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# AGENDA

PR-1407  
7 December 1984  
Original: English

TO: The Board of Executive Directors

FROM: The Secretary

SUBJECT: Brazil. Loan proposal for the Porto Velho-Rio Branco road improvement project

Attached for your consideration is a proposal for loans to the Federative Republic of Brazil in an amount equivalent to US\$44,000,000 in foreign exchange from the interregional capital resources, the equivalent of US\$14,500,000 in cruzeiros from the ordinary capital resources, and US\$14,500,000, also in cruzeiros, from the Fund for Special Operations, for the Porto Velho-Rio Branco road improvement project.

Any questions or requests for additional information concerning this proposal may be directed to Mr. Gerard Johnson, Office of the Deputy Operations Manager, Región III, Division 9 (extension 48323). Oral presentation of this document has been tentatively scheduled for the January 9, 1985 meeting of the Committee of the Whole.

To expedite consideration of this matter in the Committee of the Whole, those Executive Directors who wish to do so may send to the Secretariat, by Friday, January 4, a list of the questions they plan to raise at the meeting. The Secretariat will distribute the observations from the Executive Directors on Monday, January 7. If there is agreement on this operation in the Committee of the Whole, it will be submitted for approval of the Board of Executive Directors at a forthcoming meeting.

Other distribution:

Managers and Advisors  
Division Chiefs  
Representative in Brazil

B R A S I L

PORTO VELHO - RIO BRANCO ROAD IMPROVEMNT PROJECT

(BR-0066)

LOAN PROPOSAL

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# BRASIL

## SINOPSIS ESTADISTICA\*

Extensión territorial (Km2).....	8.511.965		
Población total (mlas de habitantes, 1983).....	128.226		
Porcentaje población urbana (1980) 67,6; rural (1983).....	32,4		
Tasa anual de crecimiento demográfico, promedio 1970-83.....	2,5		
Natalidad por mil habitantes (1980).....	23,3		
Mortalidad general por mil habitantes (1980).....	6,8		
Mortalidad infantil por mil nacidos (1980).....	68,1		
Años de expectativa de vida al nacer (1976).....	60,5		
Alfabetismo (1980).....	68,7		
Fuerza de trabajo por sectores (1980):			
Agricultura.....	29,9		
Industria.....	24,4		
Comercio.....	9,4		
Servicios.....	16,2		
Otros.....	20,1		
	<u>1981</u>	<u>1982</u>	<u>1983**</u>
Producción real	(Tasas de crecimiento)		
PIB total (precios de mercado).....	-1,9	1,4	-3,3
Sector agropecuario.....	6,8	-2,5	2,2
Sector minero.....	2,0	8,7	14,5
Sector manufacturero.....	-10,5	0,1	-6,3
Sector construcción.....	-4,5	0,8	-8,0
Sector Público Federal	(% del PIB)		
Ingresos corrientes.....	27,8	25,4	n.d.
Gastos corrientes.....	29,4	25,7	n.d.
Ahorro corriente.....	-1,6	-0,3	n.d.
Gastos de capital.....	5,5	5,9	n.d.
Déficit o superávit.....	-7,1	-6,2	-1,7
Moneda y precios	(Tasas de crecimiento)		
Precios al consumidor.....	91,2	97,9	179,1
Oferta monetaria.....	74,7	69,7	92,0
Tipo de cambio promedio			
(Unidades de moneda nacional por dólar).....	93,1	179,5	577,0
Balanza de pagos	(Millones de dólares)		
Exportaciones de bienes (FOB).....	23.341	20.849	21.899
Importaciones de bienes (FOB).....	-22.100	-20.034	-15.429
Balanza comercial.....	1.241	815	6.470
Servicios netos.....	-13.201	-17.675	-12.748
Saldo en cuenta corriente.....	-11.762	-16.868	-6.171
Capital oficial.....	74	5.832	n.d.
Capital privado.....	7.705	4.457	n.d.
Variación de reservas netas (- aumento).....	-675	5.427	3.330
Deuda pública y privada externa	(Millones de dólares)		
Deuda desembolsada (incluye la deuda no registrada).....	71.878	83.205	91.162
Servicio de la deuda (interés y amortización pagada).....	16.657	19.537	14.534
Servicio de la deuda de mediano y largo plazo			
como % de las exportaciones de bienes			
y servicios no-factoriales.....	65,0	86,0	51,6

\* Las cifras aquí presentadas han sido tomadas de las fuentes que se indican en la página siguiente. Cualquier aclaración o interpretación deberá ser referida directamente a la fuente correspondiente.

\*\* Estimación preliminar.

n.d. No disponible.

INTER-AMERICAN DEVELOPMENT BANK  
OPERATIONS DEPARTMENT  
REGION III, DIVISION 9

DNER: Porto Velho - Rio Branco Road Improvement Project

BRAZIL

Loan Proposal  
(BR-0066)

I. BASIC INFORMATION

A. Background

- 1.01 The proposed road improvement project, currently the subject of this document, was first presented to the Bank as one component of a larger intermodal regional project that contemplated a series of investments in roads, waterways and ports that would benefit Bolivia, Peru, Paraguay and Brazil. The Brazilian authorities first approached the Bank regarding the regional project in 1981.
- 1.02 In order to estimate the distribution of project benefits between the four countries, in 1982 the Bank financed a study by the Institute for the Integration of Latin America (INTAL), which was supplemented in 1983 by a complementary study prepared by the Brazilian authorities. Further studies of the project's potential impact on regional integration as well as designs and plans for its various components are still being prepared.
- 1.03 While the preparation of studies and plans for the regional project continued, the Brazilian authorities in April of 1984 communicated their interest in obtaining Bank financing for an independent component of the larger regional project, for which final engineering designs and construction plans were already completed and whose nature permitted a separate appraisal. The project in question contemplates upgrading the existing Porto Velho - Rio Branco dirt road to an all weather road so as to better integrate the state of Acre with the rest of the country.

B. Priority

- 1.04 Confirmation of the priority assigned the proposed project was communicated to the Bank on April 17, 1984, by the Brazilian Ministry of Planning.

C. Bank Missions

- 1.05 A Bank Orientation Mission was sent to Brazil from June 25 to July 2, 1984 to review the loan request and its supporting information with the appropriate Brazilian authorities. The Bank subsequently sent an Analysis Mission to Brazil between September 10 and 27, 1984, to gather the additional information required for the appraisal of the proposed project.

D. The Borrower

- 1.06 The Borrower of the proposed project would be the Federal Republic of Brazil, which would also provide all local counterpart resources. Project resources would be provided to the executing agency through budgetary transfers.

E. Executing Entities

- 1.07 The Ministry of Transport would execute the roadworks included in the project through its National Highway Department (DNER). The Ministry is responsible for formulating and executing the national transport policy. The execution of measures to mitigate possible adverse effects on the environment and indigenous groups would be the responsibility of the Economic and Social Planning Institute (IPEA), which is a public entities within the National Planning Secretariat (SEPLAN).

F. Objectives

- 1.08 The objective of the proposed project is to significantly improve the trunk highway system in the northern region of Brazil by providing year-round access to the State of Acre which is presently isolated by land during about five months of every year due to flooding of existing roads. In order to prevent and mitigate the adverse effects that improving the road could have on the environment and indigenous groups in the project area specific safeguards have been included in the project.

G. Description

- 1.09 The proposed project would attain the abovementioned objective by widening and paving the 502 kilometer section of Highway BR-364 between the cities of Porto Velho, Abunã and Rio Branco, including the improvement of 13 bridges and a ferry crossing.
- 1.10 The project would also include the establishment of an interinstitutional Technical Group that would implement Actions Plans including measures designed to prevent and mitigate the direct and indirect adverse effects on the physical environment and the indigenous population. (See Appendices).

H. Bank Loans

- 1.11 It is proposed that the Bank participate in financing the project through a US\$44 million loan in foreign exchange from the Bank's Interregional Capital, a loan for the equivalent of US\$14.5 million in local currency from the Bank's Ordinary Capital, and a third for the equivalent of US\$14.5 million also in local currency from the Bank's Special Fund.

I. Terms and Conditions

- 1.12 The terms and conditions for the proposed Bank financing would be as follows:

	<u>Foreign Exchange</u>	<u>Local Currency</u>	
	<u>IC</u>	<u>OC</u>	<u>SF</u>
Amortization Period	20 yrs	20 yrs	25 yrs
Grace Period	4 yrs	4 yrs	4 yrs
Rate of Interest	*	4%	3%
Credit Commission	1.25%	-	-
Bank Inspection and Supervision	1%	1%	1%
Disbursement Period	4 yrs	4 yrs	4 yrs

- \* The calculation of the interest costs for the foreign exchange loan was effected using a rate of 9.5%. The actual rate charged, however, could differ from this since it would be variable during the disbursement period. After the final disbursement a weighted average of the rates obtaining during this period would be calculated according to current Bank policy and would be applied to the disbursed balance during the amortization period.

## II. FRAME OF REFERENCE

### A. The Transport Sector

- 2.01 The Ministry of Transportation is responsible for the formulation and execution of the National Transportation Policy and for coordination between the different means of transportation (with the exception of air traffic which is controlled by the Ministry of Aviation).

### B. National Road Network

- 2.02 The Brazilian road network is made up of three distinct components: the Federal, State, and Municipal Networks. These three form a hierarchy whereby municipal plans are subordinate to state plans which are in turn subordinate to federal plans. The Federal Network is the responsibility of the Federal Government acting through the Ministry of Transportation which conducts construction, improvement and maintenance of the major trunk roads connecting large geographic regions. The State Network is the responsibility of State Transportation Secretariats responsible for linking productive areas with trunk roads. The total national road network is made up of 1,411,604 kilometers of roads, 20% of which carry about 80% of inter-regional traffic, and of which 101,745 kilometers, or 7 percent, are paved. The Federal System, on the other hand, includes 92,556 kilometers of road, of which 57% is paved.

### C. Role of DNER

#### 1. Responsibilities and Functions

- 2.03 DNER is an autonomous entity within the Ministry of Transportation and is charged with the responsibility of carrying out national plans for the federal component of the national network. DNER conducts its own planning, prepares its own studies and designs, supervises construction, executes maintenance functions, conducts research, sets standards, establishes rules, issues concessions and provides training in these areas. The financial resources available to DNER are made up of (i) annual budgetary allotments from the National Treasury; (ii) special Federal development programs; (iii) loans; and (iv) other sources such as fines and tolls.

#### 2. Operational Strategy

- 2.04 In recent years DNER has shifted the overall emphasis of its activities away from rural primary roads and towards urban and feeder roads, from the construction of new roads to the rehabilitation, improvement and conservation of existing roads; and has included an increase in planning so as to maximize the impact of its activities. In accordance with a decision of the national planning authorities to decentralise the

administration of the Federal Highway System there is a trend towards delegating construction and maintenance functions to the states, thereby permitting DNER to concentrate on supervisory and planning functions. This transfer of functions is being effected gradually in order to maintain the quality of these services. Its applicability is being tested through a series of pilot projects with a small number of states.

### 3. Operational Structure

- 2.05 For operational efficiency DNER has complemented its Central Office in Rio de Janeiro with 21 District Offices (DRF's) which are responsible for the federal highways in specific geographical regions. The District Offices are typically responsible for supervising construction of new roads, and conducting or monitoring the rehabilitation and maintenance of existing roads.

#### D. Maintenance

- 2.06 The majority of today's Federal Highway Network was constructed during the last two decades and a significant proportion of it is in a state of deterioration due to aging and higher than expected loads and traffic levels. In 1979 an inventory of the Network showed that 23% of it was in need of rehabilitation and 49% required resealing.
- 2.07 To counteract this problem the Government instituted a Highway Rehabilitation Program in the mid 1970's to resurface, strengthen and reconstruct the network. The program has been affected by a general reduction in DNER's income since 1981, which resulted in a decrease in the preventive maintenance of roads with lower traffic levels in favour of rehabilitating a small number of roads with high traffic levels.
- 2.08 The DNER is aware of the need to develop a maintenance strategy which would target priority rehabilitation and maintenance projects on a systematic basis. Such a system will be developed through the expansion of its Pavement Management System in accordance with a policy directive issued recently by the Director General of DNER. Under World Bank loan 2446-BR the DNER's maintenance capacity will be increased through the purchase of equipment, training of personnel, improvement of high accident locations and rehabilitation of 4,000 kilometers of the Federal Highway Network, and the preparation of plans for the future of an additional 4,000 kilometers.

#### E. National Development Planning

- 2.09 A major global policy objective of the Brazilian Government is the integrated development of the Amazon Region. Within this context the Government has sought to provide basic infrastructure, such as roads, in order to facilitate transportation, and thereby prompt economic activity. Within this context, DNER has improved existing roads and



built new ones such as Belém - Brasília, Manaus - Porto Velho and Cuiabá - Porto Velho. By opening up new areas; improving the transportation infrastructure in existing ones; and linking navigable waterways, these efforts have contributed to the internal integration of the Amazon Region as well as its integration with the rest of the country.

- 2.10 The Government's policy for the transportation sector in the 1980's reflects broader policy objectives aimed at national economic stabilization. In this regard, the sector policy emphasizes: (i) export promotion by improving the efficiency of the export corridors and ensuring adequate access to already developed or developing agricultural areas; (ii) the conservation and substitution of petroleum through the rationalization of transport services and the development of domestic production of petroleum and alternative energy sources; and (iii) improvement of commuting conditions for low-income groups in urban areas.
- 2.11 As part of an overall effort to control public expenditures, the Government is limiting new investments to only those projects which contribute directly to achieving the preceding objectives. Accordingly, current plans for major highway reconstruction are essentially limited to the Porto Velho - Rio Branco Road. Investments in maintenance and rehabilitation of existing facilities have been assigned greater priority and include: (i) rehabilitation of high-traffic trunk highways and railway lines serving the export corridors and major production centres; (ii) improvement of existing feeder road systems in agricultural areas, and construction of new feeder roads in the Northwest of the country; (iii) development of port facilities to promote exports; and (iv) modernization and expansion of urban transportation systems to separate inter-regional from local urban traffic.

#### F. Highway Financing

- 2.12 Broad powers have been given to the National Planning Secretariat (SEPLAN), to control public sector investments through its Secretariat for State Enterprises (SEST). By this means budgetary allocations to the entire public sector have been significantly reduced. In this context, DNER no longer obtains revenues from earmarked taxes (50% of available income before 1978), access to domestic and foreign sources of loans has been reduced, and it is no longer able to obtain funds from national development programs. The result has been a reduction in total income and a shift towards an overriding dependence on budget allocations from the Federal Government. These changes have constrained DNER's work program. In order to compensate for these budgetary constraints the Government programmed a major turnaround in DNER's capital budget for 1984 which represented an increase in absolute terms over the amount received in 1983.

G. Transportation in the Project Area

a. Road Transport

- 2.13 The stretch of Highway BR-364 between Porto Velho and Rio Branco forms part of one of the most important trunk roads in Brazil. Highway BR-364 is part of the Basic Interstate Highway System and is of fundamental importance for the integration of the country. It originates in the state of São Paulo, in the southeast of the country, and extends 4,196 kilometers northwest through the states of Mato Grosso do Sul, Mato Grosso and Rondonia until reaching the frontier with Peru in the state of Acre. This is the only road link between Acre and Rondonia, and the industrial centres of the southeast and south, and other highways leading to the port city of Manaus in the north.
- 2.14 The existing dirt road between Porto Velho and Rio Branco was built in the early seventies as a means of penetrating the area. One of its most salient characteristics is the fact that during the five month rainy season it is impassable. During the rainy season some sections of the highway are totally inundated and others are cut away by lateral erosion which is the subject of substantial repair efforts during the dry season. Vehicles are unable to climb rain-soaked hills, they become stuck in the flooded sections and must be abandoned, accidents are frequent, and in many cases days are spent waiting for conditions to improve enough to continue the precarious journey. During the rainy season Acre's only viable links with the rest of Brazil are by water or air. Even these alternatives are limited since bad weather frequently renders air travel impossible, and floating debris and shifting sand banks make river transport costly, time consuming and unreliable.
- 2.15 Along the stretch between Porto Velho and Abunã there are five metal railway bridges that are presently used by road traffic. These bridges have not been properly adapted to accommodate trucks and therefore cause delays. Between Abunã and Rio Branco there are eight wooden bridges that are in such a state of disrepair that they cause serious delays and heavy trucks are unable to cross them. The proposed project would include the adaptation of the five metal bridges for road traffic and the construction of eight new concrete bridges to replace these wooden ones.
- 2.16 The two stretches of the road from Porto Velho to Abunã and from Abunã to Rio Branco are connected by a ferry that carries vehicles over the Madeira River. The ferry is powered by a tug, has a capacity of 300 tons and operates between 6 a.m. and 7 p.m., seven days a week. There is room on the ferry for either five trucks or 15 light vehicles. During the dry season it takes about 20 minutes to actually make the crossing. Nevertheless the time consumed waiting for the ferry to return, boarding, making the crossing and disembarking can take up to an hour and a half. During the rainy season the river rises by 15 meters causing the ferry to use a more distant berth, thereby increasing crossing time to four hours. The proposed project contemplates the acquisition of a new, faster, self-propelled ferry with a three hundred ton capacity, and the complete rehaul of the existing one. 1/

1/ The level of traffic does not justify the construction of a 1,500 meter bridge to replace the ferry.

b. Other Means of Transportation

- 2.17 A major waterway in the project area is the Madeira River which runs between Porto Velho and Manaus and forms part of an integrated Latinamerican transport system that includes the Amazon River and enables the transportation of Bolivian, Peruvian and Brazilian cargo to and from the Atlantic Ocean. This river, however, is a complement to, rather than a substitute for the Porto Velho - Rio Branco road since it does not affect Acre and is limited by rapids between Porto Velho and Guajará-Mirim. The Acre river is used for transport between Rio Branco and Manaus. Due to river debris and extensive winding this means of transport is both time consuming and costly.
- 2.18 The railway that once operated between Guajará-Mirim and Porto Velho became uneconomical and was discontinued in 1966. It was replaced by a dirt road connecting the two cities thereby maintaining the link by land with Bolivia. Plans are in preparation to upgrade this road. Most air traffic in the project area is between the airports of Porto Velho and Rio Branco, although there are nine other small airstrips serving isolated settlements. During the rainy season the airport in Rio Branco is often the only link between Acre and the rest of Brazil.

H. The Project Area

1. Area of Influence

- 2.19 The area that would be most affected by the project includes land between Porto Velho, the capital of the state of Rondonia, and Rio Branco, the capital of Acre. The population in the states of Rondonia and Acre, was estimated at 503,100 and 301,300, respectively, in the 1980 demographic census. Of these totals 121,100 and 116,700 were located in the capital cities of Porto Velho and Rio Branco, respectively.
- 2.20 Porto Velho already has access by land to the rest of Brazil via paved highways and its trade with Rio Branco consists largely of transshipments of goods either sent from other regions to supply Rio Branco or exports from Rio Branco to regions behind Porto Velho. On the other hand, the Porto Velho - Rio Branco road represents Acre's life line to the rest of the country. In addition, Rondonia has already been the focus of considerable investment in agricultural activities and migration. The result is that Rondonia has little scope for further expansion of agricultural output and absorption of new migrants. Acre is in effect the new frontier with prospects for investment in agriculture and greater capacity to absorb new migrants. Based on the foregoing it is considered that the proposed project would have a greater impact on Acre than on Rondonia.

## 2. Economic Activity

- 2.21 The project area produces half of Brazil's domestic production of rubber with 30% produced in Acre and 20% in Rondonia. It is estimated that in 1980 there were 250,000 head of cattle in Rondonia and 300,000 head in Acre. Significant gold deposits have been found in Rondonia in the Madeira River and although only 4% of the active population was employed in this industry in 1980, at least 4.5 tons of gold were sifted from the river in 1982.
- 2.22 In the project area there is a long history of subsistence agriculture concentrated mainly along the margins of rivers where the generally flat terrain combines with the silt laden rivers to create generous flood plains with fertile soils. There is also a history of exploitation of the inland forest for its rubber and nuts and to a lesser degree for timber. These activities implied a minimum of deforestation since agricultural cultivation was largely limited to river floodplains or scattered small inland plots, and the extraction of rubber and nuts left the forest intact. In recent years, however, these activities have steadily been replaced by the widespread cultivation of crops and cattle raising which require significantly more deforestation than traditional activities.
- 2.23 The quality of the soil in the project area varies greatly from one part to another. Between 8% and 10% of the land is located in the fertile alluvial plains of rivers, and preliminary surveys have identified scattered swathes of potentially fertile soil throughout the area. These areas are suitable for annual crops such as rice, corn, beans and cassava and for perennial crops such as coffee, cocoa and fruit trees that protect the soil.
- 2.24 The majority of the land in the area, however, is only marginally suited to annual crops and is moderately well suited to perennial crops and pasture, requiring fertilizers and soil correctives to permit sustained cultivation. When these soils were cultivated in small plots at a subsistence level, a shifting farming method was successfully used which permitted deforested areas to lay fallow for at least 20 years, long enough to recuperate before being cleared again.
- 2.25 With undirected migration of large numbers of new farmers, however, marginally fertile land has been brought under cultivation. With these soils most of the nutrients are found in the foliage itself so that the felling and burning of the forest briefly transfers nutrients to the soil through the ash, but they are soon washed away. The new farmers seek to produce a surplus for export and they have no access to fertilizers, consequently, fallow periods have been reduced, soil fertility has fallen and so has agricultural productivity.

- 2.26 In order to support an increase in agricultural exploitation of the project area while minimizing the further destruction of the forest, it is therefore essential that any such exploitation be: (i) directed according to agricultural zoning so that it is limited only to suitable soils; and (ii) predicated upon the development of agricultural techniques that permit continuous protection and replenishment of the fertility of the soil. (See Appendices).

### 3. Agricultural Settlements

- 2.27 Settlement of the land bordering the road between Porto Velho and Abunã came about as a result of the construction of a railway line between the two points. The railway is now defunct but the road closely follows its path. The settlement of the land between Abunã and Rio Branco was precipitated by the construction of the existing highway. Once the road was built there was spontaneous migration to the area followed by government sponsored settlement projects which established farming communities, built feeder roads, health posts and schools, and provided agricultural extension services. Primary responsibility for government settlement projects lies with the National Institute for Colonization and Agrarian Reform (INCRA) which is an agency with jurisdiction over the disposition of lands within 150 kilometers of international boundaries as well as those within 100 kilometers of any federal highway in the Amazon Region. INCRA has managed to grant title to 90% of the land within 20 kilometers and either side of the road. INCRA is also involved in establishing several new settlement projects in the fertile areas to the west of Rio Branco. It is expected that these areas would benefit from the improvement of the road.

### 4. Migration to the Project Area

- 2.28 The proposed project would not only benefit the current inhabitants of the project area, but would also serve to attract migrants by significantly improving the area's physical integration with the rest of the country. Rondonia had the highest rate of migration in the country between 1970 and 1980 when its population grew at an average annual rate of 10.8%. During the same period, Acre showed an increase of just 5.3%. The lower rate of increase in Acre reflects the fact that Rondonia was the primary unexploited agricultural frontier during that period. Now that Rondonia's capacity to absorb migrants is becoming saturated, Acre has become the primary agricultural frontier in the area. The allure of available land in Acre and the advent of the improved road are expected to cause the rate of undirected migration to increase significantly. Since it is expected that many of the migrants will settle on unsuitable land, it has therefore been necessary to establish safeguards to minimise the adverse effects of increased migration on the region's natural resources and indigenous population. (See Appendices).

I. Environmental Aspects

- 2.29 The improvement of the road could have direct negative effects on the environment, along the right of way of the road, including deforestation and deterioration of vegetation, water pollution during construction, creation of ponds of stagnant water thereby increasing the risk of sickness, and alteration of surface water drainage patterns thereby leading to erosion of the soil. (See Appendices).
- 2.30 In addition to the direct impact of the project there could also be an indirect negative impact on the environment. By reducing transportation costs and assuring permanent access by land to and from markets, the level of land occupation and agricultural activity are expected to increase through wider and more intensive exploitation of land resources. The institutions responsible for organizing and controlling the use of the area's natural resources do not have access to sufficient human and financial resources to adequately fulfill their responsibility.
- 2.31 Due to foregoing, safeguards have been included in the project in order to mitigate the direct and indirect negative impacts of the project on the environment. These safeguards include institutional strengthening, planning and zoning of land use in area of influence. (See Appendices).

J. The Indigenous Population

1. Government Strategy

- 2.32 The Brazilian Government's strategy for the country's indigenous population is predicated upon their inability to effectively protect themselves from the dangers posed by the encroachment of the general Brazilian society on the areas that they inhabit. This strategy consists of a short term goal of ensuring the survival of the indigenous population, with the long term goal of providing the means for them to gradually become independent of Government tutelage and acculturated to the general Brazilian society. The strategy explicitly contemplates protection of the indigenous population's present cultural distinctiveness and their economic system which requires relatively large tracts of land.

2. FUNAI

- 2.33 In order to execute their strategy, the Government, in 1967, created the National Indian Foundation (FUNAI) which has its headquarters in Brasília and is administratively linked to the Ministry of the Interior. It is responsible for coordinating 13 regional delegations and numerous local field units which have direct contact with each of the indigenous communities. FUNAI generates practically none of its own funding and therefore depends almost entirely on various external sources, the primary source being annual budgetary allocations from the federal government.

- 2.34 Since its creation, FUNAI has undergone several administrative reorganizations and frequent changes in management. In addition, FUNAI has continuously suffered a shortage of funds which has forced the postponement or cancellation of important projects, therefore provisions have been made in the project to ensure that funds are available to carry out the appropriate actions. (See Appendices).

### 3. Project Impact

- 2.35 Experience has shown that the single most significant development activity that adversely affects the welfare of indigenous groups has been the opening of roads which makes their lands directly accessible to new settlers.
- 2.36 Without adequate protection, the indigenous communities are subject to: (i) invasion of tribal areas; (ii) exposure to diseases carried by non-indigenous people; (iii) destruction of their culture through premature and uncontrolled contact with settlers; and (iv) exploitation by landowners in the exchange of goods.
- 2.37 The improvement of the road Porto Velho-Rio Branco will open the way for new colonization in the State of Acre and Southern Amazonas. Although the indian lands are not adjacent to the road, they will become easily accessible through the rivers that intersect with BR-364 to the west of Rio Branco. As a result, the indian groups will be directly affected since the project is expected to increase traffic on this portion of BR-364, as well as the number of settlements in the area. In fact, it has been estimated that all of the groups in the State of Acre will probably be affected by the opening of the road. The magnitude of this impact will be verified during the process of implementation of studies and measures to protect the indigenous groups and appropriate corrective measures that will be taken. (See Appendices).
- 2.38 The indian territories located in the State of Rondonia come under the area of influence of the road, they have not been included here because they are covered under the auspices of the POLONOROESTE program partially financed by the World Bank. The Brazilian Government has committed itself to protecting all of the indigenous territories in Rondonia, although delays have been observed in fully implementing related covenants.

### III. EVALUATION OF PRIOR LOANS

- 3.01 Between 1966 and 1974 the Bank approved the following eight loans totalling US\$238.0 million to the Government of Brazil for seven road transportation projects with a total cost of US\$1,007.0 million that contributed to the Federal Highway System, and all of which were executed by DNER. All loans except for 262/OC-BR and 269/OC-BR were evaluated in loan document PR-627-A, dated 28.V.74.

BANK PARTICIPATION IN DNER PROJECTS

<u>Loan Number</u>	<u>Contract Date</u>	<u>Project Completion</u>	<u>Amount (US\$millions)</u>	<u>Region</u>
80/SF-BR	1.IV.66	1970	20.0	South
191/SF-BR	13.IX.68	1974	35.0	Northeast
238/SF-BR	26.V.69	-	1.3	North/Central
216/OC-BR	28.IX.71	1977	17.0	South
301/SF-BR	28.IX.71	1977	30.0	South
234/OC-BR	27.X.72	1976	40.0	Southeast
262/OC-BR	28.II.74	See text	36.0	Southeast
269/OC-BR	12.XII.74	1980	60.0	South/Southeast

A. Loan 262/OC-BR

- 3.02 The objective of the project was to complete the second stretch (Ubatuba-Cubatão) of the road from Rio de Janeiro to Santos. However, once construction was underway and 47% of the goals had been achieved changing demand patterns made it necessary for the Government to revise the priority ranking of its transportation projects, thereby delaying completion of this road until a future date. Accordingly, US\$22 million of the loan was cancelled.

B. Loan 269/OC-BR

- 3.03 The project served to improve a vital link between two major cities in an economically important region of the country. The objective was the improvement of a road from the city of São Paulo to Curitiba, capital cities of the States of São Paulo and Paraná respectively. Execution was delayed by inadequate ground studies and changes in designs after work had commenced. Nevertheless, all of the physical goals were achieved.
- 3.04 Prior to opening the road to traffic DNER was to have installed weighing stations. Although the road is open, DNER has delayed compliance with this clause due to a lack of resources. Nevertheless, as part of an overall drive to improve its maintenance of existing roads DNER has budgeted for the installation of two such station in 1985. Maintenance of the road is conducted by contractors, however, the quality of maintenance is not uniform along the entirety of the road, resulting in poor conditions especially in the state of Paraná. DNER has, however, presented a plan of maintenance of the road for 1985 which addresses these problems and is considered to be acceptable.



- 3.05 The Final Report for the project prepared by the Representation recommended that in the eventuality of future Bank financed projects, DNER should create a special unit to oversee all aspects relating to project execution and to coordinate with the Bank. Since the completion of the last Bank financed project DNER has established a unit that is responsible for the administration of projects partially financed by international lending institutions, and for coordinating with them. Nevertheless, with the increasing number of DNER projects financed internationally, the workload of this unit has increased. In order to avoid delays in the execution of the proposed project the loan contracts would therefore require that the unit be reinforced. (See Appendices).
- 3.06 The Final Report also recommended that the execution period, basic studies, designs and plans be thoroughly reviewed and that a component to provide weighing stations be included. DNER has complete final engineering designs and detailed construction plans for the proposed project. These designs and plans have been fully reviewed by the Bank and were found to be adequate. Finally, the proposed project contemplates not just the installation of two weighing stations, but also the establishment of two traffic control posts and three maintenance units at key points along the road.

C. Conclusion

- 3.07 All of the projects experienced cost increases except those partially financed with loans 234/OC-BR and 262/OC-BR, all increases were considered to be justifiable and were financed out of local counterpart resources. The Bank loans have contributed to the Federal Highway System throughout Brazil, though there was an observable emphasis on the Southern and Southeastern regions. The proposed project has been structured to take account of the lessons learned in executing these prior projects.

D. Complementary IBRD Participation

- 3.08 During the period since 1968, the World Bank has provided US\$903.6 million as partial financing for eight transportation projects, executed by DNER, with a total cost of US\$2,779 million. The World Bank participated in the financing of a project to improve the section of Highway BR-364 between Cuiabá and Porto Velho, which constitutes the link between the project proposed for Bank financing and the Federal Highway System of the Central-West, Southeast and South of Brazil.
- 3.09 In July of 1984 the World Bank signed a loan (loan 2446-BR) to partially finance a US\$450 million program designed to assist DNER in implementing a series of improvement measures during the period 1984-1987. The program includes the following components: (i) rehabilitation of the Federal Highway Network; (ii) improved highway safety; (iii) training

for DNER state highway maintenance personnel; and (iv) technical assistance to institute a routine maintenance system, an equipment management system and highway research studies. Under a previous program, partially financed by loan 1075-BR, the World Bank financed the installation of weighing stations for the Federal Highway Network. Highway BR-364 between Porto Velho and Rio Branco would benefit from the maintenance component of the World Bank loan, as would the other highways connecting with it.

#### IV. THE PROJECT

- 4.01 The proposed project contemplates the improvement of Federal Highway BR-364 between Porto Velho and Rio Branco. The major impact would be to significantly increase the integration of the project area with the rest of the country by providing the present inhabitants with permanent access by land. At present, little or no road traffic is possible during five months of the year due to the inability of the road to resist flooding that affects the entire region. In addition to this direct impact, the improvement of the road is an integral part of an overall effort to develop the economy of the project area. A better road would contribute significantly to this effort by reducing transportation costs and guaranteeing access to and from markets.
- 4.02 The true magnitude of the economic and social dislocation caused by the total degeneration of the road surface during five months of the year can only be adequately appreciated when account is taken of the fact that neither waterways nor aeroplanes constitute individually or collectively a viable alternative to road transport.
- 4.03 In full appreciation of this handicap to the region's development the national planning authorities have proposed this project to improve the road. This initiative is fully consistent with the most recent National Development Plan (PND) for the transport sector which allocates the highest priority to the restoration and maintenance of existing roads and the paving of vital arteries especially those providing for the integration of the Amazon region with the rest of the country and which contribute to agricultural development programs in that regions.
- 4.04 A better road would benefit productive activities. It would, however, also increase the pressure on the area's physical and social environments, both of which are relatively complex and fragile. For this reason, certain safeguards have been introduced into the project to avoid unnecessary destruction of the area's soils and forests or damage to the indigenous population from increased economic activity attributable to improving the road.

A. Objectives

- 4.05 The objective of the proposed project is to significantly improve the trunk highway system in the Northern region of Brazil by providing year-round access to the State of Acre which is presently isolated by land during about five months of every year due to flooding of existing roads. This improvement would contribute to economic activity in the region by substantially reducing transportation costs and guaranteeing year-round access to and from markets and vital services. It would also serve to provide a reliable land link between the capital cities of the states of Rondonia and Acre.
- 4.06 In order to prevent and mitigate the adverse effects that improving the road could have on the environment and indigenous groups in the project area specific safeguards have been included in the project.

B. Description

- 4.07 The proposed project would attain the abovementioned objective through execution of the following activities: (i) widening and paving the 502 kilometer section of Highway BR-364 between the cities of Porto Velho, Abunã and Rio Branco; (ii) modifying five metal railway bridges between Porto Velho and Abunã for road traffic; (iii) building eight new concrete bridges between Abunã and Rio Branco to replace the existing wooden ones; (iv) improving the link between the two tranches of Highway BR-364 where it is cut in the outskirts of Abunã by the River Madeira, through the installation of new ramps, repairing the existing ferry and acquiring a new one to complement it; and (v) establishing the physical and administrative infrastructure necessary for maintaining the road, including two traffic control posts, two weighing stations and three maintenance units.
- 4.08 The project would also include the establishment of an interinstitutional Technical Group that would implement Actions Plans including measures designed to prevent and mitigate the direct and indirect adverse effects on the physical environment and the indigenous population. (See Appendices).

C. Cost and Financing

- 4.09 The total cost for executing the project has been estimated at US\$146.7 million, which includes administration and supervision, direct construction costs, financial costs during execution and unallocated costs. The following table shows the breakdown of investment categories and their corresponding sources of financing. In the category for direct costs, that portion to be conducted by force account is presented separately from that which would be bid.

INVESTMENT COSTS AND FINANCING PLAN

(US\$ thousands)

Investment Categories	IDB			Total IDB	Local Counter- part	TOTAL	%
	Foreign Exchange	Local Currency					
	IC	OC	SF				
1. Engineering and Administration	125	-	-	125	8,125	8,250	5.6
1.1 Engineering	-	-	-	-	7,020	7,020	4.8
1.2 Administration	125	-	-	125	1,105	1,230	0.8
2. Direct Costs	27,025	9,068	9,067	45,160	42,440	87,600	59.7
2.1 Porto Velho - Km.30	-	-	-	-	3,670	3,670	2.5
2.2 Km. 30 - Abunã	8,683	2,913	2,912	14,508	12,432	26,940	18.4
2.3 Abunã - Rio Branco	18,342	6,155	6,155	30,652	26,338	56,990	38.8
3. Financial Costs	9,520	1,060	1,060	11,640	1,010	12,650	8.6
3.1 Interest (IDB Loans)	9,080	915	915	10,910	-	10,910	7.4
3.2 Credit Commission	-	-	-	-	1,010	a/ 1,010	0.7
3.3 Inspection and Supervision	440	145	145	730	-	730	0.5
4. Unallocated Costs	7,330	2,972	2,973	13,275	17,955	31,230	21.3
4.1 Contingencies	2,890	1,132	1,133	5,155	8,425	13,580	9.3
4.2 Escalation	4,440	1,840	1,840	8,120	9,530	17,650	12.0
5. Concurrent Costs							
5.1 Environmental & Indig- enous Protection	-	1,400	1,400	2,800	4,170	6,970	4.8
TOTALS	44,000 =====	14,500 =====	14,500 =====	73,000 =====	73,700 =====	146,700 =====	100.0 =====
Percentage (%)	30.0	9.9	9.9	49.8	50.2	100.0	

a/ These interest costs are payable in foreign exchange.

D. Project Financing

- 4.10 It is proposed that the Bank participate in financing the project through a loan for US\$44 million in foreign exchange from the Bank's Interregional Capital, a loan for the equivalent of US\$14.5 million in local currency from the Bank's Ordinary Capital, and one for the equivalent of US\$14.5 million also in local currency from the Bank's Special Fund. In accordance with Bank policy GN-33-1, regarding the maximum percentage of total project costs that may be financed with foreign exchange for the transport sector in A countries, the loan for US\$44 million would cover 30% of total costs.
- 4.11 The Bank loans would be complemented by the equivalent of US\$73.7 million in local counterpart resources, all of which would be provided to DNER during the execution period as part of its annual budgetary allocations from the Federal Government. The costs related to the 30 Km that would be constructed by force account would be financed entirely out of the local counterpart resources.

V. PROJECT EXECUTION

A. Executing Entities

- 5.01 The executing agency of the roadworks included in the proposed project would be the Ministry of Transport which would be directly responsible for controlling both the financial and physical aspects of execution. These functions would be exercised through the National Highway Department (DNER) which is an autonomous entity within the ministry.
- 5.02 DNER has an office for coordination with external financing institutions. This office would be responsible for coordinating all phases of project execution and would maintain direct contact with the Bank. It would be in charge of monitoring compliance with contractual conditions, the presentation of reports and other administrative tasks.
- 5.03 In order to accommodate the additional volume of work required by the proposed project within twelve months of the signature of the loan contracts the Coordinating Unit would be reinforced with a professional trained in business administration and the Finance Division would assign an accountant to be responsible for maintaining a register of all project transactions including disbursement requests (See Appendices).
- 5.04 The execution of the measures to mitigate the adverse effects on the environment and indigenous groups would be the responsibility of the Economic and Social Planning Institute (IPEA), which is a public foundation within the National Planning Secretariat (SEPLAN). IPEA would coordinate the activities of other pertinent institutions, including SEMA, IBDF, FUNAI, EMBRAPA and INCRA in an interinstitutional Technical Group to be established prior to the signature of the loan contracts.

B. Status of Designs

- 5.05 DNER has complete final engineering designs and detailed construction plans for the entire project. The norms for project design are in accordance with those established by DNER and were found to be adequate for the proposed project since they represent the least cost solution possible without compromising the expected benefits. (See Appendices).
- 5.06 The preliminary Action Plan that would be implemented by SEMA, IBDF, and FUNAI, would be presented to the Bank prior to the first disbursement of the loan resources. The preliminary Action Plan would then be adjusted by an Environmental Study to be completed 18 months after the signature of the Loan Contracts. This definitive Action Plan would not only modify the measures to be implemented by SEMA, IBDF, FUNAI, but would also include measures to be implemented by EMBRAPA and INCRA. The implementation of the plans would be coordinated and supervised by IPEA.

C. Procedures for the Acquisition of Goods and Services

- 5.07 In acquiring machinery equipment, vehicles or other goods and in the bidding of construction contracts DNER will follow bidding procedures that would be annexed to the loan contracts, and which stipulate that public bidding should be used in all cases where the value of these acquisitions or construction contracts exceeds the equivalent of US\$100,000. In cases in which the value of acquisitions or construction contracts is between the equivalent of US\$100,000 and US\$500,000 said bidding procedures would admit the possibility of using price competition between prequalified firms previously registered with DNER. (See Appendices).
- 5.08 DNER intends to divide the 502 kilometers of road to be constructed into seven separate sections with values ranging from US\$4 to 20 million. Of the total, 472 kilometers (94%) is being contracted out to construction firms using international bidding procedures agreed on with the Bank and the remainder would be executed by force account. For those sections that will be bid individual construction firms may be awarded more than one contract according to their capacity to adequately execute the works in question.

D. Force Account

- 5.09 DNER has proposed that the roadworks for the 30 kilometers which lie to the west of Porto Velho be executed by the 5<sup>th</sup> Engineering and Construction Battalion of the Brazilian Army (5<sup>th</sup> BEC) which has recently completed improvement of 192 kilometers of road to the South of Porto Velho under a World Bank project. The Analysis Mission reviewed the roadworks done by 5<sup>th</sup> BEC and found them to be satisfactory. It is

considered that 5<sup>th</sup> BEC has adequate technical equipment to construct the proposed 30 kilometer stretch according to Bank requirements. The procedure to be used by DNER to supervise construction of this section would be similar to that used for the remainder of the sections. The unit prices that would be charged by 5<sup>th</sup> BEC the same as those that would be charged by private construction firms. The loan contracts for the proposed Bank financing would require an agreement between DNER and 5<sup>th</sup> BEC regarding the supervision of construction and the unit prices to be charged, prior to the first disbursement.

- 5.10 The Brazilian Government desires the participation of 5<sup>th</sup> BEC also because of its convenient location in Porto Velho since it constitutes a readily available source of equipment and personnel with relatively lower mobilization costs. The 5<sup>th</sup> BEC has also gained considerable experience in the region since 1970 when it participated in the improvement of the existing dirt road between Porto Velho and Rio Branco. (See Appendices).

E. Anticipated Contracting

- 5.11 In order to permit rapid project start-up the Bank on September 21, 1984 gave conditional approval of the bidding documents pending Board approval of the loans. DNER published the call to bids on October 4, 1984 and the closing date for receipt of bids is December 3, 1984. Given that the rainy season usually extends from November to March, the construction companies will be able to mobilize and start work by the beginning of the second quarter of next year. At the present time there are 18 construction firms in the general area, which recently completed of the stretch of Highway BR-364 between Cuiabá and Porto Velho.
- 5.12 Given that the Bank has granted DNER's request to permit anticipated contracting of services, the relevant contracts with construction firms could be signed by April of 1985. This date coincides with the end of the rainy season so that construction firms could mobilize and achieve significant advances during the dry season that usually extends from May to November. If this chronogram is effected the construction firms would be fully deployed in the area by the time the rainy season begins again in November. (See Appendices).

F. Preliminary Project Execution Plan (PEP)

- 5.13 DNER has presented a preliminary version of the PEP which is in accordance with Bank guidelines. According to this timetable the construction contracts would be awarded by December of 1984, the loan contracts would be signed by March of 1985 and work would begin in April 1985, and the project would be fully executed four years after the signature of the loan contracts. The proposed timetable makes the recognition of prior expenses unnecessary. These dates are considered to be realistic given prior Bank experience in financing similar projects in Brazil.

G. Investment Schedule

- 5.14 The investment schedule based on the preliminary PEP and showing the estimated flows from each source of financing is presented below:

<u>INVESTMENT SCHEDULE</u> (US\$ Thousands)						
<u>Financing Sources</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>Total</u>	<u>%</u>
I. IDB	13,520	24,570	26,590	8,320	73,000	49.8
a) Foreign Exchange Loan	8,130	14,770	15,940	5,160	44,000	30.1
b) Local Currency Loans	5,390	9,800	10,650	3,160	29,000	19.7
II. Local Counterpart	<u>14,480</u>	<u>25,030</u>	<u>25,810</u>	<u>8,380</u>	<u>73,700</u>	<u>50.2</u>
TOTAL	28,000	49,600	52,400	16,700	146,700	100.0
	=====	=====	=====	=====	=====	=====
%	19.0	33.8	35.7	11.5	100.0	

H. Right of Way

- 5.15 The project would make use of already existing rights of way which are held by the states of Rondonia and Acre and as such would not need to be acquired. (See Appendices).

I. Technical Supervision

- 5.16 In order to facilitate its direct supervision of the project DNER would establish an office in Porto Velho as part of the First Federal Highway District. DNER has also requested the continued use of the two specialised engineering firms that prepared the final designs, for the supervision of the project. The engineering firms would supervise the physical execution of the project and would use the same methods for supervising the work done by both the private construction firms and by 5<sup>th</sup> BEC. DNER would monitor the activities of the engineering firms through its new District Office to be established in Porto Velho.. Given that DNER also has a District Office in Manaus the new office in Porto Velho would serve to reinforce DNER's coverage of the region.



J. Maintenance

- 5.17 DNER would be responsible for maintaining the road through its new District Office in Porto Velho. The funds necessary for maintenance would be provided through annual budgetary allocations to DNER from the Federal Government. The current cost of continued maintenance of the dirt road far exceeds the projected cost of maintaining the paved road, therefore it is considered that the reduced cost of maintenance will enhance the availability of sufficient funds for this purpose.
- 5.18 In recent years DNER has taken measures to improve its maintenance of roads and the current budget and financial projections reflect an increase in real terms and an emphasis on continued rehabilitation of existing roads in the years to come. It is expected that the Porto Velho - Rio Branco road would benefit from this renewed emphasis on maintenance. The type of soil and the topography of the area traversed by the road is such that careful monitoring of construction and of the new road surface is required. In addition to exercising strict quality control over construction activities DNER has agreed to conduct a continuous evaluation of the state of the surface of the new road and present the results to the Bank. (See Appendices).
- 5.19 The project includes the construction of three encampments (in Porto Velho, Abunã and Rio Branco) to be used by the construction firms during the execution period and would later be used by DNER personnel in maintaining the road. The project also includes the construction of two truck weighing stations, which would include offices for the Federal Highway Police responsible for enforcing traffic regulations. Given the specific measures, mentioned above, it is considered that the new road will be adequately maintained. (See Appendices).

L. Reports

- 5.20 As of the first year of project execution and during the disbursement period, the financial statements for the project would be presented to the Bank with the opinion of the Secretaria de Controle Interno da Secretaria de Planejamento da Presidência da República (SECIN). (See Appendices). Three years after the last disbursement of the financing, DNER would present the Bank with an ex-post report for the project. (See Appendices).
- 5.21 Every six months beginning 6 months after the signature of the Loan Contracts and until 6 years after the final disbursement IPEA would present reports to the Bank regarding the implementation of the measures included in the Action Plan. (See Appendices).

## VI. JUSTIFICATION

### A. Institutional Viability

- 6.01 DNER has ample experience in executing projects with international institutions and its organization and administrative/financial procedures are considered to be acceptable for the proposed project; and the Coordinating Office would be strengthened with additional personnel in order to better attend to the administrative requirements of the project. In addition, IPEA is considered to have sufficient capacity to adequately coordinate and supervise the execution of the Action Plans.

### B. Financial Feasibility

- 6.02 Based on the financial analysis of the executing agency it is expected that there will be an increasing budgetary emphasis on the rehabilitation and maintenance of existing roads. In spite of an observable increase in the proportion of DNER's income that must be allocated as local counterpart resources for projects with international financing it is considered that there will be no shortage of matching resources for the proposed project. This assertion is based on the fact that: (i) in preparing annual budgets the Federal Government gives special priority to projects partially financed with external financing; (ii) the local counterpart resources required for the project would represent just 4.6% of the annual budgetary support that DNER receives from the Federal Government; and (iii) there was a significant rial increase in DNER's 1984 budget and this positive trend is expected to continue during the execution of the project.

### C. Technical Feasibility

- 6.03 The proposed project is considered to be technically viable for the following reasons:
- (i) DNER has complete engineering designs and detailed construction plans for the entire project. Project designs are well conceived and have been prepared using adequate practices. In addition, the plans and specifications for project construction have been prepared in accordance with good engineering practice and represent the least cost solution;
  - (ii) The construction of the road would be conducted by private firms and through force account by entities which have sufficient experience, equipment and personnel to adequately execute the proposed works;
  - (iii) Given DNER's performance in executing other projects partially financed by the IDB and the World Bank; its intention to open a local office in Porto Velho, and the fact that it would have

access to competent specialised consulting firms that would provide the technical supervision and control of all of the works to be conducted, DNER is considered to have the technical/administrative capacity necessary to adequately execute the project according to the proposed timetable; and

- (iv) Due to the following factors it is considered that the new road would be adequately maintained: (i) the paved road would require significantly less maintenance than the present one; (ii) three maintenance posts and two weighing stations would be established; (iii) a new DNER District Office will be opened in Porto Velho; and (iv) sophisticated inspection of the road would be conducted periodically to detect and remedy any deterioration identified.
- (v) Safeguards have been included in the project to mitigate the direct and indirect adverse effects on the environment and indigenous groups in the project area.

6.04 Given the foregoing, it is expected that all of the activities contemplated in the proposed project will be executed in a satisfactory manner and in accordance with the estimated execution timetable.

#### D. Socioeconomic Feasibility

6.05 The road which is the subject of this analysis has been divided into two stretches, Porto Velho-Abunã and Abunã-Rio Branco due to the distinct construction costs and volume of traffic pertaining to each. The socioeconomic analysis exclusively considered the costs of improving and maintaining the road, and the benefits generated by these investments. The methodology used to estimate the benefits that would be generated by improving the road is the traditional approach of considering user time savings, vehicle operation and maintenance cost savings, and the reduction in costs for generated and diverted traffic. The present values of the costs of paving the road, maintaining it and restoring the surface during the project's life, as well as the acquisition and operating of a ferry were estimated and distributed throughout the project's life.

6.06 The economic analysis of the proposed project indicates that both stretches of the road are economically feasible. The internal rates of return for the Porto Velho-Abunã and Abunã-Rio Branco stretches were 35.3% and 17.7% respectively. The sensitivity analysis carried out indicated that even when considerable variations were introduced into the basic parameters of this analysis the project was still found to be viable. It is estimated that approximately 53.3 % of the benefits accruing to the private sector would go to the low income group.

## VII. SPECIAL ASPECTS

### Environmental and Indigenous Aspects

- 7.01 In order to mitigate the adverse effects on the environment and on the indigenous population in the direct and indirect area of influence of the project several recommendations are proposed for inclusion in the loan contracts.
- 7.02 Given the importance of establishing environmental safeguards it is recommended that prior to signature of the loan contracts, the Borrower should present evidence satisfactory to the Bank, that it has formalised an agreement, previously agreed on with the Bank, between the participating institutions including SEMA, IBDF, FUNAI, EMBRAPA, INCRA and IPEA to establish an inter-institutional and inter-disciplinary Technical Group to be coordinated by IPEA, for the purpose of carrying out the activities described in the following paragraphs.
- 7.03 Prior to the first disbursement of the Bank loan resources, the Borrower, through IPEA, will present a provisional Action Plan to be carried out by pertinent institutions including SEMA, IBDF and FUNAI that incorporates financing and execution timetables for measures designed to prevent and mitigate adverse effects on the physical environment and the indigenous population in the area of indirect influence of the project. These measures would include institutional strengthening, planning and zoning of land use in the project's area of influence so as to ensure the effective management and conservation of its renewable natural resources and protection of the indigenous population.
- 7.04 Also prior to first disbursement the Borrower will present evidence that the necessary budgetary resources and personnel are available for: (i) SEMA, IBDF and FUNAI to fully implement the provisional Action Plan commencing immediately subsequent to Bank approval of same; and (ii) preparation by the institutions in the Technical Group mentioned in paragraph 7.02 of an Environmental Study to be presented to the Bank within 18 months of the signature of the Loan Contracts.
- 7.05 Upon acceptance by the Bank of the above mentioned Environmental Study, the Borrower will incorporate the results of this study into those aspects of the provisional Action Plan being implemented by SEMA, IBDF and FUNAI, in order to adjust it according to the updated information regarding the project area. The Borrower through IPEA, will then implement the definitive Action Plan which will include measures to be implemented by SEMA, IBDF, FUNAI, EMBRAPA and INCRA.
- 7.06 Provision will be made in the budgeting of the Action Plans to cover the estimated cost associated with their implementation during the disbursement period of the Bank financing, both with local counterpart resources (salaries and other administrative expenses) and Bank resources in local currency (professional services, equipment and construction costs).

- 7.07 In order to prevent and control the adverse direct environmental impact of the roadworks on the land immediately bordering the road, DNER will monitor all activities related to project execution in the construction area. To ensure adequate monitoring of these activities an environmental engineer and a biologist will be assigned this responsibility prior to the initiation of the roadworks. 1/
- 7.08 Within the first ninety days of each calendar year following the first year of project execution and until six years following the final disbursement of the Bank financing, the Borrower will present, to the satisfaction of the Bank, evidence of having allocated sufficient resources to adequately continue implementation of the Action Plan. Once the provisional Action Plan has been presented and every six months until six years after the final disbursement, reports will be sent to the Bank regarding implementation according to the execution timetables.
- 7.09 As part of the ex-post evaluation to be presented to the Bank three years after project completion the Borrower will include an analysis of: (i) the results of the Environmental Study and its incorporation into the preliminary Action Plan; and (ii) the status of implementation of Action Plans (by FUNAI, EMBRAPA, SEMA, IBDF and INCRA) as of six months prior to presentation of the ex-post report.

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1/ The contracts between DNER and the construction firms would include specific safeguards against damage, in the area of the right of way of the road, to the environment or indigenous groups as a result of construction of the road.

PROPOSED RESOLUTION 1/

BRASIL. LOAN /IC-BR TO THE REPUBLICA FEDERATIVA DO BRASIL  
(Rio Branco-Porto Velho Road Project)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República Federativa do Brasil, as borrower, for the purpose of granting it a financing to cooperate in the execution of a project for the paving and improvement of the Rio Branco-Porto Velho Road. This financing shall be subject substantially to the following conditions:

1. Amount and Currencies: Up to US\$44,000,000 or the equivalent in other currencies which are part of the inter-regional capital resources of the Bank to pay for goods and services acquired through international competition in the member countries of the Bank, and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in the currency or currencies specified by the Bank, in a quantity equivalent to the corresponding amount owed, calculated in units of account in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Source of Funds: The inter-regional capital resources of the Bank.
3. Guarantee: The general responsibility of the borrower.
4. Credit Fee: 1-1/4% per annum on the undisbursed portion of the financing referred to in paragraph (a) of Clause 1 of this Resolution, commencing to accrue 60 days after the date of the contract and payable in dollars of the United States of America on the same dates as the interest.

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1/ The provisions contained in this Appendix I and in the following Appendices II, III and IV will only be final when the Board of Executive Directors has approved the proposed loan.

5. Amortization: The borrower shall amortize the loan in a period of 20 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing. The Bank may credit the amortization installments proportionally to the outstanding balance of each of the portions of the loan which accrue different rates of interest.
6. Interest: The borrower shall pay interest semiannually on the outstanding balances of the loan. The first payment shall be made six months after the date of the loan contract. During the disbursement period, the Bank: (a) shall determine the rate of interest to be applied as of the first day of each January and for the life of the loan to any amount disbursed during the ensuing year; and (b) may modify the interest rate, in accordance with the policy of the Bank, to be applied to disbursements of the loan made during the second half of the year. At the request of the borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.
7. Disbursement: The term for disbursement of the financing shall expire 4 years after the effective date of the contract.
8. Special Conditions:
  - (a) The resources of the loan related to the improvement and paving of the road shall be utilized by the Departamento Nacional de Estradas de Rodagem (DNER), and those resources related to the protection of: (i) the environment and (ii) the indigenous population in the area of indirect influence of the road shall be utilized by the Instituto do Planejamento Econômico e Social (IPEA). If modifications in the legal provisions or the basic regulations concerning the DNER and/or IPEA are approved which, in the opinion of the Bank, may substantially affect the project, the Bank shall have the right to require the borrower and/or the DNER and/or IPEA to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the project. Only after hearing the borrower and/or DNER and/or IPEA and assessing their information and clarifications, may the Bank take such measures as it deems appropriate in accordance with provisions to be set forth in the loan contract.
  - (b) The resources of the loan, together with the resources of Loan /OC-BR, shall be used to participate in the execution of a project estimated at the equivalent of US\$146,700,000. Consequently, the loan contracts shall contain such provisions as the Bank deems appropriate to ensure that such resources as may be necessary, in addition to the loans, for the complete execution of the project shall be duly provided, in an amount estimated at the equivalent of US\$88,200,000, in accordance with a schedule of investments satisfactory to the Bank.

- (c) Prior to the signature of the loan contracts, the borrower shall present to the Bank, in a form considered satisfactory by the Bank evidence that an agreement was signed by and among the IPEA, the Secretaria do Meio Ambiente (SEMA), the Instituto Brasileiro de Desenvolvimento Florestal (IBDF), the Fundação Nacional do Índio (FUNAI), the Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA) and the Instituto Nacional de Colonização e Reforma Agrária (INCRA) for: (i) the preparation of the action plans referred to in Sections 8.02(ii) and 8.02(v) of Appendix IV; and (ii) the implementation of measures for prevention and mitigation of any adverse effects the project may have on the environment, natural resources and indigenous population in the area of indirect influence of the Porto Velho - Rio Branco Road, in accordance with the guidelines set forth in Section VIII of Appendix IV.
- (d) Prior to the first disbursement of the financing, the borrower shall present to the Bank, in a form considered satisfactory by the Bank: (i) a provisional action plan to be implemented by the SEMA, the IBDF and by the FUNAI; (ii) evidence of the availability of the necessary budgetary resources and personnel for: (1) FUNAI to begin demarcating tribal lands in the area of indirect influence of the project; (2) SEMA, IBDF and FUNAI to begin implementation, immediately subsequent to Bank approval of the referred to provisional action plan, of other measures designed to prevent and mitigate adverse effects on the environment, natural resources and indigenous population in the area of indirect influence of the project, as described in Section VIII of Appendix IV; and (3) preparation of the Environmental Study described in Section VIII of Appendix IV.
- (e) In the acquisition of machinery, equipment and other materials for the project, and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisitions or contracts exceeds the equivalent of US\$100,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
- (f) The provisions in (e) above notwithstanding, the Bank, at the request of the borrower, may agree that construction pertaining to the project up to a total amount not exceeding the equivalent of US\$3,670,000, be executed under an agreement with the Ministério do Exército.
- (g) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the project, and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing the sum of US\$440,000 shall be allocated for credit to the income accounts of the Bank to meet expenses of general inspection and supervision.



PROPOSED RESOLUTION 1/

BRASIL. LOAN /OC-BR TO THE REPUBLICA FEDERATIVA DO BRASIL  
(Rio Branco-Porto Velho Road Project)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República Federativa do Brasil, as borrower, for the purpose of granting it a financing to cooperate in the execution of a project for the paving and improvement of the Rio Branco-Porto Velho Road. This financing shall be subject substantially to the following conditions:

1. Amount and Currencies: Up to the equivalent of US\$14,500,000 in cruzeiros which are part of the ordinary capital resources of the Bank to cover local expenses and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in cruzeiros, in a quantity equivalent to the corresponding amount owed, calculated in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Source of Funds: The ordinary capital resources of the Bank.
3. Guarantee: The general responsibility of the borrower.
4. Amortization: The borrower shall amortize the loan in a period of 20 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing.

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1/ The provisions contained in this Appendix II and in the Appendices I, III and IV will only be final when the Board of Executive Directors has approved the proposed loan.

5. Interest: 4% per annum including the 1% special commission of the Bank payable semiannually on principal amounts outstanding. The first payment shall be made 6 months after the date of the contract. At the request of the borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.
6. Disbursement: The term for disbursement of the financing shall expire 4 years after the effective date of the contract.
7. Special Conditions:
  - (a) The resources of the loan related to the improvement and paving of the road shall be utilized by the Departamento Nacional de Estradas de Rodagem (DNER), and those resources related to the protection of: (i) the environment and (ii) the indigenous population in the area of indirect influence of the road shall be utilized by the Instituto do Planejamento Econômico e Social (IPEA). If modifications in the legal provisions or the basic regulations concerning the DNER and/or IPEA are approved which, in the opinion of the Bank, may substantially affect the project, the Bank shall have the right to require the borrower and/or the DNER and/or IPEA to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the project. Only after hearing the borrower and/or DNER and/or IPEA and assessing their information and clarifications, may the Bank take such measures as it deems appropriate in accordance with provisions to be set forth in the loan contract.
  - (b) The resources of the loan, together with the resources of Loan /IC-BR, shall be used to participate in the execution of a project estimated at the equivalent of US\$146,700,000. Consequently, the loan contracts shall contain such provisions as the Bank deems appropriate to ensure that such resources as may be necessary, in addition to the loans, for the complete execution of the project shall be duly provided, in an amount estimated at the equivalent of US\$88,200,000, in accordance with a schedule of investments satisfactory to the Bank.
  - (c) Prior to the signature of the loan contracts, the borrower shall present to the Bank, in a form considered satisfactory by the Bank evidence that an agreement was signed by and among the IPEA, the Secretaria do Meio Ambiente (SEMA), the Instituto Brasileiro de Desenvolvimento Florestal (IBDF), the Fundação Nacional do Índio (FUNAI), the Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA) and the Instituto Nacional de Colonização e Reforma Agrária (INCRA) for: (i) the preparation of the action plans referred to in Sections 8.02(ii) and 8.02(v) of Appendix IV; and (ii) the implementation of measures for prevention and mitigation of any adverse effects the project may have on the environment, natural resources and indigenous population in the area of indirect influence of the Porto Velho - Rio Branco Road, in accordance with the guidelines set forth in Section VIII of Appendix IV.

- (d) Prior to the first disbursement of the financing, the borrower shall present to the Bank, in a form considered satisfactory by the Bank: (i) a provisional action plan to be implemented by the SEMA, the IBDF and by the FUNAI; (ii) evidence of the availability of the necessary budgetary resources and personnel for: (1) FUNAI to begin demarcating tribal lands in the area of indirect influence of the project; (2) SEMA, IBDF and FUNAI to begin implementation, immediately subsequent to Bank approval of the referred to provisional action plan, of other measures designed to prevent and mitigate adverse effects on the environment, natural resources and indigenous population in the area of indirect influence of the project, as described in Section VIII of Appendix IV; and (3) preparation of the Environmental Study described in Section VIII of Appendix IV.
- (e) In the acquisition of machinery, equipment and other materials for the project, and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisitions or contracts exceeds the equivalent of US\$100,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
- (f) The provisions in (e) above notwithstanding, the Bank, at the request of the borrower, may agree that construction pertaining to the project up to a total amount not exceeding the equivalent of US\$3,670,000, be executed under an agreement with the Ministério do Exército.
- (g) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the project, and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing the sum of US\$440,000 and the equivalent of US\$145,000 in cruzeiros shall be allocated for credit to the income accounts of the Bank to meet expenses of general inspection and supervision.

- (d) Prior to the first disbursement of the financing, the borrower shall present to the Bank, in a form considered satisfactory by the Bank: (i) a provisional action plan to be implemented by the SEMA, the IBDF and by the FUNAI; (ii) evidence of the availability of the necessary budgetary resources and personnel for: (1) FUNAI to begin demarcating tribal lands in the area of indirect influence of the project; (2) SEMA, IBDF and FUNAI to begin implementation, immediately subsequent to Bank approval of the referred to provisional action plan, of other measures designed to prevent and mitigate adverse effects on the environment, natural resources and indigenous population in the area of indirect influence of the project, as described in Section VIII of Appendix IV; and (3) preparation of the Environmental Study described in Section VIII of Appendix IV.
- (e) In the acquisition of machinery, equipment and other materials for the project, and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisitions or contracts exceeds the equivalent of US\$100,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
- (f) The provisions in (e) above notwithstanding, the Bank, at the request of the borrower, may agree that construction pertaining to the project up to a total amount not exceeding the equivalent of US\$3,670,000, be executed under an agreement with the Ministério do Exército.
- (g) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the project, and the borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing the sum of US\$440,000 and the equivalent of US\$145,000 in cruzeiros shall be allocated for credit to the income accounts of the Bank to meet expenses of general inspection and supervision.

RECOMMENDATIONS

- A. It is recommended that the following conditions, to be fulfilled in a manner satisfactory to the Bank, be included in the loan contracts in addition to the conditions set forth in the proposed resolutions:
1. From the date of the signature of the loan contract, each six months, up to six years after the final disbursement of the loan, the IPEA shall present to the Bank, reports related to the implementation of the measures taken according to the action plans described in paragraphs 8.02(ii) and 8.02(v) of the Appendix IV.
  2. Within the first 90 days of each year following the first year of the execution of the project for a period up to six years after the final disbursement of the financing, the borrower shall present to the Bank evidence of the allocation of the necessary resources for the continuous and adequate implementation of the action plans described in paragraphs 8.02(ii) and 8.02(v) of the Appendix IV.
  3. Prior to issuing each call for bids for construction or for procurement of goods and services, or prior to initiating any construction by force account, the borrower, through the Executing Agency, shall present to the Bank: (a) the final plans, specifications and budgets and, in the case of a call for bids, the bidding requirements and any other documents needed for such call; and (b) evidence that it has legal possession of the lands and of the easements or other pertinent rights that will make possible the construction in question or the installation of the equipment in question.
  4. Within 12 months of the date of the contract, the Executing Agency shall present evidence to the Bank that: (i) the Coordination Unit has a professional with training in business administration; and (ii) an accountant has been designated in its Division of Finance to maintain the records of the transactions of the project.
  5. Within the third year following the date of the last disbursement of the financing, the Executing Agency shall present the ex post evaluation report on the results of the project, which shall be based on the indicators referred to in Section VI of Appendix IV and on the guidelines and methodologies agreed upon with the Bank.
  6. For a period of 10 years, counted from the end of the execution of the program, the borrower, through the Executing Agency, shall maintain the road, by applying the pertinent annual maintenance plans, in accordance with the provisions of Section VI of Appendix IV to this document.

7. Within a period of 18 months from the date of the contract, the borrower, through IPEA, shall present for the Bank's approval an environmental study including the definitive action plan referred to in Section 8.02(v) of Appendix IV.
  8. The financial statement of the project including the expenses related to the environmental protection and the Indian population, during the period of its execution, shall be presented to the Bank with an opinion of the Secretaria Central de Controle Interno of the Secretaria de Planejamento of the Office of the President of the Republic.
- B. An annex substantially similar in content to Appendix IV (The Project) to this proposal shall be included in the loan contracts.

## THE PROJECT

(Annex A of the Loan Contract)

### I. Objectives

- 1.01 (a) To improve the regional highway system, affording continuous access to the State of Acre which is at this time inaccessible by land for part of the year owing to floods; (b) to contribute to economic activity in the region by reducing the cost of transportation and providing for improved access to markets; and (c) to perfect the overland link between the capitals of the States of Rondônia and Acre. To prevent negative environmental effects, direct and indirect alike, relevant activities will be performed by the responsible national organizations.

### II. Description

- 2.01 The project will comprise the following activities:

- (a) Widening and paving about 502 km of part of highway BR-364 between the cities of Porto Velho, Abunã and Rio Branco and construction of associated bridges; improvement of the ferry crossing where highway BR-364 meets the Madeira river, at Abunã, by the installation of new ramps, repair of the existing ferry and procurement of a supplementary one; and establishment of the infrastructure and administrative facilities needed to maintain the road, including two traffic control posts, two truck-weighing stations, and three maintenance units;
- (b) execution of a provisional plan of action and a definitive plan of action for protection of the environment in the indirect area of influence of the Porto Velho-Rio Branco road for the purpose of preventing, controlling and reducing negative environmental impacts in that area and the consequent acceleration of the processes of space occupation, as well as to protect the indigenous communities from such impacts. The project will moreover include the preparation of an environmental and economic zoning plan to provide for orderly occupation of space and rational use of natural resources.

### III. Cost and Financing

- 3.01 The total cost of the project is estimated at US\$146,7 million equivalent, allocated as shown in the following table:

Costs by Investment Category and Source of Financing

(Equivalent in US\$ thousands)

Category	I D B			Counter- part	Total	%
	Foreign	Local	Total			
	exchange IC	currency OC	IDB			
1. <u>Engineering and Administration</u>	125		125	8,125	8,250	5.6
1.1 Engineering	-	-	-	7,020	7,020	4.8
1.2 Administration	125	-	125	1,105	1,230	0.8
2. <u>Direct Costs</u>	26,192	7,368	33,560	54,040	87,600	59.7
2.1 Porto Velho - Km.30	-	-	-	3,670	3,670	2.5
2.2 Km. 30 - Abunã	8,683	2,913	11,596	15,344	26,940	18.4
2.3 Abunã - Rio Branco	17,509	4,455	21,964	35,026	56,990	38.8
3. <u>Finance Charge</u>	9,520	1,060	10,580	1,010	11,590	7.9
3.1 Interest (BID)	9,080	915	9,995	-	9,995	6.8
3.2 Credit comission	-	-	-	1,010	1,010	0.7
3.3 Inspection and supervision	440	145	585	-	585	0.4
4. <u>Unallocated</u>	7,963	3,472	11,435	20,855	32,290	22.0
4.1 Contingencies <sup>1/</sup>	3,523	1,632	5,155	9,485	14,640	10.0
4.2 Escalation	4,440	1,840	6,280	11,370	17,650	12.0
5. <u>Associated Expenses</u>						
5.1 Protection of the environment and the indigenous population	200	2,600	2,800	4,170	6,970	4.8
Total Cost	44,000 =====	14,500 =====	58,500 =====	88,200 =====	146,700 =====	100.0 =====
Percentage (%)	30.0	9.9	39.9	60.1	100.0	

<sup>1/</sup> Of this amount the equivalent of US\$3,030 is designated to the protection of the environment and the indigenous population.



IV. Acquisition of Goods and Contracting

- 4.01 When goods to be procured or services to be contracted are to be financed in whole or in part with foreign exchange from the Bank's financing, the procedures and specifications of the invitation for bids or any other form of purchase or contracting shall permit unrestricted participation of goods and services, including those relating to any means of transportation, originating in member countries of the Bank. Consequently, no conditions that would preclude or restrict the supply of goods or the participation of suppliers from those countries may be imposed.

V. Consultants

- 5.01 In the selection and contracting of consulting services financed in whole or in part with the resources of the loans, the procedures set forth in the contract shall be adopted. It is agreed that with the resources in foreign exchange of loan /IC-BR, the borrower, in the said selection and contracting of consulting services, shall set no provisions or conditions such as would restrict or preclude the participation of consultants originating in the member countries of the Bank.
- 5.02 The executing agency, before contracting with local counterpart funds the consulting firms that will advise it in the execution of the program, shall submit to the Bank for approval the names of the firms selected, the specifications of the services to be rendered, and the adjusted price for payment.

VI. Conservation

- 6.01 To assure effective conservation of the works constructed under the project and follow-up of the maintenance operations of the Porto Velho-Rio Branco road, considering the supply of machinery and equipment to be procured, the following rules will be followed in a manner deemed satisfactory to the Bank.
- A. During 10 years from the completion of the project, the borrower, through the executing agency, shall submit to the Bank, by the end of the third month of each fiscal year:
- (i) Starting in the year after completion of project execution, an annual plan of routine preventive maintenance and advance maintenance of the road, the bridges and the ferries. The plan shall include the requisite staff; the quantity, type and condition of equipment to be used in maintenance; the location of the traffic control posts, truck-weighting station and maintenance units, and the number of kilometers designated for each maintenance unit. The plan shall also specify the financial assets allocated for maintenance in that year of the plan as well as in the preceding year;

- (ii) As from the second annual maintenance plan to be submitted to the Bank, as specified in the foregoing paragraph, an evaluation report on the relevant annual plan will be attached, based on an information system showing the measure of sufficiency by which the preceding annual estimates were met and so structured as to provide an overall qualification of the conditions of maintenance of the road based on a numerical evaluation of the results obtained in the various components, such as pavement, shoulders, ditches, drainage facilities and bridges.

B. Starting 6 months after the completion of the road, at 12 months intervals thereafter and up until a date 6 months preceding the presentation of the ex post evaluation report referred to in Section 7.01, the borrower, through the executing agency, shall submit to the Bank an assessment of the quality of the roadway surface based on evaluations to be conducted of representative sections of the road:

- (i) Assessment of surface deflections of the road using gauges similar to the "Benkelman Beam";
- (ii) Assessment of the road surface using the "Mays Meter";
- (iii) Assessment of maintenance by DNER of the road using a numerical system to analyze the condition of the different components, including pavement, shoulders, ditches, drainage and minor structures; and
- (iv) A summary of the results obtained by the truck-weighing stations.

## VII. Ex post Evaluation

7.01 The ex post evaluation report shall include the following:

The DNR shall draw up an ex post evaluation of the project three years after disbursement in full. To frame a basis for evaluation, the DNER shall develop an initial estimate of the following items for presentation to the Bank within 18 months after the signing of the loan contracts: (i) economic cost of the project; (ii) profits from saving of vehicle operating costs; (iii) economic profits from saving of passenger time; (iv) distribution of costs and benefits of the project; and (v) economic indicators.

At the same time, with the initial estimate of the items described above the DNER shall submit as well a description of the scheme to be used to compile annual estimates of those items. Such estimates will be collected and compared each year with the initial estimates, starting 30 months after the signing of the loan contracts and up until the second year after disbursement in full.

Two years after disbursement in full of the IDB loan, the DNER shall submit the annual comparison described in the foregoing paragraph. One year after, the DNER shall submit an ex post evaluation of the project, drawn up according to the methodology agreed with the Bank.

The information to be used for the ex post evaluation report shall be based on the following parameters: (i) a traffic count covering one week in a representative period (for example: at both stations, the dry season and the wet season); (ii) classification by type of vehicle by weight and axle weight, speed, and capacity in tons; (iii) a study of the origin and destination by type of freight and number of passengers (this examination would be necessary only during the traffic count to be made in the third year after completion of the work); (iv) an inventory of traffic conditions (for example: conditions of surface and drainage); (v) annual maintenance costs; (vi) operating costs by type of vehicle; and (vii) statistical data on the population in the area directly served by the project.

As part of the ex post evaluation report to be submitted to the Bank three years after completion of the project, the borrower shall include an analysis of: (i) performance of the unit engaged in prevention and control of environmental impacts during project execution; (ii) results of the environmental study and incorporation thereof in the action plans; and (iii) the state of implementation of the action plans for six months preceding presentation of the ex post evaluation report.

The methodology to be used for the ex post cost/benefit analysis would be the same one used in the ex ante cost/benefit analysis, based primarily on savings in vehicle operating costs, savings in passenger travel time and in traffic generated. All reports shall contain a full description as to how the information was obtained. All modifications and designs, costs or construction schedules as well as any problem found in connection with maintenance shall be duly explained.

#### VIII. Impact of the Project on the Environment and on the Indigenous Population

8.01 Adverse direct effects on the right-of-way of the road. By monitoring and supervising the pavement of the road and other activities, it is the responsibility of the DNER to prevent an adverse impact of the project on the directly surrounding environment. For the most effective monitoring and supervision of that pavement work, the DNER shall have at its disposal, before the start of construction work, the advice of an environmental engineer and a biologist.

8.02 The agreement to be entered into between the IPEA, the SEMA, the IBDF, the INCRA, the FUNAI and EMBRAPA, described in clauses 8(c) and 7(c) of the resolutions, shall establish, among other provisions, as follows:

- (i) Administrative and financial coordination by the IPEA in the performance of measures of environmental protection and protection of the Amerindian population affected by the pavement of the roads.

- (ii) The creation of an inter-institutional and multidisciplinary group made up of SEMA, IBDF, FUNAI, EMBRAPA and INCRA and coordinated by IPEA that shall draw up a provisional action plan as provided for in 8(d) and 7(d) of the Resolutions for implementation during the disbursement period of the loans. The plan shall include a time schedule of execution of the measures designed to prevent and mitigate the adverse effects on the physical environment, the natural and replenishable resources as well as on the indigenous people in the indirect area of influence of the project, as well as evidence of the availability of necessary budgetary resources and personnel to implement said plan.
- (iii) A provisional definition of (a) the area subject to the indirect influence of the road and (b) the protected areas to be inhabited by the indigenous population.
- (iv) Among the measures referred to in subsection (ii) above shall be institution/strengthening, planning and preliminary zoning of land use in the indirect area of influence of the road. Such measures shall ensure effective and rational utilization, preservation of renewable natural resources, and protection of the indigenous population.
- (v) Presentation of the Environmental Study prepared by SEMA, IBDF, FUNAI, INCRA, EMBRAPA and IPEA which will serve to update and modify the provisional action plan.
- (vi) Implementation of the definitive action plan referred to in Recommendation 7 of Appendix III, which will be carried out by SEMA, IBDF, FUNAI, EMBRAPA, and INCRA under the coordination of IPEA.

## THE PROJECT

(Annex A of the Loan Contract)

### I. Objectives

- 1.01 (a) To improve the regional highway system, affording continuous access to the State of Acre which is at this time inaccessible by land for part of the year owing to floods; (b) to contribute to economic activity in the region by reducing the cost of transportation and providing for improved access to markets; and (c) to perfect the overland link between the capitals of the States of Rondônia and Acre. To prevent negative environmental effects, direct and indirect alike, relevant activities will be performed by the responsible national organizations.

### II. Description

- 2.01 The project will comprise the following activities:

- (a) Widening and paving about 502 km of part of highway BR-364 between the cities of Porto Velho, Abunã and Rio Branco and construction of associated bridges; improvement of the ferry crossing where highway BR-364 meets the Madeira river, at Abunã, by the installation of new ramps, repair of the existing ferry and procurement of a supplementary one; and establishment of the infrastructure and administrative facilities needed to maintain the road, including two traffic control posts, two truck-weighing stations, and three maintenance units;
- (b) execution of a provisional plan of action and a definitive plan of action for protection of the environment in the indirect area of influence of the Porto Velho-Rio Branco road for the purpose of preventing, controlling and reducing negative environmental impacts in that area and the consequent acceleration of the processes of space occupation, as well as to protect the indigenous communities from such impacts. The project will moreover include the preparation of an environmental and economic zoning plan to provide for orderly occupation of space and rational use of natural resources.

### III. Cost and Financing

- 3.01 The total cost of the project is estimated at US\$146,7 million equivalent, allocated as shown in the following table:

Costs by Investment Category and Source of Financing

(Equivalent in US\$ thousands)

Category	I D B			Local Counter- part	Total	%
	Foreign exchange	Local currency	Total			
	IC	OC	IDB			
1. <u>Engineering and Administration</u>	125	-	125	8,125	8,250	5.6
1.1 Engineering	-	-	-	7,020	7,020	4.8
1.2 Administration	125	-	125	1,105	1,230	0.8
2. <u>Direct Costs</u>	27,025	9,068	9,067	42,440	87,600	59.7
2.1 Porto Velho - Km.30	-	-	-	3,670	3,670	2.5
2.2 Km. 30 - Abunã	8,683	2,913	2,912	12,432	26,940	18.4
2.3 Abunã - Rio Branco	18,342	6,155	6,155	26,338	56,990	38.8
3. <u>Finance Charge</u>	9,520	1,060	1,060	1,010	12,650	8.6
3.1 Interest (BID)	9,080	915	915	-	10,910	7.4
3.2 Credit comission	-	-	-	1,010	1,010	0.7
3.3 Inspection and supervision	440	145	145	-	730	0.5
4. <u>Unallocated</u>	7,330	2,972	2,973	17,955	31,230	21.3
4.1 Contingencies	2,890	1,132	1,133	8,425	13,580	9.3
4.2 Escalation	4,440	1,840	1,840	9,530	17,650	12.0
5. <u>Associated Expenses</u>						
5.1 Protection of the environment and the indigenous population	-	1,400	1,400	4,170	6,970	4.8
Total Cost	44,000	14,500	14,500	73,700	146,700	100.0
Percentage (%)	30.0	9.9	9.9	50.2	100.0	

IV. Acquisition of Goods and Contracting

- 4.01 When goods to be procured or services to be contracted are to be financed in whole or in part with foreign exchange from the Bank's financing, the procedures and specifications of the invitation for bids or any other form of purchase or contracting shall permit unrestricted participation of goods and services, including those relating to any means of transportation, originating in member countries of the Bank. Consequently, no conditions that would preclude or restrict the supply of goods or the participation of suppliers from those countries may be imposed.

V. Consultants

- 5.01 In the selection and contracting of consulting services financed in whole or in part with the resources of the loans, the procedures set forth in the contract shall be adopted. It is agreed that with the resources in foreign exchange of loan /IC-BR, the borrower, in the said selection and contracting of consulting services, shall set no provisions or conditions such as would restrict or preclude the participation of consultants originating in the member countries of the Bank.
- 5.02 The executing agency, before contracting with local counterpart funds the consulting firms that will advise it in the execution of the program, shall submit to the Bank for approval the names of the firms selected, the specifications of the services to be rendered, and the adjusted price for payment.

VI. Conservation

- 6.01 To assure effective conservation of the works constructed under the project and follow-up of the maintenance operations of the Porto Velho-Rio Branco road, considering the supply of machinery and equipment to be procured, the following rules will be followed in a manner deemed satisfactory to the Bank.
- A. During 10 years from the completion of the project, the borrower, through the executing agency, shall submit to the Bank, by the end of the third month of each fiscal year:
- (i) Starting in the year after completion of project execution, an annual plan of routine preventive maintenance and advance maintenance of the road, the bridges and the ferries. The plan shall include the requisite staff; the quantity, type and condition of equipment to be used in maintenance; the location of the traffic control posts, truck-weighting station and maintenance units, and the number of kilometers designated for each maintenance unit. The plan shall also specify the financial assets allocated for maintenance in that year of the plan as well as in the preceding year;

- (ii) As from the second annual maintenance plan to be submitted to the Bank, as specified in the foregoing paragraph, an evaluation report on the relevant annual plan will be attached, based on an information system showing the measure of sufficiency by which the preceding annual estimates were met and so structured as to provide an overall qualification of the conditions of maintenance of the road based on a numerical evaluation of the results obtained in the various components, such as pavement, shoulders, ditches, drainage facilities and bridges.

B. Starting 6 months after the completion of the road, at 12 months intervals thereafter and up until a date 6 months preceding the presentation of the ex post evaluation report referred to in Section 7.01, the borrower, through the executing agency, shall submit to the Bank an assessment of the quality of the roadway surface based on evaluations to be conducted of representative sections of the road:

- (i) Assessment of surface deflections of the road using gauges similar to the "Benkelman Beam";
- (ii) Assessment of the road surface using the "Mays Meter";
- (iii) Assessment of maintenance by DNER of the road using a numerical system to analyze the condition of the different components, including pavement, shoulders, ditches, drainage and minor structures; and
- (iv) A summary of the results obtained by the truck-weighing stations.

## VII. Ex post Evaluation

7.01 The ex post evaluation report shall include the following:

The DNR shall draw up an ex post evaluation of the project three years after disbursement in full. To frame a basis for evaluation, the DNER shall develop an initial estimate of the following items for presentation to the Bank within 18 months after the signing of the loan contracts: (i) economic cost of the project; (ii) profits from saving of vehicle operating costs; (iii) economic profits from saving of passenger time; (iv) distribution of costs and benefits of the project; and (v) economic indicators.

At the same time, with the initial estimate of the items described above the DNER shall submit as well a description of the scheme to be used to compile annual estimates of those items. Such estimates will be collected and compared each year with the initial estimates, starting 30 months after the signing of the loan contracts and up until the second year after disbursement in full.



Two years after disbursement in full of the IDB loan, the DNER shall submit the annual comparison described in the foregoing paragraph. One year after, the DNER shall submit an ex post evaluation of the project, drawn up according to the methodology agreed with the Bank.

The information to be used for the ex post evaluation report shall be based on the following parameters: (i) a traffic count covering one week in a representative period (for example: at both stations, the dry season and the wet season); (ii) classification by type of vehicle by weight and axle weight, speed, and capacity in tons; (iii) a study of the origin and destination by type of freight and number of passengers (this examination would be necessary only during the traffic count to be made in the third year after completion of the work); (iv) an inventory of traffic conditions (for example: conditions of surface and drainage); (v) annual maintenance costs; (vi) operating costs by type of vehicle; and (vii) statistical data on the population in the area directly served by the project.

As part of the ex post evaluation report to be submitted to the Bank three years after completion of the project, the borrower shall include an analysis of: (i) performance of the unit engaged in prevention and control of environmental impacts during project execution; (ii) results of the environmental study and incorporation thereof in the action plans; and (iii) the state of implementation of the action plans for six months preceding presentation of the ex post evaluation report.

The methodology to be used for the ex post cost/benefit analysis would be the same one used in the ex ante cost/benefit analysis, based primarily on savings in vehicle operating costs, savings in passenger travel time and in traffic generated. All reports shall contain a full description as to how the information was obtained. All modifications and designs, costs or construction schedules as well as any problem found in connection with maintenance shall be duly explained.

#### VIII. Impact of the Project on the Environment and on the Indigenous Population

8.01 Adverse direct effects on the right-of-way of the road. By monitoring and supervising the pavement of the road and other activities, it is the responsibility of the DNER to prevent an adverse impact of the project on the directly surrounding environment. For the most effective monitoring and supervision of that pavement work, the DNER shall have at its disposal, before the start of construction work, the advice of an environmental engineer and a biologist.

8.02 The agreement to be entered into between the IPEA, the SEMA, the IBDF, the INCRA, the FUNAI and EMBRAPA, described in clauses 8(c) and 7(c) of the resolutions, shall establish, among other provisions, as follows:

- (i) Administrative and financial coordination by the IPEA in the performance of measures of environmental protection and protection of the Amerindian population affected by the pavement of the roads.

- (ii) The creation of an inter-institutional and multidisciplinary group made up of SEMA, IBDF, FUNAI, EMBRAPA and INCRA and coordinated by IPEA that shall draw up a provisional action plan as provided for in 8(d) and 7(d) of the Resolutions for implementation during the disbursement period of the loans. The plan shall include a time schedule of execution of the measures designed to prevent and mitigate the adverse effects on the physical environment, the natural and replenishable resources as well as on the indigenous people in the indirect area of influence of the project, as well as evidence of the availability of necessary budgetary resources and personnel to implement said plan.
- (iii) A provisional definition of (a) the area subject to the indirect influence of the road and (b) the protected areas to be inhabited by the indigenous population.
- (iv) Among the measures referred to in subsection (ii) above shall be institution/strengthening, planning and preliminary zoning of land use in the indirect area of influence of the road. Such measures shall ensure effective and rational utilization, preservation of renewable natural resources, and protection of the indigenous population.
- (v) Presentation of the Environmental Study prepared by SEMA, IBDF, FUNAI, INCRA, EMBRAPA and IPEA which will serve to update and modify the provisional action plan.
- (vi) Implementation of the definitive action plan referred to in Recommendation 7 of Appendix IV, which will be carried out by SEMA, IBDF, FUNAI, EMBRAPA, and INCRA under the coordination of IPEA.