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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

HONDURAS

PROJECT PAPER

RURAL ROADS MAINTENANCE

AID/LAC/P-616

PROJECT NUMBER: 522-0334

UNCLASSIFIED

APPENDIX 3A, Attachment 1
Chapter 3, Handbook 3 (TM 3:43)

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: [X] A = Add, C = Change, D = Delete — Amendment Number: — DOCUMENT CODE: 3

COUNTRY/ENTITY: Honduras

3. PROJECT NUMBER: 522-0334

4. BUREAU/OFFICE: USAID/Honduras

5. PROJECT TITLE (maximum 40 characters): Rural Roads Maintenance

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 06 DD 30 YY 97

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 90 B. Quarter 3 C. Final FY 96

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 90 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	1,000	1,500	2,500	3,432	11,568	15,000
(Grant)	(1,000)	(1,500)	(2,500)	(3,432)	(11,568)	(15,000)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country	-	-	-	-	6,866	6,866
Other Donor(s)						
TOTALS	1,000	1,500	2,500	3,432	18,434	21,866

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) FN	130	061				2,500		15,000	
(2)									
(3)									
(4)									
TOTALS						2,500		15,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 010 | 070 | 720 — 11. SECONDARY PURPOSE COD

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code							
B. Amount	B5 13,704	BF 15,000					

13. PROJECT PURPOSE (maximum 480 characters).

To establish a long-term sustainable maintenance system for rural roads and expand the network of rural roads in areas with the greates potential for agricultural export production.

14. SCHEDULED EVALUATIONS: Interim MM 06 YY 93 — Final MM 01 YY 96

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [ ] 000 [ ] 941 [ ] Local [X] Other (Specify) 000 CACM and Host Country

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment)

17. APPROVED BY — Signature: John A. Sanbraillo — Title: Mission Director — Date Signed: MM DD YY

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

PROJECT AUTHORIZATION

Name of Country:	Honduras
Name of Project:	Rural Roads Maintenance
Number of Project:	522-0334

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Rural Roads Maintenance Project for Honduras involving planned obligations not to exceed Fifteen Million United States Dollars ($15,000,000) in grant funds ("Grant") over a seven year period from the date of authorization, subject to the availability of funds in accordance with the AID OYB allotment process, to help in financing foreign exchange and local currency costs for the Project ("Project").

2. The Project consists of establishing a long-term sustainable maintenance system for rural roads and expanding the network of rural roads with the greatest potential for agricultural export production. It is anticipated that by the PACD a sustainable rural roads maintenance system will be in place, 3,000 kilometers of roads will be maintained, 300 kilometers of roads will be rehabilitated, and 264 kilometers of roads will be constructed. The Ministry of Communications, Public Works, and Transportation will implement the Project. Maintenance, construction, and rehabilitation activities will be contracted out to the private sector.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with AID Regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as AID may deem appropriate.

A. Source and Origin of Goods and Services

Commodities financed by A.I.D. under the Grant shall have their source and origin in the United States or in the Cooperating Country or in other Central American Common Market, except as AID may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have countries which are members of the Central American Common Market, the Cooperating Country, or the United States (AID Geographic Code 000) as their place of nationality, except as AID may otherwise agree in writing. Ocean shipping financed by AID under the Grant shall, except as AID may otherwise agree in writing, be financed only on flag vessels of the United States.

B. Conditions Precedent to Initial Disbursement

Prior to the first disbursement of the Grant, or to the issuance by AID of documentation pursuant to which disbursement will be made, the

Grantee will, except as AID may otherwise agree in writing, furnish in form and substance satisfactory to AID:

1. An opinion of the Attorney General of the Republic or of Counsel acceptable to AID that the Project Agreement has been duly authorized and/or ratified by and executed on behalf of the Grantee and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all its terms.

2. A statement of the names of the persons holding or acting in the office of the Grantee, and a specimen signature of each person specified in such statement.

C. Conditions Precedent to Additional Disbursement

1. Prior to the disbursement of funds or the issuance of any commitment document under the Project Agreement for implementation of the construction component, The Ministry of Public Works, Transportation, and Communication (SECOPT) will make the preselection of at least 530 kilometers of roads which will include 260 kilometers of roads associated with other export promotion projects financed by AID, do cost-benefit analyses on these roads, select those roads for construction which have the highest ranking of the established cost-benefit criterion, do environmental analyses on the roads selected, and then make a final selection leaving out those road packages which have negative environmental consequences.

2. Prior to disbursement of funds, the issuance of any commitment document, or the approval of any bidding documents for new construction activities under the Project Agreement, the GOH and AID agree to do a review of progress on the goals set forth in SECOPT's institutional strengthening program for its Directorate of Maintenance (DGM) as contained in Annex IV to the Project Paper. If progress on these goals is not satisfactory as determined by the GOH and AID, then the disbursement of funds, the issuance of any committment document or the approval of any bidding documents for the new construction activities under the Project Agreement will not proceed until such time as the GOH and AID determine that progress on the instititutional strengthening goals of the DGM is satisfactory.

3. Prior to disbursement of funds after the second year of the Project except for technical assistance activities and the AID coordinating unit, the GOH and AID agree to review progress on the goals set forth in SECOPT's institutional strengthening program for its Directorate of Maintenance (DGM) as contained in Annex IV to the Project Paper. If progress on these goals is not satisfactory as determined by the GOH and AID, then the disbursement of funds, with the exception of technical assistance activities and the AID coordinating unit, will not proceed until such time as the GOH and AID determine that progress on the instititutional strengthening goals of the DGM is satisfactory.

4. Prior to the disbursement of funds or the issuance of any commitment document under the Project Agreement for implementation of the maintenance component, other than for technical assistance related to that component, SECOPT will submit for AID's approval a detailed plan which shows how the participation of private sector contractors in maintenance will be increased over the life of the Project, and specifically, how the private sector maintenance coverage goals will be met for Project-financed roads and the rural roads network as a whole by the end of the Project.

5. Prior to the disbursment of funds or the issuance of any commitment document under the Project Ageement for implementation of the Pilot Project for Implementation of the Hand Labor, Peon Caminero Program through the Municipalities, AID, SECOPT, and the Peace Corps will sign an Interinstitutional Agreement which details the objectives to be accomplished under the pilot program, the resources to be contributed by all parties in accomplishing those objectives, and other such information as required to ensure the successful completion of the program.

C. Special Covenants

1. The Cooperating Country shall make every effort to ensure that counterpart funds are available in a timely and satisfactory manner. Likewise, the cooperating country shall provide AID with quarterly reports on the provision of counterpart contributions. These reports shall be provided no later than 30 days after the end of the quarter. Should the cooperating country fail to make available amounts designated in the budget or fail to make those amounts available in a timely and satisfactory manner as determined by AID, AID may suspend assistance to one or more Project activities until such time that AID shall determine that the assistance may be continued or that one of more of the project activities be terminated.

John Sanbrailo

John Sanbrailo
Mission Director
USAID/Honduras

June 20, 1990
Date

C.

ACRONYMS & DEFINITIONS

ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
AD	Administrative Department of the DGM
AID	United States Agency for International Development
AIU	AID Implementation Unit in the DGC
ARDN	Agricultural Rural Development and Nutrition Account
BANMA	Autonomous National Municipal Bank
CABEI	Central American Bank of Economic Integration
CAC	House Wives Club
CONT	Controller's Office
COSUDE	Swiss Development Corporation
COHDEFOR	Honduran Corporation of Forestry Development
DF	Development Finance Office
DGC	Directorate of Roads and Airports
DGM	Directorate of Maintenance of Roads and Airports
DGP	General Budget Directorate
DTP	Personnel Training Department
EEC	European Economic Community
ENEE	National Electric Energy Company
ENG	Engineering Office in AID
EPA	Economic & Programs Office
FEHMUC	Honduran Federation of Peasant Women
FX	Foreign Exchange
GOH	Government of Honduras
IDB	Inter-American Development Bank
IEE	Initial Environmental Examination
IFIS	International Financial Institutions
INA	National Agrarian Institute
INFOP	National Institute of Profesional Formation
LC	Local Currency
LOP	Life of Project
NGO	Nongovernmental Institution
OE	Operational Expenses
OEF	Overseas Educational Fund
OECF	Japanese AID Organization
PAD	Data Processing Department
PAM	Administrative Plan for Maintenance
PBU	Planning and Budgeting Unit
PC	Personal Computer
PC	Peon Caminero, Maintenance worker in PCP
PCP	Peón Caminero Program
PDO	Private Development Organizations
PGV	Project Global Village
PID	Project Identification Document
PIL	Project Implementation Letter
PSC	Personal Services Contractor

PVO	Private Voluntary Organization
RD	Rural Development Office in AID
RR I	Rural Trails and Access Roads Proje t, 1980
RR II	Rural Roads II, 1985
RRNN	Ministry of National Resources
SANAA	National Water and Sewer Severice
SECOPT	Ministry of Communications, Public Works, and Transport
SEE	Subproject Environmental Examination
TA	Technical Assistance
TPD	Personnel Training Department of the DGM
TPU	Training Production Units of the DGM
UNC	National Campesino Union
USG	Government of the United States of America

DEFINITIONS

Aldea:	Village
Cabildo:	Governing body of a municipality.
Cuadrilla:	A group of people working as a team on the maintenance of roads.
Lempira:	Unit of money in Honduras; official exchange rate is $1 US = 4.3 Lempiras (at the time of PP preparation).
Patronato:	Governing body of a village.
Viaticos:	Per Diem Expenses.

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V. Implementation Arrangements

I. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

The goal of the Rural Roads Maintenance Project is to increase agricultural production with an emphasis on agricultural export production. The purpose of the Project is to establish a long-term sustainable maintenance system for rural roads and expand the network of rural roads in areas with the greatest potential for agricultural export production. Problems addressed are the lack of capacity of the Public Works Ministry to adequately maintain rural roads and the subsequent inability of rural dwellers to get their products to market and have continued access to the wide variety of other economic opportunities and social services provided by the roads. Additionally is the problem that many areas with potential for production of export crops do not meet their potential for lack of adequate roads access to needed inputs and markets.

USAID/Honduras has been addressing these problems through Rural Roads II (Project No. 522-0214) which has constructed over 1,000 kilometers of rural roads in diverse areas of Honduras and started a viable hand labor maintenance program which addresses a part of the maintenance problem. There are still various regions in Honduras that do not have an adequate road network and the project will focus on those areas with the highest potential for export production. The project is not expected to meet all of the need in this area but to complement Mission and GOH efforts to increase agricultural export production. The maintenance effort will build on the achievements of the Rural Roads II Project in several ways. First it will focus on developing a long-term sustainable system for providing maintenance for rural roads building on and strengthening the hand labor program already begun. Secondly it will provide the contract machine maintenance needed to complement the hand labor program for AID funded roads until the long term sustainable maintenance system is consolidated and the GOH is able to finance such maintenance.

Activities for Rural Roads Maintenance will subsequently be in these three categories:

1. DGM Institutional Strengthening -- building on earlier technical assistance from the World Bank and present technical assistance from the Japanese Government as well as additional technical assistance provided through the Project, the GOH will develop a long-term sustainable maintenance system centered around using the present budget resources for maintenance more efficiently through privatization of many maintenance functions and finding mechanisms for generating revenues to fund maintenance.

2. Maintenance -- tools and equipment for the hand labor program and contract machine maintenance will be provided under the Project while the long-term system is being developed

3. Construction -- reconstruction and upgrading of roads in regions with export potential and rehabilitation of formerly AID financed roads will be funded under the Project.

The project will make a substantial contribution towards improving the maintenance of Honduras's rural road network and ensuring that these roads are

maintained well into the future. All farm families living along the roads maintained or constructed will enjoy new or continued economic opportunities and access to health and educational services.

The Project will be implemented by the Ministry of Comunications, Public Works, and Transportation (SECOPT). This ministry is currently responsible for the Rural Roads II Project. Rural Roads Maintenance will use private sector contractors for the maintenance and construction activities and will attempt to decentralize the maintenance responsibilities where possible. The planned cost of the Project is $21.86 million, over a seven year period. Fifteen million dollars of the cost will be funded through a grant from AID.

B. RECOMMENDATION

The USAID/Honduras Project Design Committee has determined that the proposed activities are technically, administratively, economically, financially, environmentally, and socially sound. The specific analyses carried out during the intensive review indicated that all identified obstacles can be overcome. It is the committee's judgement that the Project, as designed, can and will achieve its purpose.

State 207299 of June 30, 1988 gave USAID/Honduras authority to approve both the PID and the Project Paper at post. The PID for the Project was approved by the Mission and signed on December 29, 1988. The Initial Evironmental Examination received a negative determination and the Project Committee was not required to do an environmental assessment. The Project is in conformity with the Agency's policies on maintenance, recurrent costs, and cost estimates for infrastructure projects. The Project is congruent with the National Bipartisan Commission on Central America's recommendations and supports the USAID/Honduras Action Plan Agricultural Production objective. Finally, the Project fully supports Government of Honduras goals to increase agricultural and export production and to adequately maintain and expand the nation's transprotation network.

II. PROGRAM FACTORS

A. Relationship to Host Country Strategy

Honduras is a poor, predominantly rural country lacking the basic infrastructure, trained human resources and policies to support rapid growth. Although the Government of Honduras' (GOH) programs have helped to improve the country's basic indicators, it still faces tremendous challenges to improve productivity, incomes, and the level of services for its citizens.

To improve the socioeconomic situation of the country, the GOH is implementing its 1990-1994 National Development Plan with a series of policies and measures that will permit meeting its economic and social objectives: 1) sustained economic growth, 2) internal and external financial equilibrium, 3) employment generation, 4) meeting the basic needs of the population, and 5) integrated territorial development.

To achieve these objectives, the Plan places a high priority on transport. Consequently, this category represents approximately 27.2% of the GOH's planned investment for the Plan period. Major emphasis is accorded to the construction of access roads in different valleys of the country, the rehabilitation, reconstruction, and maintenance of paved roads, and the expansion and upgrading of the country's principal airports.

Although the transport sector absorbs a substantial portion of the GOH budget, it lacks the efficiency and financing required to provide the rural population with access to improved agricultural inputs and markets. Rural Roads I and II assisted the GOH in increasing this access primarily by upgrading rural roads and trails to all-weather conditions. To further strengthen this sector and increase revenues for road maintenance, the GOH is considering a law authorizing toll collections on the major highways. There are also plans of the new government to contract more of the road maintenance to the private sector. Rural Roads Maintenance, therefore, will follow these GOH initiatives while providing immediate maintenance assistance for rural roads and support to the GOH for development of a sustainable maintenance program.

B. Relationship to AID Strategy

USAID/Honduras' strategy is designed to support the GOH's development efforts. An increase in agricultural production has resulted from the implementation of earlier road projects. An evaluation done in 1988 of all earlier AID financed road projects, however, pointed out that the roads were not receiving proper maintenance significantly making the investment made in the roads much less profitable. Likewise the evaluation detailed a number of areas in Honduras with significant export growth potential which needed investment in roads in order to realize that potential. Maintenance and further development of the rural roads will clearly meet both the GOH and AID priorities of sustained economic growth and employment generation. Furthermore, as previous road projects have increased the number of kilometers of rural feeder roads--an important link in the basic infrastructure necessary to promote development--Rural Roads Maintenance will assure the maintenance of those roads and construct other vital rural roads. The Project will also provide the rural population with greater access to schools, health care and other social services which improve the quality of life.

The proposed project is consistent with the report of the National Bipartisan Commission on Central America concerning infrastructure and with AID Sector Policy III - 7 on Physical Infrastructure. This policy states that road construction is a prerequisite to socioeconomic development. This project will concentrate on rural feeder roads which will be relatively inexpensive compared to highways and will yet contribute substantially to the AID priority goal of economic - social development benefitting particularly the rural poor.

As mentioned above, severe constraints on the GOH budget have not permitted adequate allocations to be made for maintenance of the existing road network. It is AID's strategy to demonstrate to the GOH that a greater rate of return can be obtained from road maintenance than from road construction itself. Consequently, the major emphasis of this Project will be on various aspects of road maintenance, including, but not limited to, technical assistance, capital investment, revenue generation and resource earmarking. This emphasis is

consistent with the AID Policy Paper on Recurrent Costs which states that AID may finance recurrent costs when:

1. The Project assists the Government in moving towards an acceptable policy framework.

2. Recurrent costs supported under the Project have a higher development impact than new investments.

3. The host country is unable to undertake recurrent cost financing

4. There is a carefully phased plan for shifting the entire burden to the host government.

Maintaining existing roads is far more cost-beneficial than rebuilding them at a later date. As stated above, the Project will help the Honduran government move toward a policy in transport financing which reflects this by placing a priority on maintenance. Additionally, it will provide a program to enable the government to undertake the maintenance costs in the medium-term future.

C. Other Donor Activities

Several multilateral banks are currently involved in assisting Honduras in upgrading and expanding its road network. The road projects of the multilateral institutions are listed in the table below. In addition, the Swiss Development Cooperation (COSUDE) and the European Economic Community (EEC) are participating in building new secondary roads and access roads.

TABLE II-C-1
Road Projects Financed by IFIS

	PROJECT	TYPE	LENGTH KM.	AMOUNT $
Central American Development Bank (CABEI)				
1.	Road Pito Solo-Desvío San Nicolás	Paving	57.0	21,464,000
2.	Road Siguatepeque-Jesús Otoro La Esperanza	Subbase	65.7	18,865,000
3.	Road Tegucigalpa-San Pedro Sula Sections II, III, V, and VI	Rehabilitation	114.0	18,900,000
		Subtotal		59,229,000
Inter-American Development Bank (IDB)				
	Roads			
1.	San Miguelito-Dolores	Construction	15.4	1,734,000
2.	Las Limas-Concepción de Choluteca	Construction	8.5	846,000
3.	La Esperanza-Camasca-Magdalena	Enhancement	78.9	1,371,000
4.	Sabá-Olanchito	Paving	44.0	4,400,000
5.	El Carrizal-La Pita	Construction	27.0	9,161,000
6.	La Pita-La Unión	Construction	14.0	3,010,000
7.	Olanchito-San Lorenzo	Construction	43.0	4,682,000
8.	Access Roads to upper Aguán	Construction	52.0	2,092,000
9.	La Ceiba-Jutiapa-Sabá	Paving	80.0	12,500,000
10.	Sabá-Tocoa-Corocito	Paving	56.0	14,054,000
11.	Hand Labor road construction	Const.Rehab.	335.0	10,620,000
		Subtotal		64,470,000
	Bridges			
1.	San Lorenzo-Agalteca-San Lorenzo	Construction	135(m)	707,000
2.	Palaja	Construction	60(m)	223,000
3.	San Juan	Construction	36(m)	188,000
		Subtotal		1,118,000
Other minor financing or construction firms				
1.	Road La Paz-Tutule-Marcala (Hazama-Grumi)	Paving	67.0	12,129,000
2.	Road San Francisco de La Paz-Gualaco (Astaldi-Colombus)	Construction	32.4	7,700,000
3.	Hand labor construction (EEC)	Const.Rehab.	83.0	1,153,000
		Subtotal		20,982,000
		TOTAL		145,799,000

PROJECT	TYPE	LENGTH KM.	AMOUNT $
Other projects under study			
Roads			
San Pedro Sula-Puerto Cortés	Rehab.Pav.		
San Pedro Sula-Progreso	Rehab.Pav.		
Villanueva-Chamelecón	Rehab.Pav.		
La Entrada-El Poy	Rehab.Pav.		
La Entrada-Agua Caliente	Rehab.Pav.		
La Entrada-Copán Ruinas	Rehab.Pav.		
Jícaro Galán-El Amatillo	Rehab.Pav.		
Jícaro Galán-El Espino	Rehab.Pav.		
San Lorenzo-Coyolito	Rehab.Pav.		
Limón-Iriona-Ramal a Sico	Construction		

Most of the efforts of these other donors is concentrated on paved major highways and primary rural routes. This proposed Rural Roads Maintenance Project will focus on maintenance and construction of tertiary access roads. With the emphasis of this Project on maintenance, AID will be addressing a major problem that has been largely neglected by most of the other donor organizations. The European organizations generally finance the maintenance of the roads they have constructed but the total of their efforts is quite small. The IDB and CABEI are financing the rehabilitation of several highways they have financed in the past, but they have not addressed the routine maintenance problem on these roads which would prevent their more rapid deterioration. The Japanese have provided loans for maintenance equipment and are providing technical assistance to improve SECOPT's ability to use and maintain the equipment. The total amount of equipment that the GOH has, however, will only maintain approximately 60% of the present road network.

III. PROJECT DESCRIPTION

A. Background

Over the past 20 years AID and the GOH have collaborated on a number of construction and rehabilitation projects for rural trails and access roads throughout the country. The earliest of these were two loan projects totaling US$5.5 million initiated in 1964. Two more loan projects totaling US$19.3 million helped to construct 700 kms of rural roads in the mid-1970s. Project No. 522-0164, which began in 1980 and lasted until 1987, provided funding of $21.7 million to rehabilitate and improve 900 kms of rural trails and access roads. Finally, the Rural Roads II Project (522-0214) which began in 1985 and will end in 1990 has provided US$20 million to rehabilitate 1,000 kms of roads and has provided small amounts of support for rural road maintenance. Overall, some 3,000 kms of rural roads and trails have been built with AID funding.

All of the projects have focused on building or upgrading roads to increase agricultural production and provide greater access to social benefits in the areas of health, education, nutrition and housing. Several evaluations, including one finished in 1988, show that the projects have been quite successful in doing this. Estimates of the benefit-cost ratios were 4 to 1 and, in areas of production of export crops such as shrimp and coffee, the ratios were found to be higher.

Road rehabilitation and construction projects since 1972 have been implemented by the Ministry of Public Works, Transportation and Communication (SECOPT) and executed either by force account or through contracts with local construction firms. Taken as a whole, the Projects have employed a continuum of technologies, ranging from exclusive use of hand labor to an almost complete reliance on heavy equipment. SECOPT has gained relevant experience in project management and extensive expertise in carrying out the planning, design, and construction of rural secondary and tertiary routes with a variety of technological mixes. Involvement with AID has also provided SECOPT with expertise in road construction in all terrains as well as knowledge of design standards, bridge and drainage structures design, construction, supervision and monitoring methodologies. AID initiatives have enabled SECOPT to become familiar with AID disbursement and accounting procedures - especially those related to subproject contract financing. This proposed project will be designed to take advantage of the experience gained through previous efforts.

B. The Problem

SECOPT's performance on the road construction components of the previous five rural roads and/or trails initiatives has been highly successful. The major weakness of the projects, however, was that SECOPT was not able to install a maintenance capacity in either the Central Government or local communities where the roads were constructed. An evaluation of the AID financed Rural Roads projects and subsequent surveys pointed out that in order to bring the roads up to adequate maintenance standards, some 300 kilometers or 10% of the 3,000 kms of roads constructed under Rural Roads I and previous AID financed rural road projects have to be rehabilitated. Another 42% need heavy maintenance to bring them up to adequate maintenance standards. The detailed results of the survey are contained in Annex IV. Rehabilitation of the roads is obviously much more expensive than routine maintenance.

Adequate maintenance of the roads is necessary in order to maintain the flow of benefits. To the degree that the roads continue to deteriorate for lack of maintenance, trucks and transport vehicles are no longer able to travel some of the roads, thus inhibiting the delivery of agricultural inputs and services and the marketing of agricultural production. The costs of agricultural inputs increase and producer prices decrease leading to a decline in agricultural production in the area served by the roads. Additionally, jobs and social services generated by the road disappear causing a decline in the income levels and well-being of the rural population served by the roads. Cost comparisons shown in the economic analysis in Annex IX (Part 5) indicate that road maintenance is much less costly than road rehabilitation.

Overall maintenance of the rehabilitated/reconstructed roads has been the responsibility of SECOPT's General Directorate of Maintenance (DGM). During the past eight years, attempts have been made to have maintenance carried out through relevant components of the DGM's existing organizational structure and complemented by the participation of community beneficiaries. The road projects were designed so that local village organizations were to have limited responsibility for reconstruction and primary responsibility for maintenance.

The maintenance problem is due partly to inadequate budget allocations for rural roads maintenance and partly to administrative problems within the DGM. AID has tried to solve the former problem by negotiating with the GOH to allocate more funds for rural roads maintenance and to increase revenues for maintenance by initiation of a toll collection system on the major highways. Likewise AID has tried to remedy the latter problem by working with the DGM to develop a more viable rural roads maintenance program. To date the Mission has been somewhat successful in getting the DGM to focus more on maintenance for the rural roads and in getting a viable hand labor maintenance program started for AID funded rural roads but more work is needed in both of these areas. Administrative problems in the DGM, have begun to be addressed with the initiation of the new government, but additional funds are needed for the effort to make road maintenance more efficient through privatization. The GOH has not made progress in generating revenues for maintenance through toll collections and other mechanisms.

In addition to the maintenance problem, some sections of Honduras with high productive potential, including areas capable of producing export crops remain isolated. One of the central elements of USAID/Honduras's Agricultural Strategy and the GOH economic reform program are policy changes to increase agricultural exports in order to earn foreign exchange needed for growth in basic grains production and other sectors of the Honduran economy. The availability of inputs (e.g. technical assistance, fertilizers, credit) required to increase agricultural production is restricted not only by the lack of foreign exchange, but also by the lack of adequate roads to deliver agricultural inputs. Likewise, unless adequate roads are available to market agricultural produce, farmers do not have the incentive to increase agricultural produce. Without adequate roads the produce will be damaged in transport to market and/or must be sold to intermediaries both of which result in lower prices to the farmer. In addition to incentives for agricultural production, the roads facilitate the delivery of basic services such as health care and education to the rural population.

In response to these problems the GOH and USAID are designing a seven year project beginning in 1990 and ending in 1997 to assist the GOH in developing a capability to maintain rural roads. The project will also have road construction and rehabilitation components to improve and expand the network of all-weather farm to market access roads.

C. Project Goal and Purpose

The Project Goal is to increase agricultural production particularly in areas of potential for production of agricultural exports. The project

will contribute to this goal by maintaining and expanding farm to market access roads for the ingress of agricultural inputs and the egress of production to market centers. The Project purpose is to establish a long-term sustainable maintenance system for rural roads and expand the network of rural roads in areas with the greatest potential for agricultural export production. The outputs of the project will be a functioning long-term sustainable maintenance program, the rehabilitation of 300 kilometers built under previous AID funded road projects (additional roads are being rehabilitated with funds from Rural Roads II), the routine maintenance of the 3,000 kms of rural roads built under former AID funded projects, and the reconstruction and upgrading of 264 kms of roads in areas of high agricultural production potential.

The Project was designed to support a number of general AID objectives. The project goal of increasing agricultural production for export supports the general mission goal of increasing agricultural production and exports and will tie in with other projects in this area such as the Small Farmer Coffee Improvement Project (522-0176), the Export Development and Services Project (522-0207), the Land Use and Productivity Enhancement Project (522-0292), the new Investment and Export Promotion Project (522-0312) presently in the design stage, and the Agricultural Sector Adjustment Program (522-0374) also presently under design. This effort will also complement AID's efforts in agricultural pricing policy reforms by providing the appropriate transportation network to farmers to enable them to take advantage of the new pricing incentives. The emphasis of the project on maintenance, sustainability and the attention to recurrent costs is consistent with general AID policy in ensuring that sustainability and the long-term effects of its development assistance receive more attention. Finally, the use of the private sector for both maintenance and reconstruction builds on achievements in previous AID funded rural roads projects and supports AID's dual objectives of developing the private sector to increase employment and privatization of government services to make the public sector more efficient.

The ability of the project to realize the goal and purpose depends on two key assumptions: (1) the willingness of the GOH to give more priority to rural roads maintenance and (2) to address the administrative and institutional problems in the DGM to use available resources for maintenance more effectively.

D. Project Components

The project will consist of three integrally related components: (1) institutional strengthening of the General Directorate of Maintenance (DGM) in SECOPT to design a long-term, sustainable maintenance program and to assist in the administration of the project; (2) maintenance of the rural roads constructed under AID funded programs and (3) reconstruction and upgrading of additional rural roads and bridges.

1. Institutional Strengthening of the DGM

The purpose of this component is to assist the GOH in implementation of the project and to find a long-term sustainable solution for rural road maintenance. As mentioned previously and further discussed in the

administrative/institutional analysis, a large part of the maintenance problem is due the poor use of existing budget resources exacerbated by insufficient funding to maintain all roads. In order to address these problems and develop a sustainable maintenance system, the new government has designed an institutional strengthening program to: 1) improve operations in the DGM to use existing resources more effectively; and 2) to institute mechanisms to generate resources for rural roads maintenance. Additionally, SECOPT will do a pilot program with the participation of the Peace Corps through the Project to determine if local communities can take more responsibility for maintenance of roads in their areas. The detailed plan for institutional strengthening presented by SECOPT is contained in Annex IV. A summary of the various activities and goals is provided below. With the exception of the provision of some technical assistance, the resources for this component of the Project will come from the internal resources of SECOPT as well as funding for technical assistance being provided by the Japanese Government. The specific achievements and timelines defined below under each activity are illustrative and may be changed as SECOPT gains more experience in each area to determine what is the most feasible and useful. On a semiannual basis the Project Office in AID will review accomplishments of the institutional strengthening program with SECOPT and discuss changes in expected achievements under each activity.

Improved Efficiency in DGM Operations

Privatization of maintenance operations is the cornerstone of SECOPT's plan in this area. The DGM has set a goal of privatizing 80% of total maintenance operations through contracting out to private firms. This goal will be reached by privatizing 20% of the operations each year over the next four years. A further description of the privitazation effort is contained in the description of the overall maintenance component on page 17.

Additional activities that will support the privatization effort and assist in a more effective control of resources will be the automatization of information systems and the implementation of a computerized road inventory system. The unit responsible for these functions in the DGM is the Planning and Budgeting Unit. To date, they have done the processing of the road inventory and maintenance planning process by hand. Computers have been purchased under Rural Roads II for automation of the accounting functions, but more training is needed for application to the road inventory and maintenance planning process. Under the Project, the unit's personnel will be trained to use the computer facilities for the road inventory as well as the maintenance planning and budgeting functions and management of the Peón Caminero Program. The road inventory system will keep updated information on the condition of the roads and the economic return from the areas that the roads are serving in order to help the DGM set priorities for road maintenance each year and group these into contract packages. Likewise, the automation of the DGM's budgeting, equipment inventory and other functions will allow for more efficient management of the maintenance efforts.

In conjunction with the privatization effort, the DGM will undergo a general restructuring combining a number of administrative and operational

units and will reduce personnel by approximately 1,800 persons. This restructuring and personnel reduction will allow the DGM to allocate more funds to road maintenance contracts and develop the necessary administrative structure to award and manage maintenance contracts.

Finally, the DGM will institute a training program for the supervisors and workers in the Peón Caminero Program (described in detail on page 16). For this effort they will use training aids purchased under the Rural Roads II Project. Tables 2 through 4 on pages 13 through 16 show an illustrative timeline and summary of all activites to be carried out to improve efficiency in DGM operations and a timeline for implementing these activities.

Mechanisms to Fund Maintenance

Since 1985, the GOH has been considering collecting tolls on the major highways to provide funding for road maintenance. To date, however, the GOH has not begun collecting the tolls. The new Government has set a clear timetable for initiating collection of the tolls. They are presently installing automatic counters to measure the flow of traffic and plan to begin collecting tolls once all the highways are in good shape in September of 1991. The toll rate will be set such that toll collections will pay for the maintenance of the paved roads. SECOPT's regular budget will then be dedicated to maintenance of rural roads. Table 5 on page 16 shows a timeline for the various steps that the GOH must take before initiating toll collection.

Additional mechanisms to raise additional revenues for rural road maintenance will also be investigated. Mechanisms that may be investigated are the dedication of road user vehicle taxes to road maintenance (see the recurrent cost analysis for a discussion of the amounts generated through the road user vehicle taxes), use of local land taxes for road maintenance, and other mechanisms that the GOH may suggest. SECOPT will use its own analysts and technicians to carry out the studies on these mechanisms as it deems appropriate.

Decentralization of Maintenance Activities

Municipalities and local communities are financially and administratively too weak to become responsible for road maintenance. There are some ways that local communities may be able to make the maintenance system more effective. One way is to get local communities more involved in the implementation of the hand labor maintenance program. A pilot program will be carried out to study the feasibility of more local community involvement.

Under the pilot program, four to five municipalities would be chosen and each one would have charge of approximately thirty kilometers of roads. They would chose the hand laborers and pay them out of a small rotating funds that will be set up under the Project for each municipality participating in the Project. The pilot project will be implemented for a period of one year with the supervision of the DGM district offices. Peace Corps volunteers working in the municipalities will be assigned to assist the municipality to initiate and implement the program. The

volunteers would be assisted by DGM district personnel in carrying out this function. At the end of one year, the program will be evaluated. If the results are positive, the program would be continued and possibly expanded. There may be some areas where a municipality is uninterested in working in such a program, but where other organizations such as local community development councils or agricultural cooperatives which are dependent on the roads for their livlihood are interested in being involved in the maintenance effort. Their direct involvement may also be tested depending on the outcome of the initial pilot effort. DGM personnel will assist in making the appropriate provisions for continuing and expanding the program in each area once the peace corps volunteer has left.

Technical Assistance for the DGM Institutional Strengthening Component

As described above, most of the tecnical personnel and resources to implement the institutional strengthening component will come either from within SECOPT or from TA being provided to SECOPT by the Japanese Government. SECOPT already has done an inventory of its road network and will put this on a computer network as soon as it purchases a computer system. The computer system is being purchased under the Rural Roads II Project. Once the road inventory system is installed, SECOPT will do annual surveys on the conditions of the roads and input this data into the system to help plan its maintenance work. SECOPT has computer programmers available within the Ministry, but they may need some assistance in setting up the computer hardware and software that SECOPT is purchasing under Rural Roads II. SECOPT has ample experience in contracting out road construction and rehabilitation and also has some experience in contracting out maintenance operations. This experience and the various contracting forms and systems worked out will enable them to privatize maintenance operations without any outside technical assistance.

An analysis of the DGM's organizational structure and personnel needs has already been done by SECOPT and no technical assistance is needed in this area. The Japanese Government is helping the DGM to improve the operations of its warehouses and mechanical shops in order to be able to maintain its equipment. For the training for the Peón Caminero Program, the hand labor construction unit in the DGC which builds and maintains roads with hand labor will assist the DGM in training the supervisors and workers in the Peón Caminero Program. Finally for the road tolls and revenue generation, SECOPT already has its resources for doing the necessary studies for setting the road tolls and implementing them. The Japanese Government will provide them with TA in looking for other mechanisms to raise funds for road maintenance.

Outside technical assistance under the Project may be needed only in training for further application of computer systems for planning and budgeting road maintenance. Additional discrete technical assistance needs may arise through the life of the Project. Two hundred and fifty thousand dollars has thus been budgeted for technical assistance needs.

TABLE 2
Implementation Phases for the Institutional Strengthening Program
(Cumulative Figures)

No.	DESCRIPTION	1990	1991	1992	1993	1994
1	Privatization of Maintenance (goal is 80% of all activities)	15%	30%	60%	90%	100%
2	Administrative Organizational and Technical Restructuring of the DGM	50%	90%	100%	100%	100%
3	Training of Workers for Peón Caminero Program	100%	100%	100%	100%	100%
4	Generation of Revenues to Fund Recurrent Costs of Road Maintenance	30%	90%	100%	100%	100%

TABLE 3
Program for Implementing Improvements in DGM Operations

1990

No.	Description	April	May	June	July	August	September	October	November	December
1	Improvements made in system developed for management of Road Network	———	———	———	- - -	- - -	- - -	- - -	- - -	- - -
2	Computer System for Maintenance Planning Installed			———	———	———	———			
3	Automation of other data systems in DGM	———	———	———	- - -	- - -	- - -	- - -	- - -	- - -
4	Initiation of Contract Maintenance Program of the DGM	———	———	———	- - -	- - -	- - -	- - -	- - -	- - -

——— Implementation of Program or System

- - - - Continued Operation of Program or System

TABLE 4
Peon Caminero Training Progam
Maintenance Districts

1990

No.	Description	April	May	June	July	August	September	October	November	December	Instructions
1	Training of District Engineers										2 Engs. DGM 2 Engs. DGC
2	Training of Supervisors										1 Eng. DGM 1 Eng. DGC District Chiefs
3	Training of Workers										District Chiefs

TABLE 5
Program for Implementation of Revenue Generation Measures

1990

No.	Description	April	May	June	July	August	September	October	November	December	1991 January
1	Definition of Objectives and Achivements of the Study	———									
2	Automatic Traffic Measurers in Operation	———	———								
3	Gathering of statistics on traffic flow				———	———	———	———	———	———	
4	Definition of income sources						———	———	———	———	———
5	Final Report										

1991

No.	Description	Jan.	Feb.	March	April	May	June	July	August	September	October
6	Elaboration of Legal Framework	———	———	———	———						
7	Political Decision and Elaboration of Law					———					
8	Implement New Law						———	———	———		
9	Initiate Collection of tolls								!	!	

2. Maintenance of the Rural Roads

During the execution of Rural Roads II, SECOPT initiated the Peón Caminero concept of rural road maintenance. This method of maintaining rural roads is very effective if occasional supplemental machine maintenance is provided on an as needed basis. The project will assist the DGM in strengthening and expanding the Peón Caminero Program and establishing a periodic machine maintenance program. A description of these two subcomponents follows.

a. Hand Labor/Peón Caminero Program

Through this program, the workers perform routine maintenance. They clean the road ditches, fill holes and low places on the roads, clean culverts and drains, cut weeds and growth along shoulders and in ditches, remove small landslides, smooth the road surface and do other minor routine hand maintenance. Each worker is assigned a section of road to maintain.

The program is working well but it can be improved in several ways. A lack of funds limits the number of sections of road that receive this type of maintenance and the awarding of jobs under the program is based, in part, on political favoritism. The program also suffers from a lack of supervision and training of the workers and long delays in payments to the workers.

Rural Roads Maintenance will continue to expand the ongoing Peón Caminero Program, with changes needed to address the above problems. The project will provide for assigning a worker to approximately each five kilometer section of the 3,000 kilometers of rural roads. This will require approximately 600 workers as specified in the financial plan. Each worker will be provided with hand tools as required and will receive close direction from a district office supervisor.

The program will continue to be managed from an office within the DGM's Planning and Budgeting Unit. Operational capacity will be implemented through the DGM district maintenance offices. Regional trust funds or rotating funds managed by the district maintenance offices to pay the worker's salaries will be investigated under the Project. The administrative arrangements for the program are more fully described in the administrative/institutional analysis in section IV.B.

Labor for the Peón Caminero Program will be obtained locally under the direction of DGM district supervisors. The supervisors will visit each work site at least weekly. Supervisors will review the work accomplished by each worker, outline a work schedule, sign a timecard, and deliver the workers' pay. The supervisors will provide training to the workers as found necessary. Supervisors will be choosen and receive direction from the engineers stationed in the district offices to manage the contract maintenance operations. Additional details on the management and supervision of the program are discussed in Section IV.B.

b. Routine Machine Maintenance

To supplement the work of the hand laborers, a machine maintenance operation will be initiated. Machine maintenance consists of several basic activities: smoothing the existing road surface and filling in pot holes; spreading and compacting new surfacing material; major rehabilitation of severely deteriorated sections and providing conveniently placed piles of surfacing material to be used by the hand laborers to fill pot holes and low places. A further description of maintenance activities and the frequency that each needs to be performed to keep the roads to a minimum maintenance standard is contained in the technical analysis in Section IV.C.2.

A substantial portion of the machine maintenance activities will be executed by private Honduran contractors in support of SECOPT's privatization efforts. Experience under prior rural road upgrading programs has proved that local contractors have the capacity to perform the required work and to do it in an efficient, cost-effective manner. Contractors will provide the equipment and work crews necessary for the tasks. This work will be grouped into appropriate bid packages for the contractors to carry out in accordance with specifications developed by SECOPT and approved by AID.

Exact work schedules and the priority of roads to be maintained will be determined through data gathered in annual road condition surveys performed by the Planning and Budgeting Unit (PBU) in the DGM. Once these surveys are executed, the DGM will choose the roads it will maintain for the year through contract maintenance.

3. Rural Road Construction and Rehabilitation

The need to upgrade the existing rural road system is an integral part of the agricultural development program. Available funding under this project will allow construction and upgrading of approximately 264 kilometers of rural roads. The roads will generally be low volume traffic, all weather roads located to serve reasonably high concentrations of rural families.

The road selection processes carried out under the Rural Roads II project identified hundreds of kilometers of roads meeting the selection criteria. The roads to be constructed under this project will be selected under the updated process described in section III.G. of this paper.

SECOPT's prior rural roads construction efforts, through the private sector competitive bidding process, have been highly successful. Approximately 3,000 kilometers of rural roads have been constructed. Overall the roads have been constructed well with a minimum of problems. Construction work to be performed under this project will thus be conducted under the same private sector, competitive bidding procedure administered by the DGC. Design standards for the roads are contained in the Technical Analysis Section IV.G.1. The average cost per kilometer of construction is expected to be $14,125 as detailed in Attachment IV.A.1. of the Financial Plan. An implementing unit within the DGC will continue

to implement the construction and rehabilitation components. Several changes have been made in the composition of the unit as further detailed in the administrative analyis in Section IV.B.

Rehabilitation of Roads Formerly Constructed with AID Financing

A road condition survey performed in April of 1990 indicated that approximately 400 kilometers of roads constructed under RR I and previous AID financed rural roads projects will need rehabilitation. Of these 400 kms, 100 kms will be rehabilitated under Rural Roads II and 300 kms under this Project. The roads that will be rehabilitated versus the ones that will receive contract maintenance will be selected by the Road Selection Committe as described in Section III.G. of the Paper. Road rehabilitation will generally consist of the following activities: regrading where necessary, smoothing the road surface, reestablishing crown, recharging of select surface material, compacting of road surface and shoulders, reshaping of ditches, repair or addition of culverts where needed and repair of road sections damaged by land slides or flooding. The average cost per kilometer of rehabilitation is expected to be $7,570 as detailed in Attachment IV.A.1. of the Financial Plan.

This type of rehabilitation activity will be executed by private Honduran contractors. Experience under prior rural road upgrading programs has proved that local contractors have the capacity to perform the required work and to do it in an efficient, cost-effective manner. Contractors will provide the equipment and work crews necessary for the tasks. They will carry out the work in accordance with plans and specifications developed by the DGC and approved by AID.

E. Project Administration

The Ministry of Public Works, Transportation and Communication will be the implementing agency for the Project. The DGM Institutional Strengthening and Maintenance components will be implemented by the DGM while the construction and rehabilitation component will be implemented by the DGC. The two components implemented by the DGM will be implemented independently from the construction and rehabilitation component in the DGC. AID will also have three PSC engineers to assist in Project management.

1. Directorate General of Maintenance (DGM)

Presently, in the Planning and Budgeting Unit of the DGM, an office has been created to coordinate the Peón Caminero Program. This unit will continue to coordinate the Peón Caminero Program and will manage the bidding and contracting process for the machine maintenance program. Management of the maintenance activities in the field will be carried out by the Routine Maintenance Department through the district offices. Engineers and Inspectors will be needed to supervise the maintenance contractors in the field. Where possible these will be reassigned from within the DGM or from the DGC. Engineers and inspectors will be moved from one district to another depending on the amount of work in any one district. The engineers will have charge of all field operations providing overall direction and guidance to the supervisors of the Peón

Caminero Program. The inspectors and assistants will be mobile, being stationed wherever the maintenance contract work is located. Additional personnel who are needed as timekeepers and manual laborers will be provided from the existing pool of DGM field staff. The positions and functions of the implementing unit are listed below.

a. DGM - Central Office
Chief, engineer, accountant, secretary

b. DGM - Districts

For Peón Caminero Program
- 20 supervisors (will come from regular DGM personnel), 600 workers

For contract maintenance
- 8 engineers, 1 accountant, 10 inspectors, 3 inspectors assistants, additional timekeepers and laborers as needed.

The responsibilities of the unit are summarized below:

a. DGM - Central Office

1. Manage and coordinate the Peón Caminero Program at the national level.
2. Develop maintenance plans to provide general maintenance to all roads constructed under this project and predecessor AID funded projects.
3. Overall management and implementation of maintenance activities.
4. Develop road inventory procedures for identification of maintenance priorities.
5. Continue development and refinement of the Peón Caminero maintenance program.
6. Develop plans and specifications for contracting out machine maintenance work.
7. Prequalify contractors in coordination with the DGC.
8. Award contracts for machine maintenance and monitor progress.
9. Make payments to contractors.
10. Develop a sustainable maintenance program.

b. DGM - Districts

1. Manage the district wide Peón Caminero Program.
2. Perform road condition surveys.
3. Assist in preparation of specifications for contract maintenance.
4. Supervise the machine maintenance contracts.
5. Prepare contractors payment certificates.

2. Directorate General of Highways (DGC)

The DGC, with its established Implementing Unit (IU), will assume management responsibility for the contract work associated with new road construction and rehabilitation. The regional offices of this unit will be eliminated and all functions will be directed from the central office in Tegucigalpa. This change has been made because in previous projects the regional offices have not adequately carried out the supervison of the field engineers resulting in delays which have caused the contract execution period to be doubled or tripled. Likewise, there is not enough work per region to fully occupy the personnel in each regional office. Additionally, in order to eliminate superfluous divisions in administrative units and reduce personnel, the SECOPT/AID implementing unit has been combined with the implementing units of several other financing institutions as more fully described in the Administrative/Institutional Analysis in Section IV.G.

The staff of the IU will be divided along three functional lines -- administration, technical analysis and supervision, and construction. The construction function will be carried out by a unit of engineers using contracted equipment, technical workers, and laborers who will reside in the field where the subprojects are being executed. The technical analysis and supervision personnel will do the cost-benefit analyses of the proposed subprojects and the road designs. Staff will be sent to the field to the area of the proposed subprojects. Additionally, the engineers of this unit will monitor the construction and rehabilitation of the subprojects in the field. The administrative personnel will perform the necessary support functions for both of the above sections. Responsibilities in carrying out the three broad functions are detailed below. The administrative/ institutional analysis in Section IV.G provides further information on the structure and functions of the IU.

a. Construction and Rehabilitation

1. Management and implementation of construction activities.
2. Provide construction supervision of unit price work.

b. Technical Analysis and Supervision

1. Perform analysis and design of eligible subprojects in accordance with Section III.G. of this paper.
2. Prepare contract packages that will include road plans and specifications to be submitted to the central office for review and approval.
3. Prequalify general contractors.
4. Develop construction schedules, analyze plans for construction packages and review bids.
5. Administer contracts and supervision of field work.

c. Administration

1. Project Accounting
2. Prepare all Procurement and Payment Documentation.
3. General Support Functions.

3. Project Management Unit within AID

This project will contain some new concepts for Honduras such as improved road maintenance, contracting for maintenance from the private sector and pursuing a sustainable financial support system for the maintenance efforts. To assure that the implementation schedule is substantially achieved and that the work is satisfactorily monitored, AID will supply the following management team:

a. Project Manager (a senior direct hire professional engineer)
b. Construction Engineer (Project funded personal services contractor-PSC)
c. Maintenance Engineer (a Project funded PSC)
d. Maintenance Engineer in charge of Environmental assessments (a Project funded PSC)

The duties and responsibilities of the team will include:

a. Project Manager

1. Participate as a member of the Technical Analysis Selection Unit to select roads for construction and sit on SECOPT panel for awarding contracts under the Project to monitor the host country contracting process.
2. Provide general management of the project to assure positive implementation and compliance with AID and GOH requirements.
3. Coordinate activities among the various implementing and technical assistance units.
4. Certify payment vouchers.
5. Prepare project documentation such as project implementation letters, change orders, etc.
6. Direct the operations of the AID Coordinating Unit.
7. Keep the AID Chief Engineer informed regarding all project developments.
8. Monitor the work of and approve payment vouchers for the Technical Assistance Consultants.

b. Construction and Rehabilitation Engineer

1. Review plans, specifications and contract procedures for construction and rehabilitation subprojects.
2. Monitor and inspect work in progress.
3. Keep a record of project progress and make progress projections.
4. Review vouchers for construction activities.
5. Prepare written reports on construction activities.
6. Technical support for heavy maintenance activities.

c. Maintenance Engineer with Experience in Local Contracting Procedures

1. Assist with formulating contracts for maintenance packages.
2. Assist with bidding process for maintenance works.
3. Review plans and specifications and contract procedures for maintenance contracts.
4. Review vouchers for maintenance contracts.
5. Prepare written progress reports and analysis of the contracted maintenance efforts.
6. Make financial projections to determine if contracted maintenance fundig allocations are sufficient.
7. Monitor and inspect contracted road maintenance efforts.

d. Maintenance Engineer in charge of Environmental Assessments

1. Prepare PIO/Ts to contract environmental analyses of all construction and upgrading efforts and review these analyses for the Mission.
2. Assure that Subproject Environmental Examination is performed and the form in Annex VI is filled out on all rehabilitation efforts under the Project.
3. Monitor the Peón Caminero Program.
4. Assist in the procurement of hand tools and other equipment necessary for the maintenance component.
5. Prepare written progress reports regarding all maintenance efforts.
6. Monitor and inspect road maintenance efforts to assure that they have no negative environmental consequences.

F. Subproject Selection Process

1. New Construction and Upgrading Projects

Subproject economic analyses will be carried out according to the methodology described in the Economic analysis in Section IV.D. The implementing unit in the DGC will carry out these analyses as under Rural Roads II. Likewise, a social promotion exercise will be carried out to get a commitment from the communities where the roads are built to help provide road maintenance. The economic analysis will show a benefit-cost ratio for each subproject. Once the analysis is done, a road selection committee consisting of two professionals from the DGC including the chief of the implementing unit and one member from the DGM, the Project Officer from AID (who will have a voice but no vote) and a representative from Office of Rural Development in AID (with voice but no vote) will meet to discuss the analyses. The subproject environmental analysis will also be discussed at these meetings. The three voting members of the committee will then choose the subprojects to be executed based on the economic criteria as well as practical considerations in grouping the subprojects into contract packages.

In deciding which projects to execute the committee will consider studies for at least twice as many kilometers to be constructed as the number of kilometers actually approved for construction. Since the Project will finance construction of approximately 264 kilometers of new roads, at least 530 kilometers of roads must be considered through subproject economic analyses. This will assure that the roads with the highest economic potential are choosen. After the economic analyses are done and the roads with the highest economic potential are determined, then environmental analyses will be contracted to determine that the roads have no negative environmental impacts. Any roads that have negative environmental impacts will not be constructed under the Project. Bridgeworks will also be financed on the roads chosen for construction with Project funds. On a case by case basis the committee will consider requests for constructing or repairing bridgeworks on existing roads not financed under the Project. In these cases, it must be clear that the existing road has a compelling economic return.

Once the committee selects the new roads for construction, the package will be sent with the subproject economic and environmental analyses to AID for approval. If a construction package or part of the package is not approved because of the failure to meet the appropriate criteria, then the reasons will be stated and the Road Selection Committee will meet to rectify the expressed concerns. The committee will again present resolution of the issues to AID for final approval.

2. Rehabilitation of Prior AID financed Roads

Based on the road condition survey performed in April, 1990, it was determined that approximately 400 kilometers of AID financed rural roads need rehabilitation of which 300 kms will be rehabilitated under this Project and 100 kms under Rural Roads II. The detailed results of this survey are contained in the technical analysis. Based on this and subsequent road condition surveys to be performed by the DGM, the roads selection committee will decide which of the roads formerly financed by AID will be rehabilitated by the DGC. Practical considerations will also be taken into account for putting the roads into packages for rehabilitation. A subproject environmental examination (SEE) will be done on all rehabilitation packages as per the instructions on the form in Annex VI before a decision is made to determine that none of the packages have negative environmental consequences. Once a decision is made on these roads, the commitee will send a listing of the roads to AID for approval. The Project Officer must sign the SEE form and is responsible for investigating the validity of the analysis done by SECOPT. The funding available for rehabilitation will generally be limited to roads previous financed by AID. On a case by case basis, AID may approve requests for rehabilitation of non-AID financed roads.

3. Maintenance

Selection of the roads on which contract maintenance is to be performed will be based on the annual road condition surveys performed by the DGM. The roads which most need attention and best fit into packages for maintenance contracting will be those choosen for contract maintenance. The implementing unit in the DGM, in their annual planning and budgeting

exercise, will decide which roads will receive contract maintenance. They will review the contract maintenance schedule with the AID Project Officer to obtain approval by AID. The PSC environmental engineer will monitor the maintenance efforts to assure that these efforts result in no negative environmental consequences.

Coordination of activites between the implementing units in the DGM and the DGC will take place through the roads selection committee in which both implementing units have representation.

G. Project Inputs

To achieve the goal of the project, funds will be used to finance goods and services in support of the project components. Specific inputs are described as follows.

1. Technical Assistance

Short-term TA in computer programming and software instillation and other areas will be contracted to assist with the Institutional Strengthening Program through IQC's and Host Country Contracting with local firms.

2. Maintenance of Rural Roads

The DGM implementation unit and salaries for the hand laborers in the Peón Caminero Program will be financed through counterpart funds. To support this administrative effort, Project funding will be used for procurement of vehicles and hand tools. Project funds will also be used to fund contract costs for machine maintenance of rural roads by private sector contractors.

Office space and utility costs for the central and district field offices will be provided by the DGM. Project funding will be used for the procurement of necessary typing, reproduction, and drafting equipment.

3. Construction and Rehabilitation of Rural Roads

The DGC implementing unit and the field engineering staff will be funded through counterpart funds. Given that adequate equipment has been provided through previous projects, procurement of additional equipment is not presently envisioned.

Funding for the construction and rehabilitation contracts will be provided through the Project. Rent and utility costs for the central office and accomodations for the field units, as well as normal office supplies, will be financed out of counterpart funds. Some addtional office equipment will be procured with counterpart funds to complement equipment purchased under previous Projects.

4. AID Executing Unit

An AID executing unit, consisting of a construction engineer and two maintenance engineers, all personal services contractors, will be engaged for the duration of the project. The AID executing unit and vehicles

required for its transportation will be project funded. The AID Office of Engineering will supply one OE-funded engineer to be the AID project manager. Rural Roads Maintenance Program, thus, will be managed by an AID technical and administrative staff of four, which represents no increase in staff from the previous project, Rural Roads II.

H. End of Project Status

During the life of the project, funds will be used for road maintenance, road rehabilitation, road construction, technical services and procurement of commodities. By the end of the project, it is expected that:

1. 264 kilometers of rural roads will be constructed.
2. 300 kilometers previous of roads will be rehabilitated.
3. All existing 3,000 kilometers and the new 264 kilometers of rural road will be in reasonable, all-weather driving condition.
4. A sustainable peon caminero and contract machine maintenance system will be in operation.
5. A sustainable financial mechanism to fund road maintenance will be operating.
6. An ongoing training program for the lower echelon of maintenance employees will have been instituted.
7. The rural road maintenance capability of the DGM will have been strengthened.

Access to markets, and delivery of social and technical services for approximately 150,000 rural families will be enhanced and new construction will provide the same benefits to approximately 10,000 additional rural families through the implementation of this Project. The overall institutional capabilities of SECOPT particularly in the area of road maintenance will be further strengthened.

IV. PROJECT ANALYSES

A. Financial Analysis

1. Financial Plan

The total estimated cost of activities to be financed under the Project is $21.86 million. AID will finance the Project with a $15.0 million grant and the GOH will contribute local currency equivalent to $6.86 million ($5.0 million in cash and $1.866 in kind). The percentage contribution for the Project is 69 percent for AID and 31 percent for the host country and the anticipated disbursement period is seven years.

The AID grant funds will be used to finance the costs of the construction and rehabilitation contracts, road maintenance contracts, commodities, personal service contracts, technical assistance, and periodic evaluations and audits. The GOH contribution will finance the costs for construction and road maintenance expenses (salaries, administrative and engineering and logistical support) during the Project period and periodic audits by private audit firms. Tables A-1, A-2, and A-3 on pages 31 through 33 present a summary cost estimate of the financial plan and a relation of Project disbursements by calendar year of the required financing.

Detailed budget estimates for all Project components are contained in Annex III.

2. Project Disbursement System

a. AID Grant Funds

Financing of Project contract costs for maintenance, rehabilitation and construction will follow the procedures of reimbursement established under the Rural Roads II Project. In order to facilitate implementation, the Project will establish a local currency revolving fund of L.4.0 million which will be managed by the Ministry of Finance and Public Credit. The revolving fund will be used to make advances to contractors.

Up to twenty percent of the value of the contract as established in the GOH contracting law may be advanced to cover mobilization costs. Reimbursements to the GOH revolving fund will take place upon the contractor's submission of vouchers for payment under a given contract. Up to fifteen percent of the contract amounts for the construction and maintenance contracts may made available to the contractor by AID in dollars for replacement parts for the equipment used under the contract by using a Bank Letter of Committment issued by AID/W to a U.S. Bank and a Letter of Credit issued by local banks or the Central Bank. A complete description of the disbursement procedures for Project funds is contained in Annex III. Payments to contractors will be contingent upon satisfactory progress on the work contracted as determined and certified by SECOPT engineers. Mobilization advances made to the contractors from the revolving fund by the GOH will be reimbursed as a proportion of each subproject work estimate paid to the contractor. AID engineers will inspect and certify work completion before final payment on the roads reconstructed and maintained. Costs associated with the purchase of the technical assistance, coordinating unit, evaluations, and commodities will be paid directly to the contractors by the Mission in accordance with existing AID practices.

b. GOH Counterpart Funds

Counterpart funds will be disbursed following the normal procedures established by the GOH for the execution of the National Budget through the Honduran General Treasury. The disbursements will be processed by the implementing units established in the DGC and the DGM and will follow the normal practice of using "Payment Orders." A diagram and a complete description of the disbursement procedures for counterpart funds is contained in Annex III. If during the implementation of the Project, the budget execution requires more flexibility in the disbursing process, two rotating funds could be established, one for the Directorate General of Roads (DGC) and one for the DGM. The amount of each rotating fund would be established on the basis of the needs of each implementing unit.

3. Methods of Financing, Internal Control and Audits

Methods of Financing

TYPE OF ASSISTANCE	METHODS OF IMPLEMENTATION	METHOD OF PAYMENT	APP. AMOUNT OF ASSISTANCE ($000)
1. Construction and Rehabilitation Contracts	Host Country Contract	Reimbursement	5,000*
2. Environmental Analyses of Reconstr.Packages	Direct AID Contract	Direct Payment	100
3. Road Maintenance Cont.	Host Country Contract	Reimbursement	5,845*
4. Contracted Maintenance for Project Vehicles	Host Country Contract	Reimbursement	50
5. Technical Assistance and Computers	Host Country Contract or Direct AID Contract	Reimbursement or Direct Payment	250
6. Evaluations and Audits	Direct AID Contract	Direct Payment	150
7. Coordinating Unit	Direct AID Contract	Direct Payment	600
8. Peon Caminero Tools	Direct AID Contract	Direct Payment	660
9. Vehicles and Equipment	Direct AID Contract	Direct Payment	345
		TOTAL	15,000

* Host Country Contractors will be eligible to receive a U.S. dollar facility through an AID Bank Letter of Commitment to purchase spare parts in the U.S.

The USAID/Honduras Controller has reviewed the detailed assessment of methods of implementation and financing for the activities of Rural Roads Maintenance Program as summarized above. In addition, the Controller has reviewed the financial system in place under the Rural Roads II Project that will also be used for the Rural Roads Maintenance Project and finds, with one exception, that it is adequate to implement project activities. The GOH, through SECOPT, has established in the DGM and the DGC adequate accounting and internal control systems which produce financial statements on a timely basis and give reasonable protection to the Project's assets. The Controller's Office has assessed and reviewed the GOH's Host Country Contracting Capabilities and, except as stated below, found them to be generally acceptable.

The Rural Roads II project has experienced delays in paying the labor force of the Peon Caminero program. The problem involves the lack of cash funds at the district and regional levels. This problem has been identified in the project paper and the Project Agreement. SECOPT and the Project's management as well as the AID project officer will monitor this situation closely and develop a plan to resolve the problem.

At the present time the Regional Inspector General for Audit (RIG/A) is performing a preaudit survey of the Rural Roads II project. The RIG/A has discovered some problems with the prequalification process for contractors and the awarding of contracts to nonqualified contractors. In addition, the RIG/A has questioned why penalties for non performance have not been uniformly assessed. These problems are known to the mission and have been the subject of reviews made by the USAID's Financial Analysis and Review section (FARS). The USAID project management team will be working very closely with and approving actions of the GOH contracting unit. It is anticipated that outside short term technical assistance may also be used to standardize and streamline contracting operations.

Lastly, in Rural Roads, II there was a problem reported on by FARS concerning the capability of the DGM to maintain its heavy equipment and project vehicles. This Project is breaking new ground by having the DGM use private contractors, in place of using force account, to maintain the roads built in Rural Roads I & II. Therefore, DGM's capability to maintain and deploy its own equipment on the rural road network is not an issue. In fact the DGM is considering using private contractors to maintain its equipment. This Project includes a line item in its budget for the contract maintenance of project vehicles to insure their operability during the Project.

4. Explanation of Dollar Financing Facility for Host Country Contractors Under the Rural Roads Maintenance Project

Contracts will be written to allow contractors to receive up to 15% of the contract amount in dollars for spare parts. Dollars will be paid directly to US suppliers of spare parts according to the process outlined below.

1. Contractor presents a request to SECOPT for purchase of spare parts with a pro forma receipt from a U.S. distributor of spare parts.

2. SECOPT sends this request to AID for approval.

3. The AID Project Coordinating Unit approves the request checking to make sure that spare parts are for equipment being used under Project financed contract and contractor does not use more than the allowed 15% for spare parts.

4. SECOPT reduces the amount of the requested spare parts from a work estimate to be paid to the contractor by the GOH from the rotating fund and sends the request to Hacienda for payment.

5. Hacienda pays the contractor the amount of the work estimate less the amount required for spare parts

6. Hacienda sends AID a request to directly pay the U.S. supplier for the spare parts as a payment for the work estimate with any remaining funds for the work estimate to be reimbursed to Hacienda according to regular procedures.

7. AID directly pays U.S. suppliers as a part of the reimbursement for the work estimate and reimburses Hacienda for the rest of the work estimate.

8. This procedure has been developed because there has been a general lack of foreign exchange available to small contractors. If this situation should change because of the new economic reforms this procedure will not be necessary and normal host country contracting reimbursement methods will be used.

Audits

Counterpart funds have been provided in the amount of $30,000 to contract external auditors to make financial audits of Project activities. Likewise, $50,000 have been made available from Project funds for AID to contract independent financial audits as necessary. The Auditors of RIG/Tegucigalpa may also make periodic audits to determine compliance and the efficiency and effectiveness of the use of Project funds. Financial reviews may be performed by the Office of the Controller to verify expenditures for Project purposes. The Controller General of Honduras may also perform some audits during the life of Project.

Controller

6/20/90
Date

TABLE A-1

PROJECT NO. 522-0334
SUMMARY COST ESTIMATE AND FINANCIAL PLAN
(U.S. $000)

USES	SOURCES: AID GRANT FUNDS FX	AID GRANT FUNDS LC	TOTAL AID	GOH	TOTAL PROJECT COST
1. ROAD MAINTENANCE					
A. Maintenance Contracting	1,177	6,668	7,845	1,800	9,645
B. Tools for Peon Caminero	660	-	660		660
C. Peon Caminero Salaries	-			1,737	1,737
D. Pilot Program with Municipalities	-	-	-	144	144
E. Administration, Vehicles and Equipment	345	-	345	255	600
F. Contracted Maintenance of Project Vehicles	-	50	50	-	50
Sub-Total	2,182	6,718	8,900	3,936	12,836
2. CONSTRUCTION AND REHABILITATION					
A. Construction Projects	450	2,550	3,229	500	3,729
B. Rehabilitation of Roads	300	1,700	1,771	500	2,271
C. Environmental Analyses	100	-	100	-	100
D. Administration and Engineering	-	-	-	1,900	1,900
Sub-Total	850	4,250	5,100	2,900	8,000
3. AID COORDINATING UNIT	-	600	600	-	600
4. TECHNICAL ASSISTANCE	250	-	250	-	250
5. EVALUATION	100	-	100	-	100
6. AUDITING	50	-	50	30	80
TOTAL	3,432	11,568	15,000	6,866	21,866

TABLE A-2

PROJECT NO. 522-0334
PROJECT DISBURSEMENTS
(U.S.$000)

PROJECT ACTIVITIES	CALENDAR YEARS 1	2	3	4	5	6	7	TOTAL
AID Contributions								
1. Road maintenance								
A. Maintenance Contracting	-	1,885	1,000	1,250	1,250	1,250	1,210	7,845
B. Tools for Peon Caminero	-	200	145	145	145	25	-	660
C. Vehicles and Equipment	345	-	-	-	-	-	-	345
D. Contracted Maintenance for Project Vehicles	-	-	10	10	10	10	10	50
Subtotal	345	2,085	1,155	1,405	1,405	1,285	1,220	8,900
2. Construction & Rehabilit.								
A. Construction Proj.	-	-	554	875	975	825	-	3,229
B. Rehabilitation of Roads	-	1,700	71	-	-	-	-	1,771
C. Environmental Analysis	-	100	-	-	-	-	-	100
Subtotal	0	1,800	625	875	975	825	-	5,100
3. AID Coordinating Unit	-	120	120	120	120	100	20	600
4. Technical Assist./Computers	50	100	50	50	-	-	-	250
5. Evaluations and Audits	-	-	50	50	-	50	-	150
Total	395	4,105	2,000	2,500	2,500	2,260	1,240	15,000
GOH Contributions								
I. Road Maintenance								
A. Maintenance Contracting	-	300	300	300	300	300	300	600
B. Peon Caminero Program	-	314	337	350	362	374	-	1,737
C. Administration and Engineering	-	34	49	54	57	61	-	255
D. Pilot Program with Municipalities	-	28	29	29	29	29	-	144
SubTotal	0	676	715	733	748	764	300	3,936
II. Construction and Rehabilitation								
A. Construction Projects	-	-	500	-	-	-	-	500
B. Rehabilitation of Roads	-	500	-	-	-	-	-	500
C. Administration and Engineering	-	400	525	525	450	-	-	1,900
SubTotal	0	900	1,025	525	450	0	0	2,900
III. Audits	-	-	15	-	15	-	-	30
Total GOH	0	1,576	1,755	1,258	1,213	764	300	6,866
PROJECT TOTAL	395	5,681	3,755	3,758	3,713	3,024	1,540	21,866

TABLE A-3

PROJECT NO. 522-0334
TOTAL PROJECT RESOURCES BY YEAR

PROJECT ACTIVITIES	CALENDAR YEARS 1	2	3	4	5	6	7	TOTAL
1. ROAD MAINTENANCE								
A. Maintenance Contracting	-	2,185	1,300	1,550	1,550	1,550	1,510	9,645
B. Tools for Peon Caminero	-	200	145	145	145	25	-	660
C. Peon Caminero Salaries	-	314	337	350	362	374	-	1,737
D. Pilot Program with Municipalities	-	28	29	29	29	29	-	144
E. Administration, Vehicles and Equipment	345	34	49	54	57	61		600
F. Contracted Maintenance of Project Vehicles	-	-	10	10	10	10	10	50
Sub-Total	345	2,761	1,870	2,138	2,153	2,049	1,520	12,836
2. CONSTRUCTION AND REHABILITATION								
A. Construction Proj.	-	-	1,054	875	975	825	-	3,729
B. Rehabilitation of Roads	-	2,200	71	-	-	-	-	2,271
C. Environmental Analyses	-	100	-	-	-	-	-	100
D. Administration and Engineering	-	400	525	525	450	-	-	1,900
Sub-Total	0	2,700	1,650	1,400	1,425	825	0	8,000
3. A.I.D. COORDINATING UNIT	-	120	120	120	120	100	20	600
4. TECHNICAL ASSIST./COMPUTERS	50	100	50	50	-	-	-	250
5. EVALUATION	-	-	50	-	-	50	-	100
6. AUDITING	-	-	15	50	15	-	-	80
TOTAL	395	5,681	3,755	3,758	3,713	3,024	1,540	21,866

5. Recurrent Cost Analysis

a. Introduction

One of the most perplexing issues of this Project is the level of recurrent costs to provide a sustainable maintenance program. This analysis provides a historical comparison of SECOPT expenditures, comparisons of DGC and DGM expenditures and a look at the fiscal revenue from the road sector. Some conclusions are subsequently drawn about the level of expenditures required for a sustainable maintenance program and the measures that SECOPT will implement to provide sufficient funding for road maintenance.

b. Comparison of Expenditures of DGC, SECOPT and the Central Government

The resources available to SECOPT for its current and capital expenses are allocated from the GOH budget. The GOH also channels external and internal financing for investment projects of autonomous entitites such as ENEE in the secretariat's sphere of influence through the SECOPT budget.

The following tables compares the amounts executed by the DGC, SECOPT and the central government from 1985 to 1988.

TABLE A-4

Comparison of Expenditures of the DGC, SECOPT, and the Central Government

	Amounts Spent (In thousands of US$)			
	1985	1986	1987	1988
Central Government				
Current expenses	652,765	685,097	729,613	798,424
Capital expenses	259,624	181,592	154,333	144,177
Total	912,389	866,689	883,946	942,601
SECOPT				
Current expenses	26,984	28,075	27,932	30,222
Capital exenses:				
Investments	42,960	43,962	64,941	63,851
Transfers	124,999	41,443	20,383	11,086
Total capital expenses	167,959	85,405	85,324	74,938
Total expenses	194,943	113,480	113,256	105,161
DGC				
Current expenses	1,875	1,914	2,014	2,549
Investments	26,774	25,953	39,895	52,781
Total expenses	28,649	27,867	41,909	55,331

TABLE A-5
Percentage Rates

	1985	1986	1987	1988
SECOPT to Central Government				
Current expenses	4.1	4.1	3.8	3.8
Capital expenses:				
Investments	16.5	24.2	42.1	44.3
Transfers 1/	48.1	22.8	13.2	7.7
	64.6	47.0	55.3	52.0
DGC to SECOPT				
Current expenses	6.9	6.8	7.2	8.4
Investments 2/	62.6	59.0	61.4	82.6

As shown in the Table A-5, SECOPT's current expenses represented between 3.8% and 4.1% of those of the government, while its capital spending represented between 47% and 65% of the government's capital spending. The latter percentages, however, represent investments in sectors controlled directly by SECOPT, for which the government allocated between 16.5% and 42.1% of its resources for investment projects, as well as substantial transfers to autonomous agencies--primarily to the El Cajón project—2/ which before 1986 exceeded the amount of the aforementioned investments and ranged between 13.2% and 48.1% of the government's capital spending. The increase in direct investment by SECOPT over the period (from $43 million in 1985 to $63 million in 1988) was due to larger investments in the road sector. The GOH was able to increase its investment in roads due to the leveling off of the investment in El Cajón.

1/ SECOPT represents the Government in various autonomous agencies and transfers to these agencies are reflected in SECOPT's budget. Of the total amount of transfers and loans during the period (US$197.9) approximately seventy-five percent were destined for EL Cajón project. It should be noted, however, that the transfers and loans for this project were reduced from US$122.6 million in 1985 to US$6 million in 1987.

2/ Percentage ratios based on the "investment" line for SECOPT.

The ratios of DGC to SECOPT spending also show that DGC current expenses represented an average 7.3% of those of SECOPT, while the capital expenses ranged from 59% to 62.3% thereof, indicating the prominence of the directorate in the secretariat's investment programs.

The DGC current expenses are mostly financed by resources of the government itself, while its capital expenses are financed for the most part from international assistance. A breakdown follows of the financing for capital expenses executed by the DGC during the 1985-1988 period.

TABLE A-6

Financing of DGC Expenditures

(In thousands of US$)

	1985		1986		1987		1988	
	$	%	$	%	$	%	$	%
IDB	5,537.3	20.7	3,390.8	13.1	9,782.5	24.5	14,708.2	27.9
CABEI	6,824.0	25.5	9,691.5	37.3	13,375.8	33.5	7,343.4	13.9
IBRD	557.5	2.1	653.8	2.5	-	-		
AID and Others	6,611.9	24.7	2,871.7	11.1	2,895.1	7.3	12,615.9	23.9
Total external funding	19,530.7	73.0	16,607.8	64.0	26,053.4	65.3	34,667.5	65.7
Central Gov't.	7,243.0	27.0	9,345.5	36.0	13,842.1	34.7	18,113.9	34.3
Total Resources	26,773.7	100.0	25,953.3	100.0	39,895.5	100.0	52,781.4	100.0

(In thousands of US$)

	Total 1985-1988	
	$	%
IDB	33,418.8	23.0
CABEI	37,234.7	25.6
IBRD	1,211.3	0.8
AID and Others	24,994.6	17.2
Total external funding	96,859.4	66.6
Central Gov't.	48,544.5	33.4
Total Resources	145,403.9	100.0

During the period under review, an average 67% of the DGC capital expenses were financed by external resources and 33% by central government funding. Of the US$48,544,500 from the Central Government, however, it should be noted that approximately US$20,107,300 of this amount was provided through local currency generations from the AID balance of payments program. Annual Central Government financing increased from US$7.2 million in 1985 to US$18.1 million in 1988 due to an increase in the counterpart needed for projects financed by CABEI as well as funding for roads financed totally from the national budget. Without the availability of local currency resources from the balance of payments program the government would not have been able to pay the counterpart for many of the international finance institution (IFI) projects and investment funding for roads would have been considerably curtailed.

c. Directorate General of Maintenance (DGM)

The DGM expenditures and the financing thereof for the 1985-1988 period are shown in the following table:

TABLE A-7

DQM Expenditures and Financing

(In Current Dollars each Year)

	1985	1986	1987	1988	TOTAL
Expenses					
Maintenance:					
Roads	6,481,546	7,886,945	8,524,520	8,940,732	31,833,743
Airports	666,886	122,992	89,525	101,802	981,205
Administration	7,644,275	8,672,901	8,668,001	8,288,343	33,273,520
Technical Cooperation	224,071	10,497	-	-	234,568
Purchase of Machinery and Equipment	-	35,587	18,100	32,407,327	32,461,014
Other	3,232,694	2,174,202	1,702,822	1,448,870	8,558,588
Total Current Expenses	17,649,472	18,903,124	19,002,968	51,187,074	106,742,638
Financing					
IBRD	1,238,906	10,497	-	-	1,249,403
OECF (Government of Japan))	-	-	-	31,544,000	31,544,000
Other Agencies	-	1,607,097	1,442,293	210,678	3,260,068
A.I.D.	-	7,377	96,674	92,757	196,808
Central Govt	16,410,566	17,278,153	17,464,001	19,339,639	70,492,359
Total Financing	17,649,472	18,903,125	19,002,969	51,187,074	106,742,640

The items corresponding to road and airport maintenance include direct maintenance costs: labor, equipment operation expenses and the cost of materials. The item of administration includes the salaries and benefits of administrative and supervisory staff at the central office and in the field; the cost of materials and office equipment; the cost of operating the vehicles used in supervisory work; and the cost of public services of the DGM offices. The "other" item includes technical assistance expenses and the cost of maintaining small roads that do not belong to the official network but are covered at the express request of the communities they serve.

During the period under review, leaving out the funding from the Japanese for the purchase for equipment in 1988, current annual expenses were within the range of US$17.6 to US$19.1 million, totaling US$74.3 million over the period. The purchases of machinery, equipment and parts amounted to a total of US$32.4 million. Of the total, US$106.7 million in spending, 66% was financed by government resources and 34% with external resources. Leaving aside equipment purchases, approximately 95% of the total comes from GOH resources.

Several important factors should be noted from the budget data. First that direct funding for road maintenance, the first line item, has stayed relatively constant, despite the significant increase in road construction activity. The percentage of DGM and DGC expenditures within the total SECOPT budget in TAble A-8 demonstrates this point. The DGM's percentage is generally less than about one-half of the percentage received by the DGC. A simple assessment of the cost of providing maintenance for Honduras's road network of approximately 11,000 kilometers clearly indicates that in the past four years the amount of funding provided is not sufficient. There are approximately 8,000 kilometers of rural roads at a cost of approximately $1,000 (if contracted out to the private sector) per kilometer; the cost of maintaining just the rural roads is approximately $8,000,000. The cost of maintaining the 3,000 kms of paved roads is approximately $18,000,000 or $6,000 per kilometer (using private contractors). The total amount needed for direct road maintenance is then approximately $26,000,000 (if the maintenance were to be contracted out). In 1988 $8.9 million was provided for direct maintenance costs. Given that the DGM was performing its maintenance by force account with its own machinery in 1988, one would have to consider the direct costs less the machinery. The DGM purchases its machinery on a separate basis usually with loans from international or bilateral financial institutions. Considering that the machinery is approximately 60% of the cost factor for maintenance, then $10.4 million or an additional $1.5 million (a 17% increase) should have been provided for direct maintenance costs.

The budget shortfall has been exacerbated by the fact that much of the direct maintenance budget is allocated for labor. With the great increase in payroll expenditures that began in 1985 as discussed in the institutional analysis, the amount available for materials and supplies has decreased resulting in reduced capability to provide road maintenance. The amount of funding being expended for administration is also an anomaly. Administrative expenses took a leviathan jump in the three years just before 1985. From 1982 to 1984 administrative expenses increased 192% from $2.6 million to $7.6 million. This increase in administrative expenditures was unjustified in light of the

relatively constant expenditures for road maintenance during this period. From 1982 to 1984 there was only a 11% increase in road maintenance expenditures. For the period from 1985 to 1988 administrative expenses at $33.3 million were higher than direct expenditures for maintenance of $32.8 million (including maintenance for airports of $1 million for the period). One way of increasing funds for direct maintenance would be to reduce the administrative costs in consonance with the real need, pegging the amount budgeted for administration to some percentage of the amount budgeted for direct maintenance.

TABLE A-8

Comparison of Total DGM and Total DGC Spending with Total SECOPT Spending 1/

YEAR	DGM/SECOPT	DGC/SECOPT	TOTAL
1983	17.7	65.0	82.7
1984	20.9	58.0	78.9
1985	22.4	41.0	63.4
1986	26.9	38.7	65.6
1987	20.4	45.1	65.5

As seen in the above table, the DGC and the DGM are the most important directorates in SECOPT from the standpoint of the use made of available funds, accounting annually for a fairly steady 65% of all secretariat funding over the years 1985-1987. The percentage decline shown in the 'total" column is due to a downturn in DGC investments and its effect on total SECOPT investments.

The overall conclusions for this analysis are: (1) the DGM receives an inadequate share of the SECOPT budget in comparison with the share going to the DGC for road construction; and (2) the DGM poorly allocates its budget in favor of personnel and administrative expenses to the detriment of materials and supplies for road maintenance. These conclusions will be further discussed below.

d. Fiscal Revenue from the Road Sector

The government of Honduras centralizes all revenue in the national treasury and then assigns items to the different sectors through budgetary allocations. Among those revenues are various taxes and charges paid by road network users. A breakdown for the 1985-1988 period follows:

1/ Total SECOPT costs do not include transfers to autonomous agencies.

TABLE A-9

Taxes Paid by Highway Network Users
(In thousands of December 31, 1987 US$)

	1985	1986	1987	1988	1985/1988	%
Tax on Consumption of Oil By-products	9,069.2	9,012.2	10,030.4	10,266.5	38,378.3	45.6
Vehicle Sales Tax	2,302.7	2,007.0	2,719.4	2,739.0	9,768.1	11.6
Selective Tax on number of Vehicle Cylinders	640.8	575.9	1,460.6	1,252.0	2,341.0	2.8
Vehicle Use Tax	6,609.3	6,730.9	8,246.6	9,364.7	30,951.5	36.7
Other	209.3	198.8	188.4	2,165.3	2,761.8	3.3
Totals	18,831.3	18,524.8	22,645.4	25,787.5	84,200.7	100%

The overall size of this contribution is quite significant, given that during the period 1985-1988, the total income of $84 millon is equivalent to 80% of all resources the Government invested in road maintenance in the period ($107 million).

Clearly however, the contributions are inadequate to pay fully for investments in rehabilitation and construction of roads. As noted in the DGM institutional strengthening component the GOH is making preparations to collect road tolls to specifically dedicate to road maintenance. The toll revenue will be used for investment in and maintenance of the paved road network. If the above road user taxes were exclusively dedicated to maintenance, then there would be sufficient funding to cover all maintenance needs as well as some of the costs for new road investments. Presently, however, the GOH does not plan to dedicate all road user taxes exclusively to maintenance of and investment in the road network.

Given the analysis above, it appears that the new SECOPT administration is taking the right steps in fiscal and budget policy for the road sector to amend the funding shortfall for maintenance. Presently they are determining a more rational division of resources between the DGM and the DGC to provide a more adequate balance between road construction and road maintenance. Likewise, they are reducing administrative costs and personnel to more rationally allocate DGM budget resources between personnel and administrative costs on the one hand and direct road maintenance costs on the other. Finally, they are planning to implement a road toll system on the paved roads to pay for the maintenance of these roads. All of these measures together should provide sufficient funding to fully fund road maintenance costs on a permanent basis.

In assessing GOH financing of the road sector in general, one important factor influencing the overemphasis on construction relative to maintenance is the availability of financing. Both bilateral and multilateral institutions have traditionally been willing to finance only construction projects or the purchase of equipment for maintenance. These policies influence the government to deemphasize road maintenance on the one hand and the proper

upkeep of the maintenance equipment purchased on the other because they know that additional financing is always available for more construction or equipment purchases. In some countries, the World Bank has begun to finance the recurrent costs of road maintenance with very positive results. The Project's funding of routine maintenance contracts may help to set a precedent for other financial institutions to follow.

B. Administrative/Institutional Analysis

1. Background

The implementing institution for this Project is the Secretariat of Communications, Public Works and Transport (SECOPT), through its General Directorates of Maintenance and Roads. SECOPT is a public entity whose functions are: to apply the laws concerning overland, air and river transportation; to carry out the study, opening, conservation, repair and upgrading of roads, airports, bridges, public works, and buildings; to conduct map surveys throughout the country and to administer and regulate public services of mail, telegraph, telephones, telex and radio broadcasting. As shown in Figure B-1, SECOPT is functionally organized as one secretariat to which the following directorate generals report:

Under the Public Subsecretariat:

- Directorate General of Roads
- Directorate General of Maintenance
- Directorate General of Public Works and Urban Development

Under the Communications and Transport Subsecretariat:

- Directorate General of Civil Aeronautics
- National Geographic Institute
- Directorate General of the Postal System
- Directorate General of Transport

The principal authority of SECOPT is the Minister. He is appointed by the President of the Republic, to whom he reports directly. The duties of the Office of the Minister, like those of each of the General Directorates and the advisory units, are governed by SECOPT internal regulations. The Directorate General of Maintenance (DGM) and the Directorate General of Roads (DGC) are directly concerned with the implementation of the Project and are examined in the following paragraphs.

2. Directorate General of Maintenance (DGM)

The DGM's basic responsibility is to maintain the roads and airports in the SECOPT jurisdiction. Its principal duties are programming and budgeting of maintenance plans; determination of the most satisfactory procedures and methods; and execution of road and airport maintenance operations, including equipment maintenance. The DGM is responsible for maintaining equipment of the Ministry which includes construction and transportation equipment of the DGC and other directions as well as its own maintenance equipment.

The DGM has recently reduced its administrative structure from nine to eight units by combining the Training Department with the Personnel Department. As may be seen in the organizational chart B-2, the DGM will conduct its functions through the following departments: (i) Planning and Budgeting; (ii) Data Processing; (iii) Engineering; (iv) Equipment and Workshops; (v) Administration; (vi) Personnel and Training; (vii) Major Maintenance; and (viii) Routine Maintenance.

FIGURE B-1

ORGANIZATION CHART
MINISTRY OF COMMUNICATIONS
PUBLICS WORKS AND TRANSPORT

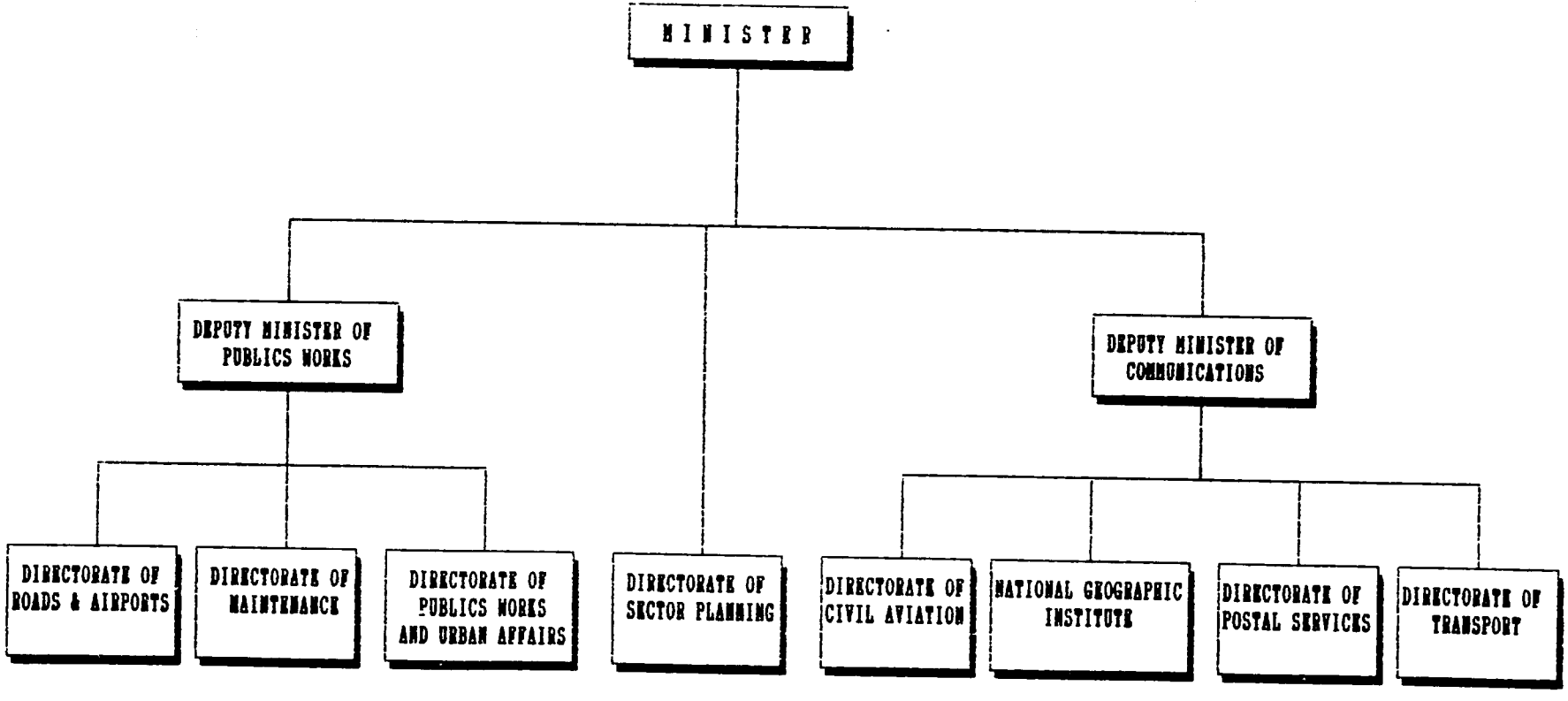
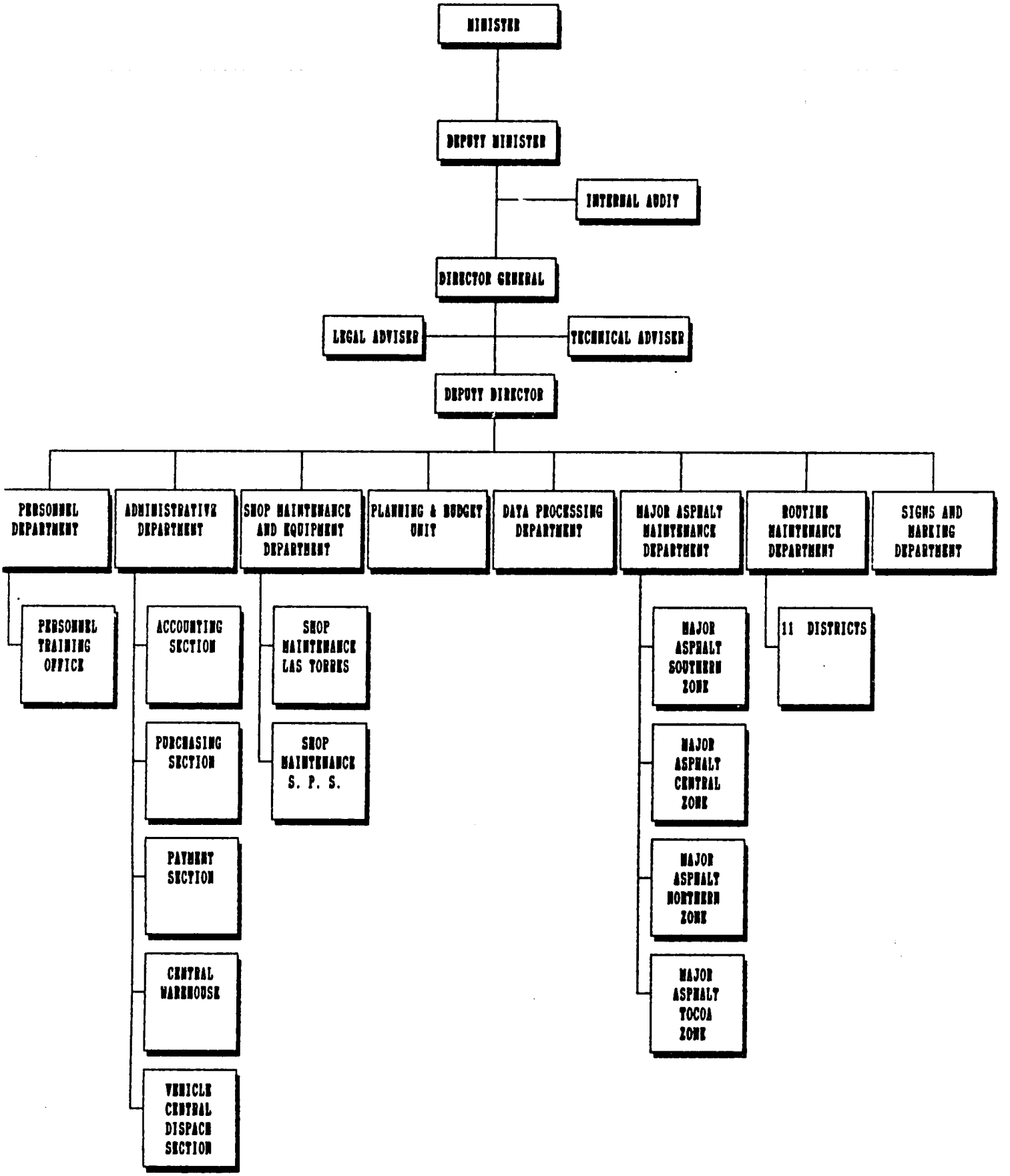


FIGURE B-2

DIRECTORATE OF MAINTENANCE
ROADS AND AIRPORT
ORGANIZATION CHART



Maintenance operations are executed through eleven district offices throughout the country. Individually, these offices are responsible for maintenance of between 607 kms (District 8, Tocoa) and 1,487 kms of roads (District 5, San Pedro Sula).

To carry out its functions, The DGM prepares an annual plan for the maintenance of the roads in its jurisdiction. The plan is based on a physical inventory of the roads; evaluation of their real status based on a point system and establishment of standards to estimate the amount of maintenance work necessary. Once this information is assessed, an annual schedule of activities to be performed is prepared; staff and equipment are assigned to the various maintenance districts and the budget for routine and periodic maintenance expenditures is prepared. Through the implementation of a road inventory system, this process will be improved and automated.

By the end of 1989, the DGM had 6,542 employees of which approximately 2,000 are located at the central office in Tegucigalpa or in one of the two regional major maintenance equipment repair facilities in Tegucigalpa and San Pedro Sula. Due to a number of institutional problems, the DGM has not been able to adequately perform its functions. These institutional problems are largely due to the use of political patronage as a basis for the awarding of jobs within the Directorate. A short institutional history of the DGM will help to put these problems into perspective.

The DGM began its operations in 1973 with technical assistance financed by the Inter-American Development Bank. Until 1984, Technical Assistance from Roy Jurgensen Associates Inc., financed by the World Bank, assisted the DGM first to set up its district operations and later to train DGM staff and to design and implement a management system for scheduling and controlling the maintenance activities. A listing of the various manuals containing the systems designed by Roy Jurgensen is contained below.

MANUALS FOR THE D.G.M. PREPARED UNDER THE TECHNICAL ASSISTANCE PROVIDED BY ROY JORGENSEN ASSOCIATES, INC.

1. Manual for Road Maintenance
2. Maintenance Manual for Foremen
3. Program Manual for Field Crews
4. Manual on Problems in the Supervision of Field Crews
5. Manual on Maintenance Activities on Work Units
6. Manual on the Diagnostic System (Benkelman Beam)
7. Manual on Preventive Maintenance for the DGM Equipment and Vehicles
8. Appendix: Preventive Maintenance Manual
9. Manual for the Operation of Workshops
10. Reports on Technical Assistance for the Rehabilitation of Equipment
11. Economic Evaluation of Road Maintenance and Rehabilitation (2 volumes)
12. Accounting Manual
13. Executive Manual
14. Revision of the Administrative Manual for Training
15. Analysis of Exisiting Policies for Management of the DGM Personnel
16. Administrative Manual of the Mobile Program Implementing Unit
17. Administrative Manual of the Mechanics Program Implementing Unit

18. Manual for the Training of Mechanics
19. Manual for the Use of the Computer System
20. Manual for the Management of Stocks and Warehouses
21. Maintenance and Rehabilitation Program and Budget (1984-1987)

With the World Bank assistance the DGM set up functional district maintenance offices, a planning and budgeting system and a road inventory system at the central level. Through the end of 1989, there were still problems with a number of central level functions such as training, administration, equipment maintenance, personnel management, and procurement as well as problems at the district level in planning and budgeting and most importantly in the actual implementation of maintenance. These problems are largely related to the institutional problems of the DGM mentioned above. At the end of 1982, the DGM had 2,848 employees. From 1983 through 1985 the DGM underwent a staff increase of 2,060 employees. The greatest increases over the 1982 level were in the central office administrative staff (250% increase) and technical staff (105% increase). Furthermore, a large number of workers and peons were concentrated in the city of Tegucigalpa. Since 1985 there have been additional increases in staff as indicated in the table below.

DGM Staffing Level
December 1989

Function	Number of Employees
Administration	3,467
Equipment Operators	1,100
Work Crew Laborers	1,300
Hand Labor Maintenance	475
Work Crew Chiefs	200
Total	6,542

Through the end of 1989 the DGM was using over 80% of its budget for payroll and is unable to allocate sufficient funds for the materials, supplies, and equipment necessary to perform its functions. Additionally, many of the qualified employees trained by Roy Jurgensen have either left or have been dismissed to provide political constituents with jobs. Only 12% of the staff have any level of professional or technical training. Moreover, many are allocated for specific areas such as mechanics or mechanic assistants where they are not needed and because of union rules cannot be assigned to other functions. Many of the personnel are located in Tegucigalpa or San Pedro Sula in unproductive positions rather than in the field where there is a shortage of laborers for basic activities. Because of organizational problems in the field and the allocation of workers by trade, many field workers are in unproductive positions as well. The result of this situation is that planning and administrative procedures are no longer effective, inventory and control of property is not properly performed, maintenance equipment is in a constant state of disrepair, and most importantly, the major highways, secondary roads, and feeder roads are not being maintained.

With the initiation of the new government at the beginning of 1990, these institutional problems have begun to be addressed. The institutional strengthening program of the DGM discussed in the components section will address the overstaffing problem and the resulting operating inefficiencies. The restructuring and staff reduction plan is contained in the DGM's proposal for institutional strengthening in Annex IV. SECOPT plans to reduce personnel in the DGM by over 2,000 persons principally in the administrative area and maintain a staff level similar to its 1984 level of approximately 4,500 workers. With such a personnel reduction, the strengthening of its administrative systems and the institution of mechanisms to generate revenues for maintenance as described in the maintenance component, it is expected that the DGM can properly perform the maintenance on the roads.

While the Project is concerned with the overall strengthening of the DGM, the purpose of the project is the maintenance system for rural roads. The remainder of this analysis then will be limited to the elements of the DGM that most directly concern the maintenance of rural roads.

a. Peón Caminero Program

The Peón Caminero Program (PCP), the hand labor component of a maintenance program for rural roads, was proposed in RR II to partially address the maintenance requirements of roads that had been or were to be constructed with funds provided by AID in RR I and RR II. The program is presently operating in: (1) District No. 1, Tegucigalpa; (2) District No. 2, Olancho; (3) District No. 3, Choluteca; (4) District No. 4, La Esperanza; (5) District No. 5, San Pedro Sula; (6) District No. 7, Santa Rosa de Copán and (7) Sub-District No. 10, Danlí. Initial operation of the PCP began in mid-1987, and by the end of 1988, over 300 PCs were maintaining more than 2,000 kilometers of secondary roads.

The Program was initiated and is coordinated and managed out of the Planning and Budgeting Unit. The unit is staffed with a Director who is responsible to the Chief of the Planning and Budgeting unit and four supervising engineers of which one is a graduate engineer. There are also support personnel consisting of two accountants and a secretary. The principal functions of this unit are to prepare the annual budget and activities plan for the PCP and monitor its implementation at the district level. Among the various personnel in the unit, an attempt is made to visit each district once a month to monitor PCP activities. However, visits are actually made once every four to six months due to a lack of vehicles and funds for per diem.

Actual implementation of the PCP is carried out at the district level. The chief of the district office chooses the supervisors for the program. There are no specified criteria for selection of the supervisors, and most supervisors do not have the skills nor do they receive training to do their job properly. Selection of the workers is usually made by district managers or the supervisors. Generally, the criteria for selection are the following: (1) The person must live in the immediate vicinity of the road he will be maintaining and (2) the economic condition of the person should be checked to assure his need for the job. Often the supervisors have requested assistance from the patronato or development councils of the communities to assist them in the selection process, but this is not the rule. Most of the PCs are not given sufficient orientation to do their job. Additional training would help them to be more effective.

Most districts have one or two supervisors for the PCP. Ideally each supervisor is to have responsibility for 30 PCs. The supervisor is to assign specific tasks to each PC and keep a weekly card of the tasks accomplished by each worker. Due to the long distances involved and the lack of transportation, supervisors are able to make visits only once every two to three months. This lack of supervision has resulted in poor performance by some of the PCs. For this reason, the project will investigate the possiblity of better integrating the local communities into the program to assist in the supervision of the PCs on the roads in their area.

In the Project design of Rural Roads II, the communities near where the roads were to be built, were to take a major role in the supervision and support of the PC. This has taken place only in a few municipalities because of a lack of social promotion and follow-up by the DGM. In the districts where linkages between the community and the maintenance of the roads were made the communities have been involved in supervision and support of the PC. These linkages include using leadership from the patronatos and municipal governments to insure that the PC is doing a satisfactory job and organizing additional labor from the community when necessary. Additionally, some district offices have hired persons who regularly live or work in a specific area to provide direct supervision of PCs in their area.

Complicated payment procedures for the peón caminero program have caused delays of up to three months in paying the workers of the program. Simpler procedures requiring less signatures and the ability to pay the workers in cash rather than a check are needed. The pilot project to be undertaken with the municipalities will help determine if simpler procedures are feasible.

b. Machine Maintenance by Contract

In deciding what unit within the DGM should manage the maintenance contracting, two basic options were considered. One was to create a new unit and the other was to build on the existing structure of the DGM through the Planning and Budgeting Unit and the Routine Maintenance Department. The first option was discarded, however, because the DGM has had successful experience in contracting maintenance through the Planning and Budgeting Unit (PBU) and the Routine Maintenance Department. Additionally, a new unit would create a greater impetus for hiring additional personnel than using the existing structure. The Planning and Budgeting Unit will perform all the bidding and award functions with the support of other administrative offices in the DGM and the Routine Maintenance Department will supervise the contract maintenance operations in the field. A general description of the steps required for a contract to proceed from inception through execution is contained in the technical analysis in Section IV.G. The PBU's experience in bidding and awarding maintenance contracts with national funds will enable it to rapidly assimilate the additional duties in bidding and awarding the contracts under this project.

c. Institutional Strengthening

Institutional strengthening will be carried out in the DGM at both the central and the district level. Although this strengthening will take place in all units, particular attention through this project will be directed at the Planning and Budgeting Unit, the Administrative Department, the Routine

Maintenance Department at the national and district level, and the Data Processing Unit. Following is a brief institutional analysis of each of these departments/units.

Planning and Budget Unit (PBU): This unit consists of the unit which carries out the normal planning and budgeting activities and contains the subunit which manages the Peón Caminero Program. The PCP subunit has been described above. The functions of the regular unit are to produce the annual work programs, develop the budget of the Directorate, assist in drawing up financial and administrtive plans for maintenance activities as the counterpart of IDB, CABEI financed construction projects, assist in the administration of cost control and accounting measures, coordinate the annual road inventory, keep an account of current maintenance costs, and prepare monthly and annual activities reports. In order to perform these functions the unit, whose chief is an engineer, is staffed with 3 engineers, 3 auxiliary engineers (engineering students), 6 book keepers, and 3 support staff members. The unit performs its functions quite well and has qualified personnel. They would become much more efficient, however, through automatization of much of its information processing. The institutional strengthening component will thus help the unit automate its information processing.

Administrative Department (AD): The single most important function performed by the AD is related to the procurement of all items used in the DGM both at the national and district levels. Approximately 80 persons in the AD are associated with this function. Practically all decisions dealing with the procurement of supplies for operations and equipment including spare parts are made at the national level with the AD being at the center of the procurement process. The procedures are essentially the same for all procurement actions in the DGM.

Data Processing Unit (DPU): The basic function of the DPU is to process all information for the various departments and units of the Directorate. To date, due largely to its underqualified staff, the unit has been able to meet only a small portion of the Directorate's information processing needs. The DPU has a staff of eleven operators and assistants but only two or three of these have sufficient training to manage the system. Presently, they process personnel records, salary payments, inventories of spare parts and office supplies and equipment, and carry a control of expenditures against the budget. They have not been able to automatize the budget development process, the road inventory, the work plans. the equipment inventory, or records on maintenace costs. As noted above, the DGM will remedy this situation through its institutional strengthening component as described in Annex IV.

District Maintenance Offices

Until recently the country was divided into eight maintenance districts and three subdistrict. With the advent of the new government, the subdistricts were made into districts because the dependency on another district caused delays in administrative actions and did not result in lower levels of personnel for the subdistrict. The country now has eleven district offices listed below and one subdistrict office in the Bay Islands which is a dependency of the La Ceiba District. The bay islands was left as a subdistrict because SECOPT is analyzing the possibility of turning over the

maintenance functions to the municipalities on the islands. District departments are managed through the Routine Maintenance Department at the central level.

District Number	Location	
District No. 1	Tegucigalpa	- Francisco Morazan
District No. 2	Galeras	- Olancho
District No. 3	Choluteca	- Choluteca
District No. 4	Comayagua	- Comayagua
District No. 5	San Pedro Sula	- Cortés
District No. 6	La Ceiba	- Atlántida
District No. 7	Santa Rosa	- Copán
District No. 8	Tocoa	- Colón
District No. 9	Santa Barbara	- Santa Bárbara
District No. 10	Danlí	- El Paraíso
District No. 11	La Esperanza	- Intibucá

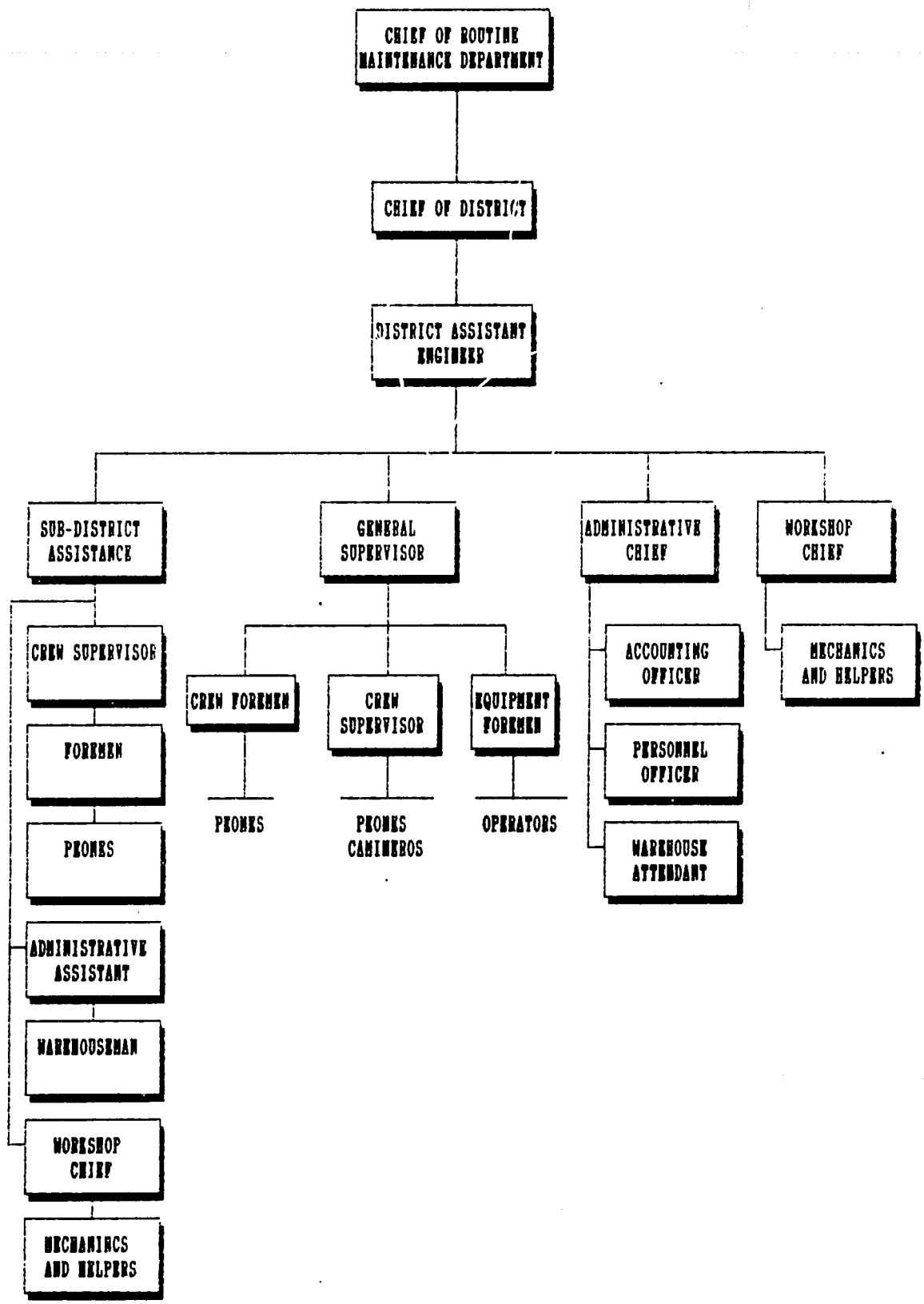
The role of the district maintenance office is to maintain the road network and airports in the district. Before the advent of the new government, each district was usually divided into the following support units: (1) Management; (2) Administration; (3) Personnel; (4) Purchasing; (5) Program; (6) Radio Communications; (7) Warehouse; (8) Light and Heavy Equipment; (9) Survey; (10) Equipment Maintenance; and (11) Security. These units provide the logistical support to the operations units (crews) that are formed to perform the maintenance function. With the restructuring of the DGM, many of these units will be combined and personnel will be reduced. Figures B-3 on the next page shows how the district offices will be organized to perform the maintenance function after their restructuring.

The number of regular employees at the district level has ranged from approximately 200 to 500 depending on the extent of the infrastructure to be maintained. About 75 percent of the district employees are operational and perform specific maintenance functions. The remaining 25 percent perform staff support activities. The districts will undergo an extensive personnel reduction in order to improve their operations and staff in each district office will range from 30 to 160 persons.

Except for the Peón Caminero Program, actual maintenance is executed through a work crew system. Each crew is composed of a mix of heavy and light equipment and workers performing hand labor. An operational schedule for all maintenance work, assigning the tasks to be undertaken by the work crews, is developed for a two week period four days before the schedule goes into effect. Of the total annual district maintenance requirement, district personnel estimate that only 25 percent of the necessary work is undertaken in any one year. The institutional strengthening program of the DGM will enable 90 to 100% of the necessary work to be performed.

FIGURE B-3

ORGANIZATION CHART
ROUTINE MAINTENANCE DISTRICT



3. Directorate General of Roads (DGC)

The DGC is responsible for the study, planning, design, supervision and construction of the country's highway system, and for promoting the construction of highway projects using labor-intensive methods. It has approximately 2,000 permanent employees. An organizational chart for the DGC after its restructuring, Figure B-4, appears on the next page. In functional terms, the structure of this directorate may be classified as follows:

- Design and construction functions:

  These are performed by the National Funds Office, Labor-Intensive Road Construction and by the two implementing units that administer IDB, IBRD, AID and CABEI projects.

- Advisory functions:
  These are performed by the offices of legal advisory services and internal auditing.

- Administrative functions:
  These are the responsibility of the administrative and the personnel offices.

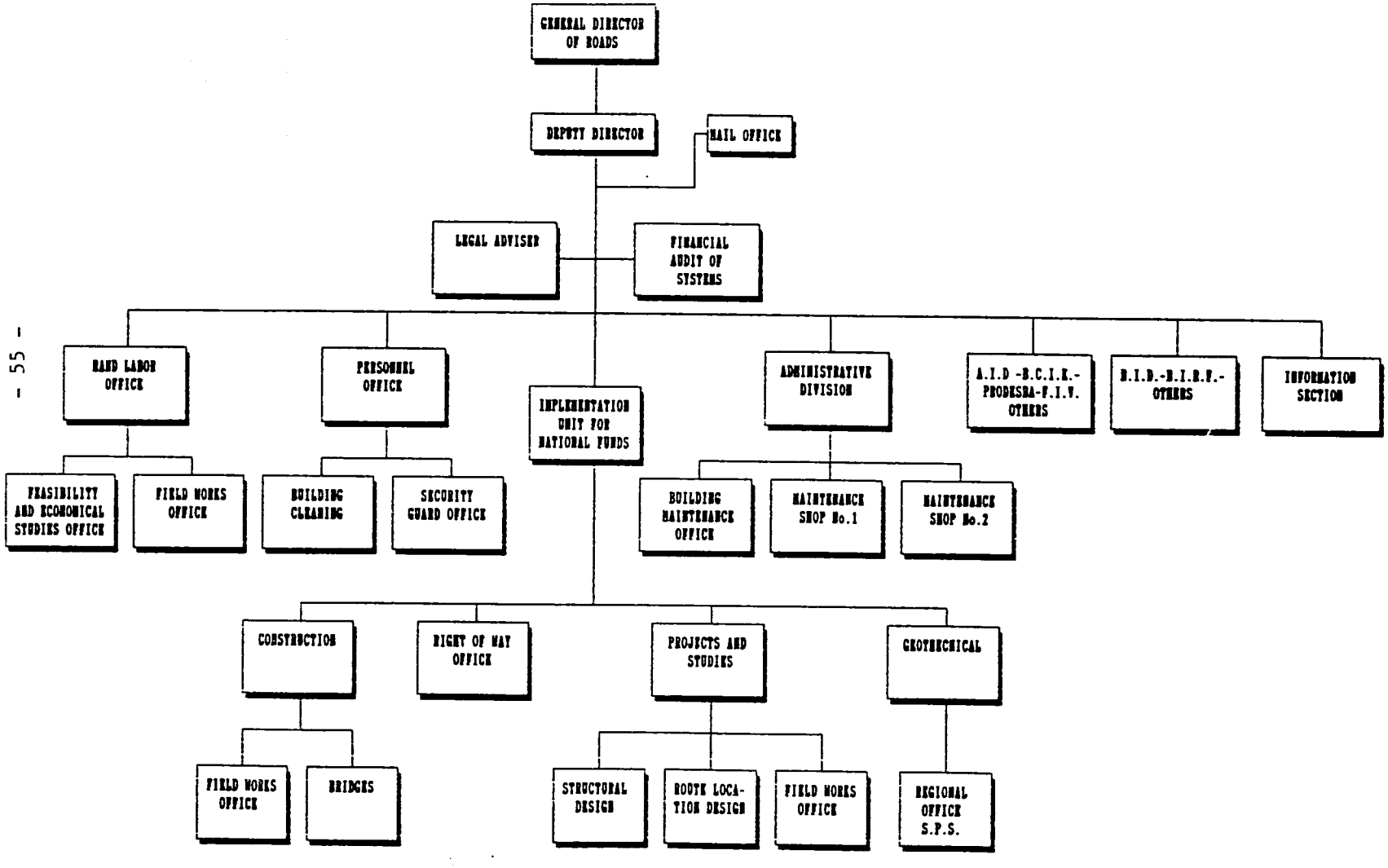
The technical functions of the Construction Department are to handle projects financed entirely by national funding, while the two executing units are responsible for executing projects financed with resources of external origin (AID, IBRD, IDB, and CABEI). The Department of Studies and Designs works with the Construction Department. Design activities, however, are also performed in the aforementioned implementing units.

Over the past several decades, the construction of roads has generally been divided between donor agencies according to type of roads. The IBRD and the IDB have financed major highways, CABEI has financed major trunk roads, and AID has financed rural roads. More recently, the IDB has begun to finance some rural roads through the labor intensive construction department.

Before the recent restructuring of the DGC, an individual unit existed to carrying out AID projects. The AID Implementation Unit (AIU) was started in the 1970s to implement the first AID financed rural roads projects. The unit has undergone a number of changes over the years and under Rural Roads II had a national coordinating office with three regional offices. Because of the excess of staff performing the same functions, the AIU was combined with the implementing unit for BCIE funds. This combining of units resulted in a staff reduction of 26, from 77 to 51 persons. Road work funded by the Venezuelan Government (FIV) and the German Government (funding for roads to be financed as a part of an integrated rural development project for Santa Bárbara--PRODESBA) will also be implemented by the unit. Because regional offices have not provided the proper supervision and management of the construction subprojects, regional offices have been eliminated from the DGC's organizational structure. The central office will have direct control of the resident engineers and field personnel managing the construction process and will therefore be directly responsible for supervision of the SECOPT field engineers which are assigned to each project.

FIGURE B-4

ORGANIZATION CHART
GENERAL DIRECTORATE OF ROADS



The new implementing unit will have staff which perform three basic functions: technical analysis and supervision, construction management, and administration. To perform the contracting and road design functions, the staff of the unit is also supported by other divisions of the DGC. The organization chart on the next page shows the personnel allocated for the unit.

The technical analysis and supervision personnel will be responsible for putting together road packages for construction that have been requested by the communities. Design engineers in the unit will provide a preliminary design of the road, and the agronomist and economists will do the subproject cost-benefit analysis of the package as described in the economic analysis. The social promoter is responsible for selecting participants for the Peón Caminero program and promoting community involvement in maintenance of the roads constructed. The design engineers in the unit will also assist in monitoring the construction projects being implemented by the field engineers who will manage the construction process. Between the design engineers and the assistant director of the unit, each subproject with its field engineer will be visited at least once a month by the central office and a report on the advance of the work with financial estimates of work completed will be submitted.

When the technical packages have been approved for implementation by the Project Selection Committee, a construction management team will be assigned to the project. This team will be headed by an engineer who will be on the project site at all times. In the construction stages of movement of earthworks and other operations that are implemented by administration, the resident engineer will act as director of the work. Temporary laborers such as surveyors, equipment checkers, and unskilled laborers will be hired or assigned from other units in the DGC to assist the resident engineer in the work undertaken by administration. For those operations contracted by unit price, the engineer will act as supervisor of the work and will be supported by field personnel with the appropriate laboratory equipment from the DGC.

C. Technical Analysis

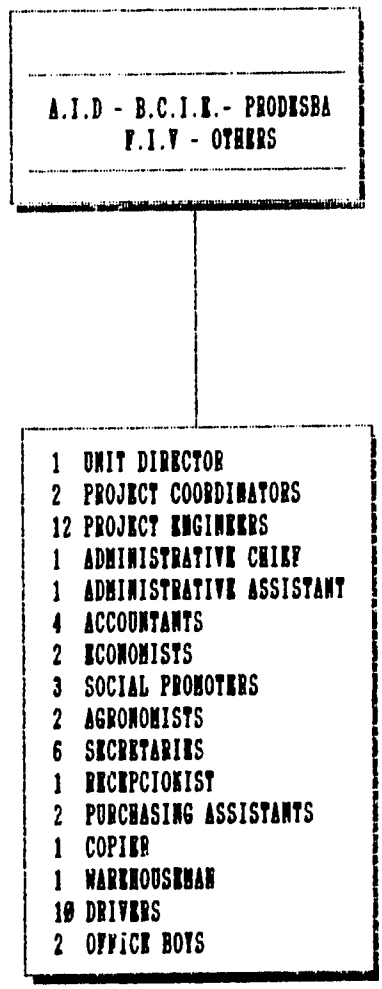
The rural population of Honduras needs access to markets and services in order to develop, process, and sell the products of its labors. This presumes the identification and development of markets and of related production inputs, such as, credit needs, fertilizers, appropriate machinery. It also presumes the related development and availability of supporting infrastructure, such as, transport, ports, electricity, irrigation, drainage, flood control, and storage facilities.

Such access is presently provided through a network of 8,000 kilometers of gravel surfaced, all weather roads, of which, over 3,000 kilometers were built with assistance from AID. The benefits flowing from this network have been impressive, particularly where the other elements described above have been present.

The development of these roads has outpaced capabilities for maintenance. Phase III of the AID program for these roads lays primary emphasis on working with the government of Honduras (SECOPT) to develop an adequate maintenance program with a sound financial basis for covering recurrent costs. Funds from Phase III will be used to rehabilitate/maintain roads previously funded by

FIGURE B-5

ORGANIZATION CHART
PROJECT IMPLEMENTATION UNIT
IN D.G.C.



AID; to construct a moderate amount of new roads; and to assist the SECOPT in developing new administrative measures, including computerization, and in developing the capacity of its organization and of the contracting industry.

All roads and assets will be inventoried in the SECOPT computer system. At least minimal maintenance should be performed each year at the start of the dry season. The road network is divided into maintenance districts by SECOPT and the responsible SECOPT engineer shall travel over each of the roads at the end of the rainy season in order to assess work required and at the close of the dry season to ensure that the drainage system is clear. He shall also travel as required to inspect the performance of rehabilitation/maintenance work and to manage related contracts.

As a matter of definition, construction is the opening of a new road or the upgrading of an existing trail or road to established standard. Rehabilitation is major account nonroutine maintenance of a road which has deteriorated to a point requiring major reconstructive effort. Maintenance is an annual event to clean drains, remedy problems not foreseen during construction (such as additional drainage canals or culverts), to restore eroded areas, and to conform the road surface to the established norm.

The Project design involves three elements requiring detailed technical analysis. These elements are: (1) design standards for the rural road construction effort, (2) standards for levels of activity for the rural roads maintenance effort, and (3) contracting procedures for construction, rehabilitation and maintenance components.

1. Design Standards for Road Construction and Rehabilitation Components

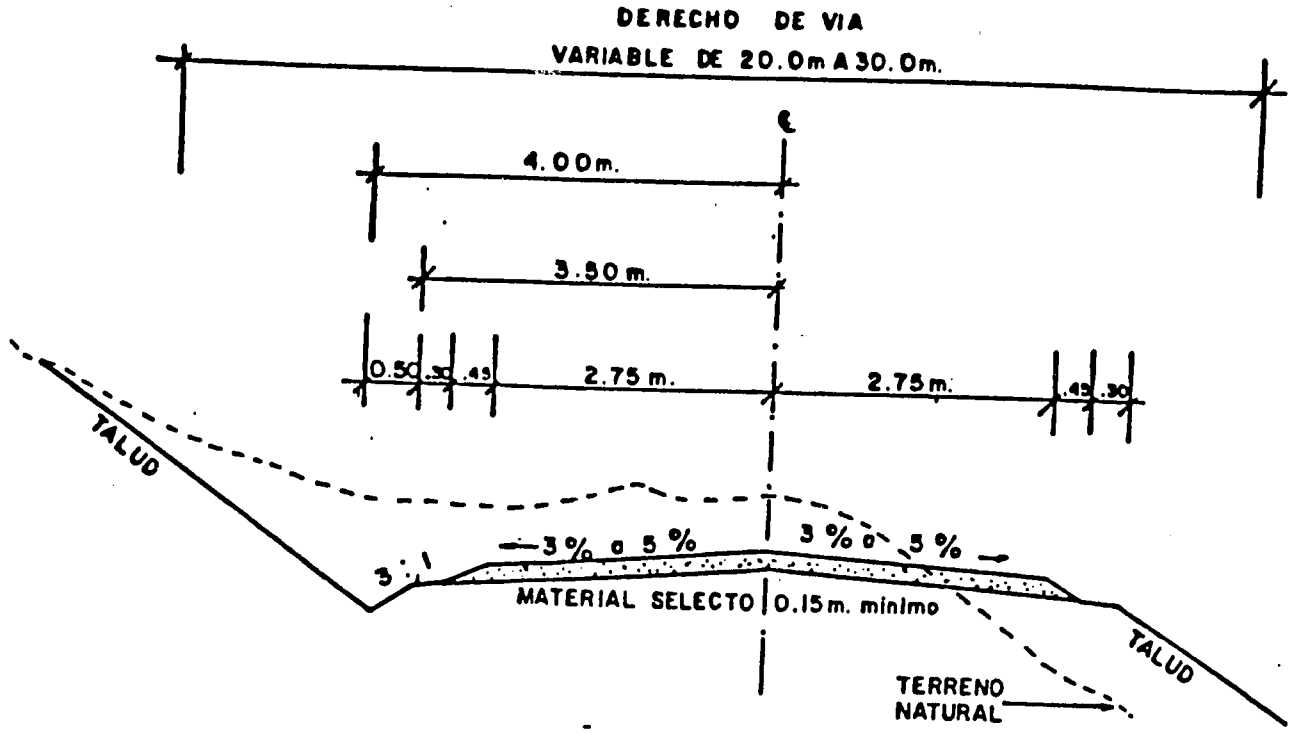
The construction and rehabilitation components of this project will be a continuation of that carried out in Rural Roads II but on a reduced scale. Approximately 264 kms of rural roads will be constructed and 300 kms will be rehabilitated on their existing alignment. It is understood that rehabilitation and/or reconstruction is the operation of improving the condition of an existing road or trail until that route meets the approved specifications.

Construction and rehabilitation will be carried out in accordance with two established technical design options both of which are geared to minimize construction and maintenance costs. (See annexed drawings). Option one or Road Type I, will pertain to relatively high volume routes, those with average daily traffic of between 20 to 100 vehicles. Minimum design standards for those roads will include improvement of existing subgrades that will be surfaced with 6 inches of compacted select borrow or gravel material. All fills will be compacted. The minimum roadway width will be 5.5 meters including shoulders. Grades will be rolled to follow existing land contours where practical to reduce excavation and environmental impact. Road crown slopes will range from 3 to 5 percent and cut slopes will vary from ratios of 1:4 to 2:1. Maximum allowable longitudinal grades will be 12 percent. Culverts with headwalls will be installed, as needed, to provide adequate cross drainage.

Option two, or Road Type II, will apply to low volume routes with a traffic volume of less than 20 vehicles a day. Minimum technical criteria for these routes will be: a width of 4 meters with occasional turnouts as appropriate to

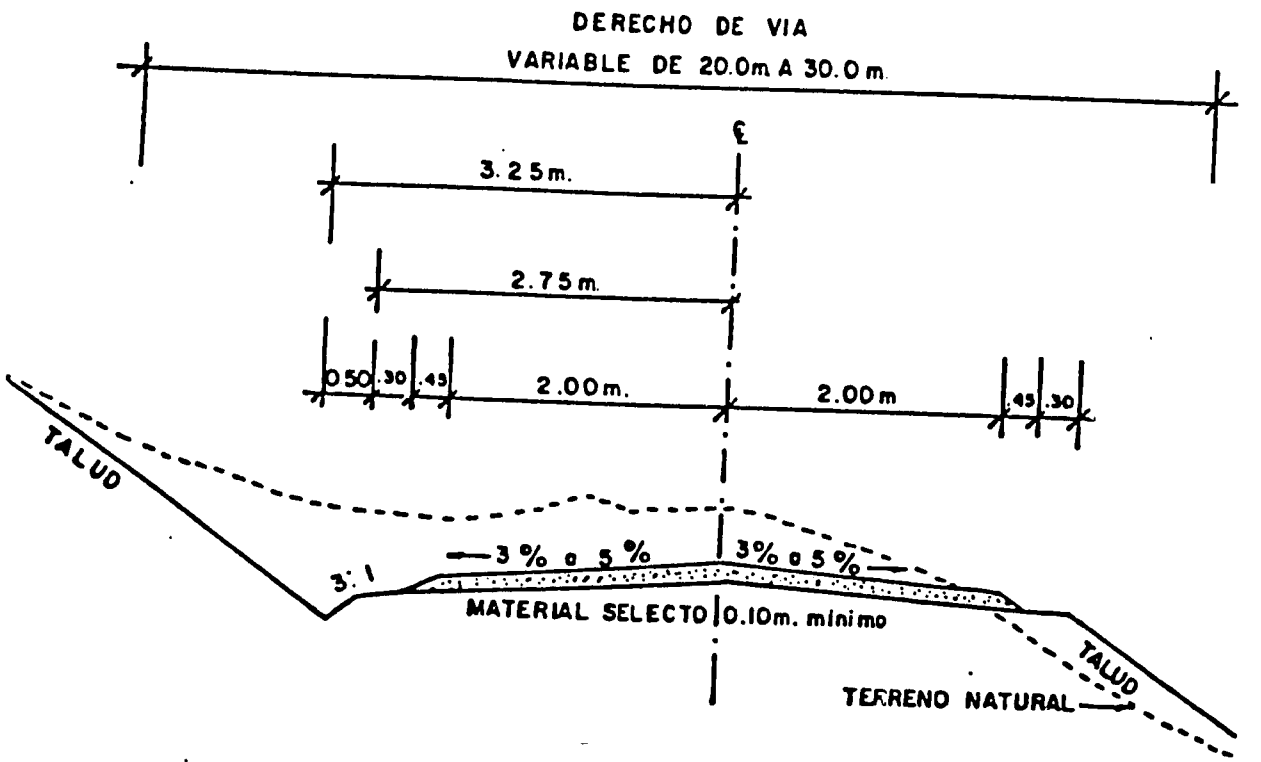
permit passing, curve widening and 6 inches of selected surface material. The subgrade and surface requirements, as well as vertical and horizontal alignment, will be the same as those for the 5.5 meter roads. One exception will be the use of drainage dip sections (rock or concrete fords) in place of culverts where appropriate.

Experience gained from previous rural road initiatives, as well as preliminary investigations of potential project sites, indicate that installation of bridges and drainage structures is necessary to provide stream crossings and year-around access of beneficiaries to marketing and social services centers. Accordingly, the Project will finance approximately 100 linear meters of bridges plus major culverts and wing walls. Road selection criteria will be used in selecting bridge and culvert sites and will include: population of the area, average daily traffic, number of kilometers linked by the structure, time delay without the structure and the productive potential of the zone. Bridge length will be determined by stream width but normally will not exceed 25 meters. Design standards will emphasize load capacity and width sufficient to accommodate critical vehicles (agricultural produce hauling trucks). The span and height of structures will allow unobstructed water flow during normal peak runoff periods and piers will be sufficiently deep to avoid river scouring and undercutting of footings. To the extent possible, local materials (e.g. stone, sand, gravel) will be used in bridge and culvert construction to reduce costs.



SECCION TIPICA

PARA CAMINOS DE ACCESO TIPO I



SECCION TIPICA

PARA CAMINOS DE ACCESO TIPO II

A manual entitled "Access Road Design Standards and Specifications" is in existence within the Directorate of Roads and will be used as the construction design criteria.

2. Standards for and Levels of Activity for the Rural Roads Maintenance Effort

Participation of the Directorate General of Maintenance (DGM) in the Rural Roads Maintenance Program will be concerned mainly with maintenance problems of the rural roads constructed, particularly but not exclusively, with AID funding under the Rural Roads I and II Projects.

Three maintenance categories or activities are being considered in this project: 1. Maintenance by private firms with their own equipment, 2. Maintenance performed by the DGM with its own equipment and 3. Routine maintenance performed by the "peón caminero".

The project will cover approximately 3,000 km of roads constructed during several programs financed by A.I.D. throughout a period of about 20 years. Also, some roads, not financed by AID, may be incorporated in the maintenance program.

The work required on various sections of road will vary considerably depending on the amount of deterioration exhibited. Some, the oldest, most remote, or those exposed to intensive rainfall, may be so deteriorated that they will require a major effort or Level I maintenance. This level will include subgrade conformation, application of additional wearing surface, replacement or repair of some culverts, improvement of ditches and other minor works. It is estimated that 300 km of Rural Roads I will require this effort. This work consists of almost complete rehabilitation of the roads and can best be performed by private sector contracts administered through the unit in the DGC.

The next level of maintenance, Level II maintenance, is identified as those roads that retain their geometric characteristics but have lost part or nearly all of the surface material and require ditch grading, culvert cleaning and complete resurfacing. It is estimated that approximately 600 km of the target roads are in this condition. All roads need this type of maintenance at least once every five to seven years.

The minimum level of maintenance, Level III maintenance, refers to the routine maintenance that all roads need in order to be passable. The required effort may include administration of the peón caminero program, surface smoothing by machine and spot resurfacing. When roads are in a generally satisfactory condition, they will be assigned to the "peón caminero" care at a rate of approximately five kilometers of road per peón. The number of kilometers assigned may vary depending on the effort required. Each peón will be supplied with a standard "unit" of hand equipment consisting of a shovel, pickax, hoe, wheel barrow, machete, file, and compaction tool. In addition to these tools, steel bars, axes, and sledge hammers will be available in the distric offices for the workers to check out and use if needed. As required, peones will be supported by heavy equipment operations, particularly for the supply of selected surfacing materials strategically spotted near the road at

a rate of approximately 5 cubic meters every 2.5 kilometers. In case of major landslides involving more than ten cubic meters of material, heavy equipment will be used for removal.

The activities to be performed under the peon caminero program include cleaning the road ditches, correcting minor drainage deficiencies, filling in holes and low places on the roads, cleaning culverts and drains, cutting weeds and growth along shoulders and in ditches, removing small landslides, smoothing the road surface and other minor routine hand maintenance.

The surface smoothing by machine, to be performed as required, will be accomplished both by contract and through use of DGM regular maintenance forces and equipment. the project, however, will not provide funds for use of the DGM equipment. Any use of DGM forces will be provided as in-kind counterpart funding. Resurfacing required periodically will also be performed through both private contractors and the regular forces of the DGM.

3. Contracting Methods for Construction, Rehabilitation and Maintenance Components

Prequalification of Road Construction and Maintenance Firms

To be eligible to participate in bidding for road work financed under the Rural Roads Maintenance Program Project, each bidder must be prequalified by a process performed by SECOPT. For the purposes of prequalification, SECOPT may use the document entitled, "Dirección General de Caminos, Cuestionario de Precalificación, Reconstrucción de Caminos de Acceso y Puentes, AID 522-T-0214".

For this Project, the initial prequalification process will take into account the performance of the contractors under Rural Roads II. Likewise, an updating of the prequalification process will take place each year so that experience gained regarding contractor performance in the previous year can be reflected in the new prequalification process. The purpose of this updating will be: to incorporate new firms that have not previously prequalified, to eliminate firms that have not complied with previous contracts and to upgrade or downgrade the capacity level of firms that are or have been executing contracts in relation to their performance and changes in capacity. Both the initial prequalification process and the annual updatings will be reviewed and approved by AID.

According to Honduran Law, a prequalified firm must be invited to bid on a contract and must be awarded the contract if the firm presents the lowest bid. Accordingly, the prequalification procedure must be carefully monitored to avoid the participation of firms not fully capable of performing the work. Honduras has a number of firms with sufficient equipment and managerial, financial, and technical capacity to execute contracts proposed under this Project.

Competitive Public Bidding

In accordance with the requirements of the GOH contracting law, SECOPT awards contracts through the process of competitive public bidding. The SECOPT

Implementing Unit initiates the bidding process and monitors it through completion.

Construction activities and part of the roads periodic maintenance will be implemented by prequalified private Honduran contractors selected through a public competitive bidding process. To be eligible for participation in the program, firms must be formally registered with the Honduran Contractor Licensing Board and must be prequalified by SECOPT and approved by AID. The contractors will be invited to submit responses to bid requests for road work packages. When awarded a contract, the contractor will provide the machinery and work crews necessary to carry out all work in accordance with the contract documents. SECOPT will provide field supervision to assure that the construction work is performed in accordance with the contract documents.

The contracts will consist of construction packages or maintenance packages sufficiently large to attract competitive bids. To achieve economies of scale with respect to the movement of equipment and the contracting of local hand laborers, the road segments constituting these packages will be, to the extent possible, in subproject groupings. The term subproject denotes a group or cluster of rural roads proposed for construction, rehabilitation or maintenance under the Project. The work involved is expected to be handled in one contract. A single contractor will be responsible for a given subproject; however, it is anticipated that a contractor may execute more than one subproject at the same time.

The local contractors will be responsible for all contract work using equipment, hand tools and materials provided in all cases by the contractor. The contractor will be responsible for hiring manual labor as required, preferably from local areas. The construction contract will include costs for rental equipment, construction materials labor and drainage structures.

To adequately address construction site supervision requirements, SECOPT will provide project engineers, supervisory engineers and administrative support personnel. Support personnel from the IU will be responsible for scheduling of construction activities; performing subproject cost studies, economic, social and environmental analyses; preparing construction bid documents; analyzing bids and recommending awards of contracts; and tracking of overall project progress and related costs.

The contracting process, extending from invitations to bid, to issuance of a notice to proceed, is somewhat cumbersome and time consuming. The process takes not less than eight months and consists of the following steps:

	Event	Time between Events
1.	Invitation to bid	
2.	Open Bids	45 days
3.	Analyse bids and award contracts	40
4.	Approval of procuraduria	30
5.	Presidential approval (Acuerdo)	15
6.	Obtain Performance bond	45
7.	A.I.D. Approval	15
8.	Notice to proceed	30
	Total Time	220 days

In conformance with AID guidelines, the AID Project Officer will be present as a member with voice but without a vote to monitor the contract awarding process. A.I.D. will approve all bid documents as well according to procedures followed under RRII.

Bid Documents

SECOPT has prepared a basic set of bid documents that has been successfully used for several road projects. The set includes the following;

Part A - Project Description and Instructions to the Bidders
Part B - Plans and Specifications
Part C - Regulations for Administration of Contract
Part D - Labor Regulations
Part E - Special Regulations
Part F - Inspection and Acceptance of Contracted Work
Part G - Measurements and Payments of Work Completed
Part H - Model Construction Contract

In the rehabilitation and maintenance contracts there may be two clearly different types of work units; 1. man hours, equipment rental hours and payment for material (labor, equipment and materials), and 2. unit price work.

It is possible that the routine maintenance contracts may be based on the labor equipment and materials type measurement and payment. One of the tasks of the DGM will be to analyse the proposed work, advise what type of contracting method to use and develop appropriate specifications.

Construction and rehabilitation work may be performed under the usual unit price and equipment hours contract. Contract documents governing that type of contract have been used successfully by SECOPT on the RRII project.

Specifications

Road specifications have been adapted from the A.A.S.H.T.O. (American Association of State Highway and Transportation Officials) standards. The project uses the "Manual for Construction of Rural Roads," adopted for the Rural Roads II Project by AID/SECOPT in 1985. The manual consists of technical guidance with the necessary information for project implementation, contractual, and administrative matters. These specifications may be modified and applied to the maintenance contracts as well.

Cost Estimating

SECOPT's Executing Unit will prepare a cost estimate for each subproject. This budget will be used to compare the bidders' offers and to make budgetary reserves within the program's budget. Once execution of a subproject begins, the Resident Engineer should prepare a new cost estimate based on the initial experience with the geography and terrain to determine if additional funding will be required to properly complete the subproject.

Supervision

Construction or rehabilitation subprojects will be supervised by resident engineers appointed by SECOPT. The Central Office of the Project Implementing Unit will perform periodic visits to the subprojects to observe progress and recommend solutions to problems.

Road maintenance contracts, will be supervised under the auspices of the DGM Engineer who will be stationed at the appropriate maintenance District. At the central level the PBU and the Routine Maintenance Department will provide control and follow-up for the maintenance contracting.

AID engineers will make periodic visits to all subprojects being administered under both the DGM and the DGC and will confirm the work quality and the information provided in the monthly reports submitted by the Resident Engineers.

Work Changes

Work changes are normal to all contract work, even in those projects designed in a detailed manner. Under previous rural roads projects financed by AID, the most common changes have been due to the following general causes; 1. Delays in the work due to underestimating the equipment time required; 2. Changes in alignment that result in an increase in length of the project or in increased work; and 3. Bad weather.

Changes orders are proposed by the Resident Engineer to the SECOPT Implementing Unit. SECOPT then requests approval of the changes from AID. If the changes are justifiable, reasonable, economical, beneficial and if there is sufficient funding available, AID will approve the changes.

Acceptance of Completed Work

When all work activities for a subproject are completed, an inspection will be performed by a committee formed from the contractor's personnel, the Directorate General of Highways, the Directorate General of Maintenance and AID. If the project has been satisfactorily completed, a CERTIFICATE OF RECEIPT will be issued by SECOPT and automatically the road will be incorporated into the Maintenance Management Plan (PAM). Upon issuing the Certificate of Receipt, SECOPT will pay the contractor the final payment including any outstanding retention.

Financing and Method of Payment

The Project will be financed from two sources; AID Project 522-0334, will provide dollar funding and counterpart lempira funding will be provided by the Government of Honduras. The contractor will initially be paid a mobilization advance of up to 20% of the total estimate of the subproject contract price. This advance will be made by the GOH from the revolving fund but will not be reimbursed by AID until work estimates are liquidated by the contractor. AID will reimburse the GOH only for work completed. As contract work is completed, progress estimates will be prepared

and the contractor will be paid for the work completed less 10%. The 10% will be retained until final acceptance of the work. The mobilization advance will be liquidated during the period of the contract through subtracting a part of the advance from each payment for work completed.

For payment of progress estimates, a rotating fund will be set up in the amount of L4.0 million. SECOPT and the Ministry of Finance and Public Credit will request AID to periodically replenish funds paid to contractors for work completed from the rotating fund.

Progress payment estimates, prepared jointly by the Resident Engineer and the contractor, will be submitted to the DGM or DGC for processing. From 30 to 60 days are required to complete the payment process.

D. Project Economic Analysis

Introduction

Normally, the main economic benefits to be derived from road maintenance, rehabilitation, or reconstruction activities are a reduction in vehicle operating expenses, time savings resulting from improved transport conditions, a reduction in accidents, and the forward and backward investment and expenditure linkages facilitated by new/improved roads in their areas of direct and indirect influence. In this instance the main focus of the project is on direct stimulation of agricultural production levels. As a result, the increase in agricultural output and agricultural income resulting from road construction/rehabilitation activities is given priority in this analysis. It is assumed that in the case of the 564 kms of constructed and rehabilitated roads, the increase in agricultural production is a consequence of the combined effect of; (a) an expansion of the agricultural frontier, (b) land use intensification, (c) improved access to basic support services for agricultural production, (d) more competitive factor and product markets in the areas of direct influence of the proposed road project, (e) partial elimination of "quasi rents" that traditional farmers have ordinarily had to pay to middlemen as the result of their isolation from markets, and (f) enhanced crop diversification and export activities.

The economic analysis of the proposed project is based upon an examination of the financial and economic feasibility of construction, rehabilitation and maintenance activities for rural roads of different design characteristics and diverse topographical conditions. The analysis differentiates cost estimates according to both road width and terrain characteristics (flat, semimountainous and mountainous).

The cost component of the road project includes all cash outlays for construction, rehabilitation and maintenance of the proposed roads, and the agricultural production costs associated with the additional production activities generated by the project. The proposed project consists of the construction of 264 kms with varying design characteristics, the rehabilitation of an additional 300 kms (also with varying design characteristics), and a road maintenance component of 3,000 kms. Maintenace costs for the 3,000 kilometers of roads plus the constructed roads are projected over a fifteen year cash flow projection period.

The estimated cost of the road project is equal to L94 million, of which roughly seventy percent L64.5 million correspond to AID contributions, with the remaining L29.5 million to be provided by the Government of Honduras. Tables 1.a-1.c in Part 1 of Annex IX include detailed information on costs totals and cost distribution by type of activity and source of funds.

The methodology for analyzing direct tangible agricultural benefits includes;

a) Determination of the area of direct influence of the new and rehabilitated roads;
b) determination of current patterns of land use and cropping activity in order to estimate the potential land under cultivation;
c) determination of the intensity of land use during the LOP, and
e) determination of tangible benefits to be derived during the life of the project.

The estimated benefits directly attributable to proposed Project activities are the increased volume of agricultural production and the associated increased in sectoral value added. Conservatively, it is estimated that the potential area of direct influence of the project is on the order of 220,000 Has., of which the additional land area incorporated into production will be approximately 14,200 Has. (see Part 2 of Annex IX for the analysis that supports both assumptions).

The intensity of land use and the annual distribution by type of crop is also discussed in Part 2 of Annex IX. Corn is by far the most important crop in terms of land use in the area of project influence (70 percent), followed by coffee (20 percent), and nontraditional crops (10 percent). In the analysis pineapple is used as a proxy crop for the nontraditional export sector.

The assumptions and rationale for estimating the net benefits of the increased agricultural production of corn, coffee and pineapple are detailed in Part 3 of Annex IX.

For purposes of this evaluation, agricultural costs/benefits are determined by three distint variables; (1) the real crop yields that small farmers obtain from their parcels, (2) the percentage sold in the market, and (3) the price received either at the farm gate or at the market place. Yields, percentage of sales, and prices received for the three crops under analysis represent an average derived from representative estimates.

The other major category of benefits attributable to the project is that generated by normal maintenance activities on the 3,000 kms of existing rural roads constructed under earlier AID-financed projects. Attempting to assess the production and vehicle operating cost impacts of a maintenance program covering hundreds of roads, which in turn are associated with (1) a wide variety of agricultural production activities and (2) widely varying road surface conditions, would present considerable practical difficulties. As a result the benefits of routine maintenance are proxied not by production and cost reduction effects, but by the foregone costs of construction activities which (theoretically)

would have to be undertaken in the absence of a normal maintenance program. Thus it is assumed that the GOH would be forced to finance the construction of 2,000 kms of the road network every five years if no maintenance program were carried for the 3,000 kms of road. This foregone expenditure is included as a benefit of project maintenance activities (assuming the reconstruction of 500 kilometers each year after five years without maintenance). The benefits only include the foregone reconstruction costs of two-thirds of the kilometers which are actually maintained during the LOP, since it is assumed that changing economic circumstances and investment priorities would preclude the desirability of reconstructing the entire road network after the passage of a significant period of time. A more general analysis of the relative cost effectiveness of routine maintenance vis-a-vis periodic rehabilitation programs is included in Part 5 of Annex IX.

Financial Analysis

On the basis of the procedures described above, key indicators of project feasibility were derived. Table D-1 includes the estimates of project financial costs and benefits while Table D-2 includes the estimates of project economic costs and benefits. Table D-3 shows the various indicators of both the project's economic and financial profitability.

The opportunity cost of capital in the Honduran economy is estimated to be approximately 20 percent. (At present, the maximum allowable annual rate of interest authorized by the Central Bank of Honduras is 19 percent). Under the assumption stated above, the project generates an internal rate of financial return (IRRF) of 38.5 percent. The net present value (20 percent discount rate) is equal to L47,810,574.

The financial rate of return reflects the maximum interest rate which the beneficiaries of the project could pay for the project resources and still break even. The 38.5 percent rate of financial return generated by the project is larger than the opportunity cost of capital, and thus is clearly favorable from an investment perspective.

The additional measures of project profitability also support the financial viability of the project. The net present value (NPV) at a discount rate of 20 percent is significantly positive. This represents the current value of the income stream accruing to the beneficiaries of the proposed project, the farm families that will utilize around 14,200 additional Has. of land for the production of corn, coffee and nontraditional crops. The fact that the discounted benefit-cost ratio is positive implies that the project would be expected to recover its initial costs plus a high implicit return on its investment. Calculated at market prices and under the stated assumptions, the project thus represents a sound investment option for the Mission.

Economic Analysis

In this section, the costs and the benefits are calculated using shadow prices for unskilled labor and of foreign exchange; the latter required in order to calculate the real value of machinery, equipment, fuel, oil, spare parts and other imported inputs needed in the construction,

rehabilitation and maintenance of the rural roads network. The procedures used for calculating the shadow prices are shown in Part 4 of Annex IX. The economic costs and benefits of agricultural production are shown in Part 3 of Annex IX.

The different indicators of project feasibility shown in Table D-3 demonstrate that the project is more profitable in economic (shadow) prices than it is in financial (market) prices. The economic rate of return is 53.8 percent - a profitable return on investment in comparison with the opportunity cost of capital. This indicates that when the full cost/benefit stream is measured for an additional 8 years beyond the LOP, the volume of accrued discounted benefits substantially exceeds the corresponding project costs. In addition, the NPV at 20 percent remains significantly positive (approximately L83 million). Thus when evaluated at nondistorted economic prices, and even excluding a number of major categories of economic and social benefits normally associated with road reconstruction activities, the project appears to justify the contemplated investment expenditures.

Sensitivity Analysis

In order to assess the reliability of the profitability indicators, a comprehensive sensitivity analysis was undertaken. Tables D-3 shows the results of this analysis.

The end product of the project is a major improvement of transportation facilities in specific productive areas of the country. In turn, improved transportation services should permit an increase and diversification of agricultural production activities in a given area of influence of the project. Thus, the sensitivity analysis incorporates the impact of changes in assumptions regarding pricing and output on net benefits of the project.

The estimated agricultural benefits are based on several key assumptions concerning land use intensity, adoption of improved technologies, price stability and the percentage of increased production which is marketed. An unfavorable change in any of these variables would significantly reduce agricultural returns and hence the net (incremental) benefits attributable to the proposed project. Other significant assumptions relate to the timeliness with which the proposed engineering activities (road construction, rehabilitation and maintenance) are implemented, as well as the implicit assumptions that complementary infrastructural and extension activities designed to maximize the benefits from the improved road network will in fact be undertaken.

In order to assess the sensitivity of project feasibility indicators to changes in a number of these key assumptions, several possible scenarios regarding benefit/cost flows during the project impact period were tested. Tables D-3 shows the impact of a 30% reduction in agricultural benefits, a 30% increase in agricultural production costs, and a 30% rise in engineering costs, respectively, on the profitability of the project.

A comparison of the three scenarios adopted under the sensitivity analysis provides a strong indication of the central importance of agricultural price stability and yield increases in determining the feasibility of the project. A 30 percent reduction in agricultural benefits drops the financial rate of return significantly from 38.5% to 19.5%. This rate is slightly less than the cost of capital of 20% and if there were a general drop in agricultural prices of 30% or more, the Project would generate a negative financial return. The economic rate of return is still a robust 35.1% and the slightly negative financial return would not be a cause of concern. This analysis, however, does indicate that the feasibility of the project is strongly connected with the price stability of key agricultural products (coffee, corn and major nontraditionals), along with the accuracy of estimates regarding the simultaneous impact of construction/rehabilitation activities and support services financed outside the project on improving crop yields.

On the other hand, a 30 percent increase in agricultural production costs reduces the financial rate of return to only to 30.4%. This indicates that project profitability is less sensitive to exogenous changes in intermediate input costs than it is to variations in product prices and technology diffusion rates. A 30 percent increase in LOP engineering costs has a similar effect on Project profitability, reducing the financial rate of return to only 32.2%. The economic rate of return remains robust in response to changes in basic benefit/cost assumptions.

In summary, the major implication of the preceding analysis is that even though the proposed project represents a profitable investment, changes in key pricing and output parameters during the project impact period may have adverse effects on project profitability. While it may be possible to exert significant influence over the speed with which improved production technologies are adopted through outside project activities, product prices and production costs represent an exogenous parameter not subject to direct influence. This would seem to provide support for a policy of promoting as great an emphasis as possible on construction, rehabilitation, and maintenance activities in areas which have higher potential for the production of nontraditionals which have a higher return. This will serve not only as a mechanism for increasing foreign exchange earnings, but also as means of minimizing the riskiness of the project by reducing the sensitivity of project benefit flows to (1) a sudden drop in the price of coffee or (2) changes in domestic supply/demand conditions with regard to basic grains. The 70/20/10 production ratio is not cast in stone, and the project should strive to modify it in the direction of increased emphasis on construction activities in areas with high potential for increased production of nontraditionals.

Table B-1

Financial Cash Flow of the Project from Total Economy's Point of View

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COSTS															
Reconstruction Component	0	430,000	6,791,000	6,021,000	6,128,000	3,548,000	0	0	0	0	0	0	0	0	0
Rehabilitation Component	0	11,180,000	305,000	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Component/a	1,483,000	9,345,735	10,326,105	10,623,580	10,862,948	11,106,569	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717
Other Costs	215,000	946,000	1,101,000	946,000	580,000	645,000	86,000	0	0	0	0	0	0	0	0
Total Costs	1,698,000	21,901,735	18,433,105	17,590,580	17,570,948	15,299,569	11,350,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717	11,264,717
BENEFITS															
Net Agricultural Benefits															
- Reconstruction Component															
Corn	0	0	0	164,466	321,247	490,342	961,609	1,019,142	1,076,675	1,116,835	1,150,667	1,150,667	1,150,667	1,150,667	1,150,667
Coffee	0	0	0	0	0	1,354,053	3,588,054	5,710,282	7,374,915	8,102,993	8,560,429	8,879,727	9,076,549	9,148,720	9,148,720
Nontraditionals	0	0	0	0	5,865,784	11,457,527	17,488,404	21,643,659	22,938,606	24,233,553	25,137,447	25,694,629	25,890,937	25,890,937	25,890,937
Sub-total	0	0	0	164,466	6,187,032	13,501,922	22,038,068	28,373,083	31,390,196	33,453,380	34,848,543	35,725,023	36,126,153	36,198,324	36,198,937
- Rehabilitation Component															
Corn	0	0	245,587	268,660	285,479	302,298	505,672	532,324	533,031	533,031	533,031	533,031	533,031	533,031	533,031
Coffee	0	0	0	0	2,320,582	3,363,691	3,396,694	3,808,596	4,020,497	4,232,398	4,238,025	4,283,025	4,238,025	4,238,025	4,238,025
Nontraditionals	0	0	0	8,759,054	9,581,945	10,181,813	10,782,680	11,381,547	11,981,414	11,997,345	11,997,345	11,997,345	11,997,345	11,997,345	11,997,345
Sub-total	0	0	245,587	9,027,714	12,188,006	13,847,801	14,684,046	15,722,466	16,534,943	16,762,774	16,768,402	16,768,402	16,768,402	16,768,402	16,768,402
- Maintenance Component	0	0	0	0	0	19,141,667	19,141,667	19,141,667	19,141,667	0	0	19,141,667	19,141,667	19,141,667	19,141,667
Total Benefits	0	0	245,587	9,192,179	18,375,038	46,491,390	56,063,781	63,237,216	67,006,806	50,216,154	51,616,944	71,635,091	72,036,221	72,108,392	72,108,392
Project Cash Flow	(1,698,000)	(21,901,735)	(18,187,517)	(8,398,400)	804,090	31,191,820	44,713,064	51,972,499	55,802,089	38,951,437	40,352,227	60,370,374	60,771,504	60,843,675	60,843,675

/a Maintenance costs here exceed the amount budgeted in the Project but are included because they are a real financial costs that will be paid for by the country out of non-project funds.
Funding is also included here for maintenance of the 264 kilometers reconstructed under the Project.
The roads being rehabilitated are part of the original 3,000 kms receiving maintenance under the Project.

Table B-2

Economic Cash Flow of the Project from Total Economy's Point of View

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COSTS															
Reconstruction Component	0	0	6,064,205	5,376,613	5,472,161	3,168,281	0	0	0	0	0	0	0	0	0
Rehabilitation Component	0	10,176,400	277,621	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Component /a	0	7,974,303	8,834,269	9,268,873	9,597,099	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685
Other Costs	215,000	946,000	1,011,000	946,000	580,000	645,000	86,000	0	0	0	0	0	0	0	0
Total Costs	215,000	19,096,703	16,187,095	15,387,244	15,321,035	13,410,380	9,697,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685	9,611,685
BENEFITS															
Net Agricultural Benefits															
- Reconstruction Component															
Corn	0	0	0	774,475	1,512,767	2,309,040/b	3,087,000	3,271,696	3,456,392	3,585,313	3,664,783	3,693,923	3,693,923	3,693,923	3,693,923
Coffee	0	0	0	0	0	2,307,005	5,326,499	8,476,964	10,948,127	12,028,965	12,708,032	13,182,033	13,474,218	13,582,357	13,581,357
Noncraditionals	0	0	0	0	6,769,556	13,222,847	20,182,933	24,978,409	26,472,875	27,967,341	29,010,503	29,653,533	29,889,319	29,889,319	29,889,319
Sub-total	0	0	0	774,475	8,282,323	17,838,892	28,596,431	36,727,068	40,877,394	43,582,618	45,383,318	46,529,489	47,057,460	47,164,599	29,889,319
- Rehabilitation Component															
Corn	0	0	1,156,481	1,265,129	1,344,331	1,423,533	1,623,331	1,708,889	1,711,162	1,711,162	1,711,162	1,711,162	1,711,162	1,711,162	1,711,162
Coffee	0	0	0	0	3,444,926	4,993,429	5,339,325	5,653,894	5,968,463	6,283,033	6,291,386	6,291,386	6,291,386	6,291,386	6,291,386
Noncraditionals	0	0	0	10,108,606	11,058,285	11,730,577	12,442,869	13,135,161	13,827,452	13,845,837	13,845,837	13,845,837	13,845,837	13,845,837	13,845,837
Sub-total	0	0	1,156,481	11,373,736	15,847,541	18,167,539	19,405,525	20,497,944	21,507,077	21,840,031	21,848,385	21,848,385	21,848,385	21,848,385	21,848,385
- Maintenance Component															
Total Benefits	0	0	0	0	0	19,141,667	19,141,667	19,141,667	19,141,667	0	0	19,141,667	19,141,667	19,141,667	19,141,667
	0	0	1,156,481	12,141,210	24,129,864	55,148,097	67,143,623	76,366,679	81,526,138	65,421,650	67,231,703	87,519,541	88,047,512	88,154,651	88,154,651
Economic Cash Flow	(215,000)	(19,096,703)	(15,030,615)	(3,239,034)	8,808,829	41,737,717	57,445,938	66,754,994	71,916,452	55,809,964	57,620,018	77,907,855	78,435,827	78,542,966	78,542,966

/a Funding is also included here for maintenance of the 264 kilometers newly constructed under the Project. Maintenance funding for the 264 kms is not included in the Project budget. The roads being rehabilitated are part of the original 3,000 kms receiving maintenance under the Project.

/b After the third year, benefits correspond to Case 2. Same for the rehabilitation component.

/c Three quarters of the potential benefits are included for the first year of coffee production, both in the reconstruction and rehabilitation components.

TABLE D-3

Indicators of Project Financial and Economic Feasibility

SENSITIVITY ANALYSIS	EXCHANGE RATE	FINANCIAL IRR	FINANCIAL NPV (AT 20% DISCOUNT RATE)	ECONOMIC IRR	ECONOMIC NPV (AT 20% DISCOUNT RATE)
Base Case	4.3	38.5%	L47,810,574	53.82	L83,364,257
30% decrease in agricultural benefits	4.3	19.5%	L (980,573)	35.1%	L31,092,038
30% increase in agricultural production costs	4.3	30.4%	L24,344,924	47.4%	L64,892,286
30% increase in reconstruction and maintenance costs	4.3	32.2%	L37,533,396	45.8%	L75,881,433

E. Social Soundness Analysis

1. Introduction

There were two principal issues which needed to be analyzed in the social analysis. The first of these is the participation of women in the project and the second is the participation of the beneficiaries in providing maintenance for the roads. In addition to these issues a description of the beneficiary population, an assessment of the benefits including increases in income, employment, health services, education services and participation of rural residents in community organizations is contained in Annex VII. Additional analyses of the general financial, administrative and technical capabilities of the municipalities and analysis of the kinds and types of rural community organizations is also contained in Annex VII to support the discussion of beneficiary participation in the maintenance program.

2. Role of Institutions and Community Organizations in Rural Road Maintenance

An adequate rural road maintenance program requires the participation of different entities. SECOPT is a specialized institution in physical infrastructure and as such, the corresponding directorate has the necessary potential to provide through contract and force account machine road maintenance. To be effective, however, a rural roads maintenance program requires specific skills to engender community organization and support. As well documented in recent AID studies in preparation for the Municipal Development Project, 522-0340, experience over the past twenty years has shown that centralized public service agencies in Honduras have not been responsive to their clientele. They are more responsive to the unions and political interests and have been unable to deliver the public services for which they were set up to deliver. The experience with the DGM in SECOPT is consistent with this general experience. As discussed in the institutional analysis, the DGM has the characteristic problems of overstaffing and subsequent overallocation of resources for personnel, poor organization, lack of efficiency and waste of resources, and finally the inability to deliver the road maintenance. The basic reason for this poor performance is that the DGM is not responsive to the citizens who depend on the roads for their livelihood and have no real vested interest to make sure the roads are maintained. The basic strategy of the project in order to provide maintenance for the short term is the directed program through the DGM as set up in this Project. This directed program may require community involvement in selecting the PCs and in the supervision of and assistance to the hand laborers contracted by the DGM. A description of the social promotion component activities needed to achieve this community involvement is contained in this analysis.

In order to provide maintenance SECOPT will investigate various maintenance mechanisms and institutional changes needed to make the program sustainable in the future. As discussed above, any long-term sustainable maintenance program will have to give the beneficiaries a larger role in the maintenance because they have a vested interest in maintaining the roads and will make sure such maintenance is carried out. This analysis thus also describes a pilot project which will be carried out to see if local communities can more effectively manage the peon caminero program.

a. Community organizations

The **patronato** as the most representative community organization often initiates the process towards the construction or rehabilitation of the road. It is the community, through its **patronato**, who requests SECOPT, the municipal government or other institutions assistance to build or repair the road. As noted in the 1983 Evaluation, many communities select commissions to visit local, regional and national authorities to present the request for road construction or repairs. Frequently these commissions travel all the way to Tegucigalpa and the community, through different fund raising activities, collect the funds to cover the expenses.

In the case of RR II, the procedure to select a road begins only after the Regional Office of the DGC has received the request from the community. The team then visits the area and determines if the road could be preselected to later carry out the full socioeconomic and engineering study to be submitted to the selection committee. The initial community interest and their formal written requests for road construction or rehabilitation are well established and documented. This enthusiasm, however, is not properly tapped. There has been no social promotion plan designed for the different stages of the road project to involve community dwellers in the whole process and to maintain the sense of community self-management. For community participation to exist the social promoter should nurture and strengthen the participatory process beginning the moment the construction of the road is requested. The earlier stages of community involvement are crucial to insure sustainable participation.

Even though the communities have not been properly motivated and promoted to participate in road maintenance, with the exception of the PCs who receive payment for the work, there are significant indications of participation in maintenance. During most of the interviews with community leaders, the potential to consolidate community participation in a systematic fashion was evident. The people are aware that if the roads are not properly kept they are the most affected. After the roads have been built, if the community residents do not collaborate in maintenance and or request machine repairs when necessary, repairs are not made.

Participation in road construction and maintenance is not a new concept to the rural communities. There are several examples that substantiate the above. First of all, many of the rehabilitated roads under RR I and RR II had been built as trails at least 10 years ago and most often with community participation. Throughout the years, and particularly during emergencies due to flooding or landslides, many of the trails also received some type of maintenance. Maintenance with community participation for the trails, and later for some of the rural roads funded by AID, has been accomplished through different systems as explained below:

- When the initiative to do repairs came from the municipal government it was done through the **citatorio** system, people were required to collaborate. This mechanism is no longer employed.

- o If the maintenance of a road was of special interest to an economic group such as cattle ranchers, farmers, merchants, or to the transportation and timber enterprises, they would contribute with funds or machinery for road repairs. In many cases they personally assumed the responsibility for the work.

- o Some communities present a request to the DGM to repair the road. A common practice, and a point of negotiation with the DGM, is that the residents will pay the machine operators, the fuel, and food for the personnel working on the road. Additionally, some communities provide voluntary labor. This significant level of community participation in road maintenance is substantiated both by the 1983 Evaluation and the interviews with **patronato** leaders and officials of small rural municipalities.

From the above discussion it is evident that communities through their grassroots organizations do collaborate in road maintenance. With the proper follow-up on the social promotion done when the roads are reconstructed, the role of the **patronatos** and other municipal organizations may be greatly enhanced to assist in the supervision of the peón caminero program, organizing community assistance for road repairs when necessary, and channeling requests to the district maintenance office for machine road maintenance.

Overall, community leaders expressed that this organization may be able to perform a supervisory function for the PC. Most of the respondents specified, however, that the supervisory function of the **patronato** or similar organization must be clearly stated in the PC's contract so as not to create problems. **Patronato** leaders were also asked about direct community participation and collaboration with the PCs during emergencies were mostly positive as well.

b. Municipalities

Annex VII briefly describes some of the principal limitations of the municipalities in Honduras. These constraints can be summarized as: the lack of decision-making power at the municipal level; inadequate access to funds; and, lack of appropriate and opportune technical assistance to improve municipal administration and management. Consequently, and mainly because of these constraints, most municipal governments in Honduras are weak.

Local governments have not always been this feeble. Before the administrative and managerial responsibilities were seized by the central government, municipalities built and maintained rural trails and other physical infrastructure within their jurisdiction through the system **citatorio de vecinos**. Community residents were called by the municipal government to participate in the project. For the most part this system is no longer in existence but there are still vestiges of previously performed municipal roles with regard to road maintenance.

During the field work, several municipal corporations were visited and interviews were held with mayors and other municipal officials. The purpose of these interviews was two-fold; on the one hand it aimed at determining what

actions, if any, have been undertaken by municipalities with regard to road maintenance; and on the other, it portended to identify what type of functions municipalities could assume regarding rural road maintenance. Several case studies are presented in Annex VII on municipal involvement in road maintenance.

According to the findings, under the present municipal administrative system most municipalities do not generate sufficient income to fund rural road maintenance. Interviews with municipal officials in more agrarian municipalities indicate that the municipalities do participate in rural road maintenance but not in any systematic fashion. These smaller rural municipalities, which in many cases would be willing to cover at least part of rural road maintenance costs, are those with very low budgets. Municipal governments located in larger urban cities and with greater access to funds, have other priorities and do not perceive the local government as performing a systematic function in rural road maintenance.

As described in the case studies in Annex VII, municipal participation in maintenance has ranged from assistance in choosing and informal supervision of the hand workers to actually collecting money from vehicle operators and contracting a road grader in the area to repair the road. Many municipal officials in the small rural municipalities considered that they could and should take a more active role in maintenance of the roads in their areas. It was felt that the area where municipalities should most get involved was in selection of the hand laborers and supervision of the peón caminero program.

c. Local participation in Maintenance

The general findings of the field investigations are that the linkages established by the social promoter of the DGC, before the selection of rural roads, with municipal corporations, community organizations and government and private institutions working in the areas are later abandoned. The local resources, including the social infrastructure at the municipal and community levels, in most cases are not utilized for continuous rural road maintenance. Despite this general finding, a significant number of governments and communities through their **patronatos**, are actively participating in maintaining their roads. The overall conclusion is that with appropriate follow-up on the social promotion done when the roads are constructed, the communities can take a much more active role in the supervision and assistance to the hand laborers in the peón caminero program. District maintenance offices do not have sufficient capacity to provide the hand laborers with the proper support and supervision to do their job. The social promotors on the DGC implementing unit will organize a follow-up program with supervisors of the peón caminero program in the district maintenance offices to investigate involvement of local communities in this support and supervision.

d. Pilot Project with Municipalities

In an effort to begin to search for more sustainable mechanisms for rural road maintenance, a pilot project will be carried out in which four or five municipalities will be given managerial control of the peón caminero program. This program is described in Section III.D.1, the component for DGM institutional strengthening. The above analysis clearly supports the need for

this type of a program. For the rural dwellers, the roads that connect their communities to larger towns and cities are vital. There is sufficient social infrastructure and interest in rural road maintenance at the municipal and grass roots level to design a decentralized road maintenance program. It is quite clear that municipal corporations in Honduras do not have adequate managerial and administrative capabilities nor generate sufficient income to take total financial responsibility for rural road maintenance. Nonetheless, the communities can take a much more significant role than they are currently taking and at the same time significantly improve the quality of the péon caminero program through more consistent supervision and support and timely payment of the workers. Likewise costs can be reduced for the program as less travel and support costs will be required for supervision of the hand laborers.

3. Participation of Women in the Project

This discussion will first address the extent to which women participate as beneficiaries of the projects and then will briefly discuss the participation of women in project implementation.

The essential beneficiary group of rural roads projects are rural peasant families. A detailed profile of the rural peasant family in Honduras is contained in Annex VII. The activities of the traditional peasant family can be divided into three basic activities; economic, educational and integrative. Economic activity includes the production and transformation of agricultural products for consumption and for market. Through the educational activities the family transmits values and basic knowledge. Integrative activities are those activities pertaining to the nurturing and protection of the individual during infancy, illness and old age. The economic function is generally viewed as part of the male sphere, however, the woman plays a significant role here as well, particularly as related to her integrative function. Overall, the woman is viewed as being much more important in the educational and integrative functions.

The peasant subsistence economy generally imposes a sexual division of labor within the family. The man is responsible for the productive activities outside of the home sphere and the woman for the productive and domestic activities in the home sphere. The principal occupation of the peasant man is subsistence farming whether on the family's land or rented land. He cultivates corn and beans, the basis for the peasant diet. The second most frequent male occupation is farm labor.

The peasant Honduran family is both a productive and a consumption unit, and the role of the woman is indispensable for survival. The agricultural cycle is complemented by a domestic cycle in which she transforms the surplus corn into eggs, chickens, hogs, etc. If the family has a few cows tended by the man, she converts the milk into cheese. These products complement the family daily diet and can be sold for the acquisition of income. The investment in small livestock especially, which are tended by the woman and over which she has decision making power, represent the peasant family's savings system. When there is an emergency, particularly illness, the woman sells a chicken or

hog, depending on the amount of money needed, to cover the costs. For the most part this traditionally economic contribution of women to family subsistence is not valued by the peasant family. Consequently, census data overestimates the percentage of unemployed women in rural areas.

Accessibility and the economic expansion and diversification occurring in the areas served by the newly built roads is beginning to increase employment opportunities outside of the house for rural women. To acquire additional family income she often works in the harvest of seasonal crops such as coffee, cotton, and melons. As discussed below, the existence of roads have stimulated women to create nontraditional employment for themselves. For example, in the community of Santa Cruz in the Department of Santa Bárbara, women are now more active in gold panning.

In addition to her role as product transformer, she must also perform all the household chores assisted by other women in the house, usually her daughters; the absence of services such as water, energy, and transportation make the household tasks very burdensome. Grinding the corn, making the tortillas fetching the water and gathering the wood consume most of the day of both women and children in rural communities.

The authoritarian personality of the male and the submissiveness of the female are often reported as common patterns within the peasant household. According to studies done on the Honduran family, women seem to participate in decisions pertaining to certain spheres of the peasant life, but few decisions are made jointly, and there seems to be a tendency towards a division of decisions and tasks within the household. Women seem to have a higher degree of participation in internal decisions of the household. However, when the decisions are related to aspects outside the home, the participation of the peasant woman declines sharply. Farming decisions, for example, are made principally by the man. In general, the family decision making process continues to fall within the male domain. However, most studies on the subject conclude that the role of the woman is quite important as administrator and distributer of the scarce resources acquired by the different family members.

According to the findings in areas where the rural roads have been built, women have greatly increased opportunities to find jobs or start small businesses within their communities than in areas without roads. Women interviewed during the field work for this analysis indicated that employment diversification has occurred after the roads were completed. This is substantiated by the Evaluation of Rural Roads II. Before the roads the main employment opportunities for women were harvesting coffee, farm labor, pottery production, and salt and tobacco processing. After the roads were constructed, in addition to the previously mentioned job opportunities, women now work harvesting melons, raising shrimp, working in fisheries, and running microenterprises such as vendors, fruit preservation and sewing.

These new employment opportunities of rural women and their cash contributions to the family will probably bring about change in the decision-making patterns within the peasant household. Additionally, and as discussed in Annex VII, passable roads are partially responsible for greater participation of women in community organizations. These contacts outside of the domestic sphere will

probably begin to narrow the gap between the decisions made and overall roles of the two household heads.

Direct participation of women in the Project either as hand laborers or as professional and administrative personnel within SECOPT and private contractors is limited by cultural norms outside the context of the Project. The hand labor required for road building and road maintenance requires significant physical strength and women are typically excluded on these grounds. Given the other jobs and tasks that women perform in the rural areas as discussed above, this exclusion is probably unjust. Long-established roles set for men and women, however will change only slowly and women are likely to continue to be excluded from jobs requiring hard physical labor during the life of the Project.

The number of administrative and professional jobs for women under the Project will be relatively small. The engineering field and public works sector are dominated by men because of long-held streotypes which in the past excluded women from these areas. These stereotypes are changing and women are increasingly entering the engineering profession and finding jobs as professionals in public works projects. Again, however, the changes are slow and no dramatic increases in the hiring of women professionals will be seen under the Project. Women do have significant participation in community organizations and the administration of some municipalities and will participate significantly in the programs to involve local communities in the maintenance program.

F. Environmental Analysis

1. Potential Environment Impact

a. Direct Impacts

This Project involves some construction and rehabilitation, but mostly maintenance of low-volume, relatively short access roads and rural trails over a wide area of Honduras. The direct environmental impact of the Project includes minimum right-of-way clearing, possibly some diversion of small drainage patterns, minor levels of dust and/or stream sedimentation during construction due to cut/fill slope erosion.

The most significant of these concerns is erosion related to the construction activity. As a matter of course, this potential problem receives attention from the implementing agency because it tends to threaten the road being constructed. Consequently, small checkdams will be installed to curtail ditch erosion. Drainage structures, bridges and culverts will be installed as needed to prevent ponding or channeling of water in a manner which could disrupt traditional drainage patterns or create potential habitats for disease vectors. Those construction related problems not identified during the actual construction phase will be addressed in the course of regular maintenance work to be carried out under the Project.

b. Indirect Impacts

Potential indirect ecological problems to which the Project could contribute include possible degradation of forest reserves and wildlife habitats and an increase in the amount of land cleared for either farming or lumbering. While these possibilities exist, they will be minimized by the fact that the Project will mainly address existing road segments. The focus will be on making already inhabited areas more productive rather than opening new areas for settlement. For segments bordering on national parks and game preserves, the selection process will require that before such segments become eligible for inclusion in the Project SECOPT will consult with the Ministry of Natural Resources, COHDEFOR, SANAA, ENEE, and other relevant institutions to assure that the natural habitat will not be adversely affected by the proposed road work.

There is a strong possibility that road rehabilitation and construction will contribute to environmental improvements. Enhancing access of beneficiaries to modern inputs will encourage farmers to adopt more enlightened cultivation practices and thereby reduce the traditional slash and burn technique and its deleterious effect on the environment which predominates in many areas.

2. The Environmental Review Process

To assure that ecological concerns are taken into consideration with all Project related rehabilitation and upgrading activities, an Environmental Review will be a standard component of the subproject selection process. The Review will be carried out in conjunction with the subproject economic cost-benefit analysis.

a. The Subproject Environmental Examination Document and its Use

The environmental review for each construction package will be carried out by means of a Subproject Environmental Examination (SEE) executed by environmental evaluators in the implementing unit. The purpose of the SEE is twofold; (i) the SEE will help subproject evaluators to identify major direct and indirect environmental impacts that might occur in any given subprojects; and, (ii) the SEE will enable the evaluators to determine which subprojects are unacceptable from an environmental perspective.

The SEE itself will consist of a standard package including cover sheet, instructions for the use of the SEE, a matrix of environmental criteria, a sample SEE which has been completed, a section for comments and recommendations to be made by the Ministry of Natural Resources and other relevant institutions with respect to subproject impact on national parks or reserves, and an environmental determination (positive or negative) signed by the field evaluator and reviewed by the Administrative Unit in Tegucigalpa. The SEE form is contained in Annex VI.

For each construction package, an insert section will be used to describe in detail the roads to be considered in the environmental examination. The description will include the number of roadways, their length, towns or villages connected by the roadways, and a map showing the relationships and locations of the roadways.

b. The Initial Environmental Examination (IEE), which gave the project a negative determination for potential environmental impact, was approved on January 19, 1989 as indicated in cable state 018397. Copies of both the cable and the IEE are in the project file. The IEE was approved based on an enviromental review using the SEE form contained in Annex VI for all subproject construction and rehabilitation packges. Further the IEE states that no construction, upgrading, or maintenance of roads which pass through relatively undegraded forest lands is permitted without first conducting an environmental assessment. Because of the Mission's interest in safeguarding against environmental damage, all of the 264 kilometers to be constructed must have an environmental assessment done by an environmental specialist. The 300 kms of roads to be rehabilitated must have an assessment done by SECOPT personnel using the SEE form in Annex VI. This assessment must be approved by the AID Project Officer before work can be initiated. Therefore, before approving any construction subprojects or any request that requires a section of road to pass through any type of forest lands, an environmental assessment will be conducted by an environmental specialist. Funds have been specifically allocated in the budget for contracting out these assessments.

V. IMPLEMENTATION ARRANGEMENTS

A. Conditions Precedent and Negotiating Status

A full list of the conditions precedent is contained in Annex VIII. In terms of Project Negotiation, the most significant ones are the CPs to further disbursement as follows;

1. Disbursements or approval of bid documents on the reconstruction activities are dependent on the DGC doing studies on five hundred and thirty kilometers of roads, choosing the roads with the highest benefit-cost ratio, doing environmental studies on the road packages and making the final selection by eliminating any road packages with negative environmental consequences.

2. Disbursement or approval of bidding documents on the reconstruction activities is conditioned on satisfactory progress on the DGM institutional strengthening component as determined by the GOH and AID in a review at the time bid documents are ready to be submitted.

3. Further disbursements after the second year of the Project, with the exception of funds for TA and the AID coordinating unit, are conditioned on satisfactory progress on the DGM institutional strengthening component as determined by the GOH and AID in a review at the time bid documents are ready to be submitted.

4. Disbursement of funds or the issuance of any commitment document for implementation of the maintenance component, other than for technical assistance related to that component is dependent upon SECOPT's submission for AID's approval a detailed plan which shows how the participation of private sector contractors in maintenance will be increased over the life of the Project, and specifically, how the private sector maintenance coverage goals will be met for AID-financed roads and the rural roads network as a whole by the end of the Project.

The Project Committee determined that CP No. 1 above was necessary to ensure that the roads are competetively selected and that no roads are built which cause negative environmental impacts. The other two CPs are needed to ensure that SECOPT maintains its momentum in addressing the maintenance problems of the DGM. Since the reconstruction activities have proved to be much more desirable to the GOH in the past, it was felt that conditioning these activities on progress on maintenance would help the new SECOPT administration to continue its emphasis on maintenance and implementing the institutional reforms necessary to establish the long-term sustainable maintenance system. These CPs have been written such that they are not expected to slow down project implementation. SECOPT is expected to begin immediately doing the studies of the 530 kilometers of roads. It is expected to take them approximately one year to do all the studies, contract out the environmental analyses, make the final selection of roads to be reconstructed and prepare the bid documents for the road packages. A review of the institutional strengthening program will be scheduled such that no time is lost in publication of the bid documents. Likewise, a second review will be scheduled before the end of the second year of the Project such that Project implementation is not slowed down unless it the progress made on the DGM institutional strengthening goals is not satisfactory.

In addition to the above CPs, a covenant has been added regarding the GOH's timely provision of counterpart for the Project as detailed in the Project budget. This covenant has been added because of problems in the past with the GOH providing sufficient counterpart in a timely manner.

B. Implementation and Procurement Plans

A detailed implementation plan is contained in Annex XI. The functions of all the participating entities are contained in Section III.E on Project administration. A detailed procurement plan is contained in Annex V.

C. Monitoring and Evaluation Plan

A Project information system described below will be established in order to (1) monitor the progress and performance of the various components of the Project; and (2) evaluate the impact of these activities on the beneficiary population. This system will draw on other information sources where available as described below. In cases where the information is not available, it will be collected by the Technical Assistance Team, Counterpart Units within SECOPT, or AID Project Personnel. The system will monitor achievement of project goals, purposes and outputs as delineated in the logical framework in Annex I.

1. Monitoring and Performance Assessment

The Monitoring and Performance Assessment under the Project concern the first three levels of the Logical Framework hierarchy: inputs, outputs, and purpose of the Project.

a. Inputs and Outputs; The monitoring of maintenance and construction services (awarding and executing of contracts) and functioning of the Peón Caminero Program will be based on comparing performance against the

Project Implementation plan shown in Annex XI. During Project start-up, a detailed implementation plans for each component of the Project will be done by the AID coordinating unit. After this conference the implementing units in the DGM and the DGC will provide detailed semiannual progress reports. The construction and maintenance activities will have their own quality controls as described in the description of these components.

Any problems in the quality of the work will be addressed in the semiannual progress reports. The DGM is setting up a road inventory and condition survey which will indicate the location and maintenance status of the roads. This system will then be used to evaluate the quality of the maintenance work and progress towards the indicator that 100% of AID financed rural roads will be maintained and substantially passable all year. Additionally, supervision and monitoring reports by the Implementing units in the DGC and the DGM and by AID Project personnel on the maintenance and construction contracting will be used to address the quality of these services. The supervision and monitoring reports will be used as a feedback mechanism whereby poor maintenance and construction procedures and general problems will be reported and solutions proposed and put into practice in the next reporting period. Moreover, the road condition survey will be used for producing an annual report on the road conditions and for programming and planning of the maintenance activities for the next year.

b. Purpose: The purpose of the Project is to establish a long-term sustainable rural roads maintenance program. Implementation of various interventions to establish this program are detailed under the DGM institutional strengthening component. The set of indicators by which the Project can measure progress toward a sustainable program is contained in the component and in more detail in Annex IV. The Mission and SECOPT will have informal semiannual reviews of the progress in reaching the institutional strengthening program. Likewise, formal reviews are scheduled as conditions precedent to approval of bids or committment of funds for the reconstruction activities and as a condition precedent to disbursement after the second year of the Project.

2. Evaluation of the Impact on Beneficiaries

The impact on beneficiaries is measured at the goal level of the log framework hierarchy. Although there are a number of social and economic impacts derived from rural roads, the Mission has programmed the Project to help Honduras to fulfill its agricultural production objective. The basic impact measurement will be that of increases in agricultural production due to the various project interventions.

Achievement in reaching this goal will be measured by tying into the Project Information System for the Land Use and Productivity Enhancement (LUPE) Project, 522-0292 and other agricultural production projects supported by USAID/Honduras. The cost-benefit studies for the construction projects within the geographic regions of various agricultural production projects will be coordinated with the project information units for these projects. Data collected for these same regions through the information systems of the agricultural production projects will be used to judge the growth in production on the roads using the baseline data from the cost-benefit analyses. Pertinent indicators used are changes in type of crops, production

levels of export crops, amount of land tilled, price levels, and farm size. Once the studies are done, a cross section of the studies will be chosen as a base line and information gathered will be used to judge the growth in production in the areas served by these roads. The coordination of the baseline studies with the information units of agricultural production projects and the application of the data to the road subprojects will be done by the economists in the DGC implementing unit. An initial list of baseline studies done under Rural Roads II which fall within the LUPE Project Area follows. This list provides a sample of road segments that could be used to measure the agricultural production impact. This list may be modified in deciding which sample areas to use to measure the impact of the Project.

PROJECT	DEPARTMENT	NO. OF KILOMETERS
1. La Llave, El Pavo, Agua Fria, etc.	Valle	47.1
2. La Montañita	Fco. Morazán	37.0
3. San Marcos, San Rafael, etc.	Choluteca	24.73
4. Proyecto Siguatepeque - Desvío a Custeca access, Agua Dulce, Los Tableros y Cerro Blanco, etc.	Comayagua	55.5
5. Santa Cruz de Yojoa	Cortés	43.3

Impact on Women

The Project will use gender disaggregated data from the LUPE project information system to determine the impact of various Project interventions on the welfare of women. The information system monitors and disaggregates by gender a series of indicators including changes in income, gross domestic product, on and off-farm employment and nutritional status.

The use of the LUPE Project Information System for this project is consistent with AID's policy regarding sectoral evaluations. The Mission has a variety of project interventions supporting the objective of increasing agricultural production. Increased agricultural production cannot be attributed to any single project intervention such as road improvement, improved extension services or better marketing services alone, but to all of these interventions as a group. Consequently impact evaluations to assess progress towards this goal must assess the results of the group of interventions together. This methodology is strongly supported by literature on Rural Road impact evaluations. The roads themselves help to increase agricultural production to the extent that they enable better access to extension services, access to inputs and markets, and to the extent that proper pricing incentives are in place. Otherwise, the roads have little effect in increasing agricultural production.

Midterm and Final Evaluations

A midterm and final evaluation are scheduled for the Project. However, in line with new guidelines on evaluation and the emphasis on monitoring and evaluation systems, a decision will be made before the PACD whether a final evaluation is needed or whether the Project Assistance Completion Report will suffice. These evaluations may be waived if the Mission and the GOH agree

that the information provided by the monitoring and evaluation systems is sufficient to address any questions about Project implementation and impact. Instead of a discreet midterm or final evaluation, the funding provided for evaluations may be used for minievaluations or surveys that may be undertaken as decided during the course of Project implementation in order to solve particular implementation problems that arise.

TABLES

ANNEX III

Explanation of the Financial Plan

ANNEX VII

RURAL ACCESS ROADS III

LOGICAL FRAMEWORK MATRIX

ANNEX I

SUMMARY	OBJECTIVE VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
A.1 Goal Increase agricultural production.	A.2 Measurement of Goal Achievement -Increase in agricultural production and productivity in project areas	A.3 (as related to goal) - Measurement by MNR of increase in agricultural production in project areas served by the LUPE Project.	A.4 (as related to goal) - Continued support of the GOH increased production in rural areas - Effective interministerial coordination in the implementation of a system for choosing roads (construction, rehabilitation and maintenance) in agricultural production areas - Continued economic stability and growth.
B.1 Purpose To establish a system for maintaining the network of all-weather rural access roads.	B.2 End of Project Status Long-term sustainable rural roads maintenance program in operation. Three thousand Kms. will receive such maintenance by the end of the Project.	B.3 (as related to Purpose) - TA Reports - USAID field surveys - Records kept by the DGM	B.4 (as related to Purpose) - GOH places a high priority on maintenance of access roads in its planning and budgeting activities.
C.1 Outputs 1) Road Maintenance Activity i) Light maintenance of rural roads performed under the Peón Caminero Program.	C.2 Output Indicators 1) 100% of A.I.D. financed rural roads maintained and passable all year round. i) Peón Caminero Program strengthened and functioning. Workers and administrators and local communities in Peon Supervisión, in first two years of the Project.	C.3 (as related to outputs) - Implementing Unit - Executing units progress reports and joint GOH/AID evaluation studies - DGM budget records and reports, USAID monitoring	C.4 (as related to outputs) - Communities organize to assist in the maintenance activities - Weather, labor strikes, availability of construction material and fuel, and cost increases do not

SUMMARY	OBJECTIVE VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
C.1 Outputs (Continued) ii) Major maintenance activities conducted under contract with the private sector. 2) Reconstruction Activity i) Selection system established, giving priority to agricultural production. ii) Access roads upgraded 3) DGM i) Institutional Strengthening by the DGM in operations, information systems, training and revenue generation	C.2 Output Indicators (Continued) ii) Major road maintenance scheduled annually and carried out on a rotational basis within each maintenance district of the country. 2) i) Establishment and functioning of an interinstitutional committee in year 1, to select road construction packages giving priority to agricultural production. ii) 195 kilometers of non AID-finance rural access roads and 432 kilometers of formerly AID financed rural roads rehabilitated. 3) i) Private Sector maintenance contracting procedures defined and contracts being implemented by nine months after Project signed. Peón Camineros trained. Information Systems automated. By end of year 2 toll collections for road maintenance begin.	(Continued) of road maintenance - DGM records and reports - Computers installed and operating - Toll booths operating - Sufficient funding available for maintenance	(Continued) adversely affect progress - GOH allocates adequate funds for maintenance - Non-politization of the Peón Caminero Program - Commodities arrive in timely manner - Local contractors are capable of performing rural roads construction, rehabilitation and major maintenance activities

D.1 Inputs	D.2 Budget (US$000)		D.3 (as related to inputs)	D.4 (as related to inputs)
1) Road maintenance a. commodities b. salaries 2) Construction/Rehabilitation Activity a. commodities b. construction (roads) c. construction (bridges) 3) Technical Assistance 4) Training 5) Evaluation	1. Road Maintenance	9,215	- Project progress reports - A.I.D. records - Local contractors available	- GOH provides adequate budget support for the SECOPT entities involved in this project
	2. Rehabilitation	5,955		
	3. Reconstruction	4,070		
	4. Technical Assistance	250		
	4. Evaluation	100		
	5. Audits	30		
	5. Other	1,046		
	TOTAL	20,666		

9/

ANNEX II

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

Through the Project the Government of Honduras will undertake basic institutional strengthening and administrative reforms in the Directorate of Maintenance (DGM) within its Ministry of Communications, Public Works, and Transportation (SECOPT). The institutional strengthening of the DGM will result in the development a long-term sustainable maintenance system centered around using the present budget resources for maintenance more efficiently through privatization of many maintenance functions and finding mechanisms for generating revenues to fund maintenance.

I, John A. Sanbrailo, the principal officer of the Agency for International Development in Honduras, having taken into account among other factors the maintenance and utilization of projects in Honduras previously financed or assisted by the United States, do hereby certify that in my judgement Honduras will develop through the Project the financial capability and has human resources capability to effectively maintain and utilize the capital assistance project: Rural Roads Maintenance Program.

John Sanbrailo

John A. Sanbrailo
Mission Director
USAID/Honduras

ANNEX III

Explanation of the Financial Plan

This attachment contains diagrams and an outline of the procedures for disbursement of AID funds and counterpart funds and the detailed cost estimates for the project.

TABLE	DESCRIPTION	TOTAL COST
1	Cost per Kilometer	
2	Total kilometers constructed and cost	
	Reconstruction and Uprgading	
2a	Type I - Mountainous Terrain	17,184
2b	Type I - Rolling Terrain	15,668
2c	Type I - Flat Terrain (Flood zone)	18,336
2d	Type I - Flat Terrain (Non-Flood)	13,861
2e	Type II - Mountainous Terrain	14,577
2f	Type II - Rolling Terrain	13,002
2g	Type II - Flat Terrain (Flood zone)	15,083
2h	Type II - Flat Terrain (Non-Flood)	11,252
	Rehabilitation of AID Financed Roads	
2i	Type I - Mountainous Terrain	8,622
2j	Type I - Rolling Terrain	8,483
2k	Type I - Flat Terrain (Flood zone)	8,846
2l	Type I - Flat Terrain (Non-Flood)	6,244
2m	Type II - Mountainous Terrain	7,101
2n	Type II - Rolling Terrain	6,868
2o	Type II - Flat Terrain (Flood zone)	8,547
2p	Type II - Flat Terrain (Non-Flood)	7,112
3	DGC Administration and Engineering	380,000
3a	Labor and Technical Staff	230,889
3b	Professional Salaries	229,546
3c	DGC Vehicle Support Costs	443,235
	DGM Administration and Engineering	
4	Professional and Technical Salaries	1,155,000
5	Vehicles and Equipment	345,000
6	Hand Tools	660,000

Procedures for Disbursing AID Funds through ESF Revolving Funds

1. AID/W approves the Project and authorizes the obligation of Project funds.

2. On the basis of cash needs of the Project and for expediting the disbursements, the General Directorate of Public Credit (GDPC) and the Project Implementing Agency of the Honduran Goverment, will establish a local currency revolving fund under the ESF Programs.

3. The revolving fund will be deposited in the Honduran Central Bank for the Ministry of Finance and Public Credit (MHCP) and it is identified with the name and number of the project .

4. Once the funds are deposited, the Implementing Agency proceeds to commit funds for cash advances or payments to contractors for the purchase of goods and services.

5. Similar to the use of the counterpart funds, the use of external funds follows a process of authorization and legalization of the expenses within each of the Government Offices involved; with the exception that in this case, the GDPC also gets involved. (See Diagram I).

6. Once the order to pay, together with its supporting documentation has been authorized and legalized in each Government Office that is involved, and the GDPC has transfered from the project's revolving fund to the General Treasury of the Republic's bank account the necessary amount to cover the authorized expense; the Implementing Agency and the GDPC will be ready to request from AID the reimbursement of funds (R/R). See Table IV. The procedures are the following:

   a. The Implementing Agency prepares the R/R and sends it to the GDPC for review. The R/R should be submitted with supporting documentation.

   b. The GDPC reviews the R/R and then sends it to the Minister or Vice-Minister of Finance for signature.

   c. The GDPC sends the R/R along with a letter (CPDE) to A.I.D. The CPDE is signed by the General Director of Public Credit.

7. The Mission's Project Officer receives the R/R for review and administrative approval and issues the 1034 public voucher form to affect AID Project funds. The R/R is then sent to the AID/Controller's Office for processing a payments:

   a. The Voucher Examiner in the Controller's Office reviews the R/R against the Project Agreement, Project Implementation Letters and any other commitment document issued under the Project.

Diagram 1

GOH - DISBURSEMENTS MECHANISM

(A.I.D Grant Funds)

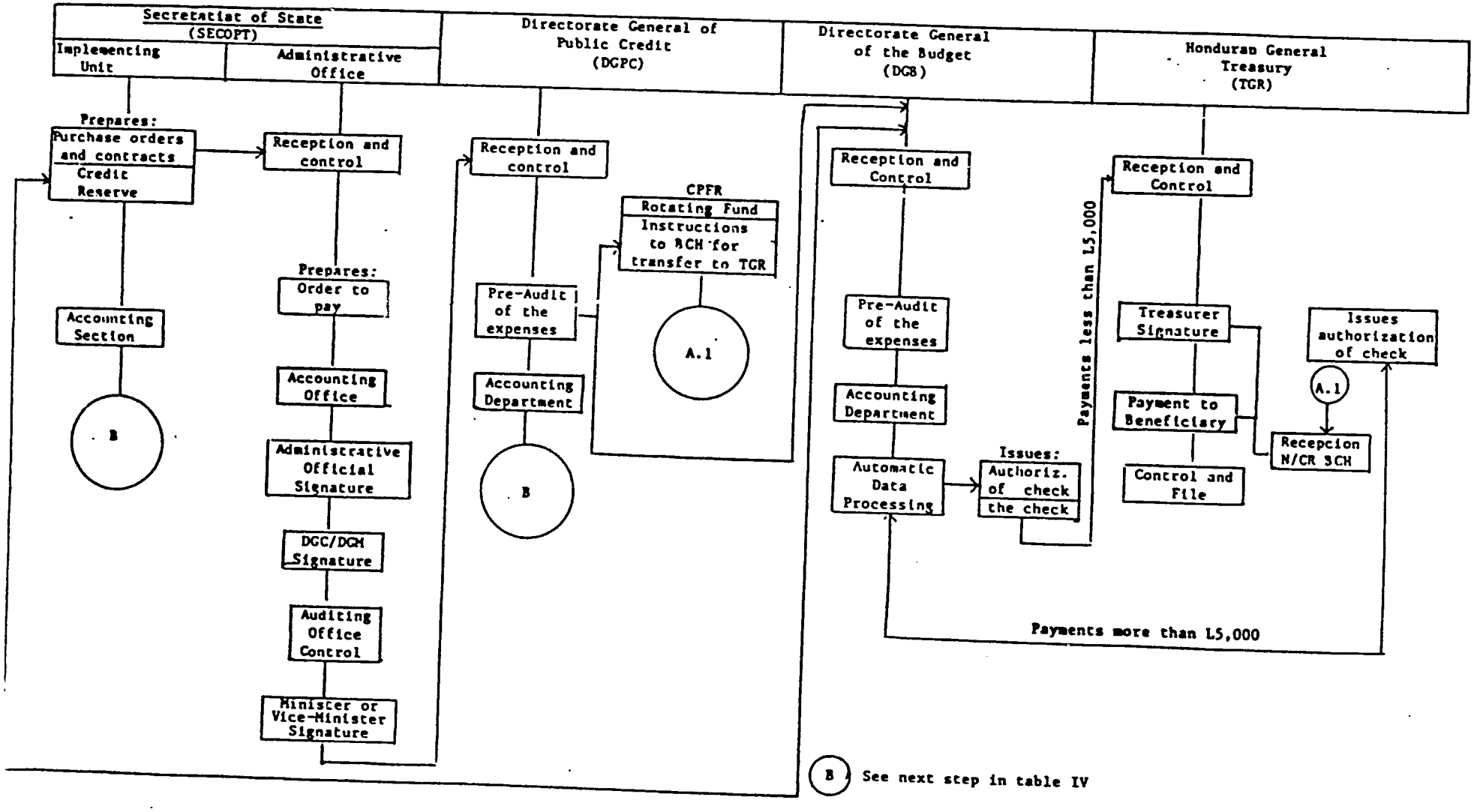
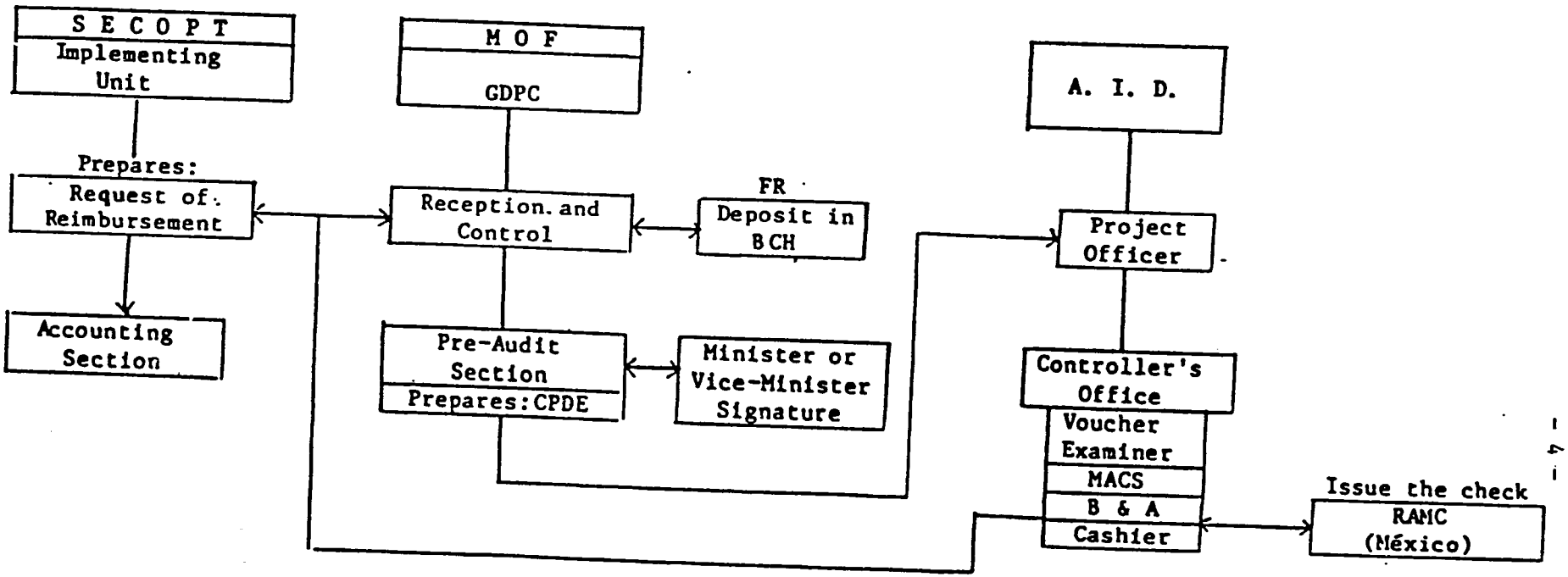


Diagram 2

GOH - ROTATING FUND - A.I.D.

(Reimbursement Mechanism)



b. The R/R is accounted for in the MACS system.

c. Form 1034 and other required documents are signed by the Budget and Accounting Officer and requests the Regional Administrative Management Center (RAMC) the issuance of a check in the amount of the R/R.

d. Within 20 or 30 days after receipt of the R/R, RAMC sends the check to the Mission's Cashier.

e. The check is delivered to authorized personnel of the GDPC.

8. GDPC verifies the amount of the check against its internal controls and sends it to the Minister or Vice-Minister of Finance for endorsement. Once the check is endorsed, it is returned to the GDPC.

9. The GDPC deposites the check in the revolving fund account in the Central Bank and prepares the entries to account for the check.

10. The GDPC communicates to the Implementing Agency that the deposit was made and to adjust their accounting records.

Steps to Execute the Budget of the Nation (National Funds)

1. The National Congress issues a decree approving the budget for each Secretariat of State. This budget is implemented in quarterly amounts, which are approved by the Executive Office through an official order. Such quarterly amounts are distributed by object class expenses.

2. Once the quarterly amounts have been approved, these are implemented by the different implementing units that operate within each Secretariat of State. Each one of the implementing units proceeds to prepare purchase orders and contracts.

3. The Implementing Unit prepares a credit reserve and sends it with the respective documents (official orders, invoices) to the Directorate General of the Budget (DGB) for its approval. The Office of Pre-Audit of Expenses of the DGB receives and analyzes the documents to be sure that the budget for that Implementing Unit is included for the expense.

4. The Office of Pre-Audit sends the documents to the Accounting Department of the DGB, to be coded, then it is transmitted to the Department of Automatic Data Processing (ADP) of the DGB for its respective entry.

5. The DGB transmits the approved credit reserve to the authorized personnel of the Implementing Unit.

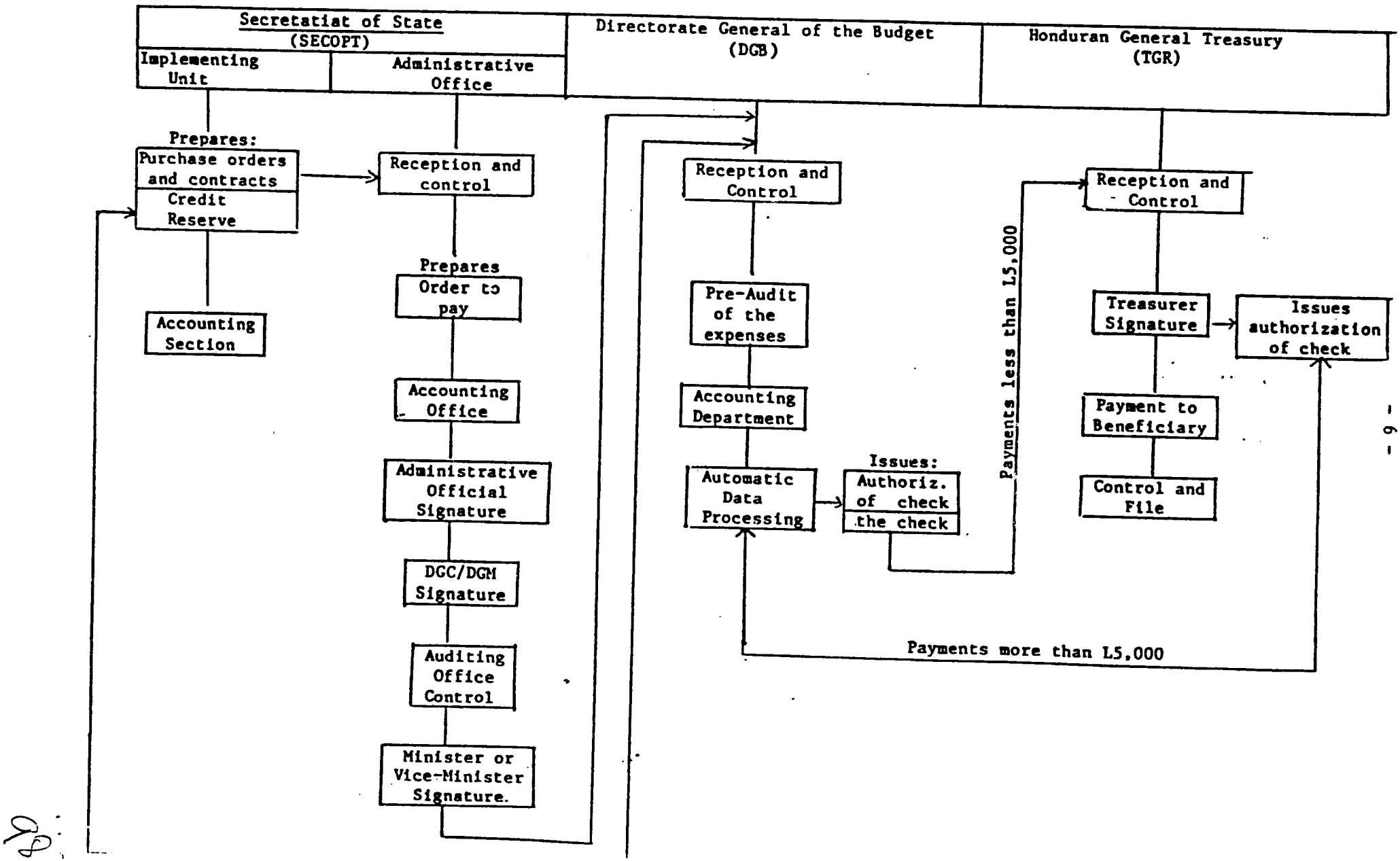
6. The Implementing Unit sends the documentation concerning the expenses to the Administrative Department of SECOPT to be reviewed to determine if the documentation is complete and verify there is a budget amount.

7. The Administrative Office of SECOPT prepares an order to pay.

Diagram 3

GOH - DISBURSEMENTS MECHANISM

(COUNTERPART FUNDS)



8. The order to pay is sent to the Accounting Office of the Administrative Department for entering the amount of the order to pay in the budget control.

9. The order to pay is sent to the Administrative Official for his signature; then it is sent to the Directorate General of Roads or Maintenance, according to which Agency has responsibility.

10. Once the order to pay is signed, it is processed to the Auditing Office at the Secretary's level.

11. The order to pay is transmitted to the Correspondence Section for signature of the Minister or Vice-Minister.

12. The approved order to pay is sent to the Directorate General of Budget.

13. The Office of Pre-Audit of Expenses of the DGB receives the order to pay with all of the supporting documentation (purchase orders, summary quotations, invoices, receipts) for its review.

14. Pre-Audit transmits the order to pay to the Accounting Office of the DGB where it is reviewed and journalized, and then it is transmitted to the ADP for entering into the accounting system.

15. The ADP Office issues the authorization to issue the check and sends it to the General Treasury of the Republic for signature and payment.

NOTE: If the expenses are less than L.5,000, the ADP Office issues the check automatically. When the value is higher than L.5,000, the Treasury authorizes the ADP Office to issue the check by means of computer communication (from screen to screen).

When the orders to pay are for direct payments (daily wages payroll, permanent employees payroll, per diem, publicity and propaganda, and representation expenses), they are sent directly by the Implementing Unit to the Office of Pre-Audit of the DGB with the documentation. If the expenses are approved, the documentation is sent to the Accounting Department and then to ADP, where it is entered in the accounting records and a check is issued.

Explanation of Financial Plan

1. Construction and Rehabilitation

For both the new reconstruction and upgrading component and the rehabilitation of A.I.D. funded roads, cost projections have been made for reconstruction and for rehabilitation in four different types of terrain as shown in Table 1 below.

An average cost per kilometer was computed by assuming each kilometer would be reconstructed on 25% of each type of terrain as shown in Table 2. Detailed estimates for each type of terrain are contained in Tables 2a. through 2p.

TABLE 1

COST BY KILOMETER

New Projects for Reconstruction or Upgrading

DESCRIPTION	MONTAINOUS	ROLLING	FLAT TOPOGRAPHY		AVERAGE COST
			FLOOD	NON-FLOOD	
Type I	17,184.00	15,668.00	18,336.00	13,861.00	16,262.00
Type II	14,577.00	13,002.00	15,083.00	11,252.00	13,478.00

Road Rehabilitation

DESCRIPTION	MONTAINOUS	ROLLING	FLAT TOPOGRAPHY		AVERAGE COST
			FLOOD	NON-FLOOD	
Type I	8,622.00	8,483.00	8,846.00	6,244.00	8,048.00
Type II	7,101.00	6,868.00	8,547.00	7,112.00	7,407.00

Type I and Type II roads refer to the width of the road. Type I roads are 5.25 meters wide and cost more than Type II roads which are 4 meters wide. Estimations are that 75% of the roads reconstructed or rehabilitated will be Type II roads and 25% will be Type I roads. The number of kilometers, and total budget amount for each of their component is shown in the table below.

TABLE 2

New Projects for Reconstruction

DESCRIPTION	TOTAL	TYPE I	TYPE II
Percentage	100%	25%	75%
Asignation	$3,729,000	$932,000	$2,797,000
Longitude (Km)	264	57	207
Cost by Km	14,125	16,262	13,478

Rehabilitation of Roads

DESCRIPTION	TOTAL	TYPE I	TYPE II
Percentage	100.0%	25%	75%
Asignation	$2,271,000	$604,000	$1,667,000
Longitude (Km)	300	75	225
Cost by Km	7,570	8,048	7,407

The division of funding per year for these components has been allocted from years two through five of the Project. Detailed budgets of funding for the administration and enginering costs for this component can be found in Tables 3 through 3c of this attachment. The average cost per year is related to the amount of contracts being executed that year. All of the administration and engineering funds are budgeted from counterpart funds.

ii. Road Maintenance

The maintenance contracting consists of three basic activities listed below with their unit prices.

ACTIVITY	UNIT	UNITS PER KILOMETER	TOTAL COST PER KILOMETER
Grading	$112.50/km	1	$ 112.50
Material Banks for the Peon Caminero	$3/M3	2	$ 6
Resurfacing	$6.5/M3	250	$1,625

Grading is done once a year, but it does not need to be done on those kilometers which have been resufaced or rehabilitated the same year, thus the cost in any one year is $112.50 x 2,529 Kms. equal to $284,513 per year.

As with the grading, roads that have been resurfaced do not need materials banks in the same year they are resurfaced. The cost in any one year is equal to 2,529 kms x $6 equal to $15,174. Resurfacing only needs to be done once every six years. Since 400 kilometers are being rehabilitated, only 2,600 kilometers need to be resurfaced during the life of the Project. Thus in any one year 370 of the 2,600 kilometers need to be resufaced. The cost of resurfacing in any one year is then 370 kms x $1,625 equal to $601,250.

The total cost of the maintenance per year is then approximately $1,000,000 or $7,000,000 for the life of the Project. Costs for Administration and Engineering are detailed in Tables 4 through 6.

Salaries for the Peon Caminero Program are $2.00 per day for each peon. On average each peon covers 5 kilometers and is contracted for 305 days per year making the total salry cost per kilometer per year $122.00 for the program.

iii. Other Budget Items

The budget for the AID coordinating unit consists simply of the salaries of the three contract engineers who will work on the project.

TABLE 2a
RECONSTRUCTION

ROAD TYPE I
MOUNTAINOUS TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	150.0	26.28	3,942.00
Motorgrader	25.0	20.43	510.75
Compactor	10.0	12.87	128.70
Water tank	20.0	11.70	234.00
Front loader	5.0	20.43	102.15
Dump Truck	15.0	8.73	168.00
Compressor	5.0	18.95	94.75
Cleaning and Grubbing	1.0	146.25	146.25
			5,326.60
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 3 ml	64.35	1,737.45
Reinforced Concrete Pipe 36"	9.0 x 2 ml	103.74	1,867.32
Headwall 24"	1.60 x 6	64.35	617.76
Headwall 36"	4.0 x 4	64.35	1,029.60
Drainage Inlet	1.6 x 3	64.35	308.88
Concrete class b	2.0 x 4.5 x 0.3	105.30	284.31
Masonry	1.0 x 0.3 x 9	81.90	221.13
Sub-base	6 x 0.15 x 1.10 x 1000 = 990	5.85	5,791.50
			11,897.95
			17,184.55

TABLE 2b
RECONSTRUCTION

ROAD TYPE I
ROLLING TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	120.0	26.28	3,153.60
Motorgrader	25.0	20.43	510.75
Compactor	10.0	13.41	134.10
Water tank	20.0	11.70	234.00
Front loader	5.0	20.43	102.15
Dump Truck	15.0	8.73	130.95
Compressor	5.0	19.26	96.30
Cleaning and Grubbing	1.0	146.25	146.25
			4,507.50
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 4 ml	64.35	2,316.60
Reinforced Concrete Pipe 36"	9.0 x 1 ml	111.15	1,000.35
Headwall 24"	1.6 x 8	64.35	823.68
Headwall 36"	4.0 x 2	64.35	514.80
Drainage Inlet	1.6 x 4	64.35	411.84
Concrete class b	1.0 x 4.5 x 0.3	105.30	142.15
Masonry	1.0 x 0.3 x 6.5	81.90	159.70
Sub-base	6.0 x 0.15 x 1.10 x 1000 = 990	5.85	5,791.50
			11,160.62
			15,668.12

TABLE 2c
RECONSTRUCTION

ROAD TYPE I
FLAT TERRAIN (Flood Zone)

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	75.0	26.28	1,971.00
Motograder	25.0	20.43	510.75
Compactor	30.0	13.41	402.30
Water tank	60.0	11.70	702.00
Front loader	100.0	20.43	2,043.00
Dump Truck	200.0	8.73	1,746.00
Cleaning and Grubbing	1.0	146.25	146.25
			7,521.05
Drainage System			
Reinforced Concrete Pipe 24"	10.0 x 4.0 ml	64.35	2,574.00
Reinforced Concrete Pipe 36"	10.0 x 1.0 ml	111.15	1,111.50
Headwall 24"	1.6 x 8	64.35	823.68
Headwall 36"	4.0 x 2	64.35	514.80
Sub-base	6.0 x 0.15 x 1.10 x 1000 = 990	5.85	5,791.50
			10,815.48
			18,336.53

TABLE 2d
RECONSTRUCTION

ROAD TYPE I
FLAT TERRAIN (Non-Flood)

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	75.0	26.28	1,971.00
Motorgrader	25.0	20.43	510.75
Compactor	14	13.41	187.74
Water tank	60	11.70	702.00
Front loader	10	20.43	204.30
Dump Truck	20	8.73	174.60
Cleaning and Grubbing	1.0	146.25	146.25
			3,896.64
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 3 ml	64.35	1,737.45
Reinforced Concrete Pipe 36"	9.0 x 1 ml	111.15	1,000.35
Headwall 24"	1.6 x 6	64.35	617.76
Headwall 36"	4.0 x 2	64.35	514.80
Concrete class b	1.0 x 4.5 x 0.3	105.30	142.15
Masonry	1.0 x 0.3 x 6.5	81.90	159.70
Sub-base	6.0 x 0.15 x 1.1 x 1000 = 990	5.85	5,791.50
			9,963.71
			13,860.35

TABLE 2e

RECONSTRUCTION

ROAD TYPE II
MOUNTAINOUS TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	120.0	26.36	3,163.20
Motorgrader	25.0	20.51	512.75
Compactor	10.0	13.49	134.90
Water tank	20.0	11.70	234.00
Front loader	5.0	20.51	102.55
Dump Truck	15.0	8.81	132.15
Compressor	5.0	19.34	96.70
Cleaning and Grubbing	1.0	146.25	146.25
			4,522.50
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 3 ml	64.35	1,544.40
Reinforced Concrete Pipe 36"	8.0 x 2 ml	111.15	1,778.40
Headwall 24"	1.6 x 6	64.35	617.76
Headwall 36"	4.0 x 4	64.35	1,029.60
Drainage Inlet	1.6 x 3	64.35	308.88
Concrete class be	2.0 x 4.5 x 0.3	105.30	284.31
Masonry	1.0 x 0.3 x 9	81.90	221.13
Sub-base	4.5 x 0.15 x 1.1 x 1000 = 730	5.85	4,270.50
			10,054.98
			14,577.48

TABLE 2f

RECONSTRUCTION

ROAD TYPE II
ROLLING TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	90	26.36	2,372.40
Motorgrader	25	20.51	512.75
Compactor	10	13.49	134.90
Water tank	20	11.70	234.00
Front loader	5	20.51	102.55
Dump Truck	15	8.81	132.15
Compressor	5	19.34	96.70
Cleaning and Grubbing	1	146.25	146.25
			3,731.70
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 4 ml	64.35	2,059.20
Reinforced Concrete Pipe 36"	8.0 x 1 ml	111.15	889.20
Headwall 24"	1.6 x 8	64.35	823.68
Headwall 36"	4.0 x 2	64.35	514.80
Drainage Inlet	1.6 x 4	64.35	411.84
Concrete class b	1.0 x 4.5 x 0.3	105.30	142.15
Masonry	1.0 x 0.3 x 6.5	81.90	159.70
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.85	4,270.50
			9,271.07
			13,002.77

TABLE 2g

RECONSTRUCTION

ROAD TYPE II
FLAT TERRAIN (FLOOD)

EARTH WORKS	Cost per Hour	Cost per Unit	Total Cost
Tractor DG	65.0	26.36	1,713.40
Motorgrader	25.0	20.51	512.75
Compactor	30.0	13.49	404.70
Water tank	60.0	11.70	702.00
Front loader	65.0	20.51	1,333.15
Dump Truck	130.0	8.81	1,145.30
Cleaning and Grubbing	1.0	146.25	146.25
			6,157.55
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 4.0 ml	64.35	2,316.60
Reinforced Concrete Pipe 36"	9.0 x 1.0 ml	111.15	1,000.35
Headwall 24"	1.6 x 8	64.35	823.68
Headwall 36"	4.0 x 2	64.35	514.80
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.85	4,270.50
			8,925.93
			15,083.48

TABLE 2h

RECONSTRUCTION

ROAD TYPE II
FLAT TERRAIN (NON-FLOOD)

EARTH WORKS	No. of Hours	Cost of Unit	Total Cost
Tractor DG	45.0	26.36	1,186.20
Motorgrader	25.0	20.51	512.75
Compactor	14.0	13.49	188.86
Water tank	60.0	11.70	702.00
Front loader	10.0	20.51	205.10
Dump Truck	20.0	8.81	176.20
Cleaning and Grubbing	1.0	146.25	146.25
			3,117.36
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 3 ml	64.35	1,544.40
Reinforced Concrete Pipe 24"	8.0 x 1 ml	110.76	886.08
Headwall 24"	1.6 x 6	64.35	617.76
Headwall 36"	4.0 x 2	64.35	514.80
Concrete class b	1.0 x 4.5 x 0.3	105.30	142.15
Masonry	1.0 x 0.3 x 6.5	81.90	159.70
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.85	4,270.50
			8,135.39
			11,252.75

TABLE 21

REHABILITATION - AID ROADS

ROAD TYPE I
MOUNTAINOUS TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	5	23.66	118.30
Motorgrader	20	18.41	368.20
Compactor	10	12.11	121.10
Water tank	20	10.50	210.00
Front loader	1	18.41	18.41
Dump Truck	5	7.91	39.55
Compressor	2	17.36	34.72
Cleaning and Grubbing	1.0	131.25	131.25
			1,041.53
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 1.0 ml	57.75	519.75
Reinforced Concrete Pipe 36"	9.0 x 1.0 ml	99.75	897.75
Headwall 24"	1.6 x 2.0	57.75	184.80
Headwall 36"	4.0 x 2.0	57.75	462.00
Drainage Inlet	1.6 x 1.0	57.75	92.40
Concrete class b	1.0 x 4.5 x 0.3	94.50	127.57
Masonry	1.0 x 0.3 x 4.5	73.50	99.22
Sub-base	6.0 x 0.15 x 1.10 x 1000 = 990	5.25	5,197.50
			7,580.99
			8,622.52

TABLE 2j

REHABILITATION AID ROADS

ROAD TYPE I
ROLLING TERRAIN

EARTH WORKS			
Earth Works	3.0	23.66	70.98
Motorgrader	15.0	18.41	276.15
Compactor	10.0	12.11	121.10
Water tank	20.0	10.50	210.00
Front loader	1.0	18.41	18.41
Dump Truck	5.0	7.91	39.55
Compressor	2.0	17.36	34.72
Cleaning and Grubbing	1.0	131.25	131.25
			905.16
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 1.0 ml	57.75	519.75
Reinforced Concrete Pipe 36"	9.0 x 1.0 ml	99.40	894.60
Headwall 24"	1.6 x 2	57.75	184.80
Headwall 36"	4.0 x 2.	57.75	462.00
Drainage Inlet 24"	1.6 x 1	57.75	92.40
Concrete class b	1.0 x 4.5 x 0.3	94.50	127.57
Masonry	1.0 x 0.3 x 4.5	73.50	99.22
Sub-base	6.0 x 0.15 x 1.10 x 1000 = 990	5.25	5,197.50
			7,577.84
			8,483.00

TABLE 2k
REHABILITATION AID ROADS

ROAD TYPE I
FLAT TERRAIN (Flood Zone)

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	10.0	23.66	236.60
Motorgrader	20.0	18.41	368.20
Compactor	10.0	12.11	121.10
Water tank	20.0	10.50	210.00
Front loader	5.0	18.41	92.05
Dump Truck	25.0	7.91	197.75
Cleaning and Grubbing	1.0	201.25	201.25
			1,426.95
Drainage System			
Reinforced Concrete Pipe 24"	10.0 x 1.0 ml	57.75	577.50
Reinforced Concrete Pipe 36"	10.0 x 1.0 ml	99.75	997.50
Headwall 24"	1.6 x 2	57.75	184.80
Headwall 36"	4.0 x 2.	57.75	462.00
Sub-base	6.0 x 0.15 x 1.10 x 1000 = 990	5.25	5,197.50
			7,419.30
			8,846.25

TABLE 21

REHABILITATION - AID ROADS

ROAD TYPE I
FLAT TERRAIN (Non-Flood)

EARTH WORKS			
Tractor DG	5.0	23.66	118.30
Motorgrader	10.0	18.41	184.10
Compactor	5.0	12.11	60.55
Water tank	10.0	10.50	105.00
Front loader	2.0	18.41	36.82
Dump Truck	10.0	7.91	79.10
Cleaning and Grubbing	1.0	131.25	131.25
			715.12
Drainage System			
Reinforced Concrete Pipe 24"	9.0 x 1.0 ml	57.75	519.75
Reinforced Concrete Pipe 36"	9.0 x 1.0 ml	99.75	897.75
Headwall 24"	1.6 x 2	57.75	184.80
Headwall 36"	4.0 x 2	57.75	462.00
Sub-base	6.0 x 0.10 x 1.10 x 1000 = 660	5.25	3,465.00
			5,529.30
			6,244.42

TABLE 2m

REHABILITATION - AID ROADS

ROAD TYPE II
MOUNTAINOUS TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	5.0	23.66	118.30
Motorgrader	20.0	18.41	368.20
Compactor	10.0	12.11	121.10
Water tank	20.0	10.50	210.00
Front loader	1.0	18.41	18.41
Dump Truck	5.0	7.91	39.55
Compressor	2.0	17.36	34.72
Cleaning and Grubbing	1.0	131.25	131.25
			1,041.53
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 1.0 ml	57.75	462.00
Reinforced Concrete Pipe 36"	8.0 x 1.0 ml	99.75	798.00
Headwall 24"	1.6 x 2.0	58.31	186.59
Headwall 36"	4.0 x 2.0	57.75	462.00
drainage inlet 24"	1.6 x 1.0	57.75	92.40
Concrete Class B	1.0 x 4.5 x 0.3	94.50	127.57
Masonry	1.0 x 0.3 x 4.5	73.50	99.22
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.25	3,832.50
			6,060.28
			7,101.81

TABLE 2n

REHABILITATION - AID ROADS

ROAD TYPE II
ROLLING TERRAIN

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Earth Works	3.0	23.66	70.98
Motorgrader	15.0	18.41	276.15
Compactor	10.0	12.11	121.10
Water tank	20.0	10.50	210.00
Front loader	1.0	18.41	18.41
Dump Truck	5.0	7.91	39.55
Compressor	2.0	17.36	34.72
Cleaning and Grubbing	1.0	131.25	131.25
			902.16
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 1.0 ml	57.75	462.00
Reinforced Concrete Pipe 36"	8.0 x 1.0 ml	99.75	798.00
Headwall 24"	1.6 x 2.0	57.75	184.80
Headwall 36"	4.0 x 2.0	57.75	462.00
Concrete Class B	1.0 x 4.5 x 0.3	94.50	127.57
Masonry	1.0 x 0.3 x 4.5	73.50	99.22
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.25	3,832.50
			5,966.09
			6,868.25

TABLE 2o
REHABILITATION - AID ROADS

ROAD TYPE II
FLAT TERRAIN (Flood Zone)

EARTH WORKS	No. of Hours		Cost per Unit	Total Cost
Tractor DG	15.0	(hours)	47.25	708.75
Motorgrader	20.0	(hours)	36.75	735.00
Compactor	10.0	(hours)	23.66	236.60
Water tank	20.0	(hours)	21.00	420.00
Front loader	5.0	(hours)	36.75	183.75
Dump Truck	25.0	(hours)	15.75	393.75
Cleaning and Grubbing	1.0	(hours)	131.25	131.25
				2,808.50
Drainage System				
Reinforced Concrete Pipe 24"	8.0 x 1.0 ml		57.75	462.00
Reinforced Concrete Pipe 36"	8.0 x 1.0 ml		99.75	798.00
Headwall 24"	1.6 x 2.0		57.75	184.80
Headwall 36"	4.0 x 2.0		57.75	462.00
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730		5.25	3,832.50
				5,739.30
				8,547.80

TABLE 2p

REHABILITATION - AID ROADS

ROAD TYPE II
FLAT TERRAIN (Non-Flood)

EARTH WORKS	No. of Hours	Cost per Unit	Total Cost
Tractor DG	5.0	36.75	183.75
Motorgrader	10.0	36.75	367.50
Compactor	5.0	23.66	118.30
Water tank	10.0	21.00	210.00
Front loader	2.0	36.75	73.50
Dump Truck	10.0	15.75	157.50
Cleaning and Grubbing	1.0	262.50	262.50
			1,373.05
Drainage System			
Reinforced Concrete Pipe 24"	8.0 x 1.0 ml	57.75	462.00
Reinforced Concrete Pipe 36"	8.0 x 1.0 ml	99.75	798.00
Headwall 24"	1.6 x 2.0	57.75	184.80
Headwall 36"	4.0 x 2.0	57.75	462.00
Sub-base	4.5 x 0.15 x 1.10 x 1000 = 730	5.25	3,832.50
			5,739.00
			7,112.35

TABLE 3

DGC ADMINISTRATION AND ENGINEERING

Project: Rural Roads III, Counterpart Program 522-0334

GROUP	DESCRIPTION	TOTAL
1	Personal Services	
	Temporary Labor*	147,980.75
	Profesionals and Technicals*	116,700.00
2	Non Personal Services	
	Publicity and Propaganda	500.00
	Printing and binding	500.00
	Perdiem	6,250.00
	Houses rented for Personnel*	3,750.00
	Maintenance of Office Equipment	250.00
	Maintenance of Transport Equipment	1,250.00
	Several services N.C.	6,250.00
3	Equipment and Supplies	
	Textiles finish	150.00
	Cloth	50.00
	Desk paper	750.00
	Paper	37.50
	Art Graphics Products	75.00
	Paper Products	75.00
	Tires and Tubes*	18,960.94
	Fuel and Lubricants*	41,220.00
	Sanitary Products	75.00
	Several chemical materials and related	2,500.00
	Cement, lime and gypsum	500.00
	Tools	250.00

* See Tables 3a, 3b, and 3c.

TABLE 3
(Continued)

GROUP	DESCRIPTION	TOTAL
	Office supplies	125.00
	Cleaning equipment	75.00
	Educational Supplies	125.00
	Spare parts	30,825.00
	Other Articles and Materials	500.00
4	Machinery and Equipment	
	Office Equipment	350.00
	Total Annual Cost	380,000.19
	TOTAL PROJECT COST	1,900,000.00

* Funding for DGC Administration and Engineering is only needed for five years of the six year project.

TABLE VI 3-a
LABOR and TECHNICAL STAFF
Rural Roads III

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
2	Work Inspector	418.57	378.07	418.57	405.71	418.57	405.07	418.57	418.57	405.07	418.57	405.07	418.57	4,428.41
1	Person in Charge of the Warehouse	196.38	177.38	196.38	190.05	196.38	190.05	196.38	196.38	190.05	196.38	190.06	196.38	2,312.27
1	Bidd Agent	224.75	203.00	224.75	217.50	224.75	217.50	224.75	224.75	217.50	224.75	217.50	224.75	2,646.25
1	Transactor agent	131.75	119.00	131.75	127.50	131.75	127.50	131.75	131.75	127.50	131.75	127.50	131.75	1,551.25
2	Chofers	289.38	261.38	289.38	208.05	289.38	208.05	289.38	289.38	208.05	289.38	208.05	289.38	3,407.28
1	Office Boy	118.81	107.31	118.81	114.98	118.81	114.98	118.81	118.81	114.98	118.81	114.98	118.81	1,398.86
4	Cleaning Ladies	348.75	315.00	348.75	337.50	348.75	337.50	348.75	348.75	337.50	348.75	337.50	348.75	4,106.25
2	Agricultural Promoters	449.50	406.00	449.50	435.00	449.50	435.00	449.50	449.50	435.00	449.50	435.00	449.50	5,292.50
1	Carpenter	155.00	140.00	155.00	150.00	155.00	150.00	155.00	155.00	150.00	155.00	150.00	155.00	1,825.00
2	masons	240.25	217.00	240.25	232.50	240.25	232.50	240.25	240.25	232.50	240.25	232.50	240.25	2,828.75
6	Watchman	483.05	436.31	483.05	467.47	483.05	467.47	483.05	483.05	467.47	483.05	467.47	483.05	5,687.61
3	Draftman	400.44	361.69	400.44	387.52	400.44	387.52	400.44	400.44	387.52	400.44	387.52	400.44	4,714.88
1	Mechanic	263.50	238.00	263.50	255.00	263.50	255.00	236.50	263.50	255.00	263.50	255.00	263.50	3,102.50
1	mechanic Inspector	222.19	200.69	222.19	215.03	222.19	215.03	222.19	222.19	215.03	222.19	215.03	222.19	2,616.14
2	Aid mechanic	263.50	238.00	263.50	255.00	263.50	255.00	263.50	263.50	255.00	263.50	255.00	263.50	3,102.50
	TOTAL	4,205.85	3,798.83	4,205.85	4,070.18	4,205.85	4,070.18	4,205.85	4,205.85	4,070.18	4,205.85	4,070.18	4,205.85	49,520.46

FIELD PERSONNEL

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
6	Earthwork foreman	1,860.00	1,680.00	1,860.00	1,800.00	1,860.00	1,800.00	1,860.00	1,860.00	1,800.00	1,860.00	0	0	18,240.00
15	Equipment reviser	2,325.00	2,100.00	2,325.00	2,250.00	2,325.00	2,250.00	2,325.00	2,325.00	2,250.00	2,325.00	0	0	22,800.00
5	Swerage Inspector	775.00	700.00	775.00	750.00	775.00	750.00	775.00	775.00	750.00	775.00	0	0	7,600.00
5	Enginer's Drivers	645.96	583.40	645.96	625.12	645.96	625.12	645.96	645.96	625.12	645.96	625.13	645.96	7,605.68
5	Project Drivers	645.96	583.40	645.96	625.12	645.96	625.12	645.96	645.96	625.12	645.96	0		6,334.60
2	topographer	413.38	373.38	413.38	400.05	413.38	400.05	413.38	413.38	400.05	413.38	400.05	413.38	4,867.27
2	Chain man	206.77	186.76	206.77	200.10	206.77	200.10	206.77	206.77	200.10	206.77	200.10	206.77	2,434.55
5	Foreman	775.00	700.00	775.00	750.00	775.00	750.00	775.00	775.00	750.00	775.00	0	0	7,600.00
1	Foreman	232.50	210.00	232.50	225.00	232.50	225.00	232.50	232.50	225.00	232.50	225.00	232.50	2,737.50
30	Peones	1,860.00	1,680.00	1,800.00	1,800.00	1,860.00	1,800.00	1,860.00	1,860.00	1,800.00	1,860.00	0	0	18,240.00
	TOTAL	9,739.58	8,797.04	9,739.58	9,425.40	9,739.58	9,425.40	9,739.58	9,739.58	9,425.40	9,739.58	1,450.27	1,498.61	98,459.61

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TABLE VI 3-b
PROFESSIONAL SALARIES
Rural Roads III

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
Implementation Unit Director	1,000.00	1,1000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	12,000.00
Implementation Unit Subdirector	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	10,500.00
Studies Engineer	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	10,500.00
Studies Engineer	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	10,500.00
Project Engineer	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	875.00	10,500.00
Project Engineer	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	9,000.00
Project Engineer	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	9,000.00
Project Engineer	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	9,000.00
Agronomist	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	4,750.00
Social Promotor	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	250.00	3,000.00
Social Promotor	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	2,400.00
Social Promotor	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	2,400.00
Earthwork foreman	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	6,000.00
Manager	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	6,000.00
Secretary	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1,800.00
Secretary	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1,800.00
Economist	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	625.00	7,500.00
TOTAL	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	9,725.00	116,700.00
HOUSING RENTAL PLAN													
Project I	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	750.00
Project II	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	750.00
Project III	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	750.00
Project IV	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	750.00
Project V	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	750.00
TOTAL	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	375.00	3,750.00

TABLE VI 3-c
DGC VEHICLE SUPPORT COSTS

Fuel and Lubricant 199[illegible]

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
8	Toyota Diesel Vehicles	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	1,485.00	17,820.00
5	Ford Gasoline Vehicles	1,950.00	1,950.00	1,950.00	1,950.00	1,950.00	1,950.00	1,528.80	1,528.80	1,528.80	1,528.80	1,528.50	1,716.43	23,400.00
	TOTAL	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	3,435.00	23,400.00

Tires and Pneumatics

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
8	Toyota Diesel Vehicles	3,675.00						3,675.00					2,756.25	10,106.25
5	Ford Gasoline Vehicles	3,257.81						3,257.81					2,339.06	8,854.68
	TOTAL	9,243.75						6,932.81					5,095.31	18,960.93

Spare Parts

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	TOTAL
8	Toyota Diesel Vehicles	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75	1,669.75
5	Ford Gasoline Vehicles	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00	889.00
	TOTAL	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75	2,568.75

TABLE 4
MAINTENANCE COMPONENT
SALARIES AND PER DIEM
DGM ADMINISTRATION AND ENGINEERING

SALARIES

PER DIEM

Budget Line Item	No. of Days	Visits/ Year	Days/ Years	Cost/ Day	Cost/ Year
1. District 1	3	10	30	22.5	675
2. District 9	4	10	40	22.5	900
3. District 2	4	10	40	22.5	900
4. District 3	4	10	40	22.5	900
5. District 4	4	10	40	22.5	900
6. District 10	5	10	50	22.5	1,125
7. District 5	5	10	50	22.5	1,125
8. District 6	5	10	50	22.5	1,125
9. District 7	5	10	50	22.5	1,125
10. District 8	5	10	50	22.5	1,125
TOTAL	-	90	440	-	9,900

The total cost per year is $9,900 making the total project cost $49,500.

TABLE 5
VEHICLES, EQUIPMENT AND SUPPLIES
DGM ADMINISTRATION AND ENGINEERING

Description	Amount	Unit Cost	Total Cost
Vehicles	11	$16,300	$179,300
Radios	11	1,350	14,850
Vehicle Repair Parts	(for 25 vehicles)		140,000
Desk Calculators	11	250	2,750
Portable Calculators	11	75	825
Drawing Equipment	1	500	500
Fans	11	80	850
Office Supplies	($1000 per year)		5,000
			344,075

TABLE 6

HAND TOOLS
PEON CAMINERO PROGRAM

Description	Units/Year	Unit Cost	Cost/Year
Shovel	600	$ 8.00	$ 4,800
Pickax	600	$ 9.25	5,550
Hoe	600	$ 6.25	3,750
Handcart	600	$80.00	48,000
Machete	1,200	$ 5.00	6,000
File	10,800	$ 1.75	18,900
Steel bar	60	$30.00	1,800
Axe	60	$10.00	600
Sledgehammer	60	$25.00	1,500
Rammer	600	$25.00	15,000
TOTAL			$105,900

Because of the delays in receiving the tools after an order is placed, almost a two year supply is purchased in the second year and more than a years supply are purchased in the following years to cover the delays in receiving the tools and reduce the cost increases due to inflation.

	YEARS						
	1	2	3	4	5	6	TOTAL
Yearly Cost		200	145	145	145	25	660

ANNEX IV

GOALS OF SECOPT ON ROAD MAINTENANCE

1. INTRODUCTION

2. SHORT AND LONG TERM POLICIES ON ROAD MAINTENANCE
   - 2.1 Privatization
   - 2.2 Organization/Administrative Restructuring
   - 2.3 Permanent Financial Sources
   - 2.4 Phases of Implementation

3. WORK METHODOLOGY
   - 3.1 Maintenance Performance System by DGM
   - 3.2 Annual Programming System by DGM
   - 3.3 Automatization System of SECOPT
   - 3.4 Road Maintenance System by Contract
   - 3.5 Methodology Implementation Program

4. TRAINING FOR THE ROAD WORDER PROGRAM
   - 4.1 Program Goals
   - 4.2 Sources and Organization Assignments
   - 4.3 Training

5. AID EXECUTING UNIT
   - 5.1 General Functions

6. TYPE OF CONTRACT

7. MAINTENANCE FOR RURAL ROADS NOT BUILT WITH A.I.D. FINANCING

8. STUDY OF PROBABLE SOURCES OF INCOME FOR DGM
   - 8.1 Study Objectives
   - 8.2 Implementation Program

9. PROPOSAL FOR ORGANIZING THE DGM

Short and long term policies of the Direccion General de Mantenimiento Caminos y Aeropuertos

1. Introduction

In view of the new Government's policies, it is necessary to review the objectives and contents of the Project Caminos Rurales III. The present report inter-relates the new policies for road maintenance, the work methodology which will be applied by the Dirección General de Mantenimiento some specific objectives of the Peón Caminero (Road Worker Program), and the probable financial resources of the DGM.

It will also mention several points of the new organization-administration structure under which the DGM shall function, including its relationship with the A.I.D. Executing Unit.

2. Short and Long Term Policies of Road Maintenance:

2.1 Privatization

In view of the serious problems the DGM faces from the usage of 80% of its annual budget to pay salaries, the low efficiency over the last decade (due primarily to the improper use of DGM's funds), and the general need to reduce public spending in order to be diminish the fiscal deficit of the nation; the Secretaria de Comunicaciones Obras Públicas y Transporte (SECOPT) has decided, as a general policy, to make more use of private enterprise for road maintenance operations through a gradual process until a level of 80% performance by private enterprise has been reached by the end of 1993. Because of the nature of the work, there will always be the need to perform 20% of maintenance directly by the Dirección General. With this policy the DGM seeks to increase its efficiency in order to truly provide an acceptable maintenance level to the Road System existing in this country. It is considered necessary, on the other hand, to reduce the investment of opening new roads, until an adequate road maintenance system which produces adequate results is attained.

2.2 Organizational Administrative Restructuring:

In view of the need to reduce the fiscal deficit of the Central Government and improve the efficiency of the different State dependencies, a policy has been established to implement a new organizational scheme, applying at the same time new technical-administrative procedures in order to reduce the size of SECOPT and increase its efficiency. This policy is necessary since SECOPT has suffered a 250% increase in 1985 and 1989 in its administrative personnel, especially in the DGM. The restructuring process will take place on a gradual basis as the privatization process gets going.

2.3 Permanent Financial Sources:

The nature of the work of road maintenance implies the need to make annual investments which fall under the category of recurrent costs. Because of this it is indispensable to determine the permanent sources of income to finance

these reports; which would imply the preparation of a technical-economic study as well as establishing a legal framework which would allow such income to be obtained.

2.4 Phases of Implementation of Road Maintenance Policies

Enclosed is the program for the implementation of road maintenance policies indicating the percentage of accumulated advances in the next years of Government.

3. Work Methodology

3.1 Maintenance Performance System by DGM

The DGMCA has been using the road maintenance performance system elaborated by ROY JURGENSEN ASSOCIATES, INC., who, since 1979, left the technical administration procedures established to implement an effective maintenance system. The Advisors Roy Jurgensen Associates, Inc. encompassed five fundamental aspects: road maintenance norms and controls, equipments and workshops, accounting, warehouses, and personnel training.

Within the road maintenance area, all aspects of administration, controls and necessary installations have been examined. The new system establishes a method to perform a road inventory; it also considers budgets, work programs, evaluation and control of the activities included in the different types of roads existing in this country. After having considered the recommendations and methods indicated by ROY JURGENSEN ASSOCIATES, INC., it is considered that the administration system and the existing road maintenance program are adequate to satisfy the present and future needs of the Road System. Up to now, the problem lies in the lack of implementation of the technical administrative system mentioned; and it is therefore considered unnecessary to spend more time and resources on the findings of a new road maintenance system, but, instead, to focus attention on the effective implementation of the system already in existence.

DGM's new scheme of organization shall respect the recommendations of ROY JURGENSEN ASSOCIATES INC., with a few minor changes.

3.2 Annual Programming System for maintenance Jobs

The Secretaría de Comunicaciones, Obras Publicas y Transporte and especially the Dirección General de Mantenimiento and the Dirección General de Caminos, are fully aware of the importance of work based on short, medium and long ranged programming. With that in mind, in 1989 the Plan Maestro (Master Plan), which covers the road maintenance projection of the country for the next ten years, was brought up to date.

The Plan Maestro Vial makes general and specific recommendations to be implemented at different periods, which include the programming for opening new roads, as well as the maintenance of the existing and future ones. In the specific case of road maintenance, the Plan Maestro Vial recommends using the HDM Program, a computer tool which consists of a complete system of programming, controlling, and defining maintenance priorities, as it takes economic, social and fiscal (Road Inventory) variables into account. Applying

the HDM Program will imply obtaining and updating a great number of statistics of the variables mentioned before, which will require a special organization within each Dirección General (Dirección General de Caminos, Dirección General de Mantenimiento, Transporte y Obras Civiles). The entire responsibility of coordinating these activities will fall on the Dirección General de Planificación Sectorial. Within the DGM, the Unidad de Planeamiento y Presupuesto will assign the necessary human resources to carry out each activity, in view that part of the normal functioning of this division is the Road Inventory. Likewise the DGM shall contract the services of a transportation specialist and an economic specialist who shall work jointly with special advisors to implement the HDM Program. All this effort shall be oriented to establish a national system of programming road maintenance.

Each Dirección General involved in the Master Road Plan shall offer a similar support to the one mentioned above by the DGM, and the Dirección General de Planificación Sectorial shall be responsible for the general coordination. The implementing of the HDM on a permanent basis is programmed for November, 1990.

3.3 Automatization System of SECOPT

Parallel to the organization administration restructuring, the Secretaria de Comunicaciones, Obras Públicas y Transporte shall implement a data processing system to improve the efficiency and control of the different branches. There are two possibilities being considered at the present time; the first is to install a general computer center connected to all the Direcciones; the other possibility is to install individual computer centers in each Dirección General which would be interconnected in order to share the information common to all.

In either case, with all those activities which are similar to all branches, a uniform application shall be installed as well as the access level of information for each level of authority. The Dirección General de Planificación Sectorial shall be responsible for the general coordination of this automatization process with the technical assistance of the Partnership "Construction Project Consultants Inc., General Consultant Inc. and Nippon Kowi Op, Ltd." This automatization process shall begin on April 1 and is expected to be completely installed by the end of August 1990. DGM has already started working on the computer programs which will help improve the efficiency of the Unidad de Planeamiento y Presupuesto, Depto. de Personal, Depto. Administrativo, and Depto. de Equipos y Talleres. Within the budget of the Caminos Rurales III Progra, there is an application for US$250,000.00 in order to acquire the basic equipment for the data processing system.

3.4 Road Maintenance System by Contract

As stated on the private enterprise policies in numeral 2.1 of this document, DGM has begun establishing a permanent system of road maintenance by contract with local construction companies. Within the 1990 national funds budget, the amount of L 2,000,000.00 has been assigned for contracts of conforming operation and ballasting 9this amount will be spent on roads previously financed by A.I.D.); the amount of L3,000,000.00 has been assigned for major asphalt maintenance by contract (Subprogram 03 of the 1990 Budget); from the Caminos Rurales III Program's funds, the amount US$ 5,474,000 (donated by

A.I.D.) has been assigned for maintenance by contract of Caminos A.I.D., and of those dirt of sub-base level roads, even if they have not been financed by A.I.D., which are of vital importance for Caminos Rurales III, the annual projection of contract maintenance from the funds donated by A.I.D.

On the other hand, within DGM's national funds budget for the next four years, there will be a line item for contract maintenance which will continue to grow as the private enterprise policy progresses.

It is considered that there is enough experience in the DGC and the DGM to direct, carry out and supervise these contracts effectively. The DGM shall contract, in addition to its permanent personnel, the necessary engineers to supervise and inspect these contracts. By 1990, fives engineers and five inspectors will be employed, increasing or decreasing this number depending on the amount of contracts programmed each year (see disbursement program and additional personnel lists). The field supervisor of these contracts will receive logistics support from the respective districts, which, under the new organizational structure, shall have one head engineer and either one or two assistants, depending on the case (see Chapter 7).

The A.I.D. Executing Unit, in SECOPT shall advise DGM with regard to the approved procedures of pre-qualification, bids and supervision of these contracts during a transitional period, until a permanent system within DGM can be established, through no later than July, 1990. The DGM department responsible for coordination this road maintenance system will be the Unidad de Planeamiento y Presupuesto (UPP). The UPP will be in charge of obtaining and distributing all technical-administrative information to the A.I.D. Executing Unit. The supervising personnel (job inspectors and engineers) shall serve under the Depto. de Mantenimiento Rutinario and the manger will report on the progress and problems of each contract to the Unidad de Planeamiento. The entire responsibility of managing these contracts of the DGM will fall back on the Sub-Director General (General Sub-Director).

As the Plan de Privatization del Mantenimiento Vial progresses, the need to create a unit within DGM, which would specialize in acquiring and managing contracts, shall be studied.

3.5 Methodology Implementation Program

The Methodology Implementation Program is enclosed herewith. Note that the dates indicated correspond to the estimated duration of the correction and/or implementation measures of the new Methodology.

4. Training for the Road Worker Program

Historically, the supervision and training of road workers has been deficient; however, DGM's new authorities aim to improve this program and have taken measures to supervise road workers by using vehicles exclusively assigned for this purpose.

Also, it is considered that there is enough experience within the DGM and the DGC, the latter with its road labor program, to put into effect a training program for supervisors and road workers which will also include head engineers and district assistants. The implementation of this training will

be carried out according to the enclosed program. The responsibility for the Road Worker Program will continue to be a part of the Unidad de Planeamiento y Presupuesto, since this unit has been doing a satisfactory job.

5. A.I.D. Executing Unit

5.1 Coverage of the A.I.D. Executing Unit

The Project Caminos Rurales III shall be handled by a single executing unit, which will be in charge of the following duties

5.1.1. Identifying construction projects through studies of technical and economic feasibility using approved methods of A.I.D.

5.1.2 Preparing and conducting aids for construction and restoration contracts.

5.1.3 During a transitional period, assisting DGM personnel on prequalifying, bidding, assigning and supervising procedures of the project.

5.1.4 Supervising road rehabilitation and construction.

5.1.5 Will be responsible for preparing all accounting reports, including preparing liquidation reports, which need to be presented to the Ministerio de Hacienda y Crédito Público, for both DGC and DGM activities.

5.1.6 Review and present, in conjunction with both Direcciones, the technical specifications for the rehabilitation and maintenance projects.

5.1.7 Will assist DGM on technical and administrative procedures for maintenance by contract, especially during the transitional period.

6. Type of Contract

The road rehabilitation contracts shall be carried out using the same procedures as the Caminos I and II Projects. In other words, a combination of "rented equipment" for the initial earth fill phase and "Unitary Price" for the culverts and sub-base construction.

The road maintenance contracts shall be a combination of both modes when it is not possible to determine accurately the quantities needed beforehand. For example, the sub-grade formation is a difficult quantity to determine as it depends on the road deterioration, topography, geology, etc. Cleaning the right of way and sub-grade, on the other hand, is a quantity which can be easily determined. As the project progresses and experience is accumulated in administrating this type of contract, modifications can be made to make these projects more practical, manageable and functional.

In themeantime, the A.I.D. Executing Unit's experience will be used to estimate the preliminary quantities of the projects. That estimate will be used for the Licitation-Awarding process. Once the project has begun, the head engineer will evaluate quantities as the work proceeds for the purpose of making financial adjustments with due anticipation.

7. Maintenance for Rural Roads not Built with A.I.D. Financing

In so far as the maintenance program of rural roads built with A.I.D. financing is not adversely affected, some maintenance projects can be performed through private contracting on adjacent rural roads which were not necessarily built with financing from the United States Agency for International Development, A.I.D. In any case, such roads should be complementary adjacent, or physically and/or economically linked with A.I.D. financed projects. SECOPT must demonstrate these conditions in the application made to A.I.D. before proceeding with the bid.

8. Study of Probable Sources of Income for the DGM

8.1 Study Objectives

Since road and airport maintenance is classified under recurrent costs and a permanent and direct income system for road maintenance does not presently exist, the DGM shall, as a short term goal, conduct a study to determine some probable sources of income. For this purpose, a group of Japanese companies, construction Project Consultants Inc., Central Consultant Inc., and Nippon Koei Op. Ltd., shall offer their technical assistance as part of their consulting service contract. The DGM is also counting on the professional services of Ing. Roberto Atuan Saman and Lic. Petrona del Carmen Bulnes, transportation and economics specialist, respectively, who will work as counterparts on this study, since both participated in the elaboration of the Plan Maestro Vial de Honduras (Master Road Plan of Honduras).

The study shall determine some alternatives for permanent income, such as, road toll taxes, applying taxes at road customs of Honduras, applying taxes on export products, effectively using the landing taxes which are presently being charged in airports, contributions in cash, or similar, from municipalities, etc.

8.2 Implementation Program

Enclosed herewith is the implementation program from the study to be conducted of permanent income sources for road maintenance.

9. Proposal for Organizing the DGM

Enclosed is a summary of DGMCA's restructuring proposal which shows a diagram of the performances of both the central office as well as the cost centers in the different regions of the country. it also points out general and specific functions that each DGM department shall have and a description of the minimum qualifications for maintenance personnel. A complete personnel list follows, indicating each hob and the number of persons each department will need in order for the DGM to work more effectively. The restructuring proposal will be put into effect no later than May, 1990, and will be reviewed and evaluated periodically (each semester) as the maintenance program progresses.

TABLE 3

Program for Implementing Improvements in DGM Operations

1990

No.	Description	April	May	June	July	August	September	October	November	December
1	Improvements made in system developed for management of Road Network	———	———	———	———	- - -	- - -	- - -	- - -	- - -
2	Computer System for Maintenance Planning Installed				———	———	———	———		
3	Automation of other data systems in DGM	———	———	———	———	- - -	- - -	- - -	- - -	- - -
4	Initiation of Contract Maintenance Program of the DGM	———	———	———	———	- - -	- - -	- - -	- - -	- - -

——— Implementation of Program or System

- - - - Continued Operation of Program or System

TABLE 4
Peon Caminero Training Progam
Maintenance Districts

1990

No.	Description	April	May	June	July	August	September	October	November	December	Instructions
1	Training of District Engineers										2 Engs. DGM 2 Engs. DGC
2	Training of Supervisors										1 Eng. DGM 1 Eng. DGC District Chiefs
3	Training of Workers										District Chiefs

TABLE 5

Program for Implementation of Revenue Generation Measures

1990

No.	Description	April	May	June	July	August	September	October	November	December	1991 January
1	Definition of Objectives and Achivements of the Study										
2	Automatic Traffic Measurers in Operation										
3	Gathering of statistics on traffic flow										
4	Definition of income sources										
5	Final Report										

1991

No.	Description	Jan.	Feb.	March	April	May	June	July	August	September	October
6	Elaboration of Legal Framework										
7	Political Decision and Elaboration of Law										
8	Implement New Law										
9	Initiate Collection of tolls										

TABLE 2
Implementation Phases for the Institutional Strengthening Program
(Cumulative Figures)

No.	DESCRIPTION	1990	1991	1992	1993	1994
1	Privatization of Maintenance (goal is 80% of all activities)	15%	30%	60%	90%	100%
2	Administrative Organizational and Technical Restructuring of the DGM	50%	90%	100%	100%	100%
3	Generation of Revenues to Fund Recurrent Costs of Road Maintenance	30%	90%	100%	100%	100%
4	Training of Workers for Peón Caminero Program	100%	100%	100%	100%	100%

Organizational and Administrational Restructuring of the Dirección General de Mantenimiento Caminos y Aeropuertos

I. Antecedents

The present proposal results from the information obtained on DGMCA's administrative and field duties.

The restructuring proposal responds to the need to progressively use private enterprises for all mayor maintenance activities and mechanize all jobs which are presently done manually.

The documents analyzed are, among others, the following:

- Plan maestro Vial de Honduras (Master Road Plan of Honduras)
- Volume IV-T2. Road Maintenance Analysis
- Diagnostico Tecnico Administrativo de la DGMCA-1987
- Manual para Ejecutivos (Executive's Manual). Sistemas de Administración de Mantenimiento Vial-1981 (Administrative System for Road maintenance).
- Several memorandums describing jobs and personnel assigned to various Direction dependencies.

II. Actual Situation

A complete detail of the actual situation in the organization is stated in the Document "Diagnóstico Técnico Administrativo" and for this reason, it is not considered necessary to repeat its contents. However, a large part of the present proposal tends to solve the problems describe therein.

III. Proposal

The proposal consits of three parts: the first refers to the organizational structure, the second refers to the functions of this structure, and the third is a suggestion of the minimum academic qualifications each person must have to work at the DGMCA.

3.1 Organizational Structure (Diagram)

Figure No. 1 presents a diagram of the proposed organizational structure, as follows:

3.1.1 The DGMCA's Internal Auditor depends directly on the branch's Secretary and should answer to the Direction's Advisor, in addition to its other responsibilities.

The Internal Auditor will not work under the Dirección, in order to insure its total independent performance. However, it will have to yield work reports and any other information the DGM requires.

3.1.2 The Administrative Advisor was eliminated since its performance could not be justified. In its place, a technical (engineering and economical) advisory was named, since the Dirección General lacks the necessary experience in the area of road design, construction and maintenance, as well as economic knowledge of financing documents.

3.1.3 The legal Advisor is indispensable because of DGMCA's new direction. It will be responsible for making all documents for contracting and bidding.

3.1.4 The creation of an Executing Unit for Project AID 522-0214 Caminos Rurales II is proposed. In view of A.I.D.'s requirements and the importance of the project, this unit shall deal only with the Director General; however, the Dirección shall give all the administrative support required to make the project successful. The unit shall define its own structure with the Director's approval.

3.1.5 Personnel Department. This department shall be responsible for coordinating the janitorial and guards sections which were eliminated from the Administrative Department.

This elimination was one to simplify these activities, since the bureaucracy involved was unnecessary.

The Secretaria will be in charge of controlling the vehicles and

Figure B-2
DIRECTORATE OF MAINTENANCE
ROADS AND AIRPORTS
ORGANIZATION CHART

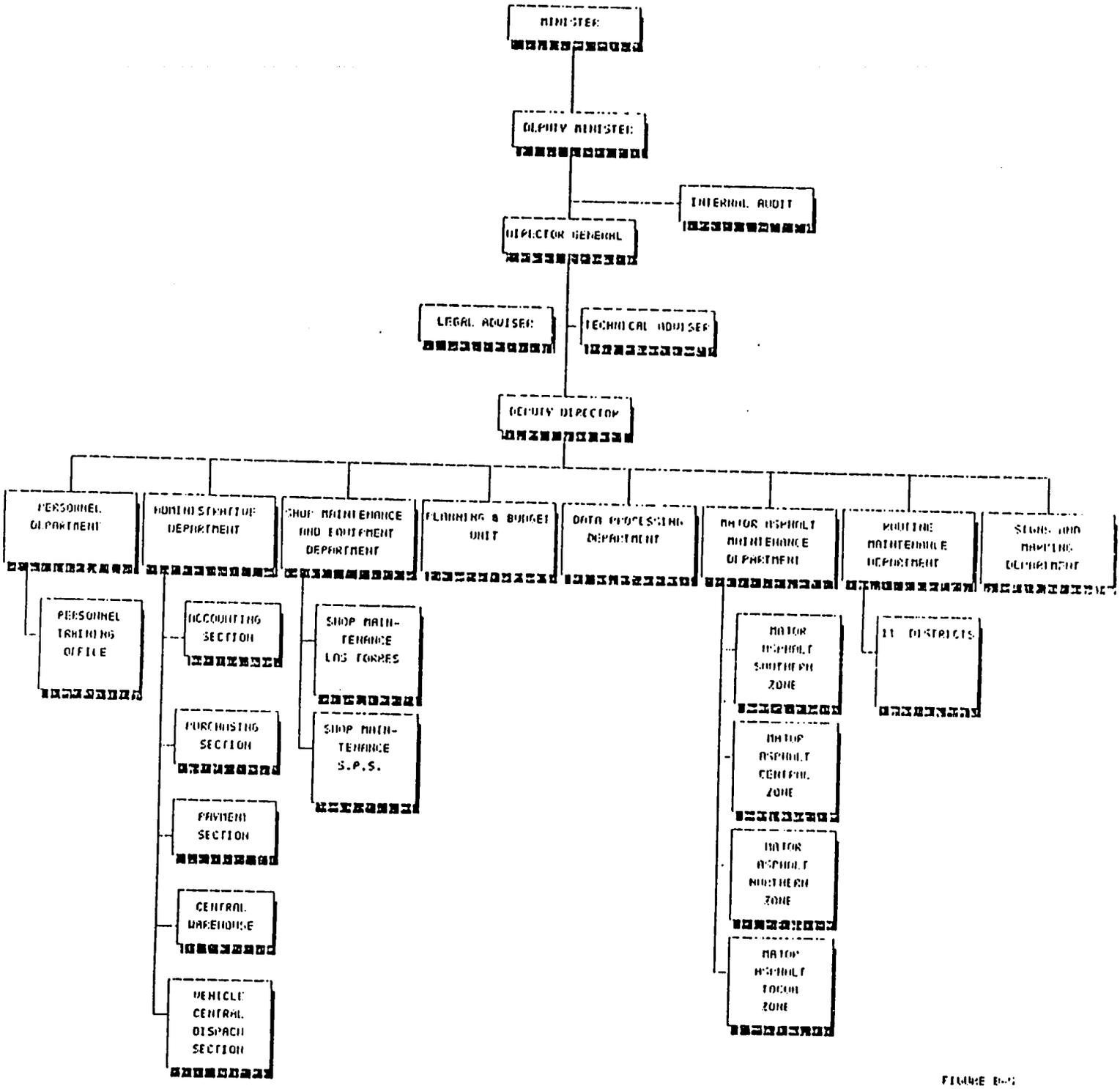
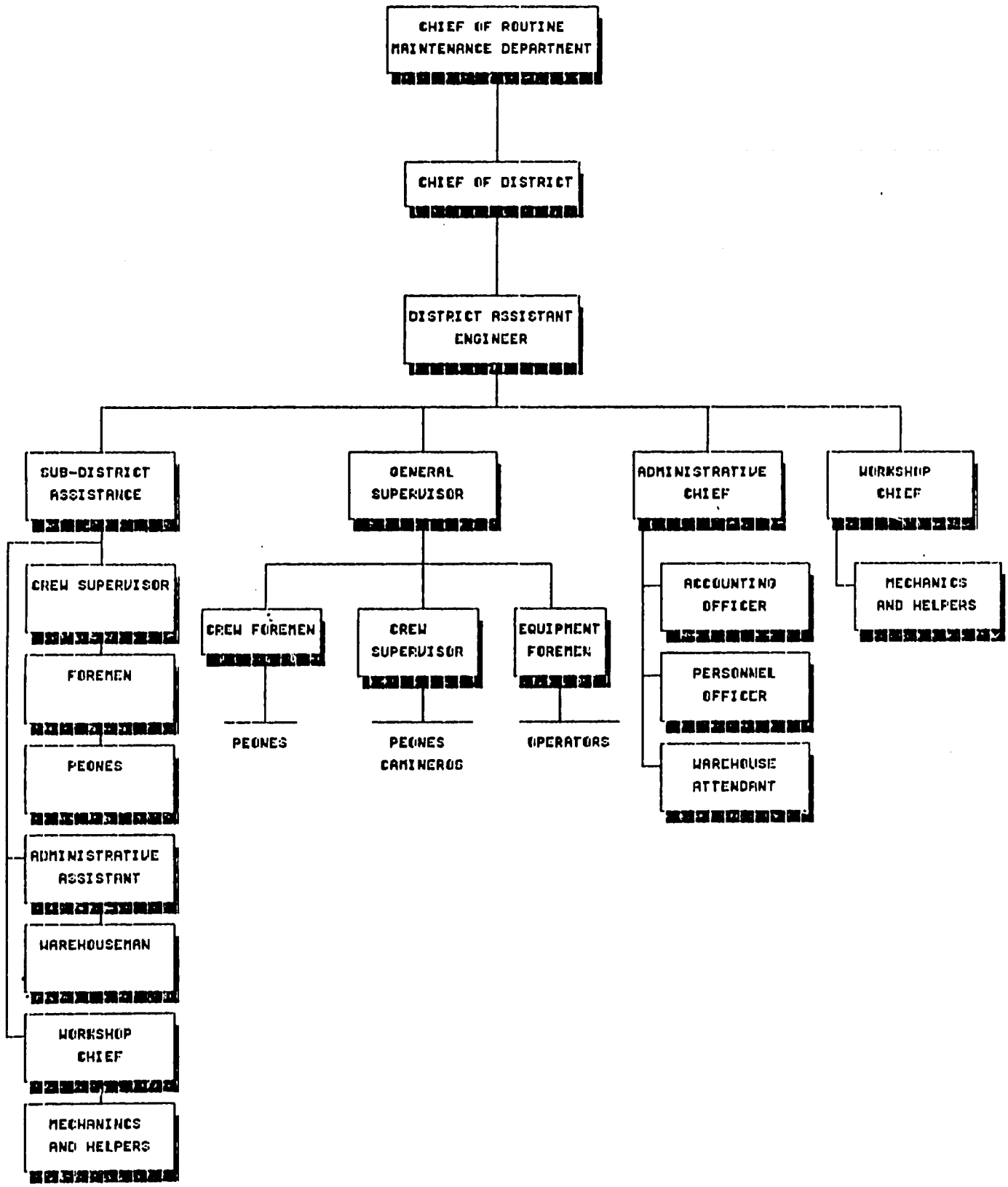


FIGURE B-2
1990

FIGURE B-3
ORGANIZATION CHART
ROUTINE MAINTENANCE DISTRICT



the Departamento Administrativo shall coordinate their activities.

3.1.6 As was pointed out before, the Janitorial, Guards and vehicle Control Sections have been eliminated, as well as, the Sección de Tramitaciones.

The later was eliminated since its responsibilities were assigned to the Sección de Compras, in order to insure a higher efficiency, as long as all purchases are strictly programmed. Extraordinary and emergency purchases will be performed only if the circumstances require it.

The Accounting, Purchasing, Central Warehouse, Radio and Accounts payable Sections shall be directly under the Administrative Department.

3.1.7. Equipment and Workshop department. This department shall work directly with the Dirección General and should have close contacts with the Departamentos de Mantenimiento Mayor y Rutinario. The Workshop Las Torres and the one in San Pedro Sula shall remain directly under this department.

These workshops shall be reduced in size as the road maintenance process of privatizing progresses. A private security contract is recommended for these workshops because of the high value of inventory handled. These workshop's duties are to repair or reconstruct all the equipment.

3.1.8 Planning and Budgeting Department. This department is of vital importance for the operations and functions of the DGMCA. There is a possibility being considered of eventually joining it with the Departamento de Procesamiento Automático de Datos (Data Processing Department).

3.1.9 In this proposal, the Department of Engineering disappears since its responsibilities were assigned to the Departamento de Mantenimiento Mayor y Rutinario, as it was previously mentioned.

3.1.10 Departamento de Mantenimiento Rutinario (Routine Maintenance Department). Shall remain the same except for the Maintenance districts which shall undergo the following changes:

- The Road Maintenance Programmer will disappear since all programming will be made in Tegucigalpa, and the District manager and his assistant will be responsible for following up each program. The Training Coordinator will also disappear since the Departamento de Entrenamiento de Personal will be cancelled. In the same manner, the Sección de Trabajos Especiales (Special Jobs Section) will also be eliminated, since it was considered the, in these cases, the necessary personnel can be hired specifically for those jobs.

- The Jefe de Equipo (Equipment Manager) will take over the job of the Jefe de Taller (Workshop Manager) and Jefe de Servicio (Service Manager). The work crews will disappear since all preventive maintenance will be done by mechanics at the workshop.

3.2 Functions

The Present proposal of the DGMCA's administrative reorganization will try to simplify, as much as possible, all internal bureaucratic procedures, without reducing efficiency. It will make the fundamental job of keeping roads and highways in the country, in better conditions for the users, more efficient.

Because of this, the duties, which have been defined, will have as a consequence the considerable reduction of the number of employees, and will place an emphasis of of the professional qualities of DGMCA's personnel.

It is important to note that this proposal's success depends primarily on the District Manager's responsibility to fulfill each goal, and his promptness and preciseness in presenting his reports. It will also depend on the planning and periodical evaluation of the Unidad de Planeamiento y Presupuesto and the Unidad de Procesamiento Automatico de Datos (PAD).

3.3.1. Auditor

The duties performed are the following:

1. Make physical inventories of the different DGMCA's dependencies.

2. Periodic inspections of the different DGMCA's dependencies.

3. Checking:
   Purchase Orders
   Payment Orders
   Fund transfers
   Worker's payrolls
   Overtime Payrolls
   Proof of Purchase made
   Estimated costs of work contracts
   Fund transfers between accounts when the purchase was made from the Proveeduria or state institution
4. Analysis of fuel and lubricants
5. Analysis of personnel
6. Refunds made to the Tesoreria General de la República
7. Verifying transactions
8. Receiving transactions
9. Internal and external unloading transactions
10. Transferring transactions
11. Delivering payroll cards
12. Reviewing each employee's daily assistance card when the payroll cards are delivered
13. Investigating material losses when the Departamento de Auditoria Interna is informed.

At the present time the Departamento de Auditoria functions with 19 Auditors, 3 Secretaries, 1 Errand boy and the Manager.

With the recommendations made on purchasing, the function of reviewing these documents will be simplified, it is therefore recommended to assign on auditor for each District, one general assistant and one person in charge of verifying all operations in Tegucigalpa; so as to reduce personnel from 24 people to 11.

3.2.2 Advisors

The advisors shall perform all those tasks pointed out by the Director General, as well as issue all the reports planned according to his specialty.

3.2.3 AID Executing Unit

This unit's functions are described in the document Caminos Rurales III.

the personnel asigned to this unit will depend on the scope of the terms relating to it.

3.2.4 Personnel Department

1. Maintain an effective line of communication with the Dirección General de Servicio Civil, INFOP, IHSS, Ministerio de Trabajo and Ministerio de Hacienda.
2. Review documentation to make sure it is coherent with the Ley de Servicio Civil.
3. Name and interviewing team, and inform the interested party on the results.
4. Carry out all the transactions pertaining to a contract.
5. Keep a complete file on each employee
6. Set the dates in which each employee shall take his vacation, with the manager's approval.
7. Keep an effective control on time cards
8. Make out the payroll.
9. Impose the corresponding punishment of each case
10. Assign specific duties to guards and janitorial personnel.
11. Help organize training courses.
12. Make periodic evaluations of personnel with regards to efficiency, behavior, etc. and give them to the Dirección in order to make the necessary decisions.
13. Make out all the reports requested.

part of this work can definitely be computerized, thus keeping a permanent record of all activities of the Department.

- Actual Personnel - 25 persons
- Proposed Personnel - 11 persons

3.2.5 Administrative Department

Coordinates functions of all divisions involved, which are:

- Accounting: Its main duty is to register all transactions of the Dirección General, which means:
  - Calculate unitary costs of the Dirección's functions
  - Make all financial reports
  - Keep an accounting book
  - Verify the balance of the budget (justify its usage)
  - Control the kardex balance

- Purchases: As the name indicates, this section is responsible for buying all the supplies for the Dirección.
  - It shall have the following duties;
  - Receive the request from the warehouse
  - Get quotations and analyze them
  - Carry out the necessary internal and external transactions
  - Make the purchase
  - Hand it over the warehouse

- Account Payable Section:
  - Review Executive approved contracts for professional and technical services, rents of buildings and lands, mechanical services, maintenance and repairs of office equipment, and others, in order to reserve the necessary funds and later make the payment.
  - Carry out transaction in order to approve funds for special payers, concilate and liquidate them. Handle th funds of the General Manager and District Managers.
  - Make out reports of the floating debt to pay the public debt on commitments made and not paid. Review special documents (Decrees, Resolutions, Dispensations, Documented Credit Applications, Letters of Credit openings.
  - Prepare administrative transactions for Dirección General's branches, as: Presupuesto (budget), Credito Público, Tesoreria General de la República, SECPLAN and all branches.
  - Review all payable documents made by this office, such as: Commercial, workers' payroll, traveling expenses, professional services, mechanical services, and any other document which requires an expenditure of this brances assigned budget.

- Carry out all transfers amount those departments lacking of available funds, and justify each transaction; create new budget destinations for the program; review and carry out all refund applications charging external oans and legalizing each through the office of Public Credit.
- Authorize and make the regular and extraordinary payrolls of contract personnel, payrolls for quotation and changing notices.
- The Account Payable Section functions according to the general arrangements of the budget classification manual and its rules, adhering to a pre-established procedure for the program's assigned budget.
- Cooperate with the Director, Sub-Director and Advisors in everything concerning administrative matters of the branch.

- Central Warehouse:
  - To carry out the function of a guard for all supplies and materials.
  - Receive from the purchasing department all materials and supplies, to be later handed over to the departments and supplies, to be later handed over to the departments and districts which have asked for them.
  - Keep an account of the stock through constant inventories
  - Inform the purchasing department, in advance, on the levels of stock and hand, for its respective replacements.
  - At the present time, the inventory is handled manually (through the kardex system) and is not reliable because it is not up to date. The installation of a computer terminal is recommended in order to computerize the inventory, and thus, have a more efficient service in the warehouse.

On the other hand, a large quantity of spare parts was found, for machinery which no longer exists in the Dirección General.

In view of this, an auction is recommended to sell these parts and use those funds to buy parts which are presently being needed.

It was also found that two of the existing four warehouses are in poor condition, and that these have a limited amount of space to store the extremely large and costly parts. Because of this, the repairing of these two warehouses and the building of a large enough storage area for those parts previously mentioned, are essential.

A study was also conducted on the steps needed to make withdrawasl from the Central WArehouse. In a separate document, a simpler method than the present was proposed.

- Archives: Its main function is to safely keep all documents sent by the Dirección General, as well as those received.

  With the purpose of reducing the amount of document in existence and to make better use of the space available and of the personnel, a microfilming machine is needed.

- Radio: This section is of vital importance to the Dirección General. Its main function is to keep a permanent intercommunication within the cost centers.

3.2.6 Equipment and Workshops:

- Control operations of regional workshops through workshop managers.
- Advise District Engineers and Department Managers on a permanent basis through their Department Supervisors.
- Make sure, through field inspection, that the work accomplished by the regional and district workshops, adhere to the norms and procedures established.
- Calculate operational costs of the units and show them to the Unidad de Planeamiento y Presupuesto.
- Cooperate with the Unidad de Planeamiento y Presupuesto in regards to the equipment, in order to prepare the annual budget.
- Organize and manage the annual taking of inventory of the units belonging to DGMCA.
- Give to the Distrito and Departamentos the complete and revised lists of the supplied required for preventive maintenance.
- Authorize the exchanging of equipment among the Districts and Departamentos, as loan as it is with accordance to the established norms.
- Review all repair, preventive maintenance, and operational costs, and justify their variations.
- Review the restoring studies and analyses; discard all equipment in poor condition from the inventory; and make recommendations to the Dirección General regarding the decisions they should make.
- Make requests of spare parts for mayor repairs in regional workshops.
- provide the regional, district, and mobile unit workshops with all the technical and administrative supplies, according to their needs.
- All other duties assigned by the Dirección General.

3.2.7 Planning and Budgeting Department

- Make the Annual Work Plan and prepare the Cost Center's annual program.
- Analyze, prepare and present monthly reports on the done by the Cost Centers.
- Prepare the Anteproyecto de Presupuesto de la Dirección (Preliminary Budget).
- Update the technical norms of the system in the road maintenance ara.
- Make various technical reports for international financial organizations, such as: BAnco Internacional de Desarrollo (BID), BAnco Mundial (FIRF), etc.
- Make various technical reports for state institutions, such as: COHDEFOR, IHCAFE, SECPLAN, RECURSOS NATURALES, etc.
- Calculate maintenance, restoring and rebuilding costs per kilometer, according to each highway's classification on performance and type of pavement.
- Review and update costs for the different maintenance activities.
- Process the information referring to road inventory nation wide, correct project lists, and update maps of the road network.
- Conduct seminars for the Cost Centers to strengthen the implementation of the maintenance administration system, such as: seminars for engineers and seminars for the roads network.
- Prepare studies and other documents needed for the installation of the Distritos de Mantenimiento de Caminos y Aeropuertos (Maintenance Districts of Roads and Airports).
- Analyze DGMCA's operative abilities in regards to the requirements and available sources.
- Prepare quantity norms for airport maintenance.
- Review the Programa de Mantenimiento Mayor (Main Maintenance Program) on medium and long range.
- Prepare and yield information for the implementation of the road maintenance projects, such as: Atlantida and Islas de la Bahía (SATLAN), Proyecto Integrado de Desarrollo Regional en el Occidente del país (PRODERO), and Proyecto de Desarrollo de Santa Barbara (PRODESBA).
- Prepare reports on budget balances
- Make the annual memory
- Periodic field evaluations

3.2.8 Departamento Procesamiento Automatico de Datos (PAD) (Data Processing Department): The functions of this department shall be defined once the organizational restructurings is approved. Nevertheless, the following must be fulfilled:

- Salary, wages, and day worker's payroll
- Personnel records (individual files)
- Kardex (spare parts, supplies and inventory)
- Current accounts
- Operational costs (unitary and global)
- Budget control

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3.2.9 Departamento de Asfalto Mayor (Main Asphalt Department). This unit is in charge of keeping up the country's paved highways in all that refers to:

- Filing pot holes
- Maintenance of gutters and culverts
- Reconstruction of pavement and seals
- Conduct studies of sites where road signs are needed and install the signs
- Inventory and control of supplies, equipment and spare parts
- Make periodic reports
- Carry out laboratory tests (quality, asphalt refining, etc.)
- Advice the Dirección General

3.2.10 Departamento de Mantenimiento Rutinario (Routine Maintenance Department)

Its main functions are:

- To ballast the rolling surface, location of quarriers for aggregate supplies, clean gutters and culvert
- Rebuild rolling surfaces with motor graders
- To clean road ways (paved and dirt roads)
- Anything else the Dirección General assigns within this Department there are 9 Districts and 3 Sub-districts, located in Districts 1, 4 and 6. It is well known that Districts 1 and 4 are of adequate size and autonomy to be considered a District.

A District's functions are:

- Make the annual road inventory, under the supervision of the Unidad de Planeamiento y Presupuesto according to their approved norms and procedures.
- Established the District's organization according to the diagrams approved by the Sub-Director, and designate his personnel to carry out their activities according to the DGMCA's established norms and procedures.
- Develop and carry out two-week work programs is agreement with the annual programs developed by the Unidad de Planeamiento y Presupuesto and approved by the Sub-Director, placing special emphasis on those jobs which produce the highest efficiency; complying with all the norms of quality, quantity and established procedures or each District's programmed activities.
- Control on a permanent basis, through direct field inspections, the jobs performed, verifying its progress and work quality, and arranging the changes that seem fit, in order to make good use of personnel, equipment, supplies and other resources.
- Study, analyze and propose to the Sub-Director any modifications different from the road maintenance norms already established by DGMCA, to expedite work in each district.
- Expedite the Advisory of the Unidad de Planeamiento y Presupuesto in order to achieve a higher productivity of the programs assigned to each district.

- Coordinate with the main Maintenance Department's Managers and/or Supervisors, the service the Distrito should give to all its equipment used for improving and restoring highways.
- Coordinate with the Departamento de Equipo y Talleres' managers and/or Supervisors, with the direct participation of the Equipo Distrital's Manager, what mayor repairs the Distrito's equipment will need.
- Approve the transfers and releases of the Distrito's equipment, once the Sub-Director has authorized them, making use of the advice given by the Departamento de Equipo y Talleres.
- Approve modifications of work programs, with the previous authorization of the Sub-Director and with the advice of the Unidad de Planeamiento y Presupuesto.
- Propose making contracts for personnel through payroll and through agreements, depending if his wages can be adjusted to the norms and procedures established by DGMCA.
- Approve monthly payrolls of personnel, instructing the Administrative Manager of each Distrito on the norms and procedures that should be followed.
- Control all administrative activities of the Distrito relating to personnel, supplies, fuel spare parts and other resources assigned for use in his district.
- Make sure that the Plantel Central del Distrito has the basic service of water, electricity, sewer, telephone, guards and security, and adequate work area for personnel.
- Control the use and availability of equipment and transportation vehicles assigned to the Distrito, through the Equipment manager and in accordance eith the norms, procedures and recommendations of the Departamento de Equipos y Talleres of the DGMCA.
- Inform the Sub-Director monthly on the activities performed in the Distrito, using the administrative procedures, in the Distrito, using the administrative procedures, accountable and/or technical, established for these purposes, or any other procedures the Sub-Director specifies.
- Cooperate with the Traffic Signaling Section in preparing the traffic sign needs (The Districts shall be responsible for the installing and upkeeping of traffic signs).

3.2.11 Traffic Sign Department

- Manufacture the traffic signs as required, in accordance with the accepted standards.
- Coordinate the programming needs of traffic signs.
- Signalize the roadway on paved highways.

3.3 Employees Minimum Requirements

a. Internal Auditor

Candidates for this position must hold a University Degree in Accounting and have at least 5 years experience. They should have a certification of membership in their respective professional association.

b. Technical Engineering Advisor

The candidate must hold a Civil Engineering Degree and have at least 15 years experience, preferably with a Masters Degree in Engineering; must have ample experience in design, construction and maintenance of highways, experience in preparing technical documents in order to negotiate external financing, and be duly certified at the Engineering Association.

Transportation Economist Technical Advisory

Candidates for this field must have a Bachelors Degree in Economics, at least 10 years professional experience, sufficient experience in preparing transportation technical-economical feasibility studies, experience in preparing technical documents in order to negotiate external financing, and be duly certified in their professional association.

c. Legal Advisor

Candidates must hold a Law Degree and have at least 5 years experience. They should have a certification of membership in their respective professional association.

d. Personnel Managers

Candidates must meet all the requirements demanded by the Civil Service Law.

e. Administration Department

Candidates for Administration Management must hold a degree in Public Administration and be duly certified in their professional association; or have a Degree in Civil Engineering with experience in Public Administration.

The Head of the Accounting Section must have a Bachelors degree in Accounting, with sufficient experience in the field, and be duly certified in their professional association.

The Head of the Purchasing Section must have a High School Accounting Degree (Perito Mercantil y Contador Público) and by duly certified in their Association, or have a High School Diploma (Bachiller en Ciencias y Letras) and sufficient experience in the field.

The Central Warehouse Manager shall have a High School Accounting Degree (Perito Mercantil y Contador Público), preferably with experience in computer operations and knowledge in handling warehouse supplies.

The Purchase Order Manager should have a High School Accounting Degree, at least 5 years experience in this field and be duly certified.

f. Department of Equipment and Workshops

Candidates for this department must have a Mechanical or Civil Engineering Degree, with experience in administration of highway construction equipment, al least 3 years experience and be duly certified.

Workshop Managers must be mechanics with ample experience in repairing highway construction equipment; furthermore, have knowledge in handling service manuals for the different brands of equipment in orde1 to identify spare parts as required.

g. Planning and Budgetting Unit

Candidates for this unit must hold a B.S. in Economics with ample experience in planning highway maintenance. This position can also be filled by a Civil Engineer with the same qualifications. Candidates must have at least 8 years experience and be duly certified.

The Data Processing Manager shall be a Systems Engineer with ample experience in programming and handling computer systems.

h. Main Asphalt Department

Candidates for Managers of this Department must have a Civil Engineering Degree with ample experience in repairing potholes, pavement seals and pavement reconstructions; must have at least 5 years experience and be duly certified.

i. Routine Maintenance Department

Candidates for this department must be Civil Engineers, duly certified, have experience in handling equipment assigned to them and at least 5 years experience.

Candidates for Field Managers should be Civil Engineers, duly certified and have at least 2 years experience.

j. Traffic Sign Department

Candidates for Traffice Sign Managers must be Civil Engineers with at least 2 years experience and be duly certified.

2 Chairmen
11 People

Routine Maintenance Department

1 Department Manager
2 Department Manager Assistant
1 Secretary
1 Errand Boy
3 Drivers
1 Topographer
2 Chairmen
5 Contract Supervisor Engineer
5 Job Inspectors
21 People

Engineering Department

* Totally Eliminated

Personnel Training Department

* Totally Eliminated

Singnaling Department

1 Department Manager
1 Secretary
1 Errand Boy
1 Driver
1 Janitor
10 Painters

DGMCA
Central Office Structure Proposal

1 General Director
3 Special Advisors (Technical, Economical, Labor)
1 General Sub-Director
2 Secretaries
1 Errand Boy
2 Drivers
1 Security
1 Telephone Operator
12 People

Legal Advisory Department

1 Legal Advisor
1 Assistant
1 Secretary
3 People

Internal Auditing Department

1	Department Head Auditor
1	Assistant Auditor
1	Secretary
1	Errand Boy
8	Auditors
12	People

Personnel Department

12	Watchmen
8	Janitors
1	Department Manager
1	Assistant
3	Secretaries
3	Personnel Training Coordinators
1	Errand Boy
2	Clerks
1	Timecard Clerks
1	Payroll Clerk
34	People

Administrative Department

1	Department Manager
2	Manager Assistants
*3	Secretaries
1	Petty Cash Clerk
1	Supplies and Fuel Clerk
2	General Supplies Clerks
2	Archives Clerks
1	Document Reproduction Clerk
1	Warehouse Clerk
3	Errand Boys
3	Radio Operators
1	Driver
1	Photocopier Operator
22	People

* Short on Secretaries

Accounting Section

1	Accounting Manager
2	Secretaries
2	Clerks
4	Accountants
2	Accounting Assistants
1	Errand Boy
12	People

Purchasing Section

1	Manager
1	Assistant
3	Secretaries
1	Errand Boy
2	Drivers
1	Cost Analyst
9	People

Accounts Payable Section

1	Manager
1	Errand Boy
2	Secretaries
2	Clerks
6	People

Central Warehouse Section

1	Manager
1	Secretary
1	Errand Boy
1	Warehouse Clerk
2	Warehouse Aides
1	Kardex Clerk
4	Packers
3	People

Equipment and Workshop Department

1	Engineering Manager
2	Assistant Engineers
2	Secretaries
1	Errand Boy
1	Driver
2	Cost Analyst
9	People

Planning and Budgeting Department

1	Department's Head Engineer
1	Assistant Engineer
1	Secretary (AID Project)
2	Secretaries
1	Errand Boy
3	Drivers
6	Engineers
3	Engineering Aides
1	Accountant
19	People

Data Processing Department (PAD)

1	Department Manager
2	Programmers
2	Data Operators
1	Data Reviewer
6	People

Mayor Maintenance Department

1	Department's manager Engineer
2	Assistant Engineers
1	Secretary
1	Errand Boy
2	Drivers
1	Topographer
2	Chairmen
10	People

Routine Maintenance Department

1	Department's Manager Engineer
2	Assistant Engineers
1	Secretary
1	Errand Boy
8	Drivers
1	Topographer
2	Chairmen
5	Supervising Engineers
5	Job Inspectors
26	People

Signaling Department

1	Department Manager
1	Secretary
1	Errand Boy
1	Driver
1	Janitor
10	Painters
7	Sketchers
1	Foreman
4	Carpenters
1	Truck Driver
1	Traffic Lines Operator
2	Welders
2	Watchmen
1	Administrator
1	Bricklayer
2	Aides
37	People

Total Central Office Personnel

Present Personnel	615 People
Reviewed STructure	223 People
Difference	392 People

Ideal Structure Las Torres Workshop

JOB	POSITION
Management	
Head Engineer of the Workshop	1
Assistant Engineer	1
Secretary	1
Administration Department	
Administration Manager	1
Administration Assistant	2
Secretary	3
Accounting Manager	1
Accountant Manager	1
Accountant	3
Janitor	3
Janitor Manager	8
Clerk	1
Nurse	1
Personnel Manager	1
Transportation Manager	1
Warehouse Manager	1
Driver	6
Equipment Aide	4
Guard	15
Workshop	
Electrician	4
Electrician Aide	2
Blacksmith	3
Lathe Operator	6
Lathe Operator Aide	3
Painter	3
Painter Aide	3
Welder	5
Mechanics	21
Mechanics Aide	29
Total Ideal Structure	132
Present Positions	318
Difference	186

DCMCA

ASPHALT ZONES PROPOSED STRUCTURE

JOB	North Zone	Central Zone	South Zone
Management			
Management Engineer	1	1	1
Assistant Engineer	2	2	1
Secretary	1	1	1
Errand Boy	1	1	1
Janitor	1	1	1
Driver	3	3	2
Administration Department			
Administrative Manager	1	1	1
Accountant and Clerk	3	3	2
Comb. and Asphalt Dispatcher	1	2	1
Errand Boy	1	1	1
Warehouse Guard	1	1	1
Warehouse Guard Aide	1	1	1
Driver	1	1	1
Secretary	1	1	1
Mechanical Workshop Manager	1	1	1
Mechanics	3	3	3
Mechanics Aide	4	4	3
Electromechanical	1	1	1
Eletromechanical Aide	1	1	1
Welder	1	1	1
Tool & Lub. Clerk	1	1	1
Tire Assemble	2	2	1
Preventive Mechanics	1	1	1
Personnel Manager	1	1	1
Production Plant			
Asphalt Plant Operator	1	1	1
Asphalt Plant Aide	4	4	4
Crushing Aggregate Clerk	1	1	1
Crushing Plant Operator	2	2	2
Crushing Plant Aide	2	2	2
Laboratory	1	1	1
Laboratory Aide	1	1	1
Equipment Operator			
Loading Machine Operator	4	4	2
Dump Truck Operator	17	20	18
Tractor Operator	1	1	2
Motor Grader Operator	2	2	2
Compacting Machine Operator	20	23	7
Finisher Operator	1	1	1
Pothole Truck Opeator	4	6	2
Asphalt Primer	2	2	2
Tank Truck Operator	2	3	1
Sweeper Tractor Operator	1	1	1
Agregate Speaker	1	1	0
Grid Operator	4	4	2
Equipment Transp. Operator	2	2	1
Head Truck Operator	1	1	1
Engr. Truck Operator	2	2	1
Base Stab. Operator	0	1	0
Equipment Aide	15	19	12
Field Personnel			
Crew Forement	6	6	3
Pavement Foremen	1	1	1
General Foremen	1	1	1
Scrapers	6	6	2
Watchment	17	17	17
Total Proposed Structure	161	178	126
Total Present Positions	194	208	204
Diference	33	30	78

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TABLE DGMCA
pg.1

TABLE DGMCA
pg.2

Distritos

D-1 = Comayaguela

D-2 = Olancho

D-3 = Choluteca

D-4 = Comayagua

D-5 = San Pedro Sula

D-6 = La Ceiba

D-7 = Santa Rosa de Copán

D-8 = Tocoa, Colon

D-9 = Santa Barbara

D-10 = Danlí

D-11 = La Esperanza

D-12 = Islas de la Bahía

ANNEX V

Following is a summary of of the procurement plan for the Project. A detailed schedule for procurement of both commodities and services may be found in the tables attached to this plan.

PROCUREMENT PLAN
(IN '000s of $US)

DESCRIPTION	METHOD OF PROCUREMENT	ESTIMATED AMOUNT
1. Maintenance and Construction Contracts	Host Country Contracting	12,845
2. Technical Assistance	Host country or Direct A.I.D. Contract	250
3. Vehicles and Commodities DGM	Direct A.I.D. Purchase	1,005
4. AID Coordinating Unit	AID PSCs & Vehicles	600
5. Evaluation	AID Contract/IQC	100

1. Maintenance and Construction Contracts: These will be contracted by the host country. A description of the contracting process from prequalification of firms through contracting, implementation and final acceptance of the work is contained in the Technical Analysis.

2. Technical Assistance: Technical assistance will be procured on an as needed basis for computer programming of maintenance management systems and other such needs through small host country contracts or through A.I.D. contracts.

3. Vehicles and Commodities for the DGM: This consists of 8 vehicles, tools for the Peón Caminero program (approximately $110,000 per year) as shown in Table 6 of Annex 3 and radios for communication with the maintenance engineers and same office equipment as also shown in Annex 3.

4. PSCs for AID coordinating unit will be competitively contracted.

5. The evaluation will be contracted through an IQC with AID/W.

Rural Roads III
SERVICES PROCUREMENT PLAN (U.S. $)

Component	Type of service	Amount $	Unit	Quantity	Contracting Unit	year 1	year 2	year 3	year 4	year 5
DGM. INSTITUTIONAL STRENGHTENING										
	-Study of computing needs.	10,000	Gbl	-	AID		xxx			
CONSTRUCTION										
	-Reconstruction. Rehabilitation Contracts.	7,125,000	Km	475 (1)	GOH		xxxxxxxxxxxxxxxxxxxxxxxxxxxx			
MAINTENANCE										
	-Road Maintenance Contracts.	5,474,000	Km	540 (2)	GOH		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx			
AID COORDINATING UNIT										
	-Contracting of Construction Engineer(PSC)	90,000	Contract	1	AID		x			
	-Contracting of Maintenance Engineer(PSC)	126,000	Contract	1	AID		x			
	-Contracting of Maintenance Engineer (PSC)	87,000	Contract	1	AID		x			

(1) Total cost per Km. is estimated at $ 15,000
(2) Total cost per year is estimated at $ 2,000

RURAL ROADS III
Commodities Procurement Plan
Cost in U.S. $

Component	Commodity	Quant.	Budget	Source and origin	Procurement Agent	1	2	3	4	5
I.MAINTENANCE										
	-Vehicles,Type Pick up Truck.Ford Ranger or similar.Two wheel Dr. Manual Trans.gasoline.	11	179,300	000	AID	xxxxxxxx				
	-Radios movil SSB	11	14,850	000	AID	xxxxxxxx				
	-Vehicles spare parts.	GBL	140.000	000	AID	xxxxxxxx				
	-Desk calculators	11	2,750	Shelf Items	GOH	x				
	-Portable calculators	11	825	"	GOH	x				
	-Drawing equipment	1	500	"	GOH	x				
	-Fans	11	850	"	GOH	x				
	-Office supplies	GBL	5,000	"	GOH	x	x	x	x	x
	-Hand tools (See annexed list)	GBL	658.000	000	AID	xx	xx	xx	xx	xx
	-Motorcycles ans spares (Counterpart funds)	56	170.000	Japan	GOH	xxx				
	-Spare parts for Contractors equipment.	GBL	820.000	000	AID		xxxxxxxxxxxxxxxxxxxxxxxxxx			
II. DGM INSTITUTIONAL STRENGHTENING										
	-Implementation of Computer needs.	GBL	250.00	000	AID		xxxxxxxxx			
III. CONSTRUCTION										
	-Tires and Pneumatics.	GBL	63.000	000	AID	xxxxx				
	-Spares parts for Contractors equip.	GBL	1,070.000	000	AID		xxxxxxxxxxxxxxxxxxxxxxxxx			
IV. AID COORDINATING UNIT										
	-Vehicles.Ford Bronco II or similar.Gasoline.	2	40.000	000	AID	xxxxxx				
	-Tires	80	5.000	000	AID			x	x	

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ANNEX VI

Subproject Environmental Examination (SEE) Document

Subproject Location : Honduras
Subproject Title : Rural Roads III
Subproject Number : 522-0334.XX
Subproject Cost :
Estimated Construction Time :
IEE Prepared by :
Date :

Will the subproject pass through relatively undegraded forest lands? Answer "Yes" or "No" below. If "Yes," a thorough environmental review must be undertaken by an A.I.D. or A.I.D. approved environmental specialist before the project can be further considered.

Threshold Decision : a) Recommendation: Negative Determination
b) Concurrence:

Chief of Implementation Unit

Date

Cleared by AID Project Officer:

Date:

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-Areas

A. LAND USE (21 possible points)

1. Changing the character of the land through:

   a. Increasing the population _____
   b. Extracting natural resources _____
   c. Land clearing _____
   d. Changing soil character _____

2. Altering natural defenses _____

3. Foreclosing important uses _____

4. Jeopardizing man or his works _____

   Sub-Total

Explanation: _____

B. WATER QUALITY (9 possible points)

1. Physical state of water _____

2. Chemical and biological states _____

3. Ecological balance _____

4. Other factors _____

   Sub-Total

Explanation: _____

IMPACT IDENTIFICATION AND EVALUATION FORM

	Impact Identification and Evaluation
C. ATMOSPHERIC (12 possible points)	
1. Air additives	_____
2. Air pollution	_____
3. Noise pollution	_____
4. Short Term Construction Air Pollution	_____
Sub-Total	
TOTAL	_____

Explanation: _____

_____

_____

_____

D. NATURAL RESOURCES (6 possible points)	
1. Diversion, altered use of water	_____
2. Irreversible, inefficient commitments	_____
3. Other factors	
Sub-Total	

Explanation: _____

_____

_____

_____

E. CULTURAL (9 possible points)	
1. Altering physical symbols	_____
2. Dilution of cultural traditions	_____
Sub-Total	

Explanation: _____

F. SOCIO-ECONOMIC (9 possible points)

1. Changes in economic/employment patterns _____

2. Changes in population _____

3. Changes in cultural patterns _____

Sub-Total

Explanation: _____

IMPACT IDENTIFICATION AND EVALUATION FORM

	Impact Identification and Evaluation
G. HEALTH (6 possible points)	
1. Changing a natural environment	_____
2. Eliminating an ecosystem element	_____
Sub-Total	

Explanation: _____

_____

_____

_____

Overall Determination _____

1/ Points

0 - NO environmental impact
1 - LITTLE environmental impact
2 - MODERATE environmental impact
3 - HIGH environmental impact
2 - UNKNOWN environmental impact

2/ Total points (69 possible points)

Grading:

1-20 points	Environmentally Sound
21-40 points	Environmentally questionalble - cost benefit must be compelling
41-72 points	Negative determination section should not be rehabilitated

* Each section must be accompanied by a general explanation of the factors that were taken into account in each specific area to give the grade shown.

Assesment of Beneficiaries, Social Benefits, Municipalities and Community Organizations as related to Rural Roads Projects

agricultural land use and traffic activity were observed.

1. Description of Beneficiaries

The rural road projects, funded by AID/Honduras, have been geared to serve residents of the rural sector. This chapter will present a brief description of the population that has benefited from the construction or rehabilitation of rural roads. The chapter is organized into three sections. Section one first presents the data pertaining to population by geographical location being served by the road projects, particularly RR II for which socio-economic studies are available. Secondly, population distribution by sex is discussed for the 16 departments and 68 municipalities served by both RR I and II. Section two discusses the rural family in Honduras and the third and last section presents a profile of the peon caminero (PC).

Population Being Served by the Rural Roads

Population by Geographical Location: According to the 1988 census, the population of Honduras is 4.3 millon, and 58% live in rural areas. Although this percentage has decreased a few points since the 1974 census, it still represents a significant number of the total population.

RR II has been implemented in 12 departments of Honduras. Data is available for 10 of these departments and it illustrates that the 856 kms. of road built in these ten departments benefit approximately 122,681 rural dwellers. The population distribution by department can be seen in Table I-1 (p.7).

The objective of RR II was to increase agricultural production for family consumption and marketing and to provide greater access to social benefits, particularly in the areas of health and education. Roads constructed under RR II have covered both the most agriculturally productive departments of Honduras with greater export potential, such as Cortes and Comayagua which rank second and fourth in terms of rural population (Table I-2 in page 8); and the most economically depressed areas such as Lempira where 89% of the population lives in the rural areas and social services are most scarce. With the exception of Santa Barbara (198 kms.), Lempira (190.4 kms.) has been the most benefitted department followed by Cortes (129 kms.). Lempira, a very mountainous and isolated department, has traditionally been neglected both by government and nongovernment development institutions. It is only with the newly constructed roads that the rural communities of Lempira are beginning to participate in development programs.

Population Distribution by Sex: The 1988 census reports that the population distribution of Honduras by sex is almost identical; women represent 50.4% of

the population and men 49.6%. The population distribution by sex by departments shows no significant differences from the national average. Of the 16 departments served by RR I and RR II only Francisco Morazan, Cortes and Ocotepeque in that order show a higher percentage of women than the national average (Table I-3 on page 9). Francisco Morazan and Cortes are the two departments that rank highest in terms of urban population (Table I-2 on page 8). The urban characteristic of these two departments could be a possible explanation for the greater concentration of women residents. Studies have demonstrated that women tend to migrate more than men to the urban centers.

The analysis of the 68 municipalities being served by RR I and II with regards to population distribution by sex does not indicate a significant difference from the national average. Of the 68 municipalities only nine have a percentage of women higher than the national average (Annex 1). This difference is probably due to the fact that many of these municipalities have a higher concentration of urban population. For the most part these municipalities either have a large urban center such as La Ceiba, Siguatepeque and Danli; or, as in the case of Alianza and San Lorenzo in the Department of Valle, attract population because of employment opportunities particularly in commercial activities.

Overall, the population distribution by sex in the areas served by the roads is similar to the national average. The emerging employment opportunities for women discussed in chapter two may eventually result in a restructuring of the population distribution by sex. If women have employment alternatives in the rural areas migration to the urban centers might be curtailed.

a. Profile of the Rural Family

Honduras continues to be an eminently rural country; the 1988 census determined that 58% of the population lives in rural areas. For the most part the rural dwellers can be defined as small farmers. The main characteristics of this social group is economic subsistence and the farm is the basic unit of multidimensional social organization. The family provides the labor on the farm and the economic action is interwoven with family relations. Subsistence, rather than capital accumulation, is generally the goal. For the majority of these small farmers economic expansion or consolidation of their farms is seldom possible.

There are also medium and even some large owners who reside in the rural communities, but for the most part these are absentee farmers. The roads under study are serving both the Honduran peasant family and the medium and large agricultural enterprises whose main objective is production for marketing locally or for export. This section will present a brief description of the Honduran peasant family; there might be certain differences according to region but there are some basic characteristic that pertain to all of them.

The peasant family for the most part is nuclear, composed of a conjugal couple and their offsprings; the average family size is six members; some

studies have pointed out a tendency towards smaller families in some areas of rural Honduras. The extended family in which more than one generation with his or her spouse and offspring live in the same household is not widespread in Honduras although it is often cited as one of the characteristics of rural societies. This does not negate the existence of extended families, but the concept goes beyond the residential place. The extended family is based on alliances and mutual help among relatives and through many family units residing in different communities whether urban or rural; this dynamic survival strategy allows the maximum utilization of the scarce resources of each relative; often this implies the interchange of family members in times of economic crisis to other households of this extended family thus affecting family composition and structure.

There is insufficient data to substantiate changes in family composition and structure resulting from the construction of rural roads. However, unless there are major structural economic changes in Honduras, ease of transportation between the rural and the urban areas contributes to the endurance of the extended of family structure. The roads will facilitate the interchange of family members among the different households during economic crisis; the absence of adequate social security renders this strategy as the only one for survival.

b. Profile of the Peon Caminero (PC)

The PCs represent a special group of beneficiaries. Besides being rural dwellers served by the recently constructed or rehabilitated roads, the PCs are employed for 10 months a year and receive a steady income which is uncommon in rural Honduras.

The discussion presented in this section is based on interviews with the PCs and observations of their work during the field trip. Twenty five peons were interviewed in the different regions visited: 8 in the south (District 3), 21% of the hired ones for 1989; 7 or 18% in the west (District 7); and 10 or 11.4% in the San Pedro Sula Region (District 5). In addition, a few of the peons selected by the Regional Office in La Ceiba but who were not yet working were also interviewed.

The PCs interviewed were of diverse ages; some were young men with no family responsibility or recently married; others were older men with grown families and no longer responsible of their maintenance. The majority, however, were male heads of household economically responsible for the family.

For the most part the low socio-economic conditions of the PC was evident. This job is their main source of income. Generally the PCs are landless peasants who sometimes are able to rent land to plant corn and sorghum for family subsistence. Renting land is becoming much more difficult. For example the rest per **manzana** in the Yojoa area is 30 Lempiras for the three months needed for the corn harvest. Sporadic seasonal work is often another source of income for the PC. In the south activities related to cantaloupe, shrimp, salt, sugarcane, and cotton production provide seasonal employment. In the west the coffee harvest is the productive enterprise that provides short term employment.

Overall, the PCs interviewed are subsistence farmers who must complement their income with other jobs, principally as hired labor. Only one of the seven PCs interviewed in the west had ten **manzanas** of land but not all of it under cultivation. A few of those interviewed had small coffee holdings. In the south, only one of the eight PCs interviewed was, compared to others in the area, economically above average. However, although he had signed the contract and the check is issued in his name, it is his brother who preforms the job and is the final recipient of the payment.

Since the outset of the PCP the daily salary of the PC has been Lps. 6.30 which is insufficient to provide the survival requirements. Nonetheless, this payment is similar to the wage paid in unskilled jobs throughout Honduras with some notable exceptions. For example in La Ceiba Region there are significant differences in the wages of unskilled laborers depending on the type of crop and the size of the enterprise. An interesting example is seen in the community of Villafranca of the Municipality of Tela. Here the **Patronato** president appointed the PC and his father, an elderly person, as the substitute; no one else wanted to accept the position because of the low salary. According to the selected PC, agricultural workers make Lps. 8.00 a day. If the job is to work in the african palm plantations the daily rate is between 12 and 25 Lempiras. The findings presented above indicate that the DGM should review the PCs salary and make adjustments if necessary.

In the community of .Tomasa in the Municipality of La Masica, the president of the patronato was selected as the PC for when the program begins. He owns 25 manzanas of land, cultivates corn, beans, and raises hogs. Recently he started a cacao farm. During certain agricultural seasons he hires labor and pays 7 lempiras a day, higher than the daily salary he will receive as a PC. He sees the PCP as providing sporadic employment rather than it being a stable job. Apparently he is not aware of the demands required by this job.

TABLE D.1: POPULATION SERVED BY THE ROADS AND KILOMETERS OF ROADS CONSTRUCTED BY DEPARTMENT

Department	Population	Contracted kms.	Pers/Km.
Atlantida	11,839		
(**1. No data is available for 23.4 kms of the project La Ceiba-Rio Viejo-Yaruca.*)			
		143.22	98.8
(**2. The calculations are based on 119.82 kms.*)			
Comayagua	9,150	70.69	129.4
Cortes	25,003	129.35	193.3
Choluteca	1,512		
(**3. The Socio-Economic Study was done for 51 kms. of road to serve 2,521 persons. An estimate of the population was based on a 30% reduction.			
		20.38	74.2
Colon	10,808	49.30	219.2
Lempira	26,020	190.40	136.7
Olancho	16,035	100.94	158.9
Ocotepeque	3,350	26.40	126.9
Sta.Barbara	13,056	83.00	157.3
(**4. The number of kms represent 42% of the total number contracted.*)			
Valle	4,899	42.28	115.9
TOTAL	122,681	855.96	

Sources: Reconstruccion Caminos de Acceso Proyectos Seleccionados Grupo de Envio 1-5.; and Informe del Avance Fisico y Financiero de los Proyectos, Prestamos 522-t-052 prepared by the AID Implementing Unit, DGC, SECOPT.

TABLE D-2: POPULATION DENSITY BY DEPARTMENT AND RANKING PERCENTAGE OF RURAL POPULATION

Department	Pop.Density/km2	Percentage of Rural Population
Francisco Morazan	100.38	25.0
Cortes	163.08	35.6
Atlantida	55.79	57.2
Comayagua	45.95	59.0
Islas de la Bahia	82.71	63.0
Yoro	41.55	67.1
Copan	68.33	70.0
Valle	76.63	71.0
Ocotepeque	44.21	72.0
Choluteca	69.64	72.7
El Paraiso	35.38	75.0
Colon	16.48	75.3
La Paz	45.48	75.6
Olancho	11.58	76.0
Sta.Barbara	54.35	76.0
Intibuca	40.20	82.0
Lempira	40.90	89.0
Gracias a Dios	2.05	89.3

Source: Housing and Population Census, 1988. Preliminary Data. SECPLAN.

TABLE D-3: POPULATION DISTRIBUTION BY SEX IN THE SIXTEEN DEPARTMENTS BENEFITTED BY RURAL ROADS

Department	Women ±	%	Men ±	%	Total
Atlantida	118,961	50.2	118,219	49.8	237,180
Comayagua	119,683	50.1	119,107	49.9	238,790
Copan	108,994	49.8	109,870	50.2	218,864
Cortes	329,226	51.1	315,581	48.9	644,807
Choluteca	147,513	50.3	145,729	49.7	293,260
Colon	72,097	49.3	74,127	50.7	146,224
El Paraiso	126,993	49.7	128,407	50.3	255,400
Francisco Morazan	414,175	51.9	383,436	48.1	797,611
Intibuca	61,866	50.1	61,646	49.9	123,512
La Paz	54,135	51.1	51,861	48.9	105,996
Lempira	87,154	49.7	88,296	50.3	175,450
Ocotepeque	37,788	50.9	36,498	49.1	74,286
Olancho	140,004	49.6	142,014	50.4	282,018
Santa Barbara	134,689	48.5	143,297	51.5	277,995
Valle	60,380	50.4	59,509	49.6	119,889
Yoro	164,289	49.8	165,556	50.2	329,845

Source: Housing and Population Census, 1988. Preliminary Data. SECPLAN.

2. Income and Employment

Income: Efforts to measure the income of the rural poor in Honduras have either 1) defined the **canasta familiar** which is the average expenditure for basic consumption goods per rural family, or 2) developed scales that measure socio-economic status using diverse indicators such as land tenancy, amount of land under cultivation, yield, types of crops produced and livestock owned, and ownership of agricultural and household equipment. Presently there is no accurate methodology for measuring the annual income of the rural family.

The family, however, can determine positive or negative changes regarding the amount of cash or in-kind income received even if it cannot be translated into an exact monetary figure. The Evaluation did not produce hard income data to support the perception that there were positive changes in the income of the rural poor in those surveyed. However, the Evaluation indicates that there was an improvement in the socio-economic status of the population in the sampled area based on impressions reported by the interviewees.

Of the 447 farmers interviewed, 369 or 76% reported that they now earn more income than before the roads were constructed. The rest stated that their income had remained the same despite drought, lack of credit, or death of the principal wage earner in the family. No one in the sample areas responded that their income had declined after the completion of the roads.

Those farmers who reported income increases, attributed the increase to more than one cause. As Table II-5 illustrates, the responses support the findings discussed in chapter two pertaining to increases in agricultural and livestock production.

TABLE D-4: REASONS FOR INCREASED INCOME

Reasons	Percent*
Ease of transportation	46
Reduced cost of transportation	48
Increased agricultural production	61
More technical assistance	47
More businesses and sales	18
More access to credit	21

Source: Evaluation of Honduras Rural Road Work; 1988. P. 65.
*The percentages add to more than 100 because some respondents mentioned more than one reason.

The responses cited immediately above indicate that the roads have contributed significantly to income improvement. Services such as credit and technical assistance for agriculture contributed to the increases in agricultural production. These services, as a future section discusses, probably became more readily available once there was better access to the

communities. The production surplus, the ease of transportation to market, and reduced transportation costs are factors that have undoubtedly stimulated marketing and promoted agricultural expansion. The farmer now has the option to take his produce to market himself or sell it to a larger community of buyers. This introduction of more than one buyer can result in lower transportation costs to the farmer.

Employment: Employment in most rural areas of Honduras is sporadic, often determined by seasonal crops. Wages are generally low. One of the main reasons promoting rural urban migration in Honduras is the lack of employment opportunities in the rural areas. Honduran data has demonstrated that women migrants, particularly, prefer the urban centers where they seek employment mostly as domestic workers.

The unemployment and underemployment problems of rural Honduras are not going to be solved totally by new or better rural roads. The findings demonstrate, however, that the roads have contributed to ameliorate the employment problem in some of the rural communities.

TABLE D-6: INCIDENCE OF MALE EMPLOYMENT BY TYPES AND PERCENTAGE OF INTERVIEWEES CITING SOURCES BEFORE AND AFTER ROAD CONSTRUCTION

Source of Employment	Before	After
Manual labor on farms	22	56
Manual labor on cattle ranches	18	23
Coffee harvest	6	11
Lumber industry	6	10
Transportation/mechanics/gas station	2	9
Tobacco planting and harvest	2	3
Fishing	1	3
Commerce/trading	1	3
Labor in salt processing	1	2
Labor on shrimp farms	0	2
Professional/paraprofessional	0	2
Housing/tile/blocks/lime/rope/mats	1	2
Barber/clerk/accountant/security	0	1
Sugar cane planting and harvest	2	1

Source: Evaluation of Honduras Rural Road Work; p.70.

The use of more land and intensive cultivation, geared to satisfy outside markets, boosted significantly the need for hand labor in the farms, ranches and coffee plantations. Table II-6 illustrates the number of respondents who worked on the different types of jobs before and after the roads were built. In terms of absolute numbers, the most significant employment increase is in jobs as manual laborers on farms. Before the road was built, 22 of the interviewees worked in this type of employment. After the road was constructed, the number of respondents who worked as laborers on farms increased to 56. Transportation, mechanics and gas stations jobs, although still small in absolute numbers show a 350% increase. New jobs, such as labor on shrimp farms and professional and paraprofessional employment, although still small in numbers employed, are expanding the wage earning possibilities of the rural residents.

3. Access to Social Services

The implicit assumptions of the rural roads projects are: (1) Income improvement and employment opportunities, stimulated by the existence of rural roads, will eventually result in better living conditions for the rural family; and (2) Access to the communities and ease of transportation will facilitate the entrance of social services which will contribute to the rural family's welfare and quality of life. Studies have demonstrated that additional income without social programs which provide training, education and attitude modification will not bring about positive changes in the living conditions of the poor.

Indicators of social change are often slow to emerge, and in some cases difficult to identify, especially when no base line data is available for comparison. The first two sections of this chapter discuss indicators of access to education and health services. The last section discusses changes that have occurred in the participation of residents in community organizations and contacts beyond the community. The implication is that eventually the availability of services will bring about positive changes in the quality of life of the beneficiaries. The following discussion is based mainly on the data provided by the 489 rural dwellers interviewed for the 1988 Evaluation (67% male and 33% female). The great majority of the respondents were male farmers and housewives who constitute the rural poor. The information obtained through interviews during the field work support the Evaluation's findings.

a. Education

The literacy rate, school enrollment, and access to educational services are indicative of development in the educational sector. The coverage of the education system in Honduras, even though it has improved since 1960, is still very low. In 1960, 89% of the Honduran population over the age of ten was illiterate. The literacy rate even if it has dropped twenty points, continues to be high (69%). The number of primary schools rose from 1,481 in 1960 to 6,205 in 1987. Grammar school enrollment also significantly increased during

the same period. In 1960 only 28% of the children in school age were enrolled. By 1987 the percentage had increased to 45%.

Many programs implemented by government and nongovernment institutions have helped increase access to educational services and thus raise the educational level of the population at large. As the next paragraphs demonstrate, the roads have contributed to this effort. All of the communities sampled for the Evaluation had at least a primary school and one had two. Respondents were asked if they and their families had received educational benefits directly or indirectly from the road. The results, according to the interviewees, have been significant.

In many of the communities the schools were built after the roads. Some of the older schools that existed before the roads, have been improved since road construction. All of the respondents said they had benefitted directly or indirectly through the establishment of schools. An overwhelming majority (97%) reported benefitting from the presence of better school buildings and more educational facilities. Another often cited benefit from the roads is that more teachers work in the schools (95%). During the field work, this was corroborated by community residents and school teachers. In some communities teachers commute daily from their hometown to work. In other communities the teachers reported that now they can easily return home during week-ends and holidays.

A long term and important impact for development is the increase number of school years completed by the population. A high percentage of the rural residents in Honduras still do not finish the six years of grammar school, and the dropout rates after the third grade are significant. The causes for a high percentage of pupils not finishing primary school are diverse and complex and most often related to economic constraints. In addition, a frequent reason for the high dropout rate is that many schools do not offer the six grades. The roads, according to the respondents, have contributed to ameliorate this problem. The great majority (97%) of the interviewees said that their children now complete more years in primary education because the school offers more grades.

School enrollment, probably explained by the expansion of number of grades, has increased in some of the communities. Data gathered during the field work support the above. Five of the six communities served by the road Desvio a la Fortuna-acceso al Fantasioso, in Choluteca, have complete primary schools. In 1988 the overall enrolment of the five schools had increased 6% from 1987. The school in the community of Nueva Paz in the Santa Rosa area increased its enrollment from 80 students in 1987 to 95 students in 1988, an increase of 19%. The enrolment at the school of La Rinconada, in the Department of Lempira, went from 121 students in 1987 to 156 in 1988, an increase of 29%.

For the most part, rural residents have no access to secondary education. Secondary schools are located in towns and cities. To attend secondary school the student must change his or her place of residence and

have sufficient funds to cover living expenses outside of home. The roads are positively affecting this situation. Before the roads were built, almost none of the respondents sent their children out of the community to school. Once the roads were constructed, ten percent of the respondents (49) reported that now they can send their children to attend secondary education in nearby towns.

The importance of access to higher education is unquestionable. A better educated population should eventually bring about significant socio-economic change. Access to higher education, however, could change the population distribution of Honduras. If the rural population becomes better educated and there are no changes in the employment structure and availability of community social services, migration to larger towns and cities will increase significantly.

In addition to the individual interviewees, the Evaluation included interviews with community key informants. These respondents almost unanimously expressed the positive benefits to education accrued by the roads. More people in these rural communities are now attending adult education and literacy programs. Other independent type of educational programs have also been facilitated by the roads. The Ministry of Health, RRNN, INA, INFOP, COHDEFOR (Corporacion Hondurena de Desarrollo Forestal), Peace Corps, World Vision and many other development agencies now offer training courses to the adult population in these communities.

The overall perception of the respondents is that educational benefits and opportunities have been derived from the road. However, the Evaluation found an uneven distribution of the educational services available in the communities explained probably by other variables not included in the analysis.

b. Health

The population of Honduras continues to suffer tremendous health problems. As in education, there have been positive changes in health since 1960 but the conditions remain precarious. Life expectancy rose from 52 years in 1960 to 62 in 1987. Infant mortality decreased from 96 per 1000 in 1960 to 70 in 1987. The principal causes of infant mortality continue to be gastrointestinal diseases and acute respiratory infections.

Malnutrition is one of the most severe health problems in Honduras. According to a 1987 National Nutrition Survey, moderate to severe malnutrition affects 44% of children under the age of five. The mountainous west is the worse affected area. In the Departments of Lempira, Intibuca, Copan, Ocotepeque, La Paz and Santa Barbara approximately 60% of the children under the age of five show growth stunting (height and weight) and 54% show chronic wasting as measured by weight for age. The southern region of Honduras is the next worse with respect to malnutrition.

Against these conditions, health services both curative and preventive are indispensable for the southern and western communities selected by the Evaluation. The Evaluation attempted to measure changes in individual and family health, as well as health condition in the community as a whole. The changes reported are based on the impressions of the interviewees and not on comparative data. To accurately report changes longitudinal morbidity and mortality data are necessary. However, the overwhelming majority of the respondents felt that the roads had contributed to improve individual and family health as well as general health conditions in the communities.

The evaluation did collect information pertaining to access to health services. Eventually, the availability of health services should contribute to positive changes in overall health conditions in rural communities. A high percentage of respondents (92.4%) agreed that now there is more access to health installations such as clinics and hospitals in nearby centers. More visits by health personnel (90%) and greater access to information on family planning (86%) and medical and nutrition programs (78%) were benefits mentioned by the respondents. The establishment of health centers was reported by 48% of the interviewees. Over half (59%) of the interviewees identified better access to potable water as a derived benefit from the road construction.

The impact of these services on rural family and community health conditions cannot be measured yet. The Ministry of Health as well as PDOs, which support rural health programs, keep fairly accurate records, especially for children under five, which could be used to eventually measure changes in health status.

c. Participation in Community Organizations and Contacts Beyond the Community

Rural roads provide easier access to and from the communities being served. Hopefully, with ease of transportation, the rural dwellers will travel to nearby towns and cities for services and enjoyment without having to migrate. Additionally, services from other areas of the country, particularly urban centers, will reach the rural communities. The more frequent contacts with the rest of the country could also motivate the residents to participate more in community organizations geared towards recreation or socio-economic development.

Data from the evaluation indicate positive social benefits with regards to outside contacts after the roads were constructed. An overwhelming majority (96%) of the respondents said that they now have more communication and contact with neighboring towns. More frequent traveling now than before the roads were built was reported by 83% of the interviewees. The same number indicated that now they have more access to public information. The roads according to the respondents have also stimulated community development and self-help efforts. Reports of participation in community organizations was high. Almost all of the respondents (92%) are involved with the **patronato**. Other organizations with high levels of participation are community groups

(88%), the church (74%) and cooperatives (47%). According to 53% of the respondents, women participate more in community organizations such as **club de amas de casa**, parents associations, christian groups, **patronatos**,and peasant groups since the roads were built.

Negative effects can also result from the more frequent contacts of the rural population with the outside world. The most often cited negative consequences of rural roads are the stimulation of rural urban migration and the availability of superfluous goods such as soft bottled drinks, alcoholic beverages and cigarettes. The latter effect can be further instigated by "disposable" income obtained through the marketing of agricultural surplus, one of the most significant benefits accrued to the newly built roads. If economic improvement is not accompanied by other social programs, the roads might be ultimately opening new markets to unnecessary products. Commercial advertisement will eventually change the consumption patterns of the rural family at the expense of family health and well being.

Most rural communities in Honduras have a significant track record in community organization. In some areas of the country there are indigenous community organizations that date back even to colonial times such as the **Vara Alta** in the Lenca region of Intibuca and Lempira. Other community organizations have sprung in search of solutions for the most serious community problems, in some cases at the initiative of the community itself and in others, through the promotion and organizational work of government institutions, PDOs and peasant organizations struggling for land reform.

During the late sixties and early seventies there was significant promotional and organizational work geared towards integrated community development by different PDOs and the Catholic Church in Honduras. Principally because of political reasons the rural community organization movement went dormant in the midseventies. The Catholic Church as an institution had been the most dynamic promoter of development during the decade of the sixties and early seventies; but in the midseventies it took a significant shift back to the more traditional nonthreatening to the status-quo type of development projects. Nevertheless, the seeds were planted and several of the organizational structures initiated still remain such as the **Celebrador de La Palabra**, a grassroots organization promoted by and incorporated to the Catholic Church, the **Ligas Campesinas** (Peasant Leagues) of the **Union Nacional de Campesinos** (UNC) (National Peasant Union) and the **Clubes de Amas de Casa**(CAC) (Housewives Clubs) originally promoted and managed by CARITAS. The CAC eventually became independent from CARITAS and were organized into a federation of peasant women, **La Federacion Hondurena de Mujeres Campesinas**, FEHMUC.

Even before the decade for women was declared by the United Nations in 1975, there was a special effort in Honduras on the part of several programs to incorporate women into the development process. Initially women mainly participated in homogeneous community organizations. As their leadership and administrative capacities become evident rural women began to participate more in community organizations together with the men. Consequently, it is no longer strange to find women leaders both in the community organizations and

in municipal positions. In two of the municipal corporations visited for this work women were interviewed. One was the Mayor of San Agustin and the other one the council member responsible for public works in the Municipal Corporation of La Masica.

The brief discussion on the organizational experiences of rural communities in Honduras merely attempts to demonstrate that there is sufficient ground in rural community organization upon which to design and implement community development projects. In most of rural Honduras there are at least two types of community organization. the local government is the municipal structure represented at the village level by the **alcalde auxiliar** (auxiliary mayor). The other organization is the **patronato**, an association of community residents working together usually for a particular project of public interest: the road, the water, a school, another teacher and others.

The great majority of rural communities have or have had a **patronato**. Often the school teacher is the promoter of the **patronato** and of motivating the community to participate. Outside promoters and extension agents from PDOs or government institutions generally initiate their community development work through the **patronato**.

The **patronato** for many rural communities is the entity through which self-management can be implemented. Often the **patronato** is even more relevant at the community level than the local government because it develops and nurtures outside relations with government institutions and PDOs who collaborate with projects requested by the community. Since the **patronato** is generally organized and active for a specific project needed by most of the community dwellers, it has the capacity to motivate and generate significant community participation and involvement.

There are weaknesses in some of the **patronatos**. The most frequent cited limitation of this grassroots organization is that it can be politically manipulated, particularly during a campaign year. The second most frequently mentioned constraint is its activation only in relation to a particular project and for the most part of physical infrastructure. Nonetheless, some development programs using participatory methodologies are working towards the strengthening of the **patronatos** as grassroots organizations geared to integrated community development.

Results of Field Interviews on Community involvement in Rural Road Maintenace

In the La Ceiba Region there is more reluctance to community participation in road maintenance. The main constraint for participation, according to the respondents, is that the community residents do not have access to machinery. There are other probable explanations for this apparent reluctance to collaborate. First, the roads servicing these communities have not yet been finished and thus the maintenance has not begun. Secondly, most of these communities are located in the heart of the banana enclave; they are or have been **campos bananeros** (company camps). Many of the residents are or have been part of an agrarian labor force. Consequently, participation in community organizations has probably taken a different modality than in other regions of

the country. Additionally, because of their geographical location within the radius of the multinational company's agricultural activities, many of these communities have had access to some type of transportation, either roads made by the fruit company or the railroad which hauls fruit and other agricultural products. Thus, in comparison to other regions of Honduras, the rural dwellers of some of the communities in the La Ceiba region have probably struggled less for certain services.

In the more isolated areas of Honduras where services are difficult to acquire, the **patronato** is willing to perform a greater task in road maintenance. An example is the community of Santa Cruz in the Santa Barbara Region. In 1987 when the road needed machine maintenance the community rented equipment to repair the road. The **patronato**, from its own funds and additional contributions from vehicle owners in the community, paid the L460 for machine rental. According to its president, the **patronato** in Santa Cruz could supervise road maintenance. Furthermore, he continued to say, the community could even cover some of the costs of road maintenance, especially with in-kind contributions; for example, if SECOPT provides the dump truck the community can load it and save the cost of salaries for this task.

In other communities visited during the field work **patronatos** have also participated in maintaining the roads. The collaboration of the **patronato** was mentioned in conjunction with the municipality or a PDO and the data will be discussed in the pertaining section.

b. Municipalities

According to the 1988 Census, the population of Honduras is 4,376,839. The Country is politically divided into eighteen departments which in turn are integrated by 289 municipalities. The **Cabecera Municipal**(The municipal Town) and its villages comprise the Municipality. Each village has a **centro de aldea** (the village center) and several **caserios** (hamlets).

The number of municipalities in each department ranges from two to twenty eight. There is no relation between number of municipalities and population of the department. The Department with the smallest number of municipalities is Gracias a Dios and it ranks seventeenth in terms of population. Only Islas de la Bahia with 21,553 persons is less populated than Gracias a Dios with 34,159 people. The Departments with the highest number of municipalities are Francisco Morazan with 28, followed by the Departments of Lempira and Santa Barbara with 27 each. In terms of population, Francisco Morazan is the largest department with 797,611 inhabitants. However, in the other two departments no correlation exists between number of municipalities and number of people; Santa Barbara ranks sixth with regards to population with 277,995 inhabitants and Lempira ranks eleventh with a population of only 175,450 (Table IV-1).

Excluding the Distrito Central and San Pedro Sula, the average population of the remaining 287 municipalities is 10,927. The population of the 289 municipalities rages from 925 in Mercedes de Oriente in the Department of La

Paz, to 595,931 in The Distrito Central. There are still 13 municipalities in Honduras with less than 2,000 inhabitants. Of the total number of municipalities 67% (193) have less than 10,000 people, and 86 have a population between 10,000 and less than 50,000 (Table IV- 1).

Based on population and wealth, the municipalities in Honduras can be stratified as follows : (1) The Distrito Central and San Pedro Sula; (2) the 18 secondary municipalities which have a population of over 30,000; and (3) the remaining 269 municipalities. The first two strata concentrate approximately 80% of the wealth of Honduras and have annual budgets of more than Lps.500,000. Concluding from the above, twenty municipalities which represent only 7% of the total, concentrate most of the wealth of Honduras and house almost half (47%) of the Honduran population (Tables IV-2 and IV-3).

TABLE IV-1: DEPARTMENTS RANKED BY POPULATION AND NUMBER OF MUNICIPALITIES PER DEPARTMENT: HONDURAS 1988

Department	Population	± of Municipalities
1. Francisco Morazan	797,611	28
2. Cortes	644,807	12
3. Yoro	329,845	11
4. Choluteca	293,260	16
5. Olancho	282,018	22
6. Santa Barbara	277,995	27
7. El Paraiso	255,400	19
8. Comayagua	238,790	21
9. Atlantida	237,180	7
10. Copan	218,864	23
11. Lempira	175,450	27
12. Colon	146,224	10
13. Intibuca	123,512	16
14. Valle	119,889	9
15. La Paz	105,996	19
16. Ocotepeque	74,286	16
17. Gracias a Dios	34,459	2
18. Islas de la Bahia	21,553	4
TOTAL	4,376,839	289

Source: Housing and Population Census, 1988. Preliminary Data.

TABLE IV-2: POPULATION BY MUNICIPALITIES: HONDURAS
1988

Population	#of Municipalities	%of total
- 1,000	1	—
1,000 - 2,000	12	4
2,000 - 5,000	81	28
5,000 - 10,000	99	34
10,000 - 20,000	54	19
20,000 - 50,000	31	11
50,000 or more	11	4
TOTAL	289	100

Source:Housing and Population Census, 1988. Preliminary Data.

TABLE IV-3 THE TWENTY LARGEST MUNICIPAL AGGREGATES IN HONDURAS
1988

Municipality	Population
Distrito Central	595,931
San Pedro Sula	319,740
El Progreso	106,553
Danli	100,799
Choluteca	87,889
La Ceiba	80,159
Juticalpa	74,163
Choloma	66,252
Puerto Cortes	60,512
Comayagua	59,534
Olanchito	59,341
Catacamas	52,520
Yoro	45,663
La Lima	44,988
Siguatepeque	39,164
Tocoa	34,374
Esparta	33,804
Villanueva	32,177
Macuelizo	31,661
Sonaguera	30,502
TOTAL	2,065,423

Source: Housing and Population Census, 1988. Preliminary data.

c. Municipal Legislation

The Municipal Law of Honduras, based on hispanic legislative structure, dates back to 1927. Many of the functions adjudicated to the municipalities by that law are somewhat obsolete or have been usurped by other government agencies or institutions. A new Municipal Law geared towards strengthening the municipalities and decentralizing the GOH has been presented to Congress but has not yet been passed.

According to the prevailing Honduran Municipal Law, the municipalities are autonomous and are responsible for most local infrastructure services including local roads. In reality the situation is completely different. There has been a tendency to a constant centralization of most functions previously carried out by the municipal government. Central government agencies or national public enterprises have gradually taken over responsibility for operating and maintaining many local basic infrastructure facilities. In the case of rural road, the districts, representing the DGM at the regional level, are responsible for maintenance.

Planning is also a centralized effort. La Direccion General de Urbanismo (The Urbanization Directorate) one of the eight directorate of SECOPT, is legally responsible for the preparation of local development plans for municipalities with a population of over 10,000. These plans are prepared only sporadically and with little or no consultation with the local authorities. The municipalities have been stripped of all decision making regarding pre-investment planning; this is now a central government function. This function is divided among different agencies in an unclear fashion.

The Department Council, presided by the Political Governor, principally preforms administrative functions. Among others, some of these functions are: to authorize loan requests presented by the Municipal Government to financial institution; negotiate and endorse the loan contract; authorize the presentation of bids for contracts of municipal expenditures which exceed one hundred lempiras.

In conclusion, although the Municipal Law describes the municipalities as autonomous entities, these are seriously restrained in their field of action. The influence of the Central Government, autonomous institutions which provide local services, and the Department Council impair municipal effectiveness.

d. Municipal Financing

Lack of funding necessary to provide basic services or finance improvements in the infrastructure of their jurisdictions is another cause of weakness for most municipalities. In principle, municipalities can generate income and finance projects through different sources. However, the majority of the municipalities do not have access to financing and lack the know how to adequately manage and collect local taxes.

Loans, subsidies from the Central Government and locally collected revenues are possible sources of municipal financing. The Autonomous National Municipal Bank, BANMA, was set up primarily to provide financing for municipal infrastructure projects. When BANMA does act as a financing source for local infrastructure investment often the funds are transferred, via the Municipal Government, to a central government institution which will execute the project. Legally the loan is granted to the municipality and it is this entity which is responsible for loan repayment. In addition to BANMA, on occasions municipalities have requested capital loans from commercial banks. Credit, either from BANMA or commercial banks require that the Municipality generates sufficient revenue to pay its debt.

To open the possibilities of credit to the municipalities, the National Congress passed in 1987 the **Ley de Contribucion por Mejoras** for all the municipalities in Honduras. This Law had been in effect for the Central District since 1976 and for San Pedro Sula since 1984. This legislation allows the municipalities to recuperate investments on local infrastructure projects such as electricity, water systems, new roads, pavement or improvement of roads and streets, culverts, sewage or any other public service, by distributing the cost of the project among the beneficiaries.

The Municipal Corporation determines the amount each beneficiary must pay. When it is a street or road project the charge is allocated based on the amount of land owned and thus benefited by the service. This Law has not yet been applied to the construction or maintenance of the rural roads funded by AID. However, most likely large and medium size agrarian producers would be willing to cover their share of maintenance cost for roads that are servicing their production. Findings during the field work, as will be discussed further on this chapter, demonstrate that this type of contribution has been occurring in an informal and haphazard fashion. For the effective and systematic implementation of this law, nonetheless, the municipalities would require technical assistance.

National Government transfers is another source of municipal income. There is however, no system or procedure to request and receive these funds; their allocation usually depends on the degree of political clout of the congress representative and the perseverance exerted in requesting the funds. In cases where funds are granted, these are previously assigned for a particular project. The municipality does not have the power to determine the use of the grant.

Presently the principal sources of financing for municipalities are those funds which are locally generated. Local revenue can be obtained through the following: taxes and fee charges on local economic activities and local wealth; economic exploitation of municipally owned or controlled resource; and, fees levied for public services offered by the municipalities. In spite of the possibilities, most municipalities are unable to implement adequate collection systems.

Efforts to improve municipal organization and management of tax collection is proving to be effective. An evaluation (1989) funded by USAID of two recent pilot projects that established the Municipal Cadastre in the municipalities of Villa de San Antonio in Comayagua and in Puerto Cortes in the Department of Cortes, demonstrates very positive economic results. The information provided by the Cadastre allowed the municipalities to control and collect property taxes. According to the Evaluation (1989) both Cadastre Projects have been successful in increasing municipal income. In La Villa de San Antonio the collection of property tax increased from Lps. 3,929.31 to Lps. 14,098.68 or 259%. In Puerto Cortes there was an increase of 163%; in 1987 the municipality collected Lps. 93,129.58 for property taxes and in 1988 the paid taxes for the same charge amounted to Lps. 245,013.19.

e. Technical Assistance

Administrative, financial and managerial capacities are lacking in most municipalities in Honduras. Several different institutions and offices supposedly provide municipal technical assistance in these aspects. For the most part these agencies either duplicate each others efforts or an ineffective in their deliverance of assistance.

BANMA and the Directorate of Municipal Assessment and Technical Assistance (La Division de Asesoria Tecnica Municipal), in the Ministry of the Interior (Secretaria de Gobernacion y Justicia) have the primary responsibility for providing technical assistance to the municipal governments. BANMA, for the most part, has been inefficient in providing assistance to improve local government performance. It had established a Municipal Development Division to assist the municipalities but this office was never competent and most of the personnel assigned to it have been dismissed.

The mandate of the Directorate of Municipal Assessment and Technical Assistance is to provide technical assistance to the municipalities regarding budgets and in the preparation of cadastral records. Contrary to its mandate, this office is mostly stalling the municipal process by assuming the role of budget controller instead of advisor.

Municipalities are supposed to prepare their own budgets and submit them to the Directorate for review. In practice, for most of the municipalities the Directorate of Municipal Assessment prepares the entire local budget with only minimal consultation with local officials. In the case of the larger municipalities their cadastre office prepares the budget but it is then sent to the Directorate. Once this office reviews the budget and makes the changes it considers necessary, it sends it to the Governor of the Department for review.

The Association of Municipalities (Asociacion de Municipalidades) integrated by all municipal officials could be another mechanism for technical assistance. The main function of this association is to facilitate mutual assistance among its members in administrative and problem-solving matters.

Thus far this association has been ineffective. One of the main reasons is that it originated at the central government instead of at the department or regional level which would expedite the provision of services through the local associations. Consequently, most of the mayors do not support the Association of Municipalities.

Case studies of municipal participation in road maintenance

The municipal corporation of La Ceiba often receives requests from rural **patronatos** for road repairs. The municipality has some equipment mainly for maintenance of the city's streets. If the equipment is available the municipal corporation "helps out" and lends its to the community. There is, however, no estab ished mechanism nor past experience in organized municipal participation in rural road maintenance.

In 1985 Congress passed a law requiring that 4% of local port revenues be turned over to the municipal government. These funds must be employed in projects of community benefit and cannot be used twice for the same project. The Municipality of La Ceiba so far has designated these funds to two projects: (1) the repair of the municipal building; and, (2) the construction of an annex to the municipal building. The Mayor of La Ceiba does not anticipate the use of these funds or any other municipal revenue for rural road maintenance.

La Masica, one of the municipalities of the Department of Atlantida, approximately 45 minutes from La Ceiba, has abundant agricultural production geared for international markets and as such has the potential to generates significant municipal revenue. According to the Council woman, responsible for public works, the municipal income could be substantially increased. Many of the cacao plantations and businesses are delinquent in their payments and the municipality has not been sufficiently forceful in tax collection. In other cases the municipality does not have the necessary mechanisms to adequately levy taxes.

The Standard Fruit Co. has extensive cultivations in the jurisdiction of the Municipality of Masica and is an important tax contributor. Additionally, this municipality receives special taxes from some agricultural products. African palm plantations, citrus and cacao pay an annual tax of Lps.5,000 per **manzana** in production.

Central government subsidies requested by the congress representative were significant for 1988. The municipality of La Masica received Lps.90,000 from the central government pre assigned to the projects and **aldea** for which funds were requested.

In the Municipality of La Masica, participation in rural road improvements is one of the functions of the office of public works. When there is a need to repair the road, the auxiliary mayor of the **aldea**, appointed by the municipal mayor, and the **patronato** bring to the municipality the community's request. The municipality, through the office of public works, finds mechanisms to comply with the request.

The mechanism most frequently used to repair rural roads is a collaborative effort between the private agricultural enterprises in the area and the Municipal Corporation of La Masica. Large agricultural producers supply the equipment and the local government contributes by paying for fuel and the machine operators.

In the short term, the role of coordinating certain local resources for road maintenance presently being performed by this municipality could be formally established. Additionally, the Municipality of La Masica, according to the interviewee, could play a continuous and sustainable supervisory role of the PCP and any other activity pertaining to rural road maintenance.

The council person responsible for public works, who presently travels throughout the jurisdiction of the municipality, can make periodic supervisory visits to the road sites. Furthermore, the auxiliary mayors and **patronatos** could be responsible for the daily supervision of the PCs and the promotion and organization of additional community collaboration for road maintenance when necessary.

Presently the Municipal Corporation of La Masica does not generate sufficient income to fully finance rural road maintenance. This type of local government, nevertheless, has the capacity to partially cover some costs. On the long term and with adequate technical assistance, La Masica could probably tap sufficient revenue to take care of the road maintenance needs of its jurisdiction. The funds allocated by the municipality can be complemented with a formal commitment from the large agricultural enterprises in the region to furnish the equipment for periodic road maintenance.

In the western region three fairly isolated and poor municipalities were visited: Dulce Nombre de Copan, Dolores and San Agustin. The 1989 budget for these municipal corporations ranges from Lps. 34,000 to Lps. 16,000. The levels of participation and the perception of the local officials regarding the potential for sustainable and continuous municipal involvement in rural road maintenance seem to stem from different types of municipal governments.

The Municipality of Dulce Nombre exemplifies the denial of local autonomy and a growing dependency on the central government to solve all the local needs. The Municipal Corporation of Dulce Nombre does not perform any activity pertaining to rural road maintenance. Furthermore, the municipal officials do not foresee any local government participation in this task.

According to the Mayor and the Secretary of the Municipal Corporation of Dulce Nombre, there was a time when municipalities charged a fee to the motor vehicle owners and allocated these funds for road repairs. Presently, when there is a need to repair the road the **patronato** sometimes collects money from the vehicle owners and performs the task without any local government participation.

The municipality of Dulce Nombre even finds maintaining the town's streets difficult. According to the Mayor, the District from the DGM used to repair the streets of the town but this is no longer the case. Consequently, in 1988 the municipality borrowed machinery from the District to repair some of the streets in the urban center and paid for the overtime of the operators and the fuel.

Unlike Dulce Nombre, the Municipality of Dolores (with the lowest budget of the three visited) participates in rural road maintenance. According to the Mayor, in the late forties municipalities were permitted by law to charge a fee of Lps.1.00 per hundredweight of agricultural product extracted from the area. This revenue was managed directly by the municipality corporation and allocated for road repairs.

Presently, even though there are no municipal funds specifically collected for rural road maintenance, the municipal corporation of Dolores constantly participates in road repairs. In 1988 the District provided the equipment to repair the road and the municipality used Lps.1,000 to cover expenses.

San Agustin, the most distant and isolated municipality of the three visited in this region, appears to have the most dynamic municipal corporation. A system for rural road maintenance has been developed with the participation of the municipal corporation, the **patronato** and the local transportation enterprises. The activities carried out by each of these entities is explained below.

The municipal corporation, at the request of the District, selected two persons as the PCs to work on the road. The owners of the transportation enterprises, who must travel the road daily and have a vital interest in its upkeep, provide the PCs transportation back and forth from the community and serve as the local supervisors.

the **patronato** of San Agustin is mainly responsible of organizing and supervising the road repairs done with equipment. When there is a need to do machine maintenance the **patronato** organizes the in-kind community contribution. The residents collect local materials such as ballast and **patronato** leaders are assigned daily to be at the site and supervise that the machines are working on the road.

g. Role of Private Development Organizations in Rural Road Maintenance

In Honduras there is a substantial number of non-profit private organizations dedicated to promote and support development. These organizations are often referred to as **organizaciones privadas de desarrollo** (OPDs)(private development organizations, PDOs), private voluntary organizations (PVOs) and non-government organizations (NGOs). Although there are arguments in preference of the different labels, this work will refer to this type of organization as PDOs.

PDOs proliferated in Honduras as a response to government inefficiency in solving rural community development problems. In the last decade some PDOs expanded their operations to include urban centers and others emerged specifically to work with poor urban populations.

The single most important characteristic of the PDO is its small size; being small carry both negative and positive aspects. The negative aspect is that lack of funds and infrastructure often restrain the organization from diversifying its activities and operating in more geographical areas. The positive side to being small is that bureaucratic procedures are reduced and programs and projects can often be implemented faster and at less cost than by the government institutions.

In order to be more effective in community development support, many PDOs have selected as their impact areas specific communities located within a geographical region. There are PDOs, either national or international, working in all the regions of Honduras. Some regions, however, have more PDO presence.

Rural roads are vital for PDOs operations. Most PDOs gear their efforts towards integrated participatory community development. Consequently, especially at the outset of the program, there is a need for intense presence in the areas of work. Ideally, the social promoters and other community workers assign to a project must frequently visit the communities. Lack of passable roads make their work more difficult and costly. Interviews carried out for this work indicate that these organizations often promote and contribute to road construction or rehabilitation. The two examples of PDOs involvement in rural roads construction or rehabilitation discussed below, illustrate different intensities of involvement but basically performing the same function.

OEF-International is implementing the Educational Program for Participation (Programa de Educacion para la Participacion (PEP)) both in urban and rural areas of Honduras. In the Department of Choluteca the PEP is serving local cooperatives affiliated to ANACH (Asociacion Nacional de Campesinos de Honduras) in seven communities of the Municipalities of El Triunfo and Concepcion de Maria.

Some of these seven communities were inaccessible during certain parts of the year and the social promoters working for the PEP motivated the local community groups to participate in road repairs. The main objective of the PEP is to develop adequate social infrastructure for sustainable community participation. Thus, the PEP used the road improvement community project as an instrument to promote community responsibility.

The social promoters of the PDO motivated the community and assisted in the organization of the project to repair the road. The owners of the transportation enterprises provided the funds to cover costs. A group of community residents were hired to do the repairs on the road.

Another example of PDO's participation in rural road construction or maintenance is Proyecto Aldeas Globales (Project Global Village (PGV). PGV has concentrated its efforts in parts of the municipalities of Santa Cruz de Yojoa in the Department of Cortes, and Meambar in the Department of Comayagua. In addition this PDO is implementing projects in the Belen Gualcho area of Copan. In both regions PGV has performed an important role in promoting, organizing and even financially supporting activities for road construction or maintenance.

The program implemented by PGV in the municipalities of Santa Cruz de Yojoa and Meambar is serving 33 communities and covers approximately 600 square kilometers. the project in this area is aiming at the integrated development of the communities along the Yure river's bank. Twenty promoters and extension workers serve these communities.

Promoting and organizing social infrastructure geared towards integrated development both at the regional and community level is a predominant activity of PGV. There is a regional committee where each of the 33 communities is represented by a community member selected by the **patronato.** Besides the **patronato**, there are committees organized in the communities for particular projects such as the health committee, the housing committee and the agricultural committee.

With the support of PGV, the communities through their regional and community organizations have intensely participated in rural roads construction and rehabilitation. Approximately 60 kms of roads were built in this area under RR II. Furthermore, the communities built 30 additional kilometers of roads under the food for work program. The communities expected that once the trail was opened the DGC would approve its rehabilitation. Thus far this has not been the case.

Both accomplishments in rural road construction mentioned above are partly due to the work performed by the grass-root organizations promoted by PGV. PGV, has also served as a linkage between the communities and the DGC assisting in the presentation of requests for road construction and organizing the data collection for the socio-economic studies necessary prior to selecting roads to be constructed.

Presently the roads constructed by RR II in the area of influence of PGV are being maintained by the PCs. The performance of the PCs could greatly improve if supervision was more frequent. PGV through its promoters and extensionists who constantly travel the road, and the community organizations could assist in the supervision of the PCs. Furthermore, the PC cannot adequately maintain the road without access to some equipment. PGV has identified a pull road grader constructed from iron that requires no maintenance. This piece of equipment can be attached to a truck or tractor and easily grade the road. On a trial basis a pull road grader could be provided to a selected number of Municipal Corporations. Perhaps with regular access to one of these graders, a hand compaction tool for each PC and

decentralized continuous supervision the rural roads would be better kept and the cost of maintenance would probably be reduced substantially.

PDOs frequently have access to different sources of funding. Often one of the main tasks of PDOs is linking community organizations to diverse funding institutions. The Interamerican Development Bank (IDB) funded the 43 kms. of rural road requested by the community to connect Belen Gualcho to the municipal town of Corquin.

Contrary to rural roads funded by AID, there is no maintenance program in the Belen Gualcho area. PGV and the community through its **patronato** have often paid for the cost of contracting equipment and fuel to repair the road.

In the area of Belen Gualcho PGV is promoting the cultivation of cash crops and the existing roads and trails are insufficient to satisfy the growing demand for product transportation. Thus, in 1988 PGV organized community residents to open a 14 kms trail under the food for work program.

ATTACMENT

POPULATION DISTRIBUTION BY SEX
MUNICIPALITIES SERVED BY THE RURAL ROADS

DEPARTMENT (MUNICIPALITIES)	WOMEN		MEN		TOTAL
	No.	%	No.	%	
Atlantida					
La Ceiba	42,106	52.5	38,053	47.5	80,159
- Masica	8,357	48.0	9,065	52.0	17,422
- Tela	33,996	50	33,897	50.0	67,893
- Esparta	16,026	47.0	17,778	53.0	33,804
Colon					
Sonaguera	14,805	48.5	15,697	51.5	30,502
Comayagua					
Meambar	3,796	48.9	3,966	51.1	7,762
Siguatepeque	20,234	51.7	18,930	48.3	39,164
Copán					
- Veracruz	1,024	48.8	1,074	51.2	2,098
- Dolores	1,987	49.4	2,044	50.6	4,031
- Dulce Nombre	2,213	53.7	1,908	46.3	4,121
- El Paraiso	7,375	48.5	7,825	51.5	15,200
- Florida	11,905	49.4	12,200	50.6	24,105
- San Agustin	1,331	51.0	1,279	49.0	2,610
- San José	2,208	49.8	2,226	50.0	4,434
- San Nicolas	2,591	51.0	2,491	49.0	5,082
- Trinidad	2,439	49.2	2,517	50.8	4,956
- La Unión	3,788	47.2	4,236	52.8	8,024
- Nueva Arcadia	9,792	50.6	9,571	49.4	19,363
Cortés					
- San Antonio de Cortés	7,770	48.7	8,189	51.3	15,956
- Santa Cruz de Yojoa	18,306	48.8	19,209	51.2	37,515
- Villanueva	16,053	49.9	16,124	50.1	32,177
- San Francisco de Yojoa	4,850	50.3	4,793	49.7	9,643
Choluteca					
- Choluteca	45,140	51.4	42,749	48.6	87,889
- Marcovia	14,388	49.7	14,589	50.3	28,977
- Namasique	8,753	48.9	9,159	51.1	17,912
El Paraíso					
- Danli	50,874	50.5	49,925	49.5	100,799

DEPARTMENT (MUNICIPALITIES)	WOMEN		MEN		TOTAL
	No.	%	No.	%	
Francisco Morazán					
- Lepaterique	5,175	50.2	5,124	49.8	10,299
- Marale	3,389	47.8	3,706	52.2	7,095
- Ojojona	3,274	49.1	3,396	50.9	6,670
- Sta. Lucia	2,116	50.0	2,113	50.0	4,229
- Tatumbla	1,790	50.3	1,772	49.7	3,562
Lempira					
- Gracias	9,664	49.9	9,716	50.1	19,380
- Lepaera	8,694	48.9	9,081	51.1	17,775
- San Rafael	3,541	49.8	3,571	50.2	7,112
- San Manuel del Colohete	3,464	49.7	3,503	50.3	6,967
- La Campa	2,871	49.5	2,933	50.5	5,804
Olancho					
- Catacamas	25,943	49.4	26,577	50.6	52,520
- Solama	3,195	51.2	3,046	48.8	6,241
- San Francisco de la Paz	6,718	49.8	6,785	50.2	13,503
- Silca	3,028	49.7	3,064	50.3	6,092
Sta. Barbara					
- Sta. Barbara	11,144	48.7	11,758	51.3	22,902
- Arada	3,385	48.2	3,632	51.8	7,017
- Azacualpa	7,010	48.8	7,366	51.2	14,376
- El Nispero	2,891	48.9	3,017	51.1	5,908
- Flama	3,397	48.1	3,661	51.9	7,058
- Quimistan	11,480	48.7	12,096	51.3	23,576
- Atima	4,228	48.0	4,579	52.0	8,807
- Colinas	7,610	47.7	8,346	52.3	15,956
- Concepción del Norte	3,528	47.1	3,960	52.9	7,488
- Chinda	1,878	49.4	1,921	50.6	3,799
- Naranjito	4,775	49.3	4,918	50.7	9,693
- Nueva Celilac	2,711	47.8	2,960	52.2	5,671
- San Luis	8,722	47.6	9,620	52.4	18,342
- San Marcos	5,189	47.2	5,803	52.8	10,992
- San Nicolas	4,205	49.8	4,236	50.2	8,441
- Sta. Rita	1,564	49.7	1,582	50.3	3,146
Valle					
- Nacaome	19,211	50.1	19,167	49.9	38,378
- Alianza	3,881	50.5	3,800	49.5	7,681
- San Lorenzo	10,744	51.1	10,277	48.9	21,021

Intibuca					
- La Esperanza	3,032	53.1	2,680	46.9	5,712
- Masaguara	4,418	50.3	4,372	49.7	8,790
La Paz					
- Marcala	5,582	51.8	5,188	48.2	10,770
- Opatoro	3,426	52.4	3,112	47.6	6,538
- Sta. Ana	3,434	49.9	3,454	50.1	6,888
- Yarula	1,650	48.8	1,733	51.2	3,383
Ocotepeque					
- Mercedes	2,033	49.3	2,091	50.7	4,124
- Sensenti	3,313	50.2	3,282	49.8	6,595
Yoro					
- Sulaco	5,493	49.1	5,693	50.9	11,186

Source: Censo de Población y Vivienda - 1988 - Datos Preliminares.

(a) List of Municipalities served by the AID funded road was provided by the Department of Engineering, AID.

CONDITIONS PRECEDENT AND COVENANTS

A. Conditions Precedent to Initial Disbursement

1. An opinion of the Attorney General of the Republic or of Council acceptable to AID that the Project Agreement has been duly authorized and/or ratified by and executed on behalf of the Grantee and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all its terms.

2. A statement of the names of the persons holding or acting in the office of the Grantee, and a specimen signature of each person specified in such statement.

B. Conditions Precedent to Additional Disbursement

1. Prior to the disbursement of funds or the issuance of any commitment document under the Project Agreement for implementation of the construction component, The Ministry of Public Works, Transportation, and Communication (SECOPT) will make the preselection of at least 530 kilometers of roads which will include 264 kilometers of roads associated with other export promotion projects financed by AID, do cost-benefit analyses on these roads, select those roads for construction which have the highest ranking of the established cost-benefit criterion, do environmental analyses on the roads selected, and then make a final selection leaving out those road packages which have negative environmental consequences.

2. Prior to disbursement of funds, the issuance of any commitment document, or the approval of any bidding documents for new construction activities under the Project Agreement, the GOH and AID agree to do a review of progress on the goals set forth in SECOPT's institutional strengthening program for its Directorate of Maintenance (DGM) as contained in Annex IV to the Project Paper. If progress on these goals is not satisfactory as determined by the GOH and AID, then the disbursement of funds, the issuance of any committment document or the approval of any bidding documents for the new construction activities under the Project Agreement will not proceed until such time as the GOH and AID determine that progress on the institutional strengthening goals of the DGM is satisfactory.

3. Prior to disbursement of funds after the second year of the Project except for technical assistance activities and the AID coordinating unit, the GOH and AID agree to do another review of progress on the goals set forth in SECOPT's institutional strengthening program for its Directorate of Maintenance (DGM) as contained in Annex IV to the Project Paper. If progress on these goals is not satisfactory as determined by the GOH and AID, then the disbursement of funds, with the exception of technical assistance activities and the AID coordinating unit, will not proceed until such time as the GOH and AID determine that progress on the instititutional strengthening goals of the DGM is satisfactory.

4. Prior to the disbursement of funds or the issuance of any commitment document under the Project Agreement for implementation of the maintenance component, other than for technical assistance related to that component, SECOPT will submit for AID's approval a detailed plan which shows how the participation of private sector contractors in maintenance will be increased over the life of the Project, and specifically, how the private sector maintenance coverage goals will be met for AID-financed roads and the rural roads network as a whole by the end of the Project.

5. Prior to the disbursment of funds or the issuance of any commitment document under the Project Ageement for implementation of the Pilot Project for Implementation of the Hand Labor, Peon Caminero Program through the Municipalities, AID, SECOPT, and the Peace Corps will sign an Interinstitutional Agreement which details the objectives to be accomplished under the pilot program, the resources to be contributed by all parties in accomplishing those objectives, and other such information as required to ensure the successful completion of the program.

C. Special Covenants

1. The Cooperating Country shall make every effort to ensure that counterpart funds are available in a timely and satisfactory manner. Likewise, the cooperating country shall provide A.I.D. with semi-annual reports on the provision of counterpart contributions. Should the cooperating country fail to make available amounts designated in the budget or fail to make those amounts available in a timely and satisfactory manner as determined by AID, AID may suspend assistance to one or all project activities until such time that AID shall determine that the assistance may be continued or that one of more of the project activities be terminated.

ANNEX IX

ATTACHMENT TO ECONOMIC ANALYSIS

Part 1. Tables 1.a.-1.c. showing detailed information on cost totals, distribution of costs among activities, and source of funds.

Part 2. Estimations of land area brought into production, intensity of land use, and distribution by type of crop.

Part 3. Assumptions and rationale for estimating the net benefits of the increased agricultural production of corn, coffee, and pineapple.

Part 4. Procedures used to calculate the shadow prices of unskilled labor and foreign exchange under the Project.

Part 5. Comparison of the cost effectiveness of routine maintenance vs. periodic rehabilitation of rural roads.

Part 6. Procedures for subproject cost-benefit analysis.

Table 1.a.: Engineering Costs by Type of Activity and Source of Funds. A.I.D. Contribution
(Thousand of Lempiras)

	A. Investment			B. Maintenance				C. Other Costs				
Year	Reconstruction	Rehabilitation	TOTAL	Contracting	Hand Lab. Program	Administration and Engineering	TOTAL	A.I.D. Coordinating Unit	Technical Assistance	Evaluations/ Audits	TOTAL	GRAND TOTAL
1	0	0	0	0	0	1,483	1,483	0	215	0	215	1,698
2	430 a/	7,310	7,740	8,105	860	0	8,965	516	430	0	946	17,651
3	2,383	305	2,688	4,300	623	43	4,966	516	215	215	946	8,600
4	3,763	0	3,763	5,375	623	43	6,041	516	215	215	946	10,750
5	4,193	0	4,193	5,375	623	43	6,041	516	0	0	516	10,750
6	3,548	0	3,548	5,375	107	43	5,525	430	0	215	645	9,718
7	0	0	0	5,204	0	43	5,247	86	0	0	86	5,333
TOTAL	14,317	7,615	21,932	33,734	2,836	1,698	38,268	2,580	1,075	645	4,300	64,500

(a) Includes L430 thousand allocated for environmental assessment of the subprojects in the second year of the Project.
NOTE: AID's contribution to the road project is budgeted in US$. The exchange rate utilized is L4.3:$1.

Table 1.b.: Engineering Costs by Type of Activity and Source of Funds. GOH Contribution (Thousand of Lempiras)

	A. Investment			B. Maintenance		C. Other Costs			
Year	Reconstruction Admn/ Engr.	Rehab Adm/Eng.	TOTAL	Peon Caminero Salaries	Maint Contracts	Adm/Engr.	TOTAL	Audits	GRAND TOTAL
1	0	0	0	0	0	0	0	0	0
2	0	3,870	3,870	1,471	1,290	146	2,907	0	6,777
3	4,408	0	4,408	1,574	1,290	211	3,075	65	7,548
4	2,258	0	2,258	1,630	1,290	232	3,152	0	5,410
5	1,935	0	1,935	1,681	1,290	245	3,216	64	5,215
6	0	0	0	1,733	1,290	262	3,285	0	3,285
7	0	0	0	0	1,290	0	1,290	0	1,290
TOTAL	8,601	3,870	12,471	8,089	7,740	1,096	16,925	129	29,525

* In year 2, L2 million of the reconstruction component and L2 million of the rehabilitation component are for investment, not administration and engineering costs.

Table 1.c.: Engineering Costs by Type of Activity (Thousand of Lempiras)

Year	Reconstruction	Rehabilitation	Maintenance	Other Costs	GRAND TOTAL
1	0	0	1,483	215	1,698
2	430	11,180	11,872	946	24,428
3	6,791	305	8,041	1,011	16,148
4	6,021	0	9,193	946	16,160
5	6,128	0	9,257	580	15,965
6	3,548	0	8,810	645	13,003
7	0	0	6,537	86	6,623
TOTAL	22,918	11,485	55,193	4,429	94,025

Table 2.a.: Potential Area of Direct Influence (all values are rounded)

	Kms	Percentage
A. Reconstruction		
- Mountainous Areas	66	25%
- Rolling Hills and non-flooded flat land	172	65%
- Flooded flat land	26	10%
TOTAL	264	100%
B. Rehabilitation		
- Mountainous Areas	75	25%
- Rolling Hills and non-flooded flat land	195	65%
- Flooded flat land	30	10%
TOTAL	300	100%

Area of Direct Influence

	No. Km^2	Kms Squared	Hectares
No. of Kilometers of Influence on either side of the road			
- Mountainous Areas	1.1		
- Rolling Hills and non-flooded flat land	2.5		
- Flooded flat land	0.5		
Area of Influence-Reconstruction			
- Mountainous Areas	66	145	14,520
- Rolling Hills and non-flooded flat land	172	858	85,800
- Flooded flat land	26	26	2,640
Area of Influence-Rehabilitation			
- Mountainous Areas	75	165	16,500
- Rolling Hills and non-flooded flat land	195	975	97,500
- Flooded flat land	30	30	3,000
Total Potential Area	564	2,199.6	219,960

Assumptions and Rationale:

- Arable agricultural land in Honduras represents approximately 25 percent of the total land area.

- One out of three Has of arable land is cultivated (average value for the country) under traditional crops.

- One out of twenty Has of arable land is cultivated under nontraditional crops.

- The road project would enhance the production possibility curve of farmers in the area of direct influence by allowing the introduction/intensification of basic productive support services in those areas.

- Traditionally, coffee is grown mostly in mountainous areas, while corn and nontraditional crops are mostly grown in the rolling hills and valley areas.

- Based on current levels of technological development, farmer experience and marketing possibilities, the average land use pattern in the area of influence would approximate the following: corn 70 percent, coffee - 20 percent, and nontraditional crops - 10 percent.

- It is assumed that for newly constructed roads all the land under cultivation is land newly brought into production. However, for the rehabilited roads, it is more accurate to postulate an intensification of the land already under cultivation. Thus, farmers operating in the areas of new construction are assumed to bring into production an average of 1.37 Has, while those operating in areas under going road rehabilitation are assumed to increase the area under cultivation by an average of 40%.

- Under the above assumptions, the estimated land under cultivation per year for the three major crop categories and the total land under cultivation can be estimated as follows:

Table 2.b.:

Land Use Category	Land Use Distrb. (% of total land)	Area (Hectares) Reconstr.	Rehabilit.	Total
Total Land	100.0%	102,960	117,000	219,960
Arable Land (25% of Total)	25.0%	25,740	29,250	54,990
Land Cultivated*	6.5%	9,781	4,446	14,227
-Corn (70% of Land Cult.)	4.5%	6,847	3,112	9,959
-Coffee (20% of Land Cult.)	1.3%	1,956	889	2,845
-Nontraditionals (10% of Cultivated)	0.6%	978	445	1,423

* For reconstruction, 38% of arable land and 5.6% of total; for rehabilitation, 15% of arable land and 3.8% of total land.

Table 2.c.: Number of Kilometers Reconstructed and Rehabilited per Year

Year	1	2	3	4	5	6	7	TOTAL
Reconstruction	0	0	78	69	71	41	0	264
Rehabilitation	0	292	8	0	0	0	0	300
TOTAL	0	292	86	69	71	41	0	564

Table 2.d.: Reconstruction
Detailed Breakdown of New Land Tillable by Year by Crop (Hectares)

Year	1	2	3	4	5	6	7	TOTAL
Corn	0	0	2,029	1,799	1,831	1,060	0	6,718
Coffee	0	0	580	514	523	303	0	1,920
Nontraditionals	0	0	290	257	262	151	0	960
TOTAL	0	0	2,898	2,570	2,615	1,514	0	9,598

Table 2.e.: Rehabilitation
Detailed Breakdown of New Land Tillable by Year by Crop (Hectares)

Year	1	2	3	4	5	6	7	TOTAL
Corn	0	3,030	83	0	0	0	0	3,112
Coffee	0	866	24	0	0	0	0	889
Nontraditionals	0	433	12	0	0	0	0	445
TOTAL	0	4,328	118	0	0	0	0	4,446

Table 2.f.: Total
Detailed Breakdown of New Land Tillable by Year by Crop (Hectares)

Year	1	2	3	4	5	6	7	TOTAL
Corn	0	3,030	2,111	1,799	1,831	1,060	0	9,831
Coffee	0	866	603	514	523	303	0	2,809
Nontraditionals	0	433	302	257	262	151	0	1,404
TOTAL	0	4,328	3,016	2,570	2,615	1,514	0	14,044

Sources: Land use estimates for corn are based on recent survey data ("Caracterización de los Productores de Granos Básicos", Ministry of Agriculture, Planning Division, April 1989). Land use estimates for coffee and nontraditional crops are based on the Honduras Small Farmer Coffee Improvement Project (USAID/IHCAFE) and data from the Ministry of Natural Resource Crop Diversification Project.

Direct Benefits from Increased Agricultural Production

Assumptions and Rationale

A. Corn Production

- Approximatedly 20 percent of corn production land is cultivated twice a year in both the 1st planting season (primera), and 33 the second planting season (postrera). The other 80% of the land is cultivated only in the first planting season.

- It is assumed that as a consequence of the contribution of new roads, and the rehabilitation and maintenance of existing roads:

  a) The present weighted (primera and postrera) yield per hectare will improve because the farmer adopts a semi-tecnified cultivation practice as well as expanding his farming frontier. In the fourth year after roads are reconstructed or rehabilitated (case 2 in the estimate), it is assumed that farmers adopt more technified cultivation practices which will further increase yields.

  b) It is assumed that as a consequence of the project, farmers in the area of influence will adopt improved cultivation practices including the utilization of modernized inputs. Production increases on land cultivated before the project are not taken into account in the cost-benefit analysis. Before Project costs and benefits are provided to show the attractivness for individual farmers of adopting new production practices and cultivating the additional land provided under the project.

  c) An analysis is done to show the profitability of the project from the farmer's point of view as well as that of the total economy. Profitability for the farmer is quite important in that if the project were not profitable for the farmer, the potential profitability of the project for the economy would not be realized. Net financial benefits for the farmer refer to the net benefits to the farmer of the corn that he/she sells in the market at the farm gate price. Net economic benefits refer to the total harvest which includes both the part which is marketed and the part which is directly consumed by the farmer.

  It is also assumed that the share of production which is marketed will increase from a weighted average of 36 percent -common for the traditional farmer- to a weighted average of about 70 percent of the total corn crop, counting both harvest periods.

It is assumed that corn production would have increased approximately 10% without the Project. Thus 10% of the benefits have been subtracted from the total net benefits in the with-Project scenario.

Financial and Economic Costs and Benefits of Corn Production
(Costs and Benefits for Primera and Postrera Crops are Added Together)

		Without Project	With Project	
			Case 1	Case 2
1.	Financial Cost (L/Ha)	1,620.37	1,777.35	2,111.73
2.	(L/qq)	26.09	22.58	23.65
3.	Cost Distribution			
4.	Unskilled Labor	1,602.15	1,464.87	1,112.94
5.	Local inputs and Technical Labor	16.94	118.38	378.77
6.	Imported Inputs	0.00	172.29	550.34
7.	Financing Cost	1.28	21.81	69.68
8.	Taxes(-) or Subsidies(+) Int. Inputs	40.49	39.41	36.88
9.	Taxes(-) or Subsidies(+) Impt. Inputs	0.00	-15.56	-70.13
10.	Economic Cost (L/Ha)	1,015.33	1,177.05	1,510.21
11.	(L/qq)	16.35	14.96	16.91
12.	Yield-Total Primera plus Postrera (qq/ha)	62.1	75.7	90.3
13.	Farm Gate Price (L/qq)	24.00	24.00	24.00
14.	Market Price (L/qq)	28.00	28.00	28.00
15.	Percentage of sales	33.6%	51.6%	70.0%
16.	Total Sales (qq)	20.9	40.6	62.5
	Farmer's Perspective			
17.	Net Financial Benefits (L/Ha)	-26.17	12.21	23.30
18.	(L/qq)	-2.09	0.52	0.61
19.	Net Economic Benefits (L/Ha)	-77.90	23.67	33.28
20	(L/qq)	-2.09	0.52	0.61
	Economy-wide Perpsective			
21.	Net Financial Benefits (L/Ha)	-32.33	108.09	171.27
22.	(L/qq)	-1.55	2.77	2.71
23.	Net Economic Benefits (L/Ha)	434.18	508.98	549.82
24.	(L/qq)	6.99	6.72	6.09

NOTE: Financial cost data is based on Ateneo de la Agroindustria (ADAI) production cost estimates. Information on yields, sales as a percentage of total production, and prices received by farmers, is derived from various sources, including: Ministry of Natural Resources, "Caracterización de Productores de Granos Básicos", April 1989; Agrarian National Institute (INA).

Formulas for Corn Production Table

The numbers correspond to the concepts which are numbered 1 through 24 on the previous page. The letters are defined below.

1 = 4+5+6+7
2 = 1/12
10 = a*4+b*5+c*(6+9)+8
11 = 10/12
16 = 15*12
17 = 18*16*d
18 = 15-2
19 = (12*13-1)*d (farmer's economic perspective includes both grain sold and consumed)
20 = 13-2
21 = ((16*14)-(4+5+6+8+9)*d (for case 1 and case 2 with project, this is multiplied by 0.9 assuming that 10% of the net benefits would have occured without the project)
22 = 21/16
23 = (12*14-10)*d (note following line 21 applies here as well)
24 = 23/12

a = Economic Price of unskilled labor/financial price = 0.6
b = Economic Price of professional labor and local inputs/financial price = 0.8
c = Economic price/financial price of foreign exchange. For base case = 4.5/4.3
d = 0.6 (This factor is used because the above formulas assume 2 harvests per year; however in reality only 20% of the land either is irrigated or has sufficient rainfall for two harvests per year. Thus of the total hypothetical yield 60% is actually produced by the "average" farmer).

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B. Coffee Production

Assumptions and Rationale:

a) It is assumed that coffee production will take place in the mountainous areas in which road construction/rehabilitation activities are undertaken.

b) The following production schedule is assumed: years 1 and 2 - no marketable production; year 3 - production at 75 percent of potential yield; years 4 to 15 - production at 100 percent of potential yields.

c) It is assumed that coffee farmers in the area of influence of the project will benefit from the technology developed under the AID/Honduras sponsored Small Farmer Coffee Improvement Project. Thus coffee growers affected by the project will move from the traditional to "tecnificado" production category.

d) The internal price for coffee or the price that the farmer receives is higher under the "With Project" scenario because the new technolgy adopted improves the quality of the coffee and they receive a higher price.

Under these assumptions, the net and incremental benefits of coffee production attributable to the road project are as follows:

Financial and Economic Costs and Benefits of Coffee Production (L/Ha)

		Without Project	With Project a/
1.	Financial Cost (L/Ha)	2,434.25	7,006.91
2.	(L/qq)	160.15	245.86
3.	Cost Distribution		
4.	Unskilled Labor	1,420.98	4,317.04
5.	Local Inputs and Technical labor	475.45	1,440.64
6.	Imported Inputs	361.69	760.38
7.	Financing Cost	176.13	488.85
8.	Taxes(-) or Subsidies(+)Int. Inputs	52.85	115.27
9.	Taxes(-) or Subsidies(+) Impt. Inputs	-59.67	-95.78
10.	Economic Cost (L/Ha)	1,601.86	4,553.52
11.	(L/qq)	105.60	159.77
12.	Yield (qq/ha)	15.2	32.5
13.	Internal Price (L/qq)	183.00	250.00
14.	External Price (L/qq)	382.00	382.00
15.	Percentage of Sales	90.0%	95.0%
16.	Total Sales (qq)	13.7	30.9
	Farmer's Perspective		
17.	Net Financial Benefits (L/Ha)	307.44	1,062.18
18.	(L/qq)	22.52	34.40
19.	Net Economic Benefits (L/Ha)	341.60	1,118.08
20.	(L/qq)	22.52	34.40
	Economy-wide Perspective		
21.	Net Financial Benefits (L/Ha)	2,950.02	4,766.11
22.	(L/qq)	216.09	154.37
23.	Net Economic Benefits (L/Ha)	4,192.55	7,075.33
24.	(L/qq)	276.40	217.70

Note: Information on area under production and production costs for traditional/improved production technologies provided by the Ateneo de la Agroindustria (ADAI), information on coffee yields from: Margarita Ramírez, Olvin E. Romero and Clarence Dunkerley. "Pronóstico de Cosecha de Café 1989-1990". Instituto Hondureño del Café (IHCAFE). División de Planificación, Tegucigalpa, D.C. Octubre 1989, Table 3.

Formulas for Coffee Production Table

The numbers correspond to the concepts which are numbered 1 through 24 on the previous page. The letters are defined below.

1 = 4+5+6+7
2 = 1/12
10 = a*4+b*5+c*(6+9)+8
11 = 10/12
16 = 15*12
17 = 18*16
18 = 13-2
19 = 12*13-1 (farmer's economic perspective includes both grain sold and consumed)
20 = 13-2
21 = (16*14)-(4+5+6+8+9) (for case with-project, this is multiplied by 0.9 assuming that 10% of the net benefits would have occured without the project)
22 = 21/16
23 = 12*14-10 (note on 21 applies here as well)
24 = 23/12

a = Economic Price of unskilled labor/financial price = 0.6
b = Economic Price of professional labor and local inputs/financial price = 0.8
c = Economic price/financial price of foreign exchange. For base case = 4.5/4.3 = 1.05

C. Nontraditional Crops

Assumptions and Rationale:

a) At present, there are at least six or seven dozen potential nontraditional crops which could expand in production as a result of project activities. For purposes of this analysis, pineapple is used as a representative nontraditional crop in assessing the impact of road reconstruction/rehabilitation activities on value added in the nontraditional sector.

b) Pineapple exports represented the most important nontraditional agricultural export product in 1987. The export value of pineapple was equal to 26.3 million Lempiras, or about 10 percent of the value of all nontraditional exports. The latest available information from the Agricultural Association (FEPROEXAAH), indicates that for the period December 1988 to November 1989, pineapple exports equalled 31.0 million kilograms, or 16.3 million lempiras, representing about one fifth of the volume and value of non traditional agricutural exports for that period.

c) Under the With-Project scenario, it is assumed that the grower directly receives the external price for the product which is exported. This assumption is based on the fact that many growers also function as produce exporters.

Financial and Economic Costs and Benefits of Pineapple Production (L/Ha)

		Without Project	With Project
1.	Financial Cost (L/Ha)	5,749.13	22,260.02
2.	(L/caja)	3.18	5.54
3.	Cost Distribution		
4.	Unskilled Labor	4,051.52	8,631.88
5.	Local inputs and Technical Labor	450.68	10,981.49
6.	Imported Inputs	845.83	1,093.68
7.	Financing Cost	401.10	1,552.97
8.	Taxes(-) or Subsidies(+)Int. Inputs	111.49	489.12
9.	Taxes(-) or Subsidies(+)Impt. Inputs	0.00	0.00
10.	Economic Cost (L/Ha)	3,854.50	15,683.83
11.	(L/caja)	2.13	3.91
12.	Yield (cajas/ha)	1,807.0	4,016.0
13.	Internal Price (L/caja)	8.00	8.00
14.	External Price (L/caja)	15.00	15.00
15.	Percentage of sales	90.0%	70.0%
16.	Total Sales (caja)	1,626.3	2,811.2
	Farmer's Perspective		
17.	Net Financial Benefits (L/Ha)	7,836.18	27,940.78
18.	(L/caja)	4.82	7.32
19.	Net Economic Benefits (L/Ha)	8,706.87	27,940.78
20.	(L/caja)	4.82	7.32
	Economy-wide Perspective		
21.	Net Financial Benefits (L/Ha)	7,773.86	26,984.58
22.	(L/caja)	4.78	7.07
23.	Net Economic Benefits (L/Ha)	10,667.89	31,142.23
24.	(L/caja)	5.90	7.75

Note: Information on production costs, for traditional and export production technologies, provided by the Ateneo de la Agroindustria (ADAI). Information on yields for traditional and export production technologies, and price estimates received by farmers in the internal or export markets, from FEPROEXAAH (Federación de Asociaciones de Productores y Exportadores Agropecuarios y Agroindustriales de Honduras), San Pedro Sula.

Formulas for Pineapple Production Table

The numbers correspond to the concepts which are numbered 1 through 24 on the previous page. The letters are defined below.

1 = 4+5+6+7
2 = 1/12
10 = a*4+b*5+c*(6+9)+8
11 = 10/12
16 = 15*12

For case Without Project

17 = 18*16
18 = 13-2
19 = 12*13-1 (farmer's economic perspective includes both pineapple sold and
consumed)
20 = 13-2
21 = (16*14)-(4+5+6+8+9)
22 = 21/16
23 = 12*14-10
24 = 23/12

For case With Project, it is assumed that 70% of the marketed produce is sold at external prices and 25% is sold at internal prices. Likewise, for the total economy (formulas corresponding to lines 21 and 23), it is assumed that production would have increased 10% without the project, and thus the total formula is multiplied by 0.9 (i.e. subtracting 10% of the benefits).

17 = (0.7x12x14+0.25x12x13)-1
18 = 17/16
19 = (0.7x12x14+0.25x12x13)-1
20 = 17/16
21 = ((0.7x12x14+0.25x12x13)-(4+5+6+8+9))x0.9
22 = 21/16
23 = (0.7x12x14+0.25x12x13)-10)x0.9
24 = 23/12

a = Economic Price of unskilled labor/financial price = 0.6
b = Economic Price of professional labor and local inputs/financial price = 0.8
c = Economic price/financial price of foreign exchange. For base case = 4.5/4.3 = 1.05

Economic Estimates of Project Costs

Based on the unit cost estimates prepared by the SECOPT Engineering Office, economic cost projections have been prepared. A total of 264 kms are considered for reconstruction. One fourth or 57 kms are Type I, and the remaining of 207 kms correspond to Type II. Type I roads are 5.25 meter wide, while Type II are 4 meters wide.

Another major characteristic bearing upon the road cost per kilometer for reconstruction and rehabilitation, relates to the terrain topography. Some of the terrain is mountainous, while part is undulated or flat, some of which is in turn subject to flooding. Table 4.a provides an estimate of the cost per kilometer under the different terrain conditions for both Type I and Type II roads, including average cost values.

Economic costs are determined by multiplying the financial costs of the unskilled labor, professional labor, local input, and foreign exchange elements by the relevant shadow price parameters listed in Part 3 of this Annex.

Table 4.d.: Financial and Economic Cost Estimates (in lempiras)

A. Reconstruction Upgrading	Type I	Type II	TOTAL
No. of Kilometer	57	207	264
financial Cost/Kilometer	100,518	83,036	86,811
Total Financial Cost	5,729,500	17,188,500	22,918,000
Cost Distribution			
Unskilled Labor	25%	25%	
Professional Labor/Local Inputs	17%	17%	
Imported Inputs	58%	58%	
Economic Cost/Kilometer	89,760	74,149	77,520
Total Economic Cost	5,116,310	15,348,931	20,465,241
B. Rehabilitation			
No. of Kilometers	75	225	300
Financial Cost/Kilometer	41,346	37,262	38,283
total Financial Cost	3,100,950	8,384,050	11,485,000
Cost Distribution			
Unskilled Labor	25%	25%	
Professional/Technical Labor	10%	10%	
Imported Inputs	65%	65%	
Economic Cost/Kilometer	37,634	33,917	34,847
Total Economic Cost	2,822,586	7,631,435	10,454,021
C. Maintenance*			
No. of Kilometers			3,000
Financial Cost/Kilometer (Over the five year LOP)			17,256
Total Financial Cost (Over the five year LOP)			51,768,000
Cost Distribution			
Unskilled Labor			35%
Professional/Technical Labor			15%
Imported Inputs			50%
Economic Cost/Kilometer			14,724
Total Economic Cost			44,171,347

* The cost of maintenance shown here surpasses the amount directly budgeted in the project. The additional funding which is not budgeted will be provided through in-kind counterpart. In the flow of financial and economic costs for maintenance in Tables D-1 and D-2 of the PP, costs for the additional kilometers reconstructed are also included.

Economic Analysis of Road Maintenance Component

The benefits attributable to a maintenance program--which in this case represents the largest proportion of the road project budget—are normally based on: increased production, quality improvement, changes in the location of sales, reductions in production losses, reduced vehicle operation costs, time savings resulting from improved road conditions, and a more competitive transportation system.

Some of these benefits are implicitly included in the benefit estimates for newly constructed and reconstructed roads. In the absence of detailed information concerning production possibilities in the areas of the 3,195 kms (including the kilometers to be reconstructed) to be covered by project maintenance activities, the benefits of normal maintenance operations can be proxied by the foregone cost of road rehabilitation that would have to be financed in the absence of the road maintenance program. In the case of AID's maintenance expenditures on 3,000 kms of existing roads during years 1-5 of the project, the benefit corresponding to those expenditures are the foregone rehabilitation costs which the GOH would otherwise have to finance in order to return the roads to usable status. It was assumed for purposes of simplicity that these expenditures would be undertaken in Year 5. At a hypothetical level the net benefits of an effective road maintenance program carried out over a more extensive period can be assessed by examining the forgone costs of reconstruction/rehabilitation activities under different road life-cycle assumptions. This can provide the GOH with useful information regarding the relative cost effectiveness of different road upkeep strategies which it might adopt over the project impact period.

Alternative Life-cycle Costs of Rural Roads

In principle, a road is a capital good with the potential to generate a flow of transportation services. Furthermore, when combined with other capital and intermediate inputs a road reduces the economic and financial cost to road users. When the road is in good condition, cost reductions to users are maximized. With little exact information available on the likely production and cost reduction impacts of effective maintenance activities in the widely dispersed area of project influence, the benefit of a sustained maintenance effort is taken to be the foregone reconstruction costs which would have to be incurred in the absence of an adequate road maintenance program.

The following alternative life-cycle cost assumptions can be utilized in order to measure the foregone costs of effective maintenance activities:

1. Routine and periodic maintenance carried out through the LOP and the subsequent 8 year period.
2. Rehabilitation carried out every five years.
3. Reconstruction carried out every seven years.

The table on the next page shows the investment cost of one kilometer of road in year 0 and the different costs associated with the alternative life-cycle costs for maintaining the road. Alternative 1, routine maintenance, includes the peon caminero program, and grading each year with resurfacing once every five years. Alternatives 2 and 3 imply that no road maintenance program is in operation and the roads must be rehabilitated in year 5 or reconstructed in year 7. The net present values of the three alternatives are listed below.

Alternative	NPV of Total Project Costs (Lempiras and 20% Discount Rate
1. Routine Maintenance	98,222
2. Rehabilitation	108,379
3. Reconstruction	117,800

Even if agricultural benefit flows remained constant between the three alternatives, the routine maintenance alternative is 12 to 15% cheaper than the other two alternatives. Given the likely (1) increase in vehicle operating costs and (2) reductions in agricultural output which would be experienced in the years between each rehabilitation or reconstruction effort, the disadvantage of not providing routine maintenance becomes more evident by the decline in long-term agricultural investment activities which the uncertainty regarding year to year road surface conditions would probably provoke. As a result, in terms of net benefit flows the advantage of routine maintenance vs. periodic rehabilitation or reconstruction efforts would be much more pronounced than it is from a pure cost perspective. In general these results confirm the expectation that a stable routine maintenance program is a vital component of any viable road construction and rehabilitation effort.

Table 5.a: Alternative Life Cycle Costs for One Kilometer of Rural Road Maintenance

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alternative Life Cycle Cost																
1. Routine Maintenance	86,811	942	942	942	942	13,488	942	942	942	942	13,488	942	942	942	942	13,488
2. Rehabilitation	86,811	0	0	0	0	38,283	0	0	0	0	38,283	0	0	0	0	38,283
3. Reconstruction	86,111	0	0	0	0	0	0	86,811	0	0	0	0	0	0	86,811	0
NPV of Alt. 1	98,222															
NPV of Alt. 2	108,379															
NPV of Alt. 3	117,800															

METHODOLOGY FOR RURAL ROAD SELECTION

In order to rationalize the allocation of resources for the construction of additional rural roads, SECOPT technicians are developing an evaluation procedure which will function as an effective instrument for ranking road construction projects. The major criterion to be used in ranking potential road projects will be the economic profitability of the construction effort, primarily determined by the increase in agricultural production associated with construction activities in the area of influence.

Based on sample surveys in the areas of influence of the proposed road projects, information on a variety of socio-economic variables will be collected. Each factor included in the analysis will be weighted in proportion to the relative importance attributed to different types of variables. Thus economic profitability will have a weighting of 60 percent. The availability of complementary services which can minimize the riskiness of the road investment - such as technical assistance, agricultural credit and marketing services - will be given a weight of 10 percent; while health, education, and other variables designed to capture the social impact of the road project in the area of influence, will be given a weight of 30 percent.

Once the ranking of potential projects is completed, final selection will be based upon the total number of points allocated to each road, with the selections made in descending order of rank until the 264 km limit on new construction is reached. Pre-selection of the roads to be evaluated will be based primarily upon the agricultural export potential of the areas within which the road sites are located.

At present technical adjustments are being made in the evaluation approach, which is expected to be completed by the project start-up date. The clear advantage of procedure, once it is operational, will rest on its dual purpose: (1) as an effective device for facilitating rapid project implementation, and (2) as an accurate mechanism for assessing the economic and social impact of potential road construction alternatives.

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded with Development Asistance loans; and B(3) applies to projects funded from ESF.

CROSS REFERENCES:	IS COUNTRY CHECKLIST UP TO DATE?	Yes
	HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?	Yes

A. GENERAL CRITERIA FOR PROJECT

1.	FY 1989 Appropriations Act Sec. 523; FAA Sec. 634A. If money is sought to obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified?	Yes
2.	FAA Sec. 611(a) (1). Prior to an obligation in excess of $500,000 will there be (a) engineering, financial or 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 legislative action is required within recipient country, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance?	N/A

4.	FAA Sec. 611(b); FY 1989 Appropriations Act Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962. et seq.)? (See A.I.D. Handbook 3 for guidelines.)	N/A
5.	FAA Sec. 611(e). If project is capital assistance (e.g. construction), and total U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?	Yes. The Project itself will assist the country in developing its capability to maintain roads build under the project as well as other rural roads in the country
6.	FAA Sec. 209. Is project susceptible to 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.	No
7.	FAA Sec. 601(a). Information and conclusions on whether projects 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.	The Project will encourage 7(b) and 7(e); help carry out 7(d) and is neutral on 7(a), 7(c), and 7(f).
8.	FAA Sec. 601(b). Information and conclusions 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).	All technical assistance for the Project will be procurred from U.S. sources. Most equipment purchased under the project will be purchased from U.S. sources.

9.	FAA Secs. 612(b), 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 in lieu of dollars.	Honduras has agreed to provide counterpart financing on local costs to the extent possible. Honduras is not an excess currency country.
10.	FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No
11.	FY 1989 Appropriations Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	N/A
12.	FY 1989 Appropriations Act Sec. 540. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807." which allows reduced tariffs on articles assembled abroad from U.S.-made coponents) be used directly to procure feasibility studies, prefeasibility studies or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing appareal?	No
13.	FAA SEc. 119(g)(40-(6) & (10). Will the assistance (a) support training and education efforts which improve the capacity of	

	recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?	(a) No (b) No (c) No (d) No
14.	FAA Sec. 12(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)?	N/A
15.	FY 1989 Appropriations Act. If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?	N/A
16.	FY 1989 Appropriations Act. Sec. 538. If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?	N/A
17.	FY 1989 Appropriations Act Sec. 514. If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained?	N/A

18. State Authorization Sec. 139 (as interpreted by conference report). Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and AID LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision). — N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. Fy 1989 Appropiation Act. Sec. 548 (as interpreted by conference report for original enactment). If assistance is for agricultural development activities (specifically any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training) are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantital injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers? — (a) No (b) N/A

b.	FAA Secs. 102(b), 11, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life, and otherwise encourage democratic private and local governmental institutions: (c) support the self-help efforts of developing countries; (d) promotes the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.	(a) The roads built and maintained under this project will provide access to social services, agricultural inputs and markets, and employment opportunities to the rural poor. Part of the maintenance will be done using hand labor and appropriate technology. The roads will also assist in spreading investment from cities to small towns and rural areas. (b) Cooperatives will not participate in the Project, but the Project will encourage the involvement of local government organization in the maintenance of the rural roads. (c) The Project will help the government to build a local capacity to provide funding for and carry out a viable rural roads maintenance program. (d) The rehabilitation and maintenance of roads provide women with increased opportunities for employment and for operating small businesses. (e) The project is neutral on point (e).
c.	FAA Sec. 103, 103A, 104, 105, 106, 120-21; FY 1989 Appropriations Act. (Development Fund for Africa). Does the project fit the criteria for the source of funds (functional account being used?	Yes
d.	FAA Sec. 107. Is emphasis placed on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most	Yes

	appropriate for the small farms, small businesses, and small incomes of the poor)?	
e.	FAA Secs. 110, 124(d). Will the recipient country provide at least 25 percent of the cost of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?	Yes, host country will provide at least 25% of the cost of the Project.
f.	FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?	Yes. The Project technical assistance component is designed to strengthen the capability of the Maintenance Directorate. The ultimate beneficiaries of the Project, however, will be the rural poor who live in the vecinity of the roads maintained.
g.	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 civil education and training in skills required for effective participation in governmental processes essential to self-government.	The project is designed to address the poor maintenance of roads which are the lifeline of many of the nations rural population, it clearly addresses a concern of theirs. The TA component will provide the training, and strengthening necessary for the GOH to have the capacity to maintain the roads without outside assistance. Training will be provided to local communities to help them to provide maintenance for the roads in their areas, more effectively developing their ability for self-government.
h.	FY 1989 Apppropriations Act. Sec. 536. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions?	No

	Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations?	No
	Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of abortions or involuntary sterilization as a means of family planning?	No
i.	FY 1989 Appropriation Act. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization?	No
	If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?	N/A
j.	FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes
k.	FY 1989 Appropriations Act. What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically	Competitive procedures will encourage participation of these groups.

black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans and private and voluntary organizations which are controlled by individuals who are Black Americans. Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

1.	FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance to the fullest extent feasible: (a) stress the importance of conserbing and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strenthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded by helping to increase production on lands	Yes (a) Yes (b) Yes (c)N/A (d) N/A (e) N/A

already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by supporting efforts to identify, establish and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need for protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

(f) N/A
(g) N/A
(h) N/A
(i) N/A
(j) N/A
(k) N/A

m. FAA Sec. 118(c)(13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or

(a) Yes
(b) Yes

project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?

n. FAA Sec. 118(c)(14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?

(a) No
(b) No

o. FAA Sec. 118(c) (15). will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul rods for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams of other water control structures which flood relatively undegraded forest lands, unless with respect to each such activity an

(a) No
(b) No
(c) No
(d) No

environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development.

p. FY 1989 Appropriations Act. If assistance will come from the Sub-Saharan Africa DA account, is it (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) being provided in accordance with the policies contained in section 102 of the FAA; (c) being provided, when consistent with the objectives of such assistance, through African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Sahran Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and — N/A

finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the renewable natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

q. FY 1989 Appropriations Act Sec. 515. If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same general region as originally obligated, and have the Appropriations Committees of both Houses of Congress been properly notified?

Deob/Reob authority is not being exercised at this time.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion of capacity of the country to repay the loan at the reasonable rate of interest. N/A

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enerprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? N/A

c. FAA Sec. 122(b). Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? N/A

3. Economic Support Fund Project Criteria

a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA? N/A

b. FAA SEc. 531(e). Will this assistance be used for military or paramilitary purposes? N/A

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? N/A

Rural Roads III

I M P L E M E N T A T I O N   P L A N

COMPONENT: DGM. INSTITUTIONAL SRENGHTENING

TASK / YEAR	FIRST		SECOND		THIRD		FOURTH		FIFTH		
I.- EVALUATION OF COMPUTING NEEDS	xx										
II.-IMPLEMENTATION OF COMP.NEEDS											
- Procurement process		xxxxxxxxxx									
- Training of personell			xxxxxxxx								
III.-EVALUATION OF SOFTWARE AND INPUTS											
- Procurement		xxxxxxxxxx									
- Training			xxxxxxx								
IV.-IMPLEMENTATION OF ROAD MAINTENANCE											
PROGRAMS.											
- Roads Conditions Surveys	x		x		x		x		x		
- Annual Road Maintenance Plan		xx		xx		xx		xx		xx	
- Roads Maintenance Cost Analysis		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx									

Rural Roads III

I M P L E M E N T A T I O N   P L A N

COMPONENT: MAINTENANCE OF RURAL ROADS. DGM.

YEAR / TASI	FIRST		SECOND		THIRD		FOURTH		FIFTH		
ANNUAL ROADS MAINTENANCE PLAN		xx		xx		xx		xx		xx	
I.-CONTRACTING PROCESS											
-Prequalification of firms		xx		x		x		x			
-Preparation of bidding documents		xx		x		x		x			
-Bidding Process		xx		xx		xx		xx			
-Contract awarding and signature		xx		xxx		xxx		xxx			
-Order to proceed		x		x		x		x			
II.-PERFORM ROADS MAINTENANCE			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
-Contracts supervision (DGM)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
-Project monitoring (AID)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
III.- PEON CAMINERO PROGRAM											
-Contracting of peones (DGM)			x		x		x		x		
-Hand tools procurement (AID)		xx		x		x		x			
-Peon Caminero Supervision (DGM)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
-Peon Caminero Monitoring (AID)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
"Peon Caminero Municipal"											
-Selection of Municipalities		x		x		x		x			
-Agreement with Peace Corps		x		x		x		x			
-Project Monitoring (DGM-AID-PC)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
-Evaluation				x		x		x		x	
IV.- MAINTENACE BY DGM			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	
V.- EVALUATIONS						xxx				xxx	
VI.- FINAL REPORT											

Rural Roads III

I M P L E M E N T A T I O N   P L A N

COMPONENT: ROADS REHABILITATION

TASK / YEAR	FIRST		SECOND		THIRD		FOURTH		FIFTH		
I.- SELECTION OF ROADS		x	x		x						
II.- CONTRACTING PROCESS											
-Prequalification of firms		xx		x		x		x			
-Preparation of bid documents		xx		x		x		x			
-Bidding process		xx		xxx		xxx		xxx			
-Contract awarding		x		x		x		x			
-Order to proceed		x		x		x		x			
II.-PERFORM ROAD REHABILITATION			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx			
-Contracts supervision (DGC)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx			
-Project monitoring (AID)			xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx			
III.-EVALUATIONS				x				xx			
IV.- FINAL REPORT								xx			