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Report No: 23625-BO

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT
IN THE AMOUNT OF SDR62 MILLION
(US\$77 MILLION EQUIVALENT)
TO THE
REPUBLIC OF BOLIVIA
FOR THE
ROAD REHABILITATION AND MAINTENANCE PROJECT
MARCH 15, 2002

**Finance, Private Sector and Infrastructure Department
Country Management Unit - LCC6C
Latin America and Caribbean Region**

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 12, 2002)

Currency Unit = Bolivianos
1 Boliviano = US\$0.142857
US\$1 = 7.00 Bolivianos

FISCAL YEAR

January 1 -- December 31

ABBREVIATIONS AND ACRONYMS

| | |
|----------|--|
| AIS | Accident Information System |
| ARI | Institutional Reform Agreement (<i>Acuerdo de Reforma Institucional</i>) |
| CAF | Andean Development Corporation (<i>Corporación Andina de Fomento</i>) |
| CAS | Country Assistance Strategy |
| CDF | Comprehensive Development Framework |
| CNCV | Road Maintenance National Account (<i>Cuenta Nacional de Conservación Vial</i>) |
| FMR | Financial Monitoring Reports |
| FONPLATA | Financial Fund for the Development of the River Plata Basin (<i>Fondo Financiero para el Desarrollo de la Cuenca del Plata</i>) |
| GOB | Government of Bolivia |
| HDM | Highway Design and Maintenance Standards Model |
| IDA | International Development Association |
| IDB | Inter-American Development Bank |
| MOP | Project Operational Manual (<i>Manual de Operaciones del Proyecto</i>) |
| NDF | Nordic Development Fund |
| PCU | Project Coordinating Unit |
| PRSP | Poverty Reduction Strategy Paper |
| SEPCAM | Prefectural Road Agency (<i>Servicio Prefectural de Caminos</i>) |
| SINCON | Accounting Control System at the SNC (<i>Sistema de Contabilidad</i>) |
| SNC | National Roads Agency (<i>Servicio Nacional de Caminos</i>) |
| VMT | Vice ministry of Transport, Communications and Civil Aeronautics (<i>Viceministerio de Transporte, Comunicaciones y Aeronáutica Civil</i>) |

| | |
|--------------------------------|-------------------|
| Vice President: | David de Ferranti |
| Country Manager/Director: | Isabel Guerrero |
| Sector Manager/Director: | Danny Leipziger |
| Task Team Leader/Task Manager: | Aurelio Menendez |

BOLIVIA
ROAD REHABILITATION AND MAINTENANCE PROJECT

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MAP(S)
IBRD 31797

BOLIVIA
Road Rehabilitation and Maintenance Project

Project Appraisal Document

Latin America and Caribbean Region
LCSFT

| | |
|---|---|
| Date: March 15, 2002 | Team Leader: Aurelio Menendez |
| Country Manager/Director: Isabel M. Guerrero | Sector Manager/Director: Danny M. Leipziger |
| Project ID: P068968 | Sector(s): BI - Institutional Development, TH - Highways |
| Lending Instrument: Specific Investment Loan (SIL) | Theme(s): Transport |
| | Poverty Targeted Intervention: N |

Program Financing Data

Loan Credit Grant Guarantee Other:

For Loans/Credits/Others:

Amount (US\$m): \$77.0

Proposed Terms (IDA): Standard Credit

Grace period (years): 10

Years to maturity: 35

Service charge: 0.75%

| Financing Plan (US\$m): | Source | Local | Foreign | Total |
|-------------------------|--------|---------------|--------------|---------------|
| BORROWER | | 138.33 | 61.67 | 200.00 |
| IDA | | 43.90 | 33.10 | 77.00 |
| NORDIC DEVELOPMENT FUND | | 4.18 | 2.82 | 7.00 |
| Total: | | 186.42 | 97.58 | 284.00 |

Borrower: REPUBLIC OF BOLIVIA

Responsible agency: SERVICIO NACIONAL DE CAMINOS

Address: Av. Mariscal Santa Cruz esquina Oruro, Edificio Centro de Comunicaciones, Piso 8, La Paz, Bolivia

Contact Person: Sr. José María Bakovic, Presidente Ejecutivo, Servicio Nacional de Caminos

Tel: 591-2-2356513

Fax: 591-2-2391724

Email:

Estimated disbursements (Bank FY/US\$m):

| FY | 2003 | 2004 | 2005 | 2006 | 2007 | | | |
|------------|-------|-------|-------|-------|-------|--|--|--|
| Annual | 14.15 | 23.52 | 23.48 | 14.13 | 1.72 | | | |
| Cumulative | 14.15 | 37.67 | 61.15 | 75.28 | 77.00 | | | |

Project implementation period: June 2002-June 2007

Expected effectiveness date: 06/30/2002 **Expected closing date:** 12/31/2007

A. Project Development Objective

1. Project development objective: (see Annex 1)

The project development objective is to improve road transitivity and accessibility through the rehabilitation of key segments of the national and secondary road networks and the strengthening of the country's capacity to manage road assets. At an overall level, the project seeks to preserve economic development along key road links of the national network and facilitate the social and economic integration of the regions and communities in the area of influence of those links.

The specific project development objectives are to: (a) arrest the premature deterioration and the increasing maintenance costs of key links of the national road network and support the implementation of a sustainable mechanism for the proper maintenance of the national road network; (b) consolidate the revamping of the institutional framework by making the national roads agency results-oriented and improving the efficiency and transparency of contractual practices; (c) pilot coordinating mechanisms that can help strengthen the institutional capacity of the *Prefecturas* (deconcentrated departmental units of the central government) to manage the secondary road networks under their jurisdiction; and (d) initiate the development of a road safety initiative, to reduce the comparatively-high accident rate existing on Bolivian highways (and particularly affecting travelers with lower income levels). These objectives are aligned with those established in the Bolivia Poverty Reduction Strategy Paper (PRSP) reviewed by the Bank in May 2001.

2. Key performance indicators: (see Annex 1)

The selected key performance indicators attempt to capture and reflect the expected development impact of the rehabilitation investments, the maintenance activities, and the enhanced institutional framework. The key indicators to measure the achievement of the overall development objective are: (a) percentage decrease in freight and passenger tariffs along the links to be rehabilitated under the project, and (b) percentage increase in the number of passengers traveling on buses along those links (compared to routes along links not subject to similar interventions).

The indicators related to the specific project objectives include: (a) percentage of the national road network in at least good condition and percentage of periodic and routine maintenance costs covered with sustained resources from road users' charges (tolls, tariffs on fuel consumption, or vehicle-ownership fees); (b) progress in the institutional reform by sustaining the implementation of the framework sanctioned by Law 2064 of April 2000, and Supreme Decree 26336 of September 2001, and by generating and sharing with road users and stakeholders the performance results of the national roads agency and the performance audits of the use of the maintenance resources; (c) departmental road agencies of participating *Prefecturas* able to design and implement network-based maintenance plans and budgets, with indication of maintenance activities, costs and productivities; and (d) action plan for improving the road safety designed and decisions made on the implementation of an institutional framework as a focal point for coordinating efforts related to road safety.

The performance indicators of the Project are consistent and complement those of the PRSP in relation to the condition of the national road network, the promotion of private sector participation in road maintenance, and the achievement of efficiencies in the execution of the road sector budget. Furthermore, the institutional development indicators are interrelated to governance issues identified in the PRSP that are being addressed at the country level. These indicators have been narrowed down to tailor them to the specific context of the road sector.

B. Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)
Document number: 17890-BO **Date of latest CAS discussion:** June 16, 1998

The project is consistent with the Country Assistance Strategy (CAS) discussed by the Board on June 16, 1998, the Country Development Framework (CDF) presented in document 19326-BO of May 21, 1999, and the Poverty Reduction Strategy Paper (PRSP) presented by the Government of Bolivia in March 2001. The PRSP was reviewed by the Bank and the IMF in the Joint Staff Assessment dated May 10, 2001. On that same date, a Progress Report of the CAS was presented to the Board who discussed it on June 20, 2001. The project is also consistent with that Assessment and CAS Progress Report.

The CAS and the CDF were prepared following a participatory approach which included frequent workshops with the World Bank and other external donors. As such the CAS and the CDF reflect a joint assessment of the new directions of donor-funded projects. The main objective of both the CAS and the CDF is to support the poverty reduction effort of the Government of Bolivia, with a focus on three pillars: opportunity, equity and institutionality. One of the three key areas of the opportunity pillar is to improve the physical infrastructure of Bolivia, with particular emphasis on upgrading the conditions of the road network and the capacity of the public sector to manage it, with the participation of the private sector to the maximum possible extent. Infrastructure is then identified as a key element as the country's limited and deteriorating infrastructure represents a critical constraint to faster growth and more equitable distribution of economic benefits, perpetuating poverty in those areas with low accessibility to economic opportunities. Under the institutionality pillar, the key action focuses on the reform of public sector institutions towards instilling efficiency and transparent practices in their actions and programs. The project is also consistent with the World Bank Group strategy to facilitate the development of the private sector (as presented in Annex E of the CAS). The IDA-supported interventions advanced in the CAS are to be complemented by projects to be financed by other international donors, chiefly the IDB and the CAF.

The project is also consistent with the strategies and priorities identified in the Poverty Reduction Strategy Paper (PRSP) presented by the Government of Bolivia in March 2001 (as well as with other initiatives such as the World Bank-sponsored study on the competitiveness of Bolivian industry--"Bolivia Microeconomic Constraints and Opportunities for Higher Growth", dated January 16, 2001).¹ The PRSP singles out improvements in road (and other productive) infrastructure at the national and local levels as key to enhancing the opportunity to spur economic development (increasing incomes and employment). It is stated that the lack of adequate roads constitutes a significant obstacle for the commercialization of products and makes it more difficult for small producers to market their products due to the high costs of transport and the ensuing monopsonic conditions of the commercialization chain. The priority of the sub-sector is reflected in the proposed allocation of resources, of which about 50% of the estimated 2000-06 investments of the PRSP are assigned to the enhancement of economic opportunities, and half of that amount to improvements in road infrastructure. In addition, the PRSP emphasizes the need to increase the effectiveness and efficiency of institutions in the public sector, and those of the road sector in particular, as a mechanism to reduce the risks that stem from weak governance and the presence of corruption.

The economic advancement of Bolivia and the reduction of its poverty levels require a well-functioning transport system. This involves the establishment of the institutional capacity to preserve road assets and undertake investments that can help integrate the regions of the country. The Project is a cornerstone of this overall strategy and aims at attending the goals of the PRSP and the CAS by contributing to arrest the deterioration of the road network and to improve the management capacity of the sector institutions. The

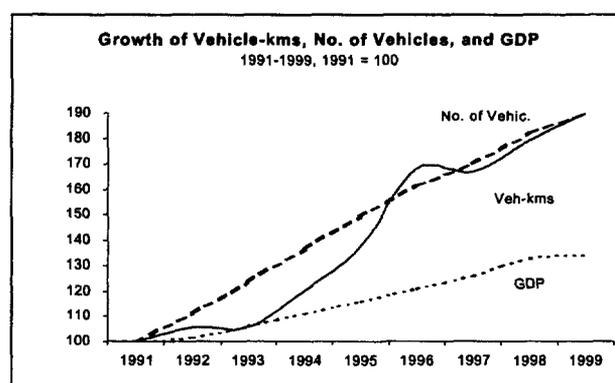
project constitutes a follow-on operation to strengthen the sector institutional framework and rehabilitate key sections of the national network started under the (completed) Second Road Maintenance Project (partially thwarted by the implementation of a deficient decentralization initiative from 1995 to 1998) and the (ongoing) Abapo-Camiri Highway Project (Credit BO-3235). The project complements specific sector institutional reform actions carried out under the Institutional Reform Project (Credit BO-3245).

¹ The PRSP reflects the broader consensual strategies agreed upon among the Government, civil society and international donors, as well as the opinions gathered through the public consultation process--known as National Dialogue 2000.

2. Main sector issues and Government strategy:

This section presents transport sector issues as they impinge on strategies that aim at: (a) preserving and expanding the road assets required for the proper socio-economic development of the country; (b) revamping the institutional capacity for managing road assets; (c) redressing the condition of road networks; and (c) enhancing road maintenance practices and financing. Unfortunately, the lack of reliable recent statistics on the road network and use--largely caused by the failed decentralization of the road administration that took place in 1996--does not allow for a more precise in-depth analysis of the trends during the last ten years. The data provided in this section constitute the best estimates available.

Deferred attention to the road infrastructure needs required by sustained economic development. The Bolivian economy has been growing at around 4% during most of the 90s (with a deceleration since 1999 caused in part by the effects of external crises). The economic growth has generated additional traffic and the number of vehicle-kilometers has shown an average annual growth rate of 8.3% between 1991 and 1999 as has the number of registered vehicles. Both of these variables show a combined rate of increase of more than double that of the GDP (see Figure 1). About 80% of the number of vehicle-kilometers take place on the 11,000-km national network. Both passenger and freight traffic is provided by a highly competitive and largely unregulated transport service industry. The increase in the number of vehicle-kilometers has been accompanied by a substantial increase in the number of accidents (doubling between 1994 and 1996 and oscillating at around 1,000 fatalities per year between 1996 and 1999), making Bolivia one of the countries in Latin America with the highest fatality rates (in terms of number of fatalities per vehicle-km).¹ Accidents on the road network--often involving buses--make unfortunate headlines in the Bolivian newspapers.



These traffic trends underpin the importance of infrastructure in facilitating the social and economic activities that require transport as an input. A 2001 World Bank-sponsored study on the competitiveness of Bolivian industry ("Bolivia Microeconomic Constraints and Opportunities for Higher Growth")

highlights that "[t]he poor state of transport infrastructure in Bolivia is one of the most severe constraints on [the development of] its [manufacturing] industry." The study documents the poor state of roads and the impact produced in the reliability of supply chains, forcing industries to hold high inventory levels (well above other comparable countries) and reducing productivity. It further reports that the poor state of infrastructure raises the running cost for truck fleets and hence the final costs for shippers. And it follows by stating that "the cost of transport in Bolivia--ranging from 2 to 20 times the cost of freight in other neighboring countries--is clearly a major competitive obstacle for the [economic development] of the country." The high cost of road transport is largely responsible for this situation given that 95 percent of all firms that ship their products do so by roads.

These statistics and facts draw attention to the constraints on social and economic activities generated by (a) the poor operating condition of the Bolivian highways that serve the largest consumption and production centers and (b) the deficient network coverage to adequately facilitate the social and economic integration of the country. Years of chronic deficits in public funding, mismanagement of available resources, and poor quality of maintenance have compounded those conditions. While Government programs have underscored investment amounts up to US\$500 million per year, the actual investments from 1990 to 2000 have hovered around US\$110 million in construction and rehabilitation works and up to about US\$20 million in maintenance on the national and secondary networks, with a trend of increasing participation of external sources in the financing of the construction and rehabilitation works.¹ These figures reflect an in-grained management limit to manage, preserve and expand road assets. This limit has diminished the effectiveness of donor support in upgrading and expanding the road network. This support has been hampered by a weak institutional base and ill-designed sector policies implemented in the mid 90s.

Striving to reform and strengthen the institutional and management framework. From 1990 to 1994, with support from multilateral financial institutions--mainly IDB, IDA and CAF--the Government of Bolivia (GOB) attempted to strengthen the institutional capacity to manage and maintain the network, with the development of maintenance management systems and the provision of technical assistance to specific areas of the sectoral institutions--mainly, Vice-Ministry of Transport and the National Roads Agency (or SNC for its Spanish name *Servicio Nacional de Caminos*). However, the Administrative Decentralization Law, No. 1654, of August 1995 (which became effective for the SNC on January 12, 1996), affected negatively those efforts because by transferring the entire network to newly created institutions (the Prefecturas) for the nine regions of Bolivia, human, mechanical (e.g., equipment) and financial resources were spread too thin, reducing the capacity of the sector institutions to manage the road network and attend road emergencies during the rainy season. (Before the decentralization, the SNC had more than 3,000 employees, of which 2,200 were force-account workers and the rest administrative and professional staff.) Furthermore, in the process, information was lost.

The newly created institutions--the *Servicios Prefecturales de Caminos* of the Prefecturas (SEPCAMs)--disregarded largely the maintenance requirements of the national network and, taking the narrower perspective of their internal (departmental) transport needs rather than a national view, shifted their attention to the secondary and tertiary networks on the basis of non-economic considerations. The *Servicios Prefecturales de Caminos*, in addition, did not have (and have not had) the necessary technical skills to address the proper upkeep of all the road assets under their jurisdiction. The SNC remained exclusively as the entity in charge of the execution of donor-financed projects (though even for this activity it had to rely on the resources of the Prefecturas to cover the counterpart financing of those projects).

In light of the palpable deterioration of the national network, the governmental administration that assumed power in August 1997, reversed the course and re-centralized the national network. On September 16, 1997, Law 1788 was passed by the Congress and full responsibility for managing and maintaining the

national network was restored to the SNC with an effective date of January 1, 1999. In August 1998, Supreme Decree No. 25134 reestablished a national network of about 11,000 km and mechanisms to improve the financing of the maintenance of that network, including the establishment of a maintenance account to be funded with 70% of toll revenues (the other 30% to remain with the Prefecturas). The "new" SNC recovered those goods--such as traffic counters and axle-weight control equipment--which had also been transferred to the SEPCAMs as part of the decentralization process and departed with a limited cadre of professionals and the need to outsource the maintenance of the national network (as the previous maintenance workforce had also been entirely transferred to the Prefecturas). As much statistical information on traffic and road condition had not been collected during the "decentralized" period, the newly created SNC lacked the capacity to revamp the maintenance management systems developed previously and to program investments on the basis of actual economic and traffic data. In addition, the process had undermined the motivation of staff and instilled non-transparent procurement practices.

This situation led the GOB to focus on reinvigorating the SNC. By December 1999, the GOB initiated a renewal process by replacing the managers at the helm of the SNC and agreeing with donors on a major institutional restructuring process and overhaul of that agency, with a shift in its mandate from one heavily tilted towards administering its own workforce to another one that focused on administering contracts and managing results. The process consisted of four key elements: (a) definition of a Strategic Plan highlighting institutional shortcomings and the specific actions to address them; (b) definition of the organizational structure and functioning of the SNC to efficiently and effectively carry out its responsibilities as defined under the Strategic Plan; (c) appointment of an Executive President and four members of a Board of Directors on the basis of technical and managerial qualifications; and (d) appointment of technical and administrative staff on the basis of merits and the relevant qualifications. The organizational structure and the related staffing needs were to be sanctioned under an Institutional Reform Agreement (or ARI for its Spanish name). The institutional reform process was undertaken with the participation of civil society, all levels of the governmental administration, and other key stakeholders and was and has been supported with resources from Credit BO-2395 (Second Road Maintenance Project) and Credit BO-3245 (Institutional Reform Project). (Box 1 summarizes the key steps of the process.)

Box 1. Key Steps of the Institutional Reform of the *Servicio Nacional de Caminos*

At project identification, an overall assessment of the institutional framework for the road sector highlighted important weaknesses in the capacity of the key sector entity—the SNC—for managing the road assets in the country. A program of actions was established to revamp that institutional framework with an aim at transforming the entity into a highly technical entity entrusted with the efficient and transparent execution of the annual road investment and maintenance plans. This required the appointment of staff on the basis of managerial and/or technical qualifications and the establishment of sustainable mechanisms for the financing of maintenance.

In January 2000, a two-week long workshop (following the methodology named Situational Strategy Planning, or PES for its Spanish name of *Planeación Estratégica Situacional*) was held in La Paz with the SNC managerial staff and other key stakeholder to identify the principal problems facing the sector and from them the strategy to address them. Subsequently, a series of other seminars took place with participation of civil society. The main weaknesses singled out in the Strategic Plan were: (a) absence of a state policy for road development; (b) inadequate technical and administrative organization of the SNC; (c) insufficient, untimely and ill-distributed resources to attend the maintenance needs of the national network; and (d) consequently, high level of deterioration of the national network. These general problems lead to factors that overall generate substantial economic losses to the country and hampers the social and economic advancement of its poorest regions. The identified problems have led to the definition of specific actions for addressing them, chief among them: (a) a new system of staff recruitment and of career development (the so-called “institutionalization”); (b) establishment of a policy of road users’ charges to ensure the adequate financing of the sector requirements; (c) the creation of an institutional planning system; and (d) implementation of road infrastructure management systems.

As part of this process, the key stakeholders defined a vision and a mission for the entity that would drive their organizational goals and the activities of its employees, towards transforming the SNC into an organization of high performance, highly regarded by the Bolivian society. The vision focuses on user-oriented goals, such as the need to (a) know, understand and attend the needs of road users, and (b) provide the maintenance of the road network with attention to service quality and environmental issues. On the basis of that vision, the mission statement for the entity was defined as: “Serve the society through the provision of a transport system for the core (national) network that is safe and of high quality, promoting the national and international integration, contributing to the development of Bolivia and the social and economic well-being of the population, through the application of technical norms and the swift and efficient administration of the internal and external resources.” This mission led to the definition of institutional objectives and a performance strategy that allowed to prepare an organizational structure of the SNC with particular attention to five key functions: (i) strengthening of human resources; (ii) organization and diffusion of information; (iii) contracting out all the functions that can be undertaken more efficiently or economically by outside parties; (iv) strict and efficient supervision of contracts; and (v) strategic planning for management control. The new organization would require about 300 employees, a number similar to that of the number of regular employees who remained after the decentralization process.

The output of these seminars/workshops became the framework and the basis for including the SNC as a key entity to reform under the Law of Economic Reactivation of April 3, 2000. Since then and until the end of 2001, the GOB moved, albeit in a protracted manner, to implement the dictates of that Law, with the appointment first of the Executive President and members of the Board of Directors in September 2001, and second of the unit managers by end December 2001. In addition, on September 29, 2001, a Supreme Decree (number 26336) was issued establishing the new organizational structure of the SNC and the framework for the inclusion of road users’ charges in the financing of maintenance. In January 2002, the new management team convened at another workshop to revisit, confirm, and update the conclusions of the Strategic Action Plan (this time for the period 2002-2007).

The executing unit for the Institutional Reform Project, located at the Office of the Presidency, through a private management firm, has undertaken the process of selection of staff on the basis of professional merits, on the basis of the organizational structure, including its financial requirements. This program is accompanied with specific institutional development actions to address the shortcomings identified in the Strategic Action Plan. The program has been formalized under an Agreement of Institutional Reform (or ARI for its Spanish name, *Acuerdo de Reforma Institucional*) (to be signed by the Ministry of Finance, the Institutional Reform Project and the SNC to sanction and finance the costs of the institutional reform (with the identification of staffing needs and strengthening actions).

Simultaneously, the Government has proceeded with the establishment of a Road Maintenance National Account, to be funded with resources from tolls and an increasing tariffs from a portion of fuel taxes, and the SNC has undertaken actions for improving road collections, and revamping its planning, supervision and internal control functions to maximize the use of available resources. This actions, complemented with the development of transparent procurement and contracting systems, would complete the reversion of the institutional weaknesses singled out at project identification.

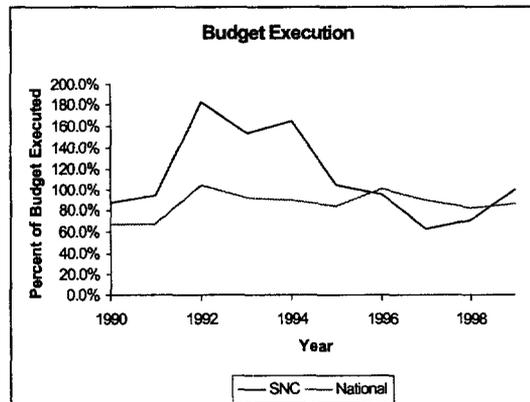
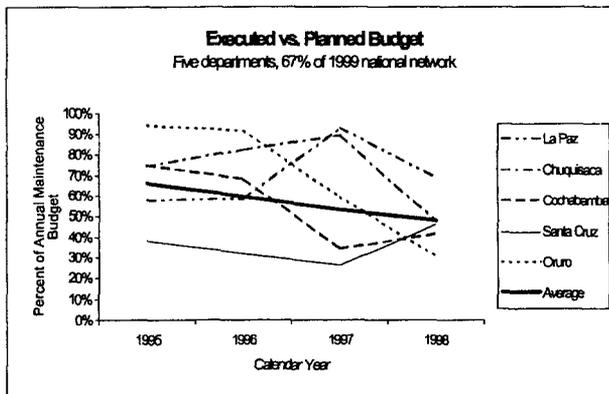
Deteriorated road network conditions. The weakness of the institutional framework affected the condition of the network (particularly, of the 11,000 kilometers of national roads, of which one third is paved). From 1991 to 1995, with support from several multilateral financial institutions in rehabilitation activities, the condition of the network improved steadfastly. However, the amount of resources allocated to maintenance, albeit increasing, was not yet sufficient for the proper long-term upkeep of road assets.

Upon the approval of the Administrative Decentralization Law, the level of maintenance of the road network was further reduced to a third of the previous limited levels, according to statistics from the Ministry of Economic Development and the SNC. Unfortunately, during the "decentralization" period, data on road condition (and other traffic data) were scant, and it has become difficult to assess the actual impact of the decentralization process on road condition. Nevertheless, it is safe to say that the national network suffered a dangerous deteriorating trend and key sections of the network are in need of urgent rehabilitation, lest the future rehabilitation and maintenance costs will increase even further. The table below shows the most up-to-date detailed estimate of the condition of the network based on a visual inspection of the road network. The table shows that in May 2000, only about 11% of the national network was at least in good condition (down from an estimated 15% in 1999), though there was a reduction in the number of kilometers in poor or very poor condition, almost doubling the number of kilometers in regular condition. With the completion of several rehabilitation projects and a renewed interest and effort on road maintenance, another visual inspection carried out in September 2001, showed an increase to about 19% in the number of kilometers in at least good condition. The percentage however remains fairly low by its own value and by international comparisons.

Length (km) and Condition of Bolivian National Network, 2000

| Department | Length of National Road Network | Condition (number of km) | | | | | Total | in construction or projected | Urban road segments |
|--------------|---------------------------------|--------------------------|------------|--------------|--------------|--------------|--------------|------------------------------|---------------------|
| | | Very Good | Good | Regular | Poor | Very Poor | | | |
| La Paz | 1,676 | - | 146 | 656 | 430 | 89 | 1,321 | 330 | 25 |
| Chuquisaca | 731 | - | - | 512 | 198 | - | 710 | - | 21 |
| Tarija | 690 | - | 5 | 511 | 80 | 66 | 662 | - | 28 |
| Cochabamba | 816 | 83 | 237 | 143 | 251 | 83 | 798 | - | 18 |
| Santa Cruz | 3,017 | 1 | 265 | 2,135 | 567 | 11 | 2,978 | - | 38 |
| Oruro | 722 | 61 | 155 | 239 | 210 | 33 | 698 | - | 24 |
| Potosí | 1,090 | - | 45 | 589 | 295 | 137 | 1,067 | - | 23 |
| Pando | 476 | - | 33 | 397 | 46 | - | 476 | - | - |
| Beni | 1,201 | - | 86 | 136 | 384 | 589 | 1,196 | - | 5 |
| Total | 10,419 | 145 | 972 | 5,319 | 2,462 | 1,009 | 9,906 | 330 | 183 |

The deteriorating condition of the network during the "decentralization" period was amplified by the low level of execution of the budget. An analysis of the execution of the road maintenance budget by the main Prefecturas (traversed by 67% of the kilometers of the national road network) during that "decentralization" period, shows deficient levels (see Chart below). This inefficiency in the management of the maintenance budget coupled by the already low levels of that budget (compared to the needs, taking into account the condition of the network and the traffic on it) compounded to create the deteriorated condition described in the previous paragraph. At the National Roads Agency or SNC (the acronym for its name in Spanish: *Servicio Nacional de Caminos*), the level of execution of the budget decreased substantially during the "decentralization" period, falling behind the comparator for the overall national government after a high level during the 1990-1994 (that reflects a similarly high level of investments supported by international donors).



The need to establish sustainable road maintenance practices and financing. Upon the re-centralization of the national network, the SNC, lacking the human resource it had before the "decentralization" period, designed and implemented a program of contracting private enterprises to undertake the maintenance of the road network. A pilot program was initiated with resources from Credit 2395-BO (Second Road Maintenance Project). The pilot was successful in providing a testing ground for undertaking road maintenance with private contractors. However, it proved too short lived and the national program of maintenance developed thereafter did not count with the same level of resources (for both maintenance activities and for supervision) and the experience after almost three years was, in general, less than satisfactory in terms of improvements to the condition of the network. The program however has been a valuable learning process in contracting out maintenance and helped promote a private industry which can efficiently undertake road maintenance activities.

The national program of maintenance has been financed with the resources collected from road tolls and, for emergency works, additional contributions from the National Treasury. The road tolls are deposited in the Road Maintenance National Account created in August 1998 with Supreme Decree No. 25134. With this mechanism, the GOB made a clear—even if still insufficient—commitment to the desirability and need to fund adequately the maintenance of roads. However, as toll collection had been contracted out by the Prefecturas ahead of the recentralization of the national network on terms in general advantageous for the private collecting firms, the system lacked the flexibility to reduce the administrative costs claimed by the toll collection companies and incorporate policy decisions on toll rates. In 2001, the SNC overtook the legal responsibility over the toll collection contracts and is in the process of reviewing them towards the implementation of an action plan to improve their future terms.

At the departmental level, upon the re-centralization of the national network with the SNC, the SEPCAMs of the Prefecturas remained responsible for the secondary network of about 6,000 kilometers and retained the labor and heavy equipment transferred to them under the decentralization process. The capacity of the SEPCAMs to perform their activities in their road networks has been reduced. This is due to several aspects, key among them: (a) the constraints of the resources for the sector, as their administrative costs are high (labor costs absorb most of the 30% of road tolls that are allocated for the maintenance of the secondary road networks) and keeping the heavy equipment operational has generated a financial burden, though the budgets often appear large as the Prefecturas remain responsible for providing the counterpart financing for the investments undertaken with external funds; (b) the tendency to attend requests from

municipalities to attend with the heavy equipment of the SEPCAMs the periodic and emergency maintenance activities on rural roads that are not under the jurisdiction of the *Prefecturas*; and (c) the deficient planning and management capacity due to lack of appropriate information systems and limited numbers of qualified technical staff. Furthermore, the decentralization scheme and experience dissociated the SNC from the SEPCAMs (that to a great extent were built from the previous SNC's district offices) and the relationship became one more of distrust rather than cooperation (in spite of the fact that the *Prefecturas* are deconcentrated units of the central government, with a mandate that should respond to the strategies of that central government). As part of the Strategic Development Plan, the need for coordination among the different levels of government and sector institutions, and considering the feeder (departmental) road network another element of the surface transport system, was identified as another important institutional action that has become part of the GOB strategy for the sector.

In the past, of all the charges collected from road users only those collected through road tolls have been allocated to road-related activities. Seventy percent of these resources is deposited into the Road Maintenance National Account (or CNCV for its Spanish name, *Cuenta Nacional de Conservacion Vial*) created in 1998 for the use of the SNC. However, road users pay to various levels of government a variety of charges through the use, acquisition and transfer of vehicles, the consumption of fuel, and the use of roads. In 2000, the amount collected through these charges were as follows: from fuel taxes, US\$204 million; from tolls, US\$21.2 million; from vehicle licenses, US\$19.6 million; from used-vehicle transfers, US\$4.4 million; and from vehicle import taxes, US\$44.1 million. In all, road users contributed about US\$295 million. With the discount of a valued added tax for fuel consumption (of 12%) and those taxes that are generally applied to other goods in the economy, the total amount of users' charges in 2000 was above US\$250 million, more than three times the US\$78 million estimated to be necessary to cover the routine and periodic maintenance costs for all the road networks (national, secondary and rural, but excluding urban roads).

With the progress in the institutional reform and the definition of the definition of the strategic development plan, the GOB proceeded in September 2001 with the approval of a Supreme Decree that sanctioned the possible allocation of a broad spectrum of road users' charges to the CNCV. The CNCV constitutes an account for the exclusive use of the SNC where the collections from the tolls and other possible road users' charges are deposited. As such, the account, though it does not constitute more than a bank account, it has the possibility of incorporating mechanisms for increasing the resources as required by the needs of the road network. On January 23, 2002, the GOB approved another Supreme Decree (No. 26487) allocating an increasing percentage of the revenues collected from taxes on fuel consumption to the CNCV. In this manner, the resources allocated to the maintenance of road assets is expected to be built up to achieve the level of financing required for the proper up-keep of road assets. As a first step the focus of the CNCV is on the financing of the maintenance needs on the national network. Upon the building up of the resources further options are expected to be assessed to include other levels of the road network and alternative options for the management of the CNCV.

In sum, the most salient sector issues center on the underlying weak institutional framework to manage and finance the improvement and preservation of road assets coupled with shaky maintenance practices which were difficult to enhance and sustain due to poor management and lack of resources. This overall situation has created in the past a vicious circle of disinvestment, complaints by the users, an animosity towards the sector institutions from the general public, and the ensuing reluctance to contribute to the needs of the sector. The current GOB strategy of "institutionalization" of the SNC, complemented with the allocation of specific road users' charges for road maintenance, and actions for revamping the inter-institutional cooperation should follow through to establish a sustainable path. The Project attempts to collaborate in this direction.

¹ Road Directorate, Ministry of Transport, Denmark, "Road Safety in Latin America and the Caribbean Analysis of the Road Safety Situation in Nine Countries," 1998.

² World Bank, "Bolivia Public Expenditure Review," Report No. 19232-BO, Country Management Unit, Country Department VI, Latin America and Caribbean Region, June 14, 1999.

3. Sector issues to be addressed by the project and strategic choices:

The design of the project and the institutional reforms in the road sector advanced ahead of project appraisal emanated from the strategies of the CAS of June 1998 and of the PRSP of March 2001. The needs of the sector are multifaceted and encompass a variety of institutional and investment actions. A strategic choice was made to center on assisting the GOB in the consolidation of the institutional reforms and in tackling the most critical issues on an incremental fashion as a manner to generate the desired effects and the stakeholder awareness and consensus for further actions and interventions. In this respect, the Project components largely focus on activities that affect the national network, while initiating a pilot at the secondary (*Prefectura*) level.

Consolidation of institutional reform and building up management capacities. The project seeks to consolidate the institutional reform process initiated in January 2000 to overhaul the national road agency (the SNC) and with it the management of the national road assets in Bolivia. The key steps undertaken up to project appraisal were summarized in Box 1 in the previous section. These steps have helped establish the managerial base at the SNC. The Project will support the GOB in building up the institutional reform, in coordination with other actions undertaken by other international donors, through specific technical assistance and institutional development actions. These actions focus on strengthening procurement and management practices, developing a results-oriented culture, improving cost recovery, and enhancing the contractual mechanisms to maintain road assets. These actions will assist the GOB in continuing and deepening the development of the legal framework that sanctioned the reform and provided a safeguard against reversal of the steps taken thus far.

Creation of an accountability framework for the financing of road maintenance. In the past, maintenance activities in Bolivia have encountered a key difficulty in the limited amount of the allocated resources. The Government, pressed by the need to achieve fiscal targets and encountering competing needs from various sectors, has restricted the allocation to the amounts being collected from tolls. The reality however has often been different as the poor condition of the network has often required substantial expenditures on emergency works. Road users, faced with a deteriorated infrastructure and suspicious of the capacity of the road agency, have often been reluctant to proposals that would have increased their burden in shouldering the costs of maintaining road assets. The Project seeks to help the Government redress this unsustainable situation by supporting the establishment and funding of a maintenance account. (The associated IDA credit will be provided on a declining basis (in percentage terms) to allow phasing in the application of increased users' charges.) It is expected that this support coupled with the institutional reform process would enhance the managerial capacity of the SNC, improve the condition of the road network, and instill payment by road users for the use of the improved and adequately-managed road infrastructure.

The support to the establishment of the account constitutes a first step in creating a more encompassing mechanism for the adequate maintenance of road assets at all network levels. The support seeks to elicit the knowledge of stakeholders about the maintenance requirements and costs and established a foundation for increased participation of these stakeholders in the management of that account. Furthermore, over time, the increased resources coupled with improved accountability and management practices for the

national network will allow the consideration of expanding the use of the account resources to the other road networks in the country.

Preservation of key segments of the national network. The project seeks to complement other (larger) efforts being pursued with financing from other donors (mainly the IDB and the CAF) in improving the condition of the network and expanding its coverage. Given its institutional emphasis, the project focuses on the preservation of existing assets as an additional means to develop the management capacity to upgrade the condition of the national network. The rehabilitation of key segments of the national network and the maintenance activities to be funded with the resources of the maintenance account would contribute to attain adequate service standards and maintain the core network in a satisfactory condition over time and reduce the infrastructure bottlenecks that currently constrain road transport.

Building-up the inter-institutional coordination to improve management of secondary network. Furthermore, the Project will start up and test technical assistance and coordinating mechanisms between the SNC and the Prefecturas' SEPCAMs to ensure consistency of road policies and investments across the country, help the SEPCAMs revamp its road management capacities and support the SEPCAMs' own interest in improving the programming of road maintenance and rehabilitation priorities and the accountability of their activities. This component, with its investment and institutional actions, constitutes a new initiative for Bolivia and one that the Project will introduce as a pilot in four of the country's nine Prefecturas. It is expected to constitute a platform for the future collaboration of the SNC and the nine SEPCAMs and an alternative model for improving the condition of the secondary network.

Develop awareness in areas such as road safety. As a distinct element of the strategy and one to be pioneered in Bolivia, the Project includes a road safety initiative. Most activities on the subject supported by donors have been limited to the acquisition of goods to enhance the horizontal and vertical signalization of roads. The project would go beyond this aspect and initiate the definition and establishment of an institutional framework that would permit the proper coordination in the attention of road safety issues, and of an accident reporting system to adequately monitor accident rates and counteract with the relevant remedial actions.

C. Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

Component 1: Rehabilitation of priority segments of the national road network. This component includes the rehabilitation of 353.1 km of national roads between (a) Calamarca and San Pedro (165.1 km), on the main road from La Paz to Oruro (and from this town to Cochabamba and Santa Cruz), and (b) Boyuibe and Yacuiba (188.0 km), providing continuity to the road Abapó-Camiri (whose reconstruction is being undertaken with support from Credit 3235-BO). These roads constitute critical existing segments of the national network that, because they are substantially deteriorated, require immediate rehabilitation or reconstruction. The SNC has undertaken an in-depth analysis of rehabilitation alternatives (using the Bank-sponsored Highway Design and Maintenance Standards Model or HDM) and selected the ones that would report the largest economic benefits. The priority of these segments has been confirmed against the results of the Transport Master Plan, a country-wide modeling tool that under the Vice-Minister of Transport has allowed to established the transport priorities for the country in the medium term. All the works will take place within existing rights-of-way and will not involve the displacement of population.

Component 2: Pilot of rehabilitation of secondary (departmental) roads. In order to increase the benefits from the rehabilitation of the segments of the national network, facilitate transport from low income communities, and encourage adequate road management practices at the Prefecturas, this component seeks to rehabilitate around 200 km of secondary roads. The selection of these roads would be based on eligibility criteria which would include: (a) road segments linking to main economic corridors and contributing to the facilitation of access to and from those corridors; (b) a maximum rehabilitation cost per km (of US\$25,000), (c) specific institutional requirements to be completed by the relevant Prefectura (in terms, among others, of road investment planning and maintenance financing and programming); (d) compliance with social and environmental safeguards; and (e) other socio-economic criteria. Component 5 would further provide support to the implementation of the institutional development actions with the Prefecturas committed to their application. The pilot focuses on the Departments of La Paz, Oruro, Chuquisaca y Tarija, that are the four departments the segments under component 1 transverse. The Prefecturas of these departments will compete for the available funds through the incentives to be established by the compliance with the eligibility criteria. As in component 1, all the (limited) works under this component will take place within existing rights-of-way and will not entail any resettlement of population.

Component 3: Road Maintenance National Account (CNCV) and Resurfacing Program. This component would contribute credit resources to the funding of a Road Maintenance National Account (or CNCV for its name in Spanish: *Cuenta Nacional de Conservacion Vial*), on a yearly declining basis. The CNCV would be the source of financing for the 2002-2006 routine maintenance and resurfacing program for the national network. The Government has demonstrated its commitment to finance adequately the maintenance of road assets by approving the establishment of the CNCV to be funded with resources from various users' charges and specifying the details of the generation and use of those resources. In order to phase in the incidence of these charges on road users and on the economy as a whole, their amount will be increased incrementally over the life of the project, while the credit provides the difference, on a declining basis, to cover the annual maintenance needs of the network. The credit resources will finance those contracts with preponderance of periodic maintenance activities (resurfacing). The schedule of contributions to the CNCV and the use of its resources were agreed upon at negotiations based on appraisal mission findings and agreements. Strict compliance with existing environmental regulations will be applied to all the maintenance activities undertaken with resources from the CNCV. Regulations for the operation of the CNCV, including specific provisions for the processing of disbursements and the audit of technical and procurement requirements, were agreed upon at negotiations.

Component 4: Technical Assistance. This component consists of four sub-components: (a) development of a road safety initiative (complementing other activities being implemented with support from other donors and from IDA) to strengthen the country's capacity to attend and reduce road accidents; (b) pre-investment studies, to support the preparation of technical, social and environmental studies for new road projects within the context of the results of the Transport Master Plan and the economic development strategy of the Government of Bolivia (under terms of reference agreed upon with the Bank, with due consideration to social and environmental safeguards), to fill the current gap produced by the lack of completed new designs for enhancing Bolivia's road infrastructure; (c) supervision of rehabilitation works of the two first components, estimated at 8% of the rehabilitation costs; (d) technical, financial and performance audits of the proper use of the resources from the CNCV and the carrying out of annual independent opinion of trunk road-network conditions; and (e) impact evaluations, to assess the short-term impacts of the completed works and maintenance activities in the livelihoods of the populations along the areas of influence of the affected road segments.

Component 5: Institutional development. This component includes support to the following key areas: (a) the consolidation of the institutional reform of the sector entities, mainly the SNC and the SEPCAMs (of the Prefecturas), with an emphasis on procurement and contracting practices and on maintenance and investment programming systems, with an aim at achieving a more effective, financially-sustainable, and efficient management of road assets in Bolivia; (b) the development of alternative mechanisms for carrying out road maintenance activities, from microenterprises or performance-based contracts, towards enhancing the efficiency of the use of the resources of the CNCV; (c) the development of information management systems to strengthen financial accountability and contract management at the SNC; and (d) training in the areas related to the technical assistance and institutional development sub-components. This component would also include support to the Vice-Ministry of Transport as it relates to the responsibilities of this Vice-Ministry in the road transport sector.

| Component | Sector | Indicative Costs (US\$M) | % of Total | Bank-financing (US\$M) | % of Bank-financing |
|---|---------------------------|--------------------------|--------------|------------------------|---------------------|
| 1. Rehabilitation works on key segments of the national network | Highways | 36.39 | 12.8 | 29.11 | 37.8 |
| 2. Pilot program of rehabilitation of feeder (secondary) roads | Highways | 5.70 | 2.0 | 4.56 | 5.9 |
| 3. Road maintenance national account and resurfacing program | Highways | 211.84 | 74.6 | 37.76 | 49.0 |
| 4. Technical assistance services | Institutional Development | 28.25 | 9.9 | 4.57 | 5.9 |
| 5. Institutional strengthening | Institutional Development | 1.82 | 0.6 | 1.00 | 1.3 |
| Total Project Costs | | 284.00 | 100.0 | 77.00 | 100.0 |
| Total Financing Required | | 284.00 | 100.0 | 77.00 | 100.0 |

2. Key policy and institutional reforms supported by the project:

- Facilitating the overall economic development and social integration of the country by supporting strategies that emphasize the up-keep of road assets towards reducing transport bottlenecks and costs and enhancing the reliability of surface communications;
- Improving the condition of the road network through the rehabilitation of key segments of the national and departmental network in order to enhance (i) the integration of main population centers and these to export corridors and (ii) the interconnection of the communities in the area of influence of the road segments to the mainstream economy;
- Contributing to the consolidation of the institutional reform of the national sector institution (the SNC) which was initiated with resources from Credit 2395-BO (Second Road Maintenance Project) and Credit 3235-BO (Abapo-Camiri Highway Project) and as part of Credit 3507-BO (Institutional Reform Project), towards revamping the country's capacity to manage its road assets;

- Opening the reform to the SEPCAMs at the *Prefectura* level, on a pilot basis, with an aim at enhancing the prospects for better management of the secondary road network and ensuring consistency of road policies across the country, which can then further enhance the possibilities for improved access to and from poorer areas;
- Strengthening the framework, approaches and financing for the maintenance of road assets by supporting the establishment and financing of a Road Maintenance National Account (CNCV), with agreed upon procedures and bidding and financial management requirements, and through the contribution to the CNCV continuing the support to alternative approaches for road maintenance (from microenterprises to performance-based contracts); and
- Reducing the incidence of road accidents by designing and implementing a road safety initiative that attempts to strengthen and coordinate the actions of the related stakeholders.

3. Benefits and target population:

Significant long-term benefits will accrue from the institutional strengthening and technical assistance programs to enhance the governmental capacity to manage road transport development and operations and to promote and monitor the participation of the private sector in road maintenance. The project will bring about cost savings to road users (in terms of savings in vehicle operating and travel time costs and reduction of accidents), improved all-year-round passability of the network, facilitation of trade, and avoidance of future major road reconstruction costs. The rehabilitation works will also bring benefits, albeit temporary, to the local communities from the employment (and related income) generated in the rehabilitation activities.

Reduced transport costs and travel times would help enhance the commercialization of products and interchange of communications and interactions between the towns connected with the road segments to be rehabilitated. The road safety initiative would help to establish the basis for the future reduction (or, at least, containment) of accident rates on the national road network, positively benefiting lower income groups which count on buses as the only transport mode for long distance travel. (Buses represent up to 40% of vehicular traffic on some segments and have been the subject of dramatic accidents.)

Economic activities are sparsely distributed though largely along the East-West axis from La Paz to Santa Cruz. The Departments of La Paz, Oruro, Cochabamba, and Santa Cruz house almost 75% of the population and produce about 80% of the GDP; in 1991 (latest year for which data have been readily available) they attracted 76% of the volume of imports and generated 69% of the export volume (though 51% of the export value). In spite of the concentration of production along the La Paz-Santa Cruz axis, the three major departments--La Paz, Cochabamba and Santa Cruz--combine the highest concentrations of households with both poverty incidence (share of household with unsatisfied basic needs) and intensity (share of households without a minimum level of basic services).¹

About half of the Project rehabilitation funds would be invested in the Altiplano highlands of the Departments of La Paz and Oruro, where agricultural policies and institutions have not operated as effectively as in the lowlands. In the highlands, poor, largely indigenous, small scale farmers have often less access to markets. About the other half of the project rehabilitation funds will be invested in the proximity of low income, agricultural areas of the Departments of Tarija and Chuquisaca where access to markets have been limited due to the lack of adequate accessibility (and complementing the ongoing IDA-financed investments in the reconstruction/rehabilitation of the Abapo-Camiri road). Furthermore,

the pilot of the rehabilitation of the secondary network would encourage better management and maintenance practices at the Prefecturas' SEPCAMs and would benefit the population (of lower incomes) and farmers along the areas of influence of the rehabilitated corridors. Contributing to the improvement of rural productivity of those farmers would be supported by the proposed project through the improvement of transport interconnections in the areas along key segments of the national and departmental networks.

In all, the target beneficiaries would encompass not only the long-distance transport services and users between the main population centers and from those to the export markets at the end points of the rehabilitated road segments, but also the population of the local communities along the areas of influence of those segments through their better integration to social and economic activities. The support to the funding of the CNCV would further help reduce overall transport costs for all population.

¹ The World Bank, "Bolivia Poverty, Equity, and Income: Selected Policies for Expanding Earning Opportunities for the Poor, Volume I: The Main Report," page 5, Report No. 15272-BO, Latin America and the Caribbean Region, Country Department III, Country Operations Division I, February 22, 1996

4. Institutional and implementation arrangements:

Implementation Agency. The SNC, which has responsibility for the national road network, will be responsible for the overall implementation of the Project and for the direct execution of the Project except for the components of rehabilitation of secondary roads and implementation of an accident information system. These components will be implemented respectively by the Prefecturas of La Paz, Oruro, Chuquisaca and Tarija, and by the National Police Department. For these components, however, the SNC will be responsible for monitoring compliance with the relevant procedures and eligibility criteria, providing technical support, and requesting the disbursement of funds.

Within the SNC, a Project Coordinating Unit (PCU), currently managing the Abapo-Camiri Highway Project (Credit 3235-BO), would coordinate the project implementation activities with SNC's technical and administrative units. These units encompass the road maintenance unit, the socio-environmental unit, the studies and planning unit, and the financial and administration unit. In all, these units are staffed with engineers and procurement experts who would provide the necessary knowledge for the execution of the Project and with planners and financial management specialists who would provide the skills for the implementation of the technical assistance activities and the management of the Project.

The pilot component for the rehabilitation of secondary roads will be implemented by the respective road agencies (SEPCAMs) of the participating *Prefecturas* following procedures, eligibility criteria, and inter-institutional arrangements agreed upon at appraisal and confirmed at negotiations. The SNC will enter into agreements with the participating *Prefecturas* for the purpose of establishing the conditions for the participation of the SEPCAMs in the implementation of that component of the Project. Such agreements will provide the obligations of the participating SEPCAMs in: (i) complying with the relevant set of informational and institutional requirements; (ii) implementing the institutional action plan to be agreed upon with the SNC; (iii) making the necessary arrangements so that the road subprojects are carried out following appropriate procurement and contractual practices; and (iv) making the budgetary allocations and releasing the counterpart funds on a timely basis. The agreements will also provide the obligations of the SNC in respect of informing the participating SEPCAMs about Project-financed activities, making the arrangements for the delivery the relevant technical assistance in roads management; monitoring compliance with relevant procedures and eligibility criteria; and evaluating jointly with the SEPCAMs the results of the pilot component for the rehabilitation of secondary roads.

The maintenance component related to the CNCV would be executed by the SNC, using the resources of the CNCV as the proceeds for financing the routine and maintenance program of the SNC. The SNC would follow the procedures delineated in the CNCV manual (to be legally approved at the ministerial level), allocating the resources to the eligible activities (for civil works and consultants' services), and in accordance with specific procurement and contractual rules (including appropriate environmental practices). The SNC will also be required to follow specific reporting and audit procedures, to confirm the appropriate use of the CNCV resources. The SNC will procure and supervise the maintenance contracts to be financed with the CNCV resources in the same manner as it does for its ongoing maintenance contracts, and will submit to IDA the pertinent documentation for processing IDA's declining contribution to the financing of contracts under the resurfacing program. The three year experience of the SNC in contracting out maintenance activities, albeit with difficulties in achieving its performance objectives (in terms of improvements to road conditions), should ensure the adequate implementation of this component of the Project.

The road safety initiative will be implemented by the National Police Department. The SNC will enter into an agreement with National Police Department for the purpose of establishing the PNB implementation responsibilities for such sub-component of the Project including compliance with the relevant procurement processes, the provision of support for carrying out the consultant services, and the sharing of information upon completion of the development of the accident information system.

The project would provide funds (under its technical assistance component) to finance the Project Coordinating Unit, to be staffed by at least two engineers/managers (with experience in procurement, institutional relations, and engineering matters), who would also collaborate in following up the implementation of the ongoing Abapo-Camiri Project. The PCU will coordinate the provision of technical assistance services to the SNC, the SEPCAMs, the VMT, and the National Police Department, and will support the SNC in carrying out the procurement for the various Project components and the application of the procedures set in the Project Operational Manual. The PCU will work closely with the management of the SNC to ensure the achievement of the project objectives and strategies and the proper internalization of the lessons to be learned during project implementation into the activities of the SNC.

Project Operational Manual. In order to facilitate the implementation of the project's various components and clarify the responsibilities and activities of each implementing unit, the SNC will use a Project Operational Manual that will define the guidelines and procedures to be followed in the execution of the project. The format and content of the manual were agreed upon at negotiations and its adoption by the SNC is a condition of effectiveness. Indicatively, the manual would include: (i) description of background, objectives, and components of the project; (ii) institutional framework and responsibilities of the various units of the SNC, the SEPCAMs, the National Police, and the VMT; (iii) the list of indicators to assess the performance of each unit in the implementation of each project component; (iv) procedures for project administration and flow of funds; (v) environmental and social guidelines to be followed in the execution of project works and to mitigate any possible adverse impacts to the natural or social habitats which may be generated by the rehabilitation of national or secondary roads; (vi) procurement procedures for works, consultants services, and the acquisition of goods; (vii) obligations of the SNC in monitoring the project and reporting its progress; and (viii) a set of model documents for items such as: (a) agreements with the Prefecturas and the National Police, (b) Indigenous People Development Plan, (c) Social Plan, (d) terms of reference for specific consultant services, (e) standard bidding documents and contracts for works, (f) letters of invitation and contracts for consultant services, (g) terms of reference for operational, technical, and financial audits, (h) training plan, and (i) the regulations for the use of the resources from the CNCV, the ARI, and other supporting legal documentation.

Implementation Period. Project implementation is expected to start by July 1, 2002 and be completed by June 30, 2007.

Accounting, Financial Reporting and Auditing Arrangements. At appraisal, an IDA-certified Financial Management Specialist carried out an assessment of the SNC and satisfactorily vetted that the SNC has in place the appropriate financial management system. As a result of this evaluation: (i) it was determined that the accounting system can support the preparation of Financial Monitoring Reports (FMRs) acceptable to the Bank, and (ii) an agreement on an action plan to continue strengthening the financial management and internal control functions has been reached with SNC. During project implementation, the SNC would be required to contract independent external auditors and present to the IDA the relevant audit reports of the project accounts, the Special Account and SOEs and of the entity as a whole within six months of the closing of the SNC fiscal year. Furthermore, on an annual basis, the SNC would be required to contract independent technical and financial auditors to undertake a performance audit of the CNCV, including an independent opinion on the condition of the national road network. Audit fees for the financial and performance audits are being financed out of the proceeds of the IDA credit related to the Project as consultant services.

Other Reporting Arrangements. In order to ensure an enhanced knowledge of the activities of the SNC and encourage more transparent practices, the SNC will be required to prepare and furnish to IDA, an annual report with respect to the operational and financial performance of the SNC and to the schedule of actions to be implemented to attend identified shortcomings, and disseminate this report to the public. The report will include information on: (i) status and progress in the execution of construction, rehabilitation and maintenance contracts under the responsibility of the SNC; (ii) the expenditures incurred in the maintenance of national roads (routine and resurfacing) in the preceding year; (iii) the corresponding use and allocation of the CNCV resources in that preceding year by type of maintenance contract; (iv) the results of SNC's rating of the condition of the national roads; (v) an independent opinion on that rating; (vi) status and progress in the implementation of the institutional reform; and (vii) statistical information on traffic volumes and other relevant data. The publication of this annual report is in line with the requirements established in the ARI.

Monitoring and Evaluation Arrangements. Annual reviews would be held to assess the progress in project implementation and to agree on the necessary actions for the next review period. The reviews would focus inter alia on: (a) advances in the institutional reform and reorganization of the SNC; (b) the progress in the project implementation schedule; (c) the level and composition of the resources allocated to the CNCV for the fiscal year in which the review takes place; and (d) the performance against the project monitoring indicators. Agreement was reached at negotiations that SNC would provide: (a) every six months, detailed progress reports to the Bank for monitoring purposes on the basis of a format and methodology acceptable to the Bank; and (b) within six months of the closing date, an input to the Project Implementation Completion Report. The project includes funds to undertake technical and financial performance audits, including those corresponding to the use of the resources from the CNCV, and an evaluation of impacts at about 24 months ahead of the completion of the project.

The results of the reviews will be shared with the Nordic Development Fund, specifically those related to the technical-assistance components to be financed with NDF resources (pre-investment studies, road safety initiative, and institutional-development actions).

Mid-Term Review. By December 31, 2004, the GOB and the Bank would conduct a mid-term review of the progress in implementation, which in addition to the items covered in the annual review, would focus inter alia on: (i) the adequacy of funding for the maintenance of the national network; (ii) the adequacy of

alternative contractual mechanisms for undertaking the maintenance of the national road network; and (iii) an assessment of the changes in the stock and conditions of the national road assets. It will further include a review of the progress made by the Borrower in: (i) managing the maintenance of the national road network; (ii) implementing the rehabilitation and maintenance components of the project; and (iii) carrying out the program of institutional building of the SNC and of the SEPCAMs, and the road safety sub-components of the project. The mid-term review will be carried out with representatives from the Ministry of Economic Development, the Vice-Ministry of Public Investment (VIPFE), the VMT, SNC, eligible SEPCAMs, and, as agreed between the SNC and the IDA ahead of the date of the mid-term review, other donors and stakeholders such as associations of road users and members of the civil society.

Bank Supervision. In line with the precepts established under the Comprehensive Development Framework, a joint Government/Bank team would supervise the project. Bank supervision will liaise with other international donors to coordinate actions and strategies that may emanate from the implementation of projects in the road sector. The presence in a neighboring country (Peru) of the World Bank FPSI Sector Leader will help ensure the adequate close coordination and communication with the execution institution, other units of the GOB, and the international donors. It is estimated that an average of about 30 staff weeks a year will be required for supervising the project.

D. Project Rationale

1. Project alternatives considered and reasons for rejection:

Project scope. The initial project design focused largely on investments in the rehabilitation of key road segments. Given the weakness in road maintenance and management, this design shifted to incorporate the support to the CNCV as a mechanism to integrate the maintenance and rehabilitation functions and instill an encompassing strategy for addressing road management shortcomings in Bolivia. In light of the competing issues at various levels, the sector issues selected to be addressed by the project underpin an incremental process.

The alternative of expanding the use of the CNCV on the maintenance of other networks (such as secondary roads under the SEPCAMs) was discarded for two main reasons: (i) given the weakness of the institutional base of the SEPCAMs and their prevailing (force account) maintenance practices the expansion of the use of the resources from the Project to the secondary network would have posed a tremendous challenge and demanded substantial technical assistance and reform efforts; and (ii) the sector priority centers in establishing an accountability framework for the upkeep of the national network which carries 80% of the vehicle-kilometers. In this respect, the alternative of focusing on the national network was selected as a mechanism of raising the management and maintenance standards on that network while opening up to the *Prefectura* as a pilot.

Rehabilitation investments. At the preliminary identification of the project, the GOB presented a list of potential road segments which required immediate rehabilitation. As the amount of resources was not sufficient to cover all the items in that list, a process of analysis was undertaken to screen rehabilitation projects and select those that represented key segments of the main road network and helped achieve the high economic returns. The screening of road segments was supported with cross referencing the list presented by the GOB to the results of the Transport Master Plan (completed at the Vice Ministry of Transport in November 2000). The Transport Master Plan generated a priority list of road segments with a schedule for the implementation of the relevant interventions. A more detailed analysis of the screened road segments was undertaken using the HDM program, in such a manner of identifying the optimum rehabilitation alternatives which allowed to maximize net economic returns. The final selection of the

rehabilitation alternatives took then place by identifying those with the highest economic return.

For the pilot component for the rehabilitation of segments in the secondary road network, several alternatives were explored for the establishment of the eligibility criteria for the assignment of this component's resources, including a simple division among the beneficiary Prefecturas to an assignment based on the corresponding length of the network to the finally selected criteria based on institutional commitment to reform and compliance with specific economic, social and environmental requirements. As the main objective of this component is to help strengthen the management capacity of the Prefecturas, the institutional criteria were given a greater weight over other physical and economic factors.

Lending instrument. Even if the project has not been prepared as an Adjustable Program Credit (APC) or Programmatic Lending (PL) operation, its preparation and approval has pursued the achievement of specific policy and institutional reforms that could have been part of a first phase of APC or a PL ahead of project appraisal. Taking advantage of the existence of ongoing road projects and other IDA credits (chiefly, the Institutional Reform Project), project preparation has accompanied the implementation of a series of institutional and policy measures that should establish a solid basis for the future development of the sector and the sustainable maintenance of road assets. During project identification, extensive discussion has been given to the structuring of this operation as an APC or a PL. However, no major advantages have been identified for this operation as the conditions for proceeding with the new project have been largely implemented (including the approval of the legal framework) ahead of Project appraisal. As such the project would be a vehicle for the consolidation of the institutional reforms underway with support from other IDA credits. The options for the institutional reform were extensively discussed through project preparation in consultations with key stakeholders and governmental entities, and finally reflected in the Strategic Action Plan (see Box 1 in section B.2).

Setting up the CNCV as a commercially-managed road fund. Strong consideration was given to design the CNCV as a road fund, managed by a separate board with representation of road users' and the private sector, and support this CNCV with disbursements to be made against achievement of specific performance targets. However, the institutional conditions are not yet ripe for the implementation of such a scheme and a more traditional system--based on an account at the Central Bank for the use of the SNC and disbursements against specific contracts--was adopted as further progress takes place in building up the institutional framework. At the annual reviews, an assessment of the management capacity and of the experience with the CNCV will be undertaken and the alternative of switching to performance-based disbursements or the establishment of a separate board--with participation of road users--for the oversight of the CNCV will be vetted for future consideration. The expansion of the use of the resources of the CNCV to other networks was discarded for the reasons explained earlier in this section. However, the building up of the resources in the CNCV and the strengthening of the management and accountability in the sector (and, in particular, at the SEPCAMs) may allow in the future the financing the maintenance requirements at other network levels. An extensive study on the alternatives for the design of a road maintenance account was carried out during project preparation (complete report in project files). An in-depth analysis of the various potential road users' charges provided the analytical basis for the Government's final preference of an incremental approach, starting by the establishment of an special account--the CNCV--where the resources from users' charges are deposited for the use of the SNC in carrying out its road maintenance plan (see details in Annex 11).

Inclusion of pilot of maintenance microenterprises. During project preparation, a pilot of maintenance with micro-enterprises was designed with resources from the Second Road Maintenance Project for inclusion under the Project. However, the pilot was finally implemented with resources from the CAF and its concept and approach adopted and internalized within the SNC. The structuring of this component was

based on experiences in other neighboring countries, largely in Peru and Colombia. The scheme currently counts with resources from various donors. With these advances, the Project does not finally include the pilot of maintenance microenterprises that was envisioned at the stage of the definition of the concept for the Project. Nevertheless, the maintenance program of the SNC includes activities that can be more efficiently be performed with microenterprises and as such it should be part of the maintenance contracts to be financed with the resources of the CNCV. As a mechanism to monitor the progress in expanding this type of contractual arrangements for routine maintenance, the annual reports of the use of the resources of the CNCV will include information on the scope and amount of activities undertaken with microenterprises and about the productivity of the various types of maintenance contracts towards evaluating the most adequate means to carry out maintenance activities.

2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

The table at the end of this section shows the list of key ongoing projects in the road sector financed by the Bank, the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF), and the *Fondo para el Desarrollo de la Cuenca del Plata* (FONPLATA). All projects are financing the rehabilitation or maintenance of specific segments of the national network. And most projects include specific technical assistance activities that attempt to strengthen the governmental capacity to manage road assets. As a complement to that table, another table (immediately below) presents the main institutional actions being undertaken with support from ongoing IDA and IDB credits as a map of the actions that would be complemented with those to be pursued under the proposed project.

| Activity Name | Activity Description | US\$ Amount (Indicative) |
|--|---|--------------------------|
| Ventilla-Tarapaya Road Project (IDB financing, with supplementary financing from the NDF) | Total | 5,800,000 |
| Strengthening of the national sectoral planning function | Support to the Vice-Minister of Transport and the SNC in the development and use of a Transport Geographic Information System and a Pavement Management System | 600,000 |
| Strengthening of the SNC planning function | Support to the Planning Office of the SNC to develop an inventory of road assets and of the conditions of the roads | 1,000,000 |
| Strengthening of SNC information systems | Support to the SNC in the definition and implementation of an entity-wide computer-based information system, including the installation of an intranet, web site, and e-mail systems | 1,400,000 |
| Strengthening of SNC capacity to enforce axle-load controls | Support to the SNC in the design of a strategy for enforcing axle-load controls, including the acquisition of axle-weight control scales | 1,200,000 |
| Strengthening of SNC on the preparation of technical manuals | Support, with the hiring of specialized consultants, to the development of (i) technical, environmental, economic and engineering manuals, and (ii) technical studies on the use of new methodologies for stabilizing unpaved roads | 1,200,000 |
| Strengthening SNC's capacity to monitor condition of the network and its quality control functions | Acquisition of equipment for measuring condition of the network and for developing the SNC's quality control functions | 300,000 |
| SNC Coordinating Unit for IDB Projects | Internal and external coordination for project implementation, provision of administrative support and liaison with the IDB | 100,000 |
| Abapo-Camiri Road Project (IDA financing) | Total | 500,000 |

| | | |
|---|---|---------|
| Design and initiation of implementation of a concession program | Support, with the hiring of road concession experts, to undertake a feasibility study of a road concession initiative for the (future) San Jose-Puerto Suarez highway. (This technical assistance component has been cancelled as the IDA financing for this project has been phased out. Its resources are being reallocated to the component of the routine maintenance program.) | 100,000 |
| IDA Coordinating Unit at SNC | Internal and external coordination for the implementation of IDA's projects in Bolivia | 100,000 |
| Strengthening of the Environmental Unit at SNC | Continue the support initiated with the Second Road Maintenance Project to strengthen the capacity of the Environmental Unit at the SNC | 100,000 |
| Routine Maintenance Program | Support to the definition of strategies for the routine maintenance of the national network | 100,000 |
| Goods and services | Acquisition of computing equipment and other office technologies and information systems technical support to complement institutional development actions | 100,000 |
| Training and other technical assistance | Training of SNC personnel and preparation of technical and financial audits | 100,000 |

In addition, there are two other IDA-funded projects that relate to some of the strategies and components of the proposed project. These two projects are the Institutional Reform Project (IRP), currently under implementation, and the Decentralization Programmatic Structural Adjustment Credit (PSAC), approved by IDA on May 15, 2001. The former attempts to address the institutional inefficiencies of the public administration in Bolivia, through the change in the rules for hiring public officials, under the so-called *Institucionalizacion*. This process is being applied, among others, to the National Customs Office, the Internal Tax Administration, and the National Road Agency (SNC). The IRP has supported the financing of technical assistance studies for the design of the organizational structure of the SNC and the selection of its managers and technical staff on the basis of professional merits. On June 13, 2000, a pre-agreement was signed among the office of the Presidency--the unit responsible for the implementation of the Institutional Reform Project--the Ministry of Economic Development and the SNC. The final agreement was signed in January 2002. This agreement allows disbursements from the credit to finance the incremental salary costs associated with "institutionalization" of the SNC in the years 2002 and 2003 (incremental to current staff expenditures and on the basis of a financial plan) and support specific institutional development activities.

Based on an analysis of deficiencies in the decentralization framework of Bolivia, the Decentralization PSAC attempts to support Government efforts, among others, to clarify responsibilities, establish clear rules for access to credit, and help clean-up the finances of the *Prefecturas* and municipalities. The Project would also emphasize the institutional strengthening of these entities and enhancements to their accountability. As such, the proposed project would undertake actions at the Prefectura level that would be fully coordinated with the strategies and components of the Decentralization PSAC.

| Sector Issue | Project | Latest Supervision (PSR) Ratings (Bank-financed projects only) | |
|---|---|---|----------------------------|
| | | Implementation Progress (IP) | Development Objective (DO) |
| Bank-financed Improve conditions of key segments of road network and strengthen | Abapo-Camiri Highway Project (Cr. 3235-BO): closing date of | S | S |

| | | | |
|---|---|---|---|
| institutional capacity to manage road assets | June 30, 2004 | | |
| Support the institutional reform of key governmental agencies, and change the selection of staff to those under civil service regulations | Institutional Reform Project (Cr. 3245-BO): closing date of June 30, 2005 | S | S |
| Clarify responsibilities, establish rules for access to credit, and clean up finances of Prefecturas and municipalities | Decentralization PSAC (Cr. 3507-BO): closing date of March 15, 2002 | S | S |
| Other development agencies | | | |
| Inter-American Development Bank (IDB): help improve competitiveness of the country's productive sectors, by enhancing the level of service of the highway system and reducing costs for users | <p>Cotapata-Santa Barbara Road: 49.1 km, under construction, expected to finish in June 2002</p> <p>Technical Assistance to the Vice Minister of Transport on prospects and framework for road concessions, under implementation, expected to finish by mid 2002</p> <p>Ventilla-Tarapaya: 60 km, recently awarded, expected closing date by December 2003</p> <p>Pailon-San Jose: 219 km, under preparation, studies expected to finish by March 2002 and approval by June 2002</p> <p>Rio Seco-Desaguadero (including bridge at the border with Peru, in Desaguadero): 95.3 km, completed in January 2002, with co-financing from the CAF</p> | | |
| Andean Development Corporation (CAF): help reduce vehicle operating costs and improve integration across regions in the country | <p>The following projects are under construction with partial CAF financing:</p> <p>Puente Sacramento-Surima (25 km): under execution</p> <p>Padcaya-Campanario: 25 km and extended 23 km to La Mamora;</p> <p>La Mamora-Emborozu: 20 km</p> <p>Yotau-Ascension de Guarayos: 48 km</p> <p>Ascension de Guarayos-San</p> | | |

| | | | |
|---|--|--|--|
| <p>FONPLATA: strengthen planning capacity through the support to the preparation of new investment projects</p> <p>Kreditanstalt für Wiederaufbau (KfW)</p> | <p>Pablo: 113.5 km Yamparaez-Tarabuco: 35 km Potosi-Cuchu Ingenio: 37 km Cotapata-Santa Barbara: 49.1 km San Isidro-Mairana (maintenance) Cobija-Porvenir (maintenance) Challapata-Ventilla: 93 km Oruro-Toledo: 36.8 km</p> <p>The following pre-investment studies are under preparation with FONPLATA financing: Boyube-Hito Villazón: 135 km Cuchu Ingenio-Villazón: 323 km</p> <p>The Cotapata-Santa Barbara Project (49.1 km) is under construction with partial KfW financing:</p> | | |
|---|--|--|--|

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

3. Lessons learned and reflected in the project design:

The Bank Group's first involvement in roads took place in 1978 with the Highway Maintenance Project (Ln. 1567-BO) when Bolivia was an IBRD borrower. Later, after the stabilization program of 1985, The Export Corridors Project (Cr. 2012-BO) was approved in May 1989. This project was completed on June 30, 1996, one year after the original completion date. Credit 2395-BO, the one that partially financed the Second Road Maintenance Project, was closed on June 30, 2001, two-and-a-half years after the original closing date. The Implementation Completion Report for the Export Corridors Project was completed on May 15, 1997, while that for the Second Road Maintenance Project was completed on December 21, 2001. The implementation of those two projects and of the on-going Abapo-Camiri project provide the following lessons:

- Projects often take longer than expected to be implemented as a consequence of the reshuffling of managerial staff with changes in governmental administration. Employment instability decreases staff morale and increases the possibilities of corruption. Shielding project implementation from staff changes and low morale is not a simple task, but it could be improved by carrying out reforms in the civil service through which a more limited but well-remunerated human resource base, subject to satisfactory performance, assumes the responsibility for managing investment projects in the public sector. This lesson is even more critical in countries like Bolivia where the managerial and technical human resources in the public sector is limited. By delaying the implementation of the proposed project awaiting the necessary institutional reforms along these lines, a stronger ground has been established for the effective implementation of the Project within the agreed timetable.
- The experience of the implementation of the Bolivian institutional reforms confirms that reform processes, when undertaken without a clear consensus or pre-defined strategies, unlikely would produce the intended results. The abrupt application of the Administrative Decentralization Law (ADL) to the road

sector during the implementation of the Second Road Maintenance Project lacked a clear strategy and created havoc to the management of the road network. The experience showed that legislation is not sufficient to achieve results, as it is also crucial to internalize strategies and concepts into the relevant institutions, and to define an incremental process which would allow change to materialize in light of the acquired practice and institutional capacities. This lesson has been applied to the on-going institutional reform of the SNC as the preparation of the strategic development plan was undertaken in collaboration with a wide spectrum of affected stakeholders with an aim at achieving the proper internalization of strategies and actions.

- The following issues have also arisen during the implementation of the Second Road Maintenance Project: (a) enforcement capacity in the central administration for maintenance programs has been inadequate; (b) commitment of central government to implement a sustainable financing mechanism for maintenance has been weak, mainly because of the fear of political backlash if users do not perceive noticeable improvements in road conditions ahead of new charges; (c) the financial and execution capacity of local contractors has been limited; (d) the project management and internal control capacity of the SNC has been less than adequate; (e) the contracting out of routine maintenance and all maintenance activities does not produce the desired outcomes (in terms of road condition) when supervision is deficient and resources are limited, particularly in a country like Bolivia with a large territory and road segments far from the main populated centers; and (f) severe rains during the rainy seasons affected the pace of project implementation. These issues would be incorporated in the design of the proposed project by advancing the institutional reform process, enhancing the quality of designs and bidding documents, and defining strategies (already identified in the Strategic Development Plan) to confront the need to revamp the users' charges policies and improve the supervision of works and maintenance. The support to the CNCV will allow to build up the institutional base and the necessary trust to the institution as road conditions are improved and road users' charges are aligned with the maintenance needs of the road network.

The experience of other countries (in particular in Africa and Central America) with the implementation of (so-called) second-generation road funds has been considered in the design of the CNCV with an aim at ensuring a mechanism for the allocation of the necessary resources for the upkeep of road assets.¹ These funds are managed by a separate board representing in various degrees the interest of the road users. In general, these funds have been somewhat successful in improving the administration of road funding and the results in terms of better road conditions. However, in most cases the final definition of the level of resources and their allocation has rested not as much within the separate board but with the government budgetary authorities. Furthermore, governance issues and effective planning and execution capabilities appear to be the essential elements to bring about sustainable reform effects, and the procedures for securing the necessary resources and ensuring their proper use appear as important as the establishment of a separate management of the fund. Considering this experience, the design of the proposed CNCV emphasizes an incremental approach to allow the building up of execution capabilities of the sector entities and the generation of awareness of users (and the general public) before advancing into more sophisticated schemes for the sustainable financing of road maintenance.

¹ Gwilliam, K.M. and Z. Shalizi, "Road Funds, User Charges and Taxes," *The World Bank Research Observer*, Volume 14, Number 2, August 1999; and Gwilliam, K.M. and Kumar, Ajay, "Road Funds Revisited: A Preliminary Appraisal of the Effectiveness of "Second Generation" Road Funds," Discussion Paper in TWU Series, TWU-47, The World Bank, January 2002.

4. Indications of borrower commitment and ownership:

From the outset of the identification of the project, the Government has been involved in the definition of the project's logical framework and its components. The Government requested an earlier date for Board presentation, but the preparation has taken longer than the Government wanted due to the need to advance the institutional reform agenda to establish a solid ground for the implementation of the proposed project (and of the one under execution). The strong commitment shown by the Government to the reform agenda, with the most difficult key specific steps already accomplished, some of which required the approval by the Congress with a majority of two-thirds of the representatives, provides a strong indication of borrower commitment. In addition, the Government's support to the establishment and funding of the CNCV (through the passage of a Supreme Decree that allocates a percentage of the receipts from the sales of petrol fuels), shows a genuine commitment to ensure the proper financing of road maintenance. Furthermore, the substantial advance in the preparation of the various documents related to the project is an additional proof of the high priority the Government is assigning to the project. In addition, stakeholder participation at the various events that took place during project preparation (logical framework, strategic institutional reform plan) has always been high and active, showing further commitment and underpinning the ownership of the project.

In the context of the CDF the project's objectives and components have been presented and discussed with a wide spectrum of Governmental institutions, stakeholders and other international donors. This ensures a stronger commitment and ownership not only from the borrower but also from a broad spectrum of institutions which can be affected in a more direct or indirect manner by the implementation of the project.

5. Value added of Bank support in this project:

The experience of IDA in providing advice and financial support to the sector in Bolivia spans for a period of almost 10 years. In coordination with the IDB and the CAF, IDA has helped establish the policy and institutional framework for the development of the sector. Through its sequence of loans to the transport sector, IDA has built up credibility for adding value to the sector, by providing alternative models and strategies about how to strengthen road management, how to establish financing and contractual mechanisms for adequate and efficient maintenance, and how to plan and program investments and maintenance activities. IDA involvement is also expected to benefit the quality of engineering designs and bid documents, and foster improved practices in the areas of road safety, institutional reform, and environmental protection. IDA will also bring its extensive knowledge on developing road management and maintenance systems in the Latin-American countries and worldwide.

Given that the IDB has already lent a large amount of its available resources for road construction in the past years and is planning another major operation in the coming year, and the CAF presents limits to the additional amounts it can lent to Bolivia (due to debt reduction agreements, from which Bolivia is benefiting through the Heavily Indebted Poor Countries Program, there exist limits on the amounts the country may borrow on commercial terms), the GOB is seeking additional financing from the IDA to confront Bolivia's needs for expanding and preserving its road assets.

E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (see Annex 4):

- Cost benefit NPV=US\$21.76 million; ERR = 27.0 % (see Annex 4)
- Cost effectiveness
- Other (specify)

The economic analysis of the key investment components of the project was carried out with the use of the

Highway Design and Maintenance Standards Model (HDM-3), which simulates the deterioration of the road on the basis of existing conditions, the climate, and the traffic on the road, and measures the incremental benefits to the users compared to a base, do-nothing alternative. The analysis encompassed the simulation of about 6 different alternatives for each of the two key road segments in order to ascertain the optimum level of investment considering a 10-year horizon. Under stringent demand-growth assumptions of only around of 3.5 percent increase in normal traffic (from a base of about 1,200 vehicles per day for the Calamarca-San Pedro segment and of 850 vehicles per day for the highest-travelled link on the Boyuibe-Yacuiba segment) and no generated traffic, the HDM analysis yielded an economic rate of return of 20.3 percent for the Calamarca-San Pedro segment, and of 33.3 percent for the Boyuibe-Yacuiba segment. The prorated economic rate of return (on the basis of the size of the total size of the investments) amounts to 27.0%. The net present values amount to US\$5.10 million and US\$16.66 million, respectively, for a combined total of US\$21.76 million. The two projects continue to show economic rates of return above 12 percent in the event of decreases of 20 percent in the average daily traffic or/and increases of 20 percent in the rehabilitation and maintenance costs.

For the pilot component of rehabilitation of segments of the secondary network, to be undertaken through the *Servicios Prefecturales de Caminos* of the Prefecturas (SEPCAMs), eligibility criteria has been developed during project preparation, on the basis of (a) specific requirements to the SEPCAMs regarding the preparation of maintenance plans and commitment to future adherence to them (e.g., in terms of allocated resources) and agreements on coordination with the SNC, (b) the socio-economic viability of the segments proposed for rehabilitation (based, in turn, on a combination of social indicators and, depending on the traffic level and the cost of the investment, net economic benefit from potential agricultural production in the area of influence of the road), and (c) compliance with environmental requirements (summarized on a check list). Further details are provided in Annex 12.

Finally, maintenance activities to be financed with resources from the Road Maintenance National Account (CNCV) would be programmed according to the results from the application of the HDM-4 maintenance programming tool. This will ensure that maintenance priorities and activities respond to economic principles. The first-year program of resurfacing activities include high priority segments with economic rates of return well above 30%.

2. Financial (see Annex 4 and Annex 5):

NPV=US\$ million; FRR = % (see Annex 4)

The proposed project is aligned with the budget appropriations already approved for 2002 and the support that the Government is receiving from other donors, such as the CAF and IDA to support the counterpart financing of the project and the funding of the institutional reform process. The Government budget program for the coming years shows a renewed interest in propping up economic growth and the reduction of poverty through increased investments in road infrastructure as a mechanism to generate employment and reduce transportation (and transaction) costs within the country. Project funding (counterpart) requirements start at about US\$24 million and rise to around US\$47 million by project's end. As such the funding requirements of the proposed project are kept within 20-25% of the expected road investment and maintenance expenditures on the national network for the period of project implementation.

The overall investment program for the road sector has oscillated around US\$120 million which has represented between 20% and 30% of the total government budget. The project itself will not affect largely the overall level of the public investment budget but it will require the allocation of an increasing share of road users' charges in the future (under the CNCV) to ensure the sustainability of the project investments. The estimated annual maintenance budget (for routine and periodic maintenance) has been estimated, on

average, at around US\$43 million. The IDA Credit will help build up these financing needs contributing on a declining basis (in percentage) to the resources of the CNCV.

Fiscal Impact:

The amounts collected from road users' charges in 2000 (about US\$267 million, after discounting the taxes generally applied to other goods) and those effectively allocated to road maintenance, rehabilitation and construction (about US\$130 million), show that, while cost recovery in the sector is not an issue, actual funding allocations for the various roads program is highly dependent on budgetary decisions and external borrowing, with very limited allocation to maintenance activities. Currently, the sector has only the road tolls as the direct resources, but additional resources are necessary to keep the overall maintenance (routine and periodic) needs well covered. The study carried out during project preparation calculated the alternative forms of collecting charges from road users in the form of (a) vehicle import duties or annual licenses; (b) gasoline and diesel taxes (above the standard level for value-added taxes); (c) road tolls; (d) used-vehicle transfer fees; and (e) any other possible fee or tax. These data allowed to estimate the extent to which users are contributing to the maintenance and rehabilitation needs of the road infrastructure and would provide an first assessment of the extent to which recurrent costs (those related to routine and periodic maintenance) can be covered through users' charges (hence generating a more sustainable fiscal balance for the sector).

The Government has expressed its commitment to implement an efficient and equitable road users' charges policy and, on the basis of the analysis mentioned in the previous paragraph, submitted to the Bank a (national) road maintenance program for the period 2002-2006 and an action plan for the sustainable financing of that program. On January 23, 2002, the Government approved a Supreme Decree through which it allocates to the CNCV an increasing share of the receipts obtained from the taxes charged to the consumption of fuels. The share will increase from 5% in year 2002, to 10% in year 2003, and to 15% from January 1, 2004, remaining at that level thereafter. In addition, the SNC has approved a plan of action to enforce, update and improve toll collections. With both types of road users' charges, complemented with resources from the IDA Credit, the routine maintenance and resurfacing program will be adequately funded.

The projected revenues, including the decreasing contribution of the IDA Credit, would be enough to achieve significant improvements in the condition of the national road network, provided the funding allocated for road maintenance is actually spent on road maintenance (in line with the regulations for the use of the CNCV's resources agreed upon at appraisal). The table below summarizes the maintenance program for the period 2002-2006, including the financial requirements and the sources of financing. This program will be reviewed on an annual basis. At negotiations, agreement will be reached about the specific requirements that will be necessary to sustain the estimated level of users' charges for the appropriate financing of the maintenance program. In addition, the approval of the regulations for the use, monitoring and auditing of the resources from the CNCV will be a condition of effectiveness.

CNCV: Costs and Financing of Routine Maintenance and Resurfacing Programs
US\$ million, 2002-2006

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
|---|-------------|-------------|-------------|-------------|-------------|--------------|
| Routine Maintenance | | | | | | |
| Estimated cost | 20.6 | 24.2 | 21.8 | 19.7 | 20.0 | 106.3 |
| CNCV Projected Sources of Financing | | | | | | |
| Tolls revenue | 9.1 | 11.0 | 11.6 | 12.3 | 13.0 | 57.0 |
| Fuel Tariffs | 9.5 | 13.2 | 10.2 | 7.4 | 7.0 | 47.3 |
| Total financing | 18.6 | 24.2 | 21.8 | 19.7 | 20.0 | 104.3 |
| Resurfacing | | | | | | |
| Estimated cost | 11.7 | 16.0 | 27.6 | 30.7 | 22.0 | 107.9 |
| CNCV Projected Sources of Financing | | | | | | |
| Tolls revenue | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fuel Tariffs | 0.0 | 7.8 | 20.8 | 24.6 | 26.0 | 79.2 |
| IDA Credit | 9.3 | 9.8 | 7.2 | 8.0 | | 34.3 |
| Total financing | 9.3 | 17.6 | 28.0 | 32.6 | 26.0 | 113.5 |
| Total Routine Maintenance and Resurfacing | | | | | | |
| Estimated cost | 32.3 | 40.2 | 49.4 | 50.4 | 42.0 | 214.2 |
| CNCV Projected Sources of Financing | | | | | | |
| Tolls revenue | 9.1 | 11.0 | 11.6 | 12.3 | 13.0 | 57.0 |
| Fuel Tariffs | 9.5 | 21.0 | 31.0 | 32.0 | 33.0 | 126.5 |
| IDA Credit | 9.3 | 9.8 | 7.2 | 8.0 | 0.0 | 34.3 |
| Total financing | 28.0 | 41.8 | 49.8 | 52.3 | 46.0 | 217.9 |
| Indicators | | | | | | |
| IDA financing as % of total | 33% | 23% | 14% | 15% | 0% | 16% |
| IDA financing as % of resurfacing | 80% | 61% | 26% | 26% | 0% | 32% |
| Projected revenues tolls & fuel tariffs | 18.6 | 32.0 | 42.6 | 44.3 | 46.0 | 183.5 |
| Other financing (IDA Credit) | 9.3 | 9.8 | 7.2 | 8.0 | 0.0 | 34.3 |
| Balance: National Treasury contributions/CNCV surplus | -4.3 | 1.6 | 0.4 | 1.9 | 4.0 | 3.6 |

3. Technical:

The projects identified present no major technical difficulties in their design, supervision or rehabilitation. They all consist on standard rehabilitation procedures with the use of available materials and machinery. The project physical investments will continue the practices of the Second Road Maintenance and Abapo-Camiri projects and, in this manner, will not incorporate novel technologies or exceptional construction procedures. Furthermore, with resources from Credit 2395-BO, the SNC has developed a manual for labor-intensive works to be undertaken in the rehabilitation of gravel roads and in maintenance activities with microenterprises. In addition, the SNC's three-year experience with maintenance contracts (based on quantities and unit prices) and the upcoming implementation of the comprehensive maintenance component under the ongoing Abapo-Camiri Highway Project, has also established the basis for improving the implementation of maintenance contracts and exploring alternative approaches, such as performance-based maintenance contracts.

4. Institutional:

The capacity of the sector institutions to execute the project on time is one of the main risks, as the institutional reform process, though sufficiently advanced that can unlikely be reversed, is still incipient. The pace of approval of new projects (with financing from external donors) has intensified recently and, given the institutional weakness, the program of road rehabilitation and improvement has moved at a slow pace. The implementation capacity of the country for the last five years hovers around US\$120 million per year, which apparently has represented a maximum capacity for implementation of capital investments (in construction, reconstruction, rehabilitation and resurfacing). However, the institutional reform process advanced ahead of project appraisal, is expected to yield efficiency improvements and an strengthened management capacity to increase the use of investment resources in line with the infrastructure needs of the country.

4.1 Executing agencies:

The SNC has a long tradition of executing project with external financing. However this tradition has been at times sketchy and protracted. As stated above, risks and concerns remain as to whether an adequate skills base exists or can be developed to deliver the maintenance and resurfacing program as envisaged by the SNC. Completion of its ongoing reform is paramount for the future development and management of the road network in line with the transport requirements for the economic development of the country. *Prefecturas* also are weak in management capacity and lack accountability, as are their road agencies (SEPCAMs). The project will help build up the management capacity of these institutions. With support from other projects--mainly, the Institutional Reform Project and the Decentralization PSAC--a concerted effort is being carried forward to address these institutional weaknesses.

The National Police is hampered by both technical and financial shortcomings in dealing with road accidents, and its data collection of accidents is sporadic and unreliable. However, there is a sincere desire to improve the accident information system and bringing about sustainable interventions. The project supports this commitment and will help develop the information and institutional framework to start addressing the current shortcomings.

4.2 Project management:

The institutional reform of the SNC should help ensure the proper management of the project. Nevertheless, the management of the on-going road project (Abapo-Camiri) is being supported by a small Project Coordination Unit (of two professionals) located at the SNC. This arrangement has proved useful in the past and would be continued in the future. From IDA's side, the presence at the Bolivia Country Office of supporting staff knowledgeable of institutional, financial management, procurement, and engineering issues should help speed up response to project implementation difficulties and requests from the executing institution.

4.3 Procurement issues:

A full procurement assessment of the SNC was undertaken during project preparation. No major procurement issues have taken place at the SNC, aside from the slowness at some junctures in the implementation of ongoing projects, particularly as a consequence of staff reshuffling. Nevertheless, the procurement assessment vets the SNC as a high risk institution and delineates a plan of action to redress current shortcomings that affect largely the length it takes to prepare procurement documents and reach bid award and contract signature. The procurement assessment concluded with an action plan to enhance the procurement function at the SNC. Among the key actions identified five stand out for their positive impact in the overall management of the SNC and improvements in the coordination across the different units of the institution, positively affecting the pace of project implementation, namely: (i) the reallocation and reformulation of activities and responsibilities; (ii) the preparation of organizational manuals and administrative procedures, and for project operations; (iii) intensive training in key activities of the organization; (iv) development of information systems for the administration of contracts, and project monitoring, control, and report generation; and (v) the establishment of technical and administrative systems of control.

At the country wide level, procurement issues are being tackled as part of the study "Diagnosis of Procurement Procedures in Bolivia and Action Plan for Improving Public Contracting" ¹ which is being managed by the Country Office with support from, and the supervision of, the Office of the Regional Procurement Adviser (LCOPR).

The components to be financed with resources from the NDF would be procured under NDF procurement guidelines.

4.4 Financial management issues:

One of the negative spillovers of the drastic decentralization process that took place beginning in 1995 was the deterioration of the financial management and internal control functions at the SNC. Specifically, since 1997, the SNC has presented serious difficulties in their external audits, though the audits for IDA-financed projects have come out with an opinion acceptable to IDA. The external audit for 1998 concluded with a denial of opinion by the independent auditors given the limitations in the scope of the audit. The new management team that took over at the end of 1999 quickly reacted to the conclusions of that report and committed itself to adjustments to the internal control function. Another, permanent, management team took over in September 2001 and has continued to strengthen the financial management function. With support from Credit 2395-BO, that provided financing for technical assistance, the institution has been steadily strengthening the financial management systems and capacity and the latest external audit for 2000 provided an opinion, still with qualifications, but showing a substantial progress in redressing the shortcomings identified in the external audits for 1998 and 1999.

In light of the weaknesses identified at the SNC in recent years, the Bank has undertaken continuous and close monitoring with the support from the financial management specialist at the World Bank Country Office in La Paz. Furthermore, as a requirement in the latest extension of the closing date for Credit 2395-BO (until June 30, 2001), the SNC has been submitting monthly reports to IDA on the progress in enhancing the financial management functions. This continuous supervision has allowed to make an also continuous assessment of the financial management capacity of the institution. As of end 2001, the SNC had improved markedly its financial management and control capacity with the implementation of a computer-based system--the SINCON--that allows to track expenditures and uses of funds on a monthly basis. In a supervision by the FMS in November 2001, it was determined that through the SINCON system the general ledger to end March 2001 contains all the transactions to that date and the balances are supported by reconciliations to external evidence. It was also determined that the budget charges in the budget module and the expenses in the accounting modules matched each other. As such, it was concluded that the integrated financial management system, SINCON, is now operating in SNC and meets the Bank minimum financial management requirements.

Although the SINCON has also been installed in the current Project Coordinating Unit (for the Abapo-Camiri Highway Project), no data are input by this PCU in the system as SINCON only allows the recording of transactions in local currency--Bolivianos--and the PCU keeps control of the project accounts in US\$. SINCON's chart of accounts allows the SNC to segregate and to accumulate transactions and balances by subprojects financed by each credit agreement. This feature of the system allows the SNC to prepare adequate reconciliations between SNC accounting records and the records kept by the PCU on a monthly or quarterly basis allowing the preparation of reliable financial statements, both for general purpose (entity's financial statements) and for fulfilling with Bank requirements (special purpose financial statements).

Based on this progress, the assessment of the financial management capacity of the SNC can be rated as medium risk, given that the improvements have taken place recently, but with prospects to be downgraded to low risk in the short term if the progress is sustained and the commitment of the newly appointed technical and financial managers to the enhancement of the financial management capacity is sustained. To update the Bank's knowledge of the entity, a financial management assessment was performed at appraisal and an action plan agreed with the SNC. The action plan is included in Annex 6.

5. Environmental: Environmental Category: B (Partial Assessment)

5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

The project will finance the rehabilitation and repaving of two existing segments of the national grid (Calamarca-San Pedro and Boyuibe-Yacuiba) and no new construction is planned along the existing alignments. The project would thus not cause any direct negative impacts. There will be no population displacement. The selected segments traverse well, long-ago consolidated areas and as such, no indirect negative impacts on natural habitats or on remote areas are envisioned. Nevertheless, the SNC carried screening/analysis of these two segments and these reports have been sent to the Infoshop. In addition, Social Assessment reports on these segments was carried out (see below). Other environmental work carried out during project preparation included: (i) the preparation of an environmental manual for road contractors and site specific environmental requirements for the segments to be rehabilitated; (ii) designing and adapting a rapid environmental screening methodology for feeder roads; (iii) preparing and environmental manual for road maintenance by microenterprises; and (iv) designing an environmental strengthening program for SNC. All of these documents have been sent to the Infoshop.

5.2 What are the main features of the EMP and are they adequate?

The EMP included in the project includes: (i) enforcing environmental guidelines and site specific requirements for contractors through environmental supervision efforts by engineering supervision and audits carried out by SNC's environmental unit; (ii) applying rapid screening criteria and procedures to all feeder roads as condition of eligibility for proposed roads; (iii) disseminating and training programs to contractors and microenterprises for the environmental manual for road maintenance; and (iv) implementing the environmental capacity strengthening program.

5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft:

The following reports have been prepared and have been sent to the Infoshop:

- Evaluacion del Impacto Social en las Comunidades Indigenas de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba (con Plan de Desarrollo Indígena), preparado para el Servicio Nacional de Caminos por Argentina Antunez R., Diciembre 2001, La Paz, Bolivia.
- Plan de Acción Social para el Proyecto de Rehabilitación y Mantenimiento de Carreteras, Enero 2002.
- Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba, preparado para el Servicio Nacional de Caminos por Magaly Barba de Matsuzaki, Noviembre 2000, La Paz, Bolivia.
- Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Calamarca-San Pedro, preparado para el Servicio Nacional de Caminos por Ivonne Farah, et. al. Octubre 2000, La Paz, Bolivia.
- Estudio de Impacto Ambiental del Proyecto de Mantenimiento Periodico del Senkata-San Pedro, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Mayo de 1999, La Paz, Bolivia.

- Estudio de Impacto Ambiental por las Actividades de Mantenimiento Periodico del Tramo Boyuibe-Yacuiba, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Junio de 2000, La Paz, Bolivia.
- Estudio de Impacto Ambiental Puente Arce-Puente Sacramento, Anexo Complementario, preparado por Consultoría y Planificación, S.R.L., para la Prefectura del Departamento de Chuquisaca y el SNC, 2001, Sucre, Bolivia.

5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

Communities along the right-of-way of the two segments to be rehabilitated were consulted for the preparation of the Social Assessment. Extensive meetings were held during project preparation and the appraisal mission with participation of the SNC, the Ministry of Sustainable Development, and representative of NGOs working with the communities in the proximity of the two road segments.

5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

References to the environmental manual and site-specific measures will be included in bidding documents and contracts for rehabilitation works. Enforcement of these specifications will be included as part of the supervision contracts. In addition, SNC's environmental unit will perform audits and spot checks during construction. Carrying out the rapid environmental screening report will be a condition for feeder road eligibility. Finally, SNC's environmental unit will disseminate road maintenance environmental manuals and train contractors and supervisors on its use.

6. Social:

6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

The project will bring about social benefits to areas of influence of the roads to be rehabilitated and that may be not well integrated to the mainstream economic activities of the country. During the project preparation a specialized consultants were hired to carry out a Social Assessment of communities located in the area of influence of the road segments to hear their voices and their main concerns about the rehabilitation of those segments, following the methodology denominated "sustainable livelihoods framework" (which centers around the analysis of five types of assets: human, natural, financial, social and physical). In the segments to be rehabilitated there exists the consensus about the need to advance with the rehabilitation of the roads and ample acceptance of the related works. They only expected coordination and communication with the contractors in order to avoid problems and solve those that may come up during the construction period. The project will not entail any displacement of population.

In the segment Boyuibe-Yacuiba, two indigenous communities--the Guarani and the Weenhayek--live nearby. A Social Assessment focused on indigenous people was carried out along this segment, with meetings held with 11 indigenous communities, some in areas far from the road. Then, a detailed study of the communities in the area of influence was undertaken, carrying out further consultations with these communities about the rehabilitation works. During these consultations, the communities expressed they complete agreement with the rehabilitation works and requested the solution of some technical problems of the current road.

As a result of the Social Assessment and the Indigenous Study, it was designed two plans for the construction period: (i) Social Action Plan, and (ii) Indigenous Development Plan.

Social Action Plan. The main outcomes of this plan are: (i) to establish and maintain good relationships between SNC, contractor, local authorities and communities, (ii) to prevent and control potential adverse impacts, and (iii) to enhance the positive impacts. This Plan includes the following projects: (i) information to local authorities, (ii) information to local communities, (iii) employment generation during construction phase, (iv) environmental training and social sensitivity raising for work crews, (v) attention of potential claims, and (vi) training for road safety. The target of this Plan will be indigenous and non-indigenous communities.

Indigenous People Development Plan. It has two components: organizational strengthening and training on rights and management of their territories.

6.2 Participatory Approach: How are key stakeholders participating in the project?

During project preparation, as part of the definition of the strategies for the institutional reform of the sector institutions and as part of the elaboration of the social assessments, several workshops were held between January 2000 and December 2001, with wide participation of stakeholders, including representatives from governmental entities, Prefecturas, chambers of construction and commerce, civic committees ("Comités Cívicos"), and construction and engineering consultant firms. The preparation of the component of rehabilitation of priority segments of the national road network included consultations with the communities along the roads (see 6.1).

6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?

See previous point.

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

SNC has created a Socio-environmental Unit. This unit has been set at the same level within the organizational structure of the SNC as those corresponding to the engineering, administrative and planning units, with its head reporting directly to the Executive President of the SNC. According to the approved organizational structure, the unit will be staffed with an experienced cadre of social and environmental specialists. This Unit will contract the implementation of the Social Action Plan and the Indigenous Development Plan and will be the responsible of its supervision.

6.5 How will the project monitor performance in terms of social development outcomes?

The Social Action Plan and the IPDP have specific indicators to assess the achievement of the outcomes listed in 6.1.

7. Safeguard Policies:

7.1 Do any of the following safeguard policies apply to the project?

| Policy | Applicability |
|--|---|
| Environmental Assessment (OP 4.01, BP 4.01, GP 4.01) | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Natural Habitats (OP 4.04, BP 4.04, GP 4.04) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Forestry (OP 4.36, GP 4.36) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Pest Management (OP 4.09) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Cultural Property (OPN 11.03) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Indigenous Peoples (OD 4.20) | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| Involuntary Resettlement (OP/BP 4.12) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Safety of Dams (OP 4.37, BP 4.37) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Projects in International Waters (OP 7.50, BP 7.50, GP 7.50) | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)* | <input type="radio"/> Yes <input checked="" type="radio"/> No |

7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

Environmental management manuals have been developed and are an integral part of procurement and contractual documents for the execution of rehabilitation and maintenance works. An IPDP and Social Plan have been developed and agreed upon at appraisal and will be initiated by the SNC ahead of the initiation of works. The necessary budget have been allocated to these activities and are part of the project costs. Bank supervision will include the participation of the relevant specialists to ensure compliance with the agreed plans and environmental regulations.

F. Sustainability and Risks

1. Sustainability:

The key element to the sustainability of the Project--and of the sector in general--resides on the effective revamping of the institutional framework, including the five key aspects of (a) the definition of a sector policy that transcends the periods of Governmental administration; (b) the establishment of organizational structures and processes that promote transparency, coordination and efficiency; (c) the reform of the hiring and retaining qualified personnel; (d) the need to secure resources sufficient to maintain the country's road assets; and (e) the (re)creation of an informational base that can allow to make informed decisions and carry out objective planning. The previous absence of actions on these key aspects has hampered the development of the sector along with the transport needs of the economy. Furthermore, in the past several years, road projects financed with loans and credits mainly from the IDA, the IDB and the CAF have taken longer than expected to be executed (due to weaknesses in management) and presented premature deterioration not too long after their completion (due, largely, to the lack of proper maintenance).

In a concerted effort, the international donors are currently supporting the efforts of the GOB to address those two key aspects. They are reflected in the Strategic Development Plan (see Box 1 in Section 2 of Part B, "Main Sector Issues and Government Strategy") which has been approved by the GOB and in the advancement of the civil service reform of the SNC (under the auspices of the Institutional Reform Project). The first steps in the implementation of that Strategic Plan have been sanctioned through a legal framework that includes the approval of specific Laws and Supreme Decrees (Law 2064, and Supreme Decrees 26336 and 26487). Keeping the validity of this legal framework and following through with the implementation of that Strategic Plan will allow to consolidate the basis for the sustainability of the sector (and hence of the externally-funded projects), and from it an array of other related activities (such as

environmental management, road safety initiatives, expansion of the paved network, etc.) will be realized in an effective manner.

2. Critical Risks (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

| Risk | Risk Rating | Risk Mitigation Measure |
|---|----------------------------|---|
| <p>From Outputs to Objective Uneven commitment and protracted implementation of institutional reforms for the sector</p> <p>Decreasing governmental interest in supporting the Road Maintenance National Account, and in approving the necessary resources for that Account, due to political considerations</p> <p>Unfavorable natural conditions in the areas of the project</p> | <p>M</p> <p>S</p> <p>N</p> | <p>(a) Addressing institutional issues, implementing key reform steps, and approving legal provision ahead of project approval, and (b) establishing conditions and remedies in the Credit Agreement to ensure the continuation of the reform and the upholding of the principles of the legal framework</p> <p>Advancing key elements of the institutional reform and including focused technical assistance activities to strengthen the management capacity for the execution of ongoing projects and of improved maintenance, towards changing image of the SNC as a way of showing efficient use of resources and securing public support to charges for the use of road assets; inclusion of specific reporting requirements and legal conditions and remedies as part of credit agreement</p> <p>Proper consideration of normal rainy season in engineering designs, implementation timetables, and contractual arrangements for works</p> |
| <p>From Components to Outputs Protracted release of counterpart funds hamper project execution and slow down institutional measures</p> <p>Delays in awarding contracts due to non-transparent and inefficient management of tendering processes, increase project costs, damage image of sector entities, and undermine confidence from contractors and consultants on bid processes</p> | <p>M</p> <p>S</p> | <p>Pace of investments aligned with reasonable budgetary appropriations and financial and technical support incentives established with Prefecturas (which are currently responsible for providing counterpart funds)</p> <p>Advancing institutional reform ahead of project effectiveness to count with qualified managers and key technical professionals; coordination with the Institutional Reform Project (and through it, incorporation of the offices of the Minister of the Presidency and of the Ministers of Finance and of Economic Development in the institutional reform to ensure accountability and objectivity); development, and agreement on its implementation, of a procurement action plan; close monitoring of tendering processes to ensure compliance with World Bank guidelines; and training and dissemination with the World</p> |

| | | |
|---|---|---|
| Lack of interest in pursuing inter-institutional coordination initiatives between the SNC and the Prefecturas, and between the SNC and other sector entities (e.g., the National Transit Police). | M | Bank Institute support. Building incentives for institutional coordination and performance into project design through co-financing arrangements and technical partnerships with the Prefecturas, and through technical support with other entities (e.g., the National Transit Police). |
| Overall Risk Rating | M | |

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

3. Possible Controversial Aspects:

The institutional reform of the sector entities has been initiated and deepened by project appraisal. One would expect that the Government would not later renege away from the concept and strategy of that reform and would continue to support it, particularly in the aspects related to the selection of managerial and technical personnel and of the status of the SNC as an "autartic" entity (like an autonomous entity under the overall realm of the Ministry of Economic Development). Nevertheless, there remain the controversies that may arise from the establishment, funding and use of the CNCV. At project appraisal, the Government expressed its full commitment to the concept and objectives of the CNCV and to its priority as a mechanism for the sustainable maintenance of road assets. A proof of this commitment is the issuance of Supreme Decree 26487 and the mere inclusion of this component under the project. At negotiations, clear statements related to the contributions the Government, through users' charges or fiscal resources, would have to channel into the CNCV, will be agreed upon, as well as in the manner procurement and monitoring would be applied for the use of the CNCV's resources. The component related to the CNCV is structured in a manner that the credit contributions fall (proportionally to the size of the periodic maintenance program) every year, with the Government making up the difference to cover the estimated needs for the timely maintenance of the road network. Controversies regarding this structure may come up later in the project implementation period if general macroeconomic or fiscal conditions may tempt the Government to reduce the contributions to the CNCV and redirect them to other uses. The specific wording of the credit agreement attempts to enforce the compliance with the CNCV conditions and includes specific statement regarding the remedies the IDA would put in place in case of non-compliance or in case of changes or deletions to the legal framework established and approved at appraisal.

G. Main Credit Conditions

1. Effectiveness Condition

In addition to the conditions for credit effectiveness set forth in the General Conditions, five other conditions are set:

- The Borrower shall have approved the legal and procedural regulations for the establishment and functioning of the Road Maintenance National Account (CNCV) in a manner acceptable to IDA.
- The Borrower shall have furnished to IDA evidence, satisfactory to IDA, about the progress in the SNC Institutional Reform Plan, including the selection and appointment of all the managerial positions and of at least one half of the technical positions.

- A Financial Management Reporting (FMR) system satisfactory to IDA shall have been established in the SNC and become operational.
- The SNC shall have approved the Organizational Manual for the SNC (*Manual de Funciones*) in a manner acceptable to IDA.
- The SNC shall have approved the Project Operational Manual in a manner satisfactory to IDA.

2. Other [classify according to covenant types used in the Legal Agreements.]

Reporting and Reviews

- The SNC shall prepare and furnish to IDA every six months a detailed progress report for monitoring purposes, and within six months of the Credit closing date, an input to the Project Implementation Completion Report.
- Not later than October 31 of each of the years of Project implementation, starting in 2002, the Borrower shall prepare and review with IDA: (i) the SNC's annual road maintenance and resurfacing program for the following calendar year; (ii) the corresponding plan of road users' charges or fiscal resources to be deposited in the CNCV in the following calendar year in line with the financial plan agreed upon at negotiations; and (iii) the road investment program for the following calendar year. The annual road maintenance and resurfacing program shall include, *inter alia*: (i) the portion of the national road network to be maintained through the execution of contracts with microenterprises; (ii) the portion of the national road network to be maintained through the execution of contracts with other types of maintenance contracts aside from microenterprises; and (iii) the expected productivity targets for the aforementioned two portions of the national road network.
- Not later than March 31 of each of the years of Project implementation, starting in 2003, the Borrower shall prepare and furnish to IDA, a report of such scope and in such detail as IDA may reasonably request with respect to, *inter alia*: (i) the expenditures incurred in the maintenance of national roads (routine and resurfacing) in the preceding year; (ii) the corresponding use and allocation of the CNCV resources in that preceding year by type of maintenance contract and in respect of the portion of the national road network maintained through the execution of contracts with microenterprises and other types of maintenance contracts; (iii) the productivity targets of the portion of the national road network maintained through either microenterprises or other types of maintenance contracts; (iv) the results of SNC's rating of the condition of the trunk (national) roads; and (v) an independent opinion on said rating. The SNC shall compile this information on an annual report on its operational and financial performance, including the actions the SNC intends to take to redress the identified shortcomings. This annual report shall be disseminated to the public immediately after its publication.
- Not later than March 31 and October 31 of each of the years of Project implementation, starting in 2003, the Borrower shall prepare and furnish to IDA, a report of such scope and in such detail as IDA may reasonably request, describing: (i) the progress in the execution of the components of the Project during the preceding 12 months; (ii) the status of the use of credit resources by each component; (iii) the results achieved under the project, on the basis of the Performance and Monitoring Indicators; and (iv) the estimated timetable of disbursements for the following 12 months.

- The annual review to be held by March 31, 2004 (the mid-term review), will focus, *inter alia*, on the progress made by the Borrower in: (a) managing the maintenance of the national road network; (b) implementing the rehabilitation and maintenance components of the project; and (c) carrying out the program of institutional building of the SNC and of the SEPCAMs, and the road safety sub-components of the project. The annual review will also encompass an assessment of the changes in the stock and conditions of the national road assets. The Borrower will be represented at the mid-term review meeting by representatives from the Ministry of Economic Development, the Vice-Ministry of Public Investment and External Financing (VIPFE), the VMT, the SNC and the eligible SEPCAMs. The mid-term review shall also include, as agreed between the SNC and the IDA ahead of the date of the mid-term review, the participation of other donors as well as stakeholders such as associations of road users and other members of the civil society.

Financial

- The Borrower shall open, and maintain thereafter until completion of the Project, a Fiscal Account, under terms and conditions satisfactory to IDA, for the purpose of managing all funds required to make payments in *Bolivianos* under contracts to be financed out of the proceeds of the Credit.
- The Borrower will contract independent auditors to undertake an audit of the records, account and financial statements of the Project and the records and accounts for the Special Account for each fiscal year, in accordance with auditing standards acceptable to IDA, and furnish to IDA not later than six months after the end of each fiscal year certified copies of the financial statements, an opinion on such statements, records and accounts, and the report of such audit by said auditors.
- The Borrower shall allocate the necessary budgetary resources for carrying out the social and indigenous people development plan under terms of reference satisfactory to IDA.
- Not later than December 31 of each of the years of Project implementation, starting in 2002, the Borrower will contract external auditors with qualifications and terms of reference acceptable to IDA to carry out an external performance audit of the CNCV including the procurement and implementation of IDA-financed contracts for resurfacing, and compliance with environmental requirements, during the preceding fiscal year.
- Retroactive financing, in an aggregate amount not to exceed US\$5,000,000 equivalent, may be made in respect of eligible project expenditures incurred after May 1, 2002.

Implementation

General Project Management:

- SNC to continue the Project Coordinating Unit and designate within this unit a professional, with qualifications, functions and responsibilities satisfactory to the Bank, to serve as liaison with the IDA in the carrying out of the Project's institutional building and renewal program.

Functioning of the CNCV:

- The proceeds of the CNCV to be utilized exclusively for routine maintenance and resurfacing contracts (including engineering designs, civil works and supervision) on the national trunk network. No proceeds from the fund can be used to pay for administrative expenses or any other recurrent costs.

However, for (calendar) year 2002, the CNCV may finance the annual administrative costs, up to the amount established in the legal and procedural regulations of the CNCV, for the control of the toll collections and the operation of truck axle-weight control stations.

- Government commitment to provide the budgetary resources to meet the requirements of SNC's routine maintenance and resurfacing programs, in a timely manner.
- SNC to establish appropriate mechanisms for the supervision of the road maintenance activities and for strengthening its financial management and accounting systems as well as the procurement process for maintenance activities.
- SNC to strengthen the information system and the programming of road maintenance activities in order to create a continuous and reliable source of information that would provide information on the trade-off between certain levels of maintenance and the economic benefits to the country.
- Before committing funds for a resurfacing subproject, IDA would require the following: (a) confirmation that the subproject is part of the resurfacing program agreed with IDA; (b) adequate information and analysis carried out indicating the economic viability of the subproject; (c) the subproject should neither require changes in alignment nor involve negative environmental implications; and (d) the subproject should comply with procurement standards satisfactory to IDA.
- As stated above (under financial), the Borrower will undertake an external performance audit of the CNCV.

Pilot of Rehabilitation of Feeder Roads:

- The Government, through SNC and each participating *Prefectura*, to make the necessary arrangements so that the subprojects for rehabilitation of secondary roads are carried out with due diligence and efficiency.
- SNC to assign two senior professionals to assist the participating SEPCAMs with the planning, execution and evaluation of the rehabilitation of secondary roads and with the related institutional improvements.
- The Government, through each participating *Prefectura*, to define and subsequently implement an institutional action plan to improve the road management practices of the SEPCAMs by end of year 2006.
- Any subproject under the rehabilitation of secondary roads component should be evaluated and selected following a methodology satisfactory to IDA, which would include an environmental assessment in all cases warranted.
- All subprojects for the rehabilitation of secondary roads proposed to be partially financed out of the proceeds of the Credit shall be approved by IDA only if:
 - The Government, through SNC, presents evidence that the concerned SEPCAM has presented a satisfactory rollover three-year road rehabilitation and maintenance program expressed in physical and financial terms, with appropriate socio-economic justification of the priorities.
 - The concerned SEPCAM's capital and recurrent budget for the current and previous years and

the projected budget for the following year are consistent with the above road rehabilitation and maintenance program.

- The candidate sub-projects include either the rehabilitation of road segments or construction of bridges that would allow keeping those roads transitable all-year round, avoiding interruptions to the traffic, and that contribute to enhance accessibility to and from main economic corridors.
- The cost per km does not exceed US\$25,000.
- The sub-project complies with the requirements of SNC's environmental manual, and does not imply impacts to the natural or social habitat or entail resettlement of population.

Road Safety Component:

- The Government, through the National Police, to make the necessary arrangements so that the Accident Information System is carry out with diligence and efficiency, and the information is shared with other stakeholders.
- Not later than June 30, 2002, the Government to appoint a road safety task group to study the different alternatives and to recommend the most adequate institutional framework to manage the road safety issues at a national level .
- The road safety task group to submit its findings and recommendations before June 30,2003 and the Government to decide on those recommendations not later than December 31, 2003.

Procurement

- The Government, through the SNC, to carry out the actions included in the Procurement Improvement Action Plan.

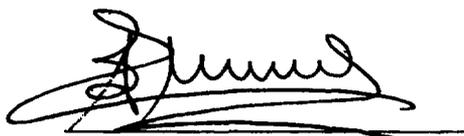
H. Readiness for Implementation

- 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
- 1. b) Not applicable.
- 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
- 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
- 4. The following items are lacking and are discussed under loan conditions (Section G):

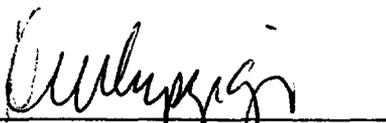
Procurements documents for the rehabilitation works under component 1 are complete and the tender process has been initiated. Procurement documents for the first-year periodic maintenance activities under component 3 are under preparation. They are expected to be completed by credit effectiveness.

I. Compliance with Bank Policies

- 1. This project complies with all applicable Bank policies.
- 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.



Aurelio Menendez
Team Leader



Danny M. Leipziger
Sector Manager/Director



Isabel M. Guerrero
Country Manager/Director

| Hierarchy of Objectives | Key Performance Indicators | Data Collection Strategy | Critical Assumptions |
|--|---|--|---|
| <p>Project Development Objective: Improve transitivity and accessibility through the rehabilitation of key segments of the national and secondary road network and the strengthening of the country's capacity to manage road assets</p> | <p>Outcome / Impact Indicators:</p> <p>Number of freight transport units (trucks) between Calamarca and Oruro and between Boyuibe and Yacuiba increased by 16% at third year of project and by 28% by project end, from about 450 and 300, respectively, at project start.</p> <p>Percentage of the national road network in at least good condition increased from 19% at project start to 30% at project's mid-term review and to 40% at project completion.</p> <p>Timely preparation and public dissemination of an annual report on operational and financial performance of the CNCV.</p> <p>Network-based road maintenance plans and budgets at four participating (Prefecturas') road agencies (SEPCAMs) developed and implemented (with indication of maintenance activities, costs and productivities).</p> <p>One hundred percent of SNC's managerial and technical staff positions selected and appointed on the basis of managerial and technical merits and appropriate budgeting of salaries by project mid-term and through project end</p> <p>Legal framework as established by Law 2064 and Supreme Decrees 26336 upheld through project end</p> | <p>Project reports:</p> <p>Statistics on freight transport collected through traffic counting</p> <p>Data from the SNC on road condition, and from independent technical audit of the CNCV</p> <p>Data from the SNC on road maintenance activities, and from annual external operational performance audit of the CNCV</p> <p>Annual Operative Plan (POAs) of Prefecturas and SEPCAMs</p> <p>Reports related to the implementation of the Institutional Reform Project and SNC internal staffing data</p> <p>Legal regulations and amendments</p> | <p>(from Objective to Goal)</p> <p>Stability of complementary policies for economic development</p> <p>Stability in gasoline and diesel international prices</p> <p>Sustained commitment from the Government in the implementation of institutional reform program, including the establishment and functioning of the Road Maintenance National Account</p> |

| Hierarchy of Objectives | Key Performance Indicators | Data Collection Strategy | Critical Assumptions |
|---|--|--|---|
| <p>Output from each Component:</p> <p>Priority sections of the national road network rehabilitated</p> <p>Eligible sections of the secondary network rehabilitated</p> <p>Management capacity strengthened in supervision, maintenance and road safety, and improved inter-institutional coordination (with Prefecturas)</p> <p>Maintenance of road network carried out with appropriate contractual arrangement with private contractors and microenterprises and properly funded</p> | <p>Output Indicators:</p> <p>353 kilometers of the national network rehabilitation according to technical specifications and contractual terms-of-reference</p> <p>200 kilometers of the secondary network rehabilitation according to technical specifications and contractual terms-of-reference</p> <p>90 percent rate of execution of projects planned (in terms of budget and of numbers) under the Road Maintenance and Resurfacing Program</p> <p>Procedures and systems for implementation of transparent and efficient procurement, contract, and financial management implemented at the SNC by project mid-term and through project end</p> <p>Quality control management systems installed at the SNC by project mid-term, allowing compliance with timetable of Procurement Plan</p> <p>80% of counterpart disbursements (from Prefecturas) for donor-financed road projects made effective within three months of request</p> <p>80% of periodic and routine maintenance needs covered with sustained resources (from road users' charges)</p> <p>80% of routine maintenance on the national road network appropriately carried out with microenterprises and/or maintenance contracts, and</p> | <p>Project reports:</p> <p>Project progress documents and documents on final reception of works</p> <p>Project progress documents and documents on final reception of works</p> <p>Supervision reports and final reception minutes for works, and independent operational audit of the CNCV</p> <p>Progress reports on the implementation of the procurement action plan</p> <p>Progress reports on the implementation of the Procurement Plan for project components</p> <p>Ministry of Finance reports on execution of budget by the SNC and the relevant Prefecturas</p> <p>Reports of collection of tolls and other charges</p> <p>Project progress documents and supervision reports</p> | <p>(from Outputs to Objective)</p> <p>Sustained commitment and effective implementation of institutional reforms for the sector</p> <p>Sustained governmental interest in supporting the Road Maintenance National Account, and in approving the necessary resources for that Account</p> <p>Normal natural conditions in the areas of the project</p> |

| | | | |
|---|---|---|---|
| | <p>achieving planned maintenance targets by project end</p> <p>Accident Information System developed and operational in the Departments of La Paz and Santa Cruz, with appropriate external linkages to key stakeholders, by project end</p> <p>Options for institutional framework for road safety developed and decision on preferred institutional structure made, by project mid term</p> | <p>Reports issued by Task Force in charge of the Road Safety Component and supervision reports</p> | |
| <p>Project Components / Sub-components:</p> <p>Rehabilitation of 353 km of key segments of the national network</p> <p>Rehabilitation of 200 km of eligible secondary roads feeding into the key segments of the national network</p> <p>Establishment and Implementation of Road Maintenance National Account (CNCV)</p> <p>Road Safety Initiative</p> <p>Pre-investment studies of key new road projects on national</p> | <p>Inputs: (budget for each component)</p> <p>US\$36.39 million</p> <p>US\$5.70 million</p> <p>US\$211.84 million</p> <p>US\$1.35 million</p> <p>US\$5.06 million</p> | <p>Project reports:</p> <p>Progress reports on project implementation by component</p> <p>Disbursement statistics by project component</p> | <p>(from Components to Outputs)</p> <p>Timely release of counterpart funds allow execution of project works and institutional measures according to procurement plan</p> <p>Timely awarding of contracts with transparent and efficient management of tendering processes, allowing projects to be completed within estimated costs, improving image of sector entities, and increasing confidence from contractors and consultants on bid processes</p> <p>Sustained interest in pursuing inter-institutional coordination initiatives between the SNC and the Prefecturas, and between the SNC and other sector entities (e.g., the National Transit Police)</p> |

| | | | |
|---|-------------------|--|--|
| network | | | |
| Supervision of rehabilitation works on the national and secondary networks | US\$3.98 million | | |
| Supervision of routine and periodic maintenance activities (under CNCV) | US\$15.55 million | | |
| Community relations and indigenous development plans | US\$0.57 million | | |
| Performance audits, impact evaluation, and coordinating unit | US\$1.74 million | | |
| Institutional strengthening for the consolidation of the reform of the National Road Agency | US\$0.65 million | | |
| Institutional strengthening of participating Prefectural Road Agencies | US\$0.64 million | | |
| Institutional strengthening of the Vice Ministry of Transport | US\$0.12 million | | |
| Auscultation equipment and information systems technology | US\$0.18 million | | |
| Training | US\$0.23 million | | |

Annex 2: Detailed Project Description

BOLIVIA: Road Rehabilitation and Maintenance Project

By Component:

Project Component 1 - US\$36.39 million

Rehabilitation of priority segments of the national road network. This component entails carrying out rehabilitation works consisting of reinforcing the pavement structures of (a) about 165 km of the Calamarca-San Pedro section on national Route 1, on the road from La Paz to Oruro, and (b) about 188 km of the Boyuibe-Yacuiba section on national Route 9, providing continuity to the road Abapó-Camiri (whose reconstruction is being undertaken with support from Credit 3235-BO).

The identified roads represent key segments of the national network that, as a consequence of their substantial deterioration, require immediate rehabilitation. The last rehabilitation of these roads took place about 10 years ago, and the substantial traffic--particularly of heavy trucks and buses--have produced signs of pavement distress, requiring urgent rehabilitation to prevent further deterioration. The SNC has undertaken an in-depth analysis of rehabilitation alternatives (using the Bank-sponsored Highway Design and Maintenance Standards Model or HDM) and selected the alternative that would report the largest economic benefits. The priority of these segments has been confirmed and contrasted against the results of the Transport Master Plan, completed in November 2000.

The works to be undertaken in each of the segments can be summarized as follows:

- The Calamarca-San Pedro road segment is presently an asphalt-concrete paved road with a width of 7 meters and gravel-treatment shoulders of 1 meter each. The road presents varying degrees of distress that require corrective rehabilitation or preventive maintenance to restore the riding quality and structural integrity of the pavement and reduce excessive maintenance costs. The works consist of repairing all damaged areas on the existing roadway and shoulders, resurfacing the existing roadway with a 5-cm flexible pavement and of the existing shoulders with asphalt concrete of a thickness varying from 2 to 5 cm, reconstruction of pavement structure and undertaking deep lift where structural failure may exist, repairing the drainage systems, and installing traffic markers and signals.
- The Boyuibe-Yacuiba road is currently an asphalt-treated base road with a width of 7.3 meters and gravel-treatment shoulders of 1.8 meters. The segment presents severe structural sections and cracking, with negative effects on the riding quality along the road. The rehabilitation activities to be undertaken under the project are of a similar nature as those mentioned for the Calamarca-San Pedro segment.

The rehabilitation works will take place within the existing right of way and will not require any resettlement of population. An extensive social and environmental analysis (Annex 14) has provided the information to (a) adjust the design of the works to maximize the benefits to the population in the areas of influence of the road segments to be rehabilitated; and (b) minimize any possible minor environmental impacts to the natural habitat. Regarding the latter, an environmental manual is integral part of the rehabilitation contracts and the related supervision.

Project Component 2 - US\$5.70 million

Pilot of rehabilitation of secondary (departmental) roads. In order to increase the benefits from the rehabilitation of segments of the primary network, facilitate transport from low-income communities, and encourage adequate road management practices at the *Prefecturas*, this component seeks to rehabilitate around 200 km of secondary roads. This pilot would focus on the Departments of La Paz, Oruro, Chuquisaca y Tarija, that are the four departments the segments under component 1 transverse. The *Prefecturas* of these departments would compete for the available funds on the basis of readiness of candidate subprojects that comply with eligibility criteria. These criteria would include: (a) subprojects involve road segments linking to main economic corridors and contribute to facilitating access to and from those corridors; (b) specific requirements to be completed by the relevant *Prefectura* (a rollover three year road rehabilitation and maintenance program, a capital and recurrent budget); (c) a maximum rehabilitation cost per km (of US\$25,000); (d) environmental requirements; and (e) other socio-economic criteria. The rehabilitation works would take place within the rights-of-way of the existing secondary roads and will not require any resettlement of population. The regulations set for in the SNC's environmental manual for road works would be an integral part of the rehabilitation contracts and the related supervision. In addition to the technical requirements for the individual subprojects, the interested SEPCAMs would have to comply, or have a program to comply, with institutional improvement priorities that guarantee reliable systems for road condition and traffic inventories, accounting, contracting works, and road maintenance.

To implement this component, the Government through SNC and each participating *Prefectura* would make the necessary arrangements so that the subprojects are carried out with due diligence and efficiency. More specifically, (i) SNC would assign two senior professionals to assist the participating SEPCAMs with the planning, execution and evaluation of the rehabilitation works on secondary roads and with the related institutional improvements, and (ii) the SEPCAMs would commit to the definition and subsequent implementation of an institutional action plan to improve their road management practices by end of year 2006. SNC will commit itself to provide the necessary technical assistance and coordination to the SEPCAMs. These agreements would be confirmed at negotiations. Details of this component are further described in Annex 12.

Project Component 3 - US\$ 211.82 million

Road Maintenance National Account (CNCV) and Resurfacing Program. The Government has shown its commitment to the establishment of a sustained source of revenues to timely attend the maintenance needs of the network. As current country conditions do not allow increasing user fees drastically, a process of building up the constituencies and resources is necessary. To start the process the Government has established a Road Maintenance National Account (CNCV) and has requested IDA to initially fund the CNCV portion allocated to resurfacing/strengthening works. Under the project, IDA would participate in the financing of the resurfacing works of about 600 km of roads per year during five years. The estimated cost of these works is about US\$108 million and the amount of IDA participation would be US\$34.3 million, which would be disbursed, on a decreasing basis (in percentage terms, compared to the size of the resurfacing program). In addition the Project includes the financing of annual audits of the CNCV and independent annual ratings of the primary roads condition, under its technical assistance component.

The use of the resources of the CNCV are delineated in a manual of procedures (to be legally approved at the ministerial level) that include: (i) the description of the routine and periodic maintenance activities that are eligible for financing with the resources from the CNCV; (ii) the description of any other possible

eligible activities (such as studies that may need to be contracted out to enhance and monitor the use of the CNCV resources); (iii) the reporting and audit requirements for the use of the CNCV proceeds; and (iv) overall procurement and contractual regulations. The completion and approval of this manual in a manner satisfactory to IDA will be a condition of credit effectiveness. The contracts to be financed partially with the proceeds from the credit will follow IDA procurement rules and environmental regulations.

The 2002-2006 program of activities of SNC's Maintenance Unit, including the routine maintenance and resurfacing program to be financed out of the CNCV, was evaluated during project appraisal. The complete program of the Maintenance Unit for the period 2002-2006 is summarized in the table below.

2002-2006 Maintenance and Rehabilitation Program for the National Network
US\$ million

| | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
|--|------|------|------|------|------|-------|
| Routine maintenance | 20.6 | 24.2 | 21.8 | 19.7 | 20.0 | 106.3 |
| Periodic maintenance (resurfacing) | 11.7 | 16.0 | 27.6 | 30.7 | 22.0 | 107.9 |
| Sub-total (Maintenance, CNCV) | 32.3 | 40.2 | 49.4 | 50.4 | 42.0 | 214.2 |
| Emergency and spot improvements | 9.0 | | | | | 9.0 |
| Rehabilitation | 8.0 | 17.6 | 19.4 | 5.0 | | 50.0 |
| Special projects | 5.5 | | | | | 5.5 |
| Comprehensive maintenance (Abapo-Camiri) | 4.6 | 2.8 | 2.8 | 2.1 | | 12.4 |
| Total | 59.4 | 60.6 | 71.6 | 57.4 | 42.0 | 291.1 |

The 2002-2006 program should be considered a tentative program because of the uncertainty about the condition and needs of the national road network. The increased funding for highway maintenance resulting from the creation of the CNCV is to be welcomed, particularly in view of the long-term commitments to sustained investment on maintenance activities. It will result in significant improvements to the condition of the fundamental road network so long as the funding earmarked for maintenance is actually spend on maintenance. Under the project, the Government would commit itself to maintain the level of budgetary resources to meet the requirements of the routine maintenance and resurfacing program in a timely manner, and to use CNCV proceeds exclusively for routine maintenance and resurfacing works. Certain actions, related to the operation of the CNCV, such as its annual auditing and annual reviews with IDA of its requirements were reviewed and agreed upon during project appraisal. Furthermore, SNC would undertake commitments, with support from the institutional building component of the Project, to strengthening its institutional capabilities.

The level of routine maintenance and resurfacing expenditure compared with the audited rating of the condition of the roads will be used to monitor the effectiveness of the program financed by the CNCV. More details on the 2002-2006 routine maintenance and resurfacing program, the functioning of CNCV and the selection criteria for the eligibility of subprojects to be financed by IDA are presented in Annex 11.

Project Component 4 - US\$28.25 million

Technical assistance. This component includes the following sub-components:

- (a) *Road safety.* This sub-component supports building the institutional framework and capacity to address some of the most pressing needs in the road safety sector. Available statistics show that about 1000 persons are killed in road accidents in Bolivia and that about 70 % of the accidents take place in the departments of La Paz and Santa Cruz. The project includes the development of: (i) an institutional framework that would permit the proper management of road safety issues. A task group, comprising the most concerned stake holders, would be formed under the coordination of SNC, to study the different alternatives and to recommend the most adequate institutional framework to manage the road safety issues at national level. The Government would decide on these recommendations before the end of year 2003; (ii) an accident information system for the departments of La Paz and Santa Cruz as a first step to

develop a national system. As commitment of the police is crucial for an accident information system, the National Police will be responsible for implementation of this sub-component; (iii) a systematic auditing of new or existing roads for the specific purpose of accident prevention, including the preparation of a road auditing manual and the auditing of about 1000 km of roads. SNC would be responsible for the implementation of this part of the project sub-component. Each of the above parts of the sub-component includes training and technical assistance and is further develop in Annex 13.

(b) Pre-investment studies. This component would support the preparation of engineering studies for new road projects within the context of the results of the Transport Master Plan and the economic development strategy of the GOB. The current lack of completed new projects for the sector makes imperative the preparation of these pre-investment studies to continue the support of the rehabilitation and improvement of the road infrastructure in Bolivia. All these studies will include the environmental impact and social assessments necessary to comply with all the IDA environmental and social safeguards related to the design of this type of projects. Terms of reference for these studies will be therefore approved by the IDA to check compliance with those safeguards.

(c) Supervision of rehabilitation works and maintenance activities. This component consists of the consultant services for the supervision of the first two components, the rehabilitation works on the key priority links of the national network and on the secondary roads of the pilot to be undertaken with the SEPCAMs, and of the maintenance activities to be financed with the resources of the CNCV. The estimated cost of this component is equal to about 10% of the rehabilitation costs and about 7.5% of the maintenance costs.

(d) Community relations and indigenous peoples development plans. This component consists of the services to be provided to ensure that the rehabilitation works on the national network are carried out with due consideration to the living conditions and cultures of the populations living in the area of influence of the roads, in order to minimize and mitigate any possible adverse impacts to the social habitats that may arise from the rehabilitation of the two key segments of the national network. The contents of the IPDP and Social Plans were agreed upon at appraisal. The financing of the costs related to these plans will be assumed by the Borrower. Further details on the contents of these plans are included in Annex 14.

(e) Technical and financial audits. This component would finance the hiring of specialized consultants to undertake technical audits of the projects components, specifically those related to the use of the CNCV resources and the pilot program of rehabilitation of secondary roads. It will also include support to undertaking the financial audits of the institution. This component will also finance the hiring of consultants to carry out an impact analysis of the implementation of the project. This will be undertaken at a time sufficiently after the completion of the rehabilitation works in order to allow most impacts to materialize.

Project Component 5 - US\$1.82 million

Road sector management and institutional building. During project preparation, discussions and seminars were held to identify the key institutional development activities that would be financed under the project. The identification of these activities was undertaken with due consideration to those already being undertaken under other World Bank projects and those of the Inter-American Development Bank (IDB) and the Andean Development Corporation (CAF). Nevertheless, given the ongoing institutional restructuring and reform process of the SNC, one should expect adjustments to the scope of the activities as that project is implemented and the reform process advances.

The component includes key gaps that need to be filled in order to revamp the institutional framework for the road sector and to facilitate the implementation of the project. The activities are directly related to the various components of the projects and the strategy for the transformation of the SNC in improving its efficiency in managing the Bolivian road assets and confronting the opportunities for corruption. The activities focus on three key areas, each with technical assistance, training, and acquisition of computer-based equipment and software. The three key areas are: (a) strengthening the maintenance programming capacity at the SNC and the Prefecturas; (b) building up the procurement and contracting systems for the efficient and transparent management of all type of road works; and (c) strengthening of the information base for the analysis and definition of maintenance programs. Additional resources are allocated to supporting the building up of the capacities of the newly-created socio-environmental unit. Further details on these activities follow.

Maintenance programming. Within this component, support will be provided to restore the capacity of the SNC in planning and programming the maintenance of the national road network and, in general, of investments in roads, in coordination with the Office of the Transport Master Plan at the VMT. In this respect, this component includes training and application of the HDM-4 Model and would complement to the extent necessary the activities to be financed under IDB's Ventilla-Tarapaya Project related to the recollection of information on road conditions and on traffic characteristics that would allow the effective application of the HDM-4 Model. Furthermore, the component includes support to the strengthening of management information systems that can take advantage of the outputs of the HDM-4 for the purpose of supporting decisions not only at the level of the Executive President of the SNC but also of the Ministries of Finance and Economic Development and of the Office of the VMT. The results of the HDM-4 Model constitute also inputs to the definition of the resources required for the CNCV.

Procurement and contract management. The procurement assessment of the execution entity revealed several areas that required strengthening in order for that entity to carry out its mandate in an efficient and transparent manner. Key among them is the development of a comprehensive procurement and contract management information system. The project would support the development of this system including training activities and equipment acquisition. This is an element in the broader strategy of increasing the transparency of procurement and the efficiency of execution and management of contracts. The Institutional Reform Project (Credit 3245-BO) has also allocated funds to support other initiatives in this respect (such as, the drafting of an Code of Ethics or the development of an archiving system).

Contract maintenance. The experience of the contract maintenance program (for which an initial pilot was financed with resources Credit 2395-BO, Second Road Maintenance Project) has shown deficiencies in the management of maintenance activities (see Annex 11 for a more extensive treatment of this topic). It has become important to re-assess the maintenance mechanisms and explore alternative options from micro-enterprises to concessions. The SNC must develop the capability for an integral management of road assets and for vetting the adequacy of the diverse maintenance strategies and mechanisms, and extend this knowledge to the Prefectura's SEPCAMs. This sub-component would include support to: (a) the analysis of the current system of contract maintenance by unit prices and development of improved approaches to it, including the possibilities of incorporating modifications towards moving into a system of contract maintenance by performance; (b) the establishment of a system of monitoring and evaluation of the various maintenance strategies; and (c) the strengthening of the coordination between the SNC and the VMT in the overall planning of road investments and the definition of the program of road concessions (responsibility that is currently under the realm of the Office of Concessions of the VMT with limited coordination with SNC's own programming of maintenance tasks and lack of an integral perspective of the management of the road network).

Road users' charges policy. Though during project preparation, studies were advanced regarding the identification of efficient road users' charges and the possibilities of allocating them to the sustainable and sufficient financing of the maintenance of the road network (with the purpose of defining the needs and the structure of the CNCV), it will continue to be necessary to strengthen the capacity of the SNC and of the Office of the VMT in evaluating the financing needs of the sector to program adequately the routine and periodic maintenance of the road network. This sub-component will complement the activities listed above under the heading "strengthening of the planning and managerial capacity." This sub-component will also include support to the development of procedures for the proper accountability of the use of resources from the CNCV and, subsequently, to the evaluation of the achievement of targets in improving road conditions and in executing the annual maintenance budget.

The following table summarizes the sub-components of the institutional building components and their estimated cost, with a tentative allocation of the financing between IDA, NDF and counterpart resources.

| Timized List of Institutional Building Sub-Components (US\$, without contingencies) | | | | | | | |
|--|------------------|----------------------|----------------|------------------|---------------------------|----------------|--|
| | Total | Technical Assistance | | | Distribution of financing | | |
| | | Training | Equipment | IDA | NDF | Counterpart | |
| Servicio Nacional de Caminos (SNC) | | | | | | | |
| Support on Socio-Environmental Issues | | | | | | | |
| Technical Assistance on Social Management Issues | 76,000 | 76,000 | | 60,800 | | 15,200 | |
| Training | 28,000 | | 28,000 | 22,400 | | 5,600 | |
| Publications and dissemination | 20,000 | 20,000 | | | 20,000 | - | |
| Subtotal | 124,000 | 96,000 | 28,000 | 83,200 | 20,000 | 20,800 | |
| Support on Planning and Programming | | | | | | | |
| Auscultation Equipment | 95,000 | | | 95,000 | | - | |
| Information Systems Equipment | 30,000 | | 30,000 | 24,000 | | 6,000 | |
| Training | 35,000 | | 35,000 | 28,000 | | 7,000 | |
| Technical Assistance on Maintenance Programming | 80,000 | 80,000 | | | 80,000 | - | |
| Technical Assistance on HDM-4 | 70,000 | 70,000 | | 56,000 | | 14,000 | |
| Subtotal | 310,000 | 150,000 | 35,000 | 108,000 | 175,000 | 27,000 | |
| Support on Maintenance Practices | | | | | | | |
| Analysis of Maintenance Contracts | 75,000 | 75,000 | | 60,000 | | 15,000 | |
| Development of Alternative Maint. Contracting Approaches | 90,000 | 90,000 | | 72,000 | | 18,000 | |
| Training | 35,750 | | 35,750 | 28,600 | | 7,150 | |
| Subtotal | 200,750 | 165,000 | 35,750 | 160,600 | - | 40,150 | |
| Support on Financial-Administrative Management | | | | | | | |
| Tech. Assist. on Procurement and Contract Monitoring Information System | 150,000 | 150,000 | | 120,000 | | 30,000 | |
| Information Systems Equipment and Software | 50,000 | | 50,000 | | 50,000 | - | |
| Training | 30,000 | | 30,000 | 24,000 | | 6,000 | |
| Other Technical Support to Audits and Internal Control | 50,000 | 50,000 | | 40,000 | | 10,000 | |
| Subtotal | 280,000 | 200,000 | 30,000 | 164,000 | 50,000 | 46,000 | |
| Total SNC | 914,750 | 811,000 | 128,750 | 735,800 | 245,000 | 133,950 | |
| Servicios Prefecturales de Caminos (SEPCAMs) | | | | | | | |
| Support to Maintenance Planning and Programming | | | | | | | |
| Technical Assistance | 387,500 | 387,500 | | 182,000 | 160,000 | 45,500 | |
| Training | 30,000 | | 30,000 | 24,000 | | 6,000 | |
| Subtotal | 417,500 | 387,500 | 30,000 | 206,000 | 160,000 | 51,500 | |
| Support to Procurement and Contract Management | | | | | | | |
| Technical Assistance | 220,000 | 220,000 | | 98,400 | 97,000 | 24,600 | |
| Training | 30,000 | | 30,000 | 24,000 | | 6,000 | |
| Subtotal | 250,000 | 220,000 | 30,000 | 122,400 | 97,000 | 30,600 | |
| Total SEPCAMs | 667,500 | 607,500 | 60,000 | 328,400 | 257,000 | 82,100 | |
| Vice-Ministry of Transport (VMT) | | | | | | | |
| Support to Road Sector Policy Setting (Tolls Users Charges) | | | | | | | |
| Technical Assistance | 120,000 | 120,000 | | 56,000 | 50,000 | 14,000 | |
| Training | 30,000 | | 30,000 | 24,000 | | 6,000 | |
| Subtotal | 150,000 | 120,000 | 30,000 | 80,000 | 50,000 | 20,000 | |
| Total VMT | 150,000 | 120,000 | 30,000 | 80,000 | 50,000 | 20,000 | |
| Grand Total | 1,732,250 | 1,338,500 | 218,750 | 1,144,200 | 552,000 | 236,050 | |

Annex 3: Estimated Project Costs
BOLIVIA: Road Rehabilitation and Maintenance Project

| Project Cost By Component | Local US \$million | Foreign US \$million | Total US \$million |
|--|-------------------------------|---------------------------------|-------------------------------|
| Rehabilitation works on key segments of the national network | 13.15 | 19.72 | 32.87 |
| Pilot program of rehabilitation of secondary roads | 3.00 | 2.00 | 5.00 |
| Road maintenance national account and resurfacing program | 138.71 | 59.66 | 198.37 |
| Technical assistance | 18.21 | 8.34 | 26.55 |
| Institutional strengthening | 0.66 | 1.08 | 1.74 |
| Total Baseline Cost | 173.73 | 90.80 | 264.53 |
| Physical Contingencies | 5.28 | 2.78 | 8.06 |
| Price Contingencies | 7.49 | 3.92 | 11.41 |
| Total Project Costs¹ | 186.50 | 97.50 | 284.00 |
| Total Financing Required | 186.50 | 97.50 | 284.00 |

| Project Cost By Category | Local US \$million | Foreign US \$million | Total US \$million |
|--|-------------------------------|---------------------------------|-------------------------------|
| Goods | 0.06 | 0.13 | 0.19 |
| Works | 166.53 | 87.40 | 253.93 |
| Services | 19.84 | 9.81 | 29.65 |
| Training | 0.07 | 0.16 | 0.23 |
| Total Project Costs¹ | 186.50 | 97.50 | 284.00 |
| Total Financing Required | 186.50 | 97.50 | 284.00 |

¹ Identifiable taxes and duties are 12.19 (US\$m) and the total project cost, net of taxes, is 271.81 (US\$m). Therefore, the project cost sharing ratio is 28.33% of total project cost net of taxes.

Annex 4: Cost Benefit Analysis Summary
BOLIVIA: Road Rehabilitation and Maintenance Project

Introduction

An economic analysis of the investment component of the project was undertaken as part of project preparation. The investment component includes two major projects: the rehabilitation of the Calamarca-San Pedro and the Boyuibe-Yacuiba road segments. For component 2, involving the rehabilitation of secondary roads, Annex 12 describes the eligibility criteria that would need to be followed by the participating SEPCAMs for the selection of those investments. Component 3 involves the financing of the routine and periodic maintenance of the national network with the resources from the Road Maintenance National Account (CNCV), following the maintenance program described in Annex 13. The routine and periodic maintenance activities designed for the first year of the project yield rates of return well above 50%. Future maintenance activities with resources from the CNCV will be subject to their analysis as part of the development of a programming approach with the use of the Bank-sponsored HDM-IV model.

The table below summarizes the results of the analysis of the rehabilitation component. The present value of the economic and financial benefits have been calculated using a 12% discount rate.

[For projects with benefits that are measured in monetary terms]

| | Present Value of Flows | | Fiscal Impact | |
|---|------------------------|---------------------------------|---------------|-----------|
| | Economic Analysis | Financial Analysis ¹ | Taxes | Subsidies |
| Benefits: US\$ million (Incremental values compared to the base alternative) | 45.16 | 60.99 | 15.83 | |
| Costs: US\$ million (Incremental values) | 23.40 | 27.51 | 4.11 | |
| Net Benefits: US\$ million | 21.76 | 33.48 | 11.72 | |
| IRR: % | 27.0% | 31.0% | | |

¹ If the difference between the present value of financial and economic flows is large and cannot be explained by taxes and subsidies, a brief explanation of the difference is warranted, e.g. "The value of financial benefits is less than that of economic benefits because of controls on electricity tariffs."

Summary of Benefits and Costs:

The proposed project components of rehabilitation and maintenance would reduce road-user transport costs by (a) lowering vehicle operating, accident and travel time costs, (b) removing physical constraints to road transport of goods and people within Bolivia and from Bolivia to the neighboring countries of Argentina and Chile, and (c) allowing the provision of more reliable and safer transport services.

The project represents a key element of the 2002-2006 maintenance and rehabilitation program of the SNC (see Annex 11). With local (road users' charges) and external financing (IDB, CAF, IDA, and FONPLATA), the program has a total budget of about US\$290 million to finance rehabilitation works and periodic and routine maintenance activities. An analysis of the current condition of the network, based on a series of service indicators, shows that about 22 percent of the national network is in at least good condition. If the program is not implemented, the network condition will deteriorate, affecting the transport connections within Bolivia and its export channels to Argentina and Chile. With the implementation of the proposed project and with it the rehabilitation and maintenance program, it is expected that the condition of the network will improve, reaching a percentage of 47% by project's end of roads in at least good condition.

More specifically, the two main sub-projects of the rehabilitation component will bring benefits to the population living along the roads' areas of influence, as follows:

- *Calamarca-San Pedro Road.* This segment crosses over the Altiplano for an extension of 175 kilometers, on the main road from La Paz to Oruro, and from this town, southward, to Potosi and Sucre and, eastward, to Cochabamba and Santa Cruz. The segment connects the national network of the Altiplano, through the perpendicular Patacamaya-Tambo Quemado Road, to the Chilean border. The segment therefore is a key link within the road network of Bolivia, facilitating the long-haul transport of export products with their port of exit at the Chilean port of Arica. It was one of the first paved roads of the country. The population in the area of influence--of about 183,000 people--consists mostly of rural villagers scattered over the Altiplano, mostly dedicated to agricultural production of traditional products, such as potatoes and quinoa. The road has become an important economic link facilitating commerce and access to services.
- *Boyuibe-Yacuiba Road.* This road has an extension of 180 kilometers, crossing provinces of the Departments of Santa Cruz, Chuquisaca and Santa Cruz. It is the single road that communicates the westernmost section of the last two departments to the Department of Santa Cruz and of all them to the border with Argentina. The road is a continuation of the Abapo-Camiri road, currently being rehabilitated with support from the IDA. The population in the area of influence of the road amounts to around 220,000 people. Economic activity takes place around livestock production and related activity, agricultural production of corn, soy beans, and other cereals, and fishing along the Pilcomayo river (that traverses the road at Villa Montes). The latter represents an important production as its production represents about 48% of the national consumption of fish (according to figures of 1995). Improvements in transport conditions would spur the development of these activities, favoring economic activities that benefit the indigenous and poor population of the area and improving their living conditions. This perception was expressed through the social evaluation of the project. Besides the facilitation of economic development around its area of influence, the improvement of the road would also reduce costs for the long-haul of products from the Santa Cruz and Chapare Regions. Those both areas have crops--like pineapple, strawberry and bananas--whose production would increase were transport costs reduced (helping, subsequently, with the development of alternative crops).

In both cases, the improvement of the road conditions--along with the improvements currently being implemented under other projects, such as the Abapo-Camiri Highway Project--would facilitate the development of productive activities in the areas of influence of the segments to be rehabilitated, benefiting the rural population. The rehabilitation works would also facilitate the overall transport of export products from other regions in the country. As such the rehabilitation works would generate benefits for the country

as a whole.

Main Assumptions:

The economic analysis of the rehabilitation component was carried out with the use of the Highway Design and Maintenance Standards Model (HDM-III), which simulates the deterioration of the road on the basis of existing conditions, the climate, and the traffic on the road, and measures the incremental benefits to the road users from a base do-nothing alternative. The analysis encompassed the simulation of different alternatives for each road link in order to ascertain the optimum level of investment considering a 10-year horizon.

The SNC estimated the rehabilitation and maintenance costs in financial and economic terms (net of taxes). Economic costs of the rehabilitation and maintenance activities are estimated to be 85% of the financial costs. The SNC also defined representative vehicle fleet characteristics and road user unit costs for six vehicle classes. The vehicle and user costs were translated to economic costs using an average conversion factor of 71% for the vehicle and tire prices (to account for taxes and import duties), of 87% for labor and driving crew costs, and of 84% for fuel and lubricants costs (to account for taxes). The value of time was estimated considering that average hourly income is US\$1.59 for car passengers and US\$0.70 for bus passengers, and assuming that 85% of the passengers are on work-related trips and that the value of leisure time is 25% of the hourly income. With these assumptions, the tables below summarize the key inputs to the HDM-III model.

| Vehicle Fleet Characteristics and Economic Unit Costs | | | | | | |
|---|--------|---------|---------|--------------|-------------|-------------------|
| | Car | Pick-up | Bus | Medium Truck | Heavy Truck | Articulated Truck |
| Gross vehicle weight (tons) | 1.5 | 2.8 | 17.0 | 15.5 | 19.7 | 42.7 |
| Standard axle load factor | - | - | 3.9 | 2.7 | 4.6 | 5.3 |
| Number of axles | 2 | 2 | 2 | 2 | 2 | 5 |
| Number of tires | 4 | 4 | 6 | 6 | 6 | 18 |
| Number of passengers | 3 | 3 | 48 | - | - | - |
| Service life (years) | 10 | 10 | 10 | 7 | 7 | 8 |
| Hours driven per year | 500 | 750 | 1,000 | 1,200 | 1,280 | 1,280 |
| Km driven per year | 30,000 | 45,000 | 55,000 | 60,000 | 64,000 | 64,000 |
| Interest rate (%) | 12 | 12 | 12 | 12 | 12 | 12 |
| Vehicle prices (US\$) | 14,135 | 21,079 | 107,683 | 44,924 | 83,862 | 111,182 |
| Tire price (US\$) | 30.7 | 88.9 | 223.8 | 193.2 | 223.8 | 223.8 |
| Maintenance labor (US\$/hour) | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 | 2.05 |
| Crew time (US\$/hour) | - | - | 2.00 | 1.41 | 1.54 | 1.86 |
| Passenger time (US\$/hour) | 1.45 | 1.45 | 0.64 | - | - | - |
| Fuel costs (US\$/liter) | 0.37 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| Lubricants costs (US\$/liter) | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 | 1.70 |

| Unit costs of main rehabilitation operations | | | |
|--|--------------|-----------|----------|
| Paved roads | Unit | Costs | |
| | | Financial | Economic |
| Calamarca-San Pedro | | | |
| Patching | US\$/m2 | 12.25 | 10.41 |
| Resealing | US\$/m2 | 2.38 | 2.02 |
| Overlay (5 cm) | US\$/m2 | 7.15 | 6.08 |
| Routine maintenance | US\$/km/year | 2,300.00 | 1,955.00 |
| (Re)construction | US\$ 000/km | 104.30 | 88.70 |
| Boyuiibe-Yacuiba | | | |
| Patching | US\$/m2 | 5.66 | 4.81 |
| Resealing | US\$/m2 | 3.12 | 2.65 |
| Overlay (5 cm) | US\$/m2 | 13.01 | 11.06 |
| Routine maintenance | US\$/km/year | 1,600.00 | 1,360.00 |
| (Re)construction | US\$ 000/km | 98.30 | 83.60 |

In both cases, the rate of growth of the vehicular traffic was estimated based on past trends and other indicators such as the growth of the number of vehicles, the increase in gasoline consumption and the growth of population. Conservatively, it was estimated that traffic would grow at a rate of 3.5% for light vehicles and buses and of 4% for trucks until the horizon year of the project. The average traffic values and the estimated annual increase, by vehicle type, are shown in the next table.

| Average daily traffic and annual increase | | | | | | |
|---|------|------|------|------|------|------|
| Calamarca-San Pedro | | | | | | |
| Average daily traffic | 223 | 124 | 447 | 112 | 162 | 174 |
| Annual increase (%) | 3.5% | 3.5% | 3.5% | 4.0% | 4.0% | 4.0% |
| Boyui-be-Yacuiba | | | | | | |
| Average daily traffic | 239 | 79 | 131 | 98 | 88 | 95 |
| Annual increase (%) | 3.5% | 3.5% | 3.5% | 4.0% | 4.0% | 4.0% |

Sensitivity analysis / Switching values of critical items:

The analysis of the sensitivity of the results show that both projects will continue to show rates of return above the customary cutoff of 12% in the event of a 20% increase in the investment costs, a 20% decrease in the benefits or a combination of the two. In these latter event, the rate of return results to be 16.9%. The following table summarizes the results of the sensitivity analysis:

| Sensitivity analysis | | | | | |
|----------------------|------|--------------------|---------|--------------------|---------|
| | | Increase in costs | | | |
| | | 0% | | 20% | |
| | | NPV (US\$ million) | ERR (%) | NPV (US\$ million) | ERR (%) |
| Decrease | 0% | 21.76 | 27.0% | 17.08 | 22.2% |
| in benefits | -20% | 12.73 | 21.2% | 8.05 | 16.9% |

Switching values were calculated for the increase in costs or the reduction in benefits. In the case of the Calamarca-San Pedro sub-project, costs would have to increase by more than 72% or benefits reduced by more than 42% for the sub-project to yield a rate of return lower than 12%. In the case of the Boyui-be-Yacuiba sub-project, costs would have to increase more than 1.5 times or benefits reduce by more than 61% for the project to become not economically feasible.

In all, these results show the robustness of the economic worth of the rehabilitation investments.

Annex 5: Financial Summary
BOLIVIA: Road Rehabilitation and Maintenance Project

Years Ending
June 30

| | IMPLEMENTATION PERIOD | | | | | | |
|---------------------------------|-----------------------|--------|--------|--------|--------|--------|--------|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 |
| Total Financing Required | | | | | | | |
| Project Costs | | | | | | | |
| Investment Costs | 19.2 | 36.4 | 52.8 | 43.7 | 29.4 | 0.0 | 0.0 |
| Recurrent Costs | 19.1 | 22.8 | 21.1 | 19.5 | 20.0 | 0.0 | 0.0 |
| Total Project Costs | 38.3 | 59.2 | 73.9 | 63.2 | 49.4 | 0.0 | 0.0 |
| Total Financing | 38.3 | 59.2 | 73.9 | 63.2 | 49.4 | 0.0 | 0.0 |
| Financing | | | | | | | |
| IBRD/IDA | 14.2 | 23.5 | 23.5 | 14.1 | 1.7 | 0.0 | 0.0 |
| Government | 8.2 | 20.3 | 26.0 | 14.9 | 9.3 | 0.0 | 0.0 |
| Central | 8.2 | 20.3 | 26.0 | 14.9 | 9.3 | 0.0 | 0.0 |
| Provincial | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Co-financiers | 0.3 | 1.7 | 2.2 | 1.7 | 1.2 | 0.0 | 0.0 |
| User Fees/Beneficiaries | 15.7 | 13.7 | 22.2 | 32.5 | 37.2 | 0.0 | 0.0 |
| Others | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Project Financing | 38.4 | 59.2 | 73.9 | 63.2 | 49.4 | 0.0 | 0.0 |

Main assumptions:

User Fees/Beneficiaries represent the contributions from road users in the form of tolls and vehicle-fuel tariffs to the Road Maintenance National Account (CNCV) as estimated on the basis of (a) Supreme Decree 26487 of January 23, 2002, and (b) Action Plan for the Financing of Road Maintenance, issued by the SNC on January 31, 2002. Investment and recurrent cost include, as applicable, physical contingencies (5.9% of physical components) and price contingencies (3.5% of cost estimates in US\$). These contingencies are not applied to the routine maintenance sub-component of Component 3, as this would be adjusted in its scope to the amount of resources available. Investment costs apply to components 1, 2, 4 and 5, and to the resurfacing program (periodic maintenance) of Component 3.

Annex 6: Procurement and Disbursement Arrangements

BOLIVIA: Road Rehabilitation and Maintenance Project

Procurement

All IDA-financed procurement under the project would follow the Bank's guidelines ("Guidelines for Procurement under IBRD Loans and Credits" of January 1995, revised January and August 1996, September 1997 and January 1999; and "Guidelines for Selection and Employment of Consultants by World Bank Borrowers" of January 1997, revised September 1997 and January 1999), and the provisions stipulated in the Credit Agreement.

The sub-components to be financed with resources from the NDF would be procured following NDF procurement rules. These components involve consultant services for the development of the road safety initiative and the preinvestment studies (under Component 4) and institutional building to the SNC, the SEPCAMs and the VMT, and the acquisition of auscultation and information systems equipment, as detailed in the table at the end of Annex 2 (under Component 5).

Procurement methods (Table A)

Implementing Agency. All procurement of works and goods, and consultant's services for the implementation of the various components of the project, except for component 2, would be undertaken by the Servicio Nacional de Caminos (SNC), the project Implementing Agency. The procurement of works under component 2 (Pilot of Rehabilitation of Secondary Roads) will be carried out by the relevant Departmental Road Agency but subject to the no objection of the SNC and subject to Bank rules and supervision. At appraisal, the SNC developed a procurement plan for project implementation which provided the basis for the aggregate amounts for the procurement methods (per Table A). At project effectiveness, and every six months afterward, the SNC shall update the Procurement Plan, including a detailed procurement schedule for the forthcoming semester and a preliminary plan for the subsequent semester.

Procurement of Works. All contracts for the road upgrading component (Component 1), amounting more than US\$3 million equivalent each, and totaling about US\$36.4 million equivalent including contingencies, would be procured through International Competitive Bidding (ICB) procedures.

All rehabilitation works on the secondary roads (Component 2) and the resurfacing works to be financed with the resources from the Road Maintenance National Account (Component 3), amounting between US\$250,000 to US\$3 million equivalent each, and totaling about US\$109 million equivalent including contingencies, would be procured through National Competitive Bidding (NCB) procedures acceptable to IDA. NCB procedures are recommended because these contracts are unlikely to attract foreign competition. The average value of these road rehabilitation contracts is relatively small and the works are scattered over the country. In this context, the local industry is developed enough to ensure competition, economy and efficiency.

Those maintenance works to be financed with the resources from the Road Maintenance National Account (CNCV) estimated to cost less than US\$250,000 equivalent per contract, and totaling about US\$10 million equivalent including contingencies, will be procured on the basis of price quotations acceptable to IDA. The price quotations should be obtained from three qualified local contractors or microenterprises (with capacity to successfully complete the contract) in response to a written invitation. The invitation will include a detailed description of the works, including basic specifications, the required completion date, a basic form of agreement acceptable to the Bank and relevant drawings when necessary. The award will be

made to the lowest evaluated bidder in accordance with criteria clearly set forth in the bidding documents.

Procurement of Goods. Goods to be procured under the project include: (a) various information technology equipment including road-auscultation equipment, communication networks, servers and workstations, and (b) software to develop a data base management system and complete the implementation of a financial information management system. The total estimated value of these goods amounts to about US\$200,000 equivalent including contingencies.

Goods and equipment costing US\$200,000 equivalent or more would be procured using ICB procedures. Goods and equipment costing less than US\$200,000 equivalent but more than US\$50,000 equivalent per contract would be awarded through National Competitive Bidding (NCB) acceptable to IDA. Goods and equipment costing US\$50,000 or less per contract will be procured using shopping (International/National) procedures on the basis of quotations obtained from at least three suppliers and a model request satisfactory to the Bank.

Selection of Consultants & Training. About US\$6.8 million equivalent including contingencies would be allocated to consultant's services and training. The selection and hiring of consultants would be done using the Bank's Standard Request for Proposal - Selection of Consultants, dated July 1997 and revised April 1998 and July 1999. Consultant contracts amounting to about US\$5.7 million equivalent including contingencies would be selected using a Quality-Cost Based Selection (QCBS) method or other Bank methods which are determined to be more appropriate and specified in Procurement Plans to be agreed with the Bank.

Those consultant services and goods to be financed with resources from the Nordic Development Fund (for an estimated total amount of US\$7 million) would be procured under NDF General Procurement Guidelines.

Operational Costs. Credit resources cannot be used to finance operational costs.

B) Assessment of the agency's capacity to implement procurement. An assessment of the SNC's capacity to do project procurement was carried out for this project during the pre-appraisal mission of October 16-21, 2000, and it was approved by the Regional Procurement Advisor on November 2, 2000. The Bank's Country Procurement Assessment Report (CPAR) for Bolivia, completed in May 2000 was used as an input in the assessment and the general findings of the assessment of the SNC conformed to those of the CPAR. At the time of appraisal for this project the SNC is implementing the Abapo-Camiri Highway Project, Credit 3235-BO. The assessment reviewed the organizational structure of the SNC and the procurement procedures followed by the various departments. The assessment identified weaknesses and risk factors and proposed specific actions to be addressed before project implementation becomes effective. An update of the proposed plan of actions was performed with the SNC's project staff during a preparation mission conducted on October 15-23, 2001.

The risk of the overall procurement capacity of the SNC has been assessed as high. The main risks concern the lack of proper information dissemination, weak support and control systems, the lack of qualified staff, and a weak general procurement environment. To mitigate these risks, an series of actions will be undertaken under the project. Among others, the procurement process/capability of the SNC will be improved through the implementation of an action plan designed during the assessment exercise. This plan is shown in the table below. Further strengthening of the SNC's capability and capacity to execute procurement will be pursued through the use of local standard bidding documents for procurement of works and goods under NCB procedures acceptable to IDA and the provision of specialized training activities to

be financed under the project. In all, this action plan along with the other institutional strengthening activities included under the project (see Annex 2) attempt to improve the efficiency of the executing institution and the transparency of procurement processes, reducing the length of time and administrative steps for procurement processes and contract execution, with an aim at reducing the possibilities of corruption. This plan is being undertaken in coordination with parallel initiatives being supported under the Institutional Reform Project (Credit 3245-BO).

**Road Rehabilitation Project Preparation
Procurement Capacity Assessment Report
Action Plan Proposed for Improvement in Procurement
(Original assessment date: Oct. 18, 2000) Final Review: March 7, 2002**

| Activity | Specification | Proposed Completion Date | Status |
|---|---|---|--|
| 1 Procurement Planning | 1.1 Prepare a Procurement Plan for overall project implementation | January 30, 2002 | Completed |
| | 1.2 Prepare a Procurement Plan for 1st-year of project implementation | January 30, 2002 | Completed and Cleared |
| 2 Project and Contract Management Information | 2.1 Prepare TOR for selection of a consultant firm | April 15, 2002 | TORs in preparation |
| | 2.2 Select and contract a consulting firm for system development and implementation | July 30, 2002 | |
| | 2.3 Development and implementation and project mgmt. System | October 30, 2002 | Not yet due |
| | 2.4 Provide specialized training in contract administration | October 30, 2002 | Not yet due |
| 3 Standard Bidding Documents (SBD) | 3.1 Agree with IDA on SBD for procurement of goods, works and selection of consultants to be awarded under ICB and NCS procedures | March 6, 2002 | Done |
| | 3.2 Include explicit provision in the DCA for the use of Bank SBD and DONPA national SBD as mandatory | March 6, 2002 | Done |
| 4 Specialized training in procurement and other specialized areas | 4.1 Design an overall training program at SNC | By Effectiveness | In progress |
| | 4.2 Provide basic procurement training to technical staff for improving pre/post qualification-related tasks | 1 month after Effectiveness | |
| | 4.3 Implement overall training program | June 30, 2004 | Not yet due |
| 5 Organization and Functions | 5.1 Establish a project procurement support unit at SNC | June 30, 2002 | To be located within the Finance & Admin. Dept. |
| | 5.2 Provide skilled staff to the SNC's procurement support unit | July 31, 2002 | |
| 6 Project Operations Manual | 6.1 Complete a Standard Project Operations Manual for the SNC | Condition of Effectiveness | |
| 7 Project Procurement Audits | 7.1 Prepare annual procurement audit report | Not later than six months after completion of each year of project implementation | Draft TORs to be prepared. IDA will provide sample TOR |
| 8 Technical and Administrative Controls | 8.1 Submit a plan of actions for strengthening SNC's T&A controls | July 31, 2002 | In preparation |
| 9 Code of Ethics | 9.1 Incorporate a Code of Ethics for mandatory use in procurement | Issuance of the Code is contingent on approval of the Procurement Law's final version being discussed in Congress | MOF's Office of Standards responsible for its preparation and implementation |
| | 9.2 Incorporate a Code of Ethics for all SNC staff | July 31, 2002 | Financing subject to approval of the IR Agreement (ARI) with the IRP. Expected signature date: March 30, 2002 |
| 10 Anticorruption Initiatives | 10.1 Include specific provisions on fraud and corruption in project procurement documents | Immediately | Completed |
| | 10.2 Other anticorruption initiatives | To be agreed upon | Not yet due |
| 11 Filing System | 11.1 Prepare TOR for selection of consultant | May 15, 2002 | To be started |
| | 11.2 Contract a firm for design and development of a filing system | July 15, 2002 | Not yet due |
| | 11.3 Develop and implement the filing system | December 15, 2002 | Not yet due |
| 12 Communications System | 12.1 Install an e-mail system network (Intranet) | October 15, 2002 | Access to management positions being currently provided. Expansion to all staff is contingent on installation of a computer station network installation |
| 13 Salary Structure | 13.1 Create job profiles and adequate salary levels for procurement positions at the SNC | February 15, 2002 | Completed |
| 14 Freedom from Political Interference | 14.1 Submit managerial and key technical positions to open competition | June 15, 2002 | Selection process for managerial positions already completed. Selection of key technical staff underway. Pending signature of the IR Agreement (ARI) |
| 15 Written Standards and Delegation of Authority | 15.1 Establish clear lines of authority delegation | Condition of Effectiveness | Already part of the Admin. Manual under preparation |
| | 15.2 Put in place an adequate mechanism for resolution of disputes and appeals | December 31, 2002 | Completion subject to prior approval of the Procurement Law by Congress and adjustments of local procurement standards by the MCF. |
| 16 Budget/Financial Systems | 16.1 Implementation of SINCON | November 4, 2001 | Completed. |
| 17 General Reputation | 17.1 Design a communication campaign for enhancement of the SNC's institutional image | December 30, 2003 | Not yet due |
| 18 Miscellaneous | 18.1 Provide budget allocation for institutional coordination and project supervision, monitoring and control | June 30, 2002 | Included at SNC's budget 2002 Budget provisions incorporated in the IR Agreement (ARI) |

C) Procurement Plan. Before appraisal, the Borrower developed an overall procurement plan for project implementation which provided the basis for the aggregate amounts of the procurement methods (per Table A). The Procurement Plan is in the project files. At the beginning of the first year of project implementation, and every six months thereafter, the Borrower will update the Procurement Plan with the detailed procurement scheduled for the upcoming semester.

Table A: Project Costs by Procurement Arrangements
(US\$ million equivalent)

| Expenditure Category | Procurement Method ¹ | | | | Total Cost |
|----------------------|---------------------------------|-------------------|--------------------|------------------|-------------------|
| | ICB | NCB | Other ² | N.B.F. | |
| 1. Works | 36.39 (29.11) | 109.10 (42.32) | 10.00 (0.00) | 98.44 (0.00) | 253.93 (71.43) |
| 2. Goods | 0.00 (0.00) | 0.00 (0.00) | 0.19 (0.14) | 0.00 (0.00) | 0.19 (0.14) |
| 3. Services | 0.00 (0.00) | 0.00 (0.00) | 6.54 (5.24) | 23.11 (0.00) | 29.65 (5.24) |
| 4. Training | 0.00 (0.00) | 0.00 (0.00) | 0.23 (0.19) | 0.00 (0.00) | 0.23 (0.19) |
| Total | 36.39 (29.11) | 109.10 (42.32) | 16.96 (5.57) | 121.55 (0.00) | 284.00 (77.00) |

^{1/} Figures in parenthesis are the amounts to be financed by the IDA Credit. All costs include contingencies.

^{2/} Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.

Table A1: Consultant Selection Arrangements (optional)
(US\$ million equivalent)

| Consultant Services Expenditure Category | Selection Method | | | | | | | Total Cost ¹ |
|---|------------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------------|
| | QCBS | QBS | SFB | LCS | CQ | Other | N.B.F. | |
| A. Firms | 5.41 (4.33) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 22.53 (0.00) | 27.94 (4.33) |
| B. Individuals | 0.30 (0.24) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.83 (0.67) | 0.23 (0.19) | 0.58 (0.00) | 1.94 (1.10) |
| Total | 5.71 (4.57) | 0.00 (0.00) | 0.00 (0.00) | 0.00 (0.00) | 0.83 (0.67) | 0.23 (0.19) | 23.11 (0.00) | 29.88 (5.43) |

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection

QBS = Quality-based Selection

SFB = Selection under a Fixed Budget

LCS = Least-Cost Selection

CQ = Selection Based on Consultants' Qualifications

Other = Selection of individual consultants (per Section V of Consultants Guidelines),
Commercial Practices, etc.

N.B.F. = Not Bank-financed

Figures in parenthesis are the amounts to be financed by the Bank Credit.

Prior review thresholds (Table B)

The proposed thresholds for prior review are based on the procurement capacity assessment of the project implementing unit and are summarized in Table B.

Table B: Thresholds for Procurement Methods and Prior Review ¹

| Expenditure Category | Contract Value Threshold (US\$) | Procurement Method | Contracts Subject to Prior Review |
|-----------------------------|---|--|--|
| 1. Works | 3,000,000 equivalent or more | ICB | Prior review: each contract |
| | Less than US\$3,000,000 equivalent but more than US\$250,000 equivalent | NCB | Prior review: each contract |
| | US\$250,000 equivalent or less | Shopping | Prior review: twice-yearly review of Procurement Plan Post review: random sample of contracting documents |
| | As provided in the Procurement Plan | Other methods of procurement | As provided in the Procurement Plan |
| 2. Goods | US\$200,000 equivalent or more | ICB | Prior review: each contract |
| | Less than US\$200,000 equivalent but more than US\$50,000 equivalent | NCB | Prior review: each contract |
| | US\$50,000 equivalent or less | Shopping (International/National) S(I/N) | Prior review: twice-yearly review of Procurement Plan Post review: random sample of contracting documents |
| | As provided in the Procurement Plan | Other methods of procurement | As provided in the Procurement Plan |
| 3. Services | | | |
| 3.1 Firms | As provided in the Procurement Plan | QCBS | Prior review for Consultants: all TORs, RFPs, short lists, technical and combined evaluations of each contract estimated to cost US\$50,000 equivalent or more |

| | | | |
|--|---|---|--|
| 3.2 Individual Consultants | <p>As provided in the Procurement Plan</p> <p>As provided in the Procurement Plan</p> | <p>Other methods of selection</p> <p>CQ</p> | <p>Post Review of Consultants: random sample of contracting documents of each contract estimated to cost less than US\$50,000 equivalent</p> <p>As provided in the Procurement Plan</p> <p>Prior review for Consultants: each contract estimated to cost US\$20,000 equivalent or more</p> <p>Post review for Consultants: random sample of contracting documents of each contract estimated to cost less than US\$20,000 equivalent</p> |
| 4. Amendments and extensions of contracts | <p>Increase in contract value above threshold established in the Contracts subject to Prior Review column</p> | | <p>Prior Review or Prior Review for Consultants as the case may be.</p> |
| 5. Miscellaneous | | | |
| 6. Miscellaneous | | | |

Total value of contracts subject to prior review:

Overall Procurement Risk Assessment

High

Frequency of procurement supervision missions proposed: One every 4 months (includes special procurement supervision for post-review/audits) reviewing a sample of 1 in 5 contracts signed.

¹ Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.

Disbursement

Allocation of credit proceeds (Table C)

Disbursement of the loan proceeds would be made against expenditure categories as shown in Table C. Those disbursements corresponding for the resurfacing component would be made on the following basis: 80% until withdrawals under this category have reached an aggregated amount equivalent to \$10 million; 60% until a cumulative amount of \$20 million has been disbursed; and 30% thereafter. Retroactive financing not exceeding US\$5 million equivalent would be provided for eligible expenditures incurred after May 1, 2002.

Table C: Allocation of Credit Proceeds

| Expenditure Category | Amount in US\$million | Financing Percentage |
|---|------------------------------|--|
| CIVIL WORKS | 26.30 | 80% |
| (1) Rehabilitation Works of Road Segments of National Network | | |
| (2) Rehabilitation Works of Secondary Roads | 4.00 | 80% |
| (3) Resurfacing Works (CNCV) and Supervision | 35.22 | 80% until withdrawals under this category have reached an aggregated amount equivalent to \$10 million; 60% until a cumulative amount of \$20 million has been disbursed; and 30% thereafter |
| CONSULTANT SERVICES | 3.45 | 80% |
| (4) Technical Assistance Consultant Services (road safety, pre-investment studies, supervision, performance and financial audits, impact studies) | | |
| (5) Institutional Strengthening Consultant Services and Training | 0.65 | 80% |
| GOODS | 0.11 | 100% of foreign exchange and 80% of local expenditures |
| (6) Auscultation and Information Technology Goods | | |
| (7) Unallocated | 7.27 | |
| Total Project Costs | 77.00 | |
| Total | 77.00 | |

Funds Flow and Disbursement Arrangements

The Project will disburse using the transaction-based disbursement mechanism. For credit proceeds, funds will flow, to the SNC through its Special Account. Funds will be withdrawn from this account as the needs arise and deposited in a local currency account for disbursement of the Bank financed share to the suppliers. The counterpart funds of the Government of Bolivia or the *Prefecturas* will go to a separate bank account and will not be mixed with the credit proceeds.

Use of statements of expenditures (SOEs):

For any civil works estimated to cost the equivalent of US\$0.25 million or less, goods contracts estimated to cost the equivalent of US\$0.1 million or less, consulting firms contracts estimated to cost the equivalent of US\$50,000 or less, individual consultant's contracts to cost the estimated equivalent of US\$20,000 or less, and training expenditures, withdrawal applications will be supported by Statement of Expenditures (SOEs). Full documentation for Withdrawal Applications based on SOEs will be kept in the PCU premises and available for inspection by Bank's staff conducting supervision missions and external and internal auditors. Other eligible expenditures above SOEs thresholds would be submitted to the Bank for reimbursement using Summary Sheets supported by full documentation (including signed contracts).

All the maintenance activities to be undertaken with resources from the Road Maintenance National Account would be disbursed according to the relevant (declining) paripassu, as stated in the table above, and following the procedures set in the previous paragraph.

Disbursements for civil works under the component on rehabilitation of the secondary network would be transferred by the SNC to the pertinent Prefectura on the basis of presentation of satisfactory execution reports by the corresponding SEPCAM and upon a visit by SNC supervisors. The project must comply with all the elements of the eligibility criteria as described in Annex 12.

Special account:

To facilitate credit disbursements, the SNC will open and maintain a separate special deposit account in the Bolivia Central Bank, on terms and conditions satisfactory to the Bank, including appropriate protection against set-off, seizure and attachment. The Special Account (SA), which would cover the Bank's share of eligible expenditures in all disbursement categories, would have an authorized allocation amounting to US\$ 5 million with an initial withdrawal of US\$ 3 million to be withdrawn from the credit account and deposited in the SA. The balance shall be withdrawn when disbursements reach SDR 10.0 million. Deposits into the Special Account and replenishments up to the authorized allocation set out in the Credit Agreement and the disbursement letter, would be made on the basis of Applications for Withdrawals accompanied with the supporting and other documentation as specified in the Disbursement Handbook.

Accounting, Auditing and Reporting Arrangements*Financial Management Assessment*

Overall the financial management of SNC currently satisfies the Bank minimum financial management requirements. However, another evaluation/assessment on the integrated financial management system will be made once all the transactions to date are input and the current balances are reconciled to the bank statements and to the detailed records kept by the Project Coordinating Unit. Furthermore, explicit commitments need to be made to keep a full complement of financial management staff in place and to continue to address the internal control observations made in the 2000 external audit report.

Action Plan

Integrated financial management system. One of the institutional development actions to be implemented under the Project, and to be completed by June 2002, consists of strengthening the establishment of a computerized financial management system for the whole SNC on the basis of the existing SINCON.

The information provided by the records kept in the Project Coordinating Unit, duly reconciled with the accounting records of SINCON, will allow the preparation of the financial reports required under the Financial Monitoring Reports (FMRs) Guidelines that apply to all projects appraised in 2002. These FMRs will be prepared on a quarterly basis and submitted to the Bank for monitoring purposes. A Bank's financial management specialist, based in La Paz, will follow up the development process and recommend any appropriate modifications during the FMR development.

The Project will be declared effective as long as the FMR system, satisfactory to the Bank, is operational (condition of effectiveness).

It is necessary that the new Organizational Manual (under preparation) establishes as one of the routine tasks the preparation of monthly or quarterly reconciliations between the Accounting/Budget Departments and the Project Coordinating Unit, to ensure that all transactions have been properly recorded, both in the SINCON and the records kept by the Project Coordinating Unit, which are the basis for the preparation on project financial statements for Bank purposes.

Institutional development. Additionally, the institutional development includes the following tasks:

- Under the institutionalization process, the definition of SNC's new structure, including the Administrative and Finance Management Unit, needs to be completed. This structure should allow an adequate segregation of duties and responsibilities, as well as the appropriate coordination and communication among the different units involved in administrative and financial processes. Additionally, the selection and hiring process of key staff should be completed.
- Upon definition of the new structure, the preparation of the Organizational Manual, detailing functions and procedures, should be completed. This manual should include as a minimum, position descriptions for all of the officers, managers and other staff; definition of duties, responsibilities, lines of supervision and limits of authority; description of policies, procedures and flowcharts, including those procedures related to the internal control systems.
- A computerized sub-ledger for fixed assets needs to be established.

Reporting Arrangements

The project will use the transaction-based disbursement method. The SNC will prepare in accordance with current financial reporting guidelines, the following Financial Monitoring Reports (FMRs): (i) a summary of uses and sources of funds; (ii) procurement monitoring reports, and (iii) output monitoring reports, all in accordance with models to be agreed upon at negotiations.

Auditing Arrangements

An independent external audit firm, acceptable to the Bank, would be hired to carry out annual audits of the project and the entity, in accordance with terms of reference acceptable to the Bank and consistent with the requirements of the Guidelines and Audit Terms-of-Reference for Project Financed by the World Bank in the Latin America and Caribbean Region. The audit fees will be financed out of the proceeds of the credit. The audited financial statements of project and entity would be furnished to the Association no later than six months after the closing date of the previous fiscal year.

Annex 7: Project Processing Schedule
BOLIVIA: Road Rehabilitation and Maintenance Project

| Project Schedule | Planned | Actual |
|--|----------------|---------------|
| Time taken to prepare the project (months) | 15 | |
| First Bank mission (identification) | 01/05/2000 | 01/05/2000 |
| Appraisal mission departure | 11/15/2001 | 01/15/2002 |
| Negotiations | 04/15/2001 | 03/08/2002 |
| Planned Date of Effectiveness | 07/01/2001 | |

Prepared by:

Servicio Nacional de Caminos and World Bank staff and consultants

Preparation assistance:

Project documentation was reviewed and commented by the staff of the Nordic Development Fund, under the guidance of the Regional Manager, Latin American and the Caribbean. The regional manager has been Ms. Maria Bouroncle, up to December 2001, and Mr. Jesper Andersen, thereafter.

Support in preparing project documentation for Board presentation was provided by Ms. Gladys Sakata, LCSFP.

Bank staff who worked on the project included:

| Name | Specialty |
|--------------------------|---|
| Aurelio Menendez | Task team leader and transport economist |
| Andrea Silverman | Sector leader |
| Juan Quintero | Environmental specialist |
| Maximo Liberman | Environmental specialist |
| Elena Correa | Social evaluation specialist |
| Keisgner Alfaro | Procurement specialist |
| Paul Sisk | Financial management specialist |
| Xiomara Morel | Financial Management and Disbursement Specialist |
| David Varela | Lawyer |
| Luiz Gazoni | Procurement specialist |
| Jose Irigoyen | Hwy engineer and institutional development specialist (peer reviewer) |
| Christina Malmberg-Calvo | Transport economist (peer reviewer) |
| Juan Gaviria | Transport economist (peer reviewer) |
| Paul Guitink | Road safety specialist (peer reviewer) |
| WB Consultants: | |
| Enrique Pinilla | Highway engineer and procurement specialist |
| Victor Pozadas | Highway engineer and road environmental management specialist |
| Hernan Otoniel Fernandez | Road maintenance and institutional development specialist |
| Pablo Roda (Economica) | Transport economist and road financing specialist |

| | |
|--------------------------------|---|
| Erling Rask & K. Wass (Consia) | Road safety specialists |
| Magaly Barba de Matsuzaki | Social evaluacion specialist |
| Ivonne Farah H. | Social evaluacion specialist |
| Argentina Antuñez | Indigenous people evaluation specialist |

Annex 8: Documents in the Project File*
BOLIVIA: Road Rehabilitation and Maintenance Project

A. Project Implementation Plan

SNC, "Manual Ambiental para la Construcción de Carreteras," prepared by Maximo Liberman, Hans Salm, y Bertinha Paiva, La Paz, Bolivia, Noviembre 2000.

SNC, "Evaluación Económica Mantenimiento Periódico Tramo Calamarca-San Pedro," Departamento de Planificación, La Paz, Bolivia, Junio de 2000, y documentos de actualización, Febrero de 2001.

SNC, "Evaluación Económica Mantenimiento Periódico Tramo Boyuibe-Yacuiba," Departamento de Planificación, La Paz, Bolivia, Junio de 2000, y documento de actualización, Febrero de 2001.

SNC, "Estudio ambiental Calamarca-San Pedro," Departamento de Gestión Ambiental, La Paz, Bolivia, Junio de 2000.

SNC, "Estudio ambiental Boyuibe-Yacuiba," Departamento de Gestión Ambiental, La Paz, Bolivia, Junio de 2000.

Estudio de Impacto Ambiental del Proyecto de Mantenimiento Periodico del Senkata-San Pedro, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Mayo de 1999, La Paz, Bolivia

Estudio de Impacto Ambiental por las Actividades de Mantenimiento Periodico del Tramo Boyuibe-Yacuiba, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Junio de 2000, La Paz, Bolivia

Evaluacion del Impacto Social en las Comunidades Indígenas de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba (con Plan de Desarrollo de las Comunidades Indígenas), preparado para el Servicio Nacional de Caminos por Argentina Antunez R., Diciembre 2001, La Paz, Bolivia

Plan de Acción Social para el Proyecto de Rehabilitación y Mantenimiento de Carreteras, preparado durante la misión de appraisal, Enero de 2002.

Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba, preparado para el Servicio Nacional de Caminos por Magaly Barba de Matsuzaki, Noviembre 2000, La Paz, Bolivia;

Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Calamarca-San Pedro, preparado para el Servicio Nacional de Caminos por Ivonne Farah, et. al. Octubre 2000, La Paz, Bolivia.

Acuerdo de Reforma Institucional, preparado por la Oficina del Proyecto de Reforma Institucional, Ministerio de la Presidencia, Febrero 2002.

Supreme Decree 26487 of January 23, 2002, on the definition of financial resources for the Cuenta Nacional de Conservacion Vial (CNCV).

Supreme Decree 25336 of September 29, 2001, on the restructuring of the SNC and establishment of the

CNCV.

Republic of Bolivia, Law No. 2064 of March 2000, on Economic Reactivation.

SNC, "Detailed project costs and implementation plan," April 2001 (updated January 2002, as part of appraisal mission).

SNC, "Plan para la Prevención y Reducción de la Accidentalidad Vial (PARE)," La Paz, Bolivia, Diciembre de 2000.

B. Bank Staff Assessments

Financial Assessment of the SNC, February 2002



SNCFinancialManagementAssessmentRepo
Procurement Plan



PlanAdqRevCompletoWithRPACommer
Procurement Capacity Assessment



ProcurementCapacityAssessmentOct200
Procurement Action Plan



UpdatedProcurementActionPlanJan0
Social Action Plan



PlanAccionSocial.do
Indigenous People Development Plan



IPDP Boyuibe-Yacuiba.doc

Aide Memoire of Appraisal Mission of January 2002.

Aide Memoire of Preparation (Pre-Appraisal) of October 2000.

Republica de Bolivia y Banco Mundial, "Diagnóstico de los Procedimientos de Adquisiciones y Plan de Acción para el Mejoramiento de la Contratación Pública," Abril 2000.

The World Bank, "Bolivia Poverty, Equity, and Income: Selected Policies for Expanding Earning Opportunities for the Poor, Volume I: The Main Report," Report No. 15272-BO, Latin America and the Caribbean Region, Country Department III, Country Operations Division I, February 22, 1996.

World Bank, "Bolivia Public Expenditure Review," Report No. 19232-Bo, Country Management Unit,

Country Department VI, Latin America and the Caribbean Region, June 14, 1999.

The World Bank, "Bolivia Microeconomic Constraints and Opportunities for Higher Growth," Poverty Reduction and Economic Management Department, Bolivia, Ecuador and Peru Country Management Unit, Latin American and the Caribbean Region, January 16, 2001.

C. Other

Strategic Institutional Reform Plan, 2000-2002

Strategic Institutional Reform Plan, 2002-2007

Consia Consultants, "Needs Assessment for Institutional Design of Road Safety Initiative, Bolivia," study prepared with funding from the Danish Trust Fund, February 2001.

Road Directorate, Ministry of Transport, Denmark, "Road Safety in Latin America and the Caribbean: Analysis of Road Safety Situations in Nine Country," 1998.

Economica Consultores, Colombia, "Estructuración Económica y Financiera de un Fondo de Mantenimiento para la Red Fundamental de Carreteras de Bolivia," Abril 2001.

Pozadas, Victor, Consultant, "Análisis de las Condiciones de los Servicios Departamentales de Caminos," La Paz, Bolivia, Octubre de 2000.

Fernández, Hernán Otoniel, Consultant, "Propuesta para la Reestructuración del SNC,"

Caem, Consultores, "Estudio de Sostenibilidad Financiera para la Reforma Institucional del SNC," Marzo de 2001.

Fernández, Hernán Otoniel, Consultant, "Propuesta para un Programa de Mantenimiento con Microempresas y Administradores Viales," Marzo de 2001.

Ministerio de Desarrollo Económico, Viceministerio de Transporte, Comunicación y Aeronáutica Civil, "Plan Maestro de Transporte por Superficie, Informe Final," preparado por Wilbur Smith and Associates, Consa S.R.L., y P.C.A. Ingenieros Consultores, La Paz, Bolivia, Noviembre de 2000.

*Including electronic files

Annex 9: Statement of Loans and Credits
BOLIVIA: Road Rehabilitation and Maintenance Project
01-Mar-2002

| Project ID | FY | Purpose | Original Amount in US\$ Millions | | | Cancel. | Undisb. | Difference between expected and actual disbursements * | |
|---------------|------|--|----------------------------------|--------|-------|---------|---------|--|-----------|
| | | | IBRD | IDA | GEF | | | Orig | Frm Rev'd |
| P057416 | 2001 | INDIGENOUS PEOPLES DEVT PROJECT (LIL) | 0.00 | 5.00 | 0.00 | 0.00 | 4.76 | 0.33 | 0.00 |
| P060474 | 2001 | GEF BO-Sustainability of Protected Areas | 0.00 | 0.00 | 15.00 | 0.00 | 8.24 | -1.15 | 0.00 |
| P068134 | 2001 | BO Decentralization PSAC | 0.00 | 60.00 | 0.00 | 0.00 | 39.36 | 20.83 | 0.00 |
| P074212 | 2001 | BO-Health Sector Reform APL II | 0.00 | 35.00 | 0.00 | 0.00 | 34.44 | 0.00 | 0.00 |
| P065902 | 2000 | HYDROCARBON SECTOR SOCIAL & ENVIRM.(LIL) | 0.00 | 4.80 | 0.00 | 0.00 | 3.50 | 1.90 | 0.00 |
| P060392 | 1999 | BO- HEALTH REFORM-APL I | 0.00 | 25.00 | 0.00 | 0.00 | 9.23 | 9.17 | 0.00 |
| P062790 | 1999 | BO INST REF (OLD CIV S) | 0.00 | 32.00 | 0.00 | 0.00 | 24.38 | 7.53 | 1.95 |
| P055230 | 1999 | ABAPO-CAMIRI HIGHWAY | 0.00 | 88.00 | 0.00 | 0.00 | 64.12 | 42.59 | 0.00 |
| P057030 | 1999 | REG REFORM ADJ CREDI | 0.00 | 40.00 | 0.00 | 0.00 | 18.47 | 17.70 | -0.52 |
| P057396 | 1998 | REGULATORY REFORM & PRIVATIZATION (TA) | 0.00 | 20.00 | 0.00 | 0.00 | 10.98 | 8.60 | 0.00 |
| P040085 | 1998 | PARTICIPATORY RURAL INVESTMENT PROJECT | 0.00 | 62.80 | 0.00 | 0.00 | 37.31 | 16.19 | 0.00 |
| P040110 | 1998 | BO FIN DECEN & ACCT | 0.00 | 15.00 | 0.00 | 0.00 | 1.07 | 0.33 | 0.00 |
| P006204 | 1998 | BO- EDUCATION QUALITY | 0.00 | 75.00 | 0.00 | 0.00 | 31.57 | 17.54 | 0.00 |
| P006186 | 1996 | ENVIRONMENT, INDUSTRY AND MINING PROJECT | 0.00 | 11.00 | 0.00 | 1.57 | 3.07 | 5.33 | 2.64 |
| P006197 | 1995 | LAND ADMINISTRATION | 0.00 | 20.40 | 0.00 | 0.00 | 5.71 | 1.49 | 0.00 |
| P006181 | 1995 | BO- EDUCATION REFORM | 0.00 | 40.00 | 0.00 | 0.00 | 9.39 | 9.72 | 8.47 |
| P006196 | 1993 | BO- INTEGRATED CHILD DEV | 0.00 | 50.70 | 0.00 | 20.11 | 8.67 | 30.73 | 1.89 |
| Total: | | | 0.00 | 584.70 | 15.00 | 21.68 | 314.26 | 188.81 | 14.43 |

BOLIVIA
STATEMENT OF IFC's
Held and Disbursed Portfolio
Jan - 2002
In Millions US Dollars

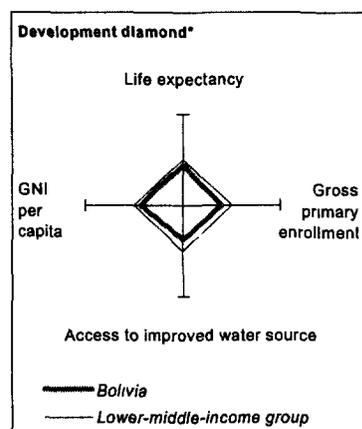
| FY Approval | Company | Committed | | | | Disbursed | | | |
|-------------------------|-----------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|
| | | IFC | | | | IFC | | | |
| | | Loan | Equity | Quasi | Partic | Loan | Equity | Quasi | Partic |
| 1976/88/90/91/95/98 | BISA | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 |
| 1989/92/94/96/00 | COMSUR | 8.75 | 0.00 | 0.00 | 0.00 | 8.75 | 0.00 | 0.00 | 0.00 |
| 0/99 | Caja Los Andes | 1.20 | 0.00 | 0.00 | 0.00 | 1.20 | 0.00 | 0.00 | 0.00 |
| 1991 | Central Aguirre | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 | 0.00 |
| 1999 | Electropaz | 24.55 | 0.00 | 0.00 | 0.00 | 24.55 | 0.00 | 0.00 | 0.00 |
| 1993 | GENEX | 0.42 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 |
| 1999 | Illimani | 8.03 | 1.00 | 0.00 | 0.00 | 6.15 | 1.00 | 0.00 | 0.00 |
| 1996 | Mercantil-BOL | 6.43 | 0.00 | 0.00 | 0.00 | 6.43 | 0.00 | 0.00 | 0.00 |
| 0/89 | Minera | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 |
| 0 | TRECO | 0.00 | 2.94 | 0.00 | 0.00 | 0.00 | 2.94 | 0.00 | 0.00 |
| 1996/01 | Telecel Bolivia | 10.00 | 0.00 | 5.00 | 10.00 | 10.00 | 0.00 | 5.00 | 10.00 |
| Total Portfolio: | | 59.38 | 5.15 | 5.00 | 10.00 | 57.50 | 5.15 | 5.00 | 10.00 |

| FY Approval | Company | Approvals Pending Commitment | | | |
|----------------------------------|-----------------|------------------------------|-------------|-------------|-------------|
| | | Loan | Equity | Quasi | Partic |
| 2001 | Banco Ganadero | 5.00 | 0.00 | 0.00 | 0.00 |
| 2001 | Port Aguirre II | 2.50 | 0.00 | 0.00 | 0.00 |
| 2001 | PQB | 10.50 | 0.00 | 0.00 | 0.00 |
| Total Pending Commitment: | | 18.00 | 0.00 | 0.00 | 0.00 |

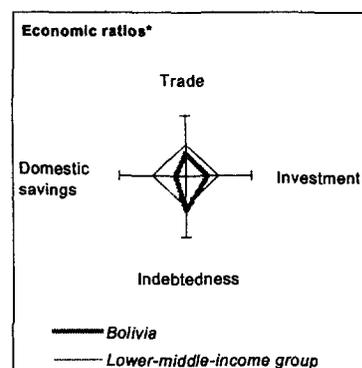
Annex 10: Country at a Glance

BOLIVIA: Road Rehabilitation and Maintenance Project

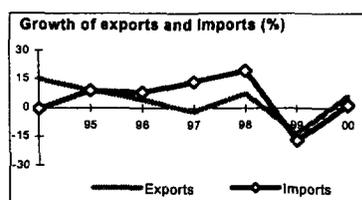
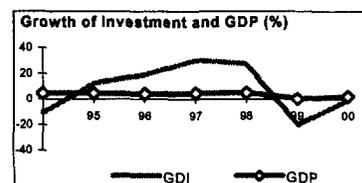
| POVERTY and SOCIAL | Bolivia | Latin | Lower- |
|--|---------|------------------|---------------|
| | | America & Carib. | middle-income |
| 2000 | | | |
| Population, mid-year (millions) | 8.3 | 516 | 2,046 |
| GNI per capita (Atlas method, US\$) | 980 | 3,680 | 1,140 |
| GNI (Atlas method, US\$ billions) | 8.2 | 1,895 | 2,327 |
| Average annual growth, 1994-00 | | | |
| Population (%) | 2.3 | 1.6 | 1.0 |
| Labor force (%) | 2.6 | 2.3 | 1.3 |
| Most recent estimate (latest year available, 1994-00) | | | |
| Poverty (% of population below national poverty line) | 67 | .. | .. |
| Urban population (% of total population) | 65 | 75 | 42 |
| Life expectancy at birth (years) | 62 | 70 | 69 |
| Infant mortality (per 1,000 live births) | 67 | 30 | 32 |
| Child malnutrition (% of children under 5) | 9 | 9 | 11 |
| Access to an improved water source (% of population) | 60 | 85 | 80 |
| Illiteracy (% of population age 15+) | .. | 12 | 15 |
| Gross primary enrollment (% of school-age population) | 91 | 113 | 114 |
| Male | 95 | .. | 116 |
| Female | 87 | .. | 114 |



| KEY ECONOMIC RATIOS and LONG-TERM TRENDS | 1980 | 1990 | 1999 | 2000 |
|--|---------------------|---------|-------|-------|
| | GDP (US\$ billions) | 2.8 | 4.9 | 8.3 |
| Gross domestic investment/GDP | 16.6 | 12.5 | 18.3 | 18.2 |
| Exports of goods and services/GDP | 24.5 | 22.8 | 17.2 | 18.7 |
| Gross domestic savings/GDP | .. | 11.4 | 8.4 | 9.5 |
| Gross national savings/GDP | .. | 10.0 | 10.6 | 11.5 |
| Current account balance/GDP | -0.3 | -4.0 | -5.9 | -5.6 |
| Interest payments/GDP | 6.2 | 2.4 | 1.4 | 2.0 |
| Total debt/GDP | 97.2 | 87.8 | 80.0 | 82.9 |
| Total debt service/exports | 35.0 | 37.1 | 26.3 | 37.5 |
| Present value of debt/GDP | .. | .. | 23.0 | 24.0 |
| Present value of debt/exports | .. | .. | 127.0 | 120.6 |
| | 1980-90 | 1990-00 | 1999 | 2000 |
| (average annual growth) | | | | |
| GDP | -0.2 | 4.0 | 0.4 | 2.4 |
| GDP per capita | -2.2 | 1.6 | -1.9 | 0.0 |
| Exports of goods and services | 1.0 | 4.2 | -13.3 | 6.1 |



| STRUCTURE of the ECONOMY | 1980 | 1990 | 1999 | 2000 |
|--------------------------------|------------|---------|-------|------|
| | (% of GDP) | | | |
| Agriculture | .. | 25.6 | 19.9 | 22.0 |
| Industry | .. | 20.0 | 17.1 | 15.3 |
| Manufacturing | .. | 17.0 | 14.0 | 12.8 |
| Services | .. | 54.4 | 63.0 | 62.7 |
| Private consumption | 67.3 | 76.9 | 77.1 | 76.2 |
| General government consumption | 13.8 | 11.8 | 14.6 | 14.3 |
| Imports of goods and services | 22.3 | 23.9 | 27.1 | 27.4 |
| | 1980-90 | 1990-00 | 1999 | 2000 |
| (average annual growth) | | | | |
| Agriculture | .. | 3.3 | -0.4 | 9.6 |
| Industry | .. | 4.0 | -2.1 | -0.4 |
| Manufacturing | .. | .. | 2.4 | 1.7 |
| Services | .. | 4.3 | 1.7 | 0.4 |
| Private consumption | 1.2 | 3.6 | 3.8 | 1.9 |
| General government consumption | -3.8 | 3.5 | 2.6 | 0.9 |
| Gross domestic investment | 1.0 | 8.5 | -20.1 | -0.9 |
| Imports of goods and services | 4.5 | 5.6 | -16.9 | 1.3 |

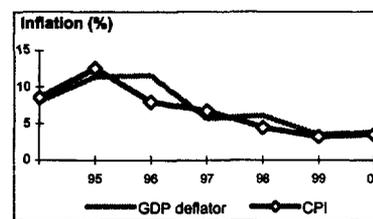


Note. 2000 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete

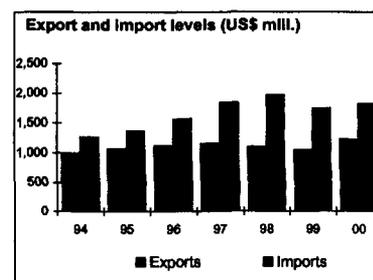
PRICES and GOVERNMENT FINANCE

| | 1980 | 1990 | 1999 | 2000 |
|-------------------------------------|------|------|------|------|
| Domestic prices | | | | |
| (% change) | | | | |
| Consumer prices | .. | 18.0 | 3.1 | 3.4 |
| Implicit GDP deflator | 40.3 | 16.3 | 3.4 | 3.7 |
| Government finance | | | | |
| (% of GDP, includes current grants) | | | | |
| Current revenue | .. | 21.6 | 23.2 | 23.1 |
| Current budget balance | .. | 3.7 | 6.9 | 7.3 |
| Overall surplus/deficit | .. | -4.4 | -3.5 | -3.8 |



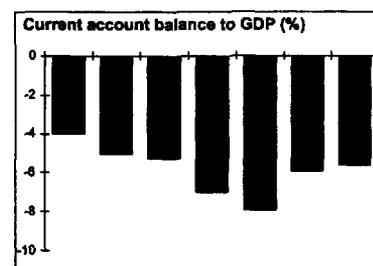
TRADE

| | 1980 | 1990 | 1999 | 2000 |
|-------------------------------|------|------|-------|-------|
| (US\$ millions) | | | | |
| Total exports (fob) | .. | 776 | 1,051 | 1,230 |
| Tin | .. | 106 | 69 | 76 |
| Hydrocarbons and gas | .. | 227 | 65 | 166 |
| Manufactures | .. | 31 | 33 | 58 |
| Total imports (cif) | .. | 963 | 1,755 | 1,830 |
| Food | .. | 421 | 342 | 333 |
| Fuel and energy | .. | 288 | 720 | 903 |
| Capital goods | .. | 254 | 693 | 594 |
| Export price index (1995=100) | .. | 123 | 87 | 90 |
| Import price index (1995=100) | .. | 85 | 99 | 100 |
| Terms of trade (1995=100) | .. | 145 | 88 | 89 |



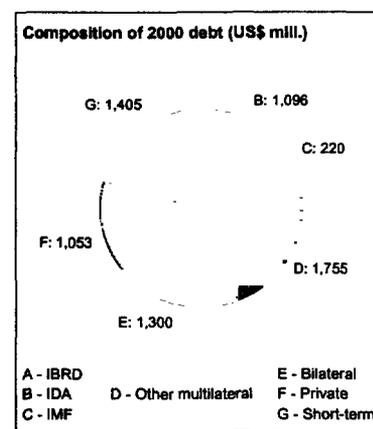
BALANCE of PAYMENTS

| | 1980 | 1990 | 1999 | 2000 |
|---|---------|-------|-------|-------|
| (US\$ millions) | | | | |
| Exports of goods and services | 1,024 | 1,001 | 1,310 | 1,453 |
| Imports of goods and services | 795 | 1,130 | 1,989 | 2,078 |
| Resource balance | 228 | -130 | -678 | -624 |
| Net income | -296 | -241 | -196 | -225 |
| Net current transfers | 60 | 175 | 386 | 385 |
| Current account balance | -8 | -196 | -488 | -464 |
| Financing items (net) | 104 | 326 | 531 | 441 |
| Changes in net reserves | -96 | -130 | -42 | 23 |
| Memo: | | | | |
| Reserves including gold (US\$ millions) | 136 | 376 | 1,223 | 1,160 |
| Conversion rate (DEC, local US\$) | 4.00E-5 | 3.2 | 5.8 | 6.2 |



EXTERNAL DEBT and RESOURCE FLOWS

| | 1980 | 1990 | 1999 | 2000 |
|---|-------|-------|-------|-------|
| (US\$ millions) | | | | |
| Total debt outstanding and disbursed | 2,702 | 4,275 | 6,609 | 6,829 |
| IBRD | 175 | 194 | 13 | 0 |
| IDA | 64 | 393 | 1,097 | 1,096 |
| Total debt service | 366 | 385 | 394 | 616 |
| IBRD | 13 | 36 | 15 | 13 |
| IDA | 1 | 4 | 16 | 18 |
| Composition of net resource flows | | | | |
| Official grants | 48 | 202 | .. | .. |
| Official creditors | 156 | 128 | 141 | 83 |
| Private creditors | 156 | -24 | 0 | 190 |
| Foreign direct investment | 47 | 27 | .. | .. |
| Portfolio equity | 0 | 0 | .. | .. |
| World Bank program | | | | |
| Commitments | 66 | 129 | 145 | 5 |
| Disbursements | 74 | 49 | 82 | 61 |
| Principal repayments | 3 | 23 | 22 | 22 |
| Net flows | 72 | 26 | 60 | 39 |
| Interest payments | 11 | 18 | 10 | 9 |
| Net transfers | 61 | 8 | 51 | 30 |



**Additional
Annex 11**

**BOLIVIA: ROAD REHABILITATION AND MAINTENANCE PROJECT
The National Account for Road Maintenance (CNCV) and
Resurfacing Program**

Introduction and Background

Road assets facilitate trade, integration and communication across country regions and between a country and its neighboring trading countries. The upkeep is a necessary condition to ensure transport costs does not hamper the competitiveness of a country products or the intercommunication of its regions. Lack of maintenance reduces the value of those assets and increases the future costs of rehabilitating them. Maintenance is a key activity to keep up the level of service of a road network.

In Bolivia, the road network has been increasingly upgraded and expanded with the collaboration of international donors. As a sparsely populated landlocked country, with low per-capita income, Bolivia heavily depends on the condition of its road network to allow people to move from one place to another and exchange their products. Other alternative means of travel, such as the railways, have played a diminishing role in this respect, because of higher costs and the more limited flexibility to reach poorer areas and those in the mountainous regions of the country.

In all, the condition of the Bolivian road network is deficient, and protracted maintenance (coupled with the overloading of trucks) is the main reason for this condition. This issue is aggravated as the road network is upgraded and expanded through new projects. In the ten years from 1987 to 1997, the length of the network increased by about 30 percent, with the number of km of paved roads increasing by 87 percent (even if from a low base of 1,645 km) and of gravel roads by 66 percent.

The critical nature of maintenance is further compounded in Bolivia by its climate conditions. Being it heavy rains or extreme changes in temperature between night and day, roads require appropriate maintenance lest their deterioration accelerates with those conditions.

Under the Second Road Maintenance Project, about US\$1.4 million were allocated to undertake a pilot of routine maintenance by contract. The program was implemented during 1999. The extend of this pilot encompassed activities that went beyond mere routine maintenance to bring in some cases the condition of the road to maintainable. This experience highlighted three key lessons: (a) the initial interest from private contractors was not as high as expected as a learning curve for this type of activities necessarily has to take place; (b) maintenance costs are high when roads are not in a good condition, requiring the incorporation into contracts of reconstruction or rehabilitation works; (c) there is a need to take into consideration a sustainable mechanism for the financing of maintenance, and (d) maintenance by contract can be undertaken and is suitable for the conditions of Bolivia. In addition, supervision of works contracts is a critical element.

Based on this experience, the SNC expanded the program of contract maintenance to the entire network, but with a much more limited budget per km (as established by the cap set by the 70% of the resources collected through tolls, or around US\$13 million, that constituted the bulk of the SNC own resources). The initial response from contractors was at best again lukewarm and in some segments there were no

proposals. The response was a consequence mostly of the limited budget amount for each contract but also, in some cases, of the remoteness of some road segments from populated centers. Supervision for this national maintenance program was often undertaken with staff from the SNC, with limited budgetary resources to travel to the sites. With lack of effective control and the frequent emergency situations of some of the activities, the total cost of the program increased above 100% compared to the initial estimates. Furthermore, payment delays for the additional costs, created difficulties to both the contractors and the SNC, with stoppage of activities and further deterioration to the roads.

The experience after two years of implementation of contract maintenance is that the limited resources that can be applied to a road network in a deteriorated condition constrains the possibilities for an effective maintenance program. Furthermore, the existence of additional works that are not built into the original contracts creates further difficulties in the execution of the works. Lastly, with also limited resources for supervision, the contracts cannot be adequately enforced and are open to frequent claims between the contractor and the contracting administration and to substantial cost overruns.

Current Financing Practices

To attend the needs of the road assets, the Government uses two main sources of fund: moneys collected through road tolls and budgetary allocations from the central treasury. Toll collection is the main source of road maintenance finance. It amounted to about US\$18 million in 1999, and according to the law, is distributed 70 percent to the SNC for the upkeep of the national network and 30 percent to the Prefectures for the maintenance of the departmental network. Municipalities also allocate resources to the maintenance of the roads under their jurisdictions, but this is done almost exclusively on the basis of emergencies.

A substantial amount of resources, however, are extracted from road users in the form of various taxes or charges. In 2000, road users contributed about US\$295 million in the form of taxes, licenses, and tolls (see section E.2, page 25). After netting the normal amount of taxes applied to other goods in the economy, the total amount of these charges largely surpasses the costs of the periodic and routine maintenance needs of the total network. According to an study on road user charges completed in April 2000, the estimated needs for the maintenance of the trunk roads network amount to some US\$ 43 million as shown in the following table:

Estimated annual cost of maintaining the trunk roads network

| | | | | |
|--------------|---------------|--------------|--------------|--------------|
| Earth | 3,190 | n/a | 4.20 | 4.20 |
| Gravel | 3,334 | 9.00 | 7.30 | 16.30 |
| Paved | 3,710 | 15.50 | 6.90 | 22.30 |
| Total | 10,233 | 24.50 | 18.40 | 42.90 |

The above estimates, however, should be considered a rough approximation, particularly for periodic maintenance, mainly due to the lack of reliable information on the condition and the needs of the network.

The National Account for Road Maintenance (CNCV): Establishment and Management

Supreme Decree 26336 of September 29, 2001, created the CNCV, which will be founded from sources such as road users charges (mainly from toll collection), reimbursements from international agencies for maintenance expenditures eligible for their financing, and contribution from the Treasury. Supreme Degree

26487 of January 23, 2002 specifies the Treasury contributions to CNCV as a percentage of the revenues from the taxation on gasoline and diesel. This percentage is 5 % for year 2002, 10 % for year 2003 and 15 % from year 2004 on. Only contracted out works would be eligible for financing under the CNCV and the corresponding contracts would have an scope of work that covers a substantial amount of routine maintenance and/or resurfacing (more than 80% of the contract value).

Note: Routine maintenance refers to local repairs of roadway and pavement; grading of shoulders; regular maintenance of road drainage, side slopes, verges, traffic control devices, and furniture; roadside cleaning, dust and vegetation control, and maintaining rest areas and safety appurtenances. Resurfacing includes the placing of one or more asphalt overlays on an existing paved road (with a thin asphalt overlay, a surface treatment, or a seal coat), or regraveling a gravel road to preserve their structural integrity and ride quality. Resurfacing is often called periodic maintenance. Routine maintenance is a recurrent expenditure. On the other hand, resurfacing is a capital expenditure to improve existing physical conditions.

The table below presents the main features of SNC's Maintenance Unit Program for 2002-2006 year period, including physical and financial targets. The program comprises six subprograms, which are mainly defined by their source of finance.

| Maintenance and Rehabilitation Program for the National Network | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|--------------|
| <small>(Activities under the responsibility of the Maintenance Management Unit. Excludes administrative costs.)</small> | | | | | | |
| 2002-2006 | | | | | | |
| Physical Targets (kilometers) | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
| (a) Routine maintenance | 10 316 | 10,506 | 10,545 | 10 705 | 10,876 | |
| (b) Periodic maintenance (resurfacing) | 480 | 320 | 660 | 760 | 870 | |
| (c) Emergency and spot improvements | n/a | n/a | n/a | n/a | n/a | |
| (d) Rehabilitation | 34 | 151 | 150 | 52 | | 387 |
| (e) Special projects | 40 | | | | | 40 |
| (f) Comprehensive maintenance (Abapo-Camiri) | 240 | 240 | 229 | | | 709 |
| Total | 11,110 | 11,217 | 11,584 | 11,517 | 11,746 | |
| Financial requirements (US\$ million) | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
| (a) Routine maintenance | 20.6 | 24.2 | 21.8 | 19.7 | 20.0 | 106.3 |
| (b) Periodic maintenance (resurfacing) | 11.7 | 16.0 | 27.6 | 30.7 | 22.0 | 107.9 |
| Sub-total (Maintenance, CNCV) | 32.3 | 40.2 | 49.4 | 50.4 | 42.0 | 214.2 |
| (c) Emergency and spot improvements | 9.0 | | | | | 9.0 |
| (d) Rehabilitation | 8.0 | 17.6 | 19.4 | 5.0 | | 50.0 |
| (e) Special projects | 5.5 | | | | | 5.5 |
| (f) Comprehensive maintenance (Abapo-Camiri) | 4.6 | 2.8 | 2.8 | 2.1 | | 12.4 |
| Total | 59.4 | 60.6 | 71.6 | 57.4 | 42.0 | 291.1 |
| Sources of financing (US\$ million) | 2002 | 2003 | 2004 | 2005 | 2006 | Total |
| CNCV | | | | | | |
| (a) CNCV (tolls and fuel tariffs, National Treasury) | 20.6 | 24.2 | 21.8 | 19.7 | 20.0 | 106.3 |
| (b) CNCV (tolls and fuel tariffs, National Treasury) | 2.3 | 6.2 | 20.4 | 22.7 | 22.0 | 73.6 |
| (b) IDA Credit (new) | 9.3 | 9.8 | 7.2 | 8.0 | - | 34.3 |
| Sub-total (CNCV) | 32.3 | 40.2 | 49.4 | 50.4 | 42.0 | 214.3 |
| (c) PL-480 (committed) | 9.0 | - | - | - | - | 9.0 |
| IDA Credit (new) | 1.5 | 9.7 | 11.2 | 4.0 | - | 26.3 |
| (d) CAF (Chuqui Chuqui-Pte. Arce) | 4.9 | 4.4 | 4.4 | - | - | 13.7 |
| National Treasury | 1.6 | 3.5 | 3.9 | 1.0 | - | 10.0 |
| Sub-total (Rehabilitation) | 8.0 | 17.6 | 19.4 | 5.0 | - | 50.0 |
| (e) National Treasury (IDB Credit remnants) | 5.5 | - | - | - | - | 5.5 |
| IDA Credit (3235-BO) | 0.9 | 0.6 | 0.6 | 0.4 | - | 2.5 |
| (f) Japan BIC | 1.9 | 1.2 | 1.2 | 0.9 | - | 5.1 |
| National Treasury | 1.8 | 1.1 | 1.1 | 0.8 | - | 4.8 |
| Sub-total (Comprehensive Maintenance) | 4.6 | 2.8 | 2.8 | 2.1 | - | 12.4 |
| Total | 59.4 | 60.6 | 71.7 | 57.4 | 42.0 | 291.1 |

The routine maintenance and resurfacing subprograms constitute about 75 % of the program and envision routine maintenance of about 53,000 cumulative kilometers and resurfacing works of some 3,000 km of roads. The cost and financing of these subprograms is presented in the following table, including the expected impact indicators in terms of the condition of the national road network.

**Consolidated Financial and Physical Maintenance Plan
2002-2006**

| | | | | | | |
|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Routine maintenance | 10,316 | 10,506 | 10,545 | 10,705 | 10,876 | |
| Resurfacing | 480 | 320 | 660 | 760 | 870 | |
| Rehabilitation | 34 | 151 | 150 | 52 | | |
| Comprehensive maintenance | 240 | 240 | 229 | | | |
| Total | 11,070 | 11,217 | 11,584 | 11,517 | 11,746 | |
| Routine maintenance | 20.60 | 24.16 | 21.83 | 19.70 | 20.01 | 106.30 |
| Resurfacing | 11.67 | 16.04 | 27.55 | 30.66 | 22.02 | 107.94 |
| Local repairs & emergencies | 9.00 | | | | | 9.00 |
| Rehabilitation | 8.02 | 17.57 | 19.43 | 4.95 | | 49.97 |
| Special Projects | 5.50 | | | | | 5.50 |
| Comprehensive maintenance | 4.59 | 2.82 | 2.82 | 2.12 | | 12.35 |
| Total | 59.38 | 60.59 | 71.63 | 57.43 | 42.03 | 291.06 |
| Tolls & fuel tariffs | 18.62 | 32.00 | 42.60 | 44.30 | 46.00 | 183.52 |
| IDA Credits | 11.75 | 20.04 | 18.93 | 12.38 | | 63.10 |
| PL480 | 9.00 | | | | | 9.00 |
| CAF Credits | 4.93 | 4.38 | 4.38 | | | 13.69 |
| Japan JBIC | 1.88 | 1.16 | 1.16 | 0.87 | | 5.07 |
| National Treasure (TGN) | 13.20 | 3.01 | 4.56 | - | - | 20.77 |
| Total | 59.38 | 60.59 | 71.63 | 57.55 | 46.00 | 295.15 |
| % of roads length in: | | | | | | |
| good condition | 20 | 23 | 27 | 31 | 36 | 41 |
| fair condition | 58 | 56 | 53 | 50 | 45 | 40 |
| poor condition | 22 | 21 | 20 | 19 | 19 | 19 |

The two routine and resurfacing subprograms would be financed from CNCV and from budgetary transfers as needed. IDA would participate in the financing of resurfacing works of about 3,000 km to be implemented in five years. The estimated cost of these works is US \$108 million and the estimated amount of the IDA participation is US\$ 34.3 million. In order to promote sound financial practices for the sector IDA's credit would not finance routine maintenance. Also, to build gradually expenditures for rehabilitation and resurfacing works into the CNCV budget financing for future years, IDA disbursements for road civil works would be made on a declining basis. Initially, they would be on the basis of 80% of total cost. This percentage would be decreased gradually to about 26% so that the average disbursement rate of 32 % would be achieved by the end of the project.

The first year program for resurfacing works is well under preparation. SNC is advancing the engineering designs and bidding documentation for about 480 km of national roads. Further arrangements for this program will be reviewed during negotiations of the credit.

Eligibility of subprojects to be financed by the Bank

Before committing funds for a resurfacing subproject, IDA would require the following:

- Confirmation that the subproject is part of the resurfacing program agreed with the Bank. Specific subprojects will be prepared on a continuous basis, in time for inclusion in the annual programs.
- Adequate information and analysis carried out indicating the economic viability of the subproject. These may include traffic information and estimated cost of the works so that they are within certain limits. For example:

| Initial traffic ranges (Vehicles per day) | Maximum cost of resurfacing contract (US\$/km) |
|--|--|
| less than 500 | 20,000 |
| 500 to 1,000 | 25,000 |
| 1,000 to 3,000 | 40,000 |
| more than 3,000 | 60,000 |

- The subproject should neither require changes in alignment nor involve negative environmental implications (environmental regulations would be part of the works contract).
- The subproject should comply with procurement standards satisfactory to IDA .

In addition to the financing of the civil works associated with the resurfacing of the roads, IDA would finance the consultancy services required for the performance auditing of CNCV and for carrying out an annual rating of the national (trunk) roads condition.

**Bolivia: Road Rehabilitation Project
Principles for the Terms of Reference for Technical Performance Audits of the CNCV
(in Spanish)**

[To be revised in light of the final content of the operational procedures for the CNCV]

Introducción

El SNC requiere contratar servicios de consultoría para evaluar el Cumplimiento de las disposiciones técnicas, ambientales, de adquisiciones y de gestión relacionadas con el Fondo de Mantenimiento Vial. La firma contratada reportará al Presidente Ejecutivo del SNC.

La firma a ser contratada realizará una evaluación ex-post de las actividades ejecutadas con recursos del Fondo de Mantenimiento Vial (obras civiles y supervisión) durante el último semestre (incluir fechas).

Los consultores deberán basar su opinión en una revisión detallada que comprenda (1) los trabajos de mantenimiento de una muestra representativa de al menos el 20% de los contratos de mantenimiento durante el anterior semestre en diversas áreas geográficas, (2) el cumplimiento con las guías de adquisiciones del Bolivia para adjudicar los contratos de obra y/o supervisión durante el anterior semestre, y (3) el progreso en el fortalecimiento institucional del SNC y las cuatro Prefecturas a ser consideradas bajo el proyecto. Los servicios materia de contratación comprenderán, pero no necesariamente se limitarán, a lo siguiente:

Area ambiental

Verificar (1) el cumplimiento de los procedimientos ambientales contenidos en el manual de manejo ambiental, (2) el cumplimiento de los requerimientos ambientales tanto en el diseño de las actividades de mantenimiento como en su ejecución, y (3) la medida en que la aplicación de estos requerimientos es exigida por la supervisión de las actividades de mantenimiento.

Area de adquisiciones

- a) Revisar la ejecución de los trabajos de mantenimiento realizado por los contratistas según calendario y especificaciones técnicas contractuales, analizando los informes presentados por contratistas y supervisores y verificando su conformidad en el terreno y cumplimiento con los términos contractuales sobre una muestra representativa de los diversos tipos de contratos en las diversas áreas geográficas del país.
- b) Evaluar la calidad de la inspección y seguimiento realizados por la supervisión contratada, con relación al cumplimiento de los plazos contractuales, uso de mano de obra, y control de costos y calidad de las actividades de mantenimiento, incluyendo el análisis y monitoreo de las posibles órdenes de cambio y reclamos presentados por los contratistas.
- c) Evaluar la calidad y adecuación de los expedientes técnicos empleados para la contratación de las obras, en particular la validez de las soluciones y métodos de mantenimiento propuestos, y la utilidad de la documentación aportada como respaldo al diseño de los contratos de mantenimiento.
- d) Verificar que las convocatorias a concurso para la contratación de la supervisión de las actividades de mantenimiento y de los posibles estudios de ingeniería, y en las licitaciones publicas nacionales para los contratos de mantenimiento han seguido los procedimientos de adquisiciones del Gobierno de Bolivia.
- e) Verificar que los registros de contratistas y consultores se llevan adecuadamente, son actualizados periódicamente, y que los procedimientos se aplican de manera que dan la oportunidad de participar en las licitaciones e invitaciones a todos los contratistas y consultores calificados, respectivamente, de acuerdo con

las guías de contratación del país.

f) Comparar los costos de los contratos con los costos finales de los contratos de mantenimiento concluidos durante el periodo anterior a la realización de esta auditoría, y analizar las variaciones entre costos promedios para distintos tipos de contratación del mantenimiento (e.g., micro-empresas, mantenimiento por contrato, etc.) y para distintas regiones representativas del país.

Area gestión y evaluación de resultados

a) Verificar el cumplimiento de los indicadores de desempeño y metas semestrales acordadas con los distintos tipos de contratistas de mantenimiento. Consolidar esta información para elaborar los indicadores de gestión de la entidad ejecutora (SNC) de acuerdo con los criterios acordados bajo el proyecto.

b) Llevar a cabo la evaluación de los resultados y de los impactos de los contratos de mantenimiento con entrevistas a las comunidades beneficiadas con el fin de conocer el parecer de la población cercana a los caminos sobre los posibles impactos positivos y negativos de las actividades de mantenimiento. Consolidar esta información para incorporar posibles ajustes al diseño y/o ejecución de las actividades de mantenimiento.

Requisitos, informes y duración de los servicios contratados

Los trabajos de esta consultoría se desarrollarán mayormente en el campo, a través de la evaluación de una muestra apropiada de caminos y obras en ejecución o terminados durante el semestre anterior a la adjudicación de estos servicios. La muestra de caminos evaluada será claramente identificada. El consultor señalará aquellos tramos donde se hayan observado variaciones significativas del promedio, en cuanto a costos, adquisiciones o calidad de las obras, con el objeto de evaluar otros contratos en el mismo área e identificar posibles dificultades en tal zona. La evaluación de los resultados requerirá la realización de entrevistas con las poblaciones de las comunidades beneficiadas.

Los servicios de evaluación de cumplimiento se contratarán por un periodo de 12 meses. El consultor presentará al Directorio del SNC los informes semestrales dentro de los 45 días siguientes al semestre considerado. Las recomendaciones serán analizadas con ayuda del consultor en las revisiones anuales del proyecto que llevarán a cabo el SNC y el Banco Mundial.

Perfil de la empresa a ser contratada

La empresa deberá ser una firma o asociación especializada en auditoría de gestión con experiencia en el campo de las obras viales y en el examen de instituciones del estado. Para cumplir eficiente y enteramente todas las tareas incluidas en los presentes términos de referencia, el consultor deberá contar con un equipo profesional que pueda cubrir las siguientes áreas: (1) ingeniería vial y administración de contratos; (2) auditoría de gestión; y (3) desarrollo institucional.

**Additional
Annex 12**

**BOLIVIA: ROAD REHABILITATION AND MAINTENANCE PROJECT
The Pilot Program of Rehabilitation of Secondary Roads**

Introduction

This component will include a pilot to support the rehabilitation and maintenance activities of four *Servicios Prefecturales de Caminos* (SEPCAMs) on the core secondary road network under their jurisdiction. Furthermore, the component seeks to strengthen the institutional capabilities of the road agencies of the four SEPCAMs so that the management of the road networks under their jurisdiction (about 5,000 kms) is improved. The component consists of a rehabilitation of about 200 kms of secondary roads that comply with a set of criteria. As such, the pilot limits its interventions to the departments of La Paz, Oruro, Chuquisaca and Tarija. Due to their demographic and geographic characteristics, these four departments (and their corresponding SEPCAMs) are a good representation of the nine Prefectures of Bolivia. The objectives and activities of the program have been designed in consultation with the participating SEPCAMs to ensure agreement with the priorities of these entities and their ownership of this project component.

The Servicios Departamentales de Caminos

The SEPCAMs are deconcentrated administrative units of the central government and function as part of the department administration (*Prefectura*) and respond to the state governor (Prefect). Reviews of the work of the SEPCAMs indicate major deficiencies. Among them:

- Lack of an effective organization structure with clear lines of authority, responsibility, and communications;
- Limited and unreliable information required for road planning, programming and design, particularly traffic data and road inventory;
- Lack of reliable information on highway financing and expenditures;
- Shortage of qualified technical personal;
- Lack of adequate knowledge of maintenance work, from planning, programming and budgeting to execution.

During project preparation the four SEPCAMs that would be part of the pilot component were visited. The visits confirmed the above-mentioned difficulties the SEPCAMs confront in managing the road assets under their responsibility. The SEPCAMs were created in a drastic manner, following the application of the Administrative Decentralization Law, and lack technical and management skills, are weak in their functioning and lack a rational process for the programming of their interventions in maintaining and rehabilitating the roads under their jurisdiction. Furthermore, their functions often extend, on one side, to attending the demands of the municipalities, and on another side, to cover the local counterpart of the projects financed by international donors for the national (primary) network. These external mandates undermine the possibilities of the SEPCAMs for planning and executing the budgets in principle allocated to interventions in the secondary network. Furthermore they create a lack of discipline in the execution of their assigned functions and do not allow for an effective financial control of the expenditures. This lack of accountability reduces the incentives for an efficient and rational management of the road assets under the jurisdiction of the SEPCAMs and limits the coercive capacity of the national Government. Furthermore, because of the availability of the heavy equipment and the high number of labor pools (both inherited from

the pre-decentralization SNC) the SEPCAMs undertake their maintenance activities by force account, with a very low productivity.

Scope of the Project Component

The evaluation of the activities and functioning of the SEPCAMs suggests that corrective measures must be put in place to support these entities' interest in improving the management of their road patrimony, including better programming of their road maintenance and rehabilitation investments and better accountability of their activities. The project would support these efforts by financing the rehabilitation of eligible feeder roads under the responsibility of the SEPCAMs, and includes specific commitments from Government to seek strengthening the institutional capabilities of the SEPCAMs. Also, the project would finance technical assistance for the supervision of the works (estimated at about 40 professional-months) and for institutional improvements (about 13 professional-months) The SEPCAMs would have access to the project funds, only if they obtain the no objection from the SNC. The SEPCAMs would retain the initiative in managing their networks while the SNC role would be to review and approve subprojects proposed for inclusion in the project, and to provide technical assistance to develop and improve the administration, planning, design, construction, maintenance and operation of secondary roads in a consistent way.

To implement this component, the Government through SNC and each participating prefecture would make the necessary arrangements so that the subprojects are carried out with due diligence and efficiency. More specifically, (i) SNC would assign two senior professionals to assist the participating SEPCAMs with the planning, execution and evaluation of the rehabilitation works on the secondary roads and with the related institutional improvements, and (ii) the SEPCAMs would commit their selves to the definition and subsequent implementation of an institutional action plan to improve their road management practices by end of year 2006. SNC will commit itself to provide the necessary technical assistance to the SEPCAMs. These arrangements would be confirmed at negotiations.

SNCs would have to further develop a set of criteria, satisfactory to IDA for the eligibility of subprojects that the SEPCAMs would submit (see attachment). In addition to the technical requirements for the individual subprojects, the interested SEPCAM would have to comply, or have a program to comply, with institutional improvement priorities to improve their road management practices. Institutional standards for these improvements vary with the individual SEPCAM and the level of its development. These improvements, however, should at least consider:

- Road condition and traffic inventory systems;
- The accounting system;
- The system for contracting works and for supervising their implementation.
- The road maintenance system.

Substantial institutional improvements of the four mentioned SEPCAMs by the end of 2006 would indicate the success of this subproject implementation.

In respect to the technical criteria, the SEPCAMs will present to the SNC:

- A satisfactory rollover three-year road rehabilitation and maintenance program expressed in physical and financial terms;
- The capital and recurrent budget, consistent with the above program, for the current and previous year and projected budget for the next year;
- And for each candidate subproject the following information:

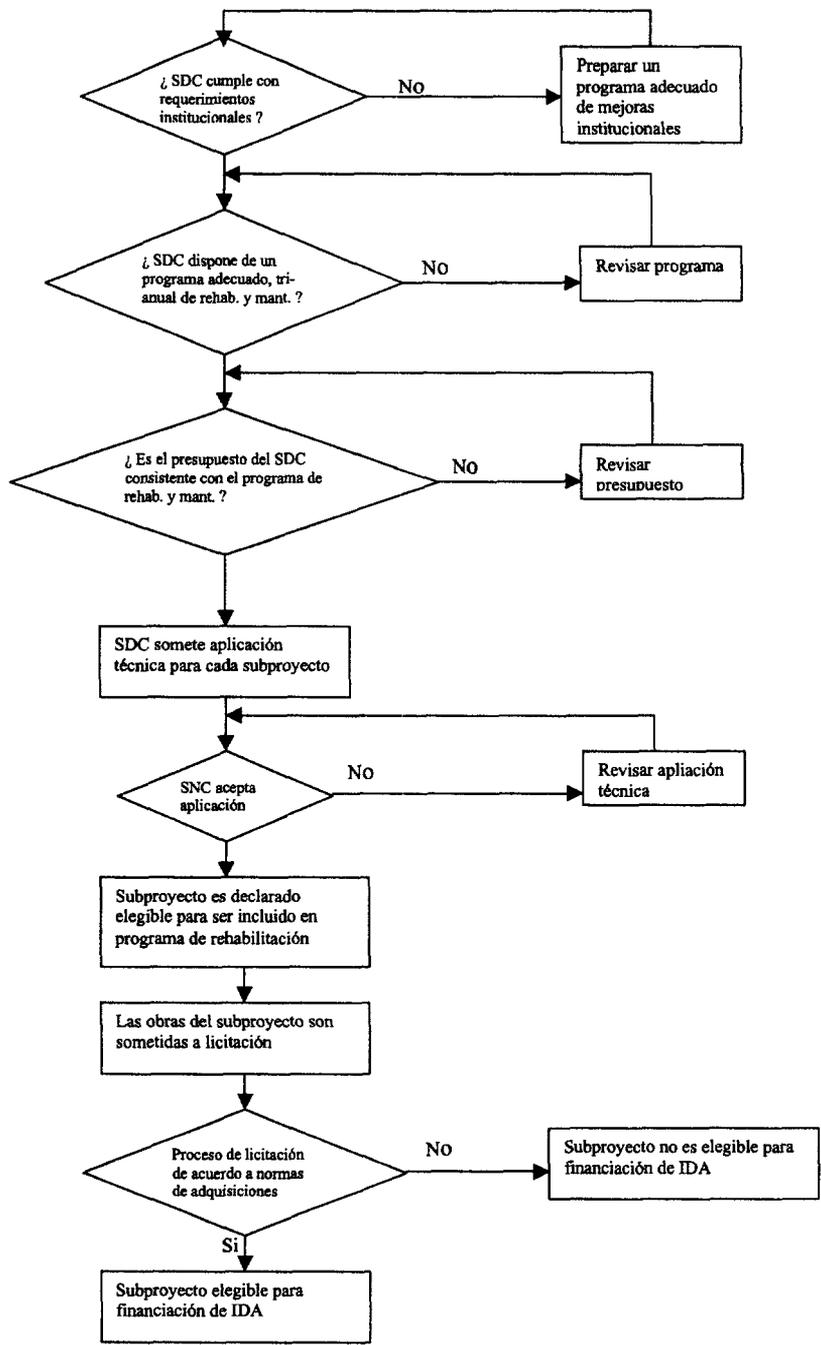
- The candidate sub-projects should include either the rehabilitation of road segments or construction of bridges that would allow keeping those roads transit able all-year round, avoiding interruptions to the traffic, and facilitate access to and from main economic corridors.
- The cost per km should not exceed US\$25,000.
- Sub-projects must comply with the requirements of SNC's environmental manual. Sub-project that may imply substantial impacts to the natural or social habitat or that may entail resettlement of population will not be eligible.

The presentation of the documentation should include all the information that would allow the SNC to evaluate the sub-project on its technical (engineering) feasibility, economic (net benefits to the area of influence) feasibility, and environmental (no major impacts to the environment) feasibility. A template for the application to participate in the pilot, with a summary of the technical and socio-economic information for the candidate roads, as well as a guide to assess the institutional needs of the concerned SEPCAM was reviewed and agreed at appraisal. The application should be complemented with the engineering proposal (drawings, specifications and bidding documents), estimated costs, and the proposed arrangements for supervision of the works for the proposed sub-project.

The pilot would allocate some US\$5.0 million for the rehabilitation and works supervision of secondary roads. IDA would finance 80 % of the works and 100 % of the assistance to supervision and institutional matters or US\$4.0 million. The four Prefectures will compete for the project funds on the basis of preparation of the subprojects. It is envisaged that this project component would constitute a pilot for the future of cooperation between SNC and the SEPCAMs.

The procurement of the corresponding works will follow the procurement procedures under the project (and those that apply to IDA-funded projects). Individual rehabilitation contracts are expected to cover some 20 Kms of road and have a cost of about US\$ 500,000. Most of these works would be contracted following NCB procedures acceptable to the Bank. Disbursements would be made effective upon presentation through the SNC of all the relevant documentation (in accordance with the disbursements conditions under the project as specified in Annex 6).

Camino Secundarios: Flujograma del Proceso de Elegibilidad de Sub-proyectos



**Formulario de Aplicación para
Rehabilitación de Caminos Departamentales bajo la Jurisdicción de las Prefecturas
A. Características Técnicas y Ambientales del Camino**

Características del Proyecto

Nombre del proyecto:

Longitud (metros): Ancho propuesto (metros):

Ubicación: Departamento: Provincia (s): Municipio (s):

Costo de rehabilitación: Por km (US\$): Total (US\$):

Breve descripción de la rehabilitación propuesta:

Costo anual de mantenimiento: Por km (US\$): Total (US\$):

Breve descripción del mantenimiento propuesto:

Modo propuesto para ejecución del mantenimiento: Por contrato Por administración

Fecha estimada para la ejecución de los trabajos de rehabilitación: de a

Estado de los diseños:

Estado de los documentos de licitación de obras:

Características del tráfico y socioeconómicas del área de influencia (franja de 5 kilómetros a lo largo del proyecto):

Relieve atravesado por la vía Montañoso Ondulado Plano

No. de viajes diarios (total, incluyendo tráfico no motorizado) en ambas direcciones

No. de vehículos motorizados por día en ambas direcciones

Composición vehicular (número de vehículos motorizados)

| Autos | Buses | Pick-ups | Camiones ligeros | Camiones medianos | Camiones pesados |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> |

Número de muertos por accidentes en el último año

Nombre y población de comunidades en el área de influencia del camino y características de pobreza y desarrollo económico

| Nombre de la comunidad | Población (no. de hab.) | Índice de | | No. de pobres extremos | Principales actividades económicas | Índice de producción económica * |
|------------------------|-------------------------|-----------------------------------|-------------------------------|------------------------|------------------------------------|----------------------------------|
| | | necesidades básicas insatisfechas | Índice de mortalidad infantil | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |

* Indicador que refleja el nivel de actividad económica en la zona, si existe. A confirmar en base a existencia de datos censales u otros.

Características físicas y estructurales del camino existente

Subidas y bajadas (m/km) Curvatura media horizontal (grados/km)

Tipo de camino Asfaltado Grava Tierra

Rugosidad (IRI) (si es aplicable)

Velocidad media de un auto (km/hr)

Indicador estructural del camino (a ser definido)

Días de interrupción del paso vehicular por año

Número de puntos con alta incidencia de accidentes

Características medio-ambientales

El camino atraviesa o bordea:

| | Si | No |
|---|----|----|
| Sitios de derrumbe | | |
| Sitios de erosión | | |
| Áreas inundables | | |
| Ríos, canales, pozos, quebradas | | |
| Lagos, lagunas, embalses | | |
| Ciénagas o áreas pantanosas | | |
| Nacimientos y manantiales | | |
| Áreas de reserva, áreas protegidas, parques naturales | | |
| Suelos con capacidad de mayor uso forestal | | |

El camino atraviesa:

| | Si | No |
|--|----|----|
| Comunidades indígenas | | |
| Áreas de interés comunitario/ancestral | | |
| Áreas de importancia arqueológica | | |

La rehabilitación y/o mantenimiento del camino causará:

| | Si | No |
|--|----|----|
| Tala de bosques o selvas | | |
| Alteración de páramos o vegetación a más de 2,800 msnm | | |
| Contaminación de aguas | | |
| Aumento de la caza de fauna silvestre | | |
| Obstáculos para la migración de especies silvestres | | |
| Ampliación de la frontera agrícola o pecuaria | | |
| Asentamientos nuevos, invasión o colonización de tierras | | |
| Conflictos por la tenencia de la tierra | | |
| Daños a predios o inmuebles de habitantes pobres | | |
| Necesidad de reubicación de personas o negocios | | |

Planificación y presupuestación

El Servicio Departamental de Caminos tiene un programa trienal de rehabilitación y mantenimiento de su red de caminos, expresado en términos físicos y financieros: si no

Si no lo tiene, explique las razones:

Están disponibles los presupuestos de capital y gastos corrientes de este año, el presupuesto ejecutado del año anterior y las proyecciones para el año entrante si no

Si están disponibles, explique las razones:

Otras observaciones

B. Requerimientos Institucionales

La aplicación debe acompañarse de un informe de máximo tres páginas que incluya un análisis institucional del SDC y un plan de acción para mejorar sus prácticas gerenciales. El informe debe cubrir pero no limitarse a los siguientes aspectos, en términos de las funciones de planear, programar y ejecutar actividades de mantenimiento y rehabilitación en las carreteras bajo la jurisdicción de la Prefectura correspondientes:

- 1 Organización estructural
- 2 Areas de políticas y toma de decisiones
- 3 Procedimientos de trabajo y comunicación
- 4 Recursos financieros
- 5 Recursos físicos
- 6 Recursos humanos
- 7 Sistemas de información

**Additional
Annex 13**

**BOLIVIA: ROAD REHABILITATION AND MAINTENANCE PROJECT
The Road Safety Component**

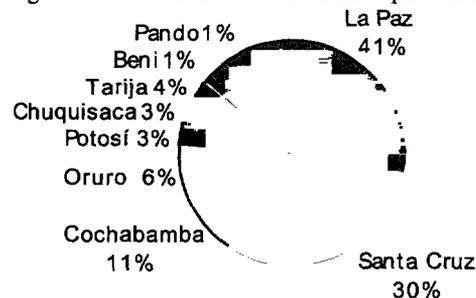
Introduction and General Assessment

Bolivia presents one of the World's worst road safety records, and accidents are increasing in numbers. The statistics show nearly 13,000 registered accidents per year and nearly 1,000 fatalities, yet with a relative small vehicle fleet.

A road safety seminar, held in September 2000 and summarized in the report "Plan para prevención y reducción de la accidentalidad vial", highlighted a whole array of critical areas, as often happens when the issue of road safety is first brought up for discussion: (a) poor state of the roads and lack of road safety elements; (b) inadequate system for registration and information of accidents; (c) lack of norms and manuals for road design, signs and markings that account for road safety considerations, and insufficient geometric characteristics and capacity; (d) obsolete norms for traffic and transport; (e) poor education and enforcement of driving regulations; (f) non-existent inter-institutional framework and weak capacity of institutions related to road safety issues from diverse angles; (g) poor medical service for accidents from the health sector; (h) lack of policies and plans for road safety; (i) limited commitment from transport companies to road safety in light of a fiercely competitive environment; (j) old age of vehicle fleet (and transformation of vehicles imported from East Asia from right- to left-hand drive; and (k) lack of governmental and social awareness of the road safety problem, in spite of notorious road accidents

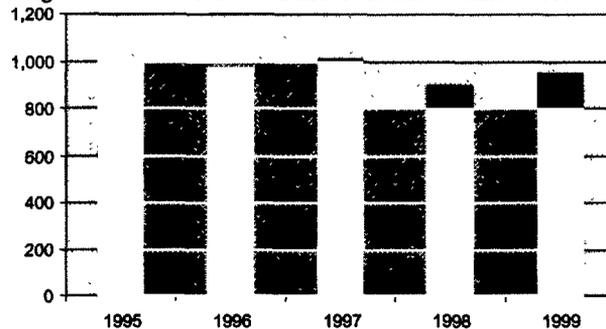
Statistics are sketchy and lack reliability. Nevertheless, following information provided by General Command of the National Police (*Comando General de la Policía Nacional*) the number of accidents in each of the Bolivian departments amount to about 30,000 in 1999. Accidents are very unevenly distributed on Departments. La Paz and Santa Cruz account for 41% and 30% respectively of all accidents and in the three biggest Departments more than 80% of accidents happen (see figure 1).

Figure 1: Distribution of Accidents on Departments



The number of persons killed in road accidents is shown in figure 2.

Figure 2: Number of Killed Persons in Road Accidents 1995-99



About 77% of accidents occur in urban areas. Of these almost 90% are accidents in junctions. The picture of the accidents is imprecise but similar experiences from neighboring countries indicates that accidents that occurs in urban areas tends to have fewer fatalities than accidents that occurs on highways--which is due to speed combined with driving in mountainous areas with insufficient guard rails, and improper maintained roads.

The creation of an institutional framework to manage the road safety matters is an issue of major importance. Such an institution should be established at a high political level in order to secure proper coordination between the different agencies involved in road safety. A possibility could be to establish a National Road Safety Council (NRSC) at the Ministerio de la Presidencia or within the Vice-Ministerio de Transportes. It is further envisaged that a secretariat would be established in connection with the NRSC. The secretariat would carry out the daily tasks of the NRSC in close co-operation with agencies working in the area.

The tasks of the NRSC would be to: (a) define policies in the area of road safety; (b) prepare, manage and co-ordinate national road safety action plans; (c) secure political support for the plans; (d) initiate a political process to modify laws and regulations where necessary; (e) keep close contacts with all road safety stakeholders; (f) monitor the implementation of each of the elements of the National Plan for Road Safety; (g) undertake regular seminars for dissemination of developments in the area; (h) promote road safety in general, (i) prepare an annual report on the status of road safety in Bolivia.

The Road Safety Component

The Road Safety Component under the project supports building the institutional framework and capacity to address some of the most pressing needs in the road safety sector. It is recognized that to achieve effective road safety, the approach must be long term and include implementation of coordinated actions in many different areas. Therefore, this project component should be seen as an initial contribution to a stage process, including the development of an accident information system and the introduction of various road engineering preventive measures.

The project component will include:

- (a) Developing an institutional framework that would permit the proper management of road traffic safety issues.
- (b) Establishing an Accident Information System (AIS) in La Paz and Santa Cruz departments, based on the selection of the most appropriate internationally available AIS; and
- (c) Establishing a systematic auditing of new or existing roads for the specific purpose of accident prevention.

Each of these subcomponents includes training and technical assistance and is further developed below. The agencies responsible for their implementation and the respective estimated costs are shown at the end of this Annex.

Building Institutional Framework

In order to progress in road safety work it is highly recommended to manage the road safety sector at a national level. This means that a national strategy should be formulated, action plans elaborated and an entity established that would be responsible for preparation of the strategy and managing the plan. In order to secure proper development of this complicated institutional framework it would be appropriate to form a task group comprising the most concerned stakeholders, including the SNC, the National Police and the Superintendence for Transport . A consultant that would also provide the necessary training would assist the Task Group. The Task Group should:

- Study the different alternatives and recommend the most adequate institutional framework to handle the road safety sector at national level
- Seek a decision and necessary approvals
- Prepare the organizational, legal, procedural and financial arrangements for the NRSC
- Prepare the terms of reference for a consultant to assist the Task Group and provide training
- Follow up on the establishing and initial functioning of the NRSC

During appraisal, agreement was reached on:

- The appointment, before June 30, 2002, of the Task Group, including its terms of reference (see attachment) and timetable.
- The submission of the Task Group findings and recommendations before June 30, 2003, and
- Government decision on said recommendations before December 31, 2003

Accident Information System (AIS)

The establishment of an Accident Information System is a vital part of improving road safety as it enables analyses of the total road safety problem and makes it possible to focus on the main problem areas. Data from the system will support interventions such as engineering measures, campaigns, education and ambulance services. The project supports the development and implementation of an AIS in La Paz and Santa Cruz departments as a first step to develop a national system. It is expected that later on other prefectures adopt the system. As commitment of the Police is crucial for an accident information system, the National Police will be responsible for implementing this project subcomponent. The project would finance the technical assistance, including a training program, as well as the electronic equipment needed. Special attention will be given to the design of the AIS to ensure the dissemination of information to all stakeholders. The main activities would be:

- a) **Data collection.** In order to get an overview of the current situation vis-à-vis the accident data the consultants will analyze existing data collection practices and reliability and validity of the collected data. This includes an analysis of data collection practices at relevant agencies such as SNC, the Police and other Governmental Agencies and the insurance agencies.
- b) **Accident Information Systems.** Review of existing models of AIS and those currently being used in other countries, and of state-of-the-art data collection methods. Based on that review and an analysis of the Bolivian situation, design a data collection process adapted to specific Bolivian conditions.
- c) **Decentralization.** Decentralization of and how data transmission best can be obtained.
- d) **Establishment of Registration Units.** Recommend the hardware, software, and data collection equipment for the establishment of registration units. Determine the expected number of computers for registering accident information and the procedures for transmission of data. Also, determine the hardware and software needed in each of the registration units.
- e) **Manuals.** Drafting of manuals, so that future users of the system at any level can get information on procedures and work methods within his field of work. The manuals as such must also present the documentation of the system.
- f) **Training.** Training program to secure that all persons involved in the system are given training tailored to their needs, responsibilities and to their level. It should include training for the staff at all registration units in the use of the system comprising hands-on training in managing a computer; in maintenance and updating of the registration unit; in operating the software; in communication with the database and in registration of accident information in the system.

Road Safety Audits

Internationally, road safety audit is probably the most important development in delivering safer roads in recent years. Road safety auditing is a systematic assessment of the safety aspects of road projects. Its purpose is to make new and reconstructed roads as safe as possible before construction is started. The project would support development of a manual for undertaking traffic safety audits of road projects, as well as a training program for staff from SNC, major SEPCAMs and municipalities in the use of the manual. Furthermore, the project would support the auditing of about 1,000 km of priority national and urban roads. The following schedule for implementation of the subcomponent activities was reviewed and agreed during appraisal.

**Estimated Costs, Target Dates and Responsibilities for the Road
Safety Components**

| Sub-Component | Agency Responsible | Target Date | Estimated Cost (US\$) |
|--|---|--------------------|----------------------------------|
| <i>Institutional Building</i> | SNC, National Police, Superintendency of Transport | | |
| Technical assistance (16 prof.- months) | | December, 2003 | 240,000 |
| Training | | December, 2003 | 20, 000 |
| | | | |
| <i>Accident Informat. System</i> | National Police | | |
| Technical assistance (24 prof.- months) | | December, 2003 | 360,000 |
| Training | | December, 2003 | 100,000 |
| Equipment | | December, 2003 | 100,000 |
| | | | |
| <i>Road Safety Audits</i> | SNC | | |
| Technical assistance (8 prof.- months) | | June, 2003 | 120,000 |
| Training | | December, 2003 | 60,000 |
| Road audits | | December, 2003 | 300,000 |
| Total | | | 1,300,000 |

Principles for Terms of Reference for the Road Safety Task Group

To consider:

- The current institutional situation at the national level
- Current roles, responsibilities and performance of the road safety stakeholders
- Existing road safety policies

With particular regard to:

- The scale of the road accident problem
- Methods and responsibility for handling accident information
- Road safety auditing
- Road users safety awareness
- Licensing of vehicles and drivers
- Training of people dealing with road safety issues

In doing so to take into account:

- The importance of having a well defined national road safety objective, reflected at the highest policy level and emphasized by government leadership
- The commitment of administrators, to the national road safety objective, that reflects performance and accountability
- Different alternatives to establish the most adequate institutional framework
- Financing strategy for functioning of the proposed institutional framework

With the objectives of:

- Making recommendations to Government regarding the most adequate institutional framework to reduce the frequency and gravity of road accidents
- Seeking a decision and necessary approvals
- Preparing the organizational, legal, procedural and financial arrangements for the new organization
- Following up on the establishment and initial functioning of the new organization.

**Additional
Annex 14**

**BOLIVIA: ROAD REHABILITATION AND MAINTENANCE PROJECT
Social and Environmental Analysis**

Introduction

During project preparation environmental and social evaluations were undertaken of the priority segments to be rehabilitated under the project: the Calamarca-San Pedro and Boyuibe-Yacuiba roads. This Annex summarizes the findings of these evaluations and describe the methodologies to be followed under each component of the project. The relevant detailed reports can be found in the project files and at the InfoShop.

Rehabilitation of priority segments of the national network.

Environmental issues. The rehabilitation and repaving works along the selected segments will follow existing road alignments and rights-of-way. Initial road construction goes back several years, as follows: Calamarca-San Pedro in 1960 and Boyuibe-Yacuiba in 1990. These segments were paved in 1990 and 1993, respectively. As such, both segments constitute a well consolidated infrastructure and direct impacts on natural and social systems are of less importance. There will be no resettlement in any of the segments. The environmental screening of the proposed segments¹ identified no major or significant impacts whether direct or indirect. However, there is evidence that there exist localized problems concerning erosion, flooding and drainage impacts caused by original improper design and construction and the absence of good environmental practices during maintenance. These impacts will be addressed through the proper engineering design of the rehabilitation works.

Social assessments. In addition, social assessments² were carried out for the two segments. The objectives of the social assessments were: (a) carry out a general socio-economic diagnosis of the area of influence; (b) identify and assess the potential positive and adverse impacts from the rehabilitation works; (c) identify the expectations of the communities related to those works; and (d) recommend actions to enhance the positive impacts of the subprojects and prevent, mitigate or compensate for the possible adverse impacts. The methodology consisted of undertaken surveys of a representative sample of households and/or carrying out workshops and consultations with the relevant stakeholders. In the case of the area of influence of the Calamarca-San Pedro road, 351 households were interviewed. In the Boyuibe-Yacuiba segment, 22 workshops and consultation meetings were held with authorities, NGOs and local communities. When necessary, the local languages (Aymara or Quechua) were used during the interviews or consultations. A brief description of the socio-economic conditions of the each sub-project area follows.

¹ Estudio de Impacto Ambiental del Proyecto de Mantenimiento Periodico del Senkata-San Pedro, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Mayo de 1999, La Paz, Bolivia; Estudio de Impacto Ambiental por las Actividades de Mantenimiento Periodico del Tramo Boyuibe-Yacuiba, Servicio Nacional de Caminos, Departamento de Medio Ambiente, Junio de 2000, La Paz, Bolivia.

² Evaluacion del Impacto Social en las Comunidades Indigenas de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba, preparado para el Servicio Nacional de Caminos por Argentina Antunez R., Diciembre 2001, La Paz, Bolivia; Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Boyuibe-Yacuiba, preparado para el Servicio Nacional de Caminos por Magaly Barba de Matsuzaki, Noviembre 2000, La Paz, Bolivia; Evaluacion del Impacto Social de las Actividades de Rehabilitación de la Carretera Calamarca-San Pedro, preparado para el Servicio Nacional de Caminos por Ivonne Farah, et. al. Octubre 2000, La Paz, Bolivia.

Calamarca-San Pedro. This road segment is a key link of the road network that connects the four regions which concentrate most of the population and economic activities of the country. It is located along the main corridor for import and export trade. Therefore, this segment has intensive traffic of different levels: international, national and regional. The road segment has a length of 166 km and was paved in 1960 and repaved from 1990 to 1993. Because of the lack of appropriate maintenance, the road is substantially deteriorated. This situation causes accidents and increases transport costs.

The segment Calamarca-San Pedro crosses the Municipality of Caracollo in the Department of Oruro, and the Municipalities of Calamarca, Patacamaya, Ayo Ayo and Sica in the Department of La Paz. These municipalities, combined, have 183,422 inhabitants. Eighty percent of this population is rural. The local rural communities along the corridor do not identify themselves as indigenous. However, Aymara dialect is still predominant together with Spanish. The main economic activities are agriculture and cattle raising in the rural areas and commerce and services in the urban areas. The land presents low yields because of its poor quality and the large extension of the farms. The road has become an important economic link facilitating the commerce and services. Health and education indicators are quite low and people have to travel to regional centers to access these services. Road rehabilitation is seen as a way to improve this access as well as to regional markets

At national level, the rehabilitation of the road is important for external commerce. At local level, it is important for the local commerce, the social relationships and for the access to social services, specially health service.

Boyuipe-Yacuiba. The road was paved in the 1990s and is 180 km long. Due to the lack of maintenance, the road has deteriorated currently. In addition, there are technical problems with the sewers which causes flooding of some plots and interruption of water streams. The segment crosses the Departments of Tarija and Chuquisaca, and is a continuation of the Abapo-Camiri road on the corridor from Santa Cruz to the Bolivian borders with Argentina and Paraguay. It includes 4 urban centers, 19 rural communities and 2 indigenous areas.

According to the census of 1997, there are 76,191 inhabitants in the area of influence of the road. Eighty five per cent of them live in towns. Immigration to the area is quite high and most of the residents in urban centers have migrated from other regions of Bolivia looking for new opportunities. Commerce and services are the main economic activities. Boyuipe is the most important commerce center in the region and plays an important role for the relationships of Bolivia and the neighboring areas of Argentina and Paraguay. Agriculture and cattle raising are the main economic activities in the rural areas. The main social services are provided in the towns. For that reason, the road plays an important role in the access of these services. Regarding social organizations, the *Organizaciones Territoriales de Base*(OTBs) are the most important representatives of the rural communities. In these organizations participate peasants and indigenous. In the urban areas, the *Comité Cívicos* bind the different civil society organizations.

Opinion and expectations from population with the rehabilitation works. In all the segments to be rehabilitated there exists the consensus about the need to advance with the rehabilitation of the roads and ample acceptance of the related works. The inhabitants expect that the rehabilitation works will bring employment during the construction phase. In the segment Boyuipe - Yacuiba, the inhabitants are also expecting that the technical problems related to drainage--that often damage the neighboring agricultural lots--are solved. They also expect coordination and communication with the contractors in order to avoid problems and solve those that may come up during the construction period. In this respect, the social assessments identified some concerns from the communities stemming from the lack of strict guidelines for

contractors regarding: camp location and management, community relations, dust control during construction, traffic and pedestrian safety from the lack of proper signals and lack of speed controls in urban centers.

Indigenous Peoples

In the segment Boyuiba-Yacuiba, two indigenous communities--the Guaraní y the Weenhayek--live nearby. A social evaluation focused on indigenous people's issues was carried out along this segment, with meetings held with 11 indigenous communities, some in areas far from the road. Then a detailed study of the communities in the area of influence of the road was undertaken, carrying out further consultations with these communities about the rehabilitation works.

There are 4 communities of the Guaraní people: Tiguipa Pueblo, Ñancaroiza Estación, San Antonio de Padua y San Francisco de Inti. All these communities are mixed communities composed of indigenous people, "*criollos*" and immigrants, with an average of 550 inhabitants per community. In the first three communities, land tenure is collective and in the last one is individual. (In the latter, only about 10% of the population is indigenous). The main economic activity of these communities is agriculture and cattle raising, with the road playing a critical role in the commercialization of the products of these communities, and for facilitating access to health services. During the consultations held with these communities, the population expressed the importance of the road to these communities and therefore stated that its rehabilitation and proper maintenance is paramount for improving the livelihood of their communities. Regarding negative impacts, in Tiguipa Pueblo and San Francisco de Inti, the communities expressed the problem of the pedestrian crossings over the road, particularly in Tiguipa where the school is located to the other side of the road and the children must cross the road during school days. In San Antonio de Padua, the population requested improvements to the drainage system as deficiencies in this system produces inundations to the nearby lots and the fencing of these lots and adequate signalization to prevent accidents.

There are two communities of the Weenhayek people: Tuntey y San Antonio de Tunteya. The first is located on the left embankment of the Pilcomayo River, at around 300 meters from the road. The second has 97 inhabitants. Albeit the Government approved in 1993 the legal ownership of 195,639 hectares to the 20 Weenhayek communities in the region, still to be finalized remain the "*trámites de saneamiento*" and the Decree that titles the land, respecting the ownership and settlements that existed before its promulgation. Because of this, part of the land is occupied by third parties and the living conditions are precarious. The main economic activities are fishing and artifacts, being the road a key link for the commercialization of the products and access to health services. Since 1995 the communities are organized around the "*Capitanías Weenhayek and Tapieta*". During the meetings and consultations held as part of the social assessment, the communities expressed they complete agreement with the rehabilitation works and requested that the drainage problems are solved, that fences are installed in the lots near the road, and that the asphalt plants are not located close to the communities.

Environmental and Social Management Plans

In order to address the above concerns, the rehabilitation works will comply with strict environmental rules, including: (i) a set of environmental guidelines for contractors that have been approved by SNC (explained below) and which are part of all bidding documents and contracts; (ii) a set of site specific environmental measures stemming from the environmental screening exercises and the social assessments, which will also be included in bidding documents and contracts; (iii) enforcing the above requirements through specific environmental duties and reporting requirements by the supervision engineer; and (iv) design and implement a Social Action Plan for the rehabilitation of the two segments. Additionally, an Indigenous People

Development Plan will be implemented.

The Social Action Plan will be implemented by specialist in social sciences to be hired by SNC (with local knowledge of customs and language) for each segment and enforced through a Coordinating Committee: SNC's technical and social staff, one representative of the contractor, and representatives from the local communities. Components of the social management plan include:

- Information to local organizations, communities authorities about project activities and schedule, and location of camps
- Employment generation: mechanism to ensure proper hiring and compensation for local people
- Environmental training and social sensitivity raising exercises for work crews
- Mechanisms to ensure proper compensation for access to lots (burrow pits, camps, temporary camps, etc.) and for payments from damages related to construction activities.
- Signals and accident control in critical areas as well as safety road training

In the Boyuibe-Yacuiba segment, the drainage problems will be solved through the appropriate design of the rehabilitation works and road safety signalization (including) will be built in the proximity of the communities along the segment right-of-way.

The Social Action Plan is estimated to cost US\$300,000 (for both the Calamarca-San Pedro and the Boyuibe-Yacuiba areas). This amount will be financed with local counterpart resources.

The Indigenous People Development Plan (IPDP) includes two components: organizational strengthening and training on rights and management of their territories. The implementation of this plan is estimated to cost US\$250,000. This amount will also be covered with local counterpart resources.

The IPDP focuses on the organizational strengthening of the indigenous population since the creation of specific organizations are indispensable to enhance their access to the available resources from different national and international funds. Special attention will be paid to coordinate efforts with the other related IDA-financed initiatives under implementation, namely the Participatory Rural Investment Project (Credit 3065-BO) and the Indigenous Peoples Development Project (Credit 3471-BO).

Furthermore, the Abapó-Camiri Highway Project is being executed currently. This project also includes an Indigenous People Development Plan. Taking into account that the segment Boyuibe-Yacuiba segment represents a continuation of the Abapó-Camiri road, on the corridor from Santa Cruz to the Bolivia border with Argentina, consideration will be given to extend the IPDP of the Abapó-Camiri to include the indigenous population of the Boyuibe-Yacuiba segment.

Pilot of rehabilitation of secondary (prefectural) feeder roads

Around 200 km of feeder roads will be rehabilitated in the project in order to increase the benefits from the rehabilitation of the two main segments. Most rehabilitation works will include drainage improvements, regraveling and erosion control. Therefore no significant environmental impacts are to be expected. In addition to complying with the environmental guidelines for contractors, each road segment will be screened for environmental and social issues. The screening criteria and procedures have been prepared by the SNC and approved by the Bank and are available in project files. Carrying out such screening exercise will be a condition of eligibility for proposed (feeder) secondary roads. The project will also include dissemination and training activities on the proposed screening methodology. In addition, road eligibility

criteria will include aspects such as population density and beneficiaries, availability and access to education and health services by local communities, and local commercialization means.

Road maintenance

The environmental manual for contractors includes specific guidelines regarding practices for road maintenance. Based on these guidelines, SNC has prepared guidelines for maintenance microenterprises in simpler language and tailored to the needs of these microenterprises. These guidelines are also available in project files. The project will include activities for disseminating and training these guidelines among microenterprises and contractors.

Environmental and social management capacity in SNC

SNC has institutionalized the social and environmental management functions within its structure through the creation of an socio-environmental management unit (*Gerencia Socio-Ambiental*) depending directly from its Executive President. Although environmental management capacity still remains weak because of the lack of continuity, the project will strengthen the capacity of this department to address environmental and social issues in the sector. The strengthening program will include (i) technical assistance especially for the assessment and management of social issues; (ii) training; (iii) equipment; and (iv) publication and dissemination of environmental guidelines. In addition to other sector duties, for the proposed project, the Socio-Environmental Department will be in charge of (i) ensuring that appropriate environmental and social language is included in all bidding documents and contracts; (ii) ensuring compliance with the environmental manual for contractors and its enforcement by supervision engineers; (iii) ensuring that environmental and social screening procedures are applied to all proposed feeder roads; (iii) disseminating and training appropriate agencies, contractors and microenterprises regarding environmental manuals for road maintenance; and (iv) implementing the strengthening program for the unit itself.

Environmental guidelines for contractors

An environmental manual for Road Contractors has been prepared and adopted by SNC ("Manual Ambiental para la Construcción de Carreteras", SNC, 2000, La Paz, Bolivia). A copy of the manual has been sent to the Infoshop and is available in project files. This manual establishes specific rules for minimizing environmental impacts during road construction and maintenance. Examples of the topics included in the manual are: (i) applicable environmental and natural resource legislation; (ii) explicit prohibitions and environmental behavior guidelines for work crews; (iii) proper selection and management of borrow pits and quarries, gravel extraction along rivers, and other sources of materials; (iv) selection of camp sites and management of camp wastes; (v) location and management of asphalt plants; (vi) proper disposal of wastes from construction machinery and equipment; (vii) proper disposal of excess materials from cuts and excavations; (ix) slope stabilization and erosion control; (x) drainage infrastructure and management of water along the right of way.

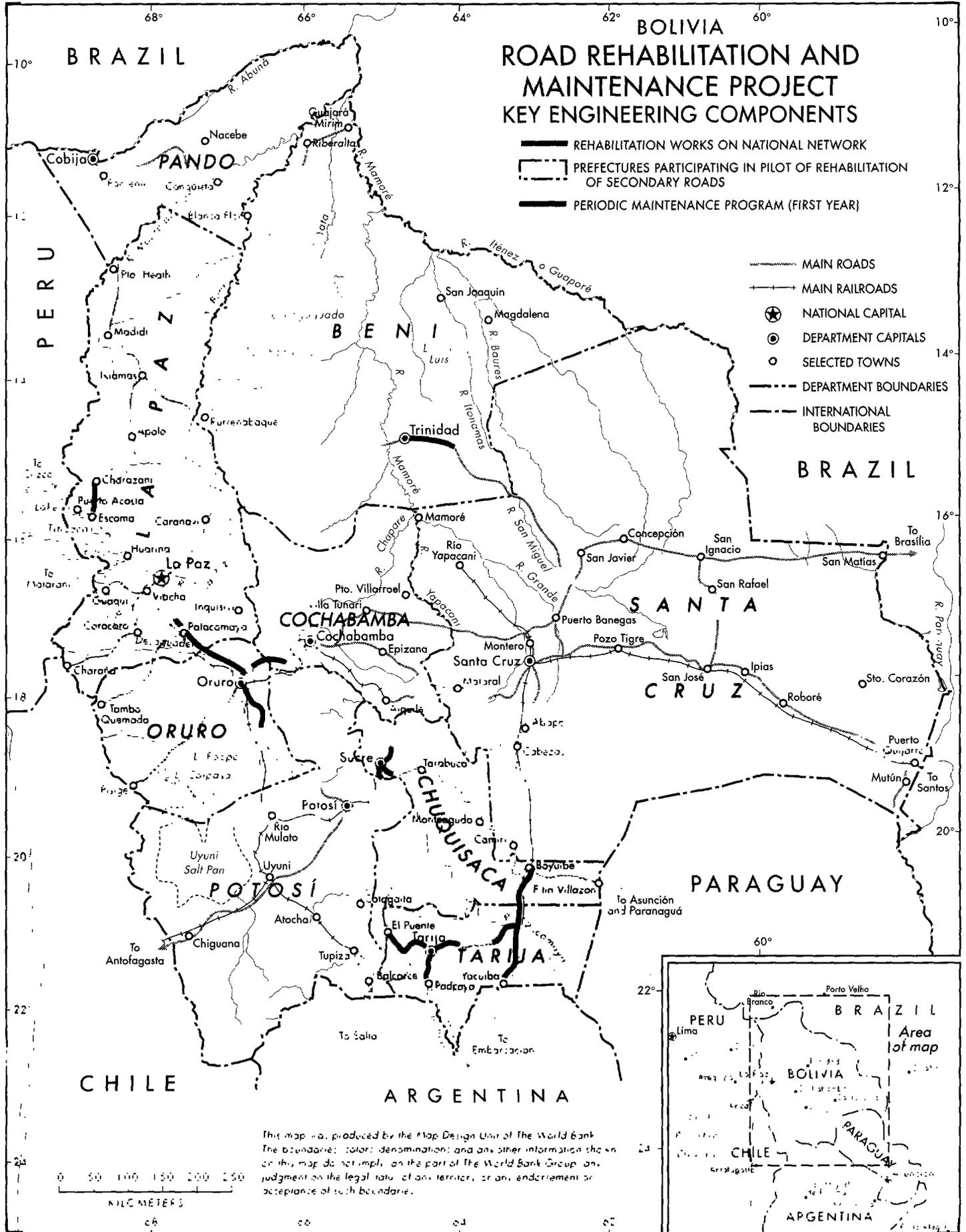
Other environmental and social measures

All studies for new sub-projects financed by the project will include the application of environmental and social screening criteria and procedures. The studies will be applied to roads for which the right-of-way already exists. Cost estimates and bidding documents stemming from these studies will include environmental and social mitigating measures. The road safety components will promote community participation in the identification of critical areas thus ensuring ownership of proposed safety measures.

The following table summarizes the environmental and social management plan for the Road Rehabilitation and Maintenance Project.

| Component | Social and environmental requirements |
|--|---|
| Rehabilitation of priority segments | <ul style="list-style-type: none"> • Environmental guidelines for contractors included in bidding documents and contracts • Site specific environmental requirements included in bidding documents and contracts • Enforcement of all environmental and social requirement by supervision engineer • Overall supervision by environmental unit of SNC • Design and implementation of social action and indigenous people development plans, and creation of social committee in all segments |
| Secondary roads | <ul style="list-style-type: none"> • Environmental and social screening criteria and procedures for all roads as condition of eligibility • Environmental guidelines for contractors included in biding documents and contracts • Enforcement of environmental requirements by supervision engineer • Overall supervision by SNC's Socio-Environmental Unit • Dissemination and training on screening criteria and procedures by the Socio-Environmental Unit |
| Road maintenance | <ul style="list-style-type: none"> • Environmental manual for road maintenance tailored to contractors' and microentreprises' characteristics and requirements • Dissemination and training on maintenance manual for contractors and microenterprises by the Socio-Environmental Unit |
| Environmental management capacity in SNC | <ul style="list-style-type: none"> • Strengthening environmental and social management capacity in SNC: (i) technical assistance; (ii) training; and (iii) publication and dissemination of manuals. |
| Pre-investment studies for other road projects | <ul style="list-style-type: none"> • Application of environmental and social screening criteria and procedures. Cost estimates include environmental and social assessment studies, to comply with IDA safeguards policies. |

MAP SECTION



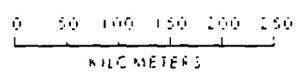
BOLIVIA

ROAD REHABILITATION AND MAINTENANCE PROJECT

KEY ENGINEERING COMPONENTS

- REHABILITATION WORKS ON NATIONAL NETWORK
- PREFECTURES PARTICIPATING IN PILOT OF REHABILITATION OF SECONDARY ROADS
- PERIODIC MAINTENANCE PROGRAM (FIRST YEAR)

- MAIN ROADS
- MAIN RAILROADS
- NATIONAL CAPITAL
- DEPARTMENT CAPITALS
- SELECTED TOWNS
- DEPARTMENT BOUNDARIES
- INTERNATIONAL BOUNDARIES



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