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NICARAGUA

RÍO BLANCO – SIUNA ROAD PROJECT

(NI0023)

PROJECT REPORT

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RIO BLANCO-SIUNA HIGHWAY PROJECT

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RIO BLANCO-SIUNA HIGHWAY PROJECT
MINISTRY OF PUBLIC WORKS

PROJECT REPORT

I. INTRODUCTION

A. Background

- 1.01 The Nicaraguan Government's 1975-1979 National Reconstruction and Development Plan assigns high priority to opening up the country's extensive Atlantic region as a means of promoting and diversifying large-scale agricultural and livestock development in the future. Although this area, which occupies more than half of the country's territory, presents good prospects for development of the agricultural and livestock sector, absence of overland means of access to the area signifies that the Government will have to make substantial investments in productive and social infrastructure facilities in order to attain its objectives. At the present time there is only one penetration highway in the southern part of Zelaya Department. The northern and central parts have not been opened up through highways or penetration roads, despite the existence of relatively large towns in the northern parts which up to now have been isolated from the rest of the country.
- 1.02 In order to provide access to the northern Atlantic zone, the Government, using funds of its own, is building a highway from Siuna, in the Central part of the zone, to Puerto Cabezas on the Atlantic coast. However, Siuna is not connected with the highway system leading to the most developed area on the Pacific side of the country. To solve this problem the Government in 1976 retained a consultant firm to perform a feasibility study for determining the most efficient and economical way of making such a connection. Taking into consideration that in order to travel from Siuna to the Pacific zone it was necessary to cross the mountain chain that divides the country in two, it was determined that it would be more advisable to construct the highway between Siuna and Río Blanco, which is the terminal point of the national highway system in the Central zone of the country. The highway would extend along the foothills of the mountains, where the terrain is undulating or flat, without having to cross the mountains.
- 1.03 After the technical and economic feasibility study of the Río Blanco-Siuna highway had been established, the same consulting firm that did the studies proceeded to prepare the final designs for the road to be built. With the basic studies and final designs available, the Ministry of Public Works (MOP) of Nicaragua decided to apply to the Bank for a loan to finance part of the cost of building the road.

B. The Application and Bank Missions

- 1.04 On April 25, 1977, MOP, acting on behalf of the Government of the Republic of Nicaragua, submitted to the Bank an application for a loan in the equivalent of US\$35 million from the Fund for Special Operations (FSO) for partial financing of construction of the Río Blanco-Siuna highway, with a length of approximately 116 kms and at a total estimated cost amounting to the equivalent of US\$45 million. An initial examination of the request resulted in the Bank's sending an orientation mission to Nicaragua to investigate the economic aspects of the project in greater depth, particularly in regard to land tenure in the proposed highway's area of influence, the Government's plans for agricultural and livestock development in the zone, the possible cost of the project, and traffic sources and projections.
- 1.05 In view of the fact that when the Bank received the application the final engineering plans and final estimates of the possible cost of the highway were already available, the aforementioned mission reviewed the designs and cost estimates in the field. As a result of the mission it was concluded that it would not be necessary to send an appraisal mission for further study of this project. Before leaving Nicaragua, however, the orientation mission requested MOP to send the Bank additional information regarding certain economic and financial aspects of the project.
- 1.06 The additional information was received at the Bank early in November 1977 and found satisfactory. Based on the final plans, and with all the necessary additional information in hand, the Bank made an analysis of the proposed operation, the conclusions of which are reflected in this report.
- 1.07 It should be mentioned that the original request from MOP contemplated the provision of technical cooperation at a cost equivalent to US\$1,050,000, to be charged to the proposed Bank loan, to finance preparation of the third stage of the local roads project and the cost of advisory services to MOP for strengthening of its road and machinery and equipment maintenance activities.
- 1.08 During the analysis of the proposed operation, it was decided that the inclusion of funds for these purposes would not be advisable. This decision was based primarily on the following factors:
 - (i) The second stage of the local roads project financed through Loan 491/SF-NI is in the initial phase of execution and is not expected to be completed before the start of 1982. For this reason it was felt that technical cooperation for the preparation of the third stage could be programmed during the course of 1980;
 - (ii) MOP is currently in process of implementing the recommendations of the consultants hired with funds from Technical Cooperation ATP/SF-1135-NI (Loan 305/SF-NI). It is considered advisable for the Bank

to know the scope of implementation of the aforementioned recommendations before proceeding to grant the additional technical cooperation for institutional strengthening of MOP. Moreover, it is considered that MOP has adequate institutional capacity for efficient execution of the project proposed in this report.

- 1.09 As a result of the foregoing, and based on a detailed review of the cost factors, the amount of the proposed operation would be somewhat lower than that originally requested by MOP. The total cost of the project would amount to the equivalent of US\$43 million, and the loan from the Bank would be equivalent to US\$32 million.

C. Priorities

- 1.10 The Government of Nicaragua has informed the Bank that it assigns high priority to building the Río Blanco-Siuna highway, construction of which is included in the 1975-1979 National Reconstruction and Development Plan, currently in effect. The high priority given by the Nicaraguan Government to carrying out the proposed project was confirmed to the Bank during the latest programming mission to Nicaragua in March of 1977. Nicaragua's National Transportation Plan (PNTN) completed at the end of 1976, also confirms the high priority that the project has within the transportation sector.

II. FRAME OF REFERENCE

A. The Country and Characteristics of the Transport Sector

- 2.01 The Republic of Nicaragua, with a surface area of approximately 139,000 Kms² is divided by mountains that run through the country from the northeast to the southeast, dividing it roughly in half and creating two areas: that of the Atlantic and the Pacific. On the Atlantic slopes and plains, the country's most turbulent rivers are found, and in that area extensive forests and virgin mountains exist. The Atlantic zone has only about 18% of the total population of the country and is the area that comprises the "agricultural frontier" for colonization and settlement programs. As can be seen in the map on page 8, the proposed highway, from Rio Blanco to Siuna, would be the first one in the country to penetrate the northern section of the Atlantic zone.
- 2.02 The Pacific foothills constitute the most developed area of the country, where the majority of the population lives (82%). In the Pacific area, the rivers are less important, some of them draining into the Nicaragua and Managua Lakes, which have a total surface area of 9,000 Kms². Both lakes drain into the Atlantic Ocean through the San Juan River.
- 2.03 The transport sector in Nicaragua is characterized by maritime movement, served principally by two important ports on the Pacific coast and three smaller ones on the Atlantic; rail transport with a network of approximately 310 Kms., of track in total length; air transport, served by one international airport, eight airports for internal service and numerous landing strips for light aircraft; and land transport, via a highway network that had a total length of 17,546 Kms., at end of 1976.
- 2.04 The transportation system in the country is concentrated in the Pacific zone. The Atlantic zone is serviced by small river boats and by passenger and cargo planes that fly to the few towns in the area. In the Atlantic, which covers more than half of the surface area of the country, there is only one penetration road. The railroads on the Pacific side do not offer service towards the Atlantic.
- 2.05 During 1974, the last year for which reliable figures exist, the percentage distribution of freight movement between various modes of transportation in the country was the following:

<u>Mode of Transport</u>	<u>%</u>
Highways	73.0
Seaports	14.2
Rivers	6.1
Pipelines	5.7
Rail	0.8
Air	0.2
	<u>100.0</u>
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1. Sea and River Transport

- 2.06 Maritime transport is the principal means by which cargo is moved to the exterior of the country. In 1974, 81% of Nicaragua's total import and export cargo was moved by sea, and 19% by land and air. The major ports are located on the Pacific, among the Corinto which handles 68% of total sea cargo and Puerto Somoza with 16% of the total. Historic data on international freight movements indicate that with the exception of 1965 and 1969, total imports and exports that moved through the ports have grown dynamically, passing from 389,000 metric tons in 1954 to 2,011,000 metric tons in 1974, representing an annual rate of growth of 8.6%. The three small ports on the Atlantic--Bluefields, Puerto Cabezas and Puerto Isabel-- handle a total of 10% of all international cargo.
- 2.07 The perimeters of Lakes Managua and Nicaragua measure about 600 Kms. in total. Taking into account their superficial area, both lakes come up with a total of 9,000 Kms², which are used in an inefficient manner by small private firms. As far as river transport is concerned, Nicaragua has about 1,500 Kms., of rivers that could be used. Among the principal rivers in the Atlantic area there are: the San Juan River, which could be used to promote navigation through Lake Nicaragua and activate the small ports along its shore; the Escondido River which drains near Bluefields and along with its tributaries, the Siquia and the Mico, connect by road through El Rama completing the route that opens the doors to the southern part of the Atlantic coast; the Rio Grande de Matagalpa, which with its tributary the Tuma River, has been used effectively, mainly because a large hydroelectric project has been executed on it; the Coco River which runs through an unpopulated area but one of great potential, given that an important reforestation project is presently being executed near it that will provide sufficient inputs for the wood processing industries; and the Prinzapolka River which runs along the southern edge of the area in which this large reforestation program is located.

2. Rail Transportation

- 2.08 Transportation by rail, via a network of 319 Kms., including principal rail lines and siding, having played a pioneering role in the development of transportation in Nicaragua, influenced the national geo-economic structure to a great degree, by favoring a concentration of development in the Pacific region of the country, where the installation of rail lines was quite attractive for the agglomeration of the principal productive activities. Given its marked dependence on foreign markets, the country was obligated to orient its railroad system towards the major ports, places of exit for production towards purchasing countries of raw materials and agricultural products and of entry for manufactured products coming from abroad.

- 2.09 The railway system connects the principal population centers, including Managua, with the more important ports on the Pacific, among them Corinto and Puerto Somoza. In spite of its direct connection with these ports, rail transport has decreased substantially in recent years. In 1962 the system carried 1,580,000 passengers and 286,000 tons of freight. However, in 1976, passengers transported by rail decreased to 544,000 and tonage to 63,100 tons. The difference in these figures shows the magnitude of lost operations and those that have been absorbed by other means of transport, as well as a lack of participation in the spontaneous growth of transport functions.

3. Air Transport

- 2.10 The major part of internal and external air traffic volume is effected through the only international airport in the country, Las Mercedes, which is located some 10 Kms., to the west of the capital city. This airport provides regular services via foreign international airlines and Lineas Aereas Nicaraguenses (LANICA) S.A., the only local airline.
- 2.11 LANICA provides regular service to the interior of the country, communicating Managua with the principal population centers of the Atlantic coast, air being the only means of transportation to connect these coast cities with the rest of the country, it being only recently possible to navigate along the Escondido River and continue on the Bluefields after passing over the road to El Rama. The eastern region of the country does not have roads that communicate it with the interior, with the result that air transport is the only dependable means of communication.
- 2.12 Demand for air transport has continually increased, the country handling 68,000 international passengers in 1964 and 194,000 in 1974. With respect to local traffic, available data indicate that in 1969, 19,000 passengers made internal trips as opposed to 32,000 in 1974. The same data indicate that 46% of them traveled for business reasons, 22% on vacation and 32% for various other reasons.

4. Land Transportation

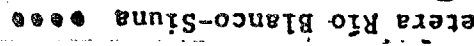
- 2.13 Nicaragua's highway system, which had a total length of 17,546 Kms., at the end of 1976, is the most important mode of transportation in the country, carrying approximately 3/4 of all national cargo movement. As can be appreciated in the following chart, the highway system has grown rapidly since 1940, a year in which the country had only 201 Kms., of highway and roads, showing a geometric rate of growth of 10% during the last 10 years.

Nicaragua Highway System (Km.)

<u>Years</u>	<u>Total</u>	<u>Paved</u>	<u>Improved</u>	<u>All Weather</u>	<u>Dry Season</u>
1940	201	52	-	24	125
1960	6,137	669	-	1,868	3,600
1966	6,689	878	-	2,261	3,550
1970	12,977	1,235	1,130	3,685	6,927
1976	17,546	1,552	1,696	4,809	9,489

- 2.14 As can be observed in the map of the following page, almost 94% of the total length of the national highway system is located in the Pacific and Central regions of the country. The Atlantic zone only has one penetration road at this time, that originates in the Municipality of Chontales and goes to El Rama, a small city located in the southern part of the Department of Zelaya some 50 Kms, from the coast. There are some short roads in the areas around Puerto Cabezas and Waspan in the northern part of the Atlantic zone, but the rest of the area only has trails which are suitable for mule transport during the dry season, which lasts approximately four months every year.
- 2.15 Given the existence of passable highways year-round that connect Managua, Corinto and Puerto Somoza with the more important cities in the Pacific and Central regions, it appears apparent that the highway system in these areas has been completed. In the future, highway development in Nicaragua will be oriented towards the Atlantic, an area in which the enormous flow of the rivers, the climate and the rainfall, as well as the lack of basic infrastructure, will make the execution of investment projects more difficult to carry out and more expensive. However, it is in this area that Nicaragua has a tremendous potential to increase its agricultural production, because the same climatic conditions that complicate the execution of works, tend to contribute to an increase in agricultural exploitation, as well as improve the soil.
- 2.16 Recognizing this potential in the Atlantic zone, the Government, with its own funds, began construction of a penetration road in the northern part of the Department of Zelaya in 1975, with the purpose of connecting the cities of Siuna-La Rosita-Bonanza-Puerto Cabezas, for the first time by land. This road, of minimum technical specifications and whose completion is scheduled for the end of 1978, would contribute to opening and to providing a stimulus to agricultural development of this tremendous area of the country, through its eventual colonization. For the distant future, the expansion of Puerto Cabezas is foreseen when the volume of production that could be sent to the exterior through it would justify such a program.
- 2.17 Siuna, however, is not connected to the highway system of the country, the route between Siuna and Río Blanco being the only missing link so that the entire northern zone of Zelaya would have land communication with the more developed Pacific and Central regions.

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- 2.18 In addition to the above and in accordance with future Government plans for the development of the Atlantic, the most immediately important projects in the transportation sector are those of penetration and rural roads, and it is hoped that some 3,000 Kms., of them would be built between 1979 and 1985; the construction of a highway between Acoyapa and San Carlos in the south; and the improvement, and reconstruction in part, of the road between Rio Blanco and Boaco.
- B. Focus of the National Reconstruction and Development Plan 1975-1979
- 2.19 The Government of Nicaragua's "National Reconstruction and Development Plan 1975-1979" establishes an annual target growth rate of 6.1% in Gross Domestic Product (GDP) for the economy as a whole. The agricultural sector, with an annual target growth rate of 5.5% for the five-year period, has a special impact on the Plan because of its participation in GDP, its contribution to the total value of exports, and because of its capacity to generate employment.
- 2.20 The strategy to be followed in the sector is one that will tend to expand and fortify the production of basic foodstuffs for internal consumption, to contribute to an improvement in the balance of payments, and to provide raw materials for industrial development. In order to accomplish this, the opening of new land areas in the Atlantic are emphasized; through highway, rural road, colonization, and land grant programs, as well as support services such as: agricultural credit, intensive production of basic grains, irrigation, technical assistance for the benefit of settlers, etc.
- 2.21 According to the general guidelines of the above-mentioned Plan, at the end of 1976, the MOP finished, the preparation of a "National Transportation Plan for Nicaragua" (NTPN), which in effect is a prefeasibility study that defines the manner in which the development of the transportation sectors in general will be carried out during the next twenty years. As far as the highway subsector is concerned, the NTPN establishes three action plans --one immediate, another covering a period of ten years, and another covering a twenty-year period.
- 2.22 The immediate action program is concerned with the construction and improvement of penetration and rural roads, principally in the Atlantic and Central areas of the country, this with the idea of fortifying the base for agricultural production. The NTPN assigns high priority to the construction of the Rio Blanco-Siuna, Siuna-La Rosita-Puerto Cabezas highways in the north, the Acoyapa-San Carlos highway in the south, and to the preparation of a 1,000 Kms., rural feeder roads program which would be executed in the areas of influence of these highways. In addition, the NTPN contemplates an expansion of the rural road and highway system in the Central area in order to provide connecting routes with the markets and ports in the Pacific and as a complement to the national highway network. The ten-year action program, being concerned mainly with the generation of new rural highway and road projects. However, in this phase the construction and improvement

of certain principal highways in the Pacific area of the country are to be considered, these projects becoming necessary as general traffic movement in the country is increased. The 20-year action program is less precise, but in this phase the possibility of building principal highways to Atlantic ports and the improvement and expansion of the Pan American Highway are contemplated.

- 2.23 It should be mentioned that the Central American Transport Study, which has not yet been finished, does not include the Rio Blanco-Siuna highway among its recommended projects. This is due to the fact that this study concerns itself exclusively with the regional transportation system on the isthmus, but does not investigate the feasibility of a local road, or of a penetration road in sparsely populated areas, as would be the case with the road under study in this report.

C. Bank Participation in the Transport Sector in Nicaragua

- 2.24 On September 27, 1965, the Bank approved loan 63/SF-NI to the Republic of Nicaragua, for the equivalent of US\$12 million, to cooperate in the financing of a rural road construction and improvement program in the country, executed by the Ministry of Public Works (MOP), through the Direccion General de Caminos (DGC). This program constituted the first stage of the rural road program in Nicaragua, and with its resources 19 roads with a total length of 458 Kms., were built or improved at a total cost equivalent to US\$18,150,000. The 19 roads were located in the Pacific and Central regions of the country and were surfaced with gravel or asphalt material in order to permit transit during the entire year. The loan was fully disbursed in April of 1974, the sum of US\$19,360 having been cancelled because one bridge along the route of one of the roads had not been finished in time. The bridge, called Paso Real, was finished in 1976 with funds provided by the MOP.
- 2.25 On September 2, 1971, the Bank approved loan 305/SF-NI, for the equivalent of US\$3.5 million, to the Republic of Nicaragua, to partially finance a program concerned with the expansion and fortification of the highway maintenance system in the country. The project covered the purchase of machinery and equipment, the construction of camps and repair shops, as well as technical cooperation (ATP/SF-1135-NI) for the equivalent of US\$258,000 for the purpose of strengthening the financial administration area of the DGC. The objectives of the project were met with the exception of part of the technical cooperation related to conservation of machinery and equipment, this being due to the resignation of the expert contracted for this purpose and to a lack of additional candidates following this. As a result, the sum of US\$31,502 was cancelled from the loan, which corresponded to the funds that were not utilized under the technical cooperation portion.
- 2.26 In addition, on December 9, 1976, the Bank approved loan 491/SF-NI, for the equivalent of US\$18 million, to the Republic of Nicaragua, to partially finance the second stage of the rural roads program in the country, the

total cost of which is estimated to be the equivalent of US\$22.5 million. This program, which contemplates the construction and/or improvement of approximately 300 Kms., of rural roads in the Pacific and Pacific-Central regions of the country, is currently in its initial stage of execution. The respective loan contract became valid on March 8, 1977, and the borrower and the executing agency (the MOP) have just completed compliance with the conditions prior to first disbursement.

- 2.27 Loans 63/SF-NI and 305/SF-NI were evaluated on occasion of the presentation of Document PR-776 of November 23, 1976, (Loan 491/SF-NI). Therefore, this brief summary of these two loans is offered in this chapter, and thenmore important details concerning loan 491/SF-NI and an analysis of the technical cooperation ATC/TF(SP)-1295-NI which was granted to the MOP to prepare the project most recently financed will be found in Chapter VII.
- 2.28 In general, it is considered that the loans granted previously to the Republic of Nicaragua for the financing of highway and maintenance projects have been executed satisfactorily by the MOP. The only thing that could be identified as a problem in this sense would be the delay of almost four years in the execution of loan 63/SF-NI, which was due primarily to a lack of adequate coordination in the scheduling of works due to climatic factors which limited the period of construction to only four months per year, leading to the conclusion that said program was probably oversized originally; and a certain slowness on the part of the MOP in the implementation of recommendations made by the consultants contracted with resources of loan 305/SF-NI.
- 2.29 With respect to the problems encountered in the execution of loan 63/SF-NI, it is felt that the MOP has taken that experience in consideration in the formulation of the second stage of the rural road program, which is somewhat less ambitious as far as mileage of the roads to be built is concerned than was the in the first stage; and also in the preparation of the Rio Blanco-Siuna highway project, the financing for which is proposed in this report, this in accordance with the characteristics of the project which are described in Chapter III. Concerning the implementation of the consultants' recommendations, the analysis of loan 491/SF-NI produced a contractual condition in this sense, and it is considered that there has been a favorable advance on the part of the MOP, as is detailed in Chapter VI of this report.
- 2.30 In the execution of the proposed project, a recurrence of these problems is not foreseen, nor are other similar ones. It is felt that the MOP, during the years, has notably improved its capacity to prepare and execute investment projects efficiently.

D. Participation of Other International Agencies

- 2.31 Historically, the Central American Bank for Economic Integration (CABEI) the Agency for International Development of the United States (AID) and the International Bank for Reconstruction and Development (IBRD) have been very active in the financing of highways and roads in Nicaragua. With the cooperation of CABEI and the IBRD, the Government of Nicaragua, through the MOP, has executed some 17 highway construction and/or improvement projects, almost all of them being major or trunk roads. With the assistance of AID, a rural road construction program is currently being carried out as part of the rural development projects executed by the Instituto del Bienestar Campesino (INVIERNO), these roads being of minimum technical specifications. For the immediate future, a continuation of INVIERNO's effort is foreseen in the sector, but there is no highway project pending consideration on the part of CABEI or the IBRD at the present time.
- 2.32 Should the proposed project be realized, the Rio Blanco-Siuna highway would complement the road system in the Central-Atlantic area of the country, given the fact that it would connect with trunk roads that go from Rio Blanco to Boaco to the southeast and to Matiguas, then proceeding towards the Pacific. Both roads to Rio Blanco were financed by CABEI, and part of the road that goes from Matiguas to Matagalpa was financed by the Bank as part of loan 63/SF-NI. In addition, the Rio Blanco-Siuna road could serve as an important element in the future for the opening of minimum specification rural roads that INVIERNO would build with assistance from AID.

E. Area of Influence of the Rio Blanco-Siuna Highway

- 2.33 The Rio Blanco-Siuna road, the construction of which is proposed in this report, would have a total length of approximately 116 Kms. It would be a penetration road that would be located to the east of the foothills of the mountains that divide the country in two basic parts --the Pacific and the Atlantic. It would run from the town of Rio Blanco at its southern-- most point passing through the village of Caño Waspi before terminating in Siuna, at its northern extreme. It would cross 15 rivers that drain towards the Atlantic.
- 2.34 Unless a complimentary system of secondary penetration roads is created, the area of influence in which this road would produce an increase in agricultural activities would be no greater in distance than what a mule could walk in a day. Given the characteristics of the land in the case of the Rio Blanco-Siuna highway, this area would be one of approximately 15 Kms., on either of the line of the road, except in the western region near Siuna where it would be as much as 20 Kms. The area thus defined encompasses 351,000 Has., of which 35% are located in the Municipality of Siuna, 33% in the Municipality of La Cruz de Rio Grande, 23% in the Municipality of Paiwas and 9% in the Municipality of Rio Blanco. Total population of the area would be approximately 14,000 inhabitants, including the towns of Rio Blanco and Siuna, in which something more than half of them live.

1. Characteristics

- 2.35 A large part of the territory in the area of influence is state-owned land and is in its natural state. Colonization has been a spontaneous process and only 27% of the area is under legal title. Agricultural activity is essentially carried out at a subsistence level and is based on the cutting and burning of fields and on the rotation of certain basic crops, principally corn, beans and rice. The typical farmer can only count on the members of his own family as labor, which normally permits him to cultivate one to two hectares at a time. Every two years a new parcel of land has to be cleared and prepared for cultivation, while the parcel that was being used is left in recuperation for a period of five to seven years. The majority of the farmers have one or two heads of cattle, although in the area near Rio Blanco cattle breeding has grown much more rapidly and there are larger herds.

2. Land Ownership

- 2.36 The Agrarian Institute of Nicaragua (Instituto Agrario de Nicaragua--IAN) is the autonomous State agency responsible for promoting and supervising the settlement of new farmland areas in the country through specific colonization projects and land grants. In order for the IAN to carry out its obligations, the Government gives it the exclusive right to exercise control over land for subsequent agricultural development and deeding to settlers who take up residence there. At present, the IAN controls 56% of the Rio Blanco-Siuna highway area of influence, where it is in the process of carrying out a land-grant program known as the Siuna Project. Almost half of the area included has now been deeded, and the program is scheduled for conclusion in 1979. Two other IAN projects are slated here: the Matiguas Project embraces 30% and the Rio Bijao-Somoza Garcia Project, 5% of the area of influence. Both are settlement projects based on prototype parcels amounting to about 50 "manzanas" (1.42 manzanas = one hectare), 40 of which are pastureland with 10 devoted to basic grains. Execution of these two projects would not be immediate, since thus far only the Rio Bajio-Somoza Garcia feasibility studies have been started.
- 2.37 This the IAN is empowered to grant title on 56% of the land comprising the area of influence of the project under review here. To date, deeds on 27% of this land have been granted, with the remaining 29% to be awarded under IAN grants in the course of 1978 and 1979. No titles have been granted on the other 44% of the area of influence, the land belonging to the State. It is felt that, to ensure continuity of land grants in the area of influence, this 44% should be transferred to IAN control. It is therefore that prior to the signing of an eventual loan contract, the Government effect the necessary transfer, submitting appropriate evidence of same to the Bank.
- 2.38 With respect to IAN's deeding of land in settlement project areas, the Agrarian Reform Law of Nicaragua classifies land quality in six categories. The maximum size of a farm is established at 500 Has., of first-class land.

The maximum size of farms of lesser quality land--grades two to six--is ascertained by using multiples of this basic figure, thus yielding an equivalency in terms of the top category: for second-class land; 2 for third; 3.3 for fourth; 5 for fifth; and 10 for sixth. In actual practice however, in each of its settlement projects the IAN determined the size of farm that would prove reasonably profitable for a family and establish the maximum number of hectares, or manzanas, that could be deeded as a "family unit" within the confines of a given project. In the case of the Rigoberto Cabezas project 1/, for example, the "family unit" was defined as a maximum of 30 hectares of first-class land.

- 2.39 The IAN believes that the family unit in the proposed projects area of influence defined as 50 manzanas (35.2 hectares) for first-class land, and is pegging the forthcoming Rio Bijao-Somoza Garcia and Matiguas settlement projects around that figure. It has granted deeds to larger properties in the Siuna area, because the owners had already settled there and production was under way.

3. Ecological Aspects

- 2.40 No negative ecological impact in the area is anticipated in connection with construction of the Rio Blanco-Siuna highway; to the contrary, it should provide an incentive for rational exploitation of natural resources. The only possible problem that might be pinpointed in this respect is the negative effect of future settlements. By way of example, it is relatively common for newcomers to a settlement area in Nicaragua to clear or burn off large areas of land, damaging forest reserves in the process. Although the IAN is aware of this danger and tries to convince settlers that this method of exploitation is not in their own best interest, adequate controls do not exist.
- 2.41 Both the Nicaraguan Government and the Bank have active interest in the country's forestry activity, cognizant of its great importance to the economy. At the moment, the Bank is financing a pilot project for forest resource conservation and fire control under loan 397/SF-NI for the equivalent of US\$1.5 million. This is being executed by the National Development Institute (Instituto de Fomento Nacional--INFONAC) in the northeastern part of the country, near Puerto Cabezas. INFONAC is in the process of studying a large-scale expansion of the project for 1979. Should this materialize, it could eventually border on, or embrace part of, the Rio Blanco-Siuna highway area of influence.
- 2.42 Partly because of this factor, and recognizing the importance of conservation of the country's forest resources, it is recommended that an eventual loan contract include a condition requiring the Government to ensure designation by the IAN of forest reserve areas in its settlement programs in the highway area, and establishment of control mechanisms that would compel settlers to handle the portion of these reserves situated on their farms in such a way that they would not be damaged.

1/ Partially financed by the IDB under loan 372/SF-NI.

4. Project Beneficiaries

2.43 In mid-1976, the consultants responsible for the economic feasibility study of the Rio Blanco-Siuna highway carried out a survey on farmers in the vicinity of both its terminal points. Data was compiled on the size of the farms, land use, production and sales. Production figures were converted to gross income by using the farm-level prices indicated in paragraph 4.13. Interviews in the vicinity of Siuna coincided with the IAN land-grant project area. Since the Institute's information regarding land ownership was more complete, survey results were used only to estimate gross income for each size of farm. 1/

2.44 As may be seen from the sketch on the following page, the IAN has now turned over title to 114,880 hectares (163,129.6 manzanas) in the Siuna project area, 94,000 hectares (133,480 manzanas) of which would fall within the project's area of influence. Farm grant distribution by size and estimated average gross income are shown in the following table:

IAN - Siuna Project: Distribution of Farms

Rank	No. of Farms	Total Area Manzanas a/	%	Average Size Manzanas a/	Average Gross Income b/ US\$
0-10	8	58.7	0.0	7.3	438
11-20	5	75.5	0.1	15.1	906
21-50	68	2,808.6	1.7	41.3	1,342
51-100	239	17,946.5	11.0	75.1	2,328
101-200	300	42,794.7	26.2	142.6	2,514
201-300	146	35,610.4	21.8	243.9	4,226
301-500	100	38,790.3	23.8	387.9	4,766
Más de 500	34	25,044.9	15.4	736.6	9,050
Totals	900	163,129.6	100.0	181.3	3,051

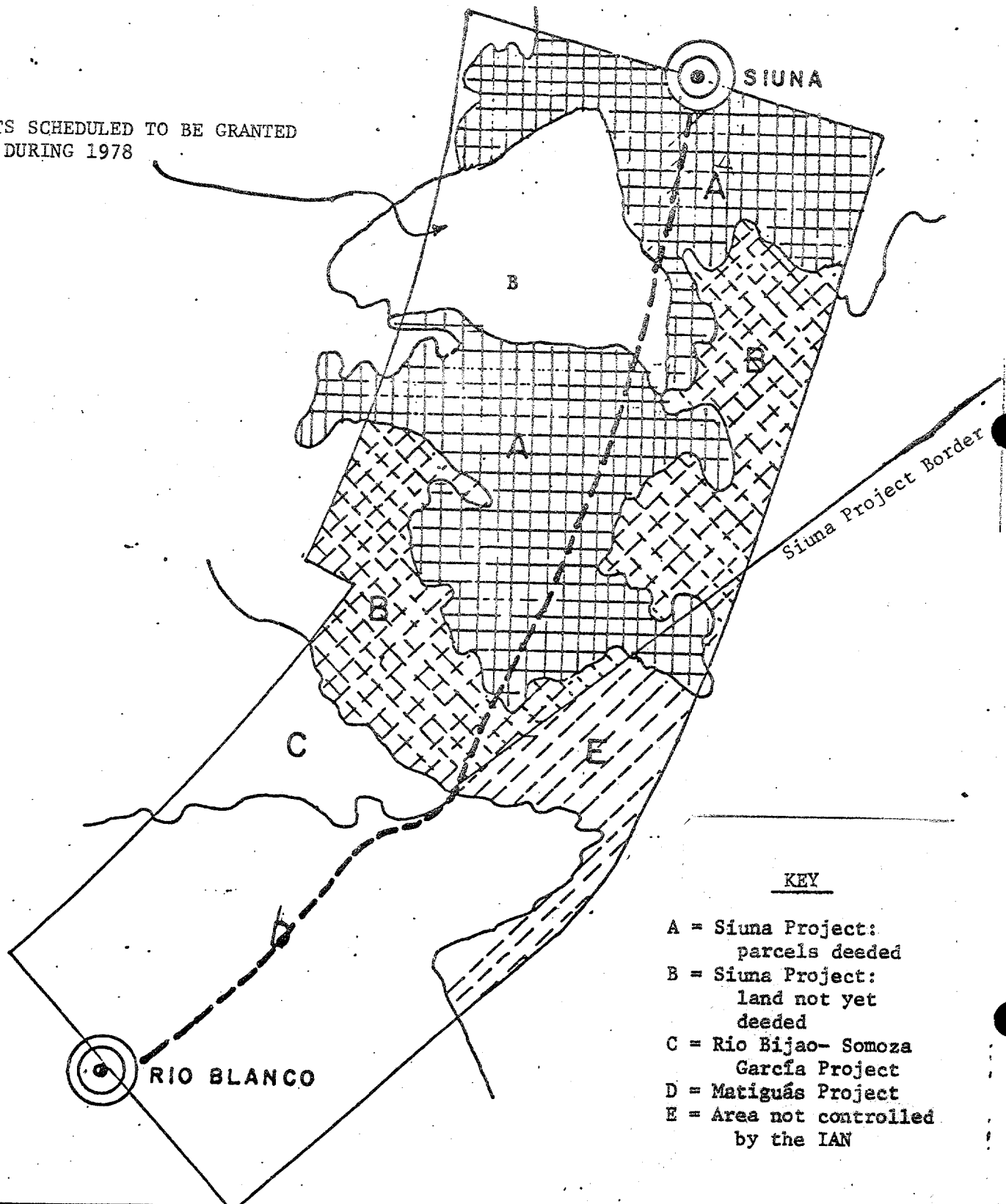
a/ 1.42 manzanas = 1.0 Ha.

b/ Estimated in accordance with the average gross income per manzana indicated in Appendix A of the Project Report.

1/ Results of the survey and estimated gross income appear in Appendix A to this report.

PROJECT AREA OF INFLUENCE SHOWING LAND GRANT LAYOUT

LOTS SCHEDULED TO BE GRANTED
DURING 1978



- 2.45 The Rio Blanco zone yielded 71 interviews, covering a 19,154 manzana area. This corresponds to about 13% of the total surface of the zone between Rio Blanco and the Tuma River. Farm distribution by size is shown in the following table:

Rio Blanco-Rio Tuma Zone: Distribution of Farms

<u>Rank</u> <u>Manz.</u>	<u>No. of</u> <u>Farms</u>	<u>Total Area</u> <u>Manzanas</u>	<u>%</u>	<u>Average Size</u> <u>Manzanas a/</u>	<u>Average Gross Income</u> <u>US\$</u>
0- 10	4	40	0.2	10.0	682
11- 20	4	66	0.3	16.5	588
21- 50	8	345	1.8	43.1	1,010
51-100	13	1,123	5.9	86.4	3,907
101-200	15	2,490	13.0	166.0	2,772
201-300	8	2,350	12.3	293.8	6,949
301-500	9	4,040	21.1	448.9	10,571
Más de 500	<u>10</u>	<u>8,700</u>	<u>45.4</u>	<u>870.0</u>	<u>23,028</u>
Totals	<u>71</u>	<u>19,154</u>	<u>100.0</u>	<u>269.8</u>	<u>6,873</u>

F. Justification for Use of FSO Resources

- 2.46 Minimum wages in Nicaragua's farm sector are around US\$900 per year, including certain non-monetary payments. ^{1/} In accordance with the criteria established in Document GP-2 to govern farm eligibility for financing from the Fund for Special Operations (FSO), the maximum gross income per farm would be equivalent to 10 times the minimum yearly wage, thus amounting in this case to US\$9,000. In the case of the Siuna Project, only 4% of the farms deeded--covering about 15% of the total area--would exceed eligibility limits for farm financing with FSO resources.
- 2.47 In the northern Rio Blanco/Tuma River area, about 73% of the farms would have annual gross income of less than US\$9,000 and would therefore be eligible for FSO financing. These farms, however, cover only about 34% of the total area. In farms of more than 300 manzanas, about 38% of the land, is not in use i.e., it is either virgin or fallow land. Since, in addition, no one holds title, the IAN has stated that it has no objection to following the policy of awarding land grants based exclusively on "family units" in this part of the project zone of influence and in the still-undeeded portion of the Siuna area. Thus the entire area to which no titles have yet

^{1/} The legal minimum daily wage is 15 Cordobas. Lodging and food must also be supplied, figured as 10 Cordobas for tax purposes. Assuming 250 working days, this would amount to US\$893 per year.

been granted would consist of farms eligible for FSO financing. Only about 8% of the land in the overall project area of influence would belong to farms with potential gross income in excess of US\$9,000: those in the Siuna area to which deeds have already been granted.

G. IAN Settlement Projects

- 2.48 In addition to its land grant program in the Siuna area, the IAN also has an important land settlement operation now under way. This is the Rigoberto Cabezas project, located near the city of Rama in the southern part of the Department of Zelaya. The Bank is cooperating in this project through loan 372/SF-NI, granted to the Republic of Nicaragua on September 27, 1973, for the equivalent of US\$8.3 million. While execution of certain portions of the project has been delayed--the date for final disbursement has been extended to December 11, 1979--recent progress is discernible. Construction in the project area, comprising 50,000 hectares, has included more than 1,100 units of housing, 71 Kms., of internal roads, 10 schools and 5 water supply systems.
- 2.49 The IAN is believed to have acquired experience in executing the Rigoberto Cabezas Project that will be invaluable in scheduling similar current and future projects in which the Bank might participate. In order to strengthen and prepare the IAN for possible assignments of this sort, the Bank granted technical cooperation on October 15, 1976 for institutional support stressing organizational structure--operating standards and policy, administrative systems and procedures, programming systems, and project execution control. Resources of this operation were used to engage the services of the Canadian firm of Woods, Gordon & Co. It began work on July 29, 1977 and is expected to complete its assignment in January, 1979.

1/ ATN/SF-1480-NI for the equivalent of US\$141,000.

III. THE PROJECT AND ITS EXECUTION

A. Objectives and Description

3.01 The principal objective of the project would be to open access to part of the Atlantic area of the country so as to increase, by means of small privately owned parcels, the economic exploitation of agricultural, livestock, and forest resources of that isolated area, which has favorable prospects for development. The second objective would be to connect the Northeastern part of the country, currently without road communication with the rest of Nicaragua, with the existing national highway network, thereby completing the first road connection from ocean to ocean in Nicaragua.

3.02 The project consists of the construction of a highway 116 Kms. long, including 15 bridges between the Río Blanco, now connected by highway to Managua, and the town Siuna, from which other segments are now under construction to Puerto Cabezas on the Atlantic Coast. The new highway would have the characteristics of a penetration road, following these design standards:

TYPE OF ROAD:	National Clase 2 modified	
RIGHT OF WAY:		40.00 m (unless otherwise indicated)
MINIMUM WIDTH OF CROWN:		6.00 m
WIDTH OF PAVED SURFACE:		6.00 m
DESIGN SPEED: (a) Flat surface		80Km/h
(b) Rolling surface		50Km/h
MAXIMUM GRADE: (a) Flat surface		6% up to 500m
(b) Rolling surface		10% up to 300m
MINIMUM RADIOS: HORIZONTAL CURVE:		
(a) Flat surface		220 m
(b) Rolling surface		120 m
MAXIMUM SUPERELEVATION		10%
NORMAL CROSS SLOPE		3%
WIDENING OF FIELDS		
(on either side): (a) From 2 to 6 m		0.60 m
(b) From 6 to 20 m		10% of grade
BRIDGE WIDTHS:		7.30 m
DESIGN LOAD FOR BRIDGES:		HS - 20 - 44
DESIGN LOAD FOR PAVED SURFACE:		5 tons per wheel
TRAFFIC INTENSITY (Year 2002)		450 v.p.d.
ROAD SURFACE MATERIALS:	Double bituminous treatment	

3.03 In preparing the bases for bidding works, and to supervise the construction of the highway, the MOP would hire the services of engineering consultants, probably a consortium between a foreign and a local firm. Similarly, the MOP would award contracts to contractors for the construction of the entire road. The form in which is contracting would be undertaken is explained in Section D of this Chapter.

B. Total Cost of the Project

3.04 The total cost of the project is estimated at the equivalent of US\$43 million, according to the following table:

(In thousands of US\$ or equivalent)

<u>Category</u>	<u>Foreign Exchange</u>	<u>Local Currency Costs</u>	<u>Total</u>	<u>%</u>
1. <u>Engineering and Administration</u>	<u>400</u>	<u>2,100</u>	<u>2,500</u>	<u>5.8</u>
1.1 Supervision	400	2,000	2,400	5.6
1.2 Administration	-	100	100	0.2
2. <u>Direct Construction Costs</u>	<u>11,800</u>	<u>12,300</u>	<u>24,100</u>	<u>56.0</u>
2.1 Construction	11,800	12,300	24,100	56.0
3. <u>Financial Expenses</u>	<u>1,110</u>	<u>50</u>	<u>1,160</u>	<u>2.7</u>
3.1 Interest during execution	595	25	620	1.4
3.2 Credit commission	220	-	220	0.5
3.3 Inspection and supervision	295	25	320	0.8
4. <u>Concurrent Costs</u>	<u>-</u>	<u>30</u>	<u>30</u>	<u>0.1</u>
4.1 Right of way	-	30	30	0.1
5. <u>Contingencies</u>	<u>7,290</u>	<u>7,920</u>	<u>15,210</u>	<u>35.4</u>
5.1 Contingency reserve	1,990	2,380	4,370	10.2
5.2 Cost escalation	5,300	5,540	10,840	25.2
TOTAL	<u>20,600^{a/}</u>	<u>22,400</u>	<u>43,000</u>	<u>100.0</u>
Percentages	<u>47.9</u>	<u>52.1</u>	<u>100.0</u>	

^{a/} Includes US\$13,300,000 in indirect foreign exchange costs.

3.05 Project cost estimates are based upon December, 1976, construction prices in Nicaragua, updated to December, 1977. Based upon final designs for 100% of civil works to be built, the detailed budget was divided into 60 separate items. The quantities of work indicated in these designs, as well as the unit costs, are consistent with other similar projects and adequately reflect probable costs.

3.06 The principal factors used to arrive at the total estimated cost in paragraph 3.04 above are as follows:

- (i) Engineering and Administration: This category includes the cost of hiring an engineering firm to prepare the bidding documents for civil works and to supervise and control the construction of the highway. The amount budgeted for this purpose takes into consideration the following factors: an execution period of 5 years; the fact that the firm would be a foreign-local consortium; the equipment which said firm would have to obtain so that its personnel can arrive at work site; and such other factors as technical services for supervision of works in similar projects elsewhere. Administrative costs of the project which would have to be paid by the MOP should be relatively low, given that the supervision and control of works would be contracted. An amount equivalent to US\$100,000 is budgeted to cover the cost of MOP/DGC personnel which would be in charge of follow-up on the project, of preparing periodic reports, and other similar functions.
- (ii) Direct Construction Costs: This category includes the estimated construction costs of civil works: earth-moving, levelling, drains, structures, materials, and paving of the driving surface, all of which have been updated to December, 1977. The average construction cost is equivalent to US\$208,000 per kilometer, which is considered reasonable, keeping in mind that the project is in a very remote and rainy region which only permits construction during 4 or 5 months of the year, and that the contractors would be foreign/local consortia.
- (iii) Concurrent Costs: Because most of the land within the project area belongs to the State, and that at the moment of undertaking the analysis, the MOP had acquired the necessary rights of way for road construction, additional costs are not expected to be high. Nevertheless, the modest sum equivalent to US\$30,000 has been budgeted to cover whatever costs might arise in moving fences and other minor installations.
- (iv) Contingencies: This category includes an escalation factor of 12% per annum for construction costs, which is considered adequate, according to the trend of cost escalation in the country during 1976, and an analysis made by the Bank of construction cost escalation in Latin America in general. Contingencies (15% of direct and supervision costs), represents probable increases in work quantities above and beyond those defined in the engineering plans and in supervision costs. This percentage is considered adequate, given that all final designs of the project have been completed.
- (v) Division of Costs Between Local and Foreign Currencies: The breakdown of costs between direct and indirect foreign exchange expenditures and local currency is based on an analysis of unit prices and the hypothesis

that the civil works would be supervised by a foreign/local consortium and constructed by international contractors. Direct foreign exchange costs include expenditures for the acquisition of vehicles, instruments, and supervision supplies; direct imports by contractors of construction materials such as reinforcing rods, explosives, tools, etc.; as well as salaries and wages of foreign technical and specialized personnel, a portion of general expenses, and the possible profits which would correspond to international contractors; and finally, financial costs. Indirect foreign exchange costs would correspond essentially to the foreign component of inputs used in the works; depreciation of foreign machinery and equipment used for construction; parts and supplies of foreign origin acquired within the country; asphalt; and fuels and lubricants. Local currency costs would be made up by salaries and emoluments which would be paid to the contractor for supervision, and for local personnel; local manpower; such local materials as wood, stone, sand, etc.; and the acquisition of right of way.

C. Project Financing

3.07 The financing of the project would be carried out as follows:

(In thousands of US\$ or equivalent)

	I.D.B.					National Resources				
	Foreign Exchange		Local		Expenditures in Local Currency	Total IDB	Foreign		Total Local Counterpart	Total
	Direct	Indirect	Costs	Subtotal			Exch. Costs	Local Costs		
ing and Administration	180	220	2,000	2,400	-	2,400	-	100	100	2
ervision	180	220	2,000	2,400	-	2,400	-	-	-	2
Administration	-	-	-	-	-	-	-	100	100	
Construction Costs	3,700	8,100	4,920	16,720	900	17,620	-	6,480	6,480	24
Construction	3,700	8,100	4,920	16,720	900	17,620	-	6,480	6,480	24
Expenditures	890	-	-	890	50	940	220	-	220	1
Interest during execution	595	-	-	595	25	620	-	-	-	
Investment Commission	-	-	-	-	-	-	220	-	220	
Operation and supervision	295	-	-	295	25	320	-	-	-	
Operating Costs	-	-	-	-	-	-	-	30	30	
Cost of Way	-	-	-	-	-	-	-	30	30	
Subsidies	2,310	4,980	2,200	9,490	1,550	11,040	-	4,170	4,170	15
Contingency reserve	650	1,340	680	2,670	450	3,120	-	1,250	1,250	4
Escalation	1,660	3,640	1,520	6,820	1,100	7,920	-	2,920	2,920	10
Total	7,080	13,300	9,120	29,500	2,500	32,000	220	10,780	11,000	43
Percentages	16.5	30.9	21.2	68.6	5.8	74.4	0.5	25.1	25.6	100

1. Sources and uses of funds

- 3.08 Considering the current availability of Córdobas in the FSO, the source and use of funds in the financing of the project would be as follows:

(In thousands of US\$ or equivalent)

<u>Source</u>	<u>Origen of currencies</u>		<u>Use of currencies</u>		<u>Total</u>	<u>%</u>
	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>		
BID-FOE	29,500	2,500	20,380 <u>a/</u>	11,620 <u>b/</u>	32,000	74.4
Local Counterpart	-	11,000	220 <u>c/</u>	10,780	11,000	25.6
TOTAL	<u>29,500</u>	<u>13,500</u>	<u>20,600</u>	<u>22,400</u>	<u>43,000</u>	<u>100.0</u>
Percentages	<u>68.6</u>	<u>31.4</u>	<u>47.9</u>	<u>52.1</u>	<u>100.0</u>	

a/ Includes the equivalent of US\$13,300,000 estimated as the indirect foreign exchange component.

b/ The dollars that would be used to cover local expenditures represent 30.9% of the total eventual loan in foreign exchange.

c/ Commitment fee.

2. Contributions to the Project

- 3.09 From the resources of the eventual loan, the Bank would contribute to the project via the financing of foreign exchange costs, both direct and indirect, with the exception of the credit commission, for an amount equivalent to US\$20,380,000; the local costs of hiring an engineering firm for supervision and control of construction, for an amount equivalent to US\$2 million; part of the local expenditures corresponding to the direct construction costs, price escalation and contingencies, for the equivalent of US\$9,570,000; interest and inspection and supervision costs in local currency for the equivalent of US\$50,000. The Government of Nicaragua, with its contribution equivalent to US\$11 million, would cover the foreign exchange cost of the commitment fee estimated at US\$220,000, and all other local costs, calculated at the equivalent US\$10,780,000. A brief analysis of the feasibility of the opportune contribution of national resources may be found in Chapter VI of this report.
- 3.10 As was indicated in Paragraph 3.04 of this report, project costs in local currencies account for 52.1% of the total, in large part due to expenditure foreseen for manpower and local materials (sand, wood, stone, etc.), which would be used in the construction of the highway; to provisions for price escalation and contingencies; and to the local costs of hiring a supervisory firm. At the same time, the availability of Córdobas in the FSO is very limited; only US\$2.5 million equivalent of such currency may be used for financing of this project. If the Bank were to finance this amount of local costs plus the foreign exchange component (US\$20,380,000) exclusively, the eventual loan would cover only 53.2% of the total cost of the project.

Considering that Nicaragua is classified as a relatively less developed country, and that the beneficiaries would be low-income land owners, the financial plan described in paragraph 3.07 is recommended.

D. Project Execution

- 3.11 The MOP, through the DGC, would be in charge of the execution of the proposed project, in accordance with the schedule of activities outlined in the preliminary execution plan (PEP) presented in Appendix C of this report. Field supervision and technical control of the various elements which go into the civil works to be built would be carried out by a specialized engineering consulting firm of international prestige, which would be contracted by the MOP. It is therefore recommended that an eventual loan contract set forth the obligation of the MOP to contract these services prior to the first disbursement of the loan, in accordance with current Bank policies.

1. Status of Studies and Designs

- 3.12 Technical, economic and financial feasibility studies of the Rio Blanco-Siuna highway were prepared in 1976/77 by the consulting firm, Berger-Consulnic. The same firm also prepared the final designs for the entire project. These designs and studies were executed in accordance with adequate engineering practices; it is further considered that they are an adequate basis on which to establish with reasonable precision the scope of the proposed project, and that they comply with bank requirements on the subject. The economic feasibility study shows that the project would have an internal rate of return of 12.2%.

2. Preliminary Execution Plan (PEP)

- 3.13 The preliminary execution plan (PEP), shown in Appendix C, was prepared by the MOP/DGC and shows the following: (i) the definition of the project; (ii) program of legal, financial, institutional, and technical activities; and (iii) a scheduled of activities and investments establishing the "critical path". The MOP/DGC was advised in the preparation of this program by a Bank orientation mission which visited Nicaragua in July, 1976, in such a way that the PEP was prepared according to Bank guidelines, in an attempt to ensure efficient execution of the project and the timely accomplishment of established goals. Should the loan proposed in this report be approved, the final PEP would be presented to the Bank prior to the signature of the contract, and would constitute the foundation for following project execution, both by the Bank and by the borrower and executing agency.

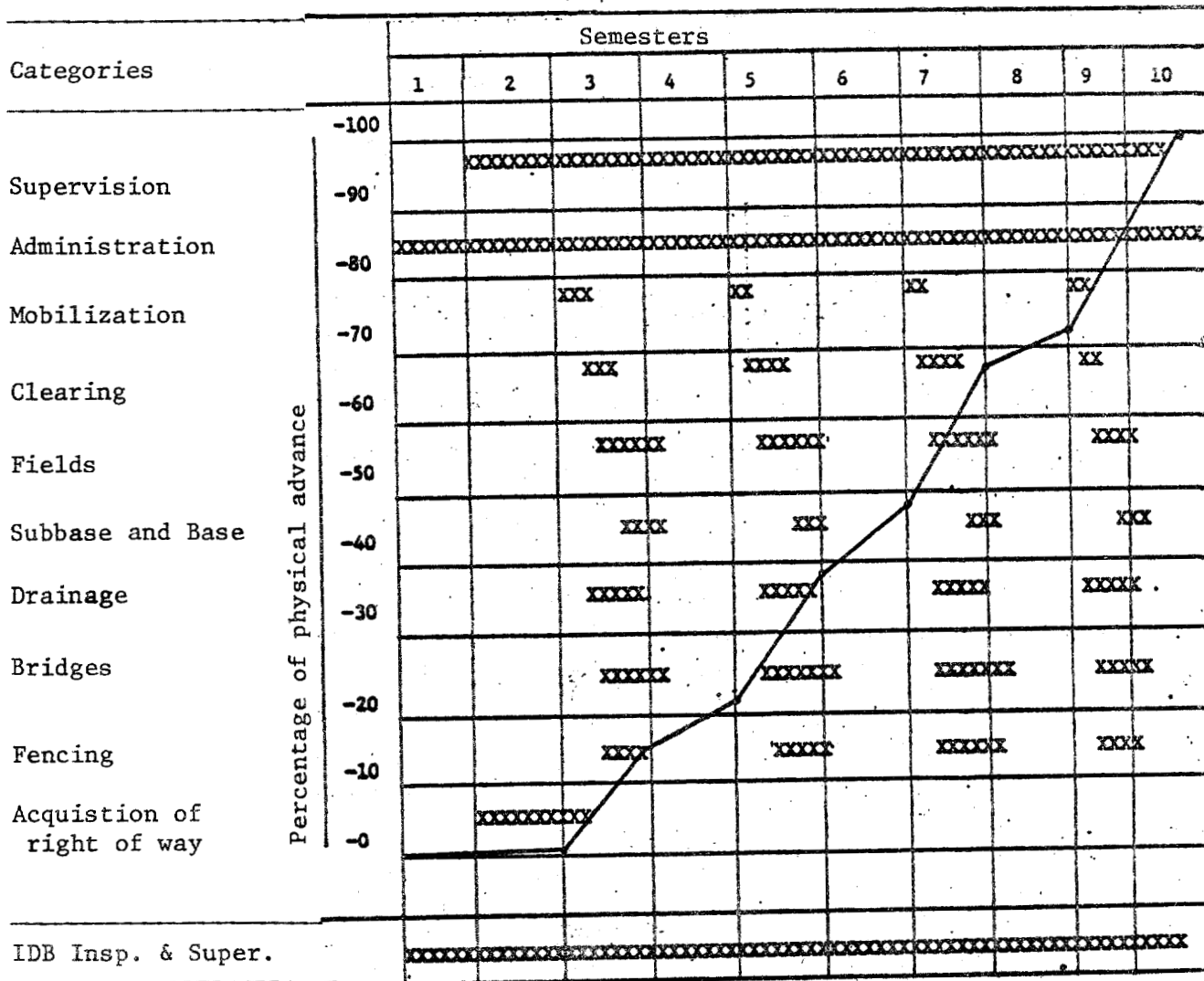
3. Supervision and Control of Civil Works

- 3.14 The supervision and control of civil works, as well as the financial administration of the program, would be carried out by a specialized consulting

engineering firm to be contracted by the MOP according to the standards of the country and procedures previously approved by the Bank. The MOP has indicated its desire to contract the services of the consortium Berger-Consulnic, which was responsible for the preparation of the feasibility studies and the final designs of the project. This intention is based upon the quality of the work done by the group mentioned, as well as the opinion that the direct contracting mechanism would provide a greater continuity of the services required, since Berger-Consulnic is well-informed on the project. It should be pointed out that this procedure for selecting consultants is within Bank policy, and there would be no technical objection by the Bank if the MOP were to decide to hire this consortium. The MOP would present to the Bank for its approval, the terms of reference which would govern the activities and responsibilities of the consulting firm, the background of the consortium, as well as the draft contract to be celebrated. For its part the DGC would have a project coordinator and support personnel who will report to the director of the DGC and who would be responsible for general coordination between the executing agency and the Bank.

4. Execution Period and Investment Calendar

- 3.15 According to the schedule of activities in the preliminary PEP, it is recommended that the eventual loan contract establish a five-year period for complete execution of the proposed project, fixing the date for final disbursement of loan resources at 5 years counting from the validity date of the contract.
- 3.16 This recommendation is based on the fact that the area in which the highway would be built suffers from continuous rainfall during eight months per year, leaving only the period from February to June for construction, in the best of circumstances. In addition, access to the construction area is difficult; Río Blanco can be reached by road, while Siuna has access only by the river and, in part, by road. The project includes the construction of 15 bridges with a total length of 783 meters, the construction of which would be limited to only 115 days per year.
- 3.17 In view of the above, and so as to ensure the complete execution of the project within five years, the DGC will obligate the contractor, or contractors, to work on two fronts simultaneously; on beginning in Siuna and proceeding southward to Caño Waspi, with a length of 48.6 kms; and the other beginning in Río Blanco, going northward to Caño Waspi, with a length of 67.6 kms.
- 3.18 In both cases, it has been estimated that 6 months shall be required for the hiring of the supervisory firm, counted from the validity date of the eventual loan contract; two months so that this firm can prepare bidding documents; eight months to carry out bids and award contracts; and 41 months for the construction of the Río Blanco-Caño Waspi section and 43 months (two months more) to terminate the Siuna-Caño Waspi section. Thus the total execution period for the Río Blanco-Caño Waspi section would be some 57 months and that of the Siuna-Caño Waspi section, 59 months. The following graph shows the various general areas of activity of the proposed project and an estimate of the progress of the works during the suggested execution period:



3.19 The following chart shows the expected program of project investments:

(In thousands of US\$ or equivalent)

Source	Execution Years					Total	%
	1st.	2nd.	3rd.	4th.	5th.		
IDB	280	6,770	7,910	8,020	9,020	32,000	74.4
Local Counterpart	50	2,400	2,710	2,700	3,140	11,000	25.6
Total	330	9,170	10,620	10,720	12,160	43,000	100.0
Percentages	0.8	21.3	24.7	24.9	28.3	100.0	

5. Bidding

- 3.20 The award of a contract, or contracts, for the construction of civil works will be made following international public bidding procedures, as established in the bidding procedures which accompany this report as Appendix B.

a. Availability of Contractors

- 3.21 Nicaraguan highway construction firms have never had the opportunity to become developed. Until some two decades ago, all roads were built by DGC directly. When certain civil works began to be built with international financing, under a system of contracting, the lack of adequate financing, the large guarantees required, and the discontinuity of the market served to restrain the development of the construction industry, so that the few local companies were unable to compete with foreign firms.
- 3.22 Foreign firms, either alone or in consortium with local companies, have carried out the majority of the most important works in Nicaragua in recent years. Three North American firms are generally present in DGC bidding, while there are several others which operate in Central America which occasionally participate. Some Costa Rican firms have also shown interest in this type of work in Nicaragua.
- 3.23 Based on the experience of the MOP/DGC in bidding other large highway projects (such as Managua-Corinto, Leon-Matagalpa, the Interamerican Highway, etc.) and given the size of the contracts which will be awarded for the construction of the Rio Blanco-Siuna highway, no difficulty is expected in obtaining a sufficient number of interested firms to ensure adequate participation and competition for the contracts.

b. Tentative Amounts of Bids

- 3.24 As was mentioned above, the project has been divided into two parts, or sections, to ensure efficient execution of the overall work. It was deemed convenient to entertain offers for either one of both of these sections, so long as this would represent a benefit for the execution of the project, from the points of view of both the MOP/DGC and the Bank, and that the firms which made such offers would have previously been prequalified to carry out this quantity of work simultaneously. On the basis of estimated direct construction costs in 1977, the two sections to be bid are as follows:

	<u>Length</u>	<u>Cost</u> <u>(In thousands of US\$)</u>	<u>% of</u> <u>Cost</u>
Siuna-Caño Waspi	48.6 Km	9,980	41.4
Rio Blanco-Caño Waspi	<u>67.5 Km</u>	<u>14,120</u>	<u>58.6</u>
Total	<u>116.1 Km</u>	<u>24,100</u>	<u>100.0</u>

6. Right of Way

- 3.25 As was previously mentioned, the alignment of the proposed highway passes through either unoccupied land or land belonging to the Government. Consequently, no problems in acquiring right of way are foreseen in the execution of the civil works. Within the total cost of the project, an item equivalent to US\$30,000 is included, charged to the local counterpart of the project, for the acquisition of land or the payment of fixed investments necessary for the projects. Nonetheless, and to ensure that no problems related to right of way are encountered during the execution of the project, it is recommended that the eventual loan contract contain conditions which obligate the MOP/DGC to demonstrate to the Bank before calling for bids, that it has legal possession of the necessary land.

7. Taxes on Fixed Assets

- 3.26 Nicaragua has no legislation for betterment taxes. Nonetheless, according to the Real Estate Tax Law, published in the official newspaper on November 26, 1974, Nicaragua does have an annual tax on real estate. In fact, according to Article 1 of said law, the Directorate General of Taxes is empowered to apply and collect this tax on the basis of an assessment made in conformance with the cadastral and natural resources inventory law. The General Directorate of Natural Resources should collect real estate taxes at the rate of 1% of the assessed value as of the 30th of June immediately prior. This tax is charged on the estate and has preference over any other tax on said property which may be levied or come due after the date of the imposition of the tax, and is therefore a privileged demand. Payment of this tax may be made in any acceptable form according to general tax legislation.
- 3.27 In practice, however, this law is not applied in rural areas of Nicaragua, and no possibility for its effective application is foreseen in the immediate future. In any case, one should not insist upon its application in the project area because: (i) the highway will serve only the existing population which consists of small-scale farmers who use nationally-owned land without a clear title. While building the road, the government will issue titles to these and other farmers which may enter the project area. There are no indications that a small number of land-owners will benefit disproportionately within this region; and (ii) a large part of the land is state property, so that the government itself will be the principal beneficiary.

8. Maintenance

- 3.28 The MOP is responsible for the maintenance of all roads and highways within the country, an obligation carried out through the DGC. Historically, most maintenance effort has been made directly by the DGC with its own machinery. At times, the DGC has contracted certain maintenance works with private firms; as for example, preventive efforts such as the application of new asphalt surfaces.

- 3.29 Based on evaluations and inspections carried out by the Bank, it has been found that maintenance work is carried out satisfactorily, and that roads financed with resources from loan 63/SF-NI in the Pacific Central Region of the country have been maintained relatively well, despite the heavy rainfall in the area and the diversion of equipment to Managua for cleaning up after the earthquake which struck the city in December, 1972.
- 3.30 No problem has been detected in the timely assignment of budgetary resources for this purpose. To give an idea as what would be necessary insofar as maintenance funding for the highway project proposed is concerned, calculations were based on an average density of 300 vehicles per day, of which half will be heavy vehicles, average grades of 5%, and rainfall during 8 to 9 months per year. The resulting maintenance cost of the Rio Blanco-Siuna highway would be equivalent to US\$1,900 per Km. per year for routine maintenance, plus US\$1,200 per Km. per year for preventive maintenance.
- 3.31 In view of this experience and considering that the MOP/DGC owns sufficient machinery and equipment to supply adequate maintenance to the national road and highway network, no difficulties in ensuring adequate maintenance of the Rio Blanco-Siuna highway is foreseen. It is recommended that the standard clauses regarding maintenance be incorporated into Annex A of the eventual loan contract, a draft of which is attached as Appendix III to the loan proposal.

IV. ECONOMIC EVALUATION OF THE PROJECT

A. Introduction

- 4.01 Nicaragua's national highway system is concentrated in the western part of the country, ending at Río Blanco. A gravel road links this town with Matiguás, from which Matagalpa and Boaco, the terminal of the paved highway system, may be reached. In addition a small road network in the northern part of the Atlantic region connects the mining centers of Siuna, La Rosita, Bonanza and Puerto Cabezas with Waspán. In 1975 the Government began construction of an all-weather road between Puerto Cabezas and La Rosita, scheduled to be completed in 1978.
- 4.02 Río Blanco's only communication with the interior is by mule-paths which are mainly used during the dry season. Thus the Río Blanco-Siuna highway is essentially designed to penetrate a zone of reduced economic activity in order to incorporate additional farmland into the country's economy. The methodology of economic evaluation is therefore based on an increased aggregate net value of the goods and services produced in the highway's area of influence. From this standpoint, project benefits stem directly from the changes its implementation will bring to bear on agricultural production.
- 4.03 Upon completion of the road between Puerto Cabezas and La Rosita, the Río Blanco-Siuna section will be the only missing link needed for overland connection of the Atlantic coast with the remainder of the country. The highway would constitute the first means of surface transportation between the two oceans in Nicaragua. It would be used for part of the present air and sea freight and passenger traffic to Puerto Cabezas, Waspán and the mining centers. Such traffic generates additional benefits from the standpoint of the economic evaluation of the project.

B. Enhanced Net Aggregate Worth of Agricultural Production

- 4.04 For the economic evaluation of penetration roads, the methodology of producer's surplus is applied, establishing the origin of project benefits as stemming primarily from the increased net aggregate value of agricultural production due to the construction of the road. In order to estimate these benefits, calculations must be made, with and without the project, of the exportable surplus of each crop grown in the area of influence, its production costs and prices at the farm level.
- 4.05 Major crops in the area are corn, beans and rice, which in 1975 accounted for 5,209 ha., 1,014 ha. and 391 ha. respectively. A small amount of sugar cane is also produced but almost exclusively for local consumption. A total 32,195 ha., corresponding to 9.2% of the total area of influence is used for grazing. Beef cattle can be driven with relative ease over existing paths and this constitutes the area's principal marketable surplus. Dairy production is minimal and almost entirely consumed locally. Since ready accessibility is needed in order to produce exportable quantities of milk and sugar cane, these products are not included in the situation depicted without the project.

- 4.06 Individual production projections with and without the project --shown in Appendix D-- were made for portions of the area of influence located within the municipalities of Matiguás, La Cruz de Río Grande and Prinzapolka. Even without the highway, there will be a certain amount of growth in the crop area and yield, which will be more pronounced in the Matiguás zone because of the Río Blanco-Matagalpa and Río Blanco-Boaco roads, and in the vicinity of Siuna, because of the new La Rosita-Puerto Cabezas highway.
- 4.07 Cropping of additional land and application of more advanced production methods and modern inputs are anticipated with the project, resulting in a greater yield of part of the land under cultivation ("improved land"). The yield in accordance with various levels of technology was the subject of research by Philip Warnken in Nicaragua ^{1/}. The shift from existing traditional technology currently used in the area of influence to intermediary technology would bring about a 45% increase in the yield of corn, 32% in beans and 13% in rice. This would apply to 10% of the crop area at the outset, rising to 30% in 1987, 50% in 1992 and 70% in 1997.
- 4.08 The greatest agricultural advance in the zone of influence as a result of the highway would be in cattle raising. The use of land for this purpose would increase with the project at annual rates between 10% and 15%, as compared with 2% to 4% without the project. The new highway would also have an effect on the number of head per hectare and the percentage of off-take. Dairy production without the highway would be exclusively for local consumption. With the highway, dairy production would be concentrated in a three-kilometer belt on both sides of it, since the absence of secondary penetration roads would make transportation to other areas difficult, incurring the risk of spoilage. It was assumed that the amount of land used for grazing in this corridor is similar to the overall picture and that the percentage of dairy cattle would increase from 5% to 20%. Information obtained in the field indicates present annual milk production to be 470 liters per cow. As soon as the new highway makes regular milk pick-ups possible, production per head will increase.
- 4.09 The following chart shows the average annual growth of the area used to grow basic grains and for pasture with and without the project, and the yields from improved and unimproved lands for 1982-2001:

(i) Annual Growth Rates of Crop Area (1981-2001)

	<u>Without Project</u>	<u>With Project</u>
Corn	3.5	5.1
Beans	4.4	5.4
Rice	6.0	8.8
Pasture	2.6	7.0

^{1/} Philip Warnken, "Production Costs and Returns for Major Agricultural Products in Nicaragua", US Agency for International Development, 1975.

(ii) Yield (Kg/Ha. and Head/Ha.)

	<u>Unimproved Lands</u>		<u>Improved Lands</u>	
	<u>1982</u>	<u>2001</u>	<u>1982</u>	<u>2001</u>
Corn	1,080	1,416	1,570	1,570
Beans	669	725	886	886
Rice	2,467	3,144	2,800	3,235
Cattle	1.20	1.30	1.25	1.50

- 4.10 In addition to the basic grain crops traditional in the zone, the new highway would encourage production of fruit, vegetables and industrial crops such as sugar cane. The consultants' feasibility study indicates that the net aggregate value of all these crops would reach about 369,000 córdobas in 1980, rising to 3,079,000 by the year 2000.
- 4.11 To estimate the zone's exportable surplus, on-farm consumption has been subtracted from total production, including family consumption, seeds, grains used to feed animals, and losses. Without the new highway, the exportable surplus would be between 30% and 40% of production for corn; between 40% and 60% for beans; and between 80% and 90% for rice. With the project, on-farm consumption is assumed to be 5% greater than without.^{1/} The exportable surplus increases to a maximum of 55% for corn and 70% for beans.
- 4.12 A distinction is made under production costs between the cost of cleaning up additional land for incorporation into production --with is actually an investment cost-- and normal production costs, including labor, purchased inputs (seed, fertilizers, pesticides, etc.), mechanical and animal-supplied power, and depreciation of equipment. In the situation with the new highway, the cost per hectare for improved lands is higher than for unimproved lands because of the additional inputs needed to acquire technological improvements. However the cost per ton is lower, since the increased yield more than compensates for the additional inputs ^{2/}. The following table shows the production costs used for each crop:

	<u>Corn</u>	<u>Beans</u>	<u>Rice</u>	<u>C\$/Head</u>
	(Cordobas per Hectare)			
1. Cleanning of virgin land	453	453	453	
2. Annual costs, unimproved land	399	608	717	237
3. Annual costs, improved land	441	761	827	237

- ^{1/} This is not considered to be a direct benefit of the project, since it does not imply actual use of the road. Nevertheless, because of the road construction, population in the area of influence will increase and consumption of traveling population over and above the previous level of consumption must, in principle, be considered a project benefit.
- ^{2/} This item does not show in the tables in Appendix D, where the cost of cleanning up virgin land has been added to normal production costs.

- 4.13 Prices paid by the Instituto Nacional de Comercio Exterior e Interior (INCEI) in the zone at the end of 1976 were: ¢1,192 per ton of corn, ¢3,110 per ton of beans and ¢2,912 per ton of rice. Average transportation costs were considered to be 200 córdobas per ton ^{1/}, so that the prices per ton at the farm level without the project would be ¢992 for corn, ¢2,910 for beans and ¢2,712 for rice. With the project, these prices would increase as a result of passing the savings in transportation costs along to the farmers. Because of the lack of information, this was not done in the economic calculations and the benefits are therefore underestimated in this respect. A price of ¢1,284 was used per head of cattle, corresponding to a weighted average for young steers and culls (bulls and cows). The same price was used both with and without the project, inasmuch as transportation costs would be reflected in the yield.
- 4.14 Table 10 in Appendix D shows the increases in net aggregate value for each product due to the new Rio Blanco-Siuna highway. Cattle represents about 40% of the total, with rice and milk next in importance.

C. Savings Resulting from Diverted Traffic

- 4.15 As stated earlier, construction of the Rio Blanco-Siuna highway will provide the missing link in the highway network extending from Puerto Cabezas to Managua and other cities in the western part of the country. Part of the regular ocean and air traffic to places on the Atlantic Coast now lacking overland communication with the rest of the country will be diverted to the highway to be built under this project, generating economic benefits in the form of lower users' costs. The highway will also generate a certain amount of additional traffic, but since its extent is difficult to measure this was not included in the calculation of benefits.
- 4.16 Most of the present maritime traffic is between Puerto Cabezas and El Bluff, where freight is transferred to vessels of shallower draft to be taken up river to the port of Rama on the Escondido River, and from there overland to Managua. This takes a minimum of seven days, and about 10,000 tons of freight were shipped by this route in 1976.^{2/} Transportation over the Rio Blanco-Siuna highway is expected to take only one day from Puerto Cabezas to Managua. The relatively unprotected coastal location of Puerto Cabezas and the limited port facilities now in existence lead to the belief that even after the project is completed it will continue to play a limited role as a regional port for import and export of production from the surrounding area. Accordingly it was not assumed that the highway would divert traffic from other ports to Puerto Cabezas.
- 4.17 In order to calculate the economic benefits of Puerto Cabezas' maritime traffic that would be diverted to the highway, the amount of traffic for 1982 was calculated on the basis of a growth rate obtained by adjusting historical data, using least-squares method. Thereafter, traffic into

^{1/} Based on a cost per mule-day of ¢10, an average load per animal of 100 kg. and two day's travel.

^{2/} Table 1 in Appendix E gives figures on traditional freight movements between Managua and Puerto Cabezas via El Bluff.

Puerto Cabezas was assumed to grow at an annual rate of 5% and out of Puerto Cabezas, at 8%. About 60% of the estimated traffic would be diverted to the highway. Current rates for the Managua-Rama-El Bluff-Puerto Cabezas route range between C\$500 and C\$1,600 per ton. The figure of C\$400 per ton was used as the economic cost by the present route and C\$80 per ton by the new route 1/. The economic benefits were obtained by multiplying the volume of traffic diverted by the savings per ton, as shown in Table 2 of Appendix E.

- 4.18 The mining companies at Siuna, Bonanza and La Rosita use the Limbaika-Río Prinzapolka-Puerto Isabel route. Although exports and imports from abroad would not be diverted to the Rio Blanco-Siuna highway, supplies from Managua and the Pacific would. Because of the limited information available, the benefits of this traffic were not included in the analysis.
- 4.19 Air freight and passenger service to the cities of Siuna, Bonanza, Waspán and Puerto Cabezas is provided by LANICA. The total number of passengers at the four airports in 1976 amounted to 22,411 and freight, to 3,534 tons. Table 3 in Appendix E shows that passenger traffic has increased at an annual rate of 15%. This rate is too high to be continued over a prolonged period, so that a 5% annual growth rate in the number of passengers was assumed. About 40% of this passenger traffic would be diverted to the overland route, using bus service to be established 2/. Economic costs per passenger by bus are estimated at C\$40 to Siuna; C\$52 to Bonanza; C\$81 to Waspán; and C\$71 to Puerto Cabezas. This represents important savings over the cost of air travel which is C\$110 to Siuna, C\$120 to Bonanza and C\$218 to Waspán and Puerto Cabezas which have been estimated at 80% of existing rates. Table 4 in Appendix E includes a calculation of benefits of air passenger traffic diverted as a result of construction of the Rio Blanco-Siuna highway.
- 4.20 For the years on which statistics are available, air freight out of Managua has increased at an average annual rate of 16%; into Managua, at 19%. In view of these high rates, air freight to Siuna, Bonanza, Waspán and Puerto Cabezas was projected with annual growth rates of 8, 7, 7, and 10% respectively; traffic into those towns, at 10, 7, 7 and 15%. It is estimated that a minimum of 80% of this freight will be diverted to the highway. The economic benefits of diverted freight traffic were obtained by comparing the cost of air freight --C\$704 per ton (80% of the rate charged)-- with the overland cost of C\$49 per ton to Siuna; C\$61 to Bonanza; C\$92 to Waspán; and C\$80 to Puerto Cabezas. The results are shown in Table 5 of Appendix E.

D. Benefit-Cost Analysis

- 4.21 The quantified economic benefits for project analysis are limited to increases in the net aggregate value of farm production resulting from construction of the highway and users' savings on sea and air traffic to and from Siuna, Bonanza, Waspán and Puerto Cabezas diverted to the overland route now being

1/ Calculation of users' costs by the route that includes the Rio Blanco-Siuna highway appears in Appendix E.

2/ A survey conducted for the study of the National Transportation Plan showed that 50% of air passengers travel by plane because they have no alternative.

opened to connect the Atlantic region with the rest of the country. Not included are benefits from the additional traffic to be generated by the highway, users' savings in the zone's production now moved by animal-drawn transportation, and production of non-farm goods and services in the project area of influence. The economic costs considered include the project costs less financial charges, escalation, and taxes estimated at 10% of the direct costs, plus engineering and administration.

- 4.22 On the basis of these benefits and costs, the present net value of the project discounted at 12% is US\$512,000. The internal rate of return is 12.2%.
- 4.23 The foregoing result was subjected to sensitivity analysis by varying the increases in the net aggregate value of agricultural production, diverted air and sea traffic, and project costs. This produced a return rate between 11.5% and 12.7%, as shown in the following table:

Sensitivity Analysis

	<u>Internal Rate of Return</u>
1. Base case	12.2%
2. 10% increase in aggregate value of agricultural production	12.7%
3. 10% reduction in aggregate value of agricultural production	11.8%
4. 10% increase in diverted ocean freight traffic	12.4%
5. 10% increase in diverted air freight traffic	12.4%
6. 10% increase in economic costs	11.5%

- 4.24 In addition, construction of the Rio Blanco-Siuna highway will have important social effects, substantially improving the living standards of residents of the area of influence. This will in turn boost the income level by providing facilities to transport production to the marketplace and offering access to education, health and other social services. A territory and towns (with about 14,000 inhabitants) that at present are completely isolated would be integrated into national life as a result of the project.
- 4.25 The proposed highway will be gravel-surfaced, meeting specifications for a fourth class rural highway in accordance with American Association of State Highway Officials (AASHTO) design standards. Designs are close to the minimum level that would permit all-weather (year-round) traffic.

Accordingly, they are considered economically optimal in relation to the present situation of the area of influence and anticipated traffic. Higher design standards would not increase benefits --since they would have no effect on either farm production or diverted traffic-- but would boost the cost, thus reducing the project's profitability.

E. Ex-Post Evaluation of the Project

- 4.26 At the option of the Bank, an ex-post evaluation would be made of the project five years after final disbursement of the prospective loan. Within a period of 18 months from the effective date of the proposed contract, the borrower would also submit for consideration by the Bank a report establishing the system it proposes to use to formulate annual comparisons and compile the base data that would be used to measure the social-economic benefits of the project.
- 4.27 In addition, two years from the time the contract is signed, and annually thereafter until conclusion of the fourth year following final disbursement of the loan, the borrower will submit to the Bank an annual report including, as a minimum, the following data:
- (i) A traffic count covering a period of at least one week, properly adjusted in regard to the day of the week, month and season (rainy, dry, harvest, etc.).
 - (ii) Classification of the type of traffic by class of vehicle, axle weight and average operating speed.
 - (iii) Information on rates, origin, size and destination of vehicles, freight and passengers.
 - (iv) Detailed survey of road surface conditions, drainage, highway signs, engineering structures and maintenance.
 - (v) Data on traffic accidents.
- 4.28 Because the highway concerned in the present project would be built in a relatively undeveloped area and since one of the project objectives is precisely to contribute to increased agricultural production and socio-economic infrastructure investment, the following data, additional to that specified in preceding paragraph 4.27 is required:
- (i) Agricultural production by type of crop and area;
 - (ii) Production and transportation costs of major products;
 - (iii) Prices paid and received by farmers;
 - (iv) Catalog and cost of additional social and/or economic investments (such as storage facilities, schools, drinking water and sewerage supply systems and electric power);
 - (v) Size and number of land parcels deeded to farm family units by the Instituto Agrario de Nicaragua (IAN).

V. PROJECT JUSTIFICATION

A. Technical Feasibility

- 5.01 The technical analysis of the executing agency and the proposed project show the operation to be technically and operationally feasible, taking into account the following factors:
- (i) The MOP/DGC has the necessary capacity to implement project execution, using the technical consulting firm for direct supervision of works;
 - (ii) Engineering studies, designs and final plans are complete and include satisfactory technical information as the basis for construction;
 - (iii) Construction costs have been estimated on the basis of final plans for the entire highway. Unit costs are based on current prices in Nicaragua, taking into account possible price escalation during the construction period. Reasonable allowance has also been made for any contingencies that might arise during construction;
 - (iv) No particular technical difficulties are anticipated during construction. The technical standards and specifications to be used in the execution of work-measures are in accordance with good civil engineering practices and are satisfactory for the type of highway to be built;
 - (v) The estimated investment schedule for the project is technically feasible and incorporates the necessary sequence of operations for satisfactory execution of the project; and
 - (vi) The estimated project execution period of five years is foresighted and realistic; it is consistent with construction conditions in Nicaragua and with the volume of work to be performed.

B. Social-Economic Justification

- 5.02 The Río Blanco-Siuna highway would be a penetration highway designed to incorporate additional farm land into the economy of Nicaragua. The development potential has been substantiated through soil, hydrological climate studies. The rolling terrain of the zone of influence has relatively good drainage as compared with other more easterly parts of the country where flooding is almost permanent. Official support services for agricultural development--extension, credit and marketing facilities--are now located at Siuna and Río Blanco and are slated for future expansion as a result of IAN activity and the animal health and farm extension projects carried out in the area by the Ministry of Agriculture and Livestock (Ministerio de Agricultura y Ganadería--MAG). The major obstacle to extending agricultural development to land in the area at present consists of transportation difficulties impeding access to markets.

- 5.03 In addition, the Rio Blanco-Siuna highway would provide the missing link needed for overland connection of Puerto Cabezas and the northern portion of the country's Atlantic coast region with the comparatively more developed Pacific region. Its impact will therefore be felt not only by the zone directly affected but by all of the aforementioned Atlantic region as well.
- 5.04 Based on anticipated increases in farm production and users' savings as a result of diverted sea and air traffic, present worth of economic benefits discounted at the rate of 12%, outweighs economic costs. The internal rate of return posted is 12.2%. These results are conservatively estimated, inasmuch as they do not include quantification of the economic benefits of affording the area's population access to educational, health and other services, nor the effect on nonfarm production. The project will therefore be economically beneficial to the country's interests.

C. Financial and Institutional Feasibility

- 5.05 The program is found to be feasible from the financial and institutional standpoints because:
- (i) By the time work starts on project construction, the consultants' recommendations regarding administrative and accounting reorganization of the DGC will have been implemented in their entirety. The project would have a coordinator to serve as liaison between the MOP and the supervising firm, who would be responsible for overseeing and controlling both technical and administrative aspects of the project; and
 - (ii) Although the Dirección has no funds of its own, current budgetary allowances for investment costs would cover the required local contribution for the project under review and for the second local road program now in progress.

VI. THE BORROWER AND THE EXECUTING AGENCY

A. The Borrower

- 6.01 The Republic of Nicaragua would be the borrower.

B. The Executing Agency

- 6.02 The project would be executed by the MOP, through the DGC. Decree No. 106 of October 29, 1948 provided for passage of the State Ministries Organization Act ("Ley Creadora de los Ministerios de Estado"), which created the MOP. Its basic functions are: (i) technical management and installation of national highway facilities; (ii) improvement of environmental and traffic conditions in cities and towns; (iii) public works in general; (iv) management of the General Office of Cartography ("Dirección General de Cartografía") and the Institute of Seismic Research ("Instituto de Investigaciones Sísmicas"); (v) construction and maintenance of public buildings; and (vi) fostering the development of the Atlantic seaboard.
- 6.03 The DGC is responsible, pursuant to the national development program, for carrying on with the accomplishment of such road programs as will foster economic development of land areas that have a promising potential, and for making them profitable for crop-farming and livestock-raising operations. The following guidelines govern this highway policy: (i) the construction and improvement of such national and international highways as will help to bring new land into cultivation, reduce the cost of transportation, and step up the pace of Central American integration; (ii) the intensive use of labor; and (iii) reduction in the number of accidents.
- 6.04 An exhaustive institutional survey of the MOP as well as of the DGC was done on occasion of the presentation of Document PR-776 dated November 23, 1976. The document contains the results of the analysis of the second stage of the rural roads program, which culminated in the granting of Loan 491/SF-NI on December 9, 1976. Inasmuch as these documents are fairly recent, a wealth of detail with respect to the institutional aspects of the MOP/DGC is not included herein.

1. Organizational Structure

- 6.05 The formal present-day organizational structure of the MOP, given in Appendix G hereto, is a result of the administrative reform instituted in April 1975 as an extension of the span of control of the Ministry; of the studies done by the consultants Peat, Marwick, Mitchell and Co., who were engaged with technical cooperation funds (ATP/SF-1135-NI). This operation was intended to provide for the reorganization of the administrative, financial and accounting activities of the DGC. The technical cooperation, the results of which are now being implemented, was granted to correct the deficiencies brought to light by the analysis done in connection with loan operation 305/SF-NI.

- 6.06 As a result of the administrative reform, the DGC was reorganized in the manner set forth in the organization chart given in Appendix H, which shows it as consisting of a director and of the following departments, each one headed by a Department Chief: (a) Administrative Department, which organizes, coordinates and administers the general services of the division and sees to it that an efficient accounting and cost-control system exists; (b) Engineering Department, which manages, organizes and supervises the planning and development of the field and staff work required in the design, dimensioning, calculation and drawing-up of the construction specifications of work-measures to be installed; (c) Operations Department, which engages in overseeing the preparation and accomplishment of road construction projects, observance and compliance with technical specifications, and programs of work advance, measurement of work-measures and installation, and maintenance of machinery. Under the supervision of the Department is the Roads Division, which is charged with performing works by force account.
- 6.07 With that structure, the DGC seeks to achieve the following goals: (i) to promote expansion of the national highway system and provide for improvement and maintenance thereof; (ii) to ensure passage to the farming areas and rural population centers; and (iii) to do economic feasibility and engineering studies. In the accomplishment of its functions, the DGC, as of September 30, 1977, employed 5,010 persons, allocated according to their fields, as shown below:

<u>Category</u>	<u>Engineer. Department</u>	<u>Adminis. Department</u>	<u>Operations Department</u>	<u>Total</u>	<u>%</u>
(i) Professional Staff	25	14	54	93	2
(ii) Office workers	26	118	277	421	8
(iii) Technicians	18	11	224	253	5
(iv) Other (laborers, clerical-secretarial staff, tractor operators, mechanics, etc.).	76	121	4.046	4.243	85
	<u>145</u>	<u>264</u>	<u>4.601</u>	<u>5.010</u>	<u>100</u>

2. Management of Financial Accounting and Auditing

- 6.08 The MOP keeps budgetary accounts in conformity with the provisions of the Budget Act; budget execution is carried out by the "Budget Delegates", one for the DGC and another for the remaining organization units of the Ministry. In doing the analysis preparatory to granting Loan 305/SF-NI, it was concluded that it would be necessary to furnish technical cooperation funds to enable the DGC to engage experts to do an evaluation and propose recommendations for improving the administrative, accounting and financial procedures of the DGC.

- 6.09 In 1975 the results achieved by the technical cooperation were applied, in part, in the process of the administrative reorganization of the MOP. This entailed the transfer of important units of the DGC, which have now become part of other units of the MOP. This decision brought on some objections on the part of the consultants who sustained that this was throwing the organization built into the DGC out of balance. Furthermore, in 1976 the Bank upon reviewing the approval of the loan 491/SF-NI, noted that there existed discrepancies between the MOP and the consultants with respect to the effectiveness of the installation of the computer-based accounting information system.
- 6.10 These observations brought about the inclusion in loan contract 491/SF-NI of a condition establishing that within one year of the effective date of contract, the borrower, through the DGC, would present to the satisfaction of the Bank evidence that: (i) the DGC had staffed its internal auditing units with sufficient and competent personnel; and (ii) the accounting information systems and the administrative, accounting and auditing procedures recommended under technical cooperation ATP/SF-1135-NI, had been instituted within the DGC, or such alternative measures leading to the achievement of the same ends as were proposed by the DGC and found acceptable by the Bank. The term allowed for compliance with this condition expires on March 8, 1978. It is considered that timely compliance with this condition would ensure the existence in the near term of a viable financial, accounting and administrative organization within the MOP. Hence, no other recommendation of this kind with respect to the project proposed herein is formulated.
- 6.11 Up until the time the administrative reorganization was instituted within the MOP, the DGC had its own internal auditing unit. As part of that reorganization, the internal auditing unit was removed from the DGC and is now directly dependent upon the Ministry of Public Works, its auditing functions having been expanded to include other organizational units of the Ministry. It is fitting to point out with respect to this unit, that the consultants engaged with technical cooperation funds (ATP/SF-1135-NI) recommended that additional personnel be hired for the unit and that the functions described in its internal auditing manual, which the consultants designed for the purpose, be put into practice. So far, there is some evidence that the unit is indeed expanding its professional staff. For Bank purposes, however, full implementation of these recommendation would not need to be verified before March 8, 1978, and it is considered that it will be unnecessary to recommend any amendment of this condition.
- 6.12 External control over the conduct of the MOP's financial affairs consists of the following measures of fiscal supervision:
- (i) For the Ministry of Public Works there exists a permanent delegation of the National Accounting Office (Tribunal de Cuentas) for the purpose of counter-signing and processing, after checking and entering, each one of the Payment Agreements to be performed by the General Treasury of the Republic. Moreover, there exists another delegation to accomplish the same functions at the DGC; and

(ii) The National Accounting Office makes the annual consolidated balance sheet audit of the National Budget of the Republic.

- 6.13 In compliance with the provisions of contracts entered into with the Bank and with other international lending organizations, the MOP has engaged the services of independent public accountants to audit the programs for which these institutions have furnished financing. It is recommended, in light of that experience, that the financial statements of the project proposed herein be audited by an independent firm, in conformity with the Bank's pertinent policies.

3. Financial Analysis

a. Budget Execution-Resources

- 6.14 The DGC has no revenue of its own, nor does it charge any special tax for financing its operating and investment programs. Its only source of revenue is the national budget. On the average, funds actually allotted to the DGC in the period 1973/76 constituted 72% of the total budget expenditure by the MOP during those years, although the significance of the amount of expenditure by the DGC was reduced, owing to the increase in budget expenditure by the MOP in 1976. A summary of DGC budget execution is given below: 1/

1/ The detailed DGC budget execution is given in Appendix I of this report.

DGC BUDGET EXECUTION

(In thousand of US\$)

	1 9 7 3		1 9 7 4		1 9 7 5		1 9 7 6					
	Budget	Expendi- ture	Budget	Expendi- ture	Budget	Expendi- ture	Budget	Expendi- ture				
		%		%		%		%				
Current Expenditure	3,816	3,793	99.4	4,865	5,680	116.8	8,874	8,210	92.5	8,426	8,324	98.8
Capital Expenditure	14,555	7,892	54.2	17,004	16,103	94.7	20,655	13,741	66.5	18,095	14,143	78.2
Public Works	12,877	7,469	58.0	15,236	12,295	80.7	20,125	12,238	65.8	18,095	14,143	78.2
National Emergency and Demolition	1,678	423	25.2	1,768	3,808	215.4	530	503	94.9	-	-	-
Total Expenditure	18,371	11,685	63.6	21,869	21,783	99.6	29,529	21,951	74.3	26,521	22,467	84.7
% MOP Budget	70			87			76			57		

- 6.15 Budget performance in the first half of 1977 shows that the DGC has managed to execute 87% of the current expenditure budget and 50% of the public works investment budget; these shares are smaller, as a result of delays in the transaction of invitations for bids, than the average amount expended in the period 1973/76, being 98% and 73%, respectively. Nevertheless, actual investment in public works has kept up a moderate rate of growth as from 1975, as shown in the following table:

(In thousands of US\$)

<u>Year</u>	<u>Public Works Investment Expenditures</u>	<u>% Growth Over the Previous Year</u>
1973	7,469	-
1974	12,295	64.6
1975	13,238	7.7
1976	14,143	6.8
1977 <u>a/</u>	14,554	2.9

a/ Estimated to December 31, 1977.

- 6.16 The following table shows DGC budget performance for the first half of 1977:

(In thousands of US\$)

<u>Expenditure</u>	<u>Budget</u>	<u>Real Expenditure</u>	<u>%</u>
Management and Administration	422	395	93.6
Highways and Roads Supervision	141	121	86.0
Highway Study and Design	158	157	99.1
Highway Maintenance	2,611	2,202	84.3
Mechanical Maintenance	225	219	97.4
Total Current Expenditure	<u>3,557</u>	<u>3,094</u>	87.0
Investment Projects	<u>11,598</u>	<u>5,823</u>	50.2
TOTAL EXPENDITURE	<u>15,155</u> =====	<u>8,917</u> =====	58.8

- 6.17 Execution of the expenditure budget for maintenance was satisfactory during the period examined, constituting 104% on the average with respect to the original budget appropriations. Amounts actually expended for road maintenance were:

(In thousands of US\$)

<u>Year</u>	<u>Maintenance</u>	<u>% Growth Over the Previous Year</u>
1973	1,959	-
1974	3,790	49.7
1975	5,672	49.7
1976	5,384	(5.1)
1977 <u>a/</u>	5,265	(2.2)

a/ Estimated to December 31, 1977.

- 6.18 As may be seen, investments in maintenance have grown appreciably in absolute terms, having more than doubled between 1973 and 1975, and maintained a similar volume of investment during the rest of the period under study.
- 6.19 In 1977, the DGC initiated a massive purchasing program of machinery and equipment for maintenance and construction work in the amount of US\$126.3 million equivalent. For this purpose, and in a separate special budget, the DGC was furnished with the necessary resources consisting of US\$10.6 million in local counterpart funds and US\$115.7 million in foreign borrowing. This budget is itemized below:

<u>Bank</u>	<u>FOREIGN</u>		<u>LOCAL</u>		<u>Total</u>
	<u>Thousands of US\$</u>	<u>%</u>	<u>Thousands of US\$</u>	<u>%</u>	
Eximbank	3,200	85	565	15	3,765
Bank of America - San Francisco	3,600	85	635	15	4,235
Bank of America - Managua	1,200	85	211	15	1,411
Banco do Brasil	2,700	90	300	10	3,000
City Bank	25,000	100	-	-	25,000
Banco de España	80,000	90	8,889	10	88,889
TOTAL	<u>115,700</u>		<u>10,600</u>		<u>126,300</u>

- 6.20 With the purchase of the equipment considered under this program, the DGC estimates that it has provided for the MOP's machinery and equipment needs up until 1985. At the end of October, 1977, US\$68.7 million in credit had been utilized and US\$6.2 million equivalent in local counterpart funding had been allotted. It is estimated that at the end of 1977 the purchase of the rest of the equipment scheduled will have been completed.

- 6.21 Execution of the DGC budget during the examined period has proved acceptable inasmuch as 80% of the total amount budgeted has been invested, a portion which, it is expected, will increase as the recommendations now formulated in respect of administrative and accounting affairs are put into effect.

4. Financial Projections

- 6.22 In the preparation of the DGC financial projections the bases given in Appendix J to this report were used. A summary of these projections for the period 1978/82 is given below: 1/

1/ The detailed financial projection is given in Appendix K to this report.

(In thousands of US\$ or equivalent)

	Budget	P R O J E C T I O N					Total
	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1977</u>
unding Requirements							
Operating Expenses	7,256	11,126	12,263	13,517	14,904	16,435	68
Investment Expenses	<u>14,554</u>	<u>31,757</u>	<u>39,720</u>	<u>40,385</u>	<u>50,987</u>	<u>40,863</u>	<u>203</u>
1. Projects in progress	14,554	14,465	9,339	3,182	469	-	27
2. Projects to be executed	-	16,962	21,211	26,583	39,798	28,703	133
3. Río Blanco-Siuna Project	-	330	9,170	10,620	10,720	12,160	43
Total Requirements	<u>21,810</u>	<u>42,883</u>	<u>51,983</u>	<u>53,902</u>	<u>65,891</u>	<u>57,298</u>	<u>271</u>
Availability of Funds							
Operating Expenses	7,256	7,256	7,256	7,256	7,256	7,256	36
Investment Expenses	<u>14,554</u>	<u>30,732</u>	<u>31,048</u>	<u>31,245</u>	<u>5,590</u>	<u>37,376</u>	<u>176</u>
1. National funds	6,421	6,421	6,421	6,421	6,420	6,420	32
2. Foreign funds	8,133	24,031	17,857	16,914	32,150	21,936	112
3. Río Blanco-Siuna Project	-	280	6,770	7,910	8,020	9,020	32
Total Availability	<u>21,810</u>	<u>37,988</u>	<u>38,304</u>	<u>38,501</u>	<u>53,846</u>	<u>44,632</u>	<u>213</u>
Domestic Funds to be provided	-	4,895	13,679	15,401	12,045	12,666	58
accumulated	-	4,895	18,574	33,975	46,020	58,686	-

a. Requirements in Domestic Funds

- 6.23 The DGC's plans call for the execution of projects and doing road studies in the amount of US\$203.7 million equivalent. This projection includes US\$27.4 million in work in progress, 1/ and US\$133.3 million in new projects, 2/ not including the US\$43 million project under consideration for the Rio Blanco-Siuna highway. To provide for this volume of work and for DGC current expenses, it is estimated that US\$272 million would be necessary over the projection period.
- 6.24 According to the assumptions given in Appendix J, a supply of funds in the amount of US\$213.3 million equivalent was estimated. This will make it necessary for the DGC to secure additional domestic funds in the amount of US\$58.7 million equivalent, which would be used to cover the local counterpart of US\$11 million in the loan under consideration; to provide for increases of US\$31.9 million in its operating expenses; and provide US\$15.7 million as domestic counterpart funding for the projects its proposes to carry out. 3/
- 6.25 On the average, the DGC has had local funds constituting 57% of the projects executed in the period 1973-1977. The following table shows that it must furnish local funds averaging 47% of the projected budget amounts. The reason is that a large part of the projected work would be financed with CABEL resources 4/ which, owing to their nature, would require less local counterpart funding, inasmuch as these funds would be drawn on allotments from CABEL member countries. However, it may be noted in the following table that in absolute terms the DGC would require an additional increase in domestic resources.

1/ US\$22.5 million will be used in the Local Roads Program II - Loan 491/SF-NI.
2/ A description of projects to be carried out is given in Appendix L to this report.
3/ These figures are given in Table No. 3, Appendix K.
4/ See Appendix J, which gives sources of foreign funds to be acquired.

(In millions of US\$)

<u>Year</u>	<u>Local contri- bution</u>	<u>% growth over previous year</u>	<u>Foreign contri- bution</u>	<u>% growth over previous Year</u>	<u>% share of the local contribution in the budget</u>
1973	4,603	-	7,082	-	39
1974	10,880	136	10,903	54	50
1975	12,554	15	9,397	(14)	57
1976	15,006	20	7,461	(21)	67
1977 <u>a/</u>	15,677	4	8,133	9	72
1978	18,572	18	24,627	199	43
1979	27,356	47	24,627	1	53
1980	29,078	6	24,824	1	54
1981	25,721	(12)	40,170	62	39
1982	26,342	2	30,956	(23)	46

a/ The amount budgeted at the beginning of the year is given in addition to US\$2.2 million to be added in the second half. Other figures from previous years refer to project execution. The amounts specified for the 1978-82 period constitute the necessary local contribution to comply with the requirements.

6.26 Domestic funds needed during the first two years of project execution constitute a major increase over the previous year.

6.27 If US\$6.4 million in local funds, an amount equal to that obtained in 1977 for domestic counterpart funding and other work entirely financed out of local funds is projected for the period 1978-1982, it follows from the table shown in the next paragraph that the US\$11 million in local counterpart funding of the project under consideration constitutes 34% of such funds. If the local contribution requirements --US\$4.5 million--are added for Local Roads Program II (loan 491/SF-NI, in progress), it may be seen that local contribution for both Bank projects would account for 48% of projected local counterpart funding.

6.28 Following is a table showing the local contribution requirements for Bank loans. These requirements are compared with an estimated total based on the amount of the 1977 budget:

(In thousands of US\$ or equivalent)

	1977	P R O J E C T E D					TOTAL	%
	Budget	1978	1979	1980	1981	1982	1978/82	
Local contribution to local roads program (491/SF-NI)	-	522.0	832.0	1,137.0	1,329.0	680.0	4,500.0	14
Local contribution for Río Blanco-Siuna project (under study)	-	50.0	2,400.0	2,710.0	2,700.0	3,140.0	11,000.0	34
Subtotal (local contribution for IDB projects)	-	572.0	3,232.0	3,847.0	4,029.0	3,820.0	15,500.0	48
Projects, domestic counterpart funding and studies	6,420.6	5,848.6	3,188.6	2,573.6	2,391.6	2,600.6	16,603.0	52
Total budgeted	<u>6,420.6</u>	<u>6,420.6</u>	<u>6,420.6</u>	<u>6,420.6</u>	<u>6,420.6</u>	<u>6,420.6</u>	<u>32,103.0</u>	10

6.29 Reporting from the bases proposed in Appendix J for the financial projections given and assuming a 12% average annual growth in budget appropriation, ^{1/} the DGC would need to secure additional domestic funds in the amount of US\$29.8 million equivalent to cover the proposed requirements. These funds would be used to provide for increases of US\$13.6 million in operating expenses and the difference of US\$16.2 million in domestic counterpart funding of planned projects.

6.30 Projecting for the 1978/82 period, on the assumption given in the foregoing paragraph, the resources available to the DGC to cover the local counterpart and other work to be entirely financed with domestic resources, it will be noted in the following table that the US\$11 million in local counterpart funding for the project under consideration is 24% of such resources. If the local contribution requirement of US\$4.5 million for the Local Roads Program II (loan 491/SF-NI in progress) is added, then the local counterpart contribution for both Bank loans would come to 34% of the project appropriation.

^{1/} According to the recommendation of the Economic Advisor of the Office of the Manager of the PRA, a 5% annual increase in real terms in the Government budget expenditure has been estimated which, combined with inflation at the rate of 6% a year, results in a nominal 12% annual average increase in budget appropriation.

(In thousands of US\$ or equivalent)

	Budget	P R O J E C T I O N					TOTAL	%
	1977	1978	1979	1980	1981	1982	1978/82	
Local contribution for local roads program II (491/SF-NI)	-	522.0	832.0	1,137.0	1,329.0	680.0	4,500.0	10
Local contribution for Rio Blanco-Siuna Project (under study)	-	50.0	2,400.0	2,710.0	2,700.0	3,140.0	11,000.0	24
Subtotal (local contribution for IDB projects)	-	572.0	3,232.0	3,847.0	4,029.0	3,820.0	15,500.0	34
Projects, domestic counterpart funding and studies	6,420.6	6,619.1	4,822.0	5,173.5	6,974.0	7,495.4	30,184.0	66
Total budgeted	6,420.6	7,191.1	8,054.0	9,020.5	10,103.0	11,315.4	45,684.0	100
% IDB/TOTAL	-	8%	40%	43%	40%	34%	34%	

6.31 As shown in the foregoing table, on the average, the local contribution for both Bank projects accounts for 34% of the annual budget appropriation, based on the assumption given in paragraph 6.29; the year 1980 being that in which there will be the highest percentage of use of domestic resources projected by the DGC for Bank projects (57%).

VII. EVALUATION OF PREVIOUS OPERATIONS

A. Loans 63/SF-NI and 305/SF-NI

- 7.01 On September 27, 1965 the Bank approved loan 63/SF-NI to the Republic of Nicaragua in the amount of US\$12 million equivalent to assist in financing a program for the construction and improvement of about 458 km of local roads in several parts of the country. The program resources were used to construct 386 km of roads and to improve 72 km roads at a total cost of US\$18,150,000 equivalent. Evaluation of this loan was completed on November 23, 1976, when document PR-776 was presented, which contained the analysis of the second stage of the local roads program in Nicaragua (Loan 491/SF-NI).
- 7.02 On September 2, 1971 the Bank approved loan 305/SF-NI to the Republic of Nicaragua in the amount of US\$3.5 million equivalent to assist in the expansion and strengthening of the highway maintenance system through the procurement of machinery and equipment, the construction of maintenance camps and workshops; and in the provision of technical assistance for the strengthening and reorganization of the financial management system of the DGC (ATP/SF-1135-NI). An evaluation of this loan was given also in document PR-776, but at the time not all the construction work on the maintenance camps and workshops had been completed.
- 7.03 On completion of that operation in December 1976, a total of 12 camps and 10 repair shops had been built at several key points along the national highway system. It is considered that the program satisfactorily met its goals and that the recommendations made by the consultants, who were engaged with technical cooperation funds included in the loan, are being carried out in satisfactory fashion.

B. Technical Cooperation ATC/TF/SP-1295-NI

- 7.04 In June 1974 the Bank granted the MOP recovery-contingent technical cooperation in the amount of US\$750,000 equivalent to assist in financing technical and economic feasibility studies of about 600 km of local roads, of which about 300 km of the more traveled roads were selected in accordance with criteria set by mutual agreement with the Bank. These studies and plans were used as the basis in preparing a new investment program consisting of the second stage of a local roads programs which the Bank had assisted in financing (Loan 491/SF-NI). The operation was disbursed in full on November 15, 1977.

C. Loan 491/SF-NI

- 7.05 This loan was granted to the Republic of Nicaragua on December 9, 1976 in the amount of US\$18 million equivalent to finance a program for the construction and improvement of about 30 km of local roads in the Pacific and Central regions of the country. The basic data and key dates for this operation are given below:

Approval	9 Dec. 76
Signing of contract	8 Mar. 77
Amount of loan	US\$18 million
Total cost of the program	US\$22.5 million
Entry into force of the contract	8 Mar. 77
Original term for first disbursement	4 Sep. 77
Deadline for first disbursement	3 Dec. 77
Deadline for construction work start-up	8 Mar. 79
Deadline for last disbursement	8 Mar. 82
Amount disbursed as of 31 October 1977	US\$1,550,000 (8.6%)

7.06 The above-specified data show that so far there has been no activity in connection with this loan, the borrower and the executing agency having only recently performed the conditions precedent to the first disbursement.

7.07 For purposes of information, this operation consists tentatively in the construction and/or improvement of 10 local roads over a distance of about 300 km. According to the preliminary list given in the loan contract, these roads are as follows:

<u>Road</u>	<u>Length (km.)</u>
1. Somotillo-Cinco Pinos	30.0
2. Villa Salvadorita-Malpaisillo	29.5
3. Limay-Pueblo Nuevo	24.7
4. El Sauce-Villanueva	40.6
5. Juigalpa-La Libertad	33.0
6. Asturias-Pantasma	24.7
7. Abisinia-Bocaycito	27.0
8. S.J. del Río Coco-Wiwilí	55.6
9. Rivas-Veracruz	5.7
10. San Cayetano-La Trinidad	31.5
	<hr/>
Total	302.3
	<hr/> <hr/>

TAMAÑO DE FINCAS, PRODUCCION E INGRESOS 1/

Rango Manzanas	No. de Fincas	Tamaño Promedio Manzanas	Uso de la Tierra		Otros %	Producción por Finca			Ingresos Brutos Promedios		Personas por Finca		
			Agrícola %	Pastos %		Maíz Quint.	Frijoles Quint.	Arroz Quint.	Ganado Cabezas	P/Finca US\$		P/Manz. US\$	P/Manz/Prod. US\$
1. Zona de Siuna													
0-10	-	-	-	-	-	-	-	-	-	-	-	-	-
11-20	-	-	-	-	-	-	-	-	-	-	-	-	-
21-50	3	41,7	18,8	10,4	70,8	-	26,7	48,3	-	32,5	4/	110,8	4,3
51-100	14	85,1	16,5	16,1	67,4	41,9	19,6	102,8	1,1	1,352	32,5	95,1	4,9
101-200	39	154,5	11,9	17,3	70,8	39,4	27,6	91,4	2,0	2,634	31,0	60,3	6,8
201-300	13	245,9	9,9	9,0	81,1	75,0	21,4	174,8	1,8	2,724	17,6	60,0	8,5
301-500	14	393,8	7,3	21,9	70,8	82,1	47,5	138,4	5,7	4,266	12,3	42,0	7,3
Más de 500	-	-	-	-	-	-	-	-	-	4,833	12,3	-	-
Total	83	193,4	10,3	17,1	72,6	51,2	28,6	112,8	2,4	3,256	16,8	61,5	6,8
2. Zona Río Blanco-Río Tunja													
0-10	4	10,0	61,3	27,5	11,2	26,3	23,3	4,3	-	682	68,2	77,0	4,5
11-20	4	16,5	50,2	19,7	30,1	7,5	15,3	9,5	0,5	589	35,7	51,1	5,8
21-50	8	43,1	21,9	45,4	32,7	26,3	12,3	9,1	2,6	1,007	23,4	34,7	5,1
51-100	13	86,4	21,0	42,5	36,5	72,3	92,9	11,4	8,7	3,908	45,2	71,2	7,8
101-200	15	166,0	18,0	32,2	49,8	69,7	65,7	15,7	4,7	2,769	16,7	33,2	7,9
201-300	8	293,8	14,2	55,7	30,1	81,3	44,8	27,5	29,8	6,959	23,7	33,9	9,6
301-500	9	448,9	16,7	43,1	40,2	133,3	46,7	35,6	47,9	10,574	23,5	39,4	7,3
Más de 500	10	870,0	8,6	54,6	36,8	215,0	40,0	28,0	119,0	23,028	26,5	41,9	8,0
Total	71	269,8	13,4	48,3	38,3	89,2	51,0	18,8	29,1	6,854	25,4	41,2	7,4

APENDICE A

- 1/ Resultados de las encuestas realizadas por el Consorcio Berger-Consulting para el estudio de factibilidad económica del Provento Río Blanco-Siuna.
- 2/ Tierras Vírgenes.
- 3/ Calculado utilizando precios a nivel de finca de \$45, \$132 y \$123 para el quintal de maíz, frijol y arroz, respectivamente, y de \$1.200 por cabeza de ganado.
- 4/ Valores asumidos.

REGLAMENTO DE LICITACIONES

I. INTRODUCCION

La Dirección General de Caminos (DGC) del Ministerio de Obras Públicas (MOP) (en adelante denominada el "Organismo Ejecutor"), para la adquisición de bienes o en la adjudicación de contratos para la ejecución de obras comprendidas en el Proyecto, deberá utilizar los siguientes procedimientos de licitación pública en todos los casos en que el valor de dichas adquisiciones o contratos exceda del equivalente de US\$100.000.

II. LICITACION PUBLICA

Las adquisiciones y/o contratos que se financien en todo o en parte con los recursos en divisas del Préstamo deberán necesariamente sujetarse a un régimen de licitación pública internacional. Cuando dichas adquisiciones o contratos se financien exclusivamente con recursos de contrapartida local o solamente con córdobas desembolsados con cargo al Préstamo, las licitaciones podrán quedar restringidas al ámbito nacional.

A. Licitaciones internacionales

(1) Ejecución de obras

A.2.1 Precalificación

A.2.1.1 Antes de la adjudicación de contratos para la ejecución de obras, se precalificará a las empresas interesadas en participar en licitaciones del Proyecto. La precalificación se efectuará de acuerdo con las normas siguientes.

A.2.1.2 Para la precalificación se publicará una convocatoria cuyo texto será previamente aprobado por el Banco.

A.2.1.3 En la precalificación solamente podrán participar empresas originarias de alguno de los países miembros del Banco.

A.2.1.4 La publicación de la convocatoria se efectuará por lo menos en tres oportunidades, en dos de los diarios de mayor circulación en la ciudad de Managua, debiéndose entregar simultáneamente una comunicación circular a las embajadas y/o consulados en cada uno de todos los países miembros del Banco que estén acreditados en Nicaragua.

A.2.1.5 La precalificación se efectuará sobre la base de los "Documentos de Precalificación" que se presenten al Organismo Ejecutor, los cuales deberán contener, como mínimo, la siguiente información:

- (a) Antecedentes jurídicos sobre la empresa o compañía, entre los que deberán incluirse:
 - (i) Clase de sociedad de que se trata, con indicación de dónde se la constituyó y organizó legalmente, y de la sede o asiento principal de sus negocios y operaciones;
 - (ii) estatutos y otros documentos² relativos a la constitución de la sociedad, con especificación de si es filial o subsidiaria de alguna otra empresa o compañía;
 - (iii) demostración de que la sociedad es parte integrante de la economía de un país miembro del Banco, y que más del 50% de las acciones sociales pertenece a ciudadanos de países elegibles;
 - (iv) compromiso de que por lo menos el 80% del personal que preste servicios en la obra, conforme con el contrato de construcción, tenga su domicilio real en algún país miembro del Banco;
 - (v) una declaración en que conste que la sociedad no ha celebrado ningún acuerdo, en virtud del cual una parte sustancial de sus ganancias o beneficios pase a personas o entidades, que sean nacionales de países que no sean miembros del Banco;
 - (vi) en caso de consorcios: (1) nombre de cada uno de los componentes; (2) copia de los estatutos correspondientes y copia del instrumento constitutivo del consorcio; (3) cuestionario

de precalificación que deberá llenarse separadamente por parte de cada uno de los componentes del consorcio; (4) aceptación de que la responsabilidad de cada uno de los componentes del consorcio será indivisible y solidaria; (5) aceptación de que las reglas de elegibilidad expresadas anteriormente se aplican a todos y cada uno de los componentes del consorcio y de que, en consecuencia, si uno o más miembros del consorcio resulta inelegible por ello, el consorcio como tal quedará descalificado para presentar ofertas en licitaciones de obras financiadas con recursos del Banco.

- (b) Antecedentes sobre su capacidad financiera, incluidos por lo menos: (i) estados financieros de los dos últimos años; (ii) referencias bancarias, y (iii) evidencia de su capacidad para obtener fianzas adecuadas de conformidad con las que se exigen en el presente Reglamento.
- (c) Capacidad técnica y disponibilidad de personal y de equipo de construcción para obras de la naturaleza y dimensión de las previstas dentro del Proyecto, con indicación del lugar en que se encuentra el equipo.
- (d) Experiencia en la construcción de obras de la naturaleza y dimensión de las previstas dentro del Proyecto, y grado de cumplimiento de contratos similares anteriores.
- (e) Los demás documentos que se soliciten en el formulario de precalificación.
- (f) Lugar donde deben presentarse los formularios, y documentos necesarios para optar a la precalificación.

A.2.1.6 Las empresas interesadas en participar en la precalificación deberán presentar la solicitud y documentos correspondientes dentro de cuarenta y cinco (45) días calendario, contados desde la fecha de la última publicación de la convocatoria, y ceñirse a los procedimientos de precalificación establecidos en este Reglamento.

- A.2.1.7 Los antecedentes presentados por las empresas, junto con la lista de las que a juicio del Organismo Ejecutor deben calificar, se remitirán al Banco para su revisión, dentro del plazo de quince (15) días, contados a partir de la fecha establecida para el cierre del período de presentación de la solicitud y documentación necesaria para precalificar.
- A.2.1.8 Una vez que el Banco acepte la lista de las empresas que deben calificar lo dará a conocer al Organismo Ejecutor dentro de la mayor brevedad posible. Cuando el Prestatario, por intermedio del Organismo Ejecutor, y el Banco concuerden en firme sobre las firmas calificadas, el Organismo Ejecutor procederá a notificar a éstas.

A.2.2 Presentación de ofertas

- A.2.2.1 Podrán presentar ofertas las firmas constructoras que hayan sido calificadas de conformidad con lo que se establece en la parte A.2.1. anterior.
- A.2.2.2 La invitación para presentar ofertas deberá publicarse por lo menos tres (3) veces en dos diarios de Managua con circulación nacional, en días no consecutivos, dentro de un período máximo de siete (7) días contados desde la fecha de la primera publicación.
- A.2.2.3 Antes de proceder a invitar a la presentación de ofertas, el Organismo Ejecutor deberá obtener la conformidad del Banco con respecto a los textos de anuncios y de los documentos de licitación.
 - A.2.2.3.1 Los documentos de licitación consistirán en las bases de la misma, que incluirán las condiciones generales, condiciones especiales, además de las especificaciones generales para la obra a ejecutarse, disposiciones especiales de las mismas, planos, lista de materiales, modelo de oferta, plazo tentativo de ejecución, cuadro de moneda de pagos, modelo de garantías de sostenimiento de oferta y de cumplimiento de contrato, y demás documentos relacionados con la construcción a realizarse.

A.2.2.3.2 Las bases de licitación contendrán información relativa a aspectos tales como fianzas, garantía de mantenimiento de oferta, fianza de cumplimiento de contrato y seguros. Estos últimos deberán cubrir, según el caso, los riesgos inherentes a la naturaleza de las obras que se liciten, los cuales se establecerán para cada licitación en particular, y deberán estar en vigor hasta la fecha de la aceptación final de las obras.

A.2.3 Plazo para presentar ofertas

Las firmas precalificadas gozarán de un plazo de cuarenta y cinco (45) días para presentar sus ofertas, el cual se contará desde la fecha de la última publicación en los diarios.

A.2.4 Número de copias de las ofertas

En la fecha, lugar y hora fijados en el aviso de licitación, los interesados deberán presentar sus ofertas en plicas, con dos copias adicionales por lo menos, o bien el número de copias especificadas en las bases de licitación, junto con los documentos requeridos en esas bases.

A.2.5 Recepción y apertura de las ofertas

La recepción y apertura de ofertas se llevará a cabo en la fecha, lugar y hora fijados en el aviso de licitación, ante representantes del Organismo Ejecutor y de los oferentes que así lo quisieren.

Se procederá a abrir las ofertas y a leer públicamente debiéndose levantar el acta respectiva en el libro correspondiente. Las ofertas incompletas o que hayan sido alteradas serán rechazadas de plano.

A.2.6 Análisis de los precios ofertados

La Junta de Licitación, encargada de calificar las ofertas, analizará los precios ofertados y, cuando lo estime conveniente, podrá solicitar a los oferentes aclaración sobre la forma en que se efectuó la integración de sus precios que determinen el monto de su oferta. En ese caso, la petición de aclaración deberá notificarse a todos los oferentes, y ella no podrá dar lugar a ningún cambio en la oferta ni en los precios expresados en ella.

A.2.7 Calificación de las ofertas

La Junta de Licitación seleccionará provisionalmente la oferta más conveniente y favorable, de acuerdo a los criterios establecidos en las bases de licitación. Para la calificación de la oferta más conveniente y favorable se tomará también en cuenta que ésta tenga un costo razonable que será generalmente el precio más bajo del mercado, tomando en consideración factores de calidad, eficiencia, tiempos de entrega y otros que sean del caso.

A.2.8 Envío de los antecedentes al Banco

Antes de continuar el trámite conforme con las leyes de Nicaragua, el Organismo Ejecutor enviará al Banco copia del dictamen de la Junta de Licitación, así como copia de las ofertas, cuadros comparativos y demás antecedentes que sirvieron para la calificación de las ofertas y la selección de la mejor. El Banco diligenciará lo más rápido posible el expediente para que el Organismo Ejecutor pueda continuar su trámite.

A.2.9 Adjudicación de licitación

Una vez aprobada la selección por el Banco, el Organismo Ejecutor, por medio de su organismo competente, dentro de un término no mayor de quince (15) días hábiles, contados a partir de la fecha en que reciba del Banco el expediente, aprobará o improbará definitivamente la selección y procederá a efectuar la adjudicación formal de la licitación.

A.2.10 Suscripción del contrato

El Organismo Ejecutor suscribirá el contrato con el adjudicatario, conforme con el modelo incluido en las bases de licitación, dentro de un plazo no mayor de 30 días, contado a partir de la fecha de la notificación formal de la adjudicación.

A.2.11 Subcontratos

Cuando haya subcontratos, los cuales deberán ser autorizados en cada caso por el Organismo Ejecutor, las empresas subcontratistas deberán cumplir con las normas de elegibilidad, por razones de nacionalidad, establecidas en este Reglamento.

(ii) Adquisición de bienes

A.2.11 Presidencia de precalificación

En los casos de licitación convocada para adquirir bienes, el Organismo Ejecutor podrá prescindir del requisito de precalificación. En consecuencia, se estará a lo dispuesto en la parte A.2.2 "Presentación de ofertas" de este Reglamento, salvo las siguientes disposiciones especiales:

A.2.12 Convocatoria

El texto de la convocatoria de la licitación, una vez aprobada por el Organismo Ejecutor y el Banco, se publicará por lo menos en dos diarios de amplia circulación en Managua, por tres veces consecutivas.

A.2.13 Aviso a embajadas

Simultáneamente con la publicación de la convocatoria en la prensa, el Organismo Ejecutor deberá remitir copia de esa convocatoria a las representaciones diplomáticas de los países miembros del Banco acreditadas en Nicaragua.

A.2.14 Margen de preferencia en caso de adquisición de bienes

Podrá aplicarse un margen de preferencia en favor de ofertas de bienes producidos en Nicaragua o, según corresponda, en países pertenecientes al Mercado Común Centroamericano, conforme con las siguientes normas:

(a) Margen de preferencia nacional

- (i) Se considerará que un bien es originario de Nicaragua cuando el costo de los materiales, mano de obra y servicios nicaragüenses empleados en su fabricación represente por lo menos el 40% del costo total del bien.
- (ii) A los efectos de la comparación de propuestas, se tendrá como precio de la oferta de productos de origen nicaragüense, el precio de entrega del producto puesto al pie de la obra, una vez deducido lo siguiente: (1) los derechos de importación pagados sobre materias

primas principales o sobre componentes manufacturados, y (2) los impuestos nacionales sobre ventas, al consumo y al valor agregado, incorporados al costo del artículo ofertado. El oferente deberá proporcionar la prueba documentada de las cantidades que, de conformidad con los incisos (1) y (2) anteriores, deben deducirse con el solo objeto de facilitar el cotejo de propuestas.

- (iii) También a los efectos de esa comparación, se tendrá como precio de la oferta de productos de origen extranjero, el precio CIF del mismo producto (excluidos derechos de importación, consulares y portuarios), al cual deberá sumarse el importe de los gastos siguientes: (1) los de manipuleo en puerto, y (2) los de transporte local, desde el puerto o lugar fronterizo de entrada hasta el pie de la obra.
- (iv) Para efectuar cotejo de precios entre ofertas de origen nacional y extranjero se estará a lo siguiente:
 - (1) los costos expresados en moneda extranjera se convertirán a su equivalente en córdobas, para lo cual se utilizará el tipo de cambio pactado entre el Prestatario y el Banco en el Contrato de Préstamo; y
 - (2) al precio de las ofertas de productos extranjeros, calculado conforme se estipula en el inciso (iii), se sumará un margen del 15% o el derecho aduanero real, según cual sea menor.

(b) Margen de preferencia regional

- (i) Se considerará que un bien es de origen centroamericano cuando se lo produzca en un país miembro del Mercado Común Centroamericano, y cumpla con los requisitos establecidos en los instrumentos jurídicos que gobiernan ese Mercado en cuanto a origen y otras materias vinculadas con los programas de liberalización del comercio regional.

- (ii) Se sumarán al costo CIF del producto ofertado los costos locales referidos en (iii)(1) y (2) del acápite (a) (Margen de preferencia nacional) de este párrafo.
- (iii) Para efectuar el cotejo de precios entre ofertas de bienes originarios de países del Mercado Común Centroamericano y las de bienes originarios de otros países extranjeros elegibles, se estará a lo siguiente:
 - (1) también se convertirán a su equivalente en córdobas los precios expresados en moneda extranjera, sobre la misma base de cálculo establecida en el inciso (a) (iv)(1) anterior; y
 - (2) se sumará a las ofertas de bienes originarios de países que no sean parte del Mercado Común Centroamericano, un margen del 15%, o bien la diferencia entre los derechos aplicables a bienes originarios de ese Mercado y los derechos aplicables a bienes originarios de países extranjeros elegibles que no sean parte del Mercado, según cual sea menor.

B. Licitaciones financiadas con contrapartida nacional o córdobas provenientes del Financiamiento del Banco

B.2.1 General

Para la adjudicación de maquinaria, equipos y otros bienes y en la adjudicación de los contratos para la ejecución de obras financiadas con recursos de contrapartida nacional o con córdobas provenientes del Financiamiento del Banco, se aplicará lo estipulado en el presente capítulo, además de lo que se dispone en el párrafo introductorio de la Parte II de este Reglamento.

B.2.2 Procedimiento de licitación

Las licitaciones para estos casos se realizarán de acuerdo con los procedimientos previstos en este Reglamento salvo que se podrá prescindir del trámite de precalificación y que el plazo para la presentación de ofertas podrá reducirse a treinta (30) días, contados desde la fecha de la última publicación de la convocatoria por la prensa nacional.

C. Requisitos comunes para licitaciones internacionales y nacionales

C.2.1 Las ofertas deberán presentarse con indicación de los bienes a importarse, y señalamiento de origen y costo. Asimismo, en esas ofertas deberá indicarse el origen y costo de los servicios técnicos provenientes del exterior.

C.2.2 Toda modificación de las bases y especificaciones de la licitación, tanto durante la fase de precalificación, cuando corresponda, como durante la fase previa a la presentación de ofertas, deberá comunicarse por escrito mediante adendos a todas las firmas interesadas o precalificadas, según corresponda. En estos casos, el plazo entre la última notificación de la modificación y la fecha de presentación de ofertas no podrá ser inferior a 30 días.

C.2.3 Cualquier consulta dirigida al Organismo Ejecutor por parte de los eventuales oferentes, acerca de la interpretación de las bases y especificaciones de la licitación, que no comportare ninguna modificación o ampliación de las mismas, deberá ser absuelta por escrito por el Organismo Ejecutor dentro de los quince días de formulada y llevada a conocimiento, también por escrito, de todos los demás eventuales proponentes, así como del Banco.

La consulta y su respuesta no producirán efecto suspensivo en el plazo para la presentación de ofertas.

Esta norma se aplicará también durante la fase correspondiente a la precalificación de firmas, cuando ella sea pertinente conforme con las disposiciones de este Reglamento.

C.2.4 El Organismo Ejecutor podrá declarar desierta una licitación, previo envío al Banco de un informe razonado acerca de la medida que se propone adoptar. Antes de dictar resolución al respecto, el Organismo Ejecutor deberá obtener la manifestación escrita del Banco de que éste no objeta la medida propuesta. Asimismo, el Organismo Ejecutor deberá rechazar las propuestas que no se ciñan a la bases de la licitación. El derecho que el Organismo Ejecutor se reserve de declarar desierta la licitación, deberá constar en las bases y documentos respectivos. Al convocar a una nueva licitación, el Organismo Ejecutor se ajustará a lo dispuesto en este Reglamento.


C.2.5 En caso de que se declare desierta la licitación por segunda vez, el Organismo Ejecutor deberá consultar con el Banco sobre el procedimiento que seguirá.

C.2.6 Todo cambio de adjudicatario o contratista que eventualmente pudiere ser procedente, así como toda otra modificación sustancial en las condiciones convenidas con los adjudicatarios o contratistas originales, deberán ser previamente consultados con el Banco, a fin de que este se pronuncie sobre el particular.

OBJETIVOS	OBJETIVOS (b)	MLIAS				
		Legal - Financiero - Institucional - Técnico		Plazo (Semanas) (e)	Tiempo	
		Breve Descripción (c)	Dimensiones Principales (d)		Inicio (f)	Termino (g)
Región Noreste del país de la economía. Esas áreas al fomento de actividades de consumo y sociales, la fácil movilidad. Internacional de satisfacción a través de las necesidades. Resto del país de transporte terrestre en la zona. de las condiciones de la población	a) Incremento de las actividades de producción agropecuarias y de explotación. b) Mayores facilidades de comercialización de la producción. c) Mejoramiento de las condiciones de educación, salud y otros servicios, debido a una mejor y más fácil comunicación. d) Distribución de ingresos durante la construcción al aumentar el empleo en la zona. e) Disminución de costos de productos hacia y desde la región.	Construcción de una carretera traficable en todo tiempo que unirá los poblados de Rio Blanco y Siuna. Esta carretera será diseñada bajos los estándares de la AASHO y con especificaciones para una carretera rural de cuarta clase y de dos carriles. La terracería y las estructuras serán construidas de tal forma que permitan su pavimentación en una fecha futura.	Aproximadamente 116 Km de longitud de carretera de dos carriles de tránsito, con un ancho de corona de 6.0 m.	260	1	260

PROYECTO (O SUBPROYECTOS):

El proyecto tiene su origen en la población de Rio Blanco situado en las faldas del cerro Musún en el Departamento de Matagalpa, región central del país; y termina en el poblado de Siuna en el Departamento de Zelaya en la región noreste del país.

Proyecto: Rio Blanco-Siuna	
Prestatario: República de Nicaragua	
Ejecutor: Ministerio de Obras Públicas	
Original <input checked="" type="checkbox"/>	PLAN PRELIMINAR
Revisión <input type="checkbox"/> No. _____	
	Fecha
Presentado	9/9/77
Hoja 1 de 1	

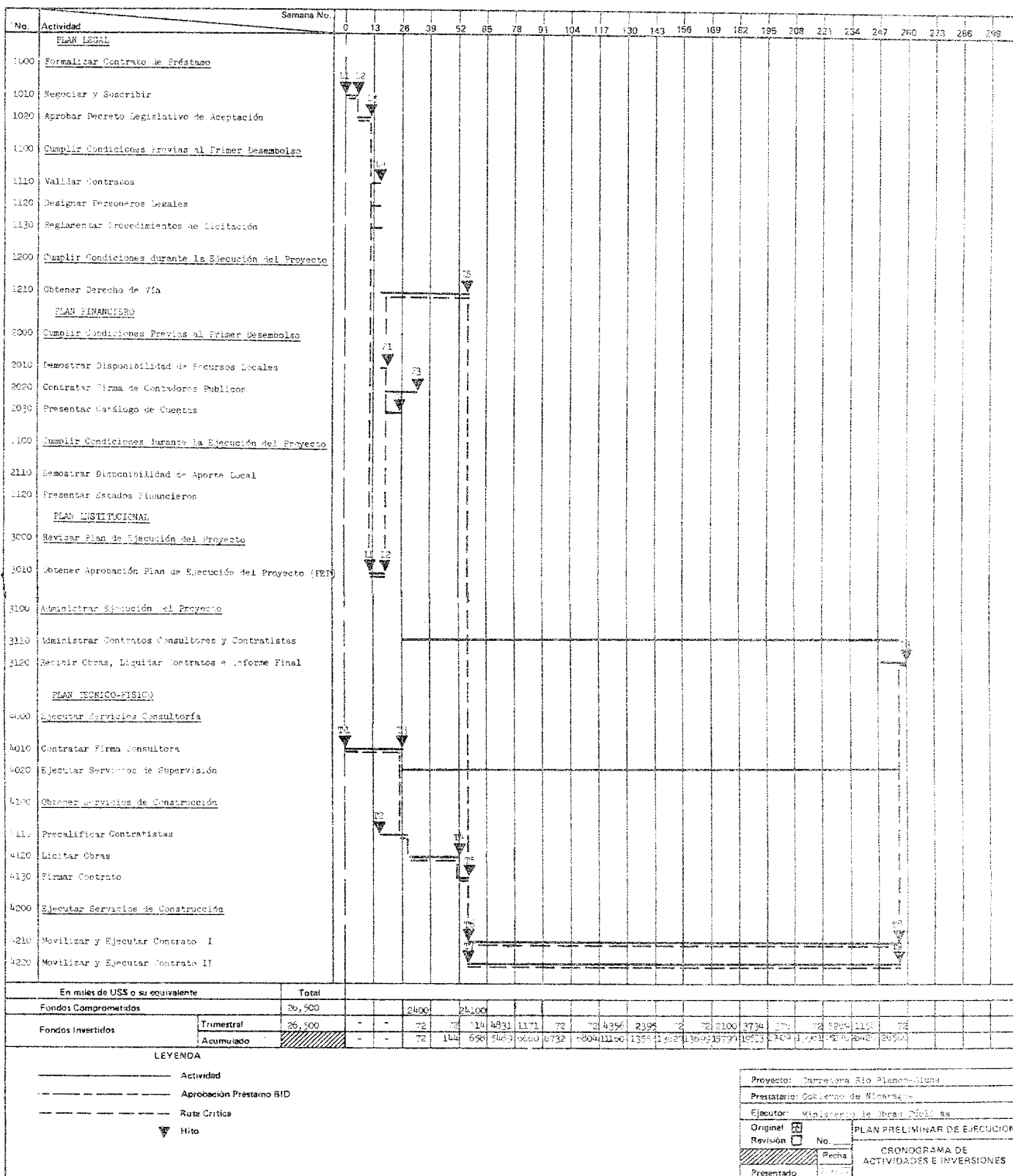
Actividad (b)	Costo Estimado Miles US\$ (c)	Plazo (Semanas) (d)	Iniciación (e)		Terminación (f)		Semana Crítica (g)		Entidad Responsable (h)	Código de Entidades Responsables		
			Semana No.	Hito	Semana No.	Hito	No.	Para Act. No.		PE: Poder Ejecutivo PL: Poder Legislativo PR: Poder Judicial AS: Asesoría EC: Ejecución EE: Evaluación UE: Unidad Ejecutiva	JE: Junta Ejecutiva FC: Firma CO: Contrato PB: Proveedor	
<div>CONTRATO DE PRESTAMO</div> <div>Subscribir</div> <div>Contrato</div> <div>Consenso de entidades competentes</div> <div>Contrato final</div> <div>Acto Legislativo de Aceptación</div> <div>Resolución Asamblea</div> <div>BID</div> <div>CONDICIONES PREVIAS AL PRIMER DESEMBOLSO</div> <div>Contratos</div> <div>Forma Jurídica</div> <div>BID</div> <div>Asesoreros Legales</div> <div>Procedimientos de Licitación</div> <div>Procedimientos</div> <div>Resolución del BID</div> <div>CONDICIONES DURANTE LA EJECUCION DEL PROYECTO</div> <div>Acto de vía</div> <div>Resolución</div> <div>Resolución de disponibilidad al BID</div>												
		5	1	L1	5	L2	5	1020				
		1	4		4				MH-MOP			
		2	5		6				MH-AL			
		2	7		8				MH-MOP			
		6	6		11	L3	11	1110				
		4	6		9				MH-AL			
		2	10		11				MH			
		4	12		15							
		3	12		14				MOP-DPP			
		1	15		15				MOP			
		3	13		15				MOP			
		5	12		16	L4	16	4110				
		2	12		13				MOP-DGC			
		3	14		16				MOP-DGC-BID			
		40	15		54	L5	78	4210 y 4220				
		38	15		52				MOP-DGC			
		2	53		55				MOP-DGC			
<div>Proyecto: Carretera Rio Blanco-Siuna</div> <div>Prestatario: Gobierno de Nicaragua</div> <div>Ejecutor: Ministerio de Obras Públicas</div> <div>Original <input checked="" type="checkbox"/> PLAN PRELIMINAR DE EJECUCION</div> <div>Revisión <input type="checkbox"/> No. _____ PLAN DE ACTIVIDADES</div> <div><div></div>Fecha 9/9/77 LEG <input checked="" type="checkbox"/> FIN <input type="checkbox"/> INS</div> <div>Presentado 9/9/77 Hoja 1 de 1</div>												

Actividad (b)	Costo Estimado Miles USS (c)	Plazo (Semanas) (d)	Iniciación (e)		Terminación (f)		Semana Crítica (g)		Entidad Responsable (h)	Código de Entidades Responsables			
			Semana No.	Hito	Semana No.	Hito	No.	Para Act. No.		PE: Poder Ejecutivo	JE: Junta	PL: Poder Legislativo	FC: Firma
CONDICIONES PREVIAS PRIMER DESEMBOLSO										PR: Contr	CO: Contr	AS: Prove	PB: Prove
Responsabilidad de Recursos Locales		3	16		18	F1			MH-MOP	EC: EE: UE:			
Arma de Contadores Públicos		14	19		32	F3			MOP-TCR				
Armar Firmas		6	19		24				MOP-BID				
Obtención del BID		2	25		26				MOP-TCR				
Arma		2	27		28				MOP				
Subscribir contrato		4	29		32								
Catálogo de Cuentas		7	19		25	F2			MOP-DGC				
Catálogo		3	19		21				MOP-BID				
Obtención del BID		4	22		25								
CONDICIONES DURANTE LA EJECUCION DEL PROYECTO													
Responsabilidad de aporte local 1/													
Estados Financieros													
										MOP: Ministerio de Obras Públicas MH: Ministerio de Hacienda TCR: Tribunal de Cuentas de la República BID: Banco Interamericano de Desarrollo			
										1/ Las actividades 2110 y 2120 se llevarán durante la ejecución del La primera en la primera semana de cada año fiscal; la segunda día a lo que se establezca entre y el MOP.			
										Proyecto: Carretera Rio Blanco-Sium Prestatario: Gobierno de Nicaragua Ejecutor: Ministerio de Obras Públicas			
										Original <input checked="" type="checkbox"/> No. Revisión <input type="checkbox"/> No. PLAN PRELIM DE EJECUCION PLAN DE ACTIV LEG <input type="checkbox"/> FIN <input checked="" type="checkbox"/> INI			
										Presentado 9/9/77 Hoja 2			

No. (a)	Actividad (b)	Costo Estimado Miles US\$ (c)	Plazo (Semanas) (d)	Iniciación (e)		Terminación (f)		Semana Crítica (g)		Entidad Responsable (h)	Código de Entidades Responsables	
				Semana No.	Hito	Semana No.	Hito	Para Act. No.	No.		PE: Poder Ejecutivo PL: Poder Legislativo PR: AS: EC: EE: UE:	JE: Junta Expertos FC: Firma Consultora CO: Contratista PB: Proveedor Bienes
3000	PLAN INSTITUCIONAL											
3010	REVISAR PLAN DE EJECUCION DE PROYECTO		6	12	11	17	12			MOP-DPP-BID		
3010	Formular, presentar y obtener aprobación plan de ejecución del proyecto (PEP)											
3100	ADMINISTRAR EJECUCION PROYECTO		230	26		256				MOP-DGC		
3110	Administrar Contratos Consultores y Contratistas											
3120	Pagar OTRAS, Liquidar Contratos y Elaborar y Presentar Informe Final		12	242		260	I3			MOP-DGC		
											Proyecto: Carretera Rio Blanco-Siuna	
											Prestatario: Gobierno de Nicaragua	
											Ejecutor: Ministerio de Obras Públicas	
											Original <input checked="" type="checkbox"/>	PLAN PRELIMINAR DE EJECUCION
											Revisión <input type="checkbox"/>	PLAN DE ACTIVIDADES
											LEG <input type="checkbox"/> FIN <input type="checkbox"/> INS <input checked="" type="checkbox"/> TEC <input type="checkbox"/>	
											Presentado	Hoja 3 de 5
											Fecha	9/9/77

No. ítem	Actividad (b)	Costo Estimado Miles US\$ (c)	Plazo (Semanas) (d)	Inicio (e)		Terminación (f)		Semana Crítica (g)		Entidad Responsable (h)	Código de Entidades Responsables					
				Semana No.	Hito	Semana No.	Hito	No.	Para Act No.		PE: Poder Ejecutivo	PL: Poder Legislativo	JE: Junta Expertos	FC: Firma Consultora	PR: Contratación	CO: Contratación
4000	EXECUTAR SERVICIOS DE CONSULTORIA										AS: ASISTENTE	EE: EJECUTIVO	UE: UNIDAD EJECUTIVA	PP: PROYECTO	CC: CONTRATO	CC: CONTRATO
4010	Contratar Firma Consultora		25	1	T1	25	T3	25	4020	MOP-DGC						
4011	Elaborar términos de referencia y lista de firmas consultoras		2	1		2				BID						
4012	Aprobar términos de referencia y lista de firmas consultoras		4	3		6										
4013	Invitar a firmas consultoras de supervisión a presentar propuestas		1	7		7				MOP-DGC						
4014	Recibir, abrir, analizar y seleccionar firma consultora de supervisión.		3	8		10				MOP-DGC						
4015	Aprobar por BID firma consultora seleccionada		2	11		12				BID						
4016	Recepcionar propuestas técnicas y económicas		4	13		16				MOP-DGC						
4017	Elaborar modelo de contrato para servicio de consultoría de supervisión y aprobación del BID.		6	17		22				MOP-DGC-BID						
4018	Firmar contrato de consultoría de supervisión.		3	23		25				MOP-FC						
4019	Executar servicios de consultoría de supervisión	2,400	230	26		256		256	3120							
4021	Movilizar y reconocer frente de construcción		4	26		29				FC						
4022	Desarrollar servicios de consultoría		223	30		252				FC						
4023	Elaborar Informe Final		4	253		256				FC						
4100	EXECUTAR SERVICIOS DE CONSTRUCCION															
4110	Precalificar Contratistas		12	17	T2	28		15	4120	MOP-DGC						
4111	Avisar y entregar documentos de precalificación		3	17		19				MOP-DGC						
4112	Recibir antecedentes de contratistas		3	20		22				MOP-DGC						
4113	Integrar antecedentes de contratistas		3	23		25										
4114	Ordenar continuidad BID sobre contratistas precalificados		3	26		28				MOP-DGC-BID						

Actividad (b)	Costo Estimado Miles USS (c)	Plazo (Semanas) (d)	Iniciación (e)		Terminación (f)		Semana Crítica (g)		Entidad Responsable (h)	Código de Entidades Responsables			
			Semana No.	Hito	Semana No.	Hito	No.	Para Act. No.		PE: Poder Ejecutivo PL: Poder Legislativo PR: AS: EC: EE: UE: JE: Junta E FC: Firma C CO: Contrata PB: Proveed			
<u>Frente I y II</u>		<u>24</u>	<u>29</u>		<u>52</u>	T4	52	4130					
Enteros de licitación		8	29		36				MOP-DGC				
ID documentos de licitación		2	37		38				BID				
Entregar entrega de documento y recepción de contratistas		7	39		45				MOP-DGC				
Le apertura y análisis de ofertas de		3	46		48				MOP-DGC-FC				
de BID ofertas de contratistas (I) recibidas		3	49		51				BID				
lo de contrato		1	52		52				MOP-DGC				
lo para construcción		<u>4</u>	<u>53</u>		<u>56</u>	T5	56	4210 & 4220	MOP-CO				
<u>ACTIVIDADES DE CONSTRUCCION</u>													
seguir contrato Frente (I)	9,980	<u>200</u>	<u>57</u>	T6	<u>256</u>	T8	257						
por contrato (I)		192			248				CO				
por contrato frente (I)		4	249		252				DGC-FC				
me final de obras por contrato frente (I)		4	253		256				DGC-FC				
<u>seguir Contrato (II)</u>	14,120	<u>200</u>	<u>57</u>	T7	<u>256</u>	79	260						
por contrato (II)		192	79		248				CO				
por contrato (II)		4	249		252				DGC-FC				
me final de obras (II)		4	253		256				DGC-FC				
										Proyecto: Carretera Rio Blanco-Siuna			
										Prestatario: Gobierno de Nicaragua			
										Ejecutor: Ministerio de Obras Públicas			
										Original <input checked="" type="checkbox"/>	PLAN PRELIMINAR DE EJECUCION		
										Revisión <input type="checkbox"/> No. _____	PLAN DE ACTIVIDADES		
										LEG <input type="checkbox"/> FIN <input type="checkbox"/> INS <input type="checkbox"/>			
										Presentado	9/9/77	Hoja 5 de	



PROYECCIONES DE PRODUCCION CON Y SIN PROYECTO

Cuadro No. 1

Maíz: Valor Agregado Neto sin la Nueva Carretera

	Area cul- tivada Has.	Rendi- miento Kg/Ha.	Producción Ton.	Consumo Fincas Ton.	Excedente Exportable Ton.	Costos de Producción C\$/Ton.	Valor Agregado Neto 1/ Miles C\$
1975	5.209	986	5.136	3.595	1.541	n.c.	n.c.
1976	5.363	999	5.358	3.732	1.626	n.c.	n.c.
1977	5.524	1.012	5.590	3.875	1.715	n.c.	n.c.
1978	5.692	1.025	5.833	4.025	1.808	n.c.	n.c.
1979	5.865	1.038	6.088	4.149	1.879	n.c.	n.c.
1980	6.046	1.052	6.361	4.345	2.016	n.c.	n.c.
1981	6.235	1.065	6.640	4.516	2.124	n.c.	n.c.
1982	6.424	1.080	6.937	4.695	2.242	384	1.363
1983	6.622	1.095	7.248	4.882	2.366	379	1.450
1984	6.826	1.110	7.575	5.076	2.499	374	1.544
1985	7.041	1.125	7.924	5.285	2.639	369	1.644
1986	7.265	1.141	8.289	5.503	2.786	364	1.750
1987	7.564	1.157	8.749	5.768	2.981	363	1.875
1988	7.881	1.173	9.242	6.052	3.190	358	2.022
1989	8.222	1.189	9.774	6.356	3.418	353	2.184
1990	8.586	1.205	10.349	6.684	3.665	349	2.357
1991	8.978	1.222	10.972	7.037	3.935	345	2.546
1992	9.322	1.240	11.559	7.371	4.188	337	2.743
1993	9.671	1.259	12.173	7.720	4.453	332	2.939
1994	10.041	1.278	12.827	8.089	4.738	327	3.151
1995	10.431	1.296	13.522	8.482	5.040	323	3.372
1996	10.845	1.316	14.269	8.902	5.367	318	3.617
1997	11.130	1.335	14.859	9.241	5.618	309	3.837
1998	11.423	1.355	15.477	9.591	5.886	305	4.044
1999	11.728	1.376	16.133	9.966	6.167	300	4.268
2000	12.038	1.396	16.802	10.346	6.456	296	4.493
2001	12.366	1.416	17.513	10.750	6.763	292	4.734
2002	12.700	1.437	18.250	11.187	7.063	288	4.972
2003	13.043	1.459	19.030	11.665	7.365	284	5.214

1/ La tonelada de maíz tiene un precio de 992 córdobas a nivel de finca.

Cuadro No. 2

Frijoles: Valor Agregado Neto sin la Nueva Carretera

	Area			Consumo	Excedente	Costos de	Valor Agregado
	Cultivada	Rendimiento	Producción	Fincas	Exportable	Producción	Neto 1/
	Has.	Kg/Ha.	Ton.	Ton.	Ton.	C\$/Ton.	Miles C\$
1975	1.014	668	678	416	262	n.c.	n.c.
1976	1.049	668	701	426	275	n.c.	n.c.
1977	1.088	668	726	438	288	n.c.	n.c.
1978	1.128	668	753	449	304	n.c.	n.c.
1979	1.169	668	781	462	319	n.c.	n.c.
1980	1.213	668	811	475	336	n.c.	n.c.
1981	1.259	668	840	488	352	n.c.	n.c.
1982	1.312	669	878	503	375	937	739,9
1983	1.371	671	920	517	403	935	796,0
1984	1.431	673	963	532	431	933	852,0
1985	1.496	675	1.010	549	461	928	913,7
1986	1.563	677	1.058	567	491	927	973,7
1987	1.645	679	1.115	584	531	929	1.051,9
1988	1.731	681	1.178	605	573	933	1.133,8
1989	1.823	682	1.244	625	619	925	1.228,7
1990	1.922	684	1.315	645	670	923	1.330,0
1991	2.029	686	1.392	669	723	922	1.437,3
1992	2.118	690	1.461	689	772	910	1.544,0
1993	2.209	694	1.532	712	820	905	1.644,1
1994	2.306	697	1.608	733	875	900	1.758,8
1995	2.407	702	1.689	757	932	895	1.878,0
1996	2.515	706	1.775	782	993	890	2.005,0
1997	2.576	709	1.827	802	1.025	873	2.087,9
1998	2.639	713	1.882	821	1.061	869	2.165,5
1999	2.703	718	1.940	841	1.099	863	2.249,7
2000	2.770	721	1.998	862	1.136	859	2.329,0
2000	2.839	725	2.059	883	1.176	854	2.417,9
2002	2.910	729	2.121	910	1.211	850	2.494,7
2003	2.983	734	2.190	940	1.250	845	2.581,2

1/ La tonelada de frijoles tiene un precio de 2.910 córdobas a nivel de finca.

Cuadro No. 3

Arroz: Valor Agregado Neto sin la Nueva Carretera

	Area Cultivada Has.	Rendimiento Kg./Ha.	Producción Ton.	Consumo Finca Ton.	Excedente Exportable Ton.	Costos de Producción C\$/Ton.	Valor Agre- gado neto 1/ Miles C\$
1975	391	2.208	863	156	707	n.c.	n.c.
1976	422	2.243	947	172	775	n.c.	n.c.
1977	456	2.279	1.039	188	851	n.c.	n.c.
1978	492	2.316	1.139	205	934	n.c.	n.c.
1979	532	2.353	1.252	224	1.028	n.c.	n.c.
1980	574	2.390	1.372	245	1.127	n.c.	n.c.
1981	620	2.429	1.506	268	1.238	n.c.	n.c.
1982	682	2.467	1.682	298	1.384	309	3.325,8
1983	750	2.507	1.880	332	1.548	304	3.727,6
1984	825	2.547	2.101	370	1.731	299	4.176,9
1985	908	2.588	2.350	412	1.938	294	4.686,0
1986	998	2.629	2.624	459	2.165	289	5.245,8
1987	1.058	2.671	2.826	493	2.333	279	5.676,2
1988	1.121	2.714	3.042	531	2.511	275	6.119,3
1989	1.189	2.757	3.278	571	2.707	271	6.607,8
1990	1.260	2.801	3.529	614	2.915	267	7.127,2
1991	1.335	2.846	3.799	660	3.139	262	7.690,6
1992	1.402	2.874	4.029	700	3.329	258	8.069,5
1993	1.472	2.903	4.273	741	3.532	256	8.674,6
1994	1.545	2.932	4.530	785	3.745	253	9.209,0
1995	1.623	2.961	4.806	833	3.973	251	9.777,6
1996	1.704	2.991	5.098	883	4.215	248	10.385,8
1997	1.755	3.021	5.302	917	4.385	243	10.826,6
1998	1.808	3.051	5.516	953	4.563	241	11.275,2
1999	1.862	3.082	5.739	993	4.746	238	11.741,6
2000	1.918	3.113	5.971	1.032	4.939	236	12.229,0
2001	1.975	3.144	6.209	1.072	5.137	233	12.734,6
2002	2.034	3.175	6.460	1.118	5.342	231	13.786,9
2003	2.095	3.207	6.719	1.162	5.557	229	13.798,0

1/ La tonelada de arroz tiene un precio de 2.712 córdobas a nivel de finca.

Cuadro No. 4

Ganadería: Valor Agregado Neto sin la Nueva Carretera

Area	Rendimiento	Cantidad	Producción	Costos de	Valor Agregado
Has.	Cabezas/Ha.	Total	Anual <u>1/</u>	Producción	Neto <u>2/</u>
		Cabezas	Cabezas	C\$/Cabeza	Miles C\$
1975	32.161	1.18	37.950	3.985	n.c.
1976	33.769	1.18	39.847	4.184	n.c.
1977	35.458	1.18	41.840	4.393	n.c.
1978	37.203	1.18	43.900	4.609	n.c.
1979	39.092	1.18	46.129	4.843	n.c.
1980	41.046	1.18	48.434	5.086	n.c.
1981	43.099	1.18	50.857	5.340	n.c.
1982	44.823	1.20	53.788	5.917	369
1983	46.616	1.20	55.939	6.153	369
1984	48.480	1.20	58.176	6.399	369
1985	50.420	1.20	60.504	6.655	369
1986	52.436	1.20	62.923	6.922	369
1987	54.009	1.25	67.511	7.764	329
1988	55.630	1.25	69.538	7.997	329
1989	57.299	1.25	71.624	8.237	329
1990	59.018	1.25	73.773	8.484	329
1991	60.788	1.25	75.985	8.738	329
1992	62.004	1.25	77.505	9.300	296
1993	63.244	1.25	79.059	9.487	296
1994	64.509	1.25	80.636	9.676	296
1995	65.799	1.25	82.249	9.870	296
1996	67.115	1.25	83.894	10.067	296
1997	68.122	1.30	88.559	11.070	278
1998	29.143	1.30	89.886	11.236	278
1999	70.181	1.30	91.235	11.404	278
2000	71.233	1.30	92.603	11.575	278
2001	72.302	1.30	93.993	11.749	278
2002	73.386	1.30	95.402	11.925	278
2003	74.487	1.30	96.833	12.104	278

1/ Se asume igual al excedente exportable, ya que el consumo en las fincas es insignificante.

2/ La cabeza de ganado tiene un precio de 1.284 córdobas.

Cuadro No. 5

Maíz: Valor Agregado Neto con la Nueva Carretera

Area Cul- tivada Has.	Rendimientos		Produc- ción Ton.	Consumo Fincas Ton.	Excedente Exportable Ton.	Costos de Produc. 2/ C\$/Ton.	Valor Agre- gado Neto 3/ Miles C\$
	Tradi- cionales Kg./Ha.	Mejo- rados 1/ Kg./Ha.					
1975	5.209	986	-	5.136	3.595	1.541	n.c.
1976	5.363	999	-	5.358	3.732	1.626	n.c.
1977	5.524	1.012	-	5.590	3.875	1.715	n.c.
1978	5.692	1.025	-	5.833	4.025	1.808	n.c.
1979	5.865	1.038	-	6.088	4.149	1.939	n.c.
1980	6.046	1.052	-	6.361	4.345	2.016	n.c.
1981	6.235	1.065	-	6.640	4.516	2.124	n.c.
1982	6.573	1.080	1.570	7.421	4.930	2.491	381
1983	6.934	1.095	1.570	7.922	5.126	2.796	376
1984	7.320	1.110	1.570	8.462	5.330	3.132	372
1985	7.737	1.126	1.570	9.055	5.549	3.506	368
1986	8.182	1.141	1.570	9.687	5.778	3.909	364
1987	8.770	1.157	1.570	11.233	6.056	5.177	348
1988	9.404	1.173	1.570	12.151	6.355	5.796	345
1989	10.088	1.189	1.570	13.148	6.674	6.474	342
1990	10.828	1.205	1.570	14.233	7.018	7.215	339
1991	11.626	1.222	1.570	15.421	7.389	8.032	336
1992	12.192	1.240	1.570	17.130	7.740	9.390	315
1993	12.790	1.259	1.570	18.091	8.106	9.985	313
1994	13.421	1.278	1.570	18.112	8.493	10.619	311
1995	14.088	1.296	1.570	20.188	8.906	11.282	309
1996	14.791	1.316	1.570	21.343	9.347	11.996	307
1997	15.180	1.335	1.570	22.762	9.703	13.059	294
1998	15.583	1.355	1.570	23.460	10.071	13.389	293
1999	15.999	1.376	1.570	24.187	10.464	13.723	291
2000	16.426	1.396	1.570	24.931	10.863	14.068	290
2001	16.869	1.416	1.570	25.705	11.288	14.417	289
2002	17.324	1.437	1.570	26.507	11.746	14.761	288
2003	17.792	1.459	1.570	27.341	12.248	15.093	287

1/ Los rendimientos mejorados se obtienen en un 10% del área cultivada a partir de 1987, 50% a partir de 1992 y 70% a partir de 1997.

2/ La tonelada de maíz tiene un precio de 992 córdobas.

3/ Se incluyen los costos de limpieza de tierras vírgenes.

Cuadro No. 6

Frijoles: Valor Agregado Neto con la Nueva Carretera

	Area Cul- tivada Has.	Rendimientos		Produc- ción Ton.	Consumo Fincas Ton.	Excedente Exportable Ton.	Costos de Produc. 2/ C\$/Ton.	Valor Agre- gado Neto 3/ Miles C\$
		Tradi- cionales Kg./Ha.	Mejo- rados 1/ Kg./Ha.					
1975	1.014	668	-	678	416	262	n.c.	n.c.
1976	1.049	668	-	701	426	275	n.c.	n.c.
1977	1.088	668	-	726	438	288	n.c.	n.c.
1978	1.128	668	-	753	449	304	n.c.	n.c.
1979	1.169	668	-	781	462	319	n.c.	n.c.
1980	1.213	668	-	811	475	336	n.c.	n.c.
1981	1.259	668	-	840	488	352	n.c.	n.c.
1982	1.339	669	886	925	528	397	945	786
1983	1.426	671	886	988	543	445	943	882
1984	1.521	673	886	1.056	559	497	942	986
1985	1.624	675	886	1.130	576	554	941	1.099
1986	1.735	677	886	1.211	595	616	939	1.223
1987	1.860	679	886	1.378	613	765	932	1.525
1988	1.995	681	886	1.481	635	846	931	1.687
1989	2.143	682	886	1.593	656	937	931	1.868
1990	2.306	684	886	1.717	677	1.040	929	2.076
1991	2.482	686	886	1.852	702	1.150	927	2.298
1992	2.603	690	886	2.051	723	1.328	901	2.688
1993	2.732	694	886	2.158	748	1.410	899	2.857
1994	2.868	697	886	2.270	770	1.500	896	3.044
1995	3.012	702	886	2.392	795	1.597	893	3.245
1996	3.164	706	886	2.519	821	1.698	889	3.457
1997	3.247	709	886	2.704	842	1.862	873	3.821
1998	3.333	713	886	2.780	862	1.918	871	3.940
1999	3.420	718	886	2.858	883	1.975	870	4.059
2000	3.511	721	886	2.937	905	2.032	867	4.182
2001	3.604	725	886	3.019	927	2.092	866	4.307
2002	3.701	729	886	3.105	956	2.149	864	4.429
2003	3.801	734	886	3.194	987	2.207	863	4.551

1/ Los rendimientos mejorados se obtienen en un 10% del área cultivada a partir de 1982, 30% a partir de 1987, 50% a partir de 1992 y 70% a partir de 1997.

2/ Se incluyen los costos de limpieza de tierras vírgenes.

3/ La tonelada de frijoles tiene un precio de 2.925 córdobas.

Cuadro No. 7

Arroz: Valor Agregado Neto con la Nueva Carretera

	Rendimientos			Produc- ción Ton.	Consumo Fincas Ton.	Excedente Exportable Ton.	Costo de Produc. 2/ C\$/Ton.	Valor Agre- gado Neto 3 Miles C\$
	Area Cul- tivada Has.	Tradi- cionales Kg./Ha.	Mejo- rados 1/ Kg./Ha.					
1975	391	2.208	-	863	156	707	n.c.	n.c.
1976	422	2.243	-	947	172	775	n.c.	n.c.
1977	456	2.279	-	1.039	188	851	n.c.	n.c.
1978	492	2.316	-	1.139	205	934	n.c.	n.c.
1979	532	2.353	-	1.252	224	1.028	n.c.	n.c.
1980	574	2.390	-	1.372	245	1.127	n.c.	n.c.
1981	620	2.429	-	1.506	268	1.238	n.c.	n.c.
1982	694	2.467	2.800	1.735	313	1.422	311	3.426
1983	778	2.507	2.814	1.974	349	1.625	308	3.931
1984	871	2.547	2.828	2.243	389	1.854	305	4.490
1985	975	2.588	2.842	2.548	433	2.115	300	5.133
1986	1.093	2.629	2.856	2.898	482	2.416	297	5.871
1987	1.202	2.671	2.871	3.283	518	2.765	298	6.716
1988	1.322	2.714	2.885	3.656	558	3.098	295	7.534
1989	1.455	2.757	2.899	4.073	600	3.473	293	8.453
1990	1.600	2.801	2.914	4.536	645	3.891	291	9.478
1991	1.760	2.846	2.929	5.053	693	4.360	289	10.630
1992	1.901	2.874	2.958	5.543	735	4.808	294	11.698
1993	2.053	2.903	2.988	6.047	778	5.269	293	12.825
1994	2.217	2.932	3.018	6.596	824	5.772	292	14.055
1995	2.394	2.961	3.048	7.193	875	6.318	291	15.391
1996	2.586	2.991	3.078	7.847	927	6.920	290	16.864
1997	2.715	3.021	3.109	8.369	963	7.406	291	18.041
1998	2.851	3.051	3.140	8.876	1.001	7.875	290	19.191
1999	2.994	3.083	3.172	9.417	1.043	8.374	289	20.416
2000	3.143	3.113	3.203	9.982	1.084	8.898	289	21.693
2001	3.300	3.144	3.235	10.585	1.126	9.459	288	23.071
2002	3.465	3.175	3.268	11.227	1.174	10.053	288	24.513
2003	3.638	3.207	3.300	11.904	1.220	10.684	287	26.069

1/ Los rendimientos mejorados se obtienen en un 10% del área cultivada a partir de 1982; 30% a partir de 1987, 50% a partir de 1992 y 70% a partir de 1997.

2/ Se incluyen los costos de limpieza de tierras vírgenes.

3/ La tonelada de arroz tiene un precio de 2.727 córdobas.

Cuadro No. 8

Ganadería: Valor Agregado Neto con la Nueva Carretera

Area	Rendimiento	Cantidad	Producción	Costos de	Valor Agregado
Has.	Cabezas/Ha.	Total	Anual <u>1/</u>	Producción	Neto <u>2/</u>
		Cabezas	Cabezas	C\$/Cabeza	Miles C\$
1975	32.161	1.18	37.950	3.985	n.c.
1976	33.769	1.18	39.847	4.184	n.c.
1977	35.458	1.18	41.840	4.393	n.c.
1978	37.203	1.18	43.900	4.609	n.c.
1979	39.092	1.18	46.129	4.843	n.c.
1980	41.046	1.18	48.434	5.086	n.c.
1981	43.099	1.18	50.857	5.340	n.c.
1982	47.409	1.25	59.261	6.815	523
1983	52.150	1.25	65.188	7.497	523
1984	57.365	1.25	71.706	8.246	523
1985	63.101	1.25	78.876	9.071	523
1986	69.411	1.25	86.763	9.978	523
1987	76.352	1.35	103.075	12.884	492
1988	83.987	1.35	113.382	14.172	492
1989	92.386	1.35	124.721	15.590	492
1990	101.625	1.35	137.193	17.149	492
1991	111.787	1.35	150.912	18.864	492
1992	117.376	1.45	170.195	22.125	359
1993	123.245	1.45	178.705	23.232	359
1994	129.408	1.45	187.642	24.393	359
1995	135.878	1.45	197.023	25.613	359
1996	142.672	1.45	206.874	26.894	359
1997	146.951	1.50	220.427	29.758	302
1998	151.360	1.50	227.040	30.650	302
1999	155.901	1.50	233.852	31.570	302
2000	160.578	1.50	240.867	32.517	302
2001	165.396	1.50	248.094	33.493	302
2002	170.358	1.50	255.537	34.497	302
2003	175.469	1.50	263.204	35.532	302

1/ Se asume igual al excedente exportable, ya que el consumo en las fincas es insignificante.

2/ La cabeza de ganado tiene un precio de 1.284 córdobas.

3/ Se incluyen los costos de limpieza de tierras vírgenes.

Cuadro No. 9

Leche: Valor Agregado Neto con la Nueva Carretera

	Vacas Lecheras Corredor 6 Km. Cabezas	Producción por Vaca Litros/Cab.	Producción Total 1/ Miles/Litros	Valor Agregado Neto 2/ Miles C\$
1982	971	470	456	365
1983	1.189	489	581	465
1984	1.448	508	736	588
1985	1.753	529	927	742
1986	2.115	550	1.163	931
1987	2.681	572	1.534	1.227
1988	3.138	595	1.867	1.495
1989	3.666	618	2.266	1.812
1990	4.275	643	2.749	2.199
1991	4.981	669	3.332	2.666
1992	5.995	696	4.173	3.338
1993	6.445	724	4.666	3.733
1994	6.941	752	5.220	4.176
1995	7.489	783	5.864	4.691
1996	8.095	814	6.589	5.271
1997	8.954	846	7.575	6.060
1998	9.478	880	8.341	6.673
1999	10.047	916	9.203	7.362
2000	10.666	952	10.559	8.447
2001	11.339	990	11.226	8.980
2002	12.053	1.030	12.415	9.932
2003	12.813	1.071	13.733	10.978

- 1/ Se asume igual al excedente exportable. El consumo local en el corredor sería compensado por la producción comercializable de fuera del corredor.
- 2/ El litro de leche tiene un precio de 1.0 córdobas a nivel de finca. Aquí se ha considerado un precio neto al agricultor de 0.80 córdobas por litro. Otros costos de producción están incluidos en los costos de producción del ganado.

Cuadro No. 10

Incrementos en el Valor Agregado Neto de la Producción Agrícola
Debidos a la Nueva Carretera Río Blanco-Siuna

(Miles de Córdoba)

	Maíz	Frijoles	Arroz	Ganado	Leche	Cultivos Complem.	Madera	Total
1982	159	46	110	-228	365	-	186	638
1983	272	86	203	75	465	90	186	1.377
1984	398	136	313	420	588	110	186	2.151
1985	543	185	447	814	742	134	186	3.051
1986	704	249	625	1.259	931	164	186	4.118
1987	1.459	473	1.040	2.789	1.227	201	186	7.375
1988	1.728	553	1.415	3.587	1.495	246	186	9.210
1989	2.024	639	1.845	4.481	1.812	301	186	11.288
1990	2.355	746	2.351	5.480	2.199	369	186	13.686
1991	2.723	861	2.939	6.595	2.666	454	186	16.424
1992	3.614	1.114	3.628	11.278	3.338	558	186	23.746
1993	3.841	1.213	4.150	12.117	3.733	687	186	25.927
1994	4.081	1.285	4.846	13.004	4.716	847	186	28.425
1995	4.334	1.367	5.613	13.940	4.691	1.045	186	31.176
1996	4.600	1.451	6.478	14.930	5.271	1.293	186	34.209
1997	5.278	1.733	7.214	18.086	6.060	1.601	186	40.158
1998	5.315	1.774	7.916	18.795	6.673	1.987	186	42.646
1999	5.352	1.809	8.674	19.530	7.362	2.471	186	45.384
2000	5.382	1.852	9.464	20.288	8.447	3.079	186	48.698
2001	5.401	1.889	10.336	21.071	8.980	3.847	186	51.710
2002	5.420	1.934	10.732	21.879	9.932	4.809	186	54.892
2003	5.427	1.970	12.271	22.715	10.978	6.011	186	59.558

TRAFICO MARITIMO Y AEREO DESVIADO POR EL PROYECTOCUADRO No. 1CARGA MARITIMA ENTRE MANAGUA Y PUERTO CABEZAS
(toneladas)

	<u>Hacia Puerto Cabezas</u>	<u>Desde Puerto Cabezas</u>	<u>Total</u>
1971	5.118	1.382	6.500
1972	5.471	1.558	7.029
1973	5.970	2.997	8.967
1974	6.530	5.137	11.667
1975	7.386	2.841	10.227
1976	6.744	2.927	9.671
Tasa de crecimiento	5,7%	16,2%	8,3%

Fuente: Aduana de El Bluff.

Cuadro No. 2

Beneficios Debidos al Tráfico Marítimo Desviado Hacia la Carretera

	Carga hacia Puerto Cabezas Ton.	Carga desde Puerto Cabezas Ton.	Total Ton.	Desviada hacia carretera <u>1/</u> Ton.	Beneficios <u>2/</u> Miles C\$
1983	10.194	6.629	16.823	10.094	3.230
1984	10.704	7.159	17.863	10.718	3.430
1985	11.239	7.732	18.971	11.383	3.643
1986	11.801	8.351	20.152	12.091	3.869
1987	12.391	9.019	21.410	12.846	4.110
1988	13.011	9.740	22.751	13.651	4.368
1989	13.661	10.519	24.180	14.508	4.643
1990	14.345	11.361	25.706	15.424	4.936
1991	15.062	12.270	27.332	16.399	5.248
1992	15.815	13.251	29.066	17.440	5.581
1993	16.606	14.312	30.819	18.551	5.936
1994	17.436	15.456	32.892	19.735	6.315
1995	18.308	16.693	35.001	21.001	6.720
1996	19.223	18.028	37.251	22.351	7.152
1997	20.184	19.471	39.655	23.793	7.614
1998	21.193	21.038	42.221	25.333	8.107
1999	22.253	22.711	44.964	26.978	8.633
2000	23.366	24.527	47.893	28.736	9.196
2001	24.534	26.490	51.024	30.614	9.797
2002	25.761	28.609	54.370	32.622	10.439
2003	27.049	30.898	57.947	34.768	11.126

1/ El 60% de la carga proyectada.

2/ Los ahorros por tonelada ascienden a C\$320.

CUADRO No. 3

TRAFICO AEREO DE PASAJEROS Y CARGA ENTRE MANAGUA
Y LOS AEROPUERTOS INDICADOS

	<u>1974</u>	<u>1975</u>	<u>1976</u>
1. <u>Siuna</u>			
a. Pasajeros	6.072	6.674	8.107
b. Carga: <u>1/</u> de Managua	711	857	880
a Managua	166	230	225
2. <u>Bonanza</u>			
a. Pasajeros	2.594	2.855	3.441
b. Carga: <u>1/</u> de Managua	422	418	483
a Managua	69	71	71
3. <u>Waspán</u>			
a. Pasajeros	2.554	3.229	3.394
b. Carga: <u>1/</u> de Managua	299	298	365
a Managua	19	16	16
4. <u>Puerto Cabezas</u>			
a. Pasajeros	5.685	7.085	7.469
b. Carga: <u>1/</u> de Managua	815	893	1.310
a Managua	95	132	184
5. <u>TOTAL</u>			
a. Pasajeros	16.905	19.843	22.411
b. Carga: <u>1/</u> de Managua	2.246	2.464	3.039
a Managua	349	449	496

1/ Toneladas cortas; equivalentes a 2.000 libras.

Fuente: Departamento de Estadística, Administración Aeropuerto Internacional
"Las Mercedes".

Cuadro No. 4

Beneficios Debidos al Trafico Aereo de Pasajeros Desviado Hacia la Carretera

Pasajeros Desviados					Beneficios de los Pasajeros Desviados					
					Puerto	Puerto				
Siuna	Bonanza	Waspán	Cabezas	Total	Siuna 2/ Miles C\$	Bonanza 3/ Miles C\$	Waspán 4/ Miles C\$	Cabezas 5/ Miles C\$	Total Miles C\$	
1983	4.563	1.936	1.910	4.204	12.613	319	132	178	433	1.062
1984	7.491	2.033	2.005	4.414	13.243	335	138	187	455	1.115
1985	5.031	2.135	2.106	4.635	13.907	352	145	196	477	1.171
1986	5.282	2.241	2.211	4.867	14.601	370	152	206	501	1.229
1987	5.547	2.353	2.321	5.110	15.531	388	160	216	526	1.290
1988	5.824	2.471	2.438	5.366	16.099	408	168	227	553	1.355
1989	6.115	2.595	2.559	5.634	16.903	428	177	238	580	1.423
1990	6.421	2.724	2.687	5.916	17.748	450	185	250	609	1.494
1991	6.742	2.861	2.822	6.211	18.636	472	195	262	640	1.569
1992	7.079	3.004	2.963	6.522	18.568	496	204	276	672	1.647
1993	7.433	3.154	3.111	6.848	20.546	520	215	289	705	1.729
1994	7.805	3.311	3.267	7.191	21.574	546	225	304	741	1.816
1995	8.195	3.477	3.430	7.550	22.652	574	236	319	778	1.907
1996	8.605	3.657	3.601	7.928	23.785	602	248	335	817	2.002
1997	9.035	3.833	3.781	8.324	24.793	632	261	352	857	2.102
1998	9.487	4.025	3.971	8.740	26.223	664	274	369	900	2.207
1999	9.961	4.226	4.169	9.177	27.533	697	287	388	945	2.318
2000	10.459	4.438	4.378	9.636	28.911	732	302	407	993	2.434
2001	10.982	4.660	4.596	10.118	30.356	769	317	427	1.042	2.551
2002	11.530	4.894	4.827	10.623	31.874	807	333	449	1.094	2.683
2003	12.107	5.139	5.068	11.154	33.468	847	349	471	1.149	2.816

- 1/ El 40% de los pasajeros aéreos proyectados.
- 2/ Los ahorros por pasajero ascienden a C\$70.
- 3/ Los ahorros por pasajero ascienden a C\$68.
- 4/ Los ahorros por pasajero ascienden a C\$93.
- 5/ Los ahorros por pasajero ascienden a C\$103.

Cuadro No. 5

Beneficios Debidos al Tráfico Aéreo de Carga Desviado Hacia la Carretera

Carga Desviada <u>1/</u>					Beneficios de la Carga Desviada				
Puerto					Puerto				
Siuna	Bonanza	Waspán	Cabezas	Total	Siuna <u>2/</u>	Bonanza <u>3/</u>	Waspán <u>4/</u>	Cabezas <u>5/</u>	Total
Ton.	Ton.	Ton.	Ton.	Ton.	Miles C\$	Miles C\$	Miles C\$	Miles C\$	Miles C\$
1.557	712	490	2.432	5.191	1.020	458	300	1.518	3.290
1.689	762	523	2.694	5.668	1.106	490	320	1.681	3.597
1.831	814	560	2.968	6.194	1.199	523	343	1.863	3.928
1.986	872	599	3.310	6.767	1.300	561	367	2.065	4.294
2.155	933	642	3.670	7.400	1.411	600	393	2.290	4.694
2.338	998	686	4.072	8.094	1.531	642	420	2.541	5.134
2.536	1.068	734	4.518	8.856	1.661	687	449	2.819	5.616
2.751	1.142	786	5.016	9.695	1.802	734	481	3.130	6.147
2.985	1.223	841	5.569	10.618	1.955	786	515	3.475	6.731
3.239	1.309	899	6.185	11.632	2.122	842	550	3.859	7.373
3.514	1.400	962	6.872	12.748	2.302	900	589	4.288	8.079
3.814	1.498	1.030	7.638	13.980	2.498	963	630	4.766	8.858
4.139	1.603	1.102	8.493	15.337	2.711	1.031	674	5.300	9.716
4.493	1.715	1.179	9.446	16.833	2.943	1.102	722	5.804	10.667
4.876	1.835	1.262	10.510	28.483	3.194	1.780	772	6.558	12.304
5.292	1.964	1.350	11.700	20.306	3.466	1.263	826	7.301	12.856
5.746	2.102	1.445	13.028	22.321	3.764	1.352	884	8.130	14.126
6.237	2.248	1.546	14.513	24.544	4.085	1.446	946	9.056	15.537
6.772	2.405	1.654	16.174	27.005	4.436	1.546	1.012	10.093	17.081
7.354	2.573	1.770	17.790	29.487	4.817	1.654	1.083	11.101	18.651
7.985	2.754	1.894	19.570	32.203	5.230	1.771	1.159	12.212	20.372

30% de la carga proyectada.

ahorros por tonelada ascienden a C\$655.

ahorros por tonelada ascienden a C\$643.

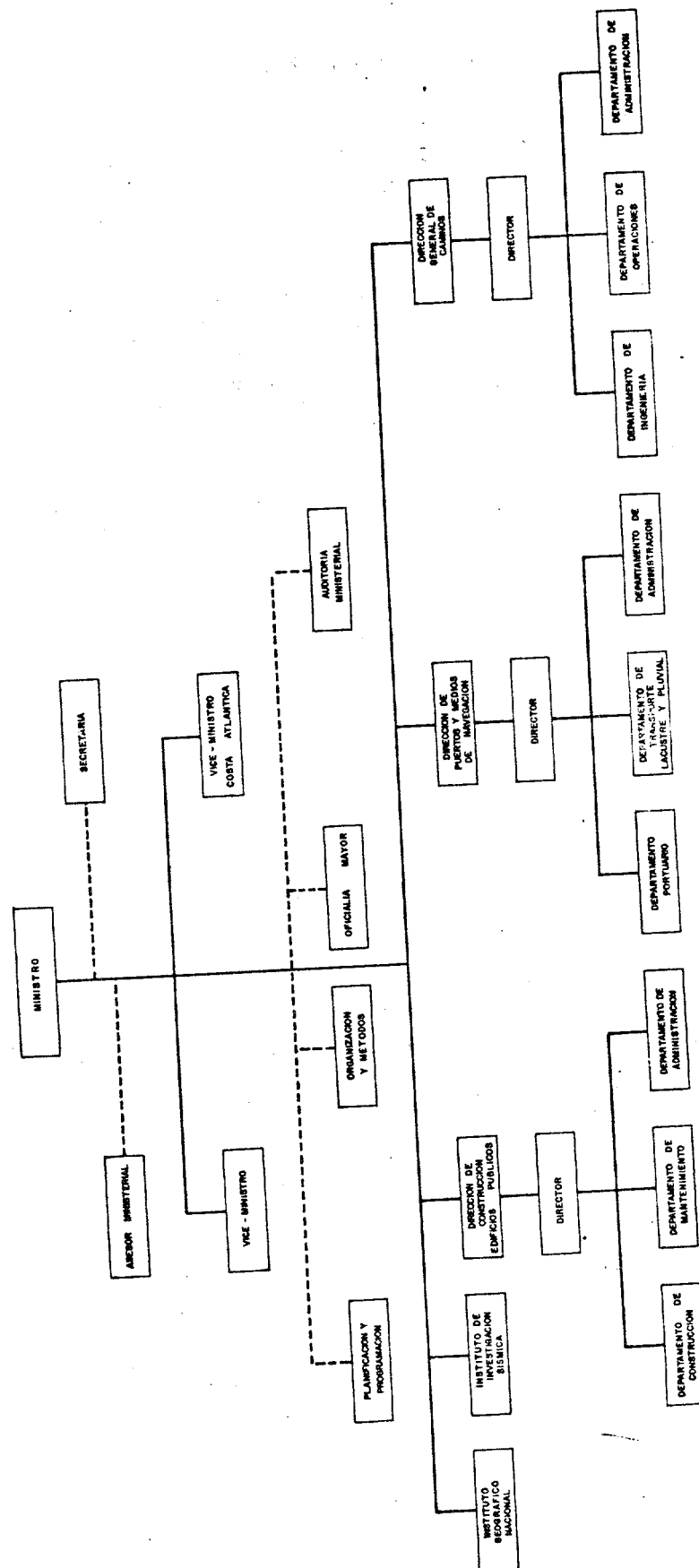
ahorros por tonelada ascienden a C\$612.

ahorros por tonelada ascienden a C\$624.

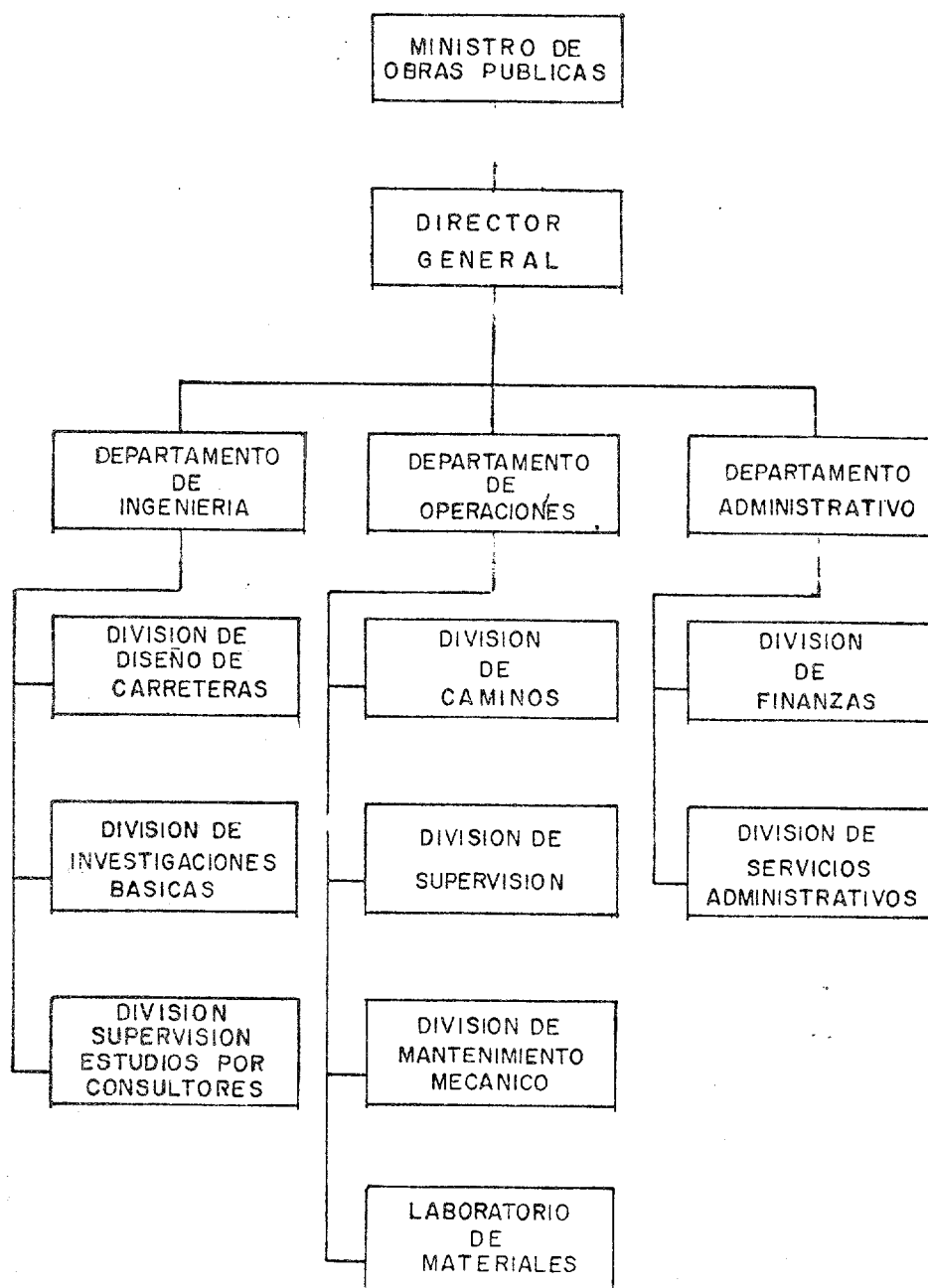
CALCULO DEL COSTO DE LOS USUARIOS PARA EL
TRAFICO DESVIADO POR EL PROYECTO

Tramos	Distancia (Km)	Costo por Vehículo	
		Camión 8 Ton. (Córdobas)	Buses
A. <u>Parciales</u>			
1. Managua-Tipitapa	11,0	11,23	42,37
2. Tipitapa-San Benito	13,0	13,25	50,09
3. S. Benito-Monte Grande	38,9	39,54	139,85
4. Monte Grande-Boaco	15,7	20,73	66,30
5. Boaco-San Luis	7,6	10,03	32,09
6. San Luis-Muy Muy	44,0	50,94	190,74
7. Muy Muy-Matiguás	33,4	44,11	141,05
8. Matiguás-Río Blanco	37,0	48,86	156,26
9. Río Blanco-río Tuma	47,7	67,61	208,92
10. Río Tuma-río Prinzapolka	52,8	64,48	186,12
11. Río Prinzapolka-Siuna	15,9	22,55	69,70
12. Siuna-La Rosita	85,0	102,83	351,06
13. Siuna-Bonanza	75,0	90,99	368,05
14. La Rosita-Yulú	100,0	120,97	413,01
15. Yulú-Puerto Cabezas	20,0	24,19	82,60
15. Yulú-Waspán	98,0	118,5	394,76
B. <u>Totales</u>			
1. Managua-Puerto Cabezas	522,0	641,30	2.130,16
2. Managua-Waspán	600,0	735,60	2.442,32
3. Managua-Bonanza	392,0	484,30	1.651,54
4. Managua-Siuna	317,0	393,31	1.283,49

ORGANIGRAMA DEL MINISTERIO DE OBRAS PUBLICAS



MINISTERIO DE OBRAS PUBLICAS
DIRECCION GENERAL DE CAMINOS
ORGANIGRAMA



República de Nicaragua
Dirección General de Caminos
Ejecución Presupuestaria 1973-1976
(En miles de US\$)

	1973			1974			1975			1976		
	Presu- puesto	Ejecu- ción	%	Presu- puesto	Ejecu- ción	%	Presu- puesto	Ejecu- ción	%	Presu- puesto	Ejecu- ción	%
Administración	848	833	98	840	917	109	979	954	97	958	957	99
Carreteras y	180	176	98	211	200	95	278	227	82	258	238	92
Diseño de Carreteras	173	172	99	386	395	102	486	439	90	474	449	95
Mantenimiento de Carreteras	1.959	1.959	100	3.020	3.790	125	6.115	5.672	93	5.391	5.384	100
Mantenimiento Mecánico	656	653	99	408	378	93	1.016	918	90	1.335	1.296	97
Gasto Corriente	3.816	3.793	99	4.865	5.680	117	8.874	8.210	93	8.426	8.324	99
Inversión	12.877	7.469	58	15.236	12.295	81	20.125	13.238	66	18.095	14.143	78
Administración Nacional, de y Limpieza	1.678	423	25	1.768	3.808	215	530	503	95	-	-	-
Inversión	14.555	7.892	54	17.004	16.103	95	20.655	13.741	67	18.095	14.143	78
	18.371	11.685	64	21.869	21.783	100	29.529	21.951	74	26.521	22.467	85

Cambio: Córdobas 7 = US\$1.00

Bases para la Formulación de la Proyección Financiera

1. La proyección financiera presentada incluye sólo los años de ejecución del proyecto en estudio.
2. Los valores consignados como "requerimientos de recursos" para el año 1978 constituyen los mínimos esperados sean aprobados, según lo manifestado por la Dirección de Planificación y Programación del MOP.
3. La proyección financiera se ha dividido en dos grandes áreas: (i) requerimiento de recursos; y (ii) disponibilidad de recursos para una mejor presentación.
4. La proyección financiera de "requerimientos de recursos" que se incluye en este documento se formuló con base a aquella preparada y enviada por la Dirección de Planificación y Programación del MOP con la colaboración de los Especialistas del Banco en la Representación.
5. La proyección de requerimientos de recursos se basa en los siguientes supuestos:
 - (a) Gastos de funcionamiento. Se tomó como base la tasa de crecimiento anual de la asignación presupuestaria para 1977 respecto al anteproyecto de presupuesto para 1978, tasa de crecimiento que se mantiene como constante a lo largo del período proyectado. Las tasas utilizadas son:

<u>Programa</u>	<u>Tasa anual de crecimiento</u>
Dirección y Administración	10%
Supervisión de carreteras y caminos	5%
Estudios y diseños	12%
Mantenimiento mecánico	15,6%

El rubro de mantenimiento de caminos se ha preparado de acuerdo al Plan Nacional de Transportes.

- (b) Gastos de Inversión. Para la elaboración del presupuesto de requerimientos de recursos a ser invertidos en obras se tomó como base la ejecución de obras, de acuerdo al Plan Nacional de Transportes, que se podían ejecutar con los recursos esperados de acuerdo al Plan Decenal del MOP. Ver Apéndice L donde se detalla los programas de obras a ejecutarse.
6. La proyección de disponibilidad de recursos se basa en los siguientes supuestos:

- (a) Recursos Nacionales. Se ha estimado que la DGC contaría, por lo menos, con igual aporte de recursos nacionales a los obtenidos en 1977. Por ello se ha presupuestado como mínimo US\$7,2 millones para gasto de funcionamiento y US\$6,4 millones para la ejecución de obras totalmente financiadas con recursos nacionales y contrapartida local para obras en ejecución con recursos mixtos.
- (b) Recursos Externos. Los recursos externos de préstamos negociados (ver Apéndice M) fueron distribuidos de acuerdo al cronograma de ejecución de las obras para los que fueron otorgados. Aquí se incluyen US\$18,0 millones del préstamo 491/SF-NI que fuera otorgado por el Banco a Nicaragua para el proyecto, en ejecución, de Caminos Vecinales II.

Los créditos a negociarse por US\$147,9 millones, de los que se estima se utilizarían en el período US\$84,4 millones, provendrían de las siguientes instituciones:

<u>Institución</u>	<u>Importe a Negociarse</u>	<u>Monto que se Utilizaría</u>	<u>Período de Utilización</u>
- Banco Interamericano de Desarrollo			
- Caminos Vecinales III	50.000,0	16.344,3	1981/82
- Estudios Caminos Vecinales III	2.043,5	2.043,5	1979/80
- Estudios Caminos Vecinales IV	<u>2.800,0</u>	<u>2.800,0</u>	1981/82
Total	54.843,5	21.187,8	
- Banco Centroamericano de Integración Económica (diversos proyectos y estudios)	80.986,5	51.157,2	1978/82
- AID	6.037,0	6.037,0	1978
- Banca Japonesa	5.000,0	5.000,0	1981/82
- Banco de España	<u>1.040,0</u>	<u>1.040,0</u>	1978/79
Total	<u>147.907,0</u>	<u>84.422,0</u>	

Se incluye asimismo, entre los recursos externos, el préstamo a contra-
tarse con el Banco para el financiamiento del Proyecto que nos ocupa
por el equivalente a US\$32,0 millones. Las condiciones supuestas para
este préstamo son:

<u>Concepto</u>		
Monto de los recursos		
- Fondo para Operaciones Especiales		US\$32,0 millones
Intereses (financiados con recursos del préstamo)		
- en el período de gracia		1%
- en el período de amortización		2%
Plazo		40 años
Período de gracia		10 años
Comisión de crédito (a financiar con recursos locales)		1/2 de 1%
Plazo de desembolso		5 años

7. Servicio de la deuda. El sistema presupuestario vigente en Nicaragua concentra los servicios de la deuda de los sectores en el pliego del presupuesto del Ministerio de Hacienda, por ello aquí no se incluyen dichos pagos.

DIRECCION GENERAL DE CAMINOS

PROMOSTICO DE REQUERIMIENTOS Y DISPONIBILIDAD DE FONDOS

Cuadro No. 1: Requerimientos de Fondos

(En miles de US\$ o equivalente)

APENDICE K

	Presupuesto 1977	PROYECCION				Total 1978/82
		1978	1979	1980	1981	
I. Gastos de funcionamiento						
Dirección y administración	881,2	969,3	1.066,2	1.172,9	1.290,2	5.917,8
Supervisión de carreteras y caminos	290,0	304,5	319,7	335,7	352,5	1.682,5
Estudios y diseños	335,3	375,5	420,6	471,1	527,6	2.385,7
Mantenimiento de caminos	5.265,3	8.917,2	9.808,9	10.789,8	11.868,8	54.440,4
Mantenimiento mecánico	484,3	559,8	647,1	747,9	864,5	3.818,6
Total gastos de funcionamiento	7.256,1	11.126,3	12.262,5	13.517,4	14.903,6	68.245,0
II. Gastos de inversión						
A. Proyectos en ejecución						
Carreteras pavimentadas	4.595,8	2.205,1	-	-	-	2.205,1
Caminos secundarios	5.168,4	3.420,2	728,5	-	-	4.148,7
Caminos vecinales 1/	3.210,5	8.839,5	8.610,5	3.181,5	469,5	21.101,0
Estudios	1.579,1	-	-	-	-	-
Total proyectos en ejecución	14.553,8	14.464,8	9.339,0	3.181,5	469,5	27.454,8
B. Proyectos a ejecutarse						
Carreteras pavimentadas 2/	-	6.122,1	6.026,8	6.026,9	18.727,0	50.296,7
Caminos secundarios	-	1.000,0	2.880,4	9.221,8	9.028,8	25.475,4
Caminos vecinales	-	8.520,0	8.520,0	8.520,0	10.215,4	45.990,4
Estudios	-	1.320,2	3.783,5	2.813,9	1.826,8	11.494,4
Parcial	-	16.962,3	21.210,7	26.582,6	39.798,0	133.256,9
C. Proyecto Río Blanco-Siuna	-	330,0	9.170,0	10.620,0	10.720,0	43.000,0
Total proyectos a ejecutarse	-	17.292,3	30.380,7	37.202,6	50.518,0	175.250,3
Total gastos de inversión	14.553,8	31.757,1	39.719,7	40.384,1	50.987,5	203.711,7
Total requerimiento de fondos	21.809,9	42.883,4	51.982,2	53.901,5	65.891,1	271.956,7

1/ Incluye Caminos Vecinales II. (Préstamo 491/SF-NI)

2/ Incluye proyectos del Programa de Reconstrucción de Acción Inmediata (PRAI).

Cuadro No. 2: Disponibilidad de Fondos

(En miles de US\$ o equivalente)

	Presupuesto 1977	P R O Y E C C I O N					Total 1978/9
		1978	1979	1980	1981	1982	
<u>de funcionamiento</u>	7.256,1	7.256,1	7.256,1	7.256,1	7.256,1	7.256,1	36.280
<u>de inversión en proyectos</u>							
<u>Recursos Nacionales</u>							
Contrapartida local para							
Caminos Vecinales II	-	522,0	832,0	1.137,0	1.329,0	680,0	4.500
Otros Proyectos	6.420,6	5.898,6	8.588,6	5.283,6	5.091,6	5.740,6	27.603
Total Recursos Nacionales	6.420,6	6.420,6	6.420,6	6.420,6	6.420,6	6.420,6	32.103
<u>Recursos Externos</u>							
Préstamos negociados	8.133,2	17.473,8	8.069,5	2.547,0	375,0	-	28.465
Préstamos a negociarse	-	6.557,2	9.787,1	14.366,5	31.775,0	21.936,2	84.422
Proyecto Río Blanco-Siuna		280,0	6.770,0	7.910,0	8.020,0	9.020,0	32.000
Total recursos externos	8.133,2	24.311,0	24.626,6	24.823,5	40.170,0	30.956,2	144.887
Fondos disponibles inversión	14.553,8	30.731,6	31.047,2	31.244,1	46.590,6	37.376,8	176.990
<u>Disponibilidad de Fondos</u>	21.809,9	37.987,7	38.303,3	38.500,2	53.846,7	44.632,9	213.270
=====							
<u>Recursos Nacionales a ser proveídos adi-</u>							
<u>amente cada año</u> (Requerimientos-							
disponibilidades)	-	4.895,7	13.678,9	15.401,3	12.044,4	12.665,6	58.685
<u>Adicional</u>	-	4.895,7	18.574,6	33.975,9	46.020,3	58.685,9	=====

Cuadro No. 3: Uso de los Fondos Nacionales a ser Proveídos

Fondos adicionales se invertirían:	(En miles de US\$ o equivalente)							
	1978	1979	1980	1981	1982	Total		
	US\$	US\$	US\$	US\$	US\$	US\$	%	
A) Aumentos en gastos de funcionamiento	3.870,2	5.006,4	6.261,3	7.647,5	9.179,1	31.964,5	54	
B) Proyectos, contra- partida nacional y estudios	995,5	6.272,5	6.430,0	1.696,9	346,5	15.721,4	27	
C) Aporte local pry. Río Blanco-Siuna (bajo estudio)	50,0	2.400,0	2.710,0	2.700,0	3.140,0	11.000,0	19	
Total uso fondos	4.895,7	13.678,9	15.401,3	12.044,4	12.665,6	58.685,9	100	

DIRECCION GENERAL DE CAMINOS
PROYECTOS A EJECUTARSE EN EL PERIODO 1980/82

(En miles de \$)

TOTALES			1 9 7 8			1 9 7 9			1 9 8 0			1 9 8 1			1 9 8 2		
Local	Externo	Total	Local	Externo	Total	Local	Externo	Total	Local	Externo	Total	Local	Externo	Total	Local	Externo	Total
85.1		85.1	85.1		85.1	245.9		245.9	245.9		245.9	301.2		301.2	301.2		301.2
491.8		491.8				447.6		447.6	447.7		447.7	1.122.7		1.122.7	1.122.8		1.122.8
895.3		895.3										1.124.6		1.124.6	1.124.7		1.124.7
602.4		602.4															
2.245.5		2.245.5															
2.249.3		2.249.3															
	6.037.0	6.037.0		6.037.0	6.037.0												
	16.000.0	16.000.0					5.333.3	5.333.3		5.333.3	5.333.3						
	10.908.3	10.908.3											5.333.4	5.333.4			
	5.782.0	5.782.0											5.454.1	5.454.1		5.454.2	5.454.2
	5.000.0	5.000.0											2.891.0	2.891.0		2.891.0	2.891.0
6.569.4	43.727.3	50.296.7	85.1	6.037.0	6.122.1	693.5	5.333.3	6.026.8	693.6	5.333.3	6.026.9	2.548.5	16.178.5	18.727.0	2.548.7	10.845.2	13.393.9
5.000.0	-	5.000.0	1.000.0	-	1.000.0	1.000.0	-	1.000.0	1.000.0	-	1.000.0	1.000.0	-	1.000.0	1.000.0	-	1.000.0
	16.312.5	16.312.5					1.180.4	1.180.4		6.965.7	6.965.7		5.947.4	5.947.4		1.519.0	1.519.0
1.398.8		1.398.8							699.4	-	699.4	699.4	-	699.4			
1.113.4		1.113.4							556.7	-	556.7	556.7	-	556.7			
699.4		699.4										349.7	-	349.7	349.7		
251.3		251.3										475.6	-	475.6	475.7		
9.612.9	16.312.5	25.925.4	1.000.0	-	1.000.0	1.000.0	1.880.4	2.880.4	2.256.1	6.965.7	9.221.8	3.001.4	5.947.4	9.028.8	1.825.4	1.519.0	3.344.4
4.086.1	16.344.3	20.430.4										2.043.1	8.172.3	10.215.4	2.043.0	8.172.0	10.215.0
22.560.0	-	22.560.0	8.520.0	-	8.520.0	8.520.0	-	8.520.0	8.520.0	-	8.520.0	2.043.1	8.172.3	10.215.4	2.043.0	8.172.0	10.215.0
29.646.1	16.344.3	45.990.4	8.520.0	-	8.520.0	8.520.0	-	8.520.0	8.520.0	-	8.520.0						
45.828.4	76.304.1	122.132.5	9.605.1	6.037.0	15.642.1	10.213.5	7.213.7	17.427.2	11.469.7	12.299.0	23.768.7	7.673.0	30.298.2	37.971.2	6.417.1	20.536.2	26.953.3
	300.0	300.0					300.0	300.0		307.0	307.0						
	607.0	607.0					300.0	300.0									
	304.0	304.0					192.0	192.0		192.0	192.0						
	125.0	125.0					62.5	62.5		62.5	62.5						
	354.0	354.0					177.0	177.0		177.0	177.0						
1.156.5	2.043.5	3.200.0				410.1	1.021.7	1.431.8	746.4	1.021.8	1.768.2						
	304.0	304.0								307.2	307.2						
	1.040.4	1.040.4											76.8	76.8			
				520.2	520.2		520.2	520.2									
1.600.0		1.600.0	800.0	-	800.0	800.0	-	800.0									
700.0	2.800.0	3.500.0										350.0	1.400.0	1.750.0	350.0	1.400.0	1.750.0
3.456.5	8.037.9	11.494.4	800.0	520.2	1.320.2	1.210.1	2.573.4	3.783.5	746.4	2.067.5	2.813.9	350.0	1.476.8	1.826.8	350.0	1.400.0	1.750.0
49.284.9	84.422.0	133.706.9	10.405.1	6.557.2	16.962.3	11.423.6	9.787.1	21.210.7	12.216.1	14.366.5	26.582.6	8.023.0	31.775.0	39.798.0	6.767.1	21.936.2	28.703.3

PRESTAMOS EXTERNOS D.G.C.
al 30.VI.77

(En miles de US\$)

<u>Para financiamiento de proyectos</u>	<u>CONTRATADO</u>	<u>UTILIZADO</u>	<u>DISPONIBLE</u>
Banco Interamericano de Desarrollo	34.250,0	16.144,7	18.105,3
Banco Centroamericano de Integración Económica	40.380,0	30.115,8	10.264,2
Agencia para el Desarrollo Internacional	19.007,2	12.848,0	6.159,2
Canadian International Development Ag.	1.900,0	1.900,0	-
EXIMBANK	4.850,0	4.850,0	-
Subtotal	100.387,2	65.858,5	34.528,7
<u>Para funcionamiento equipo</u>			
EXIMBANK	3.200,0	3.200,0	-
Banco de América San Francisco	3.600,0	3.600,0	-
Bank of America Managua	1.200,0	1.200,0	-
Banco de Brasil	2.700,0	2.700,0	-
City Bank	25.000,0	18.000,0	7.000,0
Banco de España	80.000,0	40.000,0	40.000,0
Subtotal	115.700,0	68.700,0	47.000,0
<u>Total financiamiento externo</u>	<u>216.087,2</u>	<u>134.558,5</u>	<u>81.528,7</u>

APENDICE M