the demand for poultry. As a result, poultry is becoming scarce and prices have gone up. The above fears and concerns are matters of national controversy. The manner in which the GODR addresses ASF is important to the reputation and stability of the government.

This project has larger program impacts. While not all of these impacts can be identified or their magnitudes predicted at this time, it is likely that the GODR will develop special programs

for investment of compensation payments given farmers for the destruction of their pigs, a livestock program to stimulate production of other animals and poultry, and when ASF has been eradicated will start a large program for repopulation.

Changes in economic and employment patterns as a result of ASF and this eradication program are unknown at this time. The GODR plans to develop alternative investment and employment opportunities in an attempt to provide substitutes for swine until pigs can safely be grown again. We cannot comment on how successful these efforts may be.

Another unknown is possible change in the chemical and biological states of water. If the burial of carcasses is not done properly, contamination of water and transmission of the disease through water is possible. Also, the chemicals used in disinfection are a source of contamination if not properly handled. All chemicals to be used in the project are biodegradable and are approved by the EPA. A major aim of the technical assistance provided under this project is to insure that the project's activities are carefully controlled and without adverse environmental impact. We have been assured by expert consultants that so long as the project is properly monitored, it will not have adverse impact.

II. RECOMMENDATIONS FOR ENVIRONMENTAL ACTION

The proposed project will foster no change with adverse implications for the human or natural environment of the Dominican Republic. It is recommended that the Assistant Administrator for Latin America approve a Negative Determination for this project.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-Areas	Impact Identification and Evaluation 1/
A. LAND USE	
1. Changing the character of the land through:	
a. Increasing the population	N
b. Extracting natural resources	N
c. Land clearing	N
d. Changing soil character	N
2. Altering natural defenses	N
3. Foreclosing important uses	N
4. Jeopardizing man or his works	N
5. Other factors	
_____	_____
_____	_____
B. WATER QUALITY	
1. Physical state of water	N
2. Chemical and biological states	U

1/ N - No environmental impact.
L - Little environmental impact.
M - Moderate environmental impact.
H - High environmental impact.
U - Unknown environmental impact.

3. Ecological balance	N
4. Other factors	
_____	_____
_____	_____

C. ATMOSPHERIC

1. Air additives	N
2. Air pollution	N
3. Noise pollution	N
4. Other factors	
_____	_____
_____	_____

D. NATURAL RESOURCES

1. Diversion, altered use of water	N
2. Irreversible, inefficient commitments	N
3. Other factors	
_____	_____
_____	_____

E. CULTURAL

1. Altering physical symbols	N
2. Dilution of cultural traditions	N
3. Other factors	
_____	_____
_____	_____

F. SOCIO-ECONOMIC

1.	Changes in economic/employment patterns	U
2.	Changes in population	N
3.	Changes in cultural patterns	N
4.	Other factors	
	_____	_____
	_____	_____

G. HEALTH

1.	Changing a natural environment	N
2.	Eliminating an ecosystem element	N
3.	Other factors	
	_____	_____
	_____	_____

H. GENERAL

1.	International impacts	H
2.	Controversial impacts	H
3.	Larger program impacts	H
4.	Other factors	
	_____	_____
	_____	_____

I. OTHER POSSIBLE IMPACTS (Not Listed Above)

FINAL REPORT

PART II. THE PROBLEM

a. Description of African Swine Fever

The attached USDA brochure describes this highly contagious viral hemorrhagic disease affecting swine. The disease is a severe problem in infected countries because of the extreme durability of the virus both within and outside the animal body(att. 2).

In spite of years of research, no effective vaccine has yet been developed, meaning that isolation and destruction of infected swine is the only way of eradicating or even controlling the disease. Infected swine which survive remain carriers of the virus, spreading disease.

Uncooked products contain the infective virus and when fed to pigs cause disease. Mechanical transmission by people and things readily spreads disease from farm to farm.

African Swine Fever spread from Africa to Portugal and Spain twenty years ago and remains endemic in these countries. From there it has spread to other countries in Southern Europe, and early in 1978, to Brazil and the Dominican Republic. Spread is attributed to movement of uncooked pork products (salamis, sausages, hams, etc.), which eventually are fed to swine.

The only outbreak previous to 1978 in the Western Hemisphere was in Cuba in 1971 which caused the slaughter of more than 400,000 swine. That outbreak was eradicated.

b. The Status of Outbreak

The presence of ASF in the D.R. was confirmed by the U.S. Plum Island Animal Disease Center on July 5th.,1978. A high mortality of swine during the previous four months had been atributed to a clinically similar disease (hog cholera),but vaccination against this disease gave no results.

Because there is no known method of controlling ASF, the D.R. immediately decided to completely eradicate the disease by destroying swine from infected and exposed herds. Technical consultants from the USDA, the Pan American Health Organization and the FAO, (from U.S.,Spain and Cuba) arrived and helped establish laboratory diagnostic capability and plans for ASF eradication.

As field reports of disease and laboratory confirmation were compiled, it became apparent that the disease had already spread throughout the D.R., and the government estimated at the end of August that, of an estimated 1.4 million swine population, 120,000 swine had died of ASF, and an additional 150,000 had been sacrificed for disease control. The only area of the D.R., as of October 30, from which there had been no laboratory nor field confirmation of ASF, was La Romana.

The earlier acute wave of disease with high morbidity and mortality had, by the end of September, somewhat subsided. Disease was no longer reportedly being diagnosed in larger commercial farms with good sanitation. Many smaller commercial farms had already been put out of business.

The Ministry of Agriculture atributes the lesser mortality to the evolution of a subacute, or chronic, form of the disease. When the circulating virus is of the acute form, 50% or more of affected swine die shortly, and when it becomes subacute, a larger percentage of affected animals survive infection.

c. Current GODR Activities

In September the GODR began to implement their program, by bilateral agreement with the government of Haiti, of depopulation of swine within at least 15 Km. of the border of Haiti. A straight North/South line beggining from Pta.Chica in ~~the North~~ to Sabana de Babín/ in the South, the South will be depopulated. Repopulation activities have begun starting from the border working Eastward.

Six brigades are working in the sector within the Northwestern region, 8 in the Southwestern, and 8 in the Southern. Each brigade consists of a chief (Veterinarian or Agricultural Engineer), evaluator (from the Agricultural Bank), one or two soldiers, and from 2 to 5 laborers. Not all brigades are presently equipped with vehicles.

Known infected herds are, as in all areas of the country, sacrificed and buried on or near the premises and the premises are then disinfected. Apparently healthy herds are censused/evaluated and the swine are slaughtered for consumption.

Even though a voucher for 1 peso/Kg. liveweight for their swine is given to owners of healthy herds here, the usual herd is of a very few pigs and the meat is given to the owners. When a larger herd is

depopulated the government takes the meat for distribution to a public institution (military,hospital,prison,etc.).

The border with Haiti is closed to all products except petroleum . The government of D.R. will reportedly open it when the border area is depopulated and a vehicle disinfection tunnel (already under construction) is completed and in use. ASF has not been proven to exist in Haiti, and they have already reportedly depopulated the swine within 15 Km. of the Dominican border, but the Dominican Government has likewise stopped passage and trade from Haiti.

Feral swine exist in the border depopulation area. The military is in charge of attempting to shoot them out.

In the remainder of the Dominican Republic, 24 brigades each with a veterinarian and one or two helpers, are investigating all reported cases of swine sickness. When a disease is suspicious of ASF the herd is quarantined and samples are sent to the San Cristobal Central Veterinary Laboratory. When diagnosed as positive, depending on the size of the infected premise, the brigade is enlarged to slaughter and destroy swine, and disinfect, by the addition of an appraiser, military and auxiliary personnel.

Swine are appraised by weight and killed by injection with a curare like drug (succinyl choline). A three meter deep burial ditch is excavated or a nearby one in existence is used for burial. The owner is instructed to clean pens, and that which can't be cleaned or disinfected (feed, bedding,thatch roofing), is destroyed. When cleaned, the brigade disinfects premises, which are not restocked.

With the exception of the Haitian border depopulation zone, swine from apparently healthy premises go to slaughter normally. Before moving to nationally approved and inspected slaughterhouses, however, they must now be inspected on the premise of origin by veterinary personnel, sent under permit within 24 hours to the plant in trucks which have at least three foot high sideboards. Straw bedding to absorb excretion is required. If lesions of ASF are found on inspection, the herd of origin is destroyed. Trucks leaving slaughterhouses are disinfected.

Traditional smaller local butchering is done as usual. With limited resources, no control posts have been established. No attempt is made to control manufacturing or distribution of potentially dangerous uncooked pork products (hams, sausages,etc.) . No epidemiological investigations are being done, nor is there any quarantine placed on possibly infected premises nearby confirmed ones.

PART III. PROJECT ANALYSIS

Summary Conclusion

It is believed that the Project as designed has a high probability of success. The total depopulation of the nation's swine herd appears to be the surest and most economical means of achieving eradication. This approach should be tested in an initial area and if successful be continued throughout the country.

Section 1 - Project Approach

a.

After it became apparent that ASF was spread throughout the D.R.,the Executive Secretariat for ASF eradication concluded that complete depopulation of the country's swine population was the best way to completely eradicate the disease from the country. This approach would be new to the world, in that, as far as we know,no country has ever completely depopulated a farm species in order to eradicate a disease.

Since as far as is known ASF is strictly a swine disease, the Dominican Government decision can be supported from a technical standpoint.

Reasons for agreeing with the feasibility of the project include that ASF is a disease of one species only, the killing of swine on a significant scale in two countries has (see b) eradicated the disease, the D.R. is an island nation with only one land border to protect, and there exists a veterinary service with apparent capability and enthusiasm.

The total depopulation of the nation's swine appears to be the surest method for success. However, since the complete depopulation of species within a country has never been attempted before, the feasibility of such an undertaken should be tested before undertaking a full country wide program.

The program should be tested before proceeding for the following reasons:

1) In Southern Europe and Africa ticks carry the disease in the absence of swine, including transmission from one generation to the next of the virus . Swine ticks are reportedly not present in the D.R. but this is not known, nor is it known if other possible long term arthropod carriers of the virus exist.

2) Although social sound structurally and organizationally, operational ability of the GODR to completely depopulate swine in an area has not been tested. Country people are reportedly hiding swine now, unconvinced that compensation will be adequate, or even paid at all, or possibly for other reasons. Thus, an education/education program is required which addresses the cultural/sociological situation. In addition, feral swine exist in several locations in the D.R. They may be

infected carriers of the virus, and extremely difficult to completely depopulate.

3) The ability of the GODR to control the production and distribution of swine products - a significant amount which can now be considered infected with the ASF virus - is unknown.

4) The ability to control swine and pork from Haiti has not been tested.

5) The effects of total depopulation on the farmer, meat industry, and consumer are unknown, however, the swine producer and meat industries will/likely be disrupted, and some amounts of pork may need to be imported, causing a foreign exchange loss.

The initial phase of the project should throughly test the depopulation approach to see if the disease virus can be eradicated before other areas are considered for depopulation. To be representative of the entire country the area chosen for the initial phase should have had significant diagnosed disease, contain both commercial and traditional farms, including free roaming pigs. Ideally, the area should include also feral (wild) swine and be adjacent to the Haitian border (one area may not include all the above elements).

Concurent with the initial phase, a program of diagnosis and destruction of all swine in infected herds throughout the rest of the country should continue and be intensified. This reduces the amount of disease spread, resulting in less herds to be destroyed and indemnified, and favors pork consumption by increasing consumer acceptance that they are not eating diseased pork. This is a procedure to help keep the disease under control and should be supported.

Areas adjacent to the depopulated area undergoing test procedures should be subjected to intensive surveillance and eradication in order to lessen probability that the disease spills back into the cleaned area. Intensive surveillance and destruction of infected and exposed swine in the area ahead of the depopulation

line will also provide training to Dominicans and might even conceivably eradicate the disease in the area. If results from these activities are good, the GODR may have an alternative future option to complete depopulation of the country's swine.

Following a period averaging three months in which there has been no swine in the area and the premises have been cleansed and disinfected, sentinel (imported ASF and Hog Cholera free) pigs should then be distributed throughout the most infected (and suspected dangerous) areas of the initial area and/be intensively observed and tested for a period of three months. This should indicate whether or not the area has been freed of ASF virus.

If ASF breaks out in sentinel pigs, which must be unequivocally determined, it is known that the system as implemented has failed, the reasons for recurrence must be examined, and the likelihood of eradicating the disease by total depopulation should be reassessed. If the intensive testing of the trial area after placement of sentinel pigs shows no disease, the GODR may choose to continue to depopulate, in phases, the entire nation.

Dominican counterparts would meanwhile be trained to repeat the above procedure in newly depopulated areas. Difficulties in execution would also provide training for more efficient operation in further phases.

The intensive activity in and adjacent areas to the depopulation area for a period of about nine months offers another advantage to the GODR. It provides an opportunity to observe the evolution of the disease not only there but in the rest of the country where only destruction of disease foci is occurring. If disease in the rest of the country is reduced to a level where it can be otherwise handled, the GODR may decide another approach to eradication is more practical.

No country where ASF has become endemic throughout the country has yet eradicated ASF (ie. Spain, Portugal and some African countries). Italy had disease present in several areas of the country and was able to eradicate by destruction of infected and exposed herds. Cuba eradicated the disease in 1971 by depopulating all of Havana province before it spread to the rest of the country. This was under a dictatorial government and entailed killing more than 400,000 swine.

The total depopulation of swine from the D.R. probably offers the best chance of eradicating the disease.The results of attempts to do it, however, are still unpredictable given the fact that it has never been done before. It entails disruption of producer,processor and consumer and thus should be tested in one area to see if it works before proceeding. This would provide an indication of wheter the entire country could be depopulated, and how other concurrent activities supported by USAID are working.

c.

1. A pilot,project area could be choosen and from 10 to 20 U.S. technical advisors sent to work closely with Dominican counterparts in an eradication scheme closely resembling the system for hog cholera eradication used in the U.S. This entails destruction of all sick and exposed swine only,and control of movement of other swine and pork products. It requires sophistication in diagnosis, administration , epidemiology and surveillance, an intrincate system of well enforced quarantine, and a large degree of understanding and willingness to cooperate on the part of swine producers.

Whether the Dominican society/culture can support such a system is unknown, and the Executive Secretariat apparently concluded that the prospect was unlikely. Personnel and MODE ceilings would be provided by USAID. If there was success in the area, others could be tried and Dominicans would be increasingly trained to carry out the system in the entire country.

2. USAID could provide resources with the condition that no total depopulation of an area or the country take place. More intensive eradication of infected foci could take place to see if this reduces incidence of disease to the point of feasibility of eradication.

The acute form of the disease with immediate high mortality has apparently peaked and large commercial producers are reported able, with increased security, to protect themselves from disease. It is the small and traditional farmer who is now being affected. This system has been pursued for 20 years in Spain and Portugal without success.

d) The project chosen offers the best possibilities of success. It tests the plan of the GODR and offers the opportunity to observe alternate systems over time.

Section A2 - Technical Soundness

Haiti Situation

a.

The African Swine Fever status of Haiti is unknown. The GOH reports no unusual sickness or death of swine. A limited number of samples have been sent to the U.S. for diagnosis and have been ASF negative. Informal reports are that no further sampling will take place since this very poor country has no money to pay for indemnity of sick swine if the disease is found.

The GOH has already reportedly killed all swine, more than 20,000, within 15 Km. of the Dominican border and is unwilling to expend further resources on the disease.

Between February, when the disease first occurred in the D.R. , and July, when the disease was first diagnosed, Haiti imported pork both commercially and almost certainly by traditional local trade across the border. Some of this pork presumably was infected by ASF, and the U.S. declares (for pork import purposes), Haiti ASF infected based on this probability. At least some of the commercially imported pork from the Dominican Republic has been seized and destroyed.

b.

With a long difficult-to-control border between the two countries, infection in one country will always be an obvious danger to the other. If sufficient economic incentives exists to smuggle pork or pigs it will, in some cases, be done.

If Haiti has very fortunately been spared infection, the D.R. will be a risk to them until it erradicates ASF. If Haiti is infected and has no resources to eradicate, and the D.R. does, the opposite risk will be present.

Spain has been ASF infected, although with the disease under varying degrees of control, for 18 years. France has a long and difficult-to-control border with Spain and has imported the disease three times during that period. However, by being alerted to the risk and by stamping out foci, France has quickly stopped the disease from establishing itself there on (at least) the first two occasions.

The possible risk of disease from Haiti is an important factor but is not sufficient reason in itself to recommend the D.R. not to attempt to eradicate, particularly if reasonable border controls are taken. if D.R. eradicates ASF it should become as familiar with the disease as anyone in the world and veterinary surveillance should be able to detect it in time to eradicate before it spreads throughout the country.

c.

It is doubtful that either the D.R. or Haiti will allow legal repopulation with swine of their 15 Km. border strips on their respective sides if either are unsure of their neighbors status. This takes away a source of livelihood from a considerable population for an unknown length of time but the decision to repopulate by either country should be taken by bilateral decision.

Prohibition of (legal) importation and export of swine and swine products will also last a long time. This does not mean that the fanatical restrictions, such as prohibition of overland passage of all people and things (with the exception of gas), is in any way warranted or should be financially supported by USAID.

Legally crossing individuals and commercial vehicles can be inspected with a very high degree of judgment as to the risk they entail. Without animal-origin products (or possibly contaminated animal feed or bedding, or dirty livestock carriers, for example), they provide too little risk to be in any way restricted.

Contents of baggage and vehicles should be inspected. Shoe bottoms and tires may be disinfected, but the latter measures serve more to remind travelers and border agents that there is a restriction (of animal products) than for the benefits of disinfection. If there is any indication that truck interiors , for example, recently contained meat or animals , they should be disinfected. There is no reason why a truck carrying, for example, Pepsi Cola, from Port Au Prince should be disinfected.

.d.

Support should be given for legitimate inspection activities for ASF. (USAID should not support unreasonable transit restrictions on normal passengers or normal commerce).

Only four legal border transit points exist: Jimani, Pedernales, Dajabon and Elias Piña. The military now manning these posts and patrolling frontier areas between them have reportedly received ASF prevention training.

ion B3 - Institutional Soundness

1. Current Organizational Structure

a.

The present High Level Commission for ASF Eradication, the major policy making body for the program, is comprised by the Secs. of Agriculture, Armed Forces, Public Health, Governnor of Central Bank , Director of the Agrarian Institute and the Dir. Gen. of Livestock (Dept. of Agriculture).

Neither swine producer nor processor is represented on the Commission . Both are these most very directly affected by policies of the program and it is difficult to see how the two industries can be expected to support or even cooperate in a program which their interests were apparently considered without direct representation, nor their expertise or help solicited.

(i) The attached translated organogram of the Program shows the titles of those in Ganaderia and the attached terms of reference describe their duties. The Dominican government serves as the executive secretary of the program and his Deputy is in actual responsibilities, the Chief of the Animal Health Program.

The veterinarian coordinator of the ASF program has responsibilities for the Armed Forces Officer (a Colonel), a veterinary epidemiologist, and from 5 to 7 full or part time veterinary specialists. The latrer are used as needed for special duties required by the emergency nature of the program.

Reporting directly to the Executive Secretary (or his deputy) through the coordinator are chiefs of the 1. Veterinary Frontier Service (a military veterinarian), 2. Division of Evaluation and Compensation (Agricultural Bank), 3. Diagnosis Division (Chief of the San Cristobal laboratory), 4. Administration and Supply, 5. Education and Administration, 6. Statistics and Communications Division.

All the above posts are presently filled and active.

In the Regions the Regional Subdirector for livestock, a veterinarian , reports administratively to the Regional Director of Agriculture, although for purposes of the emergency ASF campaign he most often reports directly to the ASF Executive Secretariat. The Regional Livestock subdirector manages brigade activity.

Other jobs at the Regional Office are reportedly filled, with the exception of the Regional Epidemiologist. The smaller units at local levels outlined, 1: diagnosis, epidemiology and pathology teams - not now active ; 2: Clean and Disinfection teams - now active; 3: Vigilance helpers, military -only military is active.

(ii) The professional qualifications of those with responsibilities at the Central Secretariat would seem to be appropriate.

(iii) With an Interamerican Bank loan the Animal Health Subprogram of Livestock has reduced the incidence of the two major diseases programmed as follows : In five years brucellosis incidence has been reduced from 12 % of animals under the program infected to ___ %. In the same time tuberculosis incidence has been reduced from __ % to ___ %.

Such data show an impressive degree of commitment and ability on the part of the subprogram, whose personnel have now been wholly diverted to the ASF program.

The African Swine Fever epidemic is a genuine animal disease emergency such as the Dominican and very few other veterinary services in the hemisphere have had any experience. In spite of some lack of emergency disease organizational structure, resources, training and occurence during a political turnover, they have been

willing to act decisively and ambitiously,with basically sound decisions, regarding the disease . U.S. visitors also have been impressed by the dedication of personnel and the quality of work in the central veterinary laboratory.

c.

Conclusions.

There is little reason to conclude that the ASF program, given adequate resources and some T.A., won't be able to conduct the program as foreseen.

Recommendations:

1. The High Level Commission should have representation of both swine producers and meat processors in order that policies get the benefit of their expertise and subsequent support.
2. As the ASF campaign gets organized, PIDAGRO should also return to the Brucellosis and Tuberculosis programs now neglected. These diseases do not remain static and hard earned progress against them will otherwise be reversed.
3. USAID should not support the campaign until adequate indemnity of destroyed swine is assured and a equitable price support system (when needed) for swine forcibly sent to market is developed. Lack of either will make the program unworkable.
4. Regional Epidemiologists as described in the Organogram are not now planned. The present project requires a large technical evaluation input in place of some more routine activities formerly planned.

   Duties of some brigades have been redefined to include more intensive inspection, surveillance and testing. At least one veterinarian in each region should be trained and given

*

(at least part time) responsibilities as an ASF epidemiologist. The program requires assessment of disease status at several critical stages which needs constant and as inclusive as possible field information.

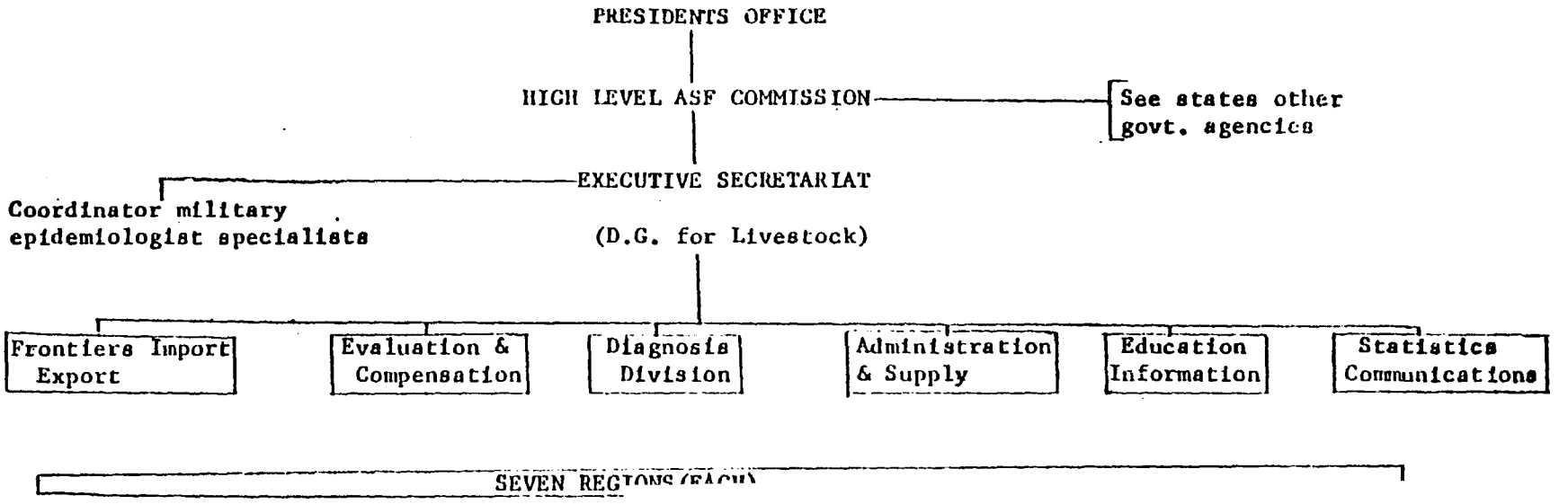
This does not imply additional funding for individuals but some training and redirection of their duties.

5. Institutional adaptability is implied, additional to ability of program director to change both duties and location of personnel as needed.

6. Other Institutions

Customs (Port and Airport) control: Reportedly nothing has been done, with the exception of mentioned frontier activities and one full-time veterinary inspector at the Santo Domingo airport.

Technical Assistance (Field) (two years)	cost
Program Coordinator	
GS 15 a 40,000 2 years	160,000 (double salary)
Epidemiologist	
GS 13 a 30,000 6 mos. (inc. P.D.)	24,000
C & Disin Specialist	
GS 13 a 30,000 6 mos. (inc. P.D.)	24,000
Swine Specialist	
GS 13 a 30,000 4 mos. (inc. P.D.)	16,000
Veterinary Entomologist	
GS 14 a 35,000 2 mos. (inc. P.D.)	9,000
Wildlife Disease Specialist	
GS 14 a 35,000 2 mos. (inc. P.D.)	9,000
TOTAL	142.000



1. Regional Dir. of Agriculture
2. Regional Subdirector Livestock (DVM)
3. Evaluation/Compensation
4. Admin./Supply
5. Military Commander
6. Epidemiologist

Teams of diagnosis epidemiology pathology

C&D Teams sacrifice

Vigilantes for epidemiology Chiefs military zones

ROBERT E. REICHARD D.V.M.

VETERINARY SERVICES

USDA / INTERNATIONAL OPERATIONS

October, 28th.,1978.

REPORT ON
SENTINEL PIG PROGRAM

Introduction

A viable swine industry was in operation in the D.R. prior to ASF. All efforts should be made to insure that this industry is allowed to return to the level enjoyed prior to the introduction of ASF and continue the growth that has been seen during the early and middle 1970's. An orderly and relatively rapid repopulation effort is essential to guarantee a return of the swine industry to the level prior to ASF.

Current Channels of marketing are adequate and were growing prior to ASF. Some export markets were beginning to open up and all efforts need to be made to insure the continued viability of the industry during the depopulation and repopulation phases. The major packers need to be considered, imports of hog carcasses may be necessary to insure uninterrupted business for them so that the large commercial producers will have outlets for their pigs after repopulation occurs.

Relation of Sentinel Pig Activities to Later Repopulation Efforts of GODR.

1. Sentinel pigs could be used as one source of animals for later repopulation in the rural areas.

2. The facilities in place (receiving stations from sentinel pig project) could be used as import stations to bring pigs into the country on a large scale basis after eradication of ASF.

3. These facilities could also be used as government breeding stations for production of replacement breeding animals to be used in repopulation. These would also make excellent demostration stations to test improved pro-

duction practices and gather in country technical information for distribution to the swine producers. This will also be a source of good quality pigs for future needs.

The large commercial producer could be expected to have sufficient capital or available credit to repopulate on his own. The small farmer will need help. This breeding station could be used then to produce pigs for distribution to the rural and urban poor for restocking under some type of welfare plan . It might work well to expect for each pig placed with a farmer without cost, one in return should be returned into place with another small farmer. This type of project would have a "chain letter" type effect considerably aiding repopulation.

With the use of credit from other sources, breding pigs from the large commercial breeders could also be purchased for distribution throughout the country. Slaughter of breeding animals should be discouraged for some time to allow for a general increase of breeding animals in the D.R. This would be greatly aided by continuation of imports of pig carcasses or primal cuts.

It will be necessary to establish or increase an "extension type" technical service to handle the distribution of both pigs and technical information to the rural population during and after initial restocking phases. This could facilitate the increase of pig numbers in the D.R. by improving reproductive efficiency of the national herd above that which is observed presently . Increased production and general pig performance would also be aided by this distribution of technical information to the middle size producer; he probably would be better able to utilize this information than the small owner of scavenger type pigs.

All areas of additional financing for the repopulation effort should be investigated by the GODR.

Repopulation should,at least in the initial phases, not be rushed. Allow the pigs to move into regular market channels as freely as possible. Do not allow repopulation to move rapidly until after the disease eradication program is complete. Then increased repopulation efforts should be considered.

Phasing of Sentinel Pig Activities:

1. Sentinel Pig Project in each cleared zone.
2. Expansion and Distribution of Sentinel offspring in clear areas.
3. Commercial Importation of Pigs into clean zones.

   D.R. free Phase
4. Distribution of breeding animals from commercial farms.
5. "Chain-letter" type distribution. This can continue as long as needed.

Acquisition

These pigs should be obtained from a Hog Cholera free country, such as the U.S.*,Canada and common market countries. In addition to removing the threat of ASF, the depopulation effort should also leave the D.R. free of Hog Cholera,Brucellosis and several other economically important swine diseases.

* US only country which is hog cholera free.

These pigs should be purchased from as few sources as possible (Note 1) and mixing of pigs from different sources should be kept to a minimun. A D.R. national should travel to the U.S. and with a U.S. contact find and purchase the appropriate pigs.

The Pig

Pigs from 3-4 months of age (Note 2) weighing from 75-100 lbs. should be purchased for the sentinel pig program. These pigs should be of "Breeding Stock" quality and of Duroc, Hampshire and Yorkshire breeding or crosses of those breeds. The proportion of sexes purchased should be 6 females to 1 male. Although crossbred boars of high quality can be found, purebreed boars of high

quality would be easier to find. Female pigs of all of the breeds mentioned above and crosses of those breeds should be purchased. If possible, equal numbers of each breed should be purchased.

Transportation to D.R.

After adequate numbers of pigs have been collected in the U.S. (only as needed for each clean zone) the pigs should be flown directly to pre-prepared facilities (Note 3) located at or near an airfield in the "clean zone". Two such facilities should be adequate, one in the Eastern part of the D.R., one in the West. These facilities should not be prepared until the zone is free of swine.

It is imperative that the outmost care be taken of these pigs from point of departure to D.R. through distribution to "test sites". It would be necessary to have 1 person in charge of each group of pigs from departure (US) through the acclimatation period in the D.R. prior to distribution to test sites. The handling of these pigs is outlined in Note 3. If these animals are not properly cared for at this critical time, the "whole" program will be in extreme danger of failing before the pigs even get to potential ASF infective sites.

Movement of Pigs to Test Sites

Sentinel pig groups should be made up of breeding groups (1 boar - 4 to 8 females) and handled carefully during transportation to "test" sites. They should be moved only in covered trucks bedded with 4-6" of damp clean sand. These trucks should be cleaned at the point of distribution prior to loading each group of pigs.

The Test Site

Recognizing the fact that the pigs must be allowed the opportunity to come into contact with potentially infective agents, it is still necessary to continue as high a level of management as possible. The pigs should be

confined in some type of defined area or pen to maintain adequate management to insure survival for the lenght of the test period.

An adequate diet must be supplied (see note 3). Available feedstuffs should be utilized to lower costs and subject the animal to feed which could be contaminated with the ASF virus feeds. However, it may be necessary to supplement these feedstuffs with both energy and protein supplements (containing adequate levels of vitamins and minerals) provided by the GODR to insure minimun nutrient requirements are met.

Note 1

The pigs should probably be purchased from breeders in the Southeastern US, Florida, Georgia, Alabama, etc., unless sufficient numbers could be provided by one or two of the large breeding companies such a DeKalb, Farmers Hybrid or Purina.

It is important from a health standpoint that mixing of pigs from different sources be kept at a minimum. Pigs are very susceptible to stress related disease and it is possible that mixing pigs from different backgrounds during the stressful process of collecting and shipping to the D.R. that outbreaks of gastroenteritis or other diseases could occur.

One person should be in charge of each group of pigs to be shipped. This will help to insure complete and competent care of animals (he will know what has and has not be done).

Note 2

These pigs at 3-4 months of age will be old enough to withstand the rigours and stress of collecting and shipment to the D.R. The size of these pigs 75 to 100 lbs. will make them easier to handle and less subject to the stress of handling and shipment that older, heavier animals might be subject to.

Note 3 - Incoming Facilities

It is important to note that these pigs must come in by air, the port facilities cannot be used for fear of contaminating the pigs prior to arrival in the sentinel areas.

Facilities should be prepared at or near an existing airfield in the clean zone to be populated. These facilities should be adequate to care for the total number of sentinels expected at any one time.

Concrete floored pens with shade and a continuous water supply will be necessary. As the pigs arrive they should be brought directly to the facility and made comfortable. Feed, water & bedding, if necessary, should be provided immediately. Observation of the pigs to detect any sick pigs should be continous. If any sickness is observed isolation and treatment should be immediate.

Feed and water should be provided ad libitum and the pigs should be kept in the facility at least 3 weeks prior to distribution.

An adequate diet should be provided at all times while the pigs are at the receiving station. This diet should contain at least 14% crude protein and 3,3000 kcal of DE/kg of diet. A corn-soy based diet supplemented with the appropiate vitamins and minerals or its equivalen would be adequate.

The pigs must be observed for outbreak of disease or sickness and must be treated at once if this is observed.

The GODR should provide these facilities and the personnel to man them. The feeds needed should also be provided by GODR and both at the receiving stations and in the field.

These facilities and management of same are imperative to the succesful completion of the project and must be in place prior to purchase of sentinel pigs in the US. The GODR must present implementation plans describing in detail the procedures for handling the pigs from the shipping point in the U.S. to the receiving station in D.R. and for the distribution of the pigs to

field test sites. This plan should include:

1. Description of receiving station.
2. Acquisition of pigs. Dominican representative in U.S.,a U.S. contact to aid in location and purchase of the pigs.
3. Technician in charge with pigs from departure US to arrival in DR.
4. Management plan for handling pigs at the receiving station during the 3 to 4 week acclimation period.
5. Feeding.

   What feeds are available?

   What will be needed?

   Distribution in the field.

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REPORT ON THE REPOPULATION PLAN

A viable swine industry was in operation in the D.R. prior to ASF. All efforts should be made to insure that this industry is allowed to return to the level enjoyed prior to ASF. The major reason for eradicating ASF from the D.R. is so that the swine industry can continue to thrive and grow as it was prior to ASF. Without the threat of ASF pigs can then be reintroduced to the country. The GODR should have a repopulation plan with which it can adequately carry out the repopulation of the country in an orderly and relative rapid manner. This repopulation plan should address the following considerations:

1. Where should the pigs come from?

The pigs should be purchased from countries or areas that would guaranteean adequate supply of disease free (ASF,Hog Cholera,Brucellosis) pigs at a reasonable cost. This might include the U.S.,Canada,Great Britain, Denmark and some common market countries. Transportation costs might dictate that the bulk of pigs be imported from the U.S. or other Caribbean countries.

2. What breeds or strains of swine should be considered?

Several breeds or strains should be imported. With a variety of initial germ plasm, it would be possible to literally develop a "Dominican Pig". With the technical help of animal breeders GODR could blend the desired characteristics of several breeds into one unique breed or strain of swine. At least the plan should allow for the importation of genetic diversity to allow for future improvement of swine in the country. Breeds should be imported which are known for high reproductive efficiency others

with good carcass characteristics and the ability to be efficient producers of meat from feed. Other breeds imported might have the characteristic of being well adapted to low-level management with a good foraging ability to survive well under "scavenger" type conditions. Using the knowledge gained during the sentinel pig phase of the ASF program, one could acess the adaptability of non-criollo pigs. Some criollo boars brought in from (available) sources might be used at GODR breeding farms.

3. What number of animals might need to be imported?

Using a pig population of 1.45 million prior to ASF, it can be estimated that there were probably 300,000 breeding animals in the country. A mass importation of 300,000 animals is unlikely. Both practicality and cost would seem to eliminate this option. Therefore, some equation based on reproductive capacity and time period for repopulation must be derived . The reproductive capabilities of the pig under optimun condition can be acurately estimated. This leaves the time frame to be considered. How short should the repopulation phase be?

On average, we can expect a relatively efficient swine operation to farrow sows 1.8 times/yr. If the sow can wean 7.5 pigs/litter this would give 13.5 pigs/yr. (1/2 female 1/2 males) if 80% of the female pigs were of acceptable quality we could expect ~ 5.4 females entering the breeding herd each year from each imported female, then the same figure for each female for succeding years. Assuming 1000 of the females imported during the sentinel pig program were used as base breeding stock the following pig numbers could be realized:

* Year 1	- 1000 females	Boars will be kept as needed the additional male pigs will go to slaughter.
* Year 2	- 6000 females	
* Year 3	- 36000 females	
* Year 4	-216,000 females	
* Year 5	- Back to pre-ASF level and could begin normal operations.	

* These #'s show a 40% reduction to the previous years females for death slaughter, etc.

Of course, these numbers might be considered a "bit" on the optimistic side and a herd of 1000 breeding females would probably be too small a base herd to attempt to achieve this rate of increase so rapidly because we considered essentially no female slaughter. Importations of 4 to 5000 females should be considered and continous importation of boars from outside herds would be advisable for several years.

4. Transportation:

Air transportation of any type of livestock seems to be the most practical and least expensive in the long run for various reasons. However, the repopulation plan submitted by the GODR should address both air and water transport and advantages and disadvantages of each considering; time in transit, facilities in the exporting country, facilities in the D.R. and most importantly the effect on the animal.

5. Distribution to Producers;

The GODR plan should address the capabilities both present and planned that would allow for distribution of the imports and their offspring to the farmers. Quite possibly the imported pigs should go to either government operated breeding farms or large commercial producers to give the best possibility of large numbers of produce from the original imports. As these animals reproduce, the offspring (by some method described by the GORD plan) should be distributed throughout the rural areas to the small farmers.

The plan should include:

1. Plans for distribution - who gets the pigs?
2. Plans for tech. assistance
3. Financing - Give to farmer or what?

Both the GODR and Private Sector should be involved in the production and distribution of swine.

6. Technical Assistance :

The GODR should provide plans to show how tech. assistance will be utilized in developing the program from initial phases through completion. This might include:

a. Swine specialists for evaluating facilities, diets, management plans, etc.
b. Animal breeder to develop breeding programs to insure proper use of the various breeds or strains selected.
c. Specialists to go to the exporting countries to select pigs and handle shipping arrangements.

d. Extension Personnel could handle distribution of pigs and tech. information throughout the D.R. to enable the GODR to carry out this plan effectively.

7. Financing:

All available sources of funding should be investigated. The investigation should include :

a. Sources of funds

b. Repayments (if borrowed)

c. Welfare plan to small farmer

d. etc.

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POTENTIAL DEVELOPMENT OF THE COMMERCIAL SWINE INDUSTRY DOMINICAN REPUBLIC

As the pork industry progresses we find a definite division of the producers into three major groups. Those groups are:

1. The purebreed producer
2. The feeder pig producer
3. The finishing floor operator

Even though all of these activities might be carried on by one farm, they are usually considered as separate farm enterprises.

The purebreed producer is a very important part of this industry. These breeders must anticipate the type of hog required by the market and breed those animals that meet this type and at the same time producer large litters which are efficient converters of feed into meat.

It is true that by far the largest portion of the commercial hog production in developed countries comes from cross-bred animals. This is because there is a high degree of "hybrid vigor" in the crossbreds and they do well in the production lots. But in order to have these crossbreds we must at the same time maintain the base nerds of the purebreeds.

In a country such as Dominican Republic with the demands for pork increasing as it is ,it is reasonable to agree that there should be some availability of purebred breeding stock in all parts of the country. When one considers the communication problems of a developing country, it becomes almost imperative.

Since purebred animals may be imported for sentinel and repopulation phase of the ASF program, there will be an increase in the available "improved breed"

animals over the country. Effort should be made to establish a purebreed registry of the original imports and as many of their purebred offspring as possible. This will insure the availability of purebreeds into the future.

The real potential for increased pork production will be realized as the purebred offspring of the imported animals are placed in 1,2 or 3 sow units on small farms. The multiplier effect of this phase will mean that hundreds of feeder pigs will be available for finishing.

As these pigs move out to the 1,2 or 3 sow units, the farmers acquiring these pigs should be given every chance to observe the improved management practices of the cooperator-demostrator. This should also prove an opportune time to impress upon the small farmers the importance of vaccination and sanitation programs. In other words, every demoastration unit will become a place for training.

About 75 per cent of cost of the market hog goes for feed. The increased swine population will require large supplies of feed. There is no greater limiting factor in pork production than that of the nonavailability of feed stuffs. As local feed grains might come into increased production, it will be necessary to dry and properly store the grain against insect and rat damage. These locally grown grains or imported grains must then be processed and protein feeds added to formulate a balanced ration. Certainly these feeds can be more efficiently distributed to fewer finishing floor units than to thousands of small farm fatrening units in every corner of the country.

The animal production advisor suggests that the ultimate development of an efficient pork industry centers around the promotion of the finishing floor operation. As a service to its members, a livestock association or farmers association might operate the finishing floor to the mutual benefit of all concerned. Wheter it be cooperatively operated or entirely privately owned,we believe that consideration of this concept of finishing the market hogs will be useful in promoting a sound program for the swine industry.

SWINE PRODUCTION GUIDELINES

I. HOUSING AND EQUIPMENT

A. Housing

Swine buildings should be constructed on well drained ground. A pole type structure, with open sides, makes a good swine shelter. The concrete floor should slope 6 cm. per meter. The roof can be of any material that will protect the animals from rain and sun.

Space required for swine in confinement is:

	Sq. Meters
Sows and boars	4.0
Sow and litter	8.0
Weaning to 40 kg.	0.6
40 kg. to 100 kg.	1.2

At least 3 buildings should be used in swine production; breeder animal shed, farrowing house and a growing and finishing shed. These buildings should have some space between them, 30 meters, if possible. This is most important in locating the farrowing house.

The farrowing pens should be long and narrow, 1.6 m. x 5 m. They should have guard rails on the sides, or construct a farrowing crate on one end to protect the small pigs.

To dispose of manure, it can be washed into gutters and then into fields or a pit.

It is good to have an exercise lot outside for breeder animals, even though there may be enough space on concrete for them. Twenty-five square meters per animal will be enough space for an exercise area.

B. Feeders and Waterers

Feed space required per animal when hand fed is as follows:

Sows and boars	60 cm.
Sow and litter	60 cm.
75 kg. to 100 kg.	38 cm.
45 kg. to 75 kg.	30 cm.
23 kg. to 45 kg.	22 cm.
6 kg. to 23 kg.	15 cm.

When hand fed, the feed trough can serve as waterer. The important thing is to have clean fresh water for the animals at all times.

II. NUTRITION

The table below is a summary of the feed requirements for swine of all ages.

	Feed required for dry lot	
Live Weight (lb.)	Average Daily Feed (lb.)	Percent Crude Protein
Growing swine		
25	2.0	18
50	3.2	16
100	5.3	14
150	6.8	13

200	7.5	12
250	8.3	12
Pregnant females		
300	5.5	16
500	6.5	14
Lactating sows		
350	11.0	15
450	12.5	13

With the exception of bred sows and gilts, this plan may be used for self-feeding the hogs. For the bred sows and gilts, the ration should be hand fed separately, daily, to promote the desired rate of gain and condition.

Suckling pigs should be given access to a palatable pig starter ration during the first week of life and self-fed until weaning time.

Should garbage be considered as a feed, it should be cooked (boiled) and every effort made to add protein supplement along with vitamins and minerals sufficient to promote adequate growth rates of the animals.

III. MANAGEMENT OF SOWS AND LITTERS

Preventing baby pig fatalities is the quickest way to increase profits in the hog enterprise. About one-fourth of all pigs die before reaching weaning age. The following are management tips that will help reduce this loss:

A. Produce healthy pigs at birth by feeding the pregnant sow or gilt a ration adequate in protein, minerals and vitamins during the entire gestation period.

B. Feed a bulky, somewhat laxative feed the week before farrowing. After farrowing, place the sow on full feed of concentrated ration.

C. Use farrowing stalls or a small pen equipped with guard rails to reduce the activity of the sow and to prevent her from crushing the pigs.

D. Provide dry, clean litter to keep the pigs warm, especially during damp, rainy weather.

E. As soon as the pigs are born, tie, clip and daub the navel stub with tincture of iodine. Needle teeth should be clipped being careful not to injure the gums. Ear-notch the pigs to identify the different litters.

F. Prevent nutritional anemia in the pigs by giving a shot of injectable iron. Should no injectable iron be available, place 2 or 3 shovels full of uncontaminated dirt (laterite preferred) in the corner of the pen.

G. Creep-feed a palatable pig starter ration (skim milk powder can be used as a substitute) from 1 to 8 weeks of age.

H. Castrate boar pigs at 2 to 4 weeks of age.

I. Vaccinate for hog cholera.

J. Wean the pigs by the time they are 8 weeks old.

K. Keep a sow record.

Sow Record 19 ____

Sow No. _____ Sire No. _____

Date bred _____

Farrowing date _____

Number farrowed: Dead _____ Alive _____

Litter number _____

Sex: Females _____ Males_____

Iron shot date _____

Starter feed date _____

Castration date _____

Weaning date _____

Number weaned _____

Weaning weight _____

Comments: _____

_____

_____

IV. SANITATION

Routine precautions

A. Wash pens daily

B. Use foot bath containing disinfectant at building entrances.

Special

A. Prior to farrowing, clean and disinfect the pen and farrowing crate.

B. Scrub the sow with soap and water, paying special attention to the feet, legs and under body areas.

V. ANIMAL HEALTH

A. All pigs and hogs over 8 weeks of age should be vaccinated for hog cholera yearly.

B. All animals should be vaccinated for swine pasteurella every 6 month.

C. Treatment of sick animals should be done under the direction of a veterinarian, or after consulting with the provincial committee.

D. The feeding of antibiotics should be restricted to therapeutic usage only.

VI. BREEDING PROGRAM

(For 20 sow-unit composed of 10 imported, 10 local)

This program is designed to promote:

A. Efficient use of the farrowing house.

B. Conservative use of the boar.

C. Two litters from each sow per year on a routine schedule which will allow for more definite arrangements for sale of feeder pigs.

FINAL REPORT ON METHODS AND OPERATIONS

The purpose of this Project is to eradicate African swine fever from the Dominican Republic, assure the production of swine free of ASF and maintenance of a viable swine industry. A second objective is to develop capability within the Dominican Republic to rapidly detect and eradicate primary outbreaks of the disease if it should be reintroduced following eradication.

This is to be done by undertaking a program to:

1. Depopulate the country of its present swine population and dispose of healthy swine through regular channels of slaughtering for human consumption, with the exception of swine in infected herds, which will be disposed of by burial or burning.
2. Clean and disinfect all infected, exposed, and potentially exposed premises.
3. Train employees of the Dominican Republic Department of Agriculture to carry out ASF Field Diagnostic Investigations, laboratory examinations, and eradication procedures.
4. Establish veterinary inspection at land, air, and sea ports of entry to prevent introduction of exotic animal diseases.

Operational aspects of the project will be carried out by the Directorate General for Livestock within the Dominican Republic Ministry of Agriculture. The Ministry has responsibility in the Government of the Dominican Republic to conduct agricultural programs in all regions and sectors of the country. An infrastructure exists for this purpose. The major operational and administrative unit within the Ministry is the Regional Office. The Regional Office administers the agricultural programs in the region. It has both administrative and operational responsibilities. The

Regional Director has an assistant, the Regional Subdirector for Livestock, who is a veterinarian. The Regional Subdirector for Livestock has been given the responsibility for execution of the African swine fever campaign in his region.

PROJECT OPERATION

Four types of activities will be carried out geographically in execution of the project.

DISEASE REDUCTION ACTIVITIES, AREA DEPOPULATION, AND PREMISE SURVEILLANCE ACTIVITIES, SENTILIZATION ACTIVITIES, RESTOCKING ACTIVITIES

Geographical areas (Regions and Provinces or Sections of Regions and Provinces) will be designated by the General Directorate of Livestock for specific activities during specified time periods.

DISEASE REDUCTION ACTIVITIES

The objective for these activities is a reduction in the number of infected premises (disease foci) and the number of new herds becoming infected.

Activities will include:

1. Educational Activities in which the swine owner is advised of:
   a) Measures he should take to prevent his swine from becoming infected. with ASF.
   b) Urged to report illness in his swine to local officials of the Agriculture Department and to Chief of the Military Zone.
2. Investigations of reports of sick swine by an agricultural brigade, technician, or a veterinarian.
3. Depopulation by destruction and burial or burning of laboratory confirmed ASF infected and/or directly exposed swine.

4. Compensation to owners for swine destroyed because of ASF.
5. Cleaning and disinfection of infected premises.
6. Control of movement of swine.
7. All swine herds will be located, a complete swine census taken, and an estimate made of the number and location of wild or feral swine in the area.
8. Training of brigade personnel.

AREA DEPOPULATION ACTIVITIES

Following the designation of a region, sector, or portions thereof as a "Depopulation Area", the following activities will be carried out in addition to those designated as "Disease Reduction Activities":

1. All premises not previously found to be infected will be depopulated by moving the swine to slaughter for human consumption through normal swine outlets for this purpose.
2. GODR will guarantee a price of $1.00 per kilo for all swine marketed for slaughter through commercial channels after the area is designated as a Depopulation Phase II area.

Swine owners receiving less than $1.00 per kilo for their swine will be compensated for the difference by the GODR.

3. Each depopulated premise will be inspected and the owner given instructions for cleaning his premises to eliminate possible foci for reinfection, and disinfected by Department of Agriculture employees.
4. Each depopulated premise will be cleaned by the owner under instructions of the brigade and disinfected by the brigade personnel.

SENTINEL PHASE

Following designation of an area as a Sentilization Area, the following activities will be carried out in addition to activities designated for Disease Reduction Activities.

1. All premises will be inspected to determine if any swine have been left in the area.

2.

   a) Sentinel pigs will be placed on all known infected premises and an equal number or more premises not known to have been infected or exposed. Sentinel sites will be designated by an epidemiologist who has evaluated the area.

   b) Sentinel pigs will be placed on depopulated premises or adjacen premises in breeding units of 5 to 10 guilts and 1 hoar.

   c) For a premise to be considered as having had a satisfactory sentinel pig test, 60 percent of the swine placed must survive for 90 days and there be no positive. Tests considered unsatisfactory due to deaths from any cause prior to 90 days will be repeated.

3. All reports of swine death or sickenss among sentinel pigs will be submitted to the laboratory as appropriate and efforts made to determine the cause of sickness or deaths.

4. An education campaign to teach potential swine owners how to care for the imported swine will be carried out.

5. Any clinical or laboratory evidence that ASF is present on a premise in the area defines that area is not free of disease, and requires assessment of the complete depopulation approach to ASF eradication.

The Project will be initiated and carried out geographically in accordance with the following schedule: The Eastern Region will in effect be a test area to develop evaluate and test program procedures.

GEOGRAPHICAL AREA	TIME PERIOD	ACTIVITIES
Haitian Border	1st. thru 6th. Trimester	Depopulation and Premise Surveillance.
Eastern Region	1st. Trimester	Depopulation
	2nd. Trimester	Premise Surveillance
	3rd. Trimester	Sentilization
	4th. Trimester	Sentilization Breeding for restocking within region.
Northwest Region		
North Region		
Northeast Region	1st. Trimester	Disease Reduction Activities.
Central Region	2nd. Trimester	
Southwest Region	3rd. Trimester	
South Region	4th. Trimester	Program results and status of disease in all regions will be evaluated. Program adjustments made. Director of Livestock specify activities to be carried out in all regions.

FINAL REPORT

PART III - PROJECT ANALYSIS

Section A. Technical Analysis

2. Field Brigades

a. Current Make up

(i) Size Composition

These are 46 brigades in the present field organization of the Directorate of Livestock. Twenty-three of these are considered operational, none of which are currently equipped to effectively carryout all type of eradication activities. The operational brigades are presently deployed as follows: Northwestern Region 6, Southwestern Region 8, Southern Region 8, Central Region 1. These are all 8 man brigades.

The brigades along the Haitian border are presently organized to carryout depopulation of the 15 Km. border area. The Central Region Brigade is organized to investigate disease outbreaks, depopulate infected herds and carryout cleaning and disinfection activities.

The remaining 23 brigades are not operational. They are 2 to 3 men teams consisting in most instances of a veterinarian and a trained Agricultural Technician.

(ii) Equipment

The brigades do not have equipment required to operate effectively. Even the brigades deployed along the Haitian border do not have adequate cleaning and disinfection equipment, or sufficient vehicles. Every man should have a brush and bucket for holding water and disinfect solutions

so that he can clean his footwear and hands between premises. There is also a need for basic diagnostic equipment for veterinarians with brigade assignment so that they can properly carryout necropsy examinations.

b. Procedures/Methods

The brigades are assigned to the region and operated under supervision of the Assistant Regional Director for Livestock. The brigade may be given a unite assignment or its members given individual assignments to carryout any eradication activity required such as:

1. Information and Educational Activities
2. Inspection of premises, animal areas
3. Disease Investigations and Field Diagnostic Activities
4. Epidemiology Investigations
5. Appraisals
6. Depopulation and sacrifice of infected and exposed animals
7. Cleaning and disinfection of premises, equipment, etc.
8. Placing and monitoring sentinel animals
9. Operation of security posts and quarantine stations

c. Conclusions and Recommendations

The brigade concept for organizing to carryout the African swine fever eradication effort is good. It makes use of the existing organizational structure in the Ministry of Agriculture. It provides maximum flexibility in the assignment of personnel and utilization of resources to meet program needs when the disease situation changes.

8

III 2. FIELD BRIGADES

The basic operational unit for program execution in the region is the field brigade. The brigades have a fixed organizational structure but can be tailored, expanded or fragmented to carryout specific tasks as needed. The brigade normally has no administrative capability. Their administrative support comes from the Regional Office.

A brigade can be tailored or staffed as follows:

For Depopulation

1 Chief (DVM or Agronomist)

1 livestock technician

1 appraiser

1 veterinary auxillery

2 soldiers

2 workers

For Cleaning and Disinfection

1 Assistant Chief (agronomist or livestock technician)

2 livestock technicians (cleaning and disinfection specialist)

2 workers

For Depopulation Site Supervision

2 workers

2 soldiers

For Control Post

1 livestock technician

2 soldiers

2 workers

For Disease Diagnostic Investigation

1 veterinarian

1 livestock technician or worker

Recommendations

1. The assignment of a large number of brigade personnel to a region may increase the administrative work load to the point of requiring additional administrative personnel.

2. Much of the equipment required for brigade operation has multiple use and can be easily diverted. Special attention should be given to supply maintenance and control. It is noted that seven supply officers are requested in the personnel list (figure 13). These positions are urgently needed.

3. Consideration be given to increasing the mobility of the brigades by adding motor bikes to the equipment allowance. The need for such equipment and rental of horses could be evaluated during the first phase of the program.

4. Reevaluate the need for 129 hand sprayers (Bombas Manuales Mochilas) perhaps the number can be reduced.

5. Consider adding at least 3 power sprayers, truck mounted approximately 1500 gallon capacity to the equipment list.

6. Increase the amount of protective clothing required to maintain personal cleanliness and prevent disease spread.

Protective footwear boots -	1 pair per man
Coveralls -	3 pairs per field man
Buckets for cleaning footwear & equipment -	1 per field man
Brush for cleaning footwear -	1 per field man

This should not require an increase in equipment cost but be obtained by budget adjustment.

7. A course be organized for key brigade personnel to acquaint them with program procedures and train them to carryout specific eradication activities.

8. A training course for Regional Office personnel who will be involved in supervision and administration for the brigades.

9. Increased emphasis be given to involving local village officials and swine owners in the ASF eradication effort.

PART III - B

3. Laboratory.

The Central Veterinary Laboratory in the "Division de Diagnostico" of the Executive Secretariat for Livestock, has responsibilities for Disease Diagnosis, Production of Vaccines and Antigens, Applied Research and Training. The Laboratory has a staff of 21 veterinarians, 34 technicians and 10 laboratory assistants. They are distributed as follows:

DIAGNOSTIC DIVISION

Unit	Personnel DVM	Technicians
Bacteriology	1	4
Pathology	2	2
Hematology		3
Parasitology	4	3
ASF Virology	1	3
ASF Pathology	2	3
AVIAN Pathology	1	1
Brucellosis Serology	___	2
TOTAL	11	21

BIOLOGIC DIVISION

Unit	Personnel DVM	Technicians
Tuberculin	2	1
Rabies	2	3
Brucellos	1	3

BIOLOGIC DIVISION (Continued)

Unit	Personnel DVM	Technicians
Hog Cholera Vaccine Production suspended	0	2
Newcastle Vaccine	1	1
Leptospirosis	1	3
TOTAL	7	13

LABORATORY SUPPORT SERVICES

Unit	Professionals	Technicians	Helpers
Animal Facilities	1 DVM	1	5
General Services	1 DVM	0	5
TOTALS	2	1	10

In addition to this staff, a Veterinary Epidemiologist, and a Veterinary Virologist has been assigned to the Laboratory by FAO for a four month period. The Epidemiologist and Virologist are both USDA employees. Some capability for the diagnosis of ASF has been developed. The laboratory is not yet prepared to handle large volume of ASF examinations. This is due to limitation of equipment, space and reagents. The outbreak of ASF has placed a heavy strain on the laboratory. The need to move ASF diagnostic work out of the present facilities has been recognized and efforts made to find other facilities. There is concern that biological products being produced at this time might become contaminated with ASF. It is simply not a good practice to conduct diagnostic work in a laboratory where vaccines are being produced. The laboratory has suspended the production of hog cholera vaccines.

SENTINEL PHASE

Following designation of an area as a Sentilization Area, the following activities will be carried out in addition to activities designated for Disease Reduction Activities.

1. All premises will be inspected to determine if any swine have been left in the area.

2.

   a) Sentinel pigs will be placed on all known infected premises and an equal number or more premises not known to have been infected or exposed. Sentinel sites will be designated by an epidemiologist who has evaluated the area.

   b) Sentinel pigs will be placed on depopulated premises or adjacent premises in breeding units of 5 to 10 guilts and 1 hoar.

   c) For a premise to be considered as having had a satisfactory sentinel pig test, 60 percent of the swine placed must survive for 90 days and there be no positive. Tests considered unsatisfactory due to deaths from any cause prior to 90 days will be repeated.

3. All reports of swine death or sickenss among sentinel pigs will be submitted to the laboratory as appropriate and efforts made to determine the cause of sickness or deaths.

4. An education campaign to teach potential swine owners how to care for the imported swine will be carried out.

5. Any clinical or laboratory evidence that ASF is present on a premise in the area defines that area is not free of disease, and requires assessment of the complete depopulation approach to ASF eradication.

Conclusions and Recommendations

1. Competent reliable laboratory diagnostic support is essential for the success of this project. A functioning diagnostic laboratory will be critically needed during sentinel pig operations and restocking. Quick decisive action will be necessary to deal with African swine fever (ASF) suspect cases. Laboratory capabilities and competency will have to be developed during the depopulation phase of the project if it is to be functional when critically needed.

2. Considerable diagnostic competency to carry out ASF examinations has been developed. Capability exists to conduct examination to identify the virus and to detect antibodies for the ASF virus. This capability has been developed with technical assistance from FAO and USDA, APHIS, Veterinary service.

3. The laboratory is not equipped or staffed to carry out large volume serological and pathological examinations of ASF. This is due to limitations of space in the present facilities, lack of equipment, and difficulty in obtaining some diagnostic reagents.

4. The laboratory should be equipped and prepared to conduct the large volume of diagnostic work that will be required after sentinel pigs are placed on depopulated premises. To maintain credibility for the program the GODR must be able to advise swine owners as to the cause of death for swine that do not live. This capability exists to a very limited extent. Diagnostic capability should exist for hog cholera, salmonellosis, erysipelas, mycoplasmosis, poisoning with rodenticides, plants, and other substances that damage the vascular system.

ANNEX II

TECHNICAL ASSISTANCE

Advisors for the Laboratory:

1. A. Veterinary pathologist experienced in laboratory management to coordinate and organize laboratory operations. Approximately 2 weeks to assist in planning and ordering equipment for expanded swine disease diagnostic activities.

   B. Microbiologist experienced in virology, bacteriology, and serology to coordinate training in invitro testing.

Saul T. Wilson, Jr. D.V.M.
Veterinary Services
USDA/Technical Support Staff

SWINE DENSITY PER SQUARE KILOMETER (19777/1978)
DOMINICAN REPUBLIC

NO.	REGION DESIGNATION	LAND AREA		SWINE POPULATION		SWINE DENSITY
		KM^2	%	N°	%	PER SQ.KM.
1	NORTH	9,065	18.8	461,736	31.8	50,9
2	NORTHEAST	5,324	11.0	283,140	19.5	53,2
3	NORTHWEST	4,769	9.9	91,476	6.3	19,2
4	CENTRAL	6,983	14,5	220,704	15.2	31.6
5	SOUTHWEST	7,503	15.5	174,240	12.0	23,2
6	SOUTH	6,890	14,3	46,464	3.2	6,7
7	EAST	7,745	16.0	174,240	12.0	22.5
TOTAL		48,279*	100.0	1, 452,000	100.0	30,1

*
MAINLAND TOTAL

SWINE POPULATION, DISTRIBUTION AND DENSITY
DOMINICAN REPUBLIC
1977 / 1978.

PROVINCE AND REGION	LAND AREA		SWINE POPULATION		
	2 KM	%	N°of Head	%	SWINE DENSITY PER SQ. KM.
DAJABON	941	1.9	21,780	1.5	23.1
MONTECRISTI	1920	4.0	23,232	1.6	12.1
SANTIAGO ROD.	1098	2.3	27,588	1.9	25.1
VALVERDE	810	1.7	18,876	1.3	23.3
NORTHWEST	4769	9.9	91,476	6.3	19.2
ESPAILLAT	932	1.9	94,380	6.5	101.3
LA VEGA	3369	7.0	113,256	7.8	33.6
PUERTO PLATA	1830	3.8	123,420	8.5	67.4
SANTIAGO	2934	6.1	130,680	9.0	44.5
NORTH	9065	18.8	461,736	31.8	50.9
DUARTE	1489	3.1	105,996	7.3	71.2
MARIA T. SANCHEZ	1344	2.8	55,176	3.8	41.1
SALCEDO	421	0.9	56,628	3.9	134.5

PROVINCE	LAND AREA KM²	LAND AREA %	SWINE POPULATION N°of Head	SWINE POPULATION %	SWINE DENSITY PER SQ. KM.
SAMANA	899	1.9	17,424	1.2	19.4
SANCHEZ RAM.	1171	2.4	47,916	3.3	40.9
NORTHEAST	5324	11.0	283,140	19.5	53.2
DIST. NAC.	1417	2.9	37,752	2.6	26.6
PERAVIA	1626	3.4	37,752	2.6	23.2
SAN CRISTOBAL	3940	8.2	145,200	10.0	36.9
CENTRAL	6983	14.5	220,704	15.2	31.6
AZUA	2491	5.2	42,108	2.9	16.9
LA ESTRELLETA	1563	3.2	36,300	2.5	23.2
SAN JUAN	3449	7.1	95,832	6.6	27.8
SOUTHWEST	7503	15.5	174,240	12.0	23.2
BAHORUCO	1301	2.7	15,972	1.1	12.3
BARAHONA	1656	3.4	14,520	1.0	8.8
INDEPENDENCIA	2087	4.3	10,164	0.7	4.9
PEDERNALES	1846	3.8	5,808	0.4	3.1
SOUTH	6890	14.3	46,464	3.2	6.7

ANNEX IV
EXHIBIT 1
Page 3 of

PROVINCE & REGION	LAND AREA KM^2	%	SWINE POPULATION N°of Head	%	SWINE DENSITY PER SQ. KM.
EL SEIBO	3026	6.3	94,380	6.5	31.2
LA ALTAGRACIA	2958	6.1	63,888	4.4	21.6
LA ROMANA	541	1.1	1,452	0.1	2.7
SAN PEDRO DE MAC.	1220	2.5	14,520	1.0	11.9
EAST	7745	16.0	174,241	12.0	22.5
MAINLAND TOTAL	48279	100.0	1,452,000	100.0	30.1

ESTIMATED SWINE POPULATION BY REGIONS AS OF DECEMBER 1978.

REGION N°	DESIGNATION	SWINE POPULATION AS OF JUNE 1978 Est. N° (000)	%	SWINE POPULATION * AS OF DEC. 1978, Est. N°	%	ASSUMED STARTING DATES FOR DEPOPULATION
1	NORTH	359.3	31.8	294.2	31.8	1 JAN. 1980
2	NORTHEAST	220.4	19.5	180.4	19.5	1 JAN. 1980
3	NORTHWEST	71.2	6.3	58.3	6.3	1 APRIL 1980
4	CENTRAL	171.8	15.2	140.6	15.2	1 JULY 1980
5	SOUTHWEST	135.6	12.0	111.0	12.0	1 APRIL 1980
6	SOUTH	36.2	3.2	29.6	3.2	1 APRIL 1980
7	EAST	135.6	12.0	111.0	12.0	15 DECEMBER 1978
TOTAL		1130	100.0	925.0	100.0	

* Numbers reduced by general herd decline of 18 % from the June 78 Swine Census Summary.

ANNEX IV
EXHIBIT 2

ANNEX IV
EXHIBIT 3

DISPOSITION OF THE NATIONAL SWINE HERD

DURING DEPOPULATION
(Over Project Life of 21 Months)

DETAILS	NO. OF HEAD (000)	%
TOTAL NUMBER INVOLVED	1,350	100.0
CONDEMNED	300	22.2
SLAUGHTERED FOR CONSUMPTION	1,050	77.8

Special Notes and Assumptions:

1. Continued reproduction during depopulation was factored into these calculations.
2. The number condemned recognizes the cyclic nature of diseases such as ASF.
3. The total population is reduced at a rate of about 5% monthly.
4. Using a best estimate of production coefficients for the national swine herd (excluding highly commercialized herds) totaling about one million head, a production model projected over time gives an offtake or extraction rate of 60% with a 2-3% herd increase annually. Thus, something like 500,000 pigs - montly have been available and consumed over the past few years within the D.R. If these assumptions are reasonably correct, then the 1,050,000 head to be slaughtered over life of project would average out at normal monthly consumption of 50,000 head (1050 ÷ 21 = 50).

ANNEX IV
EXHIBIT 4

COMPARATIVE D.R. NATIONAL SWINE HERD PRODUCTIVE PERFORMANCE IN RELATION TO THE AFRICAN SWINE FEVER SITUATION.

DETAILS	PRE ASF WITH OTHER ENDEMIC DISEASES	UNDER ASF WITH OTHER ENDEMIC DISEASES	ASF FREE AFTER REPOPULATION WITH OTHER ENDEMIC DISEASES REDUCED.
ASSUMED HERD SIZE	1,000,000	1,000,000	1,000,000
OFFTAKE % No. VALUE $	60 600,000 30,000,000	50 500,000 22,500,000	70 700,000 53,000,000
PRODUCTION COEFFICIENTS:			
1. Farrowings sow/year	1.35	1.2	1.5
2. Pigs per farrowing	6.50	6.2	9
3. Pigs farr. sow/yr.	8.8	7.4	13.5
4. Pigs weaned per litter	3.25	2.4	5.85
5. Pigs weaned sow/yr.	4.4	2.9	9
6. Mortality % : 0-6 mo. 6-12 mo. Adult	 50.0 30.0 6.0	 66.0 40.0 8.0	 35.0 15.0 5.0
7. Ave. Butcher wt/kg.	50	45	70
8. Value RD$ per head *	50	45	77

* Value based on present prices according to pig quality.

COMBINED BENEFIT/COST STREAMS UNDER ASF AND ASF FREE

(All values in RD$ 000)

(1)	(2)	(3)	(4)	(5)	(6)
	UNDER ENDEMIC ASF		ASF FREE		
Year	Value Herd Off Take	Program Costs 1/	Value Herd Off Take	Indirect Benefits	Program Costs 2/
1	22,500	500	26,250 3/		10,300
2	22,500	500	26,250 3/		9,400
3	22,500	500			11,500
4	22,500	500	193		500
5	22,500	500	1,271	5,000	400
6	22,500	500	3,080	8,000	400
7	22,500	500	6,930	9,000	350
8	22,500	500	14,476	10,000	350
9	22,500	500	19,250	11,000	350
10	22,500	500	24,101	11,200	350
11	22,500	500	30,800	12,400	350
12	22,500	500	39,640	12,400	350
13	22,500	500	46,200	13,400	350
14	22,500	500	53,900	13,500	350
15	22,500	500	54,000	13,500	350
16	22,500	500	54,000	14,500	350
17	22,500	500	54,000	14,500	350
18	22,500	500	54,000	14,500	350
19	22,500	500	54,000	14,500	350
20	22,500	500	54,000	14,500	350
Total	450,000	10,000	616,341	191,900	37,300

N.B.: The internal rate of return to DR's economy is 13.7%.

1/ Disease control services under ASF for national swine herd.
2/ Combined GODR/AID cost over 3 year life of project ($27,045), imported animals ($4,125) and routine on-going veterinary control costs annually starting in year 3 for the national swine industry.
3/ Value of the consumed portion of the national swine herd during depopulation phase.

NATIONAL SWINE HERD BY YEARS

DETAILS	STARTING HERD 980/1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
TOTAL HERD	25,000 1/	50,000	100,000	200,000	400,000	500,000	625,000	718750	792000	870,000	1,000,000
TOTAL OFFTAKE	2,500	16,500	40,000	90,000	188,000	250,000	313,000	400,000	514800	609,000	700,000
OFFTAKE %	10.0	33.0	40.0	45.0	47.0	50.0	50.0	55.6	65.0	69.0	70.0
NATIONAL HERD VALUE RD$ 2/	5,000,000	4,700,000	9,400,000	18,800,000	37,600,000	47,000,000	58,750,000	67,562,500	74,448,000	81,780,000	94,000,000
OFFTAKE VALUE RD$ 3/	192,500	1,270,500	3,080,000	6,930,000	14,476,000	19,250,000	24,101,000	30,800,000	39,639,600	46,200,000	53,900,000

1/ Numbers represent 10,000 head residual from sentinel pig program plus 15,000 of new imports valued at 275 RD$ each.

2/ The $5,000,000 starting herd value represents $4,125,000 of imports and 10,000 head of sentinal pigs valued at $94 each ($940,000) rounded off.

3/ Average weight of 70 kg., valued at 1.1 RD$ / Kg. = 77 RD$ per head recognizing improved quality over criollo stock.

Summary Notes: Pigs weaned per sow per year estimated at 9.
With a 25,000 head starting herd in 1980/1981 repopulation would be complete by about 1991/1992. During the early years offtake would be limited to worn out/sterile breeding stock and surplus males. In the later years and into perpetuity, the swine industry would seeks its own level taking into account domestic/export demand, competition for feed supplies and finally extent prior used alternate species attain/retain a position of relative importance.

ANNEX IV
EXHIBIT 6

ECONOMIC ASPECTS OF SWINE PRODUCTION (RD$)

Size of Farm	Ave. No. Pigs/Farm	Ave. Herd Value	Man Days of Labor Input	Animal Value per work day	Total No. Farms with Pigs
Small	4.4	275.7	40.6	6.8	44,538
Medium	6.5	388.2	77.6	5.0	30,435
Large	11.0	771.1	60.9	12.7	8,669
Total/Ave.	5.9	363.7	55.4	6.6	83,642

Compiled from agricultural sector survey 1975/1976.

ANNEX IV
EXHIBIT 7

DETECTION & FOLLOW-UP COMPONENT
DETAILED COSTS

	Total	AID Grant	AID Loan	GODR	
Field System					
Salaries	75,600	-	75,600	-	LC
Per diem	18,900	-	18,900	-	LC
Vehicles	44,800	-	44,800	-	FX
Field equipment & supplies	65,700	-	65,700	-	FX
Gas & oil	26,100	-	26,100	-	FX
Spare parts & maintenance	11,100	-	11,100	-	LC 4,400 FX 6,700
Sentinel pigs	600,000	-	600,000	-	FX
Technical assistance	36,000	36,000	-	-	FX
Total	878,200	36,000	842,200		

Phasing:
Field system in operation over the life of project (27 months).
Sentinel pigs introduced after depop./decont. and fallow periods in each zone.

Personnel:
1 medical veterinarian assigned to each of 7 regions.

Salaries & Per diem:

# Reg.	# Emp.	Ave. Mo. Sal.	Ave. Mo. P.D.	Months	Total Sal.	Total P.D.
7	1	400	100	27	75,600	18,900

Vehicles: 7 x $6,400 = 44,800

Field equipment & supplies:
see attached

Gas & oil:

#	Mo. Cost	Months	Total
7	138	27	26,100

Spare parts & maintenance:

Spare parts on vehicles: 15% of cost :	6,700
Maintenance contract on vehicles $163 x 27 :	4,400
	11,100

Sentinel pigs:

#	Unit Cost	Total
2,000	300	600,000

Technical assistance:
6 person months at $6,000 = 36,000

Expenditure Schedule:

	Year 1	Year 2	Year 3
Total	397	506	13

	Total	AID Grant	AID Loan	GODR	
Lab					
Salaries	10,800	-	10,800	-	LC
Per diem	1,400	-	1,400	-	LC
Equipment & supplies	37,100	-	37,100	-	FX
Office equipment	1,800	-	1,800	-	FX
Technical assistance	48,000	48,000	-	-	FX
Total	99,100	48,000	51,100		

Phasing:
Lab in operation over the life of project (27 months)

Personnel:
1 Bacteriologist

Salaries & per diem:

# EMP	Ave. Mo. Sal.	Ave. Mo. P.D.	Months	Total Sal.	Total P.D.
1	400	50	27	10,800	1,400

Office equipment:
see attached

Equipment & supplies:
see attached

Technical assistance:
8 person months at 6,000 = 48,000

Expenditure Schedule:

	Year 1	Year 2	Year 3
Total	124	6	1

ANNEX V
EXHIBIT I

ANNEX V
EXHIBIT 2

DEPOPULATION/DECONTAMINATION COMPONENT
DETAILED COSTS

	Total	AID Grant	AID Loan	GODR	
Salaries	1,562,200		1,502,200	60,000	LC
Per diem	496,200		454,300	41,700	LC
Vehicles	550,400		550,400	-	FX
Field equipment & supplies	637,200		637,200	-	
Equipment rehabilitation	210,000		210,000	-	LC
Gas & Oil	338,200		338,200	-	FX
Spare parts & maintenance	216,100		216,100	-	LC 91,500 / FX 124,600
Office equipment	10,200		10,200	-	FX
Technical assistance	36,000	36,000	-	-	FX
Total	4,056,500	36,000	3,918,600	101,700	

Phasing:

All regions

86 minimum 2 man brigades assigned country-wide for project life.

Intensive depop./decont. regions

East	9 additional persons in	22	brigades for project months	1-3
North	9 " "	21	" " " "	13-15
West	9 " "	21	" " " "	16-18
Central	9 " "	22	" " " "	19-21

Foci areas

East	None as depop./decont. in project months			1-3
North	9 additional persons in	2	full time equivalent brigades for project months	1-12.
West	9 " "	2	" " " " " "	1-15
Central	9 " "	2	" " " " " "	1-18.

Brigade Composition:

1 medical veterinarian or ag. technician
1 assistant
4 manual laborers (paid; no per diem)
2 grave diggers (paid; no per diem)
2 military (not paid; receive per diem)
1 assessor (not paid; receive per diem)

Salaries:

# Brig.	EMP	Ave. Mo. Sal.	Months	Total
86	2	300	24[A]	1,238,400
22	6	110	3	43,600
21	6	110	3	41,600
21	6	110	3	41,600
22	6	110	3	43,600
2	6	110	12	15,800
2	6	110	15	19,800
2	6	110	18	23,800
				1,468,200
Heavy equipment drivers (15 mos. at 250/mo x 16 drivers)				60,000
Regional supply officers (27 mos. at 180/mo x 7)				34,000
Total				1,562,200

Per diem:

# Brig.	EMP	Ave. Mo. Per diem	Months	Total
86	2	105	24[A]	433,400
22	3	60	3	11,900
21	3	60	3	11,300
21	3	60	3	11,300
22	3	60	3	11,900
2	3	60	12	4,300
2	3	60	15	5,400
2	3	60	18	6,500
				496,000

[A] Assumes a six month period to fully staff two man brigades.

Vehicles:

#	Unit Price	Total
86	6,400	550,800

Field equipment & supplies - see attached

Equipment rehabilitation - see attached

Gas & oil:

#	Mo. Cost	Months	Total
86	138	24	284,800
Heavy equipment			53,400
			338,200

Spare parts & maintenance:

Spare parts on vehicles	15% of cost	(550,400) =	82,600
Spare parts on rehab. equip.	20% of rehab.	(210,000) =	42,000
Maintenance contract on vehicles $2,008 x 27 months			54,200
" " " heavy equip. for 21 months.			37,800
			216,000

Office equipment:

see attached

Technical Assistance:

6 person months at $6,000 = 36,000.

Expenditure Schedule:

	Year 1	Year 2	Year 3
Total	2,488	1,289	270

ANNEX V
EXHIBIT 3

CONTROL COMPONENT
DETAILED COSTS

	Total	AID Grant	AID Loan	AID GODR	
Control Posts					
Salaries	560,000	-	560,000	-	LC
Per diem	352,800	-	68,400	284,400	LC
Field equipment & supplies	8,000	-	8,000	-	FX
Total	920,800		636,400	284,400	
Frontier Service					
Salaries	259,200	-	115,200	144,000	LC
Per diem	25,900	-	-	25,900	LC
Oil & gas	15,100	-	15,100	-	FX
Field equipment & supplies	160,000	-	160,000	-	FX
Total	460,200		290,300	169,900	

Phasing:

East & Haitian border; 20 control posts in operation project months 2-27
North : 10 " " " " " " 15-27
West : 10 " " " " " " 18-27
Central : 10 " " " " " " 21-27

Control Post Composition:

1 Ag technician
3 laborers (paid; no per diem)
6 military (not paid; receive per diem)

Salaries:

# Posts	EMP	Ave. Mo. Sal.	Months	Total
20	4	175	25	350,000
10	4	175	13	91,000
10	4	175	10	70,000
10	4	175	7	49,000
				560,000

Per diem:

#	EMP	Ave. Mo. Per Diem	Months	Total
20	7	63	25	220,500
10	7	63	13	57,300
10	7	63	10	44,100
10	7	63	7	30,900
				352,800

Field Equipment & Supplies:

See attached

Expenditure Schedule:

	Year 1	2	3
Total	236	514	171

Phasing:

All frontier services in operation over project life (27 months).

Control Post Composition:

2 inspectors (paid; no per diem)
1 military (not paid; receives per diem)

Salaries:

# Points	EMP	Ave. Mo. Salary	Months	Total
16	2	300	27	259,200

Per diem:

# Points	EMP	Ave. Mo. Per Diem	Months	Total
16	1	60	27	25,900

Oil & Gas:

Incin. (16) x mo. cost (35) x 27 mos. = 15,100

Expenditure Schedule:

	Year 1	2	3
Total	293	133	34

ANNEX V
ATTACHMENT 1

ERADICATION PROJECT OF THE AFRICAN SWINE FEVER
PROYECTO ERRADICACION PESTE PORCINA AFRICANA

Relation of equipment and inputs be used in field.
RELACION DE EQUIPOS E INSUMOS A UTILIZAR EN CAMPO

REPUBLICA DOMINICANA. 1978.

	EQUIPMENT EQUIPO	Unit Unidad	Amount Cantidad	Costo Unit Cost Unitario	Costo Tot TOTAL
D	Botas (pares) Boots (pairs)	Unidades	1,476	5.00	7,380.00
D	Overoles Overals	Unidades	2,106	20.00	42,120.00
D	Bombas manuales mochilas Manual bombs knapsack	Unidades	129	69.00	8,901.00
D	Cuchillos Knives	Unidades	273	3.50	955.50
D	Limas Files	Unidades	273	1.25	341.25
D	Termómetros Termometers	Unidades	455	0.75	341.25
D	Agujas Needles	Cajas 12 c/u Boxes	182	6.00	1,092.00
D	Jeringas Syringes	Unidades	91	13.00	1,183.00
D	Cubos Buckets	Unidades	175	3.50	612.50
D	Cepillos Brushes	Unidades	500	2.00	1,000.00
D	Moto bomba de mochilas	Unidades	37	295.00	10,915.00
D	Servilletas Tissues	Rollos Rolls	16,000	1.00	16,000.00
D	Repuestos Jeringuillas Refills Syringes	Unidades	273	0.80	218.40
D	Juegos zapatillas Sets of pumps	Unidades	91	0.40	36.40
D	Palas Shovels	Unidades	164	4.50	738.00
D	Picos Picks 55 galons	Unidades	164	5.00	820.00
C	Tanques 55 galones tanqs	Unidades	94	5.00	470.00
D	Soga Nylon Nylon rope	Rollos 15 lbs.	82	34.00	2,788.00
E	Tijeras patólogos Pathologist Scissors	Unidades	16	15.00	240.00
E	Bisturí desechables Disposable surgical knives	Unidades	270	0.85	229.50
E	Fundas para muestras Sample bags	Millares	40	50.00	2,000.00
E	Pinzas Tweezers	Unidades	18	6.50	117.00
All	Fundas overoles Overalls Bags	Millares	240	337.50	141,750.00
P	Guantes desechables Disposable gloves	Millares	768	80.00	61,440.00
D	Desinfectantes Disinfectants	Galones	30,000	13.00	390,000.00
All	Tablillas Splints	Unidades	98	2.00	196.00
P	Cinta adhesiva Adhesive tape	Unidades	110	13.50	1,485.00
C	Bombas estacionarias Stationary pumps	Unidades	20	375.00	7,500.00
P	Thermos	Unidades	15	10.00	150.00
FS	Incineradores Incinerators	Unidades	16	10,000.00	160,000.00
All	Linternas Lanterns	Unidades	94	4.00	376.00
All	Pilas Batterys	Unidades	10,152	0.15	1,152.80
D	Casa de Campaña Campaign Tents	Unidades	50	165.00	8,250.00
	TOTAL	-	-	-	869,988.60

D- Depop. 637.
C- Control 168.
E- Detect. 65.
$ 870.

ANNEX V
ATTACHMENT 2

Equipo de Oficina
Office equipment

Artículos Articles	Executive Secretary / Secretaría Ejecutiva No.	Costo Unitario	Costo Total	P.P.A. Lab. Diagnostic / Laboratorio Diagnóstico P. P. A. No.	Costo Unitario	Costo Total	Subdirecciones Regional subdirections / Subdirecciones Regionales No.	Costo Unitario	Costo Total	Total General
Escritorios tipo económico Economic type desks	8	170.00	1,360.00	2	170.00	340.00	7	170.00	1,190.00	2,890.00
Escritorio tipo LP Desks type LP	2	170.00	340.00	1	170.00	170.00	7	170.00	1,190.00	1,700.00
Sillas Escritorios Desk Chairs	8	90.00	720.00	2	90.00	180.00	7	90.00	630.00	1,530.00
Sillas Secretarias Secretary Chairs	2	75.00	150.00	1	75.00	75.00	7	75.00	525.00	750.00
Archivos Metal Metal Files	4	110.00	440.00	1	110.00	110.00	1	110.00	110.00	660.00
Armazones Archivos File Cabinet Frame	4	10.00	40.00	1	10.00	10.00	1	10.00	10.00	60.00
Ficheros Metal Metallic Cabinets	2	110.00	220.00	1	110.00	110.00	1	110.00	110.00	440.00
Máquinas de Escribir Typewriters	2	350.00	700.00	1	350.00	350.00	1	350.00	350.00	1,400.00
Máquinas Calculadoras Calculators	4	385.00	1,540.00	1	385.00	385.00	1	385.00	385.00	2,310.00
Grapadoras Staplers	8	12.00	96.00	1	12.00	12.00	1	12.00	12.00	120.00
Perforadoras Perforating machines	8	12.00	96.00	1	12.00	12.00	1	12.00	12.00	120.00
Desgrapadores Staple remover	8	1.75	14.00	1	1.75	1.75	1	1.75	1.75	17.50
TOTAL	-	-	5,716.00	-	-	1,755.75	-	-	4,525.75	11,997.50

REVIEW OF VEHICLE AND HEAVY EQUIPMENT NEEDS

An analysis of the ASF program mobile equipment needs was performed under a PSC with former AID equipment engineer, James Watson. His recommendations were based on discussions with the team members of the GODR and AID project design teams, several field trips to inventory and evaluate the condition of GODR owned equipment and vehicles and visits to several actual and proposed burial sites. Moreover, since the project design team decided that a phased eradication program which will be implemented during a 27 month period was more desirable than the initial GODR proposal of a 12 month program, many changes were made to the originally requested equipment list.

Mr. Watson recommended the purchase of 86 new American Motors 3/4 ton pickup trucks and 7-1½ ton heavy duty pickup trucks from the excess property program. These requirements are based on the transportation needs of one pick-up truck each for 86 depopulation/decontamination brigades and 1 pick-up truck each for the seven regional epidemiologists. No GODR agency could spare already scarce pick-up trucks from regular programs for this activity.

Mr. Watson made an analysis of the heavy equipment needs based on a labor intensive approach to the burial program. As a result, he recommended the equipment listed in Table A which will take care of both anticipated needs and possible emergencies. All of the heavy equipment needed for this program was found to be among existing equipment inventories of the Secretariat of Agriculture. Mr. Watson recommends that the equipment required for the program, much of which is of late vintage (1974 or younger) be repaired and utilized under the program instead of the more costly options of buying new equipment. The average cost of the repairs necessary is less than 20% of replacement cost. Moreover, the repaired equipment can be made ready for Project use in 30 days, will provide a large savings in program costs, and can be later used in SEA's rural infrastructure programs, as well as, in the repair and maintenance of rural feeder roads.

The equipment, identified by serial number, has been appraised for the specific rehabilitation processing needed and quotations for execution of such rehabilitation have been obtained from the Dominican agencies of the manufacturer which includes spare parts and labor. Quotations for maintenance of all of the equipment (heavy and vehicles) were also obtained and incorporated into the estimate. The rehabilitation and maintenance program cost estimate is included in Table A.

TABLE A

MOBILE EQUIPMENT LIST

Vehicles

Manufacturer	Type	No.
American Motors	3/4 ton pickup	86
American Motors (excess property)	1½ ton pickup	7

Heavy Equipment

Manufacturer	Type	Model	Serial No.
Case	Bulldozer	1450B	837 9322
Case	Bulldozer	1450B	837 9379
Case	Loader-backhoe	580B	875 1536
Case	Loader-backhoe	580B	529 7639
Case	Tracked backhoe	40BEC	637 0632
Case	Tracked backhoe	40BEC	2104
Chancey	Low boy	25 ton	742346LB135
Chancey[1/]	Low boy	25 ton	742345LB155
Mack	Prime mover	R-600	9023
Mack[1/]	Prime mover	R-600	8535
Toyota	Dump truck	-	-
Toyota	Dump truck	-	-

[1/] For emergency use

COST SUMMARY

Vehicles	595,200
Heavy Equipment Rehabilitation	210,000
Spares, maintenance, tools, etc.	224,840
	$1,030,040

scientific products

J1755-10
INCUBATOR, CO_2, Dual Chamber (Lab-Line 422)–Provides separate controls of temperature and humidity to permit simultaneous choice of atmospheric conditions in each chamber; while one chamber is being used for wet CO_2 incubation, the other may be used for dry incubation, or they may both be applied toward the same end. Degradientation and destratification of CO_2/air mixture is automatic; radiant hot wall heating assures superior uniformity. Regulation of CO_2 tension is possible from 0 to 100%; tension in both chambers is controlled simultaneously. Kwik-Inject mechanism provides rapid return to desired CO_2 tension; dual thermostats provide close control of temperature in both chambers. Large water reservoir in unit base; drain trough below door helps prevent drippage. Front panel-mounted controls include: dual flowmeters for air and CO_2; dual CO_2 Kwik-Inject mechanisms; manual and automatic timer; dual thermostats (safety and control) for each chamber; and dual temperature selection knobs. Complete with dual probe access ports; dual dial thermometers; water reservoirs; bubbler devices; and constant water level regulators. Total unit volume is 12 cu. ft.; with additional shelves, total area of shelf space is 60 sq. ft.

SPECIFICATIONS
Capacity, cu. ft.– 12
Temperature range– ambient to 65°C
Sensitivity– ±0.2°C
CO_2 tension range– 0-100%
CO_2 tension accuracy– ±1%
Humidity range–ambient to 98% R.H.
Dimensions
Chamber, each– 22"w x 20"d x 24"h
Overall– 53"w x 24"d x 40"h
Electrical requirements– 110/120V, 50/60 Hz, 1000 watts
Ship. wt.–300 lbs.
Order J1755-10–Incubator . . . . . Each **$2850.00**

H4501-1
pH METER, MetrION* III (Coleman CO28-0030)–For simple, routine pH measurement in industrial, clinical and academic applications. Rugged design provides trouble-free operation. Reads 0-14 pH on 5" meter scale. Back panel set screw adjust for 0-100°C temperature compensation. Complete with screw base electrodes and head; pH 4.0, 2.0 and 9.0 buffer tablets; 2 oz. pH 7.0 buffer solution, 2 oz. saturated KCl; head mounting rod, dust cover and operating directions. Dimensions: 8"w x 8"d x 5"h. For operation on 105-125V, 50/60 Hz. CSA certified.

SPECIFICATIONS

Range	0-14 pH
Smallest scale division	0.1 pH
Accuracy	±0.05 pH
Reproducibility	±0.02 pH
Temp. compensation	0-100°C (manual)
Input impedance	10^{11} ohms

Order H4501-1–pH Meter . . . . . Each **$330.00**

(2) $660.00

SM-LUX – Binocular Laboratory and Routine Microscope

Equipped for: Brightfield Transmitted Light

Modern broad base microscope stand SM-LUX, made of corrosion free cast aluminum, with single knob combined coarse and fine focusing adjustment with vertical travel of 33mm to an accuracy of 2 um. Precision tube changing device to accept either binocular or monocular tubes and flexible plastic protective dust cover.

Quintuple revolving objective nosepiece on ball bearings 0.5.–

Vertically adjustable helical fine focusing condenser mount (permanently attached to the object stage) –.–.14.–

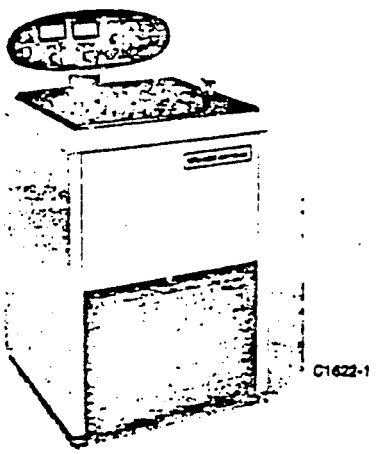
Built-into the base illuminating and condensing system, as well as built-into the base transformer and continuously variable rheostat, on-off switch; with two precentered 6 volt, 10 watt low voltage lamps (1 spare), field diaphragm for Koehler illumination, blue and ground glass filters; for connection to 110 volts, 60 cycles A.C. –.–.–.32

Permanently mounted object stage, 130 x 125mm, with attached mechanical stage with low set coaxial control knobs; traversing an area 76 x 50mm, and condenser base A 0.25 with aperture diaphragm, centering mount and interchangeable swing-out condenser top element As 0.90, No. 16a/001.

510 011	LEITZ Laboratory and Routine Microscope SM-LUX 0.5.14.32 – 16a/001 as described above	S	880.00
512 348	Interchangeable, binocular observation tube S, 30 degree viewing angle, rotatable through 360 degrees, adjustable interpupillary distances from 55 to 75mm and 1x magnification factor. The tube length can be individually adjusted on each eyepiece tube		586.00
	LEITZ Binocular Laboratory and Routine Microscope SM-LUX 0.5.14.32 S 16a/001 as described above	S	1,466.00
	Optical Equipment		
519 292	Achromatic dry objective, 4/0.12, free working distance 24mm	S	66.00
519 293	Achromatic dry objective, 10/0.25, free working distance 6.7mm		99.00
519 419	Achromatic dry objective, 40/0.65, free working distance 0.42mm, with spring loaded mount		149.00
519 565	Achromatic oil immersion objective, 100/1.25 oil, free working distance 0.10mm, with spring loaded mount		251.00
513 449	Immersion oil, PCB free, negligible fluorescence, N_e^{23} 1.518, 10ml bottle		5.00
519 318	PERIPLAN compensating eyepieces, paired NF 10x, field of view 18mm		154.00
	LEITZ Binocular Laboratory and Routine Microscope SM-LUX 0.5.14.32 S 16a/001 complete with Optical Equipment for Brightfield Transmitted Light	S	2,190.00
	Optional		
512 455	Upright leatherette carrying case	S	118.00
500 096	Spare bulb, 6 volts, 10 watts (Phillips 6814)		0.80
			2,308.80

scientific products

C1610-1
CENTRIFUGE, Clini-Cool, IEC – See listing in Recent Developments Section.



C1622-1
CENTRIFUGE, Refrigerated, Model CRU-5000 (IEC 2345) – For general laboratory applications requiring refrigeration; temperature can be controlled over 0-20°C range and read over −10 to 30°C range in 1°C increments. Unit provides maximum gravity of 4575 × g and maximum speed of 5700 rpm with readout to 6200 rpm; speed is adjustable in 100 rpm increments in control and readout ranges. Features include dual mode braking, dual range timer, solid-state feedback control and automatically controlled acceleration. Run times may be set in ½ minute increments between 0-15 minutes and in 5 minute increments between 15-105 minutes. Full, half and coast braking modes are available to accommodate different applications. Indicator lights signal brush wear 20-50 hours before it becomes critical and indicate when rotor has stopped so that counterbalanced safety cover can be lifted; centrifuge will not start until cover is securely in place. Complete with 4 swivel casters for mobility and circuit breaker for overload protection. For operation on 115VAC, 60 Hz; single phase, 15 amps. CSA certified.

SPECIFICATIONS
- Maximum speed – 5700 rpm
- Maximum gravity – 4575 × g
- Maximum volume – 4 × 1000ml
- Temperature range – 0°-20°C
- Timer range – 0-105 minutes
- Dia. guard bowl – 20⅞"
- Dimensions – 25⅜"w × 31½"d × 45¾"h (cover closed) or 58½"h (cover open)
- Weight – 374 lbs.

Order C1622-1-CRU-5000 . . . . . Each $3450.00 X

C1622-700-Manual . . . . . Each $10.00 X

$ 3,460.00

scientific products

	Quantity	Total Price
C1632-5 **ROTOR**, Horizontal, 6-Place Pin Type (IEC 259) - For Models PR-J, CRU-5000, PR-6000 and DPR-6000. Order C1632-5 - Rotor . . . . . Each $277.00	1 each	277.00
C2783 **CUP**, ½" Slotted Aluminum, 250ml (IEC 384) - 63.5 I.D. x 107mm deep; includes C3080 Cushion. Order C2783 - Cup . . . . . Each $59.90	6 each	359.40
C2758 **CARRIER**, ¾" Trunnion (IEC 1020) - 17-place, for 16mm x 10mm serum tubes or smaller sizes; includes C3090 Cushions. 17.8 I.D. x 71mm deep. Order C2758 - Carrier . . . . . Each $88.70	6 each	532.20
Fisher Scientific Co., Centrifuge Bottles, 250 ml 5-586, pkg of 12/$38.40	1 pkg	$ 38.40

Shandon Southern Instruments, Inc.
515 Broad Street, Sewickley
Allegheny County, PA 15143

14 DESCRIPTION	15 BUDGET OBJECT	16 ACC. LINE	17 QUANTITY	18 UNIT ISSUE	19 UNIT PRICE	20 AMOUNT
CYTOSPIN for 115v 60 Hz operation, complete with Centrifuge, precision-moulded, dynamically balanced 12-place head; stainless steel head shield; plastic sample chamber assembly, complete with closure cap and rubber pressure pad (12 each) Box spanner; extractor key; spare motor brushes (2 each) spare tachometer drive belts (2 each) filter cards (200), thick, for extra absorption supplied with unit; operating instructions Shandon Cat. No. SCA-0031	3122	1	1	Ea	1295.00	1295 0
Sealed containers, set of two, Shandon Cat. No. SCA-0061	2626	1	1	Set	199.00	199 0
						1494 0

1

2,701.00

scientific products

C3973-15
CENTRIFUGE TUBE, Conical, Graduated, Disposable (Falcon 2095)–With screw cap that incorporates specially designed plug for use in procedures requiring sterility. 15ml capacity; 17 x 120mm. May normally be centrifuged up to 1600 rpm. 500 per case.
Order C3978-15–Tube . . . . . Case $59.40

CORNWALL® PIPETTER, Continuous, Syringe Type, B-D– Provides transfer and delivery of accurately measured repeat doses. Shaped metal finger rings and thumb rest permit one-hand operation. LUER-LOK™ glass syringes are accurately calibrated; permanent graduations are easily read. Tighten adjusting screw for precise and constant delivery of any desired dosage. Unit includes a CORNWALL LUER-LOK syringe, metal holder (complete with plunger spring, washer and extension); filling outfit (assembly of a 2-way valve, 20" of rubber tubing and spherical metal sinker). All metal parts, except stainless steel plunger springs, are made of chrome-plated brass. Filling outfit valve is molded of buna N rubber.

Order Pipetter	Cap., ml	Subdivisions, ml	Each	
P5173-10	10.0	0.50	46.90	187.60

P5081-1
PIPET, Selectapette® (Clay Adams 4690)–Semiautomatic adjustable pipet provides selection of 0.1 to 1.0ml delivery in 0.1ml increments. Disposable polypropylene tips eliminate cross-contamination; elimination of meniscus readings reduces potential of human error. System features a compact, portable work station; dispenser holds 250 disposable tips. Unit is complete with work station, but without tips.
Order P5081-1–Pipet. . . . . Each $66.10

P5081-20
TIP (Clay Adams 4696)–Replacement tip for P5081-1 Pipet. 1000 per case.
Order P5081-20–Tip . . . . . Case $43.00 66.00

WATER BATHS

Bath	
Mfr. No.	B7008-25
Model No.	66516
Capacity, liters	190°
Max. temp. (with cover) °C	20
Sensitivity (with cover) °C	100
at 37°C	
at 56°C	—
Uniformity (with cover) °C	—
at 37°C	
at 56°C	—
Chamber Dimensions	—
Overall Dimensions	17"w x 9 1/8"d x 5 1/2"h
Elec. Requirements V/Hz	21 3/8"w x 15"d x 10 3/8"h
Watts	120/60
Ship. wt.	1120
Takes cover	20 lbs.
Each	Supplied
	$325.00

scientific products

ILLUMINATOR. Universal, A0653-Compact, 6.5V/2.75A, illumination system especially suited for use with stereoscopic microscopes and for general applications where a versatile light source is needed. Single filament lamp, focusable condensing system and 3-step variable transformer provide illumination necessary for incident and transmitted light investigations. Illuminator adjusts to any angle above or below stage; metal housing is mounted on 3-link, jackknife arm which may be attached to microscope or transformer. Spiral focusing mount, with 3-lens optical system, provides support for filter holder or accessory iris diaphragm. Clear blue glass and ground glass filters are included. For operation on 115V, 50/60 Hz. CSA certified. For replacement bulb, see M5000-20.
Order 653-Illuminator . . . . . Each $133.00

F3200-1
FILTER UNIT, Membrane, Sterile, Nalgene® (Nalge 120)-Disposable filter unit for applications in clinical and industrial areas; when removed from wrapping, sterile unit is ready for use. After filtration, membrane is retrieved or filtrate dispensed, unit discarded. Pore size is 0.2μ; flow rate is 30ml/min/cm²; capacity is 115ml. Flask is graduated from 20 to 115ml. 12 per package; 72 per case.
Order F3200-1-Filter . . . . . Package ~~$23.00~~ 248.40
Case 124.20

REVCO, INC.

XR 1204

Refrigerator with freezer compartment at top with inner door and temperature range of approximately +5°F. to +20°F. (−15°C. to −7°C.) Refrigerator temperature range is +35°F. to +50°F. (+2°C. to +10°C.) Two adjustable wire shelves and one solid shelf with storage drawer. Additional storage space on door shelves. Manual defrost refrigerator with one-piece molded plastic interior and fiberglass insulation.

Specifications	XR 1204
Total Capacity	12.0 cu. ft.
Freezer Capacity	1.59 cu. ft.
Refrigerator Capacity	10.41 cu. ft.
Total Shelf Area	15.84 sq. ft.
Compressor	1/5 HP
Electrical	115v, 60Hz, 5 amps
Shipping Weight	320 lbs.
Exterior Dimensions	58"H x 28"W x 30"D
Interior Dimensions	48"H x 23"W x 19"D

383.40

$1,195.00 F.O.B. Factory

REVCO, Inc.

ULTRA-LOW CHEST TYPE FREEZER

ULT 1285 Chest-Type Size 12 cu. ft.

-65°C to -85°C Two Stage Cascade $3275.00

#5601
Alarm System Panel MTD - AC Operated w/Battery Backup (Temperature and Power) Activates at 10°C warmer than setpoint $ 195.00

#5975
27 Full-Racks, holds 6 boxes each $25.00/rack $ 641.00

#5956
Box, Fiberboard, with cover 3"x5¼"x5¼"
1.00/box 162 each $ 162.00

SCIENTIFIC PRODUCTS

Measuring pipet, TD

P4205-1X	1 ml	12/case	24.90/case	10 cases	$249.00
P4205-5	5 ml	12/case	24.90/case	10 cases	$249.00
P4205-10	10 ml	12/case	31.25/case	10 cases	$312.50

Serological pipet, TD

P4300-1X	1 ml	12/case	16.10/case	10 cases	$161.00
P4300-5	5 ml	12/case	16.10/case	10 cases	$161.00

Pipet Box stainless steel, size 16"longx2½" dia.

P5345- Box 9.80/each 20 each $196.00

GRAND ISLAND BIOLOGICALS

410-1500
F-15 Minimum Essential Medium 50x1 liter ~~$ 56.00~~

1,328.50

Bellco Glass, Inc., Vineland, NJ

Leighton tubes, short style, 16 x 83 mm 1902-16085, 36/case, $29.38/case	10 cases	$298.80
Rubber Stoppers, size 0 1925-11110, 144/case, $10.08/case	4 cases	$ 40.32
Racks for short Leighton tubes 1917-16000, $27.98 each	6 racks	$167.40
2 Microscope slides, 25 x 75 mm 5638-11013, 1440/case, $45.00/case	2 case	$ 45.00 = $90.00
2 Coverslips 10.5 x 35 mm 1916-10535, 1 oz/case, $7.25/case	6 cases	$ 21.75 = $43.50
2 Centrifuge tubes, Heavy duty, Graduated, Screw Cap, 40 ml 3017-00040, 18/case, $114.48/case	2 case	$114.48 = $228.96

Fisher Scientific Co.

Syringes, 50 ml 14-8209, $15.00/each	1 case(12)	$162.00
Erlenmeyer flasks, 500 ml 10-039H	1 pkg (6)	$ 6.30
Magnetic Stirrer-one 14-511-1A (for 115 V 50/60 Hz)		$ 63.00
OR 14-511-1B (for 230 V 50/60 Hz)		$ 65.00
Magnetic stirring bars, 9.5 x 51 mm 14-511-70, $2.70 each	5 ea	$ 13.50
		672.26

Mortars and Pestles, Porcelain, 90 mm
12-961A - case of 12/$29.56
12-961-5A - case of 12/$14.59

		Quantity	Unit price	
1.	Gelman No. 51211 Deluxe Electrophoresis Chamber	1 each	$19.00	$ 219.00
1	2. Gelman No. 38207 Power Supply	1 each	225.00	225.00
	3. ~~Gelman No. 51104~~ ~~High Resolution Buffer~~	~~12/1 pkg~~	~~1 pkg~~	~~22.00~~ ~~22.00~~
	4. ~~Gelman No. 51450~~ ~~Immunodiffusion Punch Set~~		~~1 set~~	~~188.50~~ ~~189.50~~
1	5. Gelman No. 51457 Staining and Rinsing Tanks	4/pkg	~~1 each~~ 2 pkg	16.50 33.00
1	6. Gelman No. 51453 Immuno Leveling Table Set		1 set	128.75 128.75
	7. ~~Gelman No. 51447~~ ~~Immuno Frames~~	~~6/pkg~~	1 pkg	15.50 ~~15.50~~
	8. ~~Gelman No. 51448~~ ~~Immuno Frame Holders~~		1 each	27.50 ~~27.50~~
1	9. Gelman No. 51459 Glass Slides	50/pkg	2 pkg	16.50 33.00
1	10. FISHER Cat. No. 2-668-68 Micro-hematocrit Capillary Tubes			25.80
	11. SIGMA Cat. No. A6877 Agarose, Type II, ~~Med EEO (pfs)~~ 250g/pk 2 bottles			~~166.00~~
2	~~12.~~ GSA No. 6640-00-782-6008 Pipet, 5-3/4" long 360/box ~~6~~ 12 boxes			40.20 ~~20.10~~
	TOTAL			~~$1,104.15~~ 704.75

scientific products

S8285
STIRRER, Model PC-353 (Corning 440071) – Magnetic stirrer provides wide stirring range from 60 to 1400 rpm in water; agitation ranges from gentle to vigorous. Pyroceram top plate offers 5" x 7" work space, and provides easy-to-read endpoint titrations. Shaded pole stirring motor has no brushes or commutators to repair or replace. Complete with Teflon-coated stirring bar. Dimensions: 7"w x 5"d x 5"h. For operation on 120V, 50/60 Hz, 600 watts.
Order S8285-Stirrer . . . . . Ⓢ . . Each $70.40 140.80

Stirring Bar	Dia. in.	Length, in.	Center Pivot Ring	Each		
S8305-1	5/16	1/2	with	2.25	6	13.50
S8305-3	5/16	1	with	2.65	6	15.90.
S8305-4	5/16	1 1/2	with	3.13	6	18.60
S8305-5	5/16	2	with	3.40	6	20.40

6 : 4 " x 2 = 36.00

Ⓢ VORTEX-GENIE MIXER
Provides vortex-action mixing of liquid contents in laboratory vessels of varying sizes and shapes; 1-hand operation consists of placing the vessel on revolving polyethylene cup and pressing down. Vortex forms almost immediately, and remains until vessel is removed. By changing angle and position of the vessel, mixing action covers the entire interior. Heavy cast iron housing with polyethylene cup and no-slip neoprene mountings; rheostat dial controls speed rate from gentle to vigorous agitation. Dimensions: 5"w x 5"h x 6 1/4"d. For operation on 115V, 60 Hz. Ship. wt. 9 lbs. CSA certified.
Order S8223-S/P Mixer . . . . . Ⓢ . . Each $89.50

P8301-10
PUMP, Vacuum, 25-Liter, Model D-25 (Precision Scientific 10292) – Two stage pump for high vacuum evacuation of small chambers and vessels; produces 25 liters per minute, free air displacement, with guaranteed ultimate vacuum of 0.1μ (1 x 10^{-4} Torr). 1/3 hp motor provides 600 rpm pump speed; oil capacity is 1 qt. Pump accepts P8352-1 Smoke Eliminator. Complete with adjustable gas ballast, motor, pulleys, belt guard, in-line switch, pump oil, 3-wire cord and polarized plug. Without tubing. CSA certified.
SPECIFICATIONS
Free air rate – 25 liters/min
Oil capacity – 1 qt.
Intake tubing – 1/2" I.D. x 3/8" wall
Dimensions – 14 1/2"w x 10"d x 9 1/2"h
Electrical requirements – 120V, 60 Hz
Ship. wt. – 61 lbs.
Order P8301-10-Pump . . . . . Each $445.00

MICROSCOPE, AO1810 – Consisting of inverted microscope, illuminator 115V, 60 Hz., variable transformer, binocular body, triple nosepiece, 4X, 6.5X and 10X objectives, simple stage and two 10X W.F. eyepieces.
Order 1810-Microscope . . . . . Each $1579.00 2,322.70

scientific products

STERILIZER, Barnstead–Designed for laboratory procedures, these sterilizers provide for flowing steam and entrapped air processing of packs, utensils, laboratory supplies and culture media; both electric and steam heated models use steam as sterilizing agent and operate in 212°-270°F range. Electric models have a 20KW steam generator; automatic fill and feedwater pump assure 4-8 minute heat-up and eliminate need of refilling generator. Steam heated models are designed for operation on 50-70 psi. Rectangular chambers are constructed of steel; door has snap-in gasket, dual safety lock with clutch and covered locking arms for easier cleaning. Features include pressure regulator feed, forced air evacuation system, thermo-balanced cooling and sterile-vacuum drying; bacteria-retentive filter is sterilized during each operation. Operation of manual models is accomplished by manually rotating single control handle through sterilization cycle; indicating thermometer and chamber and jacket gauges are located on control panel. Automatic models feature indicating-recording-controlling thermometer with visible ink supply, pushbutton cycle selection and operation, single point temperature control, variable drying timer, cycle indicating lights, automatic recycling, control interlock and manual backup. All models have adjustable shelves; 16" × 16" models have 2 shelves, and 20" × 20" models have 3 shelves. For operation on 208/240V, single or 3 phase. Please specify phase when ordering. A9240-1 low temperature control is available on all A9223-series Sterilizers; factory installed option permits lowering of temperature to 158°F (70°C) for pasteurization, inspissation, fractional sterilization and other applications; unit must be ordered with sterilizer. CSA certified. Ⓢ

	Mfr. No.		Chamber size, in.		
A9223-5		C1762		16 × 16 × 26	Automatic, electric heat

$ 12,160.00

FLASK, Tissue Culture, Falcon–Single-use flasks for use in tissue culture technics; flat growth surface offers undistorted area for microscopic examination. T4162-25 Flask has a wide mouth, canted neck and nontoxic plug seal screw cap, and accepts pipets up to and including 10ml. T4162-75 Flask with straight neck also has plug seal screw cap and accepts pipets up to 25ml. T4162-75S Flask has a black phenolic cap. Each production lot is checked for sterility and cell compatibility; screw caps provide protection for cell growth and sheeting.

Order Flask	Mfr. No.	Approx. cap., ml	Opening, mm	Style viewing area, cm²	Quan/ case	Case
T4162-25	3013	30	13.5	25	500	$144.41
T4162-75	3024	250	17.0	75	100	56.61

T4155-20
DISH, Cluster (Falcon 3045)–With four 60 × 15mm wells per dish, 20 per case. . . . . Case $119.43

12,361.02

scientific products

Balance	
Mfr. No.	**B1305-1**
Capacity	PL300
Resolution	320g
Stabilization time (typical)	—
WEIGHING RANGE	1.5 sec
READABILITY	0-300g
Taring range (by subtraction)	0.01g
Reproducibility	0-300g
Linearity	±0.005g
Admissible ambient temperature during operation	±0.015g
Sensitivity drift (10-30°C)	0-40°C
Zero point drift (10-30°C)	±0.004g/°C
Result deviation when balance is inclined by 1:1000	—
Automatic stability detector, adjustable	<0.01g
Integration time, adjustable	—
	0.6;1.2;2.4;4.8 seconds
Digital output	
parallel, incl. decimal point and polarity sign	
digital code (BCD)	
level (TTL-compatible): L(Low)	—
H(High)	—
Amphenol connector socket, 50-pole	—
Power supply	
voltage selector	110-220V
frequency	50/60 Hz
Weighing pan, chrome-nickel steel	5" dia.
Balance housing, w × d × h	7½" × 12¾" × 5¾"
Net weight, lbs.	16
Each	$1895.00

B1796

BALANCE, Harvard (Chaus 1550SD) - Double beam unit is magnetically damped; has metric graduations on each of the beams. Complete with 6" stainless steel plates.

SPECIFICATIONS

- Capacity - 2kg
- Readability - 0.1g
- Precision - ±0.25g
- Sensitivity - 0.1g
- Pan Size - 6" dia.
- Housing - 14"l x 6"w x 10"h
- Weight - 6.5 lbs.

Order B1796 - Balance . . . . . Each $62.00 1,957.00

scientific products

L5340-1
CABINET, Biohazard Safety, Laminar Flow (Labconco 47720)–Protects operator from potentially dangerous biological material; also provides sterile environment for the biological product. Designed to ensure constant negative pressure in relation to the laboratory, unit features one ½ hp variable speed permanent split capacitor motor/blower, magnehelic gauge which monitors air pressure across filters. 99.97% efficient HEPA filters located directly beneath work surface quickly entrap particles 0.3 microns or larger. Return air plenum remains uncontaminated during operation. Access opening face and downward air is sterile, moving at 80 ft/min. velocity. Includes a vertical rising safety glass sash with clamps and stops for 8" access; 304 stainless steel heliarc welded cabinet interior with 17" x 48" work surface and drain trough; 115V duplex electrical receptacle; one 160 watt fluorescent light mounted outside cabinet; epoxy coated steel exterior; 8" x 48" exhaust duct collar. Dimensions: 52"w x 35¼"d x 72"h. For operation on 115V, 60 Hz. Ship. wt. 740 lbs.
Order L5340-1–Cabinet . . . . . Each **$4995.00**

D4815-4
STILL, 11 Liter, Model AG-11 (Corning 440059)–Fully automatic unit will continuously provide up to 11.4 liters/hour of ultra-high purity distillate; may be used with D5080-5 Automatic Demineralizer and/or 12-gallon collection system. Purity of single distilled water is 1.7 megohms/cm resistivity; 0.18 ppm total solids; cooling water consumption is 26 gallons/hour. Unit features four 2000 watt Vycor brand immersion heaters. Automatic shutoff occurs if water overheats, or if supply falls below prescribed level; process also stops if there is an interruption in power, or if the Demineralizer cartridge expires. Complete with nylon pressure hose and tool kit; without collection bottle. Dimensions: 25½"w x 19"d x 25½"h. For operation on 220V, 50/60 Hz, 2000 watts.
Order D4815-4–Still . . . . . Each **$2138.40**

D4820
COLLECTION SYSTEM, Automatic (Corning 440704)–For use with D4815-4 Still. All glass 12-gallon collection unit automatically controls its own water level; when bottle is full, glass float activates a cro-switch to shut off water supply to the distillation unit and power to the still's boiler. When 10 liters have been drained, unit cuts on again. Collection unit connects by means of a plug-in phone jack. Dimensions: 38"h x 16¼"w x 16¼"d. For operation on 120V, 60 Hz.
Order D4820–Collection System . . . . . Each **$425.00** 7.558,40

Total $37.075.83

ANNEX V
ATTACHMENT 5

REQUERIMIENTO DE PERSONAL
PROGRAMA PESTE PORCINA AFRICANA

TIPO DE PERSONAL	CANTIDAD	SALARIO
Médicos Veterinarios (Brigadas Despoblación)	41	400.00
Técnicos Agrícolas (Brigadas Despoblación)	45	300.00
Técnicos Agrícolas (Puestos de Control)	50	250.00
Auxiliares Brigadas Despoblación	86	250.00
Encargados Administración de Bienes	7	180.00
Inspectores Servicios Veterinarios de Fronteras	32	300.00
T O T A L	261	

ANNEX V
ATTACHMENT 6

REQUERIMIENTO JORNAL OBRERO
PROGRAMA PESTE PORCINA AFRICANA

TIPO DE PERSONAL	CANTIDAD	JORNAL DIARIO	DIAS POR MES
Obreros Brigadas Despoblación	344	5.00	22
Obreros Puestos de Control	150	5.00	30
Obreros fosas enterramiento	166	5.00	22
T O T A L	660		

ANNEX V
ATTACHMENT 7

REQUERIMIENTO DE VIATICOS
PROGRAMA PESTE PORCINA AFRICANA

TIPO DE PERSONAL	NO. DE PERSONAS	DIAS DE VIATICOS	VALOR DIARIO
Médicos Veterinarios (Brigadas Despoblación)	41	15	10.00
Técnicos Agrícolas (Brigadas Despoblación)	45	15	10.00
Técnicos Agrícolas (Puestos de Control)	50	20	4.00
Auxiliares Brigadas Despoblación	86	15	4.00
Militares	488	20	3.00
Tasadores	86	15	4.00
TOTAL	796		

ANNEX V
ATTACHMENT 8

GASTOS GENERALES
GENERAL EXPENSES

DESCRIPTION DESCRIPCION	GASTOS MENSUAL MONTHLY EXPENSES	COSTO TOTAL TOTAL COSTS
Servicios de comunicación Communication Services	100.00	1,200.00
Impresión y Encuadernación Printing and Binding	300.00	3,600.00
Alquileres Rents	100.00	1,200.00
Seguros de Vehículos Vehicle insurance	-	9,240.00
Reparaciones menores Minor repairs	300.00	3,600.00
Construcciones temporales Temporary constructions	-	5,000.00
materiales y sumistros de productos, papel, carton, etc. Materials and products, paper, cardboard	500.00	6,000.00
Productos varios y útiles diversos Several products and various tools	300.00	3,600.00
TOTALES		33,440 X 3 yrs.=$100,000

REQUIREMENTS OF THE SPREADING CAMPAIGN
REQUERIMIENTO DE LA CAMPAÑA DIVULGATIVA

PESTE PORCINA AFRICANA

(PRESUPUESTO)
(BUDGET)

Descripción Description	Amount Cantidad:	Costo Unitario: Unitary	Costo Total: Total Cost
RADIO-SANTO DOMINGO			
Newscast 3 broadcasting.			
-Noticieros- 3 emisoras-9 menciones diaria c/u. 9 daily mentions ea.	1,647 Menciones Mentions	$ 10.00	$ 16,470.00
Regular programs 5 broadcasts			
-Programación regular 5 emisoras 55 menciones diarias c/u durante 4 meses 55 daily mentions during 4 months.	3,575 Menciones	5.50	19,662.00
INTERIOR			
Preparation of monthly blocks in 40 broadcasts w.			
- Construcción de bloques mensuales en 40 emisoras con 20 menciones diaria c/u durante 4 meses ($150.00 /c/emisora)	20 daily mentions ea. during 4 months. 83,200 Menciones	150.00	24,000.00
Recording and preparation of advertisements			
- Grabación y preparación de cuñas	100 cuñas Advertisements	20.00	1,200.00
1ER. SUB-TOTAL.....			$61,332.00
TELEVISION			
- Radio Televisión Dominicana	G R A T U I T O	FREE	
Two TV Channels. 16 daily mentions ea. 4 months.			
- dos (2) canales de televisión 16 menciones diarias c/u, por 4 meses	1,040 Menciones	$ 60.00	62,400.00
2DO. SUB-TOTAL.....			$62,400.00
PRENSA PRESS			
To cover notices, use of the newspapers to be our allieds during the campaign			
Para cubrir comunicados, utilizathorough press notices, conferences with the journa-			
ción de los periódicos para que lists, and travelsthorough the country.			
nos sirvan de aliados en la campaña, a través de notas de prensa, conferencias con los periodistas recorridos por el interior del país.....			$ 5,000.00
Special reports in 6 newspapers, traveling expenses			
- Reportajes especiales en 6 periódicos, viáticos (4 veces/mes)	(4 times/month) 16	$50.00	1,200.00
3ER. SUB-TOTAL.....			$ 6,200.00

(S i g u e)

Cont.....Presupuesto
Budget

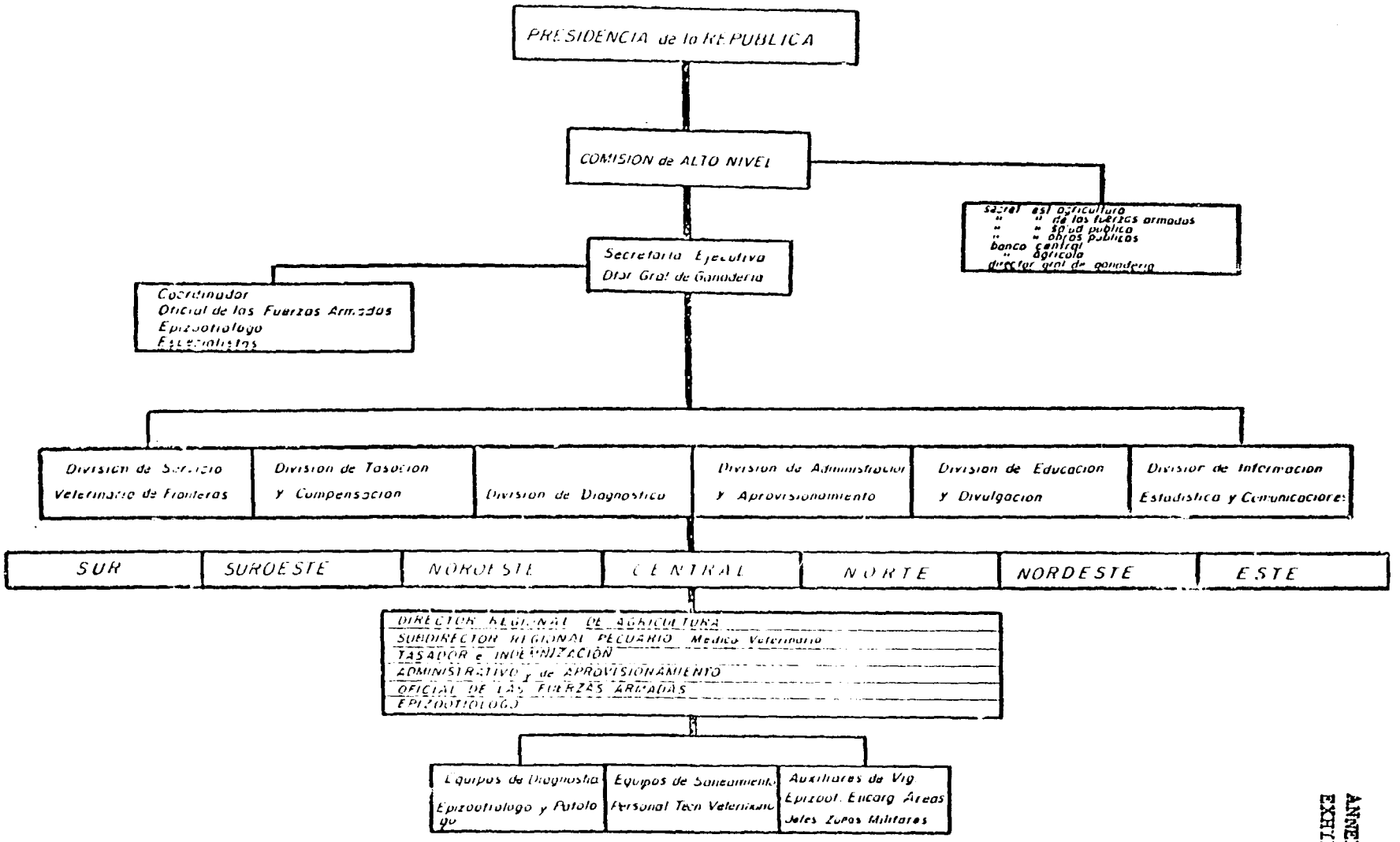
Descripción: Description	Cantidad:	Costo Unitario:	Costo Total:
CINES MOVIES			
- Cortos fílmicos de 1 minuto 15 copias a color, incluyendo una presentación en las salas de cine según la carta de distribución de panorama Dominicano (anexo) por un período de 3 meses y medio. Short films of 1 minute, 15 color copies, including 1 presentation in cinemas according to the distribution letter of Panorama Dominicano (Attached) during a 3 1/2 months period.	-	$3,500.00	$ 3,500.00
- Reducción de estos cortos fílmicos a 16 mm. para televisión 4 copias. Reduction of these short films to 16 mm. to be used on TV 4 copies.	4 copias 4 copies		800.00
4TO. SUB-TOTAL.....			$ 4,300.00
MATERIALES DIVULGATIVOS DIVULGATION MATERIALS			
- La impresión de este material se realizará en el Departamento de Divulgación Técnica. The printing of these material will be made in the Department of Technical Divulgation			-
MATERIALES Materials			
Afiches Posters	20,000.00	-	$ 3,000.00
Volantes (en octavillas) Pamphlets (octaves)	1,000,000.00	-	2,000.00
Folletos Brochures	40,000.00		3,000.00
5TO. SUB-TOTAL.....			$ 8,000.00
VALLAS CAMINERAS Fences in roads			
- Para ser colocadas en las principales carreteras del país. To be placed in the main roads of the country	20	600.00	$ 12,000.00

Resumen: Summary:

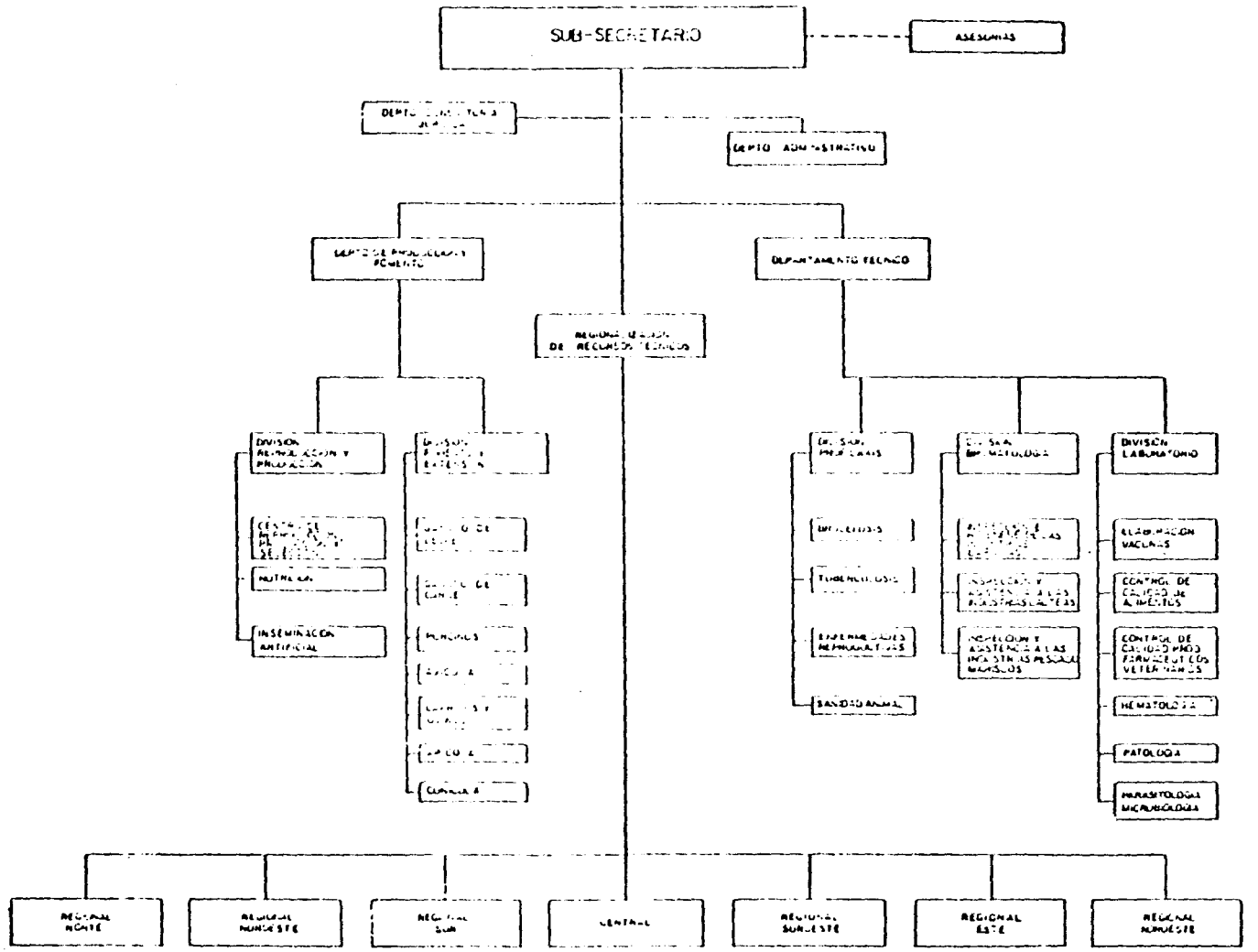
1) Radio.....	RDS	61,332.00
2) Televisión ...TV.....		62,400.00
3) Prensa ...PRESS.....		6,200.00
4) Cine ...MOVIES.....		4,300.00
5) Materiales Divulgativo...Divulgation mate- rial		8,000.00
6) Vallas Camineras. Fences in roads...		2,000.00
T O T A L	RDS	154,232.00
Más 5% Imprevisto...%..... Plus 5% for unexpected		7,711.60
TOTAL GENERAL.....	RDS	$161,943.60

ANNEX VI
EXHIBIT 1

Organigrama estructural para la lucha contra la F.P.A. en la Republica Dominicana (agosto 1978)



ORGANIGRAMA DE LA SUB-SECRETARIA DE GANADERIA



ANNEX VI
EXHIBIT 2

ANNEX VI
EXHIBIT 3

A summary of all personnel assigned to both the central and field operations of Sanidad Animal and the Central Laboratory is as follows:

Animal Sanitation Program:

A. Central Level

Position Description	Profession	No.
Program Director	DVM	1
Sub-Director	DVM	1
General Supervisor	DVM	1
Physiopathologist	DVM	2
Statistics, Chief	DVM	1
Program Evaluation, Chief	DVM	1
Sanitary Education, Chief	DVM	1
Epidemiologist	DVM	2
Quarantine	DVM	1
	Sub-Total	11
Administrative Officer	MBA	1
Controller	CPA	1
Controller Assistant	Accountant	4
Secretary	-	5
Statistics (Assistant)	-	2
Audio Visual	Tech. School	1
	Sub-Total	14
	Total Personnel at Central Level:	25
	Total Professional Staff	20

B. Field Level

Position Description	Profession	No.
Zone Director	DVM's	7
In Charge of Brigades	DVM's	13
Vaccinators	(trained)	34
Cowboys		9
Quarantine Station		
Vaccinators		2
Laborers		4
Driver		1
Watchman		1
Others (helpers)		2
	Total Personnel	73
	Total Professional Personnel	.20

C. Central Veterinary Laboratory

Diagnostic Division Unit	Personnel	DVM	Technicians
Bacteriology	5	1	4
Pathology	4	2	2
Hematology	3	-	3
Parasitology	7	4	3
ASF Virology	4	1	3
ASF Pathology	5	2	3
AVIAN Pathology	2	1	1
Brucellosis Serology	2	-	2
Total	32	11	21

Biologic Division

Unit	Personnel	DVM	Technicians
Tuberculin	3	2	1
Rabies	5	2	3
Brucellos	4	1	3
Hog Cholera Vaccine (Production suspended)	2	-	2
Newcastle Vaccine	2	1	1
Leptospirosis	4	1	3
Total	20	7	13

Total Personnel 52

Total Professional Personnel 52

D. Laboratory Support Services

Unit	Professionals	Technicians	Helpers
Animal Facilities	1 DVM	1	5
General Services	1 DVM	0	5
Total	2	1	10

Total Personnel 13

Total Professional Personnel 3

E. Regional Laboratory

Position Description	Profession	No.
Microbiologist	DVM	4
Lab. Technician	trained	8
Lab. Assistants	-	8
Watchmen	-	8
Cleaning Maintenance	-	7
Administrative	paraprofessionals	3
	Total Personnel	38
	Total Professionals	4

ANNEX VI
EXHIBIT 4

REPUBLICA DOMINICANA
SECRETARIA DE ESTADO DE AGRICULTURA
DIRECCION GENERAL DE GANADERIA
SUBPROGRAMA SANIDAD ANIMAL

FORMULARIO DE TASACION

LA SECRETARIA DE ESTADO DE AGRICULTURA, representada por la DIRECCION GENERAL DE GANADERIA, CERTIFICA, que en fecha _____, en la granja y/o finca denominada _____, ubicada en _____, _____
Sección Municipio

_____, perteneciente al Señor(a) _____
Provincia

_____, se procedió al SACRIFICIO de _____

_____cerdos de su propiedad, por motivo de la enfermedad infecciosa PESTE PORCINA AFRICANA, según detalle:

CERDOS SACRIFICADOS				
TOTAL			ENFERMOS	
MACHOS	HEMBRAS	PESO (kg)	MACHOS	HEMBRAS

Evalúo los cerdos arriba descritos en la suma total de:

_____
(Letra y Número por el Tasador)

OBJETO: COMPENSACION de los ANIMALES SACRIFICADOS, debidamente autorizados por la Secretaría de Estado de Agricultura, la Dirección General de Ganadería, tasados por el Banco Agrícola de la República Dominicana y de conformidad con el dueño de dichos animales.

POR LA DIRECCION GENERAL DE GANADERIA
da fé:

_____
Médico Veterinario Oficial
SUBDIRECCION REGIONAL PECUARIA

POR EL BANCO AGRICOLA DE LA REP. DOM.
da fé:

_____
Tasador

ZONA _____

FIRMADO CONFORME DUEÑO ANIMALES SACRIFICADOS:

NOMBRE _____ CEDULA _____ SERIE _____

FIRMA _____

FECHA _____

ORIGINAL : Propietario de los Animales.
ROSADO : Subprograma Sanidad Animal (DIGEGA).
AZUL : Banco Agrícola
AMARILLO : Médico Veterinario Oficial.-

ANNEX VI
EXHIBIT 5

BAGRICOLA BRANCH BANKS
AND COMPENSATION CLAIMS OUTSTANDING

Branch	Animals Sacrificed	Compensation
Santo Domingo	37,894	3,312,300
Higuey	1,961	93,091
Baní	2,812	122,313
San Cristóbal	3,841	264,463
San José de Ocoa	839	29,712
San Francisco de Macorís	1,198	59,662
Santiago Rodríguez	114	2,733
Valverde, Mao	1,488	58,825
La Vega	1,739	76,718
Moca	172	5,344
Cotuí	129	1,973
Montecristi	409	16,544
Santiago	2,961	58,990
Hato Mayor	2,762	134,912
Elías Piña	1,488	33,314
Puerto Plata	1,131	87,159
Nagua	115	5,813
El Seibo	126	3,947
Azua	14	935
Samaná	100	2,407
Barahona	4,400	120,653
Total	65,693	4,491,810

No reports from branches in San Pedro de Macorís or San Juan.

ANNEX VI
EXHIBIT 6

Geographical Distribution of Sanitary Brigades

PROVINCE	REGION	SANITARY BRIGADES	ASF CONTROL AND DEPOPULATION
Distrito Nacional San Cristobal Peravia	Central	3	1
La Vega Santiago Espaillat Puerto Plata	North	5	-
San Fco. de Macorís Salcedo Sanchez Ramírez Maria Trin. Sanchez Samaná	Northeast	3	-
Dajabon Montecristy Santiago Rodriguez Valverde	Northwest	2	6
Azua San J. de LaMaguana La Estrelleta	Southwest	2	8
Barahona Bahoruco Independencia Pedernales	South	2	8
San P. de Macorís El Seybo La Romana La Altagracia	East	6	6
	Total	23	23

SUMMARY OF SWINE PRODUCTION SYSTEMS, MANAGEMENT PRACTICES, AND OTHER CORRELATIVE FACTORS.

PRODUCTION SYSTEM	% OF NATIONAL PRODUCTION	FEEDING REGIME AND MANAGEMENT PRACTICES	LEVEL OF MANAGEMENT AND PRODUCTION INPUTS	OCCUPATIONAL RELATIONSHIP	RELATIVE AMOUNT OF LAND UTILIZED	AVERAGE HERD SIZE
EXTENSIVE	20	SCAVENGER GRAZING	LOW TO LACKING	AGRICULTURAL PART TO FULL-TIME	HIGH	OVER 100 HEAD
INTERMEDIATE a) Household	60 (10)	HOUSEHOLD SCAVEN - GING	LOW TO LACKING	SMALL FARMER AND RURAL LABORER .	VERY LOW	LESS THAN 5 HEAD
b) Farmstead	(50)	FARMSTEAD GRAZING WITH LIMITED SEASONAL SUPPLEMENTATION	MEDIUM	SIDELINE TO SUBSISTENCE AND CASH CROPS	LOW TO MODERATE	5 TO 20 HEAD
INTENSIVE a) Progressive Traditional	20 (16)	IMPROVED GRAZING BALANCED BY SUPPLEMENTATION	HIGH FOR PRODUCTION SYSTEM UTILIZED	MAJOR AGRICULTURAL SIDE LINE TO FULL-TIME OCCUPATION	LOW TO MODERATE	OVER 20-50 HEAD
b)Modern	(4)	BALANCED RATION FED IN CONFINEMENT	HIGHLY COMMERCIALIZED	COMMERCIAL COMPANY	VERY LOW	OVER 1000 HEAD

SPECIAL NOTES: Apart from some commercial fattening operations, many small farmers, rural laborers and urban poor purchase feeder pigs for growing out and fattening, thereby contributing to stratisfaction of the industry without adding to total numbers.

ANNEX VII
EXHIBIT 1

ANNEX VII
EXHIBIT 2

PRIMARY TARGET GROUP SWINE HERD PROFILE (1977/1978)

HERD COMPOSITION BY SEX AND AGE	HERD SIZE No. of head (1000s)	%	MORTALITY %
FEMALES:			
Brood sows	207	18	6
0-6 mos.	283	25	50
6-12 mos.	200	17	30
SUB TOTAL	690	60	
MALES:			
Stud Boars	23	2	5
0-6 mos.	260	23	50
6-12 mos.	177	15	30
SUB TOTAL	460	40	
GRAND TOTAL	1,150	100	

ANNUAL PRODUCTION COEFFICIENTS:

1) No. Farrowings sow/year - 1.35
2) No. Pigs per farrowing - 6.5
3) No. Pigs farrowed sow/yr. - 8.8
4) No. Pigs weaned per litter - 3.25
5) No. Pigs weaned sow/year - 4.4
6) Sow replacements rate % -25
7) No. farrowings prior to sow disposal - 5
8) Boar/sow ratio 1 To 9
9) Average butcher age/mos. - 12
10) Average butcher wt./kgs. - 68
11) Ave. first breeding age/mos.-12
12) Total slaughter offtake/% - 60
13) Annual Herd Increase % - 3

N.B . : Main target group estimated to account for about 80% of total production by the national swine herd of $\pm$ 1.45 million head pre-project.

ANNEX VII
EXHIBIT 3

MODERN COMMERCIAL SWINE HERD PROFILE
(BASED ON RECORDS OF 4 OPERATORS IN THE CAPITAL CITY AREA)

HERD COMPOSITION BY SEX AND AGE	MORTALITY %	HERD SIZE N° OF HEAD*	%
FEMALES			
Brood sows	4	1375	35.9
0-6 mos.	20	1173	30.7
6- 12 mos.	4	1125	29.4
SUBTOTAL		3673	96.0
MALES:			
Stud Boars	4	50	1.3
0-6 mos.	20	52	1.4
6-12 mos.	4	50	1.3
SUBTOTAL		152	4.0
GRAND TOTAL		3825	100.0

PRODUCTION COEFFICIENTS:

1.- No. farrowings sow/year - 1.8

2.- No. pigs per farrowing - 9.0

3.- NO. pigs farrowed sow/year -16.2

4.- No. pigs weaned per litter -7.7

5.- No. pigs weaned sow/year 14.0

6.- No. farrowing prior sow disposal- 3.0

7.- Sow replacement rate % - 45

8.- Boar/sow ratio - 1/25

9.- Average butcher age/mos. -6.5

10.- Ave. butcher wt./kg. -100

11.- First breeding age/mos.- 9

12.- Slaughter offtake % -162

* Nos. represent only animals kept for reproduction and their replacements.