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IMPLEMENTATION COMPLETION REPORT

CHINA

INNER MONGOLIA LOCAL RAILWAY PROJECT

(LOAN 3060-CHA/CREDIT 2014-CHA)

June 25, 1997

Infrastructure Operations Division
China and Mongolia Department
East Asia and Pacific Regional Office

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CURRENCY EQUIVALENTS

Currency Name = Renminbi
Currency Unit = Yuan (Y)

Yuan Rate per \$1.00

1985	2.94	1991	5.32
1986	3.45	1992	5.53
1987	3.72	1993	5.76
1988	3.72	1994	8.62
1989	3.76	1995	8.35
1990	4.78	1996	8.32

FISCAL YEAR

January 1 - December 31

MEASUREMENT EQUIVALENTS

<i>Metric System</i>		<i>British/US system</i>
1 meter (m)	=	3.281 feet (ft)
1 kilometer (km)	=	0.621 mile (mi)
1 square meter (m ²)	=	10.764 square feet (ft ²)
1 hectare (ha) = 0.01 km ²	=	2.47 acres (ac) = 15 mu
1 mu	=	0.1647 acre = 0.0667 hectare
1 metric ton (t)	=	2,208 pounds (lbs)
1 passenger-km (pkm)	=	0.621 passenger-miles
1 ton-kilometer (tkm)	=	0.621 ton-mile
1 converted tkm (ctk)	=	1 traffic unit (1 pkm + 1 tkm)

PRINCIPAL ABBREVIATIONS AND ACRONYMS USED

EIRR	-	Economic Internal Rate of Return
FCTIO	-	Foreign Capital and Technical Import Office
FX	-	Foreign Exchange
GIM	-	Government of the Autonomous Province of Inner Mongolia
ICB	-	International Competitive Bidding
ICR	-	Implementation Completion Report
IMLRC	-	Inner Mongolia Local Railway Company
JRLLC	-	Inner Mongolia Ji-Tong Railway Limited Liability Company
MOF	-	Ministry of Finance
MOR	-	Ministry of Railways
PCR	-	Project Completion Report
SAR	-	Staff Appraisal Report
SPC	-	State Planning Commission

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MAP: Jinin-Tongliao Line—IBRD 21156

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IMPLEMENTATION COMPLETION REPORT
CHINA
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PREFACE

This is the Implementation Completion Report (ICR) for the Inner Mongolia Local Railway Project in China for which Loan 3060 for \$70 million and Credit 2014 for SDR 58.6 million (\$80 million equivalent) were approved on May 12, 1989. The loan and credit were closed on December 31, 1996. Final disbursement was made on March 27, 1997. The credit was fully disbursed, but \$0.76 million of the loan amount was canceled.

The ICR was prepared by Mmes./Messrs. Udo Marggraf (Task Manager), Richard Spero (Transport Economist) of the Infrastructure Operations Division, China and Mongolia Department of the East Asia and Pacific Region, and Dawn Vermilya (Financial Analyst, EA2EM), Anil Somani (Environmental Specialist, ASTEN), and Anis Dani (Anthropologist-Resettlement, ASTHR). It was reviewed by Messrs. Richard Scurfield, Chief, EA2IN and Yo Kimura, Project Adviser, EA2DR. The borrower's implementation evaluation summary for the project is included as Appendix B to the ICR.

The ICR, started before the project closing date, was based on material in the project file and data provided by the Ministry of Railways (MOR). The Borrower contributed to the preparation of the ICR with its views and the data requested, its own evaluation, and comments on the draft ICR.

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EVALUATION SUMMARY

Introduction and Project Objectives

1. China's development, which accelerated after the Government adopted the open-door policy in 1978, substantially increased the demand for railway transport. For this reason, the Government has been aiming to expand railway capacity since the 1980s, in order to sustain economic development. In 1984, the Bank became involved in the railway subsector, with four projects effective by March 1989, to assist the Ministry of Railways develop its national network. In order to expand line capacity to meet local transport needs and foster regional development, the Government also encouraged the development of "local railways," railways built and operated by local governments and enterprises, typically with financial and management assistance from the State.

2. The Inner Mongolia Local Railway Project reflected this priority. It had three objectives: (a) to provide low-cost, reliable freight and passenger transportation, facilitating in particular the movement of coal and other products from western Inner Mongolia to northeastern China; (b) to promote regional development; and (c) to support formation of a local company to manage what became the longest locally-administered railway in China. These objectives were consistent with the Government's development approach and the Bank Group's assistance strategy for the sector.

Implementation Experience and Results

3. The project's most important objective—to provide a transportation bridge for the shipment of goods between western Inner Mongolia and northeastern China was successfully met with the construction of the 945 km single-track Ji-Tong railway line. According to the reevaluated economic internal rate of return (EIRR), the line was completed with a slightly higher yield (19.0 percent) EIRR than calculated at appraisal (17.9 percent), which is satisfactory (para. 42).

4. With regard to the second objective of promoting regional development, the staff appraisal report (SAR) anticipated benefits in the form of stimulating local industry and animal husbandry production. While the SAR devoted considerable attention to this objective, the economic benefits associated with regional development were comparatively modest. The current assessment of the likelihood of achieving the original development objectives recognized that the coal supply and demand patterns postulated in the SAR have not materialized, although employment generated by the line has

decreased unemployment in the project area. Therefore, the second project objective has been only partially met.

5. The third objective was to support the formation of a local company that would manage what would become the longest local railway in China. This objective was achieved with the creation of the Inner Mongolia Ji-Tong Railway Limited Liability Company (JRLLC) on July 16, 1995. The company's performance, hence, has been satisfactory.

6. Project startup was postponed for about a year by the aftermath of the Tiananmen incidents in May/June 1989. However, initial implementation proceeded with impressive speed, raising expectations that the project could be completed within the original implementation schedule. The project was carried out by the Inner Mongolia Local Railway Company (IMLRC), an entity created for the construction of the new line. Despite its inexperience with Bank procedures, implementation progress of the project was generally satisfactory. Although some procurement problems arose, they were never a major contributory factor to implementation delays. The postponed start and adverse weather conditions contributed to about a two-year completion delay of the Ji-Tong line compared to the original scope, which was too optimistic. Construction was completed in October 1995, and operations on the Ji-Tong line began on December 1, 1995.

7. Following the Borrower's decision not to purchase goods related to doubtful procurement, the Bank agreed in October 1995 to expand the scope of the project by financing digital telecommunications equipment to improve safety, substantially reduce maintenance, and improve quality of operations. The new equipment will be installed by December 1997. The telecommunications component was not included in the original project, which was intended to build the line with the most basic technology in order to minimize initial costs.

8. In terms of US dollars, actual total costs were close to the appraisal estimate despite the increase of the scope of some line component items. In terms of local currency, however, total costs were 51 percent above appraisal estimates. The difference between dollar and yuan costs was due to: (a) the devaluation of the yuan over the life of the project from Y 3.76 per dollar to Y 8.32 per dollar; and (b) the impact of steep domestic inflation on the cost of materials and additional inputs during the early 1990s.

Summary of Findings, Future Operations, and Key Lessons Learned

9. The EIRR for the project's physical investments is 19.0 percent compared to 17.9 percent estimated at appraisal (para. 42). In the first year of full operations, traffic buildup has been faster than anticipated. One year after project completion, the railway company's financial condition was satisfactory and better than expected at appraisal. It can be expected that the applied tariff level will enable JRLLC to maintain its financial health and self-finance its investment program if traffic on the railway develops as expected or better, and operating costs increase as projected. However, JRLLC's assumption of the foreign exchange risk on IBRD/IDA costs it Y 50 to Y 60 million per

year and limits its ability to weather increases in operating costs or downturns in traffic volumes. In sum, the project's outcome is rated as satisfactory, its institutional development as substantial and its sustainability as likely (para. 65).

10. At the end of JRLLC's first year of operation, the company developed a business plan for 1997, which established operational and financial targets (based on a conservative forecast for freight and passenger traffic). JRLLC also prepared a detailed investment program from 1996 to 2003 that encompasses capacity expansion as well as safety and other investments. The long-term financial analysis prepared for this ICR will allow JRLLC's management to take corrective measures and to improve future annual business plans. Intensive training in financial analysis, based on generally accepted accounting principles, would further enhance JRLLC's capability to review investment options and its own financial sustainability. In addition, JRLLC should prepare a long-term operational plan so as to determine other investments that may be needed. JRLLC should also consider technical assistance to clarify the roles and responsibilities of JRLLC's management versus its owners (para. 66).

11. The Bank's performance was somewhat mixed. In general, identification, preparation and appraisal of the project was satisfactory. As was consistent with the practice in the 1980s, no project performance indicators were developed. Training could also have been prepared in greater detail. Although well-defined in terms of persons, and time, costs turned out to be unrealistic (paras. 52 and 55).

12. The project was adequately supervised through short, standard missions. Bank involvement, however, was not always adequately concerned with detailed implementation issues. The Bank's supervision should also have focused earlier on environmental protection and the adequate development of JRLLC's financial skills. A key issue affecting the short- and long-term financial performance of the Beneficiary came to light only at the ICR preparation. For these reasons, supervision is rated deficient in Table 1, Summary of Assessment (paras. 56 and 57).

13. The Borrower's performance was satisfactory. The Beneficiary's administrative performance was generally very good. The civil works were carried out according to current MOR standards and are of good quality. There were only a few problems during project implementation; although IMLRC, the newly created organization to implement the project, had little institutional experience with Bank project appraisal and procurement. The Beneficiary was outstandingly cooperative and provided a great amount of information and data for this ICR complementing the Bank's project file (paras. 58 and 60).

14. The main lessons learned from this project were (para. 67):

- (a) The SAR properly recognized that the volume of traffic that JRLLC actually handles would be critical to its economic success and commercial viability. Thus, the SAR placed great emphasis on the rate of traffic growth relative to the engineering line capacity of the route, and the need

to eliminate operating bottlenecks at off-line locations east of the route. It was also designed to ensure that certain Dongsheng coal mines, whose output was to be dedicated to the line, could be brought into production on a timely basis. Vital as all of these *physical* elements are to the success of JRLLC, it is important to acknowledge that, as a bridge railway, the fortunes of the company are greatly dependent on its *commercial* relationship with the national railway system. Specifically, this means that JRLLC needs to be able to interchange enough traffic with the national railway, and at appropriate price levels so that it can operate on a basis that is both compensatory and competitive. In considering future railway projects—especially those where substantial traffic exchanges are involved—the Bank should devote particular attention to the commercial aspects of these intrarailway relationships.

- (b) A second lesson stems from the first. Perhaps the greatest potential benefit of this project relates to the competition that JRLLC can foster vis-à-vis the national railway, as both adopt more market-oriented pricing environments. As a low-cost, local railway, JRLLC already has demonstrated that it can attract some traffic from the parallel routes of the national railways by virtue of its lower freight tariff. When greater flexibility is introduced into the railway regulatory regime, individual carriers will seek to maximize their competitive advantage by operating in a more cost-effective manner which, in turn, will stimulate more market-responsive pricing of railway services. This competitive interplay not only yields lower tariffs to shippers but enhanced economic benefits to the society as a whole. Accordingly, in evaluating future railway investment projects, the Bank should recognize the potential competitive dynamics that such investments can promote.
- (c) The original intention at appraisal was to require the Government of Inner Mongolia to bear the foreign exchange risk of the loan and credit. The implementation agency's assumption of this risk instead will have a negative effect on its ability to build up a cash reserve and protect against unexpected increases in operating costs or reduced traffic volumes. The change in onlending terms should have come to light before ICR preparation. This suggests that supervision of projects should include a thorough review of compliance with financing arrangements. In addition, the financial performance of a project entity at the detail of the financial analysis as given in the SAR, should be reestimated at about mid-term of the implementation period.

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PART I: PROJECT IMPLEMENTATION ASSESSMENT

A. PROJECT OBJECTIVES AND DESCRIPTION

1. As with most other centrally planned economies, China's economy is transport-intensive. The transport system, composed mainly of railways, highways, inland water transport and coastal shipping, is concentrated along the eastern seaboard and serves high-intensity freight traffic. Because of rapid economic growth—particularly after the Government adopted an open-door policy in 1978—the demand for transport outpaced the supply. Indeed, the network is one of the sparsest in the world, with respect to both the area and population it serves, although the length of the railway more than doubled in size while that of the highway system increased ninefold during 1952-83. Growth in rail freight averaged 9 percent a year over this period, but slowed to around 4.5 percent a year after 1978, as traffic saturated existing lines and rolling stock capacity. Thus, by 1983, the railway could not meet transport demand. The Government was aware of these shortcomings and focused on developing the transport sector and particularly, the railway, which played a critical economic role in China by transporting coal, the main energy source throughout the country.

2. In 1984, the Bank became involved in the railway subsector, with four projects effective by March 1989 to assist the Ministry of Railways (MOR) develop its national network. In order to expand line capacity to meet local transport needs and foster regional development, the Government also encouraged the development of "local railways." These are railways built and operated by local governments and enterprises, typically with financial and management assistance from the State. This project, approved in May 1989, had three objectives: (a) to provide low-cost, reliable freight and passenger transportation, facilitating in particular the movement of coal and other products from western Inner Mongolia to northeastern China; (b) to promote regional development; and (c) to support formation of a local company to manage what became the longest locally-administered railway in China.

3. The project's three main components were designed to assist in the:

- (a) construction of the railway line;
- (b) acquisition and installation of operational equipment; and
- (c) recruitment and training of staff to operate the railway.

4. Related components included land acquisition and resettlement. In parallel with this project, the Government was to develop the Dongsheng coal field, the second-most important coal deposit in China, with its own funding.

5. Project objectives were realistic, clearly articulated and consistent with the Government's goal and the Bank's assistance strategy to develop the railway subsector. Planned investments towards the objectives were also appropriate. The project was neither too complex nor risky, although somewhat optimistic with regard to implementation scheduling.

B. ACHIEVEMENT OF PROJECT OBJECTIVES

6. The project's objectives were substantially achieved, as indicated below.

Project Implementation

7. **Line Construction and Acquisition and Installation of Operational Equipment.** The project's most important aim was providing a transportation bridge for the shipment of goods between western Inner Mongolia and northeastern China. The construction of the 945 km single-track Ji-Tong railway line successfully met the objective of linking western Inner Mongolia with northeastern China. Work was completed by October 1995, and operations began on December 1, 1995.

8. **Promotion of Regional Development.** The second objective of the project focused on promoting regional development. Noting that the Ji-Tong line would pass through 12 counties and would affect a hinterland area as well, the staff appraisal report (SAR) anticipated benefits in the form of stimulating local industry and animal husbandry production. While the SAR devoted considerable attention to this objective, the economic benefits associated with regional development were comparatively modest. It should be mentioned, however, that according to the Inner Mongolia Ji-Tong Railway Limited Liability Company (JRLLC), recruitment of staff has played a significant role in solving the unemployment problem along the new railway line, and increased income of local people. Nevertheless, the second project objective has been only partially met.

9. **Institutional Development.** The third objective involved the formation of a local company that would manage what would become the longest local railway in China. This objective was achieved with the creation of the Inner Mongolia Ji-Tong Railway Limited Liability Company on July 16, 1995, which succeeded the project implementation agency, the Inner Mongolia Local Railway Company (IMLRC). MOR and the Government of Inner Mongolia (GIM) are the shareholders of the initial Y 800 million capital, with MOR having 52.5 percent and GIM 47.5 percent of ownership. The ratio was based on the portion of funds provided by each partner towards the construction costs. In 1997, accountants will determine the final value of the line assets at the time of construction work acceptance. On this basis, the final share distribution between MOR and GIM will be decided. The new railway company is managerially independent, but works in close cooperation with MOR.

10. There is a twofold significance to this objective. First, local railways which are built and operated by local governments and enterprises, enjoy a greater degree of financial and pricing freedom compared with the national railway carrier. In this respect, therefore, the tariff levels of local railways may be higher or lower than those of the national railways. Second, from a geographical perspective, most local railways are shorter haul, "stub-end" lines. This, in turn, limits their ability to interchange traffic with the national railways since their only connection with the national railways is at one end of their local route. In this respect, Ji-Tong is somewhat unique in that as an overhead or bridge railway (i.e., a transporter of through traffic that neither originates nor terminates on JRLLC itself) it links with the national railways at both its eastern (Tongliao) and western (Benhong) terminals. As such, for shippers in northeastern China, on the one hand and those in western Inner Mongolia and beyond on the other, the Ji-Tong line represents a shorter distance through railway option compared with the alternative of routing traffic via Datong, Beijing, and Qinhuangdao. Taken together, the existence of this routing alternative along with the comparative pricing flexibility accorded local railway operators combine to create the potential for fostering true intrarailway competition in China.

11. **Staffing.** The staffing plan for 7,600 employees discussed during appraisal was very tentative. By the end of 1996, JRLLC employed 9,004 staff including temporary workers. About 400 of them were managers and supervisors. There were 1,300 employees provided by MOR, 4,447 trainees that were high-school graduates, and 550 local staff. In addition, JRLLC had contracted 708 experienced steam locomotive drivers and locomotive maintenance mechanics in 1995 to help out for two years; and 1,999 temporary workers.

12. Given the Chinese employment standards and practices, JRLLC pursued a reasonable staffing policy, although it was under great pressure to accept staff hired by GIM based on personal, family, or political connections, but lacking adequate qualifications. The company intends to maintain the current number of staff as a maximum, and will, therefore, replace about half of the temporary staff by the trainees, when they join as graduates.

13. **Training.** Since 1991, 4,710 staff have been trained; about 600 staff less than envisioned at appraisal due to the downward revision of the total number of permanent employees. All in all, 73 percent of all staff have been or are being trained for two years, nearly 25 percent for one year, and the rest (2 percent) either for 1.5 or 2.5 years. By the end of 1995, IMLRC had paid Y 5.55 million for training and estimates Y 1.1 million in future training costs, which is substantially higher than the Y 1.4 million estimated at appraisal, notwithstanding the fact that the trainees had to pay half of the costs. The original estimate of training costs was unrealistically low. At that time, IMLRC was mainly concerned with engineering issues, and, therefore, relied on the estimates provided by the design institute, which assumed a limited budget. Even though inflation was a contributing factor, tuition prices rose much faster than inflation. Training appears

to have been effective because the newly established JRLLC was able to handle a freight traffic buildup faster than anticipated in its first year of full operations.

14. **Traffic Patterns.** The understanding of the volume and mix of JRLLC's traffic is important to an assessment of the extent to which the SAR objectives may have been achieved. In this respect, various logistical and distributional problems outside JRLLC's control have combined to depress the volume of coal that the company has been able to transport. For 1996, the first full year of operations, JRLLC handled just over 1 million tons of coal in overhead service—less than half of the 2.3 million tons projected in the SAR. Similarly, in 1997, Ji-Tong through coal volume is estimated at about 1.5 million tons or 37 percent of the nearly 4 million tons forecast for year 2 in the SAR.

15. This experience shows just how dependent a bridge carrier, such as JRLLC, is upon the traffic generated along lines with which it connects. When markets do not develop as anticipated (or when connecting railways route traffic so as to avoid the intermediate overhead route), the bridge carrier must find other sources of traffic to compensate for these losses. In fact, by making use of the pricing flexibility accorded to local railways, this is what JRLLC has been able to accomplish. Specifically, compared to its nominal base freight rate of 10 fen per ton-kilometer (tkm), which applies to JRLLC local traffic, a rate of only 8 fen per tkm has been instituted by JRLLC for through traffic interchanging with the national railways. As a result of this 20 percent discount, JRLLC has made its route more competitive and has succeeded in attracting a variety of both coal and noncoal products.

16. These developments have substantially altered the traffic composition of railway compared to what was postulated in the SAR. For the first two years of operation, the volume of through coal movements transported by JRLLC is well below SAR estimates. Compensating for this coal deficit, however, are shipments of noncoal commodities (e.g., grain, chemicals, timber, etc.), which JRLLC forecasts will amount to more than 3.1 million tons by 1997. This is almost 50 percent greater than the traffic estimates projected in the SAR. In addition, while the volume of JRLLC local traffic is significantly higher than the levels presented in the SAR, this in large part is attributable to coal which is expected to account for nearly half of local freight tonnage in 1997 (a portion of this coal is quite similar to overhead bridge traffic because it is loaded at stations at the west end of the Ji-Tong route and delivered off-line to destinations in the northeast). At the same time, the 280,000 passengers which JRLLC estimates it will carry in 1997 is well below the second-year figure of 860,000 persons projected in the SAR. These local and passenger traffic categories are the most immediate indicators of the regional development that could be stimulated by JRLLC operations. At best, the results must be regarded as mixed.

C. IMPLEMENTATION RECORD AND MAJOR FACTORS AFFECTING THE PROJECT

17. **Implementation Schedule.** The project was approved by the Board on May 12, 1989, and the loan/credit became effective on January 3, 1990. However, the State

Council did not approve construction of the new line until May 22, 1990. This delay came as an aftermath of the Tiananmen incidents in May/June 1989, which affected most investment projects, especially those which had not been started, such as the Ji-Tong line. Meanwhile, IMLRC had been created as an entity for the construction of the new line. It started the necessary procurement work well before obtaining the official green light and was therefore able to sign contracts for the eastern section on May 26, 1990, and for the western section on June 2, 1990. This decisive action enabled work to start on June 20 of the same year on both end sections. The contracts for the three middle sections were signed in September 1990, but work began only in April 1991, because earthworks could not be carried out in Inner Mongolia's very cold winters.

18. Although postponed for about a year by the Tiananmen incidents, from the start implementation proceeded with impressive speed, raising expectations that the project could be completed within the originally planned scope of time. The SAR implementation schedule was, however, optimistic particularly in light of IMLRC's lack of experience with Bank requirements of procurement. In July and August 1993, heavy rains (at one time 60 mm within 2 to 3 hours, while the annual average is 300 mm) caused extensive damage to embankments and track beds estimated at Y 3 million (about \$0.5 million). Arrival of materials was interrupted for one month. All these, in conjunction with the postponed start, contributed to about a two-year completion delay of the Ji-Tong line's original scope of works. However, great efforts were made to make up for the delays. During the winter of 1993-94, track laying continued despite the bitter cold weather conditions. Construction was completed in October 1995, and operations on the Ji-Tong line began on December 1, 1995.

19. When remaining Bank funds became available (para. 26), IMLRC requested and the Bank agreed in October 1995, to use about \$2.8 million for digital telecommunications equipment for 610 km of line to improve safety, substantially reduce maintenance, and improve quality of operations. The new equipment will be installed by December 1997. The telecommunications component was not included in the original project because the principal design idea was to build the line with the most basic technology available in order to minimize the initial outlays. In line with the concept that improvements on the railway line would be made when justified and funds were available, this component was added when funds materialized; it did not delay implementation of the original project. Table 5 compares the actual construction time for the main components to the estimate given in the SAR.

20. **Environmental Protection.** During design and construction of the Ji-Tong line, attention was paid to environmental protection. Environmental issues were built into the project design and addressed in the SAR to protect the ecological balance. Y 48 million funded from the construction budget were spent on a shelter belt along 400 km of railway track in the semidesert region, which consists of newly planted grass and trees, fences, sand and stone walls. In addition, three nurseries were also established under the project. In July 1996, during the first supervision mission dealing with environmental protection, it became apparent that independent environmental monitoring had not been carried out

during the construction of the Ji-Tong line. At that time, JRLLC agreed to engage the local Environmental Protection Research Institute or another third party to monitor the line and prepare a final report on the implementation of environmental measures during the construction. This report was prepared recently. It outlines measures undertaken to mitigate environmental concerns on the Ji-Tong line and the success of these measures. In a separate letter, JRLLC informed the Bank about long-term monitoring measures to guarantee the sustainability of the implemented environmental protection activities.

21. **Land Acquisition and Resettlement.** Chinese land acquisition, resettlement and compensation procedures have been followed substantially. At the request of the Bank's senior management, and in response to discussions at the Board, this and other transport projects in China were reviewed in 1994 to assure the Bank that resettlement activities were well managed. It was recognized that the documentation for this project, which started prior to 1992, was less complete than for more recent projects for which a baseline survey and resettlement plan were prepared by the Borrower and agreed with the Bank as a basis for supervision and implementation. The Resettlement Review Mission confirmed that compensation for acquisition of grass or dry land, which is plentiful in Inner Mongolia, was adequate to maintain the standards of living of the affected people. However, 2,745 mu (183 hectares) of valuable irrigated land had also been acquired and mistakenly been classified as dry land during the design of the project. Once reclassified, the compensation rate for this category of land was increased, and living standards were successfully restored.

22. The scale of resettlement has been larger than originally envisaged. The amount of land acquired was 113,617 mu (7,758 hectares), almost double the initial estimate, while the number of houses acquired and persons relocated increased only marginally (about 3 percent); 5,176 people were involved. There was an increase in the cost of land acquisition by 26 percent, and in compensation for houses, relocation and other resettlement costs by 76 percent. During construction, the alignment of the railway line crossed existing roads at a few points leading to additional expenditure on these roads. All additional requirements, combined with the slightly higher cost of compensation than originally envisaged, increased land acquisition and resettlement costs from Y 30 million to Y 45 million.

23. Specifically, the project has: (a) minimized the adverse impact of resettlement by avoiding populated areas through careful alignment of the railway line on land of marginal use and placement of all 50 railway stations 1 to 3 km away from existing settlements; (b) paid compensation for farmland, and ensured provision of replacement land to project-affected families, with most of the funds invested in social and economic development schemes for the village community; (c) ensured adequate compensation for households relocated and improved the quality of homes, by building larger and better houses than the previous ones; and (d) protected local livelihoods and living standards and provided a newly established resettlement village with electricity and a primary school as supplementary rehabilitation measures. In addition, the project has taken measures to ensure the safety of people and animals and to enable safe crossing. Almost

400†km of the track is fenced in, where it is exposed to livestock grazing on the grasslands, to protect both the line and the numerous herds of livestock. IMLRC has also constructed underpasses for vehicle traffic, villagers and livestock.

24. The physical and financial aspects of resettlement, except the impact on individuals and households, have been monitored internally by IMLRC, while the Inner Mongolia Auditing Bureau supervised financial disbursements. Land acquisition and compensation were to have been overseen as part of the social impact monitoring by the University of Inner Mongolia. Although agreed at negotiations, independent monitoring of the social impact was not carried out during project implementation. The University of Inner Mongolia was commissioned to carry out an ex-post impact evaluation study, and no major shortcomings in resettlement rehabilitation were discovered.

25. **Procurement.** Although IMLRC's management had little experience with international procurement, procurement administration was relatively smooth. Progress at the beginning was remarkable: only 30 months after implementation had started, contracts for about 85 percent of the loan/credit amount were signed. The workload with 183 contracts was very heavy for such a small organization. In addition, the procurement process involving numerous approvals outside IMLRC was cumbersome and time-consuming. Nevertheless, at the end of 1992, the average time of 160 days between bid opening and contract signing was much shorter than for any of the four railway projects with MOR (250 days).

26. The following examples, however, demonstrate the difficulties IMLRC faced. In the early years of market reform, some local bidders refused to maintain the bid price. All argued that prices for raw materials fluctuated too much to enter into fixed price commitments through national competitive bidding contracts. Cancellation and rebidding for concrete sleepers, for example, led to a delivery delay of six months. In 1993, it became clear that contracts totaling \$10.3 million would not be signed, or made effective, by contractors due to steep price increases for the goods on the market since bid opening. In another case, a domestic bid for jeeps with a price twice the lowest responsive foreign bid had to be proposed for award of contract by IMLRC because of the Chinese Government's embargo of "luxury" vehicles. The Bank did not concur with the proposal. In April 1993, about one year later, IMLRC informed the Bank that the bid was canceled. A third example is a misleading bid evaluation by the tendering company in Beijing, which led to an intensive investigation in 1995. The Bank came to the conclusion that the contract had been awarded despite the fact that the bid was nonresponsive in respect to an important mandatory requirement. The Bank pointed out to the Borrower that allowing the supplier to complete delivery in accordance with the contract would be regarded as misprocurement, while offering to accept rebidding subject to specific conditions. In the end, the Borrower decided not to purchase the goods and paid compensation of \$200,000 to the firm with which it had concluded the contract. Most of the savings realized from not purchasing these goods were reallocated to a new telecommunications component (para. 19).

27. **Project and Financing Costs.** Initially, the project was supported by a loan of \$70 million and a SDR 58.6 million credit, equivalent to \$80 million at the time of Board presentation. A recalculation of the credit part of the project established the total credit and loan amount as about \$151 million (Table 8c).

28. At the end of 1994, the remaining loan funds were assessed. Three major changes had occurred during implementation of the project: (a) due to depreciation of the US dollar against the SDR, the credit amount expressed in US dollars had increased; (b) some contracts were not fully delivered; and (c) the amount in US dollars required to pay contracts expressed in yuan was lower than registered at contract signing because of exchange rate variations. Following the Borrower's decision not to purchase goods related to problematic procurement (para. 26), the Bank permitted the use of the \$2.8 million loan balance for the purchase of additional digital telecommunication equipment for 610 km of line to improve safety and quality of operations.

29. The following table shows a comparison of appraisal estimates and actuals:

	Y million			\$ million		
	Appraisal Estimate	Actual	% Change	Appraisal Estimate	Actual	% Change
Project	1,364.1	2,037.8	+49	335.0	331.2	-1.2
Interest	55.3	104.0	+88	14.9	13.6	-8.6
Total Investment	1,419.4	2,141.8	+51	349.9	344.8	-1.5

30. In terms of US dollars, actual total costs were close to the appraisal estimate despite the increase of the scope of some project items. Without the additional quantities, total costs would have been about 5 percent lower in dollar terms. In terms of local currency, however, total costs were 51 percent above appraisal estimates. The difference between dollar and yuan costs was due to: (a) the devaluation of the yuan over the life of the project from Y 3.76 per dollar to Y 8.32 per dollar; and (b) the impact of steep domestic inflation on the cost of materials and additional inputs during the early 1990s. For example, the one-year delay in beginning construction works pushed back the implementation period into the higher inflation years.

31. **Financial Performance.** The financial analysis of IMLRC (which became a limited liability company—JRLLC—in July 1995) focuses on the elements likely to assure a sound financial position for a new company beginning operations. Foreign exchange risk allocation, scale of investment program, tariff levels, traffic volume, and operating costs levels are regarded as the factors critically affecting the financial position of JRLLC, and are explored in the financial analysis. Projected income, balance sheet, flow of funds statements, and debt service schedules over an eight-year horizon beginning in 1996 are presented in Annex 1, Tables 1 to 16. Operations on the Ji-Tong line began on December 1, 1995. Actual annual financial data are, therefore, only

available for 1996 and first-quarter 1997. For the financial projections for the years 1997 to 2003, operating costs have been based on 1996 and 1997 actuals.

32. A key issue affecting the short- and long-term financial performance of JRLLC and their ability to build up a cash reserve to cushion against unexpected events was where responsibility for the foreign exchange risk on the IBRD/IDA borrowings belongs. The original intention at appraisal was to require GIM to bear the foreign exchange risk of the loan and credit because of its significant foreign exchange earnings from the sale of anthracite and animal products and JRLLC's total lack of foreign exchange earnings. A Bank investigation in April 1997, however, found no records to indicate that the Bank/ Association rejected the subsidiary loan agreements' allocation of the foreign exchange risk to IMLRC, even though this contradicted the SAR. The effects of the decision to place the foreign exchange risk burden on the company are analyzed in the sensitivity analysis below. The foreign exchange costs are about Y 50 to 60 million per year.

33. Freight traffic in 1996 surpassed SAR expectations for the first year of full operation. In 1996, JRLLC handled 5.0 million tons (4.1 million tons were projected in the SAR) and it expects to transport 6.1 million tons in 1997 (less than the SAR estimate of 7.2 million tons). Of these amounts, an overwhelming proportion—75 percent—represents bridge or overhead volume (i.e., traffic that both originates and terminates off-line). JRLLC's management expects that freight traffic will increase by 11 to 4 percent per year, which is substantially more conservative than the SAR forecast. The same applies to passenger traffic, which is now forecast to remain at only a quarter of the appraisal assumption.

34. The base case analysis adopts the conservative JRLLC traffic forecast for the period 1998 to 2003, the same traffic levels as in the economic analysis, a reduced investment program consistent with the project scope, and, moreover, assumes that JRLLC will bear the foreign exchange risk on the IBRD/IDA borrowings. Three variations explore the sensitivity of JRLLC's financial projections to: (a) JRLLC implementing its full-scale investment program, (b) GIM bearing the foreign exchange costs of its IBRD/IDA borrowings, and (c) a 20 percent increase in working expenses and JRLLC's ability to mitigate this with tariff increases.

35. The SAR states that as a new company, JRLLC should start off on a sound financial footing and monitor closely its current and projected financial performance. Therefore, a financial covenant was agreed during negotiations, stating that JRLLC will take all measures necessary, including proposing tariff increases, to cover all operating costs from revenue and to achieve a debt service coverage ratio of 1.5 within the first three years of operations.

36. At negotiations, it was also agreed that the operating ratio, return on assets, current ratio, debt to capital ratio, debt service coverage ratio and self-financing ratio would be computed by JRLLC based on an eight-year financial projection, one year before operations begin in order to establish indicators for monitoring operational

Financial Indicators	1996	1997	1998	1999	2000	2001	2002	2003
Scenario III: Same as Scenario II except GIM bears FX risk								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	89	108	130	142	136	121
Net Surplus	(58)	42	65	86	110	123	119	106
Additional Borrowing	25	0	0	0	0	0	0	0
Operating ratio (%)	100	85	82	80	78	78	80	83
Return on assets (%)	0	3	4	5	6	6	6	5
Debt service coverage	0.8	1.4	3.6	4.2	4.7	5.1	5.2	5.2
Debt/total capital (%)	46	44	40	36	32	28	24	21
Self-financing ratio (%)		>100	>100	>100	>100	>100	>100	>100
Scenario IV: Same as Base Case, except working expense increase by 20 percent annually								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	60	44	21	(25)	(104)	(211)
Net Surplus	(58)	10	6	(6)	(25)	(67)	(145)	(269)
Additional Borrowing	25	0	0	0	0	0	30	238
Operating ratio (%)	100	85	88	92	97	104	115	130
Return on assets (%)	0	3	3	2	1	(1)	(5)	(11)
Debt service coverage	0.8	1.4	1.4	1.3	1.1	0.8	0.1	(0.6)
Debt/total capital (%)	46	45	43	41	39	37	37	38
Self-financing ratio (%)		>100	>100	>100	>100	>100	(108)	(942)

39. Under the base case (Scenario I above), the income statement in 1996 (Annex 1, Table 1) shows positive net operating revenue, but after payment of interest, JRLLC posted a negative net surplus. To cover its working capital requirements JRLLC took out a Y 25 million short-term loan in 1996 (Annex 1, Table 4). If JRLLC significantly reduces its investment program as shown in the base case, JRLLC's financial performance after 1997 looks very strong. Not only does JRLLC meet covenanted debt service requirements after 1997, but it can self-finance all of its investments and build up a large cash reserve.

40. The three cases under the sensitivity analysis demonstrate that the company is sensitive to both changes in its investment program and foreign exchange risk. However, JRLLC's finances are most sensitive to changes in operating costs. In Scenario II, if JRLLC implements its full-scale investment program as planned it will still be able to self-finance the investments, however, this will erode its return on assets to levels which only cover inflation and it would not be able to remain profitable in the event higher than expected operating costs or reduced traffic volumes arise. In Scenario III, if GIM were to bear the foreign exchange costs, JRLLC would be able to self-finance its full investment program and build up a healthy cash reserve; financial ratios would be even stronger.

41. In Scenario IV, even though JRLLC implements a reduced investment program (as in the base case), the 20 percent annual increase in working expenses renders JRLLC unprofitable after 1998 and none of its financial indicators is acceptable. To return to profitability, JRLLC would either need to: (a) raise tariffs from 8.8 fen per tkm to 12 fen per tkm gradually over a three-year period commencing in 1999, or, (b) have GIM assume foreign exchange costs commencing in 1998 and raise tariffs to 10 fen in 1999. Raising tariff levels, however, would not be an easy solution, and only plausible under the right conditions. It would be a sensitive marketing problem that depends on the movement of MOR's pricing policy. Conversely, if higher traffic volumes than JRLLC's conservative estimates emerge, then the profitability of the company will improve substantially.

42. **Economic Reevaluation.** Based on the economic reevaluation presented in Annex 2, the project's estimated net present value (NPV) amounts to nearly Y 4.6 billion in 1994 prices and the EIRR is 19.0 percent. This rate of return, somewhat higher than the SAR figure of 17.9 percent, is satisfactory.

43. The major reason for the increase in the EIRR relates to the adjusted mix of freight traffic handled over the project line. In the SAR, benefits were calculated on the assumption that by the second year of operation, about half of the railway's freight traffic (3.9 million tons out of a total of 7.2 million tons) would be comprised of coal—primarily mined in the Dongsheng fields and transported to consumers in Jilin province. Estimates compiled by JRLLC, however, indicate that coal volume is likely to account for only 2.2 million tons in 1997—just over a third of total freight traffic. On the other hand, noncoal tonnage is expected to be much higher than anticipated in the SAR: in its second year of operation, JRLLC expects to haul over 3.1 million tons of noncoal through traffic, nearly half again as much as the comparable SAR figure. Compared to coal, most noncoal commodities (grain, chemicals, etc.)—even allowing for a higher complementary development cost—have a higher net value added benefit than coal. Accordingly, the shift in the traffic mix is the major factor contributing to the improved EIRR reported here.

D. PROJECT SUSTAINABILITY

44. From an economic perspective, sustainability is assessed in terms of the sensitivity of the project's EIRR to changes in benefit and cost assumptions. Since the volume, mix, and value of projected freight traffic demand are the primary factors influencing the EIRR calculation, these factors are the focus of the sensitivity analyses.

45. In accordance with the JRLLC's own traffic forecast, the EIRR is predicated on freight tonnage increasing at various annual rates: 1998-2000, 10.0 percent; 2001, 8.0 percent, 2002, 5.0 percent, and 2003, 4 percent. No growth in the later years of the forecast time frame is assumed.¹ Reducing the freight traffic growth rate by a third

¹ Though a comparatively minor element, the estimate for passenger travel (also taken from JRLLC's own projections) increases at 40,000-50,000 persons per year from 1998-2003 and is constant thereafter.

lowered the estimated EIRR by less than one percentage point, to 18.8 percent. Consequently, diminishing the volume of freight traffic has a relatively modest impact on project sustainability from an economic point of view.

46. Apart from the overall total amount of freight, the EIRR also is a function of the proportional mix of coal and noncoal traffic. As noted above, the value-added benefits (as well as the related complementary development costs) for noncoal products are higher than those for coal. To be conservative, however, the base case forecast here postulates that beginning in 1998 the lower valued coal will have equal prominence with noncoal traffic with each accounting for 37.5 percent of total JRLLC freight tonnage (the remaining 25 percent being associated with local traffic). In the sensitivity test, this mix is altered such that the coal share rises to 50 percent and the noncoal proportion declines to 25 percent. This shift in the traffic mix has the effect of lowering the EIRR by just under one percentage point, to 18.7 percent.

47. The value added for both coal and noncoal products is a function of the border price of coal. A decline in this international price would reduce the value added margin (without any countervailing cost savings in domestic production and distribution). The base case estimate utilizes the average coal border price for 1994. Although this price has risen substantially (in 1995, an increase of 7.4 percent was recorded), a third sensitivity test nonetheless postulates a 10 percent reduction in this figure from its 1994 level. Under these conditions, the EIRR falls to 16.0 percent.

48. To test the sensitivity of the project to revised complementary cost assumptions, the development outlays associated with both coal and noncoal traffic were increased by 20 percent, respectively. In this instance, the EIRR falls to 17.3 percent.

49. Since all of these alternative EIRR outcomes are acceptable, the project should be judged as satisfactory from the standpoint of economic sustainability.

50. With respect to JRLLC's financial viability, the approved tariff level will enable JRLLC to maintain its financial health if traffic on the railway line develops as expected and operating costs increase as projected. The operating ratios will be acceptable from 1997 onwards. The debt service coverage ratio minimum is attained after 1997 and remains acceptable thereafter. JRLLC is able to fully self-finance its investment program under most circumstances. No additional short-term or long-term loans would be required to support JRLLC's operations. JRLLC's financial sustainability could be further improved by (a) limiting its investment program to priority investments only, (b) raising tariffs, as feasible, or, (c) convincing GIM to take over the foreign exchange risks on debt service.

51. There is considerable uncertainty regarding the level of operating costs five years away, given that many prices which are presently controlled may be permitted to rise. However, in the future, fixed operating costs (which account for more than 50 percent of operating costs) will only increase according to inflation, while variable costs will increase both due to inflation and as traffic increases. Therefore, it is expected that

average unit costs for the line will decrease over time as traffic volumes increase. Hence, the line should be able to maintain a sustainable financial status as long as tariffs keep pace with inflation and unit costs of inputs do not increase significantly faster than inflation. If the current tariffs prove to be too low, JRLLC has the option of raising freight tariffs. The degree to which it could raise its tariffs depends on the combined effect of (a) its shorter transportation distance (vis-à-vis MOR routes), (b) the prevailing all-in tariff on the MOR routes, and (c) MOR's strategic will to continue to send through traffic to the Ji-Tong line at a higher tariff level. Based purely on economic considerations, JRLLC should be able to raise its tariffs to at least the existing levels on the longer MOR routes. Passenger tariffs should not become a problem because passenger traffic is estimated conservatively and contributes only marginally to JRLLC's financial results, and almost all passenger traffic starts and ends on the Ji-Tong railway. In addition, given the potential for trade between Inner Mongolia and the northeast, it appears that JRLLC, if it can improve some of its internal line capacity constraints, has conservatively estimated its traffic expansion and higher traffic volumes will likely develop. There is, therefore, every reason to assume that JRLLC will remain financially viable during the projection period.

E. BANK PERFORMANCE

52. The project was consistent with the Government's objective, which was to develop local railways and to promote regional economic development. In general, identification of the component, preparation and appraisal of the project were satisfactory. As was consistent with the practice in the 1980s, no project performance indicators were developed.

53. The project's most important objective was to provide a transportation bridge for the shipment of goods between western Inner Mongolia and northeastern China. At appraisal, coal was expected to be the main commodity carried by the new (bridge-) line. The objective was achieved, however, more due to the ability of MOR to deliver coal to the Ji-Tong line than with the development of the mines themselves. The significance of coal did not turn out as great as anticipated. Goods actually transported are more noncoal than coal.

54. At appraisal, the development of the Dongsheng coal fields was viewed as instrumental in achieving the second project objective, to promote regional development. The volume of text in the SAR devoted to regional development by far outweighs the significance of benefits attributed to the matter. As it turned out, the ability of the line to operate does not depend on the coal market scenario.

55. Training of staff could have been prepared in greater detail. Although well defined in terms of persons, and time, the SAR did not elaborate sufficiently on the choice and content of the various kinds of training. Training costs turned out to be unrealistic, which raises the question of the adequacy of the Bank's appraisal. In addition, more attention should have been given to the final version of the SAR to ensure

that the published set of numbers both in the statistical tables and in the text were internally consistent.

56. A key issue affecting the short- and long-term financial performance of JRLLC was addressed as late as the ICR completion mission (para. 29). Although the SAR (para. 4.19) and the Memorandum of the President (MOP) of the same date, in para. 10, clearly state: “GIM will further onlend the loan and credit to IMLRC under the same terms and conditions, *with two exceptions: first the foreign exchange risk will remain with GIM; and*” (the wording is quoted from the MOP, the italics were added), it is surprising to note that there is nothing on file to indicate why the Bank agreed to a substantial policy change when accepting the onlending agreement required for the loan and credit effectiveness. In that agreement, IMLRC bore the foreign exchange risk. Furthermore, the important Relending Loan Agreement between GIM and IMLRC dated November 22, 1989, can nowhere be found in Bank files except in the Legal Department’s collection of documents. For this and the reasons given in paras. 55 and 57, supervision is rated deficient in Table 1, Summary of Assessment.

57. Although the project was adequately supervised through short, standard missions, Bank involvement was not always adequate during implementation. The Bank’s supervision should also have focused on environmental protection and the adequate development of JRLLC’s financial skills at a far earlier stage of project implementation, not at a time close to project completion. Even though at the time of project effectiveness, resettlement did not play the role it does now, it would have been of great advantage if social impact monitors had been appointed and trained in the methodology of social analysis and impact monitoring, at an early stage. In addition, resettlement action should have been preceded by a socioeconomic baseline study against which social impacts could have been measured.

F. BORROWER PERFORMANCE

58. IMLRC’s administrative performance was generally very good. The civil works were carried out according to current MOR standards and are of good quality. There were only a few problems during project implementation, although the newly created organization had little institutional experience with Bank project appraisal and procurement. An issue was caused by a misleading bid evaluation that led to an intensive investigation in the Bank. In the end, the Borrower decided not to purchase the goods and paid compensation of \$200,000 to the firm with which it had concluded the contract. Although environmental protection measures had been taken during the line construction, a monitoring program to measure their long-term sustainability should have been developed much earlier, not at the end of the of construction works. Also, the scale of resettlement has been larger than originally envisaged. The amount of land acquired was almost double the initial estimate, while the number of houses acquired and persons relocated increased only marginally.

59. Implementation reporting was regular until the project’s completion. Some deficiencies were offset by extensive information provided during supervision missions.

60. JRLLC was outstandingly cooperative and helped prepare information for this ICR. The company provided a great amount of data to complement those available in the Bank's project file, which produced a more comprehensive picture of project implementation.

61. The credit agreement provided that the Borrower would cause MOR to provide adequate investments to upgrade the railway line connecting with the Ji-Tong line. This covenant was not complied with insofar as MOR has no formal plans to provide investments to upgrade two lines perceived at appraisal to become bottlenecks. The national railways, however, have incurred congestion problems at locations west and east of the Ji-Tong line. Between Baotou and Benhong (the western JRLLC-national railways interchange point), the Hohhot Administration has experienced a shortage of both diesel locomotives and freight wagons for loading coal. At the same time, there have been severe congestion problems at the eastern JRLLC-national railways interchange point. Here, the Tongliao South marshaling yard, which handles both JRLLC business as well as traffic for the national railways has proven to be inadequate. The shortage of locomotives and freight wagons was resolved during 1996, while extending the marshaling yard is still under way.

G. ASSESSMENT OF OUTCOME

62. Project implementation is rated as satisfactory. The project had three particular objectives. Of these, by far the most important was the aim of providing a transportation bridge for the shipment of goods between western Inner Mongolia and northeastern China. The construction of the 945 km single-track line successfully met this objective.

63. The project also focused on promoting regional development. In this context, the staff appraisal report anticipated benefits in the form of stimulating local industry and animal husbandry production along the Ji-Tong line and from an impact on an hinterland area. While an assessment of the likelihood of achieving these original development objectives recognized that the coal supply and demand patterns postulated in the SAR have not been realized, the economic benefits associated with regional development were comparatively modest. However, recruitment of staff for JRLLC reportedly has played a significant role in alleviating unemployment along the new railway line, and the increased income of local people. Nevertheless, the second project objective has been only partially met.

64. A third project objective was institutional in nature. It was achieved with the creation of the Inner Mongolia Ji-Tong Railway Limited Liability Company. Technically, JRLLC appears to be well managed. However, its management autonomy is limited by its unique circumstances—MOR is not only a majority stakeholder in JRLLC, but it is also JRLLC's single largest customer (in that MOR decides how much traffic to divert to JRLLC). Therefore, JRLLC's ability to independently raise tariffs, hire staff and finance its own capital investments may be limited since it affects MOR in two competing aspects.

65. The EIRR for the project's physical investments is 19.0 percent compared to 17.9 percent estimated at appraisal. One year after project completion, the railway company's financial condition was satisfactory and better than expected at appraisal. It can be expected that the applied tariff level will enable JRLLC to maintain its financial health if traffic on the railway develops as expected or better and operating costs increase as projected. However, JRLLC's assumption of the foreign exchange risk on IBRD/IDA borrowings will limit its capacity to build up a cash reserve to cushion unexpected increases in operating costs or drops in traffic volumes. With regard to environmental concerns on the Ji-Tong line, JRLLC has developed long-term monitoring measures to guarantee the sustainability of the implemented environmental protection activities. In sum, the project's outcome is rated as satisfactory, its institutional development as substantial and its sustainability as likely.

H. FUTURE OPERATION

66. At the end of JRLLC's first year of operation, the company developed a business plan 1997, which established operational and financial targets based on a conservative forecast for freight and passenger traffic. This type of short-term planning was adopted from MOR's practice. JRLLC also prepared a detailed investment program for the period 1996-2003 (Annex 1, para. 10) that encompasses capacity expansion as well as safety and other investments. The long-term financial analysis prepared for this ICR will allow JRLLC's management to take corrective measures and to improve future annual business plans. Intensive training in financial analysis, based on generally accepted accounting principles, would further enhance JRLLC's capability to review investment options and its financial sustainability. JRLLC should also invest in computers for its own financial operations. In addition, JRLLC should prepare a long-term operational plan so as to determine other investments that may be needed. JRLLC should also consider technical assistance in institutional building, which should in part clarify the roles and responsibilities of JRLLC's management versus its owners, which appears still thoroughly entwined (para. 62).

I. KEY LESSONS LEARNED

67. This project, which was different from the four earlier ones, was quite simple and helped fund a specific investment. Problems arose during implementation with procurement, which were mainly related to inexperience in the early years of market reform in China. The main lessons learned were as follows:

- (a) The SAR properly recognized that the volume of traffic which JRLLC actually handles would be critical to its economic success and commercial viability. Thus, the SAR placed great emphasis on the rate of traffic growth relative to the engineering line capacity of the route (see SAR, page 11, para. 4.9 and Annex 6, page 43, para. 2), and the need to eliminate operating bottlenecks at off-line locations east of the route (see SAR, page 17, paras. 4.30-4.33 and page 29, para. 7.4). It was also designed to ensure that certain Dongsheng coal mines, whose output was

to be dedicated to the line, could be brought into production on a timely basis (see SAR, pages 16-17, paras. 4.27-4.29 and page 28, para. 7.1). Vital as all of these *physical* elements are to the success of the JRLLC, it is important to acknowledge that, as a bridge railway, the fortunes of the company are greatly dependent on its *commercial* relationship with the national railway system. Specifically, this means that JRLLC needs to be able to interchange enough traffic with the national railway in such volumes and at appropriate price levels that will permit it to operate on a basis that is both compensatory and competitive. In considering future railways projects—especially those where substantial traffic exchanges are involved—the Bank should devote particular attention to the commercial aspects of these intrarailway relationships.

- (b) A second lesson stems from the first. Perhaps the greatest potential benefit of this project relates to the competition which JRLLC can foster vis-à-vis the national railway, as both adopt more market-oriented pricing environments. As a low-cost, local railway, JRLLC already has demonstrated that it can attract some traffic from the parallel routes of the national railways by virtue of its lower freight tariff. When greater flexibility is introduced into the railway regulatory regime, individual carriers will seek to maximize their competitive advantage by operating in a more cost-effective manner which, in turn, will stimulate more market-responsive pricing of railway services. This competitive interplay not only yields lower tariffs to shippers but enhanced economic benefits to the society as a whole. Accordingly, in evaluating future railway investment projects, the Bank should recognize the potential competitive dynamics that such investments can promote.
- (c) The original intention at appraisal was to require the Government of Inner Mongolia to bear the foreign exchange risk of the loan and credit. The implementation agency's assumption of this risk instead will have a negative effect on its ability to build up a cash reserve and protect against unexpected increases in operating costs or reduced traffic volumes. The change in onlending terms should have come to light before ICR preparation. This suggests that supervision of projects should include a thorough review of compliance with financing arrangements. In addition, the financial performance of a project entity at the detail of the financial analysis as given in the SAR, should be reestimated at about mid-term of the implementation period.

PART II: STATISTICAL TABLES

TABLE 1: SUMMARY OF ASSESSMENTS

A. Achievement of Objectives	Substantial	Partial	Negligible	Not Applicable
Macroeconomic policies				x
Sector policies		x		
Financial objectives	x			
Institutional development	x			
Physical objectives	x			
Poverty reduction		x		
Gender issues				x
Other social objectives				x
Environmental objectives		x		
Public sector management	x			
Private sector development				x
<hr/>				
B. Project Sustainability	Likely	Unlikely	Uncertain	
	x			
<hr/>				
C. Bank Performance	Highly Satisfactory	Satisfactory	Deficient	
Identification		x		
Preparation assistance		x		
Appraisal		x		
Supervision				x
<hr/>				
D. Borrower Performance	Highly Satisfactory	Satisfactory	Deficient	
Preparation	x			
Implementation		x		
Covenant compliance		x		
Operation (if applicable)				
<hr/>				
E. Assessment of Outcome	Highly Satisfactory	Satisfactory	Unsatisfactory	Highly Unsatisfactory
		x		
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TABLE 2: RELATED BANK LOANS/CREDITS

Loan/Credit Title	Purpose	Year of Approval	Status
Preceding Operations:			
1. First Railway Project (Ln. 2394)	Line capacity expansion; doubling locomotive production; costing study.	1984	Completed on 12/31/90 (PCR 6/24/91)
2. Second Railway Project (Ln. 2540)	Line capacity expansion through upgrade and electrification; expand passenger coach production capacity; strengthen applied research; modernize management techniques; advise on improvements in university curricula.	1985	Completed on 06/30/94 (PCR 6/30/95)
3. Third Railway Project (Ln. 2540, Cr. 1680)	Capacity expansion of two lines; improvement of technology in a signaling factory; improvement of track maintenance; continuation of costing study.	1986	Completed on 06/30/95 (ICR 6/26/96)
4. Fourth Railway Project (Ln. 2968)	Line capacity expansion; expansion and quality improvement for three locomotive and rolling stock factories; strategic plan development for Beijing-Shanghai line.	1988	To be completed on 06/30/98
Following Operations:			
1. Fifth Railway Project (Ln. 3406)	Track rehabilitation and maintenance; acquisition of locomotives and rolling stock; line capacity expansion; expansion of Xuzhou terminal; implementation of costing study.	1991	To be completed on 12/31/98
2. Sixth Railway Project (Ln. 3581)	Line capacity expansion; technological modernization for track maintenance, telecom, MIS and container transport. Policy reforms to rationalize tariffs, modernize accounting standards and improve railway management and regulation.	1993	To be completed on 06/30/99
3. Seventh Railway Project (Ln. 38970)	Policy reform and institutional development to provide TA to implement railway restructuring, tariff reform and labor productivity enhancement. Investments include: line electrification; purchase of locomotives; upgrading telecom system; commercializing container transport; and protecting the environment.	1995	To be completed on 12/13/02

TABLE 3: PROJECT TIMETABLE

Item	Date Planned	Revised	Date Actual
Identification	-		Mar 1987
Preappraisal	-		Oct 1987
Appraisal	Jul 1988		Jul 1988
Negotiations	Jan 1989		Dec 12-16, 1988 ^{/a}
Board approval	Feb 1989	Jun 1989	May 12, 1989
Signature	-		Sep 14, 1989
Effectiveness	Dec 13, 1989	Jan 16, 1990	Jan 3, 1990
Project completion	Dec 31, 1995		Dec 1997
Loan closing	Dec 31, 1996		Dec 31, 1996

^{/a} Formally completed on April 13, 1989, upon fulfillment of the Bank's procurement-related condition for formal conclusion of negotiations.

**TABLE 4: LOAN/CREDIT DISBURSEMENT: CUMULATIVE ESTIMATE AND ACTUAL
(\$'000)**

	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97
Appraisal estimate	4,500	25,500	37,500	33,000	24,000	16,500	9,000	-
Actual: Loan	-	-	-	37,533	13,343	13,107	5,257	-
Credit	5,000	2,449	46,471	27,078	-	-	-	-
Actual as % of estimate	111.1	9.6	123.9	195.8	55.6	79.4	58.4	-

Date of final disbursement: March 27, 1997.

TABLE 5: KEY INDICATORS FOR PROJECT IMPLEMENTATION

Item/Year	Planned		Actual		Completion Delay (months)
	Start	Completed	Start	Completed	
Preparation	7/88	12/90	10/89	12/94	48
Infrastructure	4/89	9/92	6/90	9/95	36
Bridges & culverts	4/89	9/92	6/90	9/95	36
Tunnels	5/89	5/92	6/91	12/94	31
Track	5/89	12/92	7/91	9/95	33
Communications	7/88	5/93	6/91	9/95 /a	28
Signaling	4/90	5/93	5/92	9/95	28
Power	5/89	5/93	6/91	9/95	28
Buildings	5/89	12/92	6/90	9/95	33
Operational equipment	5/89	9/93	6/91	9/95	24
Other construction	N/A	N/A	6/90	9/95	N/A

/a Loan savings (about \$2.8 million) financed additional digital telecommunication equipment for 610 km of line to improve safety and quality of operations. This expanded line component will be completed in December 1997.

TABLE 6: KEY INDICATORS FOR PROJECT OPERATIONS

The SAR did not define key indicators for operation.

TABLE 7: STUDIES INCLUDED IN PROJECT

The project did not include a study.

TABLE 8A: PROJECT COSTS

	Planned			Actual ^{/a}		
	Local	Foreign	Total	Local	Foreign ^{/b}	Total
(Y'000)						
Base Costs	647,501	464,069	1,111,570	1,247,679	790,110	2,037,789
Physical Contingencies	56,130	23,351	79,481	-	-	-
Price Contingencies	95,449	77,636	173,085	-	-	-
Total Project	799,080	565,056	1,364,136	1,247,679	790,110	2,037,789
Interest during construction ^{/c}		55,302	55,302		103,979	103,979
Total Financing	799,080	620,358	1,419,438	1,247,679	894,089	2,141,768
(\$'000)						
Base Costs	170,531	122,091	292,622	200,849	130,319	331,168
Physical Contingencies	14,778	6,143	20,921	-	-	-
Price Contingencies	11,826	9,667	21,493	-	-	-
Total Project	197,135	137,901	335,036	200,849	130,319	331,168
Interest during construction ^{/c}		14,898	14,898		13,610	13,610
Total Financing	197,135	152,799	349,934	200,849	143,929	344,778

^{/a} Includes estimates for 1997.

^{/b} The same cost distribution as in the SAR has been used to reflect to indirect foreign exchange costs.

^{/c} Includes commitment fee on the IBRD loan, and service charge on the IDA credit.

TABLE 8B: PROJECT FINANCING

Responsible Party/Component	Appraisal estimate /a		Actual/Latest Estimate	
	Y million	\$ million	Y million	\$ million
Government of Inner Mongolia	449.6	102.1	582.7	90.1
Central Government (MOR)	363.0	97.8	643.6	104.5
IBRD	259.8	70.0	478.4	69.2
IDA	297.0	80.0	437.1	81.0
Total	1,419.4	349.9	2,141.8	344.8
of which:				
Project construction costs	1,364.1	335.0	2,037.8	331.2
Interest during construction /b	55.3	14.9	104.0	13.6

/a The Yuan column of the SAR's financing plan is mathematically wrong, while the \$ column in itself is correct. The components do not add up to the total. The origin of GIM's contribution of Y 449.6 million cannot be traced from other calculations; using the SAR exchange rate of Y 3.712 to \$1 as was done with the other components; the \$102.1 million amount should be equivalent to Y 379.0 million. It should also be noted that the Yuan investment costs given in SAR Table 4.1 mainly but not always relate to their \$ equivalent at an exchange rate of Y 3.80 to \$1 instead of Y 3.712; the interest during construction, however, uses the Y 3.712 exchange rate.

/b Includes commitment fee on the IBRD loan, and service charge on the IDA credit.

TABLE 8C: ALLOCATION OF CREDIT AND LOAN PROCEEDS

Category	Planned		Actual			
	Credit SDR'000	Loan \$'000	Credit SDR'000	Loan \$'000	Total \$'000	
1. Equipment and materials	58,600	70,000	58,242.24	81,005.54	69,254.50	150,260.04
2 Special Account /a	-	-	357.76	-7.35	-14.40	-21.75
Cancellation	-	-	-	-	759.90	759.90
Total	58,600	70,000	58,600.00	80,998.19	70,000.00	150,998.19

/a The amounts indicated under the Special Account category represent the exchange rate fluctuation from the time of the advances to the Special Accounts to the time of documentation/recovery of the account.

TABLE 9: ECONOMIC COSTS AND BENEFITS
(Y million, 1994 prices)

	Total Costs <u>/a</u>	Total Benefits <u>/b</u>	NPV (@ 12%)	EIRR %
ICR:	11,201.1	62,260.1	4,596.5	19.0
SAR:	8,295.4	39,080.8	2,300.1	17.9

/a Sum of undiscounted cost stream.

/b Sum of undiscounted benefit stream.

TABLE 10: STATUS OF LEGAL COVENANTS

Section	Description of Covenant	Covenant Class	Status	Original Date	Revised Date	Comments
Credit Agreement 2.02 (b)	Open and maintain a special account	1	C	N/A	N/A	
Credit Agreement 3.021(b)	Relend the Credit and Loan proceeds to IMLRC	3	C	N/A	N/A	
Credit Agreement 3.04	Borrower to cause MOR to provide adequate investments to upgrade and expand the railway lines connecting with the Ji-Tong line	10	NC	N/A	N/A	MOR has no formal plan to provide investments, but several recent developments appear to have minimized the capacity issue east of Tongliao. MOR has informed the Bank that until the upgrading of the two bottleneck lines will be completed the additional traffic from the Tongliao end to the Jilin province can be carried on existing lines.
Credit Agreement 4.01	Submit Annual Audit Reports by June 30 each year	1	C	N/A	N/A	
Project Agreement 2.06	Carry out the resettlement in accordance with the plan agreed with the Association and the Bank	7	C	N/A	N/A	
Project Agreement 2.07	Carry out recruitment and training of IMLRC staff in accordance with the plan agreed with the Association and the Bank	12	C	N/A	N/A	
Project Agreement 4.01 (a)	Maintain records and accounts adequate to reflect in accordance with sound accounting practices the operations, resources and expenditures of the Project subunits.	1	C	N/A	N/A	
Project Agreement 4.01 (b)	Borrower shall cause MOR to:	1	C	N/A	N/A	
	(i) have records and accounts including those for the Special Account for each fiscal year audited, by independent auditors using appropriate auditing principles consistently applied;	1	C	N/A	N/A	Audited financial reports have been received on time and reviewed by the Bank.
	(ii) furnish, not later than six months after the end of each such year, the audit report by independent auditors in reasonable scope and detail; and	1	C	N/A	N/A	
Project Agreement 4.02 (a)	(iii) furnish other information concerning the records and accounts as shall be from time to time reasonably requested.	1	C	N/A	N/A	
	Take all measures necessary including tariff increase to ensure estimated net revenues be at least 1.5 times the estimated debt service requirements within three years of commencement of railway operations	2	C	N/A	N/A	In base case forecast, debt service coverage ratio will be attained by the third year of operation and will remain acceptable thereafter.

Covenant Class:

- 1 = Accounts/audits
- 2 = Financial performance/revenue generation from beneficiaries
- 3 = Flow and utilization of project funds
- 4 = Counterpart funding
- 5 = Management aspects of the project or executing agency
- 6 = Environmental covenants
- 7 = Involuntary resettlement

- 8 = Indigenous people
- 9 = Monitoring, review, and reporting
- 10 = Project implementation not covered by classes 1-9
- 11 = Sectoral or cross-sectoral budgetary or other resources allocation
- 12 = Sectoral or cross-sectoral policy/regulatory/institutional action
- 13 = Other

Status:

- C = Complied with
- CD = Compliance after delay
- CP = Complied with partially
- NC = Not complied with
- SOON = Compliance expected in reasonably short time

TABLE 11: COMPLIANCE WITH OPERATIONAL MANUAL STATEMENTS

There was no significant lack of compliance with an applicable Bank Operational Manual Statement (OD or OP/BP)

TABLE 12: BANK RESOURCES: STAFF INPUTS

	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	Total
Preappraisal	6.5	40.9	0.6									48.0
Appraisal		3.0	33.5									36.5
Negotiations			12.8									12.8
LEN	0.3	0.5	0.2									1.0
Supervision				1.1	12.0	8.5	10.9	12.2	14.3	11.8	17.8	88.6
Completion												0.0
Total ^{/a}	6.8	44.4	47.1	1.1	12.0	8.5	10.9	12.2	14.3	11.8	17.8	186.9

^{/a} As of May 31, 1997.

TABLE 13: BANK RESOURCES: MISSIONS

Stage of Project Cycle	Month/Year	No. of Persons	Days in Field	Specialized Staff Skills Represented / <u>a</u>	Performance Rating / <u>b</u>		Types of Problems / <u>c</u>
					Implementation Status	Development Objectives	
Identification	Mar 1987	4	21	ENG, ECN(C)			
Preparation	Aug 1987	5	23	ENG, FNA, 2C			
Preappraisal	Oct 1987	4	5	ENG, FNA, ECN			
Appraisal	Jul 1988	6	17	ENG, FNA, ECN			
Supervision 1	Jun/Jul 1990	2	2	ENG, FNA	2	1	P
Supervision 2	Oct/Nov 1990	2	2	FNA, ENG(C)	1	1	P
Supervision 3	Feb/Mar 1991	1	4	FNA	1	1	--
Supervision 4	Oct/Nov 1991	2	2	FNA, ENG(C)	1	1	--
Supervision 5	May/Jun 1992	2	2	FNA, ENG(C)	2	1	--
Supervision 6	Nov 1992	2	1	FNA, ENG(C)	1	1	--
Supervision 7	Apr 1993	2	2	FNA, ENG	2	1	P
Supervision 8	Oct 1993	2	2	FNA, ENG	2	1	P
Supervision 9	May 1994	2	2	FNA, ENG(C)	HS	HS	P
Supervision 10	May/Jun 1995	2	3	ENG, ENG(C)	HS	S	P
Supervision 11	Sep 1995	1	2	FNA	S	S	TA, T
Supervision 12	Jul 1996	3	5	ENG, ESP, ECN (C)	S	S	P, M, F
ICR Completion	Mar 1997	2	3	ENG, FNA	-	-	-

a C = consultant; ENG = engineer; ECN = economist; FNA = financial analyst; ESP = environment specialist; MEC = mechanical engineering consultant; MISC = MIS consultant; TC = telecom engineer.

b 1 = no significant problems; 2 = moderate problems; 3 = major problems; S = satisfactory.

c M = management; P = procurement; S = studies progress; TA = technical assistance; T = training.

APPENDIX A: ICR COMPLETION MISSION'S AIDE-MEMOIRE

April 2, 1997

A World Bank mission comprising Mr. U. Marggraf and Mrs. D. Vermilya visited the Inner Mongolia Autonomous Region of China as a postcompletion mission for the Inner Mongolia Local Railway Project to seek from management of the Ji-Tong Railway Limited Liability Company (JRLLC) updated information on traffic and financial data for the years 1996 to 2003. The mission also discussed the completeness and accuracy of the draft Implementation Completion Report ICR for the Inner Mongolia Local Railway Project. Mr. Chen Juemin from the Resident Mission in China (RMC) provided substantial assistance to both the mission and JRLLC. This aide-memoire records major points of discussion and understanding reached. The mission wishes to express its thanks to JRLLC for its excellent cooperation, detailed information provided, and the courtesies extended.

The mission discussed with JRLLC their updated traffic and corporate financial and traffic projections from 1996 to 2003 containing the 1996 actuals sent to the Bank on March 11, 1997. During the review, the mission noted that the debt servicing schedule as forecasted by JRLLC was much higher than that calculated by the mission based on the debt repayment terms stated in the onlending agreement between MOF and the Government of Inner Mongolia (GIM). In addition, it became apparent that JRLLC was making its debt payments to GIM in yuan using the current Yuan/\$ exchange rate (Y 8.3/\$1.0). The mission pointed out that the company should not bear the foreign exchange risk as it was projecting based on its interpretation of the onlending agreement between MOF and GIM. Therefore, the mission revised the financial projections using the exchange rates applicable at the time of appraisal (Y 3.712/\$1.0 and SDR 1.0/\$1.36) as shown in the SAR, and further made changes to bring the projections in line with international accounting standards. JRLLC stated that the debt service assumptions should be made based on relevant domestic regulations. A set of tables reflecting the above has been provided to JRLLC. The mission will recommend that Bank management engage MOF to investigate the foreign exchange risk issue.

The mission reminded JRLLC that an audit of its 1996 railway operations would be due at World Bank headquarters by June 30, 1997. The mission recommends that the accounts be audited by an internationally recognized auditing firm in order to assist the company to upgrade its accounts to international standards.

JRLLC agreed that it will update its Report on Completion of Ji'ning-Tongliao Railway Project in Inner Mongolia—the Borrower's contribution to the ICR, which was

sent under a cover letter dated January 30, 1997, to incorporate 1996 actual data, and send it to the Bank by April 30, 1997.

The draft ICR, dated March 18, 1997, was reviewed with JRLLC. After clarifying discussions, it was agreed that several minor correction will be made in the report's next version. Shortly after the mission's return to Washington, a final draft ICR will be sent to JRLLC and the Ministry of Finance to obtain their comments.

APPENDIX B: BORROWER'S CONTRIBUTION TO THE ICR

REPORT ON COMPLETION OF JI'NING-TONGLIAO RAILWAY PROJECT IN INNER MONGOLIA

1. PROJECT OBJECTIVES

1.1 Project objectives have been reached. And generally objectives of Inner Mongolia autonomous government to develop economy for the regions along the line have been coordinated.

The project aims at linking the economy of east part and west part of Inner Mongolia, developing economy of the regions along the line, transporting coal from east to west, and connecting railway networks of the Northeast and the Northwest. After its completion, its initial (in the first five years) traffic would reach 7 million tonnes, and long-range traffic 17 million tonnes.

After preliminary acceptance test the project began to achieve revenue service on December 1, 1995. Under the ardent support of the ministry of railways (MOR), in 1996 the line carried 5.04 million tonnes of freight traffic. The first year of operation achieved 72% of the initial traffic volume of 7 million tonnes, which was fascinating in the transportation history of Chinese railways.

By the end of 1996 and with one year's operation, the project objectives for Ji-Tong Line was preliminarily met. In 1996's traffic carried, 1.52 million tonnes of traffic came to coal, which was one third of the total traffic. This was a good beginning, although east bound coal volume was not the majority of the total traffic because restrictions from the national railways had to be solved gradually. It was estimated that by the first half of 1997 the east bound coal traffic would rise significantly and meet its expected amount. By the way, 1995 saw the annual output of 16.4 million tonnes in Dongsheng coal mine, which could ensure sufficient supply for the initial objective of transporting 5 million tonnes of coal on Ji'ning-Tongliao line. And goods handled along the line amounted to 1.151 million tonnes, which was 22.8% of the total volume and in a certain degree stimulated the local economy. With the railway putting into operation, the line would play greater role in the region.

1.2 Generally, economy along the line developed at the same time as the line was put into operation. In order to develop local economy along Ji'ning--Tongliao line, at the beginning of 1993, headed by planning committee, Inner Mongolia autonomous government set out to investigate and plan for how to carry out local economic work, and held discussion meetings and seminars twice in 1995 and 1996. As the line opened to

traffic, development of local economy has begun. Following a report, the development mainly covers:

- a. At the time as the line being constructed, those local businesses beyond the freight line constructed 10 sidings by means of self-construction and self-use. In 1996, considerable part of traffic input and output along the line was handled on these sidings;
- b. Ulan cement plant, 30 km north of Benhong station which is the west terminal of Ji'ning--Tongliao line, has design capacity of 700,000 tonnes of high level cement. All enabling work was completed by the end of 1995 and construction started in the spring of 1996. It was expected to put into service by the end of 1997. The main part of its products will be transported to the central and east part of Inner Mongolia, with a small portion left for the west part itself;
- c. Huanggangliang tin iron mine, over 50 km northeast of Yuzhoudi station, has proved reserve of 100 million tonnes. The ministry of metallurgy has planned to exploit iron ore for year, which has not been realized due to lack of railway transportation. After the railway was constructed, the first phase project of the mine was put into operation in August, 1996, turning out 200,000 tonnes of iron ore and 100,000 tonnes of fined ore annually. The second phase, increasing output of 200,000 tonnes of iron ore and 100,000 tonnes of fined ore, is now under construction and will be put into operation by the end of 1997 or at the beginning of 1998;
- d. Ke'erqin oil field is now constructing crude oil handling siding at Sharinai station, and large quantity of crude oil will be shipped out;
- e. Proposed Daban power plant (first phase output of 1.2 million kW using West Mongolia coal, then the planned 2.4 million kW) has been reported to the State by Liaoning and Inner Mongolia, to be listed in the "ninth-five-year plan";
- f. Linxi copper mine and Balinzuoqi lead-zinc mine are now being expanded in large scale, and nonferrous metal base has entered the enabling stage in full swing; and
- g. Farming and animal husbandry product manufacturing and reserve exploitation in Qixian and other townships along the line, have developed into a new stage as the railway line being put into operation.

1.3 Proper project investment. The project construction was based closely on the principle that "concentrating on the core to ensure the completion of priorities" and the requirements of the national economic structure reform. Adopt open tendering for project engineering and material and equipment procurement and select suitable construction companies and suppliers through strict evaluation. Construct the line in conformity with design to ensure quality and guarantee the operation safety of facilities, and in principle

do not handle affairs of social function. Guarantee in all out the investment for material and equipment and minimize expenses. And squeeze the timetable to shorten construction duration as much as possible. Generally speaking, the project had less investment, early output and maximum profit.

Capital investment

Unit: RMB 1,000

Item	Original budget estimate presented to WB	Implementation (reviewed budget estimate)	Percent in the total investment (%)	Increase in implementation over original budget estimate	Percent increase (%)
Land acquisition	12,770	19,520	0.92	6,750	52.85
Resettlement	17,790	25,480	1.20	7,690	43.23
Building materials	309,330	521,100	24.58	211,770	68.46
Track materials	230,070	439,650	20.73	209,580	91.09
Building equipment	20,360	33,800	1.60	13,440	66.02
Signaling equipment	140	2,000	0.09	1,860	1,328.57
Rolling stock	37,600	136,560	6.44	98,960	263.19
Building expenses	602,130	752,830	35.50	150,700	25.03
Training fee	2,550	6,500	0.31	3,950	154.90
Others		182,890	8.63	182,890	100.00
Total	1,232,740	2,120,350	100.00	887,610	72.00

Note: 1. In original budget estimate, signaling equipment would use old arm signals replaced from the national railways; however, in construction, brand new arm signals are generally used.

2. The building expenses, totaling RMB 148.87 million, consist of survey and design expense RMB 24.24 million, administrative fee RMB 29.50 million of the owner, integration testing fee RMB 48.16 million, RMB 36.85 million for greening and desert control, RMB 10.12 million for insurance, disaster response and supplementary projects, as well as the payment for building contractors.

3. Other expenses consist of interest commitment of the World Bank loan RMB 180,730, interest of domestic loan RMB 1,760,000 and adjustment tax of domestic investment RMB 400,000. They are not included in the original budget estimate proposed to the World Bank, which had been thought to be covered by Inner Mongolia finance, and not changed until in 1993 in the reviewed estimate they were paid by investment means.

1.4. In 1989, the budget estimate proposed to the World Bank amounted to RMB 1,232.74 million covered by the World Bank loan, a equivalent of RMB 557.00 million and domestic investment of RMB 676.00 million. Twice adjustments have been made due to domestic inflation and variation of exchange rate, therefore the final estimate amounts to RMB 2,120.35 million, composed of the World Bank loan, a equivalent of RMB 894.03 million and domestic investment of RMB 1,226.32 million. The reviewed estimate was added RMB 887.61 million over the original one, up 72%, in which the World Bank loan increased a equivalent of RMB 337.03 million due to change of exchange rate, up 60.5%, and domestic fund increased RMB 550.32 million, up 81.4%.

The increase involved these incomparable factors, i.e. other expenses of RMB 182.89 million which was not included in the original estimate, but actually used; newly added projects valuing RMB 58.70 million; and integration testing of RMB 48.16 million. The updated estimate increased only RMB 597.86 million over the original one after allowing for the above three factors, up 48.5%, which was far lower than the domestic inflation index in the construction period, and moreover lower than the increase rate of the reviewed estimate of other railways at the same period.

1.5. Now compare the final estimate with the original one, taking 48.5% as the average increase rate. It shows that the increase rate of investment on materials and equipment exceeds the average rate. The expenses of land acquisition and resettlement involve lots of changing factors, but its increase rate was lower than the average. And many measures were taken to reduce building expenses, such as:

- a. transportation of building materials from unloading station to the construction site by means of self-organized trucks reduced transportation fee, related management fee and indirect expenses;
- b. In the twice estimate adjustments, building expenses were not changed generally, especially such two items as other engineering expenses (compensation for winter construction, compensation for construction at windy and dusty area, compensation for construction in rain season and expenses for construction site formation) and temporary engineering fee, included in indirect expenses, so that original estimate was RMB 95.23 million and actually only RMB 62.19 million was appreciated to the construction contractors, reducing RMB 33.05 million; and
- c. Except items procured through tendering, other materials and equipment were purchased through internal channels to cut management fee and indirect fee of construction contractors.

The increase rate of building expense is 25.03% only, much lower than the average rate, and only up 17.03% after allowing for the integration testing fee of RMB 48.16 million excluded in the original estimate.

1.6. In construction of the domestic railways, including Bao-shen line and Da-zhun line in Inner Mongolia, expense of land resumption reach more or less 10% of the total investment of railway construction, and in some cases they are so high that it closes to 20%. However, thanks to the great support from every level of government in Inner Mongolia and local people along the line, the expense of land resumption of Ji'ning-Tongliao line amounts to 2.12% of the total investment, which was unique in the country.

1.7. The investment on Ji'ning-Tongliao line was small, due to holding on the principle of construction of Ji'ning-Tongliao line, implementing the philosophy of the State economic reform and controlling strictly the increase of expenses. As for the increase on investment, availability of materials and equipment expenses were secured, building fee was confined and thanks to the support of local government and the public

the expenses of land resumption was minimized. In a word, the investment on Ji'ning-Tongliao railway project was very rational.

2. ACHIEVEMENT OF OBJECTIVES

It is always the objectives of construction and operation to serve for and promote economy development.

2.1. After Ji'ning-Tongliao line achieved revenue service, its primary goal has been to provide rapid, safe and low-fare transportation service for passenger and freight traffic.

On the line are mainly running through trains with little classification operation. Without much delay in marshaling yard, the traffic between Northeast and Northwest can travel in shorter time than on other lines.

Safety is vital to railway operation. The company set "safe production" as the priority of all work to secure the railway operation.

In terms of reasonable pricing for the objective of providing low cost transportation, after many discussions the company determined that not only self economic benefit but the shippers' economy should be considered to help to participate in the competition under the market economy. With this principle, the fare system of the line was determined after approval of the company's report. The fare is set not according to category of commodities, and the base price per tkm is RMB 0.10 and can be fluctuated 20%. At present lower fare is executed, that is, the through traffic per tkm is charged RMB 0.08, and the self-operated traffic per tkm RMB 0.10. Taking coal as an example, under current pricing system, traveling by the original route specified by the national railways from Ji'ning, via Shacheng, Fengtai, Shuangqiao, Longhua, Chifeng, to Tongliao, totaling 1,344 km, the goods will be charged RMB 91.56, whereas by Ji'ning-Tongliao line from Ji'ning, via Benhong and Tongbei, to Tongliao, totaling 994 km, RMB 85.70 will be charged, shortening 350 km in distance and reducing RMB 5.86 in tariff. Shenyang is the dividing point in the second traffic diversion which was implemented in June. Calculation on this basis shows that by the original route of the national railways from Ji'ning, via Fengtai and Shanhaiguan to Shenyang, totaling 1,313 km, the charge is RMB 90.66; while by Ji'ning-Tongliao line from Ji'ning, via Benhong and Tongliao, to Shenyang, totaling 1,310 km, the charge is RMB 100.40, 3 km in distance shortened with charge up RMB 9.74. From the above comparison, by route of Ji'ning-Tongliao to Jilin, Heilongjiang and east of Inner Mongolia, both the trip and the fare are cut, and to south or east of Shenyang, the fare rises a bit. Compared with other lines, by Ji'ning-Tongliao line, the through traffic per tkm amounts costs RMB 0.08, much lower than such national lines as Datong-Qinhuangdao, RMB 0.108 and Tong-Huo, RMB 0.109, Bao-Shen of Shenhua company, RMB 0.12 and Da-Zhun of Zhunger coal mine, RMB 0.10, and even more lower than local railway fares ranging from RMB 0.12 to RMB 0.16.

2.2. A spur to local economic boom.

Around this objective, the company has finished a large quantity of work from the beginning of railway construction. In construction tendering, the bidding companies were made clear that except the ends of bridge, subgrade earthwork, culverts and residential buildings would be constructed at the offered price by local labors organized by local authorities, in a certain degree, from which Qixian can benefit. Railway operation staff are composed of some backbones transferred from the national railways, a number of new workers recruited from the local county--Qixian, and logistic administrative staff transferred from sectors outside railway, taking positions after training. The recruitment has played a significant role in solving unemployment problem of Qixian and increased incomes of local people. After the line achieved revenue service, annually over a thousand seasonal workers are needed mainly for track maintenance and employed in situ. At the same time of track construction, it was approved to connect ten enterprise sidings with the line to spur local economic development, which has never happened in other railway lines. From the beginning of its operation, the railway company set out to transport local coal to the east by means of company-owned cars, which stimulates the exploitation of coal in the west as well as supplies low price coal to local people. In a certain degree, the line promotes the economic development of Inner Mongolia region.

Cordial service and reasonable fare must bring development of local economy, especially farming and animal husbandry product manufacturing and reserve exploitation.

- a. A self analysis report from Balinzuoqi Aluminum-zinc mine shows that its annual output of fined ore is 75,000 tonnes, annual reduction on transport and defect expenses is more than RMB 9 million when transported by way of Ji'ning-Tongliao line replacing the original means of being transported by truck to Chifeng then interchanged by trains;
- b. As for commercial coal supplied for local people (lump coal of Datong), before the open of Ji'ning-Tongliao line, the coal price is RMB 370 per tonne; after its open, RMB 220-240 per tonne, down RMB 140 per tonne. If consuming 100,000 tonnes annually, RMB 14 million will be saved in purchasing coal;
- c. In the 1970s and 80s, metallurgical departments had planned to exploit Huanggangliang tin-iron mine, it was not achieved until the railway was open; and
- d. Ferrous and non-ferrous reserves along the line will be exploited in large scale and then transported outside, and the farming and animal husbandry product manufacturing will be developed to a new stage with the open of the railway.

In a word, gradually the objective to spur the local economic development will be realized.

2.3. During the enabling and construction period for Ji'ning-Tongliao line, board of directors was organized by Inner Mongolia autonomous government and MOR, under which Inner Mongolia local railway corporation was established, facilitated by offices responsible respectively for administrative affairs, planning, financing, construction technology, material supply, construction supervision and personnel, and three steering committees, which has taken fully responsibility to project enabling activities and construction. When the railway was near completion, in order to meet the requirements of revenue service and the "corporation act" issued by the State, after negotiation between MOR and Inner Mongolia government, in May, 1995 Inner Mongolia railway liability company limited and its board of directors were established. And in July, 1995 the company, in charge of railway operation, was formally open, overtaking all staff and assets of the original Inner Mongolia local railway corporation to prepare for open to traffic. The company set up offices for administration, permanent way, locomotive, rolling stock, signaling & communication, transportation, planning, financing, construction technology & supervision, personnel & labor wages, chief engineer and safety inspection, material supply, and sales subsidiary and logistic & hygiene subsidiary. At the same time, on the line two agencies were established at Baqi and Daban as well as 12 specialized technical depots. Over 1,200 staff were transferred from the national railway and over 500 from the local sectors, more than 4,000 personnel were recruited and have taken their position after training, and over 500 national railway personnel were employed. Altogether there are more than 6,200 personnel.

A self contained economic entity has been established, independent in management, assuming sole responsibility for profit or loss, self constrained and self developing. Its operation is under uniform control of MOR for transportation linkage. Agreements signed with other railway administrations and sub-administrations are used to handle expenses settlement. And it is capable of undertaking designed initial traffic. In 1996, traffic carried had amounted to 5.04 million tonnes.

3. IMPLEMENTATION RECORD AND MAJOR FACTORS AFFECTING THE PROJECT

3.1. Technical specification

Item	Design	Implementation	Remarks
Class of line	1 class	1 class	
Track number of main line	single	single	
Minimum radius	normal: 800 m exceptional: 400 m very exceptional: 350 m	normal: 800 m exceptional: 400 m very exceptional: 350 m	
Traction type	steam locomotive	steam locomotive	
Locomotive type	Qianjing	Qianjing	
Maximum gradient	6‰, 12‰ (two locomotives)	6‰, 12‰ (two locomotives)	Two locomotives used on the section between Haoluku and Linxi
Traction rating	2,800 tonnes	2,500 tonnes	Test shows the old locomotives provided by MOR can not haul 2,800 tonnes
Useful length of receiving track	700 m	700 m	
Blocking mode	Relay semi-automatic	Relay semi-automatic	
Communication	Overhead open wire	Overhead open wire	
Rail	Old 43 KG rail	New 50 KG rail	
Sleeper	No. 69 reinforced concrete, 1,600/km	No. 79 reinforced concrete, 1,600/km	
Thickness of stone ballast	30 cm	30 cm	
Large- and medium-sized bridge	Allowing flow of flood occurred every 100 years	Allowing flow of flood occurred every 100 years	
Small sized bridge	Allowing flow of flood occurred every 50 years	Allowing flow of flood occurred every 50 years	

3.2 Completed quantity of works

Item	Unit	Quantity in original design	Completed quantity	Change	Remarks
1. Subgrade earthwork	10,000 m ³	5,125.5	5,148	+22.5	Increase due to change
2. Viaduct & culvert					
Large viaduct	total meters/sets	6,337.9/29	6,479.9/30	+142/+1	The original medium sized Heishui No. 1 viaduct changed into a large one.
Medium viaduct	total meters/sets	3,037.6/43	3,055.1/44	+17.5/+1	The small sized Sanjiazi viaduct at Shijiaduan changed into a medium one.
Small viaduct	total meters/sets	1,226.7/51	1,153.7/48	-73/-3	Change of design
Culvert	total meters/sets	23,604/1,322	24,375.8/1,303	+771.8/-19	
3. Tunnel	total meters sets	2,569/7	2,566/7	-3/0	
4. Main line track laying in tunnels	km	936.719	936.719		
Track laying at stations	km	135.343	135.343		
Switch laying	km	426	441	+15	Rails connected at the both sides
5. Station		50	50		
Section station		6	6		
6. Communication works:					
open wire	km	1,085.506	972	-113.506	Some of section changed into cable
Communication station		6	6		
Communication repeater		6	6		
7. Signaling	station	50	50		
Lamp indication signal	station	10	10		
8. Electric works	station	27	41	+14	In design phase no power supply, but in construction phase, power supply installed.
Power line	km	246.772	282.211	+37.468	
9. Water supply system:					
Locomotive water supply station		15	15		
Water supply station for living quarter		1	2		
10. Locomotive plant: capable of inspection and repair					
Section station		2	2		
Turn-around depot		4	4		
Coal feed point		1	1		
Helper maintenance station		1	1		
11. Rolling stock equipment:					
Car operation depot		1	1		
Car foreman depot		6	6		
12. Building	m ²	194,979	215,356	+20,377	Add more staff houses

3.3. During railway construction, under the firm leadership of the company, each project was basically completed on time and quality was guaranteed, and railway construction was accomplished on schedule. With the leadership and vigorous support of

Inner Mongolia government and MOR, the company carried out work in accordance with policy decisions made by board of directors. At the beginning of construction, leadership to construction technology division and to construction supervision division was strengthened, chief engineer and assistant chief engineer were provided, and help from national railways and different local departments was asked to provide engineering technical people specialized in lines, bridges & tunnels, tracks, signaling & communication, water supply, civil engineering and so on. These technical people were transferred here from their original posts if they can be, or were engaged or invited for a period of time if vice versa to enhance engineering technical capability and to guarantee engineering technical quality and charge on inspection. At the same time, 3 construction command offices were established along the line. Each command office was then divided into several engineering supervision groups, for example, 5 engineering supervision groups were set up respectively under command offices for east and west sections, and as for command office for middle section, because of complicated line situation, concentration of most high bridges and all tunnels in this section and short distance of administration (150 km of railway and 120 km of highway), 12 supervision engineers were mustered in the command office for uniform actions under the leadership of supervision section. The main tasks of command offices were to proceed engineering supervision, and at the same time to coordinate the relationship between local government and construction companies and to help solve problems of construction companies in daily life. In order to facilitate work, command offices and supervision groups were all equipped with transport tools such as automobiles which played a remarkable role to guarantee construction time and engineering technical quality. The Company also carried out two major inspections of engineering quality every year to ensure engineering quality.

3.4. Procurement: Assessment and Actual Status of Procurement with World Bank Loan are as follows:

Project	Assessment (USD10,000)	Actual status (USD10,000)	Increase and decrease (USD 10,000)	Remarks
Construction materials	4,980	5,689.1	+7,091	Including steel, timber, cement, cables, hard copper wires, iron wires and electrolyzed copper
Rail materials	5,910	4,234.9	-1,675.1	Including rails, switches, timber sleepers and track components
Equipment	410	2,238.3	+1,828.3	Including automobiles, rail freight cars, cranes, loaders, communication equipment and test gauges
Materials procured by domestic invitation for bids	1,740	1,966.3	+226.3	Including concrete sleepers, detonators, explosive, sulfur, bridge beam pieces, masts, rubber pads and stone ballast
Direct procurement	630	900	+270	
Quantity contingency	380			
Price contingency	950			
Total	15,000	15,028.6	+28.6	

3.5. Six international invitations for bids were carried out from March, 1991 to October, 1996, with procurement cost of USD 121.623 million, and four domestic invitations for bids were carried out, with procurement cost of USD 19.663 million. Direct procurement cost was USD 9 million.

3.6. Tracks were laid in east and west sections in parallel in August of 1991, with total length of 403 km. Since the concrete sleeper factory which was awarded with the contract failed to supply products in time (actually not able to manufacture), with approval of World Bank, a domestic limited competent invitation for bids was carried out, and in consequence, 523,071 sleepers were procured with procurement cost of USD 4.666 million, and track laying plan of that year were realized.

3.7. According to procurement plan, procurement should be completed by 1995. World Bank had approved the awarded bidder for 150T cranes in the fifth bid, and duplicate of the contract had been submitted to World Bank; however, 4 months later, after supplier had completed manufacturing and delivered the products to the port of embarkation, the World Bank brought forth objections and disapproved the awarded

bidder as supplier; therefore, (1) our company had to be responsible for a large amount of work for termination of the contract and a big economic loss for compensation of USD 200,000; and (2) procurement time was prolonged by one year with the result that our company had to spend more manpower and material resource.

3.8. Actual status of procurement was quite different from assessment on the whole. The reason was World Bank assessed the price of rails for construction at international price of USD 450/t of that time, but during actual bidding, domestic bidder bade and won the bid at domestic price of USD 300/t, and as a result, procurement cost of rails was saved greatly (Assessed cost was USD 48 million, but actual cost was only USD 32.82 million, and almost USD 16 million was saved). Therefore, the World Bank agreed to increase World Bank loan for equipment.

3.9. Engineering Expenses

Besides World Bank loan, the completion of the project on schedule also gave credit to punctual availability of domestic funds based on reviewed budget estimate and yearly plan.

Status of fund resources:

Unit: RMB 10000 yuan and USD 10000

Investor	Assessed budget estimation	Reviewed budget estimate	Allocated funds	Percentage of allocated funds
Total	123,300	212,035	215,766	100
MOR	36,300	64,360.5	64,360.5	29.83
Inner Mongolia government	31,300	58,271.5	58,271.5	27.01
World Bank loan	55,700	89,403	93,134	43.160
(USD)	15,000	15,000	15,028.6	

Notes: 1. In order to guarantee proper operation of railways, MOR and Inner Mongolia government reached another agreement to invest initial current capital of RMB 25 million yuan respectively. MOR had appropriated RMB 25 million yuan in 1995, but RMB 25 million yuan of Inner Mongolia was not available yet.

2. During railway construction, according to actual status of railway construction and domestic price fluctuation, two reviews of budget estimate of investment were carried out, with a increase of RMB 887,350 yuan, of which RMB 33,703 yuan caused by change of domestic exchange rate of World Bank loan, and RMB 550,320 yuan because of domestic increase.

3. Actually available funds of World Bank loan amounted to an equivalent of RMB 931,340 yuan, RMB 37,310 yuan more than funds of RMB 894,030 yuan determined by reviewed budget estimate. Because of the problems of construction company in settlement of account, projects were not determined, and the increased part of funds were not put into engineering project yet and needed to be arranged.

Although two budget estimate reviews were carried out for the construction of Ji'ning-Tongliao line, its investment was low compared with other domestic railway construction within the corresponding period from the view of reviewed budget estimate. That was not only because construction conditions were not so difficult, but also because of strong support of Inner Mongolia governments of each level and of local people along the line, and because of great effort and efficient work management of leaders and employees of construction companies.

Analysis on Project Expenses

Unit: RMB 10000 yuan

Project	Budget estimate provided to World Bank	Actual status	Increase and decrease	Remark
Land acquisition for construction	1,277.1	1,952	+674.9	
Relocation	1,779.2	2,548	+768.8	
Cut and fill for foundation	16,334.7	34,695	+18,360.3	
Bridges & culverts	8,908.7	19,664.1	+10,755.4	
Tunnels	1,630.9	3,390.1	+1,759.2	
Tracks	22,502.8	54,896.2	+32,393.4	
Communication & signaling	2,291.8	5,050.5	+2,758.7	
Power supply	668.8	3,460.4	+2,791.6	
Houses	5,145.1	13,978	+8,832.9	
Other operation equipment and buildings	3,175.6	7,264.5	+4,088.9	
Other project cost	3,922.6	2,813.9	-1,108.7	
Temporary project cost	5,602.8	3,362.9	-2,239.9	
Design and management cost	4,220.6	6,239.9	+2,239.9	
Personnel training cost	180.7	605.1	+424.4	
Procurement cost of rolling stock	3,760	13,299	+9,539	
Other cost	8,157	20,202.2	+12,045.2	
Price contingency	26,426.2			
Quantity contingency	7,290			
Loan interest during construction		18,573	+18,573	
Tax		40.3	+40.3	
Total	123,274	212,035.2	+88,761	

Notes: 1. Other engineering cost for construction companies were additional expenses for construction in winter time, in windy and dusty area and in rainy season, and for construction site formation.

2. Actual amount of other cost: (1) expenses for relocation of construction sections of construction companies, subsidy to transport of food staff for constructors, labor and hygiene care expenses, interest expenses of construction companies, increased expenses of short distance railway transportation and profit, altogether RMB 125,682,000 yuan; (2) subsidy of RMB 18.051 million yuan for capacity expansion of power supply; (3) RMB 48.16 million yuan for joint test run; (4) RMB 10.125 million yuan for insurance and disaster compensation.

Actual engineering cost was RMB 887.61 million yuan more than assessment, and main reasons for that were as follows:

1. The following items were added: a rescue train of RMB 7.8 million yuan, track circuits of RMB 5.46 million yuan, power supply of RMB 4.5 million yuan at place where there was no power station, one section of material factory of RMB 8.245 million yuan, one section of ballast factory of RMB 10.391 million yuan, 20000 m² of employee residential area of RMB 17.36 million yuan, three sections of epidemic prevention station of RMB 8.805 million yuan, and altogether RMB 62.56 million yuan.
2. In order to prevent railway foundation from being blown away by wind or being buried by sand, cost of RMB 46.85 million yuan for sand-control and afforestation was added to plant trees and grass and to build snow wall and fences.
3. Interest of World Bank loan during construction was paid by an investment of RMB 185.73 million yuan instead of being paid for by Inner Mongolia financial department as it used to be.
4. Ten more locomotives were added, from planned 82 to 92; 302 more gondolas were added, from originally planned 178 to present 480; altogether RMB 55 million yuan.
5. More offices and residential houses of 28000 m² were built and procured in Huhhot area with RMB 36.06 million yuan.
6. 180 km of power supply through line of RMB 16 million yuan was added in no power supply area to guarantee power supply for safe operation of signaling.
7. There was no cost for joint test run in original budget estimate, but actually it cost RMB 48.16 million yuan.
8. 120 more automobiles of various kinds of RMB 11.3 million yuan for freight and passenger transportation were procured to meet the needs of operation.
9. Expenses caused by the change of quantity of engineering amounted to RMB 133.294 million yuan, and RMB 60.394 million yuan was overspent compared with engineering quantity contingency in original budget estimate.
10. RMB 15 million yuan more was added for land acquisition and relocation.
11. Increase of design and management cost was RMB 20.2 million yuan.
12. Engineering insurance and disaster compensation cost was RMB 10.125 million yuan.

13. Domestic price fluctuation of every year during construction resulted in RMB 613.71 million yuan. RMB 349.46 million yuan was overspent except price contingency of RMB 264.24 million yuan in original budget estimate.

14. RMB 33.47 million yuan was saved in other engineering cost and temporary engineering cost.

15. RMB 4.244 million yuan more was added for personnel training mainly because new sections were set up by the company, and there were no classroom or teachers, and new trainees had to be entrusted to existing schools of national railways for training with relatively high training cost. Although new trainees bore 50% of training cost besides their board expenses, still RMB 4.244 million yuan more training cost was added.

3.10. Status of Personnel Training

No.	Training expertise	Number of people	Graduated and on duty	People in school	Training period	Remark
1.	Crew on steam locomotive	921	773	148	2 years	81 people to graduate in Jan., 1997 67 people to graduate in Apr., 1998
2.	Bench worker on steam locomotive	172	101	71	2 years	38 people to graduate in Jan., 1997 33 people to graduate in Apr., 1998
3.	Mechanical bench worker	50	50		2 years	
4.	Transport	1106	933	173	1 year, 330 2 years, 776	125 people to graduate in Jan., 1997 48 people to graduate in Apr., 1998
5.	Lines and bridges	1168	1168		1 year, 831 2 years, 337	
6.	Industrial and civil construction	111	111		2 years	
7.	Communication worker	266	228	38	2 years	To graduate in Apr., 1998
8.	Signaling worker	180	180		2 years	
9.	Vehicle bench worker	322	284	38	2 years	To graduate in Jan., 1997
10.	Water supply and drainage	49	49		2 years	
11.	Electrician	138	138		2 years	
12.	Laboratory technician	20	20		1 year and half	
13.	Police	85	85		2.5 years	
14.	Accountant	47	47		2 years	
15.	Doctor trained in Chinese or Western medicine	55		55	3 years	To graduate in July, 1997
16.	Statistics	15	15		2 years	
17.	Pressure vessel	5	5		2 years	
Tota		4,710	4,187	523		

Personnel establishment of the company were 8,567 people for short-term transport volume (7 million t). In order to meet the requirement of operation, not only graduated trainees were on duty, but also a backbone team of 1,250 people was transferred in from national railways, and 538 people from local enterprises, altogether 5,975 people. And 566 people from national railways were engaged, and 1,700 casual labors (including seasonal labors) were hired for line modification in July and August or as cook for some

department. Engaged personnel from national railways were retired technical backbones. After trained personnel became experienced through practice, the number of employee were reduced gradually. Most casual labors were seasonal labors, and number of them was large in railway modification season from May to October every year, and small from November to April of the second year. Therefore, present number of company personnel can meet the requirement of present transport volume.

4. PROJECT SUSTAINABILITY

4.1. Areas along the line are economically backward, but along with the start of railway operation, economic development will be remarkable: (1). Processing industry of side products of agriculture and animal husbandry industry, one of the mainstays in Inner Mongolia area will develop rapidly; (2). Development of metal and non-metal mineral industry along the line will enter a new stage; (3). Capacity of power supply along the line will increase greatly, and future of economic development is very promising. Transport volume along the line in 1996 was 1.15 million tonnes. Transport volume of 1997 will be 1.46 million tonnes. Economic development along the line will lead to large transport volume of Ji'ning-Tongliao line.

4.2. First diverting meeting for Ji'ning-Tongliao line was held by MOR in October, 1995, with the result that freight between Tongliao and northeast area, and between area to the north of Siping and northwest area is transported on Ji'ning-Tongliao line. The second diverting meeting was held in May, 1996, with the result that diverting point was changed to Shenyang from June, and freight between area to the north of Shenyang and northwest area (Huhhot, Lanzhou and Urumqi Railway Administrations) is transported on Ji'ning-Tongliao line. Coordination meeting for diverting of freight transportation was held in August of 1996. Through above mentioned work by MOR, freight diverted to Ji'ning-Tongliao line amounts to 350000-400000t per month. At present, manufacturing amount of Dongsheng Coal Field in west Inner Mongolia depends on transport capacity. In latter half of 1996, 150,000-200,000t coal was transported from west to east every month, and 2.20 million tonnes of coal is expected to be transported in 1997. Later, with the development of transport, coal transport volume from west to east will increase in fast speed. The future of total transport volume of Ji'ning-Tongliao line is very promising.

4.3. Although the year of 1996 is the first operation year of Ji'ning-Tongliao line, operation income of that year was RMB 350 million yuan, able to guarantee regular operation expenditure. It is expected to pay interest of World Bank loan of the year basically as well as to guarantee regular operation expenditure in the year of 1997, and in 1998, it is expected to be able to pay principal and interest of World Bank loan of the year. In 2000, financial capacity of the company can afford expanded reproduction.

4.4. There is still a lot of work for Ji'ning-Tongliao line to do to develop from short-term transport volume of 7,000,000t to long-term one of 17,000,000 t. 51 more stations will be built, more tracks will be built in existing 50 stations, the length of passing tracks of stations and length of platforms will be extended, foundation of more than 400 km will

be widened, semi-mechanization and mechanization of track maintenance will be realized, some sections will be modified, lamp indication of signaling will be realized, program control of communication will be realized, power supply through line for the whole line will be built, diesel locomotive will be adopted gradually, ability of inspection and repair of rolling stock will be strengthened, more buildings will be built, and with the development of science and technology, personnel need training and new knowledge shall be learned; to calculate in terms of present price, about RMB 1.3-1.4 billion yuan has to be invested. These work does not request investment once and for all as construction of a new railway does, instead, work will be done step by step with the increase of transport volume. During the first 4 years of railway operation, depreciation charge of more than RMB 100 million yuan will be obtained every year for gradual modification year by year, from the 5th to the 10th year of railway operation, RMB 200 million yuan including depreciation charge will be invested every year for large-scale upgrading, and in the 10th year of railway operation, long-term transport volume of 17,000,000 t will be realized without any problems.

5. BANK PERFORMANCE

5.1. Initiative, carefulness and sincerity of World Bank staff put in their work of project establishment, pre-assessment, assessment, negotiation and signing of loan agreement show their conscientiousness not only for World Bank but also for the project. Deep and careful study on feasibility of the project was carried out, and careful and painstaking study on and comparison with other alternative transport means and alignments of the line were undertaken. Field investigation and research of origin and sales place of main goods to be transported, and of social impact and environmental protection were performed. Requirement about investment and production capacity of Dongsheng Coal Field was brought forth, materials for construction and equipment procurement were reviewed carefully, and deep discussion about domestic supplementary funds was undertaken, requesting a guarantee for domestic supplementary funds. These work played an important role in promoting the completion of the project on schedule. After Loan Agreement took effect, the World Bank cooperated actively in material and equipment procurement and in appliance for supplementary payment to guarantee the completion of construction on schedule. Two inspections per year are very helpful to us, calling our attention to some special items, so that we are able to take measures to solve problems in time.

5.2. Through preparation and implementation of the project by the World Bank, we feel it is necessary to discuss the following three points.

- Preparation time for the project is too long. It took three years from the project establishment to effecting of loan, and altogether it was four years including the time for domestic permit applying. The procedure is correct, which should not be simplified or cut down, but it can be squeezed in shorter time. If time is shortened to two years from project establishment to effecting of loan, it will be very beneficial to project cost and to project arrangement.

- Complicated and long time procurement procedure is disadvantageous to project construction. It took more than eight months from bulletin of invitation for bids for project procurement being carried on newspaper to arrival of materials and equipment, and submission to the World Bank for review had to be carried out many times. If Loan Agreement of the project took effect in November of 1989, construction was opened formally in June of 1990, and contract of material procurement (steel, timber cement, etc. needed urgently for construction) was signed in March of 1991, products would begin to arrive in June of 1991. Therefore, we had to do part of procurement with domestic funds first, and materials of construction companies had to be used first. And it is worth discussing whether to shorten procurement time to guarantee material supply for construction.
- For the fifth invitation for bids of the project, all the procedures were carried out in a regular way, but four months after submission of the contract and approval by the World Bank (Supplier had completed equipment manufacturing and delivered the products to port of embarkation.), a sudden telex announced that the contract was not invalid, and we had to negotiate with supplier and indemnify USD 200,000, which brought unnecessary loss to the project and increased project construction cost.

6. BORROWER PERFORMANCE

6.1. Leadership of government of borrower is correct. Policy decisions of board of directors of borrower are prompt, leadership of borrower companies is strong, personnel are conscientious, and construction team awarded with the contract is qualified. Before Loan Agreement took effect, with a small number of personnel, paper materials for pre-assessment, assessment and negotiation were prepared punctually and carefully, preparation for land acquisition was performed efficiently, bid evaluation of survey design was undertaken, and after survey design company was appointed, preliminary measurement and design, and final measurement and construction design were carried out in a cooperative way that all the design was completed by the end of 1988, including all construction drawings. On the basis of all these work, bidding for construction was invited, contract was awarded subsequent to evaluation, and permit of the government for construction was applied promptly afterwards. When the Loan Agreement began to take effect, report was submitted to relevant governmental departments to obtain permit for construction as soon as possible, negotiation with construction companies was undertaken, construction contract and subcontract were signed, material procurement at the beginning of construction and material procurement with World Bank loan through bidding were arranged, and at the same time land acquisition and relocation were carried out. The State issued permit for construction in May of 1990, and construction was started formally in June of 1990. In addition to large amount of supply of construction materials, yearly construction plan was made in time, construction management people were organized on time to guarantee charge on quality supervision and inspection of construction, to coordinate the relationship among each side, and to take punctual

measures to solve problems encountered. Command offices were set up on construction site, and what's more, during construction, most people of the company went to construction site during golden construction period of each year, mostly from May to October. Leading members of the company spent five months on average every year in construction site in promoting inspection and instruction, in coordinating work among each side, and in solving various problems encountered in time. Endeavor and conscientiousness put into the work played an important role in promoting the completion of railway construction on schedule.

6.2. After preparation and beginning of construction, there were two main problems which delayed the start of construction and prolonged construction time to some extent.

- Loan for this project was approved by the board of directors of World Bank on May 12, 1989, Loan Agreement was signed in September and took effect in November, and construction should be started in April of 1990; however certain procedures were required to obtain domestic permit for construction, and check and approval in previous years usually were carried out in latter half of the year, therefore, although the company submitted the report to apply for start of construction at the beginning of 1990 in the second half of 1989, because of above mentioned reasons, the report was not approved in time. However the leaders of the company reported three times to relevant governmental departments, stating reasons and benefits of starting constructions, and State made an exception in approving the start of construction on May 22, 1990. Although construction companies were urged to be ready for formal construction on June 20, start of construction was still delayed by two months resulting in prolonged construction time.
- Track laying of 151 km in the middle section of the line—from Haoluku to Linxi should be completed by the end of 1993. However, because arrangements and construction measures were not carried out properly by the construction company—the fourth division of the 13th Engineering Bureau of MOR, and also because the section was located in very cold area and characterized by large number of high bridges and complicated radius of curve, only 70 km of track laying was completed by December, the laying of the remained 80 km of tracks would be more difficult. Construction companies suggested that track laying was stopped for that year and would resume from April of the next year. Leading members of the company held meeting at site and carried out investigation and study again and again for this issue, and concluded that track laying in very cold winter time was really difficult, but stop of track laying would prolong the whole construction time by one year with the result of enormous loss. Therefore, the company decided to assist construction company in undertaking properly various technical and winter construction work, for example, machinery and constructors were kept out of cold and quilts and clothing were provided, and great attention was paid to board and lodging of constructors, and especially, when self-equipped

generator of bridge erector failed because of coldness, transformer connecting with local high tension wires was installed on automobile to supply power through cables to bridge erector. The construction team was touched by these effort and determined to continue track laying and bridge erecting in spite of bitter coldness. Although whole construction time was affected, track laying of the whole section was completed finally on May 4, 1994, and the whole line was connected through.

7. ASSESSMENT OF OUTCOME

The implementation of this project is successful, and evaluation of leaders of the State is: cost-efficient investment (average cost is RMB 2.2 million yuan per kilometer), short time (it took more than five years from start of construction to opening of operation of railway of 945 km in very cold area), and good quality. The goal of construction has been reached, and Ji'ning-Tongliao Line has become continental bridge connecting northeast, North China and northwest of China. "West coal transported to east" has been started, beginning to promote and bring along economic development along the line. To summarize, the construction goal of project of Ji'ning-Tongliao is fundamentally realized, and a promising prospect is expected.

ANNEX 1: FINANCIAL ANALYSIS

1. The evaluation of the Inner Mongolia Ji-Tong Railway Limited Liability Company's (JRLLC's) actual financial performance to date and projections through 2003 is presented below. Figures in parenthesis show actual numbers stated in the SAR or the assumptions made in 1988/89.

Introduction

2. Although Inner Mongolia Local Railway Corporation (IMLRC) had been established legally by the time of appraisal, it was not operational as an enterprise, except for an office to oversee construction until July 1995, when a limited liability company (JRLLC) was established. JRLLC's core staff was paid and its expenses met by advances from GIM and MOR. Accordingly, the SAR financial analysis was prospective and focused on the elements which were judged as likely to assure a sound financial position for this new company once it began operations in 1995 (1993). JRLLC was seen as having the opportunity to use its relative autonomy and favorable demand prospects to build a financially strong and efficiently managed company.

Capitalization

3. The contributions by GIM and MOR to the total investment in the project represent their equity shares in JRLLC. Thus, JRLLC was capitalized initially at about Y 1,226.3 (810) million, although the business license records paid-in capital of Y 800 million with MOR having 52.5 percent and GIM 47.5 percent of ownership. The ratio was established on the portion of funds provided by each partner towards the construction costs. By the third-quarter of 1997, accountants will determine the final value of the line assets at the time of acceptance and record resulting changes in the equity valuation. On this basis, the final share distribution between MOR and GIM will be decided. In addition, GIM financed interest during construction and debt service during the first full year of JRLLC's operation. This healthy equity contribution provided strong capital for the company and has left it with a low debt to capital ratio. No dividend distributions are planned. The financial backing by GIM and MOR was indicative of the priority placed on this project because of the anticipated economic benefits in respect of coal transport and development of regional economic activities and trade.

Traffic

4. The Ji-Tong line was built for an initial capacity of 7 million tons per year in each direction. In the first year of full operations, traffic buildup has been faster than anticipated and capacity utilization is currently about 60 percent. However, JRLLC's current traffic volume forecast is between 25 and 48 percent lower for freight traffic and

85 and 90 percent lower for passenger traffic than forecasted in the SAR. In addition, JRLLC's current annual growth rate projections are lower than originally expected, ranging between 11 percent and 4 percent (15 percent) over the projection period, primarily due to line capacity constraints. JRLLC intends to incrementally expand capacity based on demonstrated demand. Given the potential for trade between Inner Mongolia and the northeast, it appears that JRLLC, if it can clear up some of its line capacity constraints, has conservatively estimated its traffic expansion and higher traffic volumes will likely develop.

Tariffs

5. As a local railway, the provincial price bureau has given JRLLC the authority to set freight tariffs within a range of 10 fen/tkm plus/minus 20 percent for movements over its route. JRLLC uses the flexibility and has set the tariff to 8.0 (3) fen/tkm for goods including coal which are shipped from or to destinations outside the Ji-Tong line; and 10 fen/tkm for traffic using only the new line. The current average freight tariff is 8.8 fen/tkm representing rates which were established for different classes of traffic and lengths of haul. The freight tariff is substantially lower than the 10.85 fen/tkm tariff in effect on the alternative Datong-Qinhuangdao line (the Da-Qin line tariff includes a 4.0 fen/tkm electrification surcharge as well a 1.0 fen/tkm "new lines" surcharge). JRLLC is of the view that its ability to provide a lower overall transport price to shippers due to the shorter line distance between western Inner Mongolia to northeastern China has been a major factor in attracting overhead traffic to the line. Passenger tariffs are set according to the type of seats and berth and average 8.8 (2) fen/pkm.

6. Current average tariff rates for freight and passenger transportation are adequate to achieve the financial targets laid out in the SAR, particularly if passenger and freight volumes grow at planned or better levels. Even if future traffic volumes do not materialize or operating expenses increase above planned levels, JRLLC has the option to decrease its planned investment program (para. 10), which is more ambitious than envisioned in the SAR, and still remain profitable. In addition JRLLC has the option to increase tariffs. The degree to which it could raise its tariffs depends on the combined effect of (a) its shorter transportation distance (vis-à-vis MOR routes), (b) the prevailing all-in tariff on the MOR routes, and (c) MOR's strategic will to continue to send through traffic to the Ji-Tong line at a higher tariff level. Based purely on economic considerations, JRLLC should be able to raise its tariffs to at least the existing levels on the longer MOR routes. Passenger tariffs should not become a problem because passenger traffic is estimated conservatively and contributes only marginally to JRLLC's financial results, and almost all passenger traffic starts and ends on the Ji-Tong railway, giving JRLLC more autonomy on the setting of tariffs.

Taxes

7. JRLLC pays a 3 (3) percent consumer tax and an additional 0.3 percent education and city tax on its gross sales revenue to GIM. However, the consumer tax is fully

rebated to JRLLC in exchange for increased GIM equity in the company. Local railway companies are exempt from income, VAT and other local taxes on profit.

Operating Expenses

8. Operating expenses (salaries, materials, fuel, etc.) have a strong effect on the company's financial health. JRLLC management have expressed their plan to curb materials, office and other costs in 1997 while at the same time increasing passenger revenue through better on-train inspection of tickets and collection of revenue. JRLLC still carries a heavy social burden in that it continues to hire staff beyond its operating requirements due to political and social pressures, and bears heavy pension and medical costs for its retired staff (as shown in the large administrative and other expenses line item on its income statement). On January 1, 1997, JRLLC signed a labor contract which obliges both management and staff to meet performance criteria, and provides them with a 15 percent salary increase. The combination of additional labor hires and a salary increase causes the expected wages expense on the income statement to jump by 25 percent from 1996 to 1997. Given these hiring policies, social burdens and reliance on MOR for most of its traffic volumes (and hence reliance on their demands), JRLLC will have little possibility to control two of their largest fixed expense accounts—wages and salaries and administrative expenses—at levels below the expected domestic inflation rates.

9. Operations on the Ji-Tong line began on December 1, 1995. Actual annual financial data are, therefore, only available for 1996. For the financial projections for the years 1997 to 2003 discussed below, operating costs have been based on 1996 and first quarter 1997 actuals. The estimates have been corroborated by line-item forecasts of the principal cost elements (labor, materials, fuel, and administration) prepared by JRLLC. Beginning in year 1998 onward, the following annual growth rates have been assumed for JRLLC's expenses: wages—8 percent; materials and maintenance—5 percent; fuel and power—12 percent; and administration and other—8 percent. All expenses, except materials and maintenance are expected to outpace the general domestic inflation rate of 5.5 percent. With regard to depreciation, JRLLC uses a 4.5 percent composite depreciation rate, which is close to the average for depreciation charges in MOR (5 percent). All (half) of the depreciation charge goes to the depreciation fund, a portion of which can be used annually for capital expansion and line upgrading; there is no separate provision for major repairs as was earlier envisioned.

Capital Investments

10. JRLLC's Board of Directors has approved a multiyear investment plan which encompasses not only investments necessary to meet planned traffic volumes, as envisioned in the SAR, but also safety, employee housing, and other railroad upgrading investments. JRLLC intends to use retained earnings as far as possible to fund these investments. It is critical, therefore, that the company's tariff level is sufficient not only to generate a margin over operating costs, but also to ensure a reasonable self-financing

capability. JRLLC estimates that its railway expansion, upgrading and additional investments would require about Y 1.3 to Y 1.4 billion from 1996 to 2005. Prior to 2003, JRLLC has designed a capital investment program valued at about Y 1.04 billion (in current terms) to undertake the following fixed asset investments:

- (a) Widening of railway embankments: is an investment to upgrade the quality of the line to meet government standards. Approximately 500 km of the railway embankment in the desert would be widened from 5.7 m to 6.7 m. Widening the embankments would cause no disruption to railway operations during construction. This investment, which equates to \$30,000 (in 1997 dollars) per kilometer of track upgraded, is outside the scope of the original project (Y 151.0 million).
- (b) Building housing for employees: originally, JRLLC expected to build housing for 500, it now expects to build housing for 4,000 staff. JRLLC stated that they expect to build 20,000 to 30,000 square meters of housing per year for the next several years. At this rate, the investment costs quoted would mean a construction cost per square meter of about \$120 (in 1997 dollars). This investment is outside the scope of the original project (Y 219.7 million).
- (c) Construction of sidings: is required to expand capacity to 17 million tons per day by 2007. JRLLC estimates that 101 sidings would need to be constructed. 55 sidings would be constructed by 2003 and an additional 46 from 2004 to 2007. This would amount to an average of about \$100,000 per siding (in 1997 dollars). Building sidings is part of the original project scope (Y 52.3 million).
- (d) Purchase of steam locomotives: is required to fulfill traffic forecasts. Second-hand locomotives purchased earlier are only able to transport 2,300 tons each on average vs. the 2,800 tons they were designed to achieve. As a result, JRLLC plans to buy an additional 8 second-hand steam locomotives from MOR and an additional 10 diesel locomotives from 1998 to 2003 (Y 164.6 million).
- (e) Construction of a 10 kV power transmission line: is planned so that signaling, telecommunications and employee housing can all be hooked up to electricity. JRLLC sees this as a necessary safety investment which would improve the quality of the signaling (signaling is currently mechanical). This investment is outside the original project scope (Y 116.3 million).
- (f) Construction of flyovers: is seen by JRLLC as a safety investment. They plan to construct 15 to 16 flyovers. This amounts to about \$36,000 (in 1997 dollars) per flyover. Flyovers are outside the original project scope (Y 5.8 million).

- (g) Purchase of maintenance cars: is planned by JRLLC and is necessary to extend the life of the railway assets to their maximum life. This investment is outside the scope of the original project (Y 13.4 million).
- (h) The new communications system: is the communications equipment and its installation only. This equipment purchase is part of the revised project scope and provides for state-of-the-art digital communications (Y 18.9 million).
- (i) Open wire replacement of telephone system: is a complementary investment to (h). Underground cables would be laid and linked to the above mentioned digital communications system (Y 7.6 million).
- (j) JRLLC's other investments: are investment allocation in their corporate budget which can be used for emergency, unforeseen or low priority investments. The funding level of this investment category is the balance of JRLLC's planned investments [items (a) to (i)] and their estimated ability to take on new investment each year. In 1997, some of JRLLC's other investments will include (i) conversion of mud platforms to concrete, (ii) grassification and landscaping along the railway, (iii) flood prevention along a segment of the track, (iv) purchase of track maintenance equipment (tamping machines, etc.), (v) purchase of trucks, (vi) purchase of electrical power generators, etc. These investments are outside the scope of the project (Y 289.2 million).

11. At the present time, the investments to expand capacity—from 6.8 million tons to 10.6 million tons—began in 1996 (1997) and continue through 2003 (1999). The roughly estimated cost for this expansion includes investment items (c) and (d), above, and including price escalation, is valued at Y 272 million over the eight-year period. Because the expected investment cost per ton of capacity increase (3.8 million tons) is smaller than that of the original investment in the Ji-Tong line (Y 2.8 billion for 6.8 million tons), the return and profitability realized from this incremental investment should be considerably higher than those of the original investment. Thus, if traffic demand grows at the level anticipated or higher, the incremental investment should boost the return of the project as a whole as well as JRLLC's profitability. If traffic does not materialize as quickly as expected, however, the investment in expanded capacity will be postponed, thus reducing the downside risk to GIM and JRLLC. JRLLC's capacity related investments amount to only 26 percent of their total 1996 to 2003 investment program. This gives JRLLC considerable leeway to reduce its investment program if financial performance begins to decline. Reduced levels of capital investment are considered in the financial scenarios below.

Debt Service and Foreign Exchange Risk Obligation

12. Interest during construction (including commitment fees) was paid by GIM and was considered a noninterest-bearing loan to JRLLC, which has already been repaid to

GIM through JRLLC's cash flow. GIM has also paid interest and debt service obligations for JRLLC during its first full year of operation to assure sufficient working capital for the company. The principal debt obligation is the Bank Group loan and credit which JRLLC/GIM began to service in 1994.

13. Since the Yuan/US dollar exchange rate has been adjusted significantly since 1989, from Y 3.714/\$1.0 to Y 8.3/\$1.0, the decision on the allocation of the foreign exchange risk was a determining factor in the ability of JRLLC to meet its financial covenants in the short and long run. The original intention of the SAR was to require GIM to bear the foreign exchange risk of the loan and credit because of its significant foreign exchange earnings from the sale of anthracite and animal husbandry goods and all of JRLLC's income is in RMB. A Bank investigation in April 1997, however, came to the conclusion that in reviewing, and accepting, the evidences of fulfillment of the conditions of effectiveness, there is nothing on file to indicate that the Bank/Association rejected the way the subsidiary loan agreements allocate the foreign exchange risk between the central government, GIM and IMLRC, even though on their face they differ from what was set forth in the SAR. The effects of the decision to place the foreign exchange risk burden on the company are analyzed in the sensitivity analysis below.

Financial Forecast Sensitivity Analysis

14. While tariff levels, traffic volume and the level of operating costs are critical factors affecting the financial position of JRLLC (as assumed in the SAR) the size of JRLLC's investment program and the issue of foreign exchange liability on the Bank loan and IDA credit are also major factors. These factors are explored in the financial analysis. Projected income, balance sheet and flow of funds statements over an eight-year horizon beginning in 1996 (1993), as well as supporting debt service schedules for the Bank Group loan and credit, short-term loans and advances from GIM are presented in Tables 1 to 16 to this Annex. Four scenarios are based on the following assumptions:

- (a) Scenario I: is the base case and assumes that (i) JRLLC undertakes only capacity related investments and those investments within the project scope, i.e., investment items (c), (d), (h) and (i) (para. 10); (ii) JRLLC itself bears the foreign exchange risk associated with loan and credit repayment; (iii) JRLLC's traffic forecast which anticipates annual growth in total freight and passenger tonnage between 11 percent to 4 percent from 1998 to 2003; and (iv) JRLLC's tariffs remain unchanged at 8.8 (2.0) fen/tkm for freight and 8.8 (2.0) fen/pkm for passenger traffic.
- (b) Scenario II: assumes the base case, except that JRLLC undertakes their full investment program (para. 10). This case vis-à-vis the base case compares JRLLC's ability to self-finance its future investment projects.
- (c) Scenario III: assumes (i) JRLLC undertakes their full investment program; (ii) GIM bears the foreign exchange risk associated with loan and credit repayment, as was the intent of the SAR (para. 13);

(iii) JRLLC's traffic forecast; and (iv) no change in tariffs. This case vis-à-vis Scenario II highlights the effect that the decision on who should bear the foreign exchange risk of the project has on the financial performance of JRLLC.

- (d) Scenario IV: assumes the base case, except that working expenses increase by 20 percent annually (instead of levels assumed in paras. 8 and 9). Separately, the level of tariff increases required to offset working expense increases will be presented. This will measure the effects of increases in operating expenses on JRLLC's financial performance, and consequently their ability to respond with a tariff increase.

15. The key performance measures in the financial analysis are: (a) the debt service financial covenant, which stipulates that a debt service coverage of 1.5 must be achieved within the first three years of operation; (b) the operating ratio covenant, which stipulates that tariffs will be set to cover all operating costs from revenues; and (c) the annual self-financing ratio, defined in this case as the annual available cash flow and accumulated resources as a percentage of the three-year average investment program (averaging the prior-, current- and following-year capital investments). This last ratio is particularly important because JRLLC has emphasized its desire to use retained earnings for future investments. Raising tariff levels would not necessarily be an easy solution to JRLLC's financing shortfalls, so the analysis assumes that if internally generated funds are insufficient, the balance will be borrowed on a short-term basis at a projected rate of 10.08 (7) percent per year. Debt service then includes service of the Bank Group loan and credit, the advances from GIM given as loans and any additional short-term and long-term borrowing to support the capital investments and working capital requirements of JRLLC.

16. The results of each scenario are summarized below and in the following table on page 59:

- (a) Scenario I: With the significantly reduced investment program, JRLLC's financial performance looks very strong. Not only does it meet covenanted debt service coverage requirements by 1998, it can self-finance all of its investments and build up a large cash reserve. Moreover, after 1999, return on assets outpaces expected domestic inflation (5.5 percent) and operating ratios are acceptable.
- (b) Scenario II: Even if JRLLC undertakes its full-scale investment program as planned, its financial performance is acceptable and it can fully self-finance its investment program. JRLLC's operating ratio is acceptable, although somewhat high after 1999 and its return on assets only achieves a level which meets expected domestic inflation. Debt service coverage is acceptable by 1998.

- (c) Scenario III: If GIM takes on the foreign exchange risk for JRLLC as agreed in the SAR (but not in the legal agreements) starting in 1998, JRLLC's debt coverage will more than double and their cashflow will grow. Self-financing capacity will increase but since it is already over 100 percent, this is not a critical factor.
- (d) Scenario IV: JRLLC is very sensitive to changes in operating expenses. Even if JRLLC undertakes its minimum investment program (base case), if working expenses (not including depreciation) grow by 20 percent per year, JRLLC will reach unacceptable operating ratios by 1999, return on assets turns negative, debt service coverage requirements are not adequate after 1999, and JRLLC would have to borrow more than Y 250 million to finance its investment program and significant income losses.

To counteract the increase in working expenses, JRLLC would either to (a) raise tariffs from 8.8 fen/tkm (and pkm) to 12 fen/tkm (and pkm) gradually over a three-year period commencing in 1999, or, (b) have GIM assume foreign exchange costs commencing in 1998 and raise tariffs to 10 fen/tkm (and pkm).

17. In sum, JRLLC's financial performance can be expected to remain good so long as operating costs do not jump significantly or traffic volumes drop significantly. It is highly recommended that JRLLC review its investment program and scale it down by as much as 50 percent (only undertaking priority investments) so that it can build up a cash reserve to help cushion against unexpected operating shortfalls or reduced traffic volumes.

The table below summarizes key financial indicators from the four scenarios.

Financial Indicators	1996	1997	1998	1999	2000	2001	2002	2003
Scenario I (Base Case): Minimal investment; JRLLC bears FX risk; JRLLC traffic volumes; no change in tariffs								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	90	114	141	158	157	147
Net Surplus	(58)	10	37	64	95	116	119	114
Additional Borrowing	25	0	0	0	0	0	0	0
Operating ratio (%)	100	85	82	79	76	75	77	79
Return on assets (%)	0	3	4	5	7	8	8	8
Debt service coverage	0.8	1.4	1.6	1.9	2.1	2.3	2.3	2.3
Debt/total capital (%)	46	45	43	39	35	31	27	24
Self-financing ratio (%)	-	>100	>100	>100	>100	>100	>100	>100
Scenario II: Same as Base Case except full investment program								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	89	108	130	142	136	121
Net Surplus	(58)	10	35	59	84	100	98	87
Additional Borrowing	25	0	0	0	0	0	0	0
Operating ratio (%)	100	85	82	80	78	78	80	83
Return on assets (%)	0	3	4	5	6	6	6	5
Debt service coverage	0.8	1.4	1.6	1.9	2.1	2.3	2.3	2.3
Debt/total capital (%)	46	45	43	39	36	32	28	24
Self-financing ratio (%)	-	>100	>100	>100	>100	>100	>100	>100
Scenario III: Same as Scenario II except GIM bears FX risk								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	89	108	130	142	136	121
Net Surplus	(58)	42	65	86	110	123	119	106
Additional Borrowing	25	0	0	0	0	0	0	0
Operating ratio (%)	100	85	82	80	78	78	80	83
Return on assets (%)	0	3	4	5	6	6	6	5
Debt service coverage	0.8	1.4	3.6	4.2	4.7	5.1	5.2	5.2
Debt/total capital (%)	46	44	40	36	32	28	24	21
Self-financing ratio (%)	-	>100	>100	>100	>100	>100	>100	>100
Scenario IV: Same as Base Case, except working expense increase by 20 percent annually								
Net Sales Revenue	348	446	493	543	597	644	678	705
Net Operating Revenue	1	67	60	44	21	(25)	(104)	(211)
Net Surplus	(58)	10	6	(6)	(25)	(67)	(145)	(269)
Additional Borrowing	25	0	0	0	0	0	30	238
Operating ratio (%)	100	85	88	92	97	104	115	130
Return on assets (%)	0	3	3	2	1	(1)	(5)	(11)
Debt service coverage	0.8	1.4	1.4	1.3	1.1	0.8	0.1	(0.6)
Debt/total capital (%)	46	45	43	41	39	37	37	38
Self-financing ratio (%)	-	>100	>100	>100	>100	>100	(108)	(942)

TABLE 1

Ji-Tong Railway Limited Liability Company -- Railway Operations

Income Statement (Scenario I)
1995 to 2003 (Yuan million)

	Actual	Actual	Estimate	Projected					
	1995	1996	1997	1998	1999	2000	2001	2002	2003
Traffic									
Freight (mil. ton-km)	194.0	4,294.0	5,137.3	5,678.4	6,249.6	6,871.2	7,417.2	7,795.2	8,106.0
Passenger (mil. passenger-km)	2.4	47.2	68.5	80.9	93.1	102.9	112.7	122.5	134.8
Revenue									
Freight Operations	15.7	356.8	452.1	499.7	550.0	604.7	652.7	686.0	713.3
Passenger Travel	0.2	3.1	6.0	7.1	8.2	9.1	9.9	10.8	11.9
Other Operations	-	-	2.6	2.9	3.2	3.5	3.8	3.9	4.1
Gross Revenue	15.9	359.9	460.7	509.7	561.3	617.2	666.4	700.7	729.3
Business Tax (3.3%)	0.5	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
Net Sales Revenue	15.4	347.9	445.5	492.9	542.8	596.8	644.4	677.6	705.2
Expenses									
Wages	3.6	60.1	75.0	81.0	87.5	94.5	102.0	110.2	119.0
Materials	3.8	60.1	56.0	58.8	61.7	64.8	68.1	71.5	75.0
Fuel and Power	4.2	53.2	67.5	75.6	84.7	94.8	106.2	119.0	133.2
Administration and Other	3.7	72.3	66.3	71.8	77.5	83.7	90.4	97.7	105.5
Working Expenses	15.3	245.7	264.8	287.2	311.4	337.9	366.8	398.3	432.8
Depreciation	-	101.0	113.6	115.3	117.2	118.1	119.7	121.9	125.0
Operating Expenses	15.3	346.7	378.4	402.5	428.7	456.0	486.5	520.2	557.8
Net Operating Revenue	0.1	1.2	67.1	90.4	114.1	140.9	157.9	157.4	147.4
Interest	64.7	58.9	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Net Surplus	(64.6)	(57.6)	10.1	36.9	64.4	94.9	115.8	119.4	113.6
Operating Ratio %	100%	100%	85%	82%	79%	76%	75%	77%	79%
Return on Assets (%)		0%	3%	4%	5%	7%	8%	8%	8%

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC traffic volume projections

TABLE 2

Ji-Tong Railway Limited Liability Company -- Railway Operations

Balance Sheet (Scenario I)
1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
Fixed assets								
Gross Value	2,522.4	2,525.8	2,598.5	2,611.3	2,637.2	2,684.4	2,733.3	2,821.9
Accumulated Depreciation	101.0	214.6	329.9	447.1	565.2	684.9	806.8	931.8
Net Value	2,421.4	2,311.2	2,268.6	2,164.2	2,072.0	1,999.4	1,926.5	1,890.1
Net Working Capital	23.0	62.5	154.4	270.9	407.2	543.6	685.0	805.7
Work-in-Progress/Sale of Assets	101.0	62.4	4.2	10.2	14.2	18.5	20.0	(0.0)
New WIP Added			4.2	6.0	4.0	4.3	1.5	2.0
WIP to GFA			62.4					22.0
Total Assets	2,545.4	2,436.1	2,427.2	2,445.3	2,493.4	2,561.5	2,631.5	2,695.8
Liabilities & Equity								
World Bank Loan & Credit	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
Other Long Term Debt	-	-	-	-	-	-	-	-
Total Liabilities	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
GIM/MOR Equity	1,226.3	1,241.5	1,258.3	1,276.9	1,297.2	1,319.2	1,342.3	1,366.4
Retained Earnings	143.0	89.1	136.0	210.4	315.3	441.1	570.5	694.1
Total Liabilities & Equity	2,545.4	2,436.1	2,427.2	2,445.3	2,493.4	2,561.5	2,631.5	2,695.8
Debt to Capital Ratio (%)	46%	45%	43%	39%	35%	31%	27%	24%

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC traffic volume projections

TABLE 3

Ji-Tong Railway Limited Liability Company -- Railway Operations

Source & Application of Funds (Scenario I)
1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
Sources								
Net Operating Income	1.2	67.1	90.4	114.1	140.9	157.9	157.4	147.4
Depreciation	101.0	113.6	115.3	117.2	118.1	119.7	121.9	125.0
Funds From Operations	102.2	180.7	205.7	231.4	258.9	277.6	279.3	272.4
Contribution From Other Operations	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GIM Tax Rebate	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
MOR/GIM Contribution for Debt Service	130.2							
Total Sources	254.3	205.9	232.5	259.9	289.3	309.6	312.4	306.5
World Bank Loan & Credit								
Capital Investments	101.0	65.8	14.5	18.8	29.8	51.5	50.5	68.6
Interest Expense, Cash Flow Supplement	0.6	-	-	-	-	-	-	-
Interest Expense: WB Loan	58.3	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Loan Repayment: WB Loan	71.5	70.6	72.6	74.8	77.2	79.7	82.5	83.4
Total Applications	231.3	193.4	140.6	143.4	153.0	173.3	171.0	185.8
Net Flow of Funds	23.0	12.5	91.9	116.5	136.3	136.4	141.4	120.7
Opening Balance	-	50.0	62.5	154.4	270.9	407.2	543.6	685.0
Closing Balance	23.0	62.5	154.4	270.9	407.2	543.6	685.0	805.7
Minimum Working Capital Required	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Debt Service Coverage Ratio	0.8	1.4	1.6	1.9	2.1	2.3	2.3	2.3
3-Yr. Avg. Self-financing Ratio (%)		100%						

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC traffic volume projections

TABLE 4

JI-Tong Railway Limited Liability Company -- Railway Operations

IBRD Loan Disbursement & Repayment Schedule (Scenario I)
1996 to 2003

		Actual	Estimate	Projected						
		1996	1997	1998	1999	2000	2001	2002	2003	
<u>IBRD Loan/IDA Credit</u>										
Annual Disbursement	\$ Million	0								
Annual Disbursement	Yuan Million	0.00								
Cumulative Disbursement										
Undisbursed Amount		0								
Principal Repayment, WB Loan	\$ Thousand	2,945.0	3,170	3,415.0	3,680.0	3,965.0	4,270.0	4,605.0	4,711.5	
Principal Repayment, IDA Credit	\$ Thousand	5,665.0	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	
Interest Charges, WB Loan & Credit	\$ Thousand	7,085.0	6,872.1	6,440.8	5,996.8	5,539.0	5,066.4	4,577.9	4,078.3	
WB Loan Outstanding	\$ Thousand	65,221.0	62,051.0	58,636.0	54,956.0	50,991.0	46,721.0	42,116.0	37,404.5	
IDA Credit Outstanding	\$ Thousand	76,473.0	71,139.7	65,806.3	60,473.0	55,139.6	49,806.3	44,472.9	39,139.6	
World Bank Loan & Credit	\$ Thousand	141,694.0	133,190.7	124,442.3	115,429.0	106,130.6	96,527.3	86,588.9	76,544.1	
Exchange Rate:	\$1 = Yuan	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	
Principal Repayment, WB Loan	Yuan Million	24.44	26.31	28.34	30.54	32.91	35.44	38.22	39.11	
Principal Repayment, IDA Credit	Yuan Million	47.02	44.27	44.27	44.27	44.27	44.27	44.27	44.27	
Interest Charges, WB Loan	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Principal Repayment	Yuan Million	71.46	70.58	72.61	74.81	77.18	79.71	82.49	83.37	
Interest Charges	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Commitment Charges (0.50%)	Yuan Million	0.05	-	-	-	-	-	-	-	
Total Interest Expense	Yuan Million	58.25	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Total Debt Service (IBRD)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22	
	Yuan Million	1,176.06	1,105.48	1,032.87	958.06	880.88	801.18	718.69	635.32	
<u>Long-term Borrowing</u>										
Cumulative Amount of Advances	Yuan Million	-	-	-	-	-	-	-	-	
Repayment	Yuan Million	-	-	-	-	-	-	-	-	
Outstanding Amount	Yuan Million	-	-	-	-	-	-	-	-	
Interest Payments	Yuan Million									
Total Debt Service (IBRD & GIM)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22	
<u>Short-term Borrowing</u>										
Short-term Debt	Yuan Million	25	0	0	0	0	0	0	0	
Interest Charges	Yuan Million	0.6	0	0	0	0	0	0	0	

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC traffic volume projections

TABLE 5

Ji-Tong Railway Limited Liability Company -- Railway Operations

Income Statement (Scenario II)
1995 to 2003 (Yuan million)

	Actual	Actual	Estimate	Projected					
	1995	1996	1997	1998	1999	2000	2001	2002	2003
<u>Traffic</u>									
Freight (mil. ton-km)	194.0	4,294.0	5,137.3	5,678.4	6,249.6	6,871.2	7,417.2	7,795.2	8,106.0
Passenger (mil. passenger-km)	2.4	47.2	68.5	80.9	93.1	102.9	112.7	122.5	134.8
<u>Revenue</u>									
Freight Operations	15.7	356.8	452.1	499.7	550.0	604.7	652.7	686.0	713.3
Passenger Travel	0.2	3.1	6.0	7.1	8.2	9.1	9.9	10.8	11.9
Other Operations	-	-	2.6	2.9	3.2	3.5	3.8	3.9	4.1
Gross Revenue	15.9	359.9	460.7	509.7	561.3	617.2	666.4	700.7	729.3
Business Tax (3.3%)	0.5	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
Net Sales Revenue	15.4	347.9	445.5	492.9	542.8	596.8	644.4	677.6	705.2
<u>Expenses</u>									
Wages	3.6	60.1	75.0	81.0	87.5	94.5	102.0	110.2	119.0
Materials	3.8	60.1	56.0	58.8	61.7	64.8	68.1	71.5	75.0
Fuel and Power	4.2	53.2	67.5	75.6	84.7	94.8	106.2	119.0	133.2
Administration and Other	3.7	72.3	66.3	71.8	77.5	83.7	90.4	97.7	105.5
Working Expenses	15.3	245.7	264.8	287.2	311.4	337.9	366.8	398.3	432.8
Depreciation	-	101.0	113.6	117.0	122.9	128.7	135.7	143.4	151.5
Operating Expenses	15.3	346.7	378.4	404.2	434.4	466.6	502.5	541.7	584.3
Net Operating Revenue	0.1	1.2	67.1	88.7	108.4	130.2	141.9	135.9	121.0
Interest	64.7	58.9	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Net Surplus	(64.6)	(57.6)	10.1	35.2	58.7	84.2	99.8	97.9	87.1
Operating Ratio %	100%	100%	85%	82%	80%	78%	78%	80%	83%
Return on Assets (%)		0%	3%	4%	5%	6%	6%	6%	5%

Note: Scenario II assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC's full investment program
(iii) JRLLC traffic volume projections

TABLE 6

Ji-Tong Railway Limited Liability Company -- Railway Operations

Balance Sheet (Scenario II)

1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
<u>Fixed assets</u>								
Gross Value	2,522.4	2,525.8	2,675.1	2,788.3	2,933.5	3,099.5	3,271.8	3,460.3
Accumulated Depreciation	101.0	214.6	331.6	454.5	583.3	719.0	862.4	1,013.8
Net Value	2,421.4	2,311.2	2,343.5	2,333.8	2,350.2	2,380.5	2,409.4	2,446.5
Net Working Capital	23.0	62.5	77.8	93.9	110.9	128.4	146.5	167.3
Work-in-Progress/Sale of Assets	101.0	62.4	4.2	10.2	14.2	18.5	20.0	(0.0)
Total Assets	2,545.4	2,436.1	2,425.5	2,437.9	2,475.3	2,527.4	2,576.0	2,613.8
<u>Liabilities & Equity</u>								
World Bank Loan & Credit	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
Other Long Term Debt	-	-	-	-	-	-	-	-
Total Liabilities	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
GIM/MOR Equity	1,226.3	1,241.5	1,258.3	1,276.9	1,297.2	1,319.2	1,342.3	1,366.4
Retained Earnings	143.0	89.1	134.3	203.0	297.2	407.0	514.9	612.1
Total Liabilities & Equity	2,545.4	2,436.1	2,425.5	2,437.9	2,475.3	2,527.4	2,576.0	2,613.8
Debt to Capital Ratio (%)	46%	45%	43%	39%	36%	32%	28%	24%

Note: Scenario II assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit

(ii) JRLLC's full investment program

(iii) JRLLC traffic volume projections

TABLE 7

Ji-Tong Railway Limited Liability Company -- Railway Operations

Source & Application of Funds (Scenario II)
1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
Sources								
Net Operating Income	1.2	67.1	88.7	108.4	130.2	141.9	135.9	121.0
Depreciation	101.0	113.6	117.0	122.9	128.7	135.7	143.4	151.5
Funds From Operations	102.2	180.7	205.7	231.4	258.9	277.6	279.3	272.4
Contribution From Other Operations	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GIM Tax Rebate	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
MOR/GIM Contribution for Debt Service	130.2							
Total Sources	254.3	205.9	232.5	259.9	289.3	309.6	312.4	306.5
World Bank Loan & Credit								
Capital Investments	101.0	65.8	91.1	119.2	149.2	170.3	173.8	168.5
Interest Expense, Cash Flow Supplement	0.6	-	-	-	-	-	-	-
Interest Expense: WB Loan	58.3	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Loan Repayment: WB Loan	71.5	70.6	72.6	74.8	77.2	79.7	82.5	83.4
Total Applications	231.3	193.4	217.2	243.8	272.3	292.1	294.3	285.7
Net Flow of Funds								
Opening Balance	-	50.0	62.5	77.8	93.9	110.9	128.4	146.5
Closing Balance	23.0	62.5	77.8	93.9	110.9	128.4	146.5	167.3
Minimum Working Capital Required	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Debt Service Coverage Ratio	0.8	1.4	1.6	1.9	2.1	2.3	2.3	2.3
3-Yr. Avg. Self-financing Ratio (%)		100%	100%	100%	100%	75%	38%	-16%

Note: Scenario II assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC's full investment program
(iii) JRLLC traffic volume projections

TABLE 8

JI-Tong Railway Limited Liability Company -- Railway Operations

IBRD Loan Disbursement & Repayment Schedule (Scenario II)
1996 to 2003

		Actual	Estimate	Projected					
		1996	1997	1998	1999	2000	2001	2002	2003
<u>IBRD Loan/IDA Credit</u>									
Annual Disbursement	\$ Million	0							
Annual Disbursement	Yuan Million	0.00							
Cumulative Disbursement									
Undisbursed Amount		0							
Principal Repayment, WB Loan	\$ Thousand	2,945.0	3,170	3,415.0	3,680.0	3,965.0	4,270.0	4,605.0	4,711.5
Principal Repayment, IDA Credit	\$ Thousand	5,665.0	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3
Interest Charges, WB Loan & Credit	\$ Thousand	7,085.0	6,872.1	6,440.8	5,996.8	5,539.0	5,066.4	4,577.9	4,078.3
WB Loan Outstanding	\$ Thousand	65,221.0	62,051.0	58,636.0	54,956.0	50,991.0	46,721.0	42,116.0	37,404.5
IDA Credit Outstanding	\$ Thousand	76,473.0	71,139.7	65,806.3	60,473.0	55,139.6	49,806.3	44,472.9	39,139.6
World Bank Loan & Credit	\$ Thousand	141,694.0	133,190.7	124,442.3	115,429.0	106,130.6	96,527.3	86,588.9	76,544.1
Exchange Rate:	\$1 = Yuan	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
Principal Repayment, WB Loan	Yuan Million	24.44	26.31	28.34	30.54	32.91	35.44	38.22	39.11
Principal Repayment, IDA Credit	Yuan Million	47.02	44.27	44.27	44.27	44.27	44.27	44.27	44.27
Interest Charges, WB Loan	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85
Principal Repayment	Yuan Million	71.46	70.58	72.61	74.81	77.18	79.71	82.49	83.37
Interest Charges	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85
Commitment Charges (0.50%)	Yuan Million	0.05	-	-	-	-	-	-	-
Total Interest Expense	Yuan Million	58.25	57.04	53.46	49.77	45.97	42.05	38.00	33.85
Total Debt Service (IBRD)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22
	Yuan Million	1,176.06	1,105.48	1,032.87	958.06	880.88	801.18	718.69	635.32
<u>Long-term Borrowing</u>									
Cumulative Amount of Advances	Yuan Million	-	-	-	-	-	-	-	-
Repayment	Yuan Million	-	-	-	-	-	-	-	-
Outstanding Amount	Yuan Million	-	-	-	-	-	-	-	-
Interest Payments	Yuan Million								
Total Debt Service (IBRD & GIM)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	#VALUE!
<u>Short-term Borrowing</u>									
Short-term Debt	Yuan Million	25	0	0	0	0	0	0	0
Interest Charges	Yuan Million	0.6	0	0	0	0	0	0	0

Note: Scenario II assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC's full investment program
(iii) JRLLC traffic volume projections

TABLE 9

Ji-Tong Railway Limited Liability Company -- Railway Operations

Income Statement (Scenario III)
1995 to 2003 (Yuan million)

	Actual	Actual	Estimate	Projected					
	1995	1996	1997	1998	1999	2000	2001	2002	2003
Traffic									
Freight (mil. ton-km)	194.0	4,294.0	5,137.3	5,678.4	6,249.6	6,871.2	7,417.2	7,795.2	8,106.0
Passenger (mil. passenger-km)	2.4	47.2	68.5	80.9	93.1	102.9	112.7	122.5	134.8
Revenue									
Freight Operations	15.7	356.8	452.1	499.7	550.0	604.7	652.7	686.0	713.3
Passenger Travel	0.2	3.1	6.0	7.1	8.2	9.1	9.9	10.8	11.9
Other Operations	-	-	2.6	2.9	3.2	3.5	3.8	3.9	4.1
Gross Revenue	15.9	359.9	460.7	509.7	561.3	617.2	666.4	700.7	729.3
Business Tax (3.3%)	0.5	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
Net Sales Revenue	15.4	347.9	445.5	492.9	542.8	596.8	644.4	677.6	705.2
Expenses									
Wages	3.6	60.1	75.0	81.0	87.5	94.5	102.0	110.2	119.0
Materials and Maintenance	3.8	60.1	56.0	58.8	61.7	64.8	68.1	71.5	75.0
Fuel and Power	4.2	53.2	67.5	75.6	84.7	94.8	106.2	119.0	133.2
Administration and Other	3.7	72.3	66.3	71.8	77.5	83.7	90.4	97.7	105.5
Working Expenses	15.3	245.7	264.8	287.2	311.4	337.9	366.8	398.3	432.8
Depreciation	-	101.0	113.6	117.0	122.9	128.7	135.7	143.4	151.5
Operating Expenses	15.3	346.7	378.4	404.2	434.4	466.6	502.5	541.7	584.3
Net Operating Revenue	0.1	1.2	67.1	88.7	108.4	130.2	141.9	135.9	121.0
Interest	64.7	58.9	25.5	23.9	22.2	20.5	18.8	17.0	15.1
Net Surplus	(64.6)	(57.6)	41.6	64.8	86.2	109.7	123.1	118.9	105.8
Operating Ratio %	100%	100%	85%	82%	80%	78%	78%	80%	83%
Return on Assets (%)		0%	3%	4%	5%	6%	6%	6%	5%

Note: Scenario III assumes (i) GIM bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC's full investment program
(iii) JRLLC traffic volume projections

TABLE 10

Ji-Tong Railway Limited Liability Company -- Railway Operations

Balance Sheet (Scenario III)

1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
Fixed assets								
Gross Value	2,522.4	2,525.8	2,675.1	2,788.3	2,933.5	3,099.5	3,271.8	3,460.3
Accumulated Depreciation	101.0	214.6	331.6	454.5	583.3	719.0	862.4	1,013.8
Net Value	2,421.4	2,311.2	2,343.5	2,333.8	2,350.2	2,380.5	2,409.4	2,446.5
Net Working Capital	22.5	133.1	218.1	303.1	388.2	473.1	557.8	643.4
Work-in-Progress/Sale of Assets	101.0	62.4	4.2	10.2	14.2	18.5	20.0	(0.0)
Total Assets	2,544.9	2,506.7	2,565.8	2,647.1	2,752.6	2,872.1	2,987.2	3,089.9
Liabilities & Equity								
World Bank Loan & Credit	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
Other Long Term Debt	-	-	-	-	-	-	-	-
Total Liabilities	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
GIM/MOR Equity	1,226.3	1,312.1	1,328.9	1,347.4	1,367.8	1,389.8	1,412.9	1,437.0
Retained Earnings	142.5	89.1	204.0	341.6	503.9	681.1	855.6	1,017.6
Total Liabilities & Equity	2,544.9	2,506.7	2,565.8	2,647.1	2,752.6	2,872.1	2,987.2	3,089.9
Debt to Capital Ratio (%)	46%	44%	40%	36%	32%	28%	24%	21%

Note: Scenario III assumes (i) GIM bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC's full investment program
(iii) JRLLC traffic volume projections

TABLE 11

Ji-Tong Railway Limited Liability Company -- Railway Operations

Source & Application of Funds (Scenario III)
1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
Sources								
Net Operating Income	1.2	67.1	88.7	108.4	130.2	141.9	135.9	121.0
Depreciation	101.0	113.6	117.0	122.9	128.7	135.7	143.4	151.5
Funds From Operations	102.2	180.7	205.7	231.4	258.9	277.6	279.3	272.4
Contribution From Other Operations	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GIM Tax Rebate	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
MOR/GIM Contribution for Debt Service	129.7	70.6	-	-	-	-	-	-
Total Sources	253.8	276.5	232.5	259.9	289.3	309.6	312.4	306.5
World Bank Loan & Credit								
Capital Investments	101.0	65.8	91.1	119.2	149.2	170.3	173.8	168.5
Interest Expense, Cash Flow Supplement	0.6	-	-	-	-	-	-	-
Interest Expense: WB Loan	58.3	57.0	23.9	22.2	20.5	18.8	17.0	15.1
Loan Repayment: WB Loan	71.5	70.6	32.5	33.4	34.5	35.6	36.9	37.3
Total Applications	231.3	193.4	147.5	174.9	204.2	224.7	227.7	220.9
Net Flow of Funds	22.5	83.1	85.0	85.0	85.1	84.9	84.7	85.6
Opening Balance	-	50.0	133.1	218.1	303.1	388.2	473.1	557.8
Closing Balance	22.5	133.1	218.1	303.1	388.2	473.1	557.8	643.4
Minimum Working Capital Required	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Debt Service Coverage Ratio	0.8	1.4	3.6	4.2	4.7	5.1	5.2	5.2
3-Yr. Avg. Self-financing Ratio (%)		100%	100%	100%	100%	100%	100%	100%

Note: Scenario III assumes (i) GIM bears foreign exchange risks of IBRD Loan & IDA Credit

(ii) JRLLC's full investment program

(iii) JRLLC traffic volume projections

TABLE 12

JI-Tong Railway Limited Liability Company – Railway Operations

IBRD Loan Disbursement & Repayment Schedule (Scenario III)
1996 to 2003

		Actual	Estimate	Projected					
		1996	1997	1998	1999	2000	2001	2002	2003
<u>IBRD Loan/IDA Credit</u>									
Annual Disbursement	\$ Million		0						
Annual Disbursement	Yuan Million		0.00						
Cumulative Disbursement									
Undisbursed Amount			0						
Principal Repayment, WB Loan	\$ Thousand	2,945.0	3,170	3,415.0	3,680.0	3,965.0	4,270.0	4,605.0	4,711.5
Principal Repayment, IDA Credit	\$ Thousand	5,665.0	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3
Interest Charges, WB Loan & Credit	\$ Thousand	7,085.0	6,872.1	6,440.8	5,996.8	5,539.0	5,066.4	4,577.9	4,078.3
WB Loan Outstanding	\$ Thousand	65,221.0	62,051.0	58,636.0	54,956.0	50,991.0	46,721.0	42,116.0	37,404.5
IDA Credit Outstanding	\$ Thousand	76,473.0	71,139.7	65,806.3	60,473.0	55,139.6	49,806.3	44,472.9	39,139.6
World Bank Loan & Credit Outstanding	\$ Thousand	141,694.0	133,190.7	124,442.3	115,429.0	106,130.6	96,527.3	86,588.9	76,544.1
Exchange Rate:	\$1 = Yuan	8.30	3.71	3.71	3.71	3.71	3.71	3.71	3.71
Principal Repayment, WB Loan--JRLLC	Yuan Million	-	11.76	12.67	13.65	14.71	15.84	17.08	17.48
Principal Repayment, WB Loan--GIM	Yuan Million	24.44	14.55	15.67	16.89	18.20	19.60	21.14	21.63
Principal Repayment, IDA Credit--JRLLC	Yuan Million	-	19.79	19.79	19.79	19.79	19.79	19.79	19.79
Principal Repayment, IDA Credit--GIM	Yuan Million	47.02	24.48	24.48	24.48	24.48	24.48	24.48	24.48
Interest Charges, WB Loan--JRLLC	Yuan Million	-	25.50	23.90	22.25	20.55	18.80	16.98	15.13
Interest Charges, WB Loan--GIM	Yuan Million	58.20	31.54	29.56	27.53	25.42	23.25	21.01	18.72
Principal Repayment	Yuan Million	71.46	70.58	72.61	74.81	77.18	79.71	82.49	83.37
Interest Charges	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85
Commitment Charges (0.50%)	Yuan Million	0.05	-	-	-	-	-	-	-
Total Interest Expense	Yuan Million	58.25	57.04	53.46	49.77	45.97	42.05	38.00	33.85
Total Debt Service (IBRD)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22
World Bank Loan & Credit Outstanding	Yuan Million	1,176.06	1,105.48	1,032.87	958.06	880.88	801.18	718.69	635.32
<u>Long-term Borrowing</u>									
Cumulative Amount of Advances	Yuan Million	-	-	-	-	-	-	-	-
Repayment	Yuan Million	-	-	-	-	-	-	-	-
Outstanding Amount	Yuan Million	-	-	-	-	-	-	-	-
Interest Payments	Yuan Million								
Total Debt Service (IBRD & GIM)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22
<u>Short-term Borrowing</u>									
Short-term Debt	Yuan Million	25	0	0	0	0	0	0	0
Interest Charges	Yuan Million	0.6	0	0	0	0	0	0	0

Note: Scenario III assumes (i) GIM bears foreign exchange risks of IBRD Loan & IDA Credit

(ii) JRLLC's full investment program

(iii) JRLLC traffic volume projections

TABLE 13

Ji-Tong Railway Limited Liability Company – Railway Operations

Income Statement (Scenario IV)
1995 to 2003 (Yuan million)

	Actual	Actual	Estimate	Projected					
	1995	1996	1997	1998	1999	2000	2001	2002	2003
<u>Traffic</u>									
Freight (mil. ton-km)	194.0	4,294.0	5,137.3	5,678.4	6,249.6	6,871.2	7,417.2	7,795.2	8,106.0
Passenger (mil. passenger-km)	2.4	47.2	68.5	80.9	93.1	102.9	112.7	122.5	134.8
Avg. Freight Tariff	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Avg. Passenger Tariff	0.08	0.07	0.09	0.09	0.09	0.09	0.09	0.09	0.09
<u>Revenue</u>									
Freight Operations	15.7	356.8	452.1	499.7	550.0	604.7	652.7	686.0	713.3
Passenger Travel	0.2	3.1	6.0	7.1	8.2	9.1	9.9	10.8	11.9
Other Operations	-	-	2.6	2.9	3.2	3.5	3.8	3.9	4.1
Gross Revenue	15.9	359.9	460.7	509.7	561.3	617.2	666.4	700.7	729.3
Business Tax (3.3%)	0.5	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
Net Sales Revenue	15.4	347.9	445.5	492.9	542.8	596.8	644.4	677.6	705.2
<u>Expenses</u>									
Wages	3.6	60.1	75.0	90.0	108.0	129.6	155.5	186.6	223.9
Fuel and Power	4.2	53.2	67.5	81.0	97.2	116.6	140.0	168.0	201.6
Administration and Other	3.7	72.3	66.3	79.8	95.7	114.9	137.9	165.4	198.5
Working Expenses	15.3	245.7	264.8	318.0	381.6	457.9	549.5	659.4	791.2
Depreciation	-	101.0	113.6	115.3	117.2	118.1	119.7	121.9	125.0
Operating Expenses	15.3	346.7	378.4	433.3	498.8	576.0	669.2	781.3	916.2
Net Operating Revenue	0.1	1.2	67.1	59.6	44.0	20.9	(24.8)	(103.7)	(211.0)
Interest	64.7	58.9	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Net Surplus	(64.6)	(57.6)	10.1	6.1	(5.8)	(25.1)	(66.9)	(141.7)	(244.8)
Operating Ratio %	100%	100%	85%	88%	92%	97%	104%	115%	130%
Return on Assets (%)		0%	3%	3%	2%	1%	-1%	-5%	-11%

Note: Scenario IV assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC working expenses increase by 20% annually

TABLE 14

Ji-Tong Railway Limited Liability Company -- Railway Operations

Balance Sheet (Scenario IV)

1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
<u>Fixed assets</u>								
Gross Value	2,522.4	2,525.8	2,598.5	2,611.3	2,637.2	2,684.4	2,733.3	2,821.9
Accumulated Depreciation	101.0	214.6	329.9	447.1	565.2	684.9	806.8	931.8
Net Value	2,421.4	2,311.2	2,268.6	2,164.2	2,072.0	1,999.4	1,926.5	1,890.1
Net Working Capital	23.0	62.5	123.6	170.0	186.3	140.0	20.3	(187.7)
Work-in-Progress/Sale of Assets	101.0	62.4	4.2	10.2	14.2	18.5	20.0	(0.0)
New WIP Added			4.2	6.0	4.0	4.3	1.5	2.0
WIP to GFA			62.4					22.0
Total Assets	2,545.4	2,436.1	2,396.5	2,344.4	2,272.5	2,157.9	1,966.9	1,702.4
<u>Liabilities & Equity</u>								
World Bank Loan & Credit	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
Other Long Term Debt	-	-	-	-	-	-	-	-
Total Liabilities	1,176.1	1,105.5	1,032.9	958.1	880.9	801.2	718.7	635.3
GIM/MOR Equity	1,226.3	1,241.5	1,258.3	1,276.9	1,297.2	1,319.2	1,342.3	1,366.4
Retained Earnings	143.0	89.1	105.2	109.5	94.3	37.5	(94.2)	(299.4)
Total Liabilities & Equity	2,545.4	2,436.1	2,396.5	2,344.4	2,272.5	2,157.9	1,966.9	1,702.4

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit
(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope
(iii) JRLLC working expenses increase by 20% annually

TABLE 15

Ji-Tong Railway Limited Liability Company -- Railway Operations

Source & Application of Funds (Scenario IV)

1996 to 2003 (Yuan million)

	Actual	Estimate	Projected					
	1996	1997	1998	1999	2000	2001	2002	2003
<u>Sources</u>								
Net Operating Income	1.2	67.1	59.6	44.0	20.9	(24.8)	(103.7)	(211.0)
Depreciation	101.0	113.6	115.3	117.2	118.1	119.7	121.9	125.0
Funds From Operations	102.2	180.7	174.9	161.2	138.9	94.9	18.2	(86.0)
Contribution From Other Operations	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GIM Tax Rebate	11.9	15.2	16.8	18.5	20.4	22.0	23.1	24.1
MOR/GIM Contribution for Debt Service	130.2							
Total Sources	254.3	205.9	201.7	189.7	169.3	126.9	51.3	(51.9)
<u>World Bank Loan & Credit</u>								
Capital Investments	101.0	65.8	14.5	18.8	29.8	51.5	50.5	68.6
Interest Expense, Cash Flow Supplement	0.6	-	-	-	-	-	-	-
Interest Expense: WB Loan	58.3	57.0	53.5	49.8	46.0	42.1	38.0	33.9
Loan Repayment: WB Loan	71.5	70.6	72.6	74.8	77.2	79.7	82.5	83.4
Total Applications	231.3	193.4	140.6	143.4	153.0	173.3	171.0	185.8
Net Flow of Funds	23.0	12.5	61.1	46.3	16.3	(46.3)	(119.6)	(237.7)
Opening Balance	-	50.0	62.5	123.6	170.0	186.3	140.0	50.0
Closing Balance	23.0	62.5	123.6	170.0	186.3	140.0	20.3	(187.7)
Minimum Working Capital Required	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Debt Service Coverage Ratio	0.8	1.4	1.4	1.3	1.1	0.8	0.2	(0.7)
3-Yr. Avg. Self-financing Ratio (%)		100%	100%	100%	100%	100%	-108%	-942%

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit

(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope

(iii) JRLLC working expenses increase by 20% annually

TABLE 16

Ji-Tong Railway Limited Liability Company – Railway Operations

IBRD Loan Disbursement & Repayment Schedule (Scenario IV)
1996 to 2003

		Actual	Estimate	Projected						
		1996	1997	1998	1999	2000	2001	2002	2003	
<u>IBRD Loan/IDA Credit</u>										
Annual Disbursement	\$ Million		0							
Annual Disbursement	Yuan Million		0.00							
Cumulative Disbursement										
Undisbursed Amount			0							
Principal Repayment, WB Loan	\$ Thousand	2,945.0	3,170	3,415.0	3,680.0	3,965.0	4,270.0	4,605.0	4,711.5	
Principal Repayment, IDA Credit	\$ Thousand	5,665.0	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	5,333.3	
Interest Charges, WB Loan & Credit	\$ Thousand	7,085.0	6,872.1	6,440.8	5,996.8	5,539.0	5,066.4	4,577.9	4,078.3	
WB Loan Outstanding	\$ Thousand	65,221.0	62,051.0	58,636.0	54,956.0	50,991.0	46,721.0	42,116.0	37,404.5	
IDA Credit Outstanding	\$ Thousand	76,473.0	71,139.7	65,806.3	60,473.0	55,139.6	49,806.3	44,472.9	39,139.6	
World Bank Loan & Credit	\$ Thousand	141,694.0	133,190.7	124,442.3	115,429.0	106,130.6	96,527.3	86,588.9	76,544.1	
Exchange Rate:	\$1 = Yuan	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	
Principal Repayment, WB Loan	Yuan Million	24.44	26.31	28.34	30.54	32.91	35.44	38.22	39.11	
Principal Repayment, IDA Credit	Yuan Million	47.02	44.27	44.27	44.27	44.27	44.27	44.27	44.27	
Interest Charges, WB Loan	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Principal Repayment	Yuan Million	71.46	70.58	72.61	74.81	77.18	79.71	82.49	83.37	
Interest Charges	Yuan Million	58.20	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Commitment Charges (0.50%)	Yuan Million	0.05	-	-	-	-	-	-	-	
Total Interest Expense	Yuan Million	58.25	57.04	53.46	49.77	45.97	42.05	38.00	33.85	
Total Debt Service (IBRD)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22	
<u>Long-term Borrowing</u>										
Cumulative Amount of Advances	Yuan Million	-	-	-	-	-	-	-	-	
Repayment	Yuan Million	-	-	-	-	-	-	-	-	
Outstanding Amount	Yuan Million	-	-	-	-	-	-	-	-	
Interest Payments	Yuan Million									
Total Debt Service (IBRD & GIM)	Yuan Million	129.71	127.62	126.07	124.58	123.15	121.76	120.48	117.22	
<u>Short-term Borrowing</u>										
Short-term Debt	Yuan Million	25	0	0	0	0	0	0	0	
Interest Charges	Yuan Million	0.6	0	0	0	0	0	0	0	

Note: Scenario I assumes (i) JRLLC bears foreign exchange risks of IBRD Loan & IDA Credit

(ii) JRLLC reduce's its investment program to minimum levels to meet traffic projections and project scope

(iii) JRLLC working expenses increase by 20% annually

ANNEX 2: ECONOMIC REEVALUATION OF THE INNER MONGOLIA LOCAL RAILWAY PROJECT

Introduction

1. As presented in the SAR, the project had three discrete objectives. Of these, by far the most important was the aim of providing a transportation bridge for the shipment of goods between western Inner Mongolia and northeastern China. While it was anticipated that in this capacity the railway would handle a number of different commodity movements, coal was clearly envisioned to be the most significant. As stated in the SAR: “The line will literally open up a market for Inner Mongolia’s coal by giving it direct access to Jilin province, a domestic coal importer; about 80 percent of the eastbound traffic is expected to be dedicated to coal haulage.”¹

2. A second project objective was institutional in nature involving the formation of a local company that would manage what would become the longest local railway in China.² There is a twofold significance to this objective. First, local railways which are built and operated by local governments and enterprises, enjoy a greater degree of financial and pricing freedom compared with the national railway carrier. In this respect, therefore, the tariff levels of local railways may be higher or lower than those of the national railways. Second, from a geographical perspective, most local railways are shorter haul, “stub-end” lines. This, in turn, limits their ability to interchange traffic with the national railways since their only connection with the national railways is at one end of their local route. In this respect, Ji-Tong is somewhat unique in that as an overhead or bridge railway it links with the national railways at both its eastern (Tongliao) and western (Benhong) terminals. As such, for shippers in northeastern China, on the one hand and those in western Inner Mongolia and beyond on the other, the Ji-Tong line represents a shorter distance through railway option compared with the alternative of routing traffic via Datong, Beijing, and Qinhuangdao. Taken together, the existence of this routing alternative along with the comparative pricing flexibility accorded local railway operators combine to create the potential for fostering true intrarailway competition in China. This potential clearly was envisioned in the SAR: “When the Ji-Tong line is open to traffic, shippers of these products [timber and other commodities]

¹ SAR, para. 4.2. “Most of the coal traffic on the proposed Ji-Tong line will come from the Dongsheng coal field in western Inner Mongolia.” SAR, para. 3.6. See also SAR, Annex 4.

² SAR, para. 4.4.

who are free to choose will compare the total tariffs of freight transport via the Ji-Tong line and the existing route before deciding which route to select.”³

3. Finally, the third objective of the project focused on promoting regional development. Noting that the Ji-Tong line would pass through 12 counties and should impact on an hinterland area as well, the SAR anticipated benefits in the form of stimulating local industry and animal husbandry production.⁴ While the SAR devoted considerable attention to this objective, the economic benefits associated with regional development were comparatively modest. Thus, local industry production only accounted for less than 1988 Y 1.6 billion in benefits or about 7 percent of the project total. Similarly, the benefits attributable to animal husbandry amounted to 1988 Y 1.4 billion or 6.5 percent of the project benefits as a whole.⁵

4. Based largely on information obtained during the Supervision Missions conducted in July 1996 and March 1997 (hereafter referred to as the 1996 Mission and 1997 Mission, respectively), it is possible to provide a contemporary assessment of the likelihood of achieving these original objectives. To begin with, the coal supply and demand patterns postulated in the SAR have not been realized. Instead of obtaining coal from the Dongsheng fields as had been anticipated, users in Jilin province have continued to rely on their traditional sources in Heilongjiang province. At the same time, though, the development of the Dongsheng reserves has proceeded on schedule. As of 1995, Dongsheng production approximated 16.4 million tons and by 2000, it is expected that output will reach 29 million tons.

5. Nonetheless, due to a series of logistical and distribution problems, little of this output has been transported via the Ji-Tong route. Of the 16 million tons produced in 1995, for example, it is estimated that about half (7-8 million tons) has been stockpiled in ground storage at the mine head. Of the remaining 8 million tons of Dongsheng production, about 4 million tons were transported to Qinhuangdao via alternative national railway routes (Datong-Beijing-Qinhuangdao and the heavy haul Da-Qin line), while another 4 million tons were being moved by truck from the mines to local consumption sites.

6. In addition, the national railways have incurred congestion problems at locations west and east of the Ji-Tong route. Between Baotou and Benhong (the western JRLLC-national railways interchange point), the Hohhot Administration has experienced a shortage of both diesel locomotives and freight wagons for loading coal. At the same time, there have been severe congestion problems at the eastern JRLLC-national railways interchange point. Here, the Tongliao South marshaling yard, which handles both JRLLC business as well as traffic for the national railways has proven to be inadequate.

³ SAR, Annex 6, para. 8.

⁴ SAR, para. 4.3 and Annex 6, paras. 13 and 16.

⁵ SAR, Table 5.2.

7. In the short term, these factors have depressed the volume of coal which JRLLC is expected to transport. For 1996, the first full year of operations, JRLLC handled just over 1 million tons of coal in overhead service—less than half of the 2.3 million tons projected in the SAR. Similarly, in 1997, Ji-Tong through coal volume is estimated at about 1.5 million tons or 37 percent of the nearly 4 million tons forecast for year 2 in the SAR.⁶

8. This experience demonstrates how dependent a bridge carrier such as JRLLC is upon the traffic which its connections can make available to it. When markets do not develop as anticipated (or when connecting railways route traffic so as to avoid the intermediate overhead route), the bridge carrier must find other sources of traffic to compensate for these losses. By making use of the pricing flexibility accorded to local railways, this, in fact, is what JRLLC has been able to accomplish. Specifically, compared to its nominal base freight rate of 10 fen per tkm, which applies to JRLLC local traffic, a rate of only 8 fen per tkm has been instituted by JRLLC for through traffic interchanged with the national railways. As a result of this 20 percent discount, JRLLC has made its route more competitive and thereby succeeded in attracting a variety of both coal and noncoal products.

9. These developments have substantially altered the traffic composition of the railway compared to what had been postulated in the SAR. As reflected in Table 1, for the first two years of operation, the volume of through coal movements transported by JRLLC is well below SAR estimates. Compensating for this coal deficit, however, are shipments of noncoal commodities (e.g., grain, chemicals, timber, etc.) which JRLLC forecasts will amount to more than 3.1 million tons by 1997. This is almost half again the comparable figures as projected in the SAR. From the standpoint of the economic analysis of the project, this shift in the mix of JRLLC through traffic is significant because the relatively higher value added associated with noncoal products provides more in the way of economic benefits for through traffic than had been anticipated in the SAR.

10. Also reported in Table 1 are the volumes of local freight traffic and total passenger business (both local and through). As can be seen, while the volume of JRLLC local traffic is significantly higher than the levels presented in the SAR, this in large part is attributable to coal which is expected to account for nearly half of local freight tonnage in 1997 (a portion of this coal is quite similar to overhead bridge traffic because it is loaded at stations at the west end of the Ji-Tong route and delivered off-line to destinations in the northeast). At the same time, the 280,000 passengers which JRLLC estimates it will carry in 1997 is well below the second-year figure of 860,000 persons projected in the SAR. These local and passenger traffic categories are the most immediate indicators of the regional development that could be stimulated by JRLLC operations. At best, the results must be regarded as mixed, suggesting that the regional

⁶ Data supplied to the 1996 and 1997 missions and SAR, Table 5.1.

benefits properly assignable to the line cannot be expected to provide more than a minimal contribution to the overall economic assessment.

11. Taken as a whole, two factors play the most significant role in reevaluating the economic merit of this project. From a cost standpoint, it is important to recognize that construction of the line has required eight years to complete rather than the six years anticipated in the SAR. As detailed below, this elongated time frame, in turn, has resulted in a substantial 21 percent increase in project costs. Furthermore, the lengthier construction schedule also has delayed the onset of project benefits by two years. From the perspective of both costs and benefits, therefore, the extra time required to place the line in service has had the effect of reducing the project's net present value stream and its economic rate of return.

12. With respect to the benefits themselves, it is also apparent that the economic worth of this project primarily rests on the volume and mix of the railway's through traffic. Accordingly, in deriving these estimates, the analysis here begins with the forecasts provided by JRLLC (these figures, along with the comparable data from the SAR, are presented in Table 2). While the JRLLC freight volume estimates for 1996 and 1997 are segregated into through and local traffic categories for 1996 and 1997 (see Table 1), no such classification was available for other years in the forecast period. In line with the 1996 and 1997 experience, though, it is assumed here that 75 percent of the total projected tonnage represents through traffic and the remaining 25 percent is local business. In the base case, it is further assumed that from 1998 onward, half of the through traffic consists of coal and noncoal commodities, respectively (this assumption confers a higher proportion of through traffic to coal than is anticipated in the 1996 and 1997 period). In the absence of any longer-term projections, the JRLLC estimates for the year 2003 were assumed to be constant for the remaining years in the analysis.

13. Based on these predicates, and utilizing a discount rate of 12 percent, the net present value (NPV) of the project is Y 4.6 billion in 1994 prices and the economic rate of return (EIRR) is 19.0 percent. By comparison, the EIRR calculated in the SAR was 17.9 percent.

Direct Project Costs

14. On a financial basis, total direct project outlays amounted to Y 2.8 billion (see Table A below). Local costs by year in Yuan were furnished by JRLLC, while the annual US dollar amount of foreign costs—including both the IBRD loan and the IDA credit—were converted into Yuan at the appropriate annual exchange rate. These figures were then transformed into constant 1994 Yuan using the annual overall Gross Domestic Product deflator for local costs and the annual Imports of Goods and Nonfactor Services deflator for foreign costs, respectively.

TABLE A: ICR FINANCIAL AND ECONOMIC AND DIRECT PROJECT COSTS
(Yuan million, 1994 prices)

	Local	Foreign	Total
Financial	1,510.5	1,277.3	2,787.8
Economic	2,080.2	1,277.3	3,357.5
Economic/Financial Ratio	1.38	1.00	1.20

15. Direct project economic costs were derived from the financial costs by shadow pricing the labor cost component of local costs. Based on data supplied by JRLLC, 63 percent of local costs were associated with labor outlays. This amount (about Y 949.5 million, 1994 prices) was shadow priced at a rate of 1.6 reflecting the factor employed in Railways VII.⁷ Nonlabor local costs were not shadow priced. Inclusive of foreign costs, total direct project outlays expressed on an economic cost basis as shown in the accompanying Table are equal to just over Y 3.3 billion.

16. By restating the economic costs of the SAR in 1994 Yuan, it is possible to compare the direct project costs of the ICR and SAR. The results are shown in Table B below. The annual economic costs presented in the SAR were apportioned into local and foreign components on the basis of the ratios derived from the SAR's financial cost data. Employing the overall Gross Domestic Product deflator and the Import for Goods and Nonfactor Services deflator, respectively, these outlays were converted into constant 1994 Yuan. Largely due to the additional two year construction period noted earlier, the ICR direct project cost figure of Y 3,357 million in 1994 prices is 21 percent higher than the comparable 1994 Y 2,774 million derived from the SAR.

TABLE B: ECONOMIC DIRECT PROJECT COSTS
(Yuan million, 1994 prices)

	ICR	SAR	ICR/SAR
1988	n.a.	1,372.2	n.a.
1994	3,357.5	2,773.8	1.21

Source: SAR, Table 5.2 and Table A

⁷ See SAR, Railways VII, Report No. 13795-CHA, Working Paper No. 24, p. 2.

Complementary Capital Costs

17. Several types of complementary capital outlays should be included in the overall cost stream of the project. These include the investment costs associated with providing new production capacity for both coal and noncoal traffic that could be transported by JRLLC, a portion of the investment related to the new Tongliao South marshaling yard at the eastern terminus of the Ji-Tong line, and an allowance for additional capital outlays to accommodate future traffic growth. Each of these is shown in Table 3 and is discussed in more detail below.

- **New Production Capacity Investment Costs.** In the SAR, the economic cost of developing new production capacity for both coal and noncoal commodities was estimated. Based on a weighted average of central and local mines, the investment outlay for new coal mine capacity was equal to Y 167 per ton on an economic cost basis, while the comparable figure for other products was Y 620 per ton.⁸ In the ICR, these costs have been revalued from 1988 to 1994 levels by application of the GDP deflator. Expressed in 1994 prices, these unit investment costs are Y 294 per ton for coal and Y 1,092 per ton for noncoal commodities.

JRLLC's projections which was provided to the 1996 mission, indicate that the volume of coal traffic expected to be handled over the line is far lower than estimated in the SAR. As a consequence, based on the available data for 1996 and 1997, the bulk of the line's through traffic (75 percent of the total freight tonnage moving over the route) is anticipated to be comprised of noncoal business. For the period beyond 1997, the commodity mix of through traffic is uncertain. Under these conditions, therefore, the present ICR analysis has assumed that as of 1998, half of the through traffic will be comprised of new coal volume, while the remaining half will be accounted for by noncoal products.⁹ Complementary investment costs reflecting this amount of new coal and noncoal production capacity have been calculated based on the unit prices outlined above. For the complementary cost of the local traffic assumed to be originating or terminating on line, the unit cost of new coal investment (Y 294) has been used.

⁸ SAR, Annex 6, para. 4.

⁹ In conjunction with these estimates, it was assumed that 10 million tons of new production capacity (5 million for coal, 5 million for noncoal products) would be developed. In addition to the through traffic, another 1.5 million tons of new production capacity is associated with the development of local traffic. Taken together, the 11.5 million tons in new production capacity approximates the total volume of traffic that the project line could accommodate if (allowing for a modest volume of passenger traffic) it operated at its initial full capacity of 13.1 million tons. To derive initial line capacity, JRLLC personnel advised the 1996 mission that the net volume of the average train was equal to 1,800 tons. The existing route can handle 20 trains or 36,000 tons per day. On an annual basis, this amounts to 13.1 million tons. Notwithstanding some confusion on this matter in prior Supervision Reports, this estimate accords with the initial figure provided in the SAR. There it was indicated that "the new line would have an initial capacity of 7 million tons per year (Mtpy) in each direction...." (SAR, para. 4.9, emphasis supplied. See also, Annex 6, para 2.)

All of these new production capacity costs have been spread equally over the five-year period, 1991-95.

- **Tongliao South Marshaling Yard.** During the 1996 mission, JRLLC personnel indicated that the congestion experienced at the eastern terminus of the Ji-Tong route was expected to be relieved upon completion of the new Tongliao South marshaling yard. Construction of this Y 500 million facility commenced in 1994 and was scheduled to be completed by the end of 1996. Since the ability of the Ji-Tong route to operate at capacity is contingent upon use of Tongliao South, it is appropriate to treat this investment as a complementary cost of the project. Because non-Ji-Tong railway traffic will also utilize the new yard, only half of the Y 500 million investment has been incorporated into the analysis for the three-year period, 1994-96.
- **Additional Railway Capital.** Upon opening, the Ji-Tong line was equipped entirely with 82 steam locomotives obtained on a second-hand basis from MOR. While JRLLC has indicated that it could operate at full capacity with steam traction, it is likely to purchase some diesel units in 1999 at an estimated economic cost of Y 4 million per locomotive. While the number and timing of future purchases is contingent upon available funds, the present analysis has included a complementary cost of Y 60 million in 1999 to reflect the replacement of the first 15 steam locomotives obtained by JRLLC with diesel-powered equipment. Further replacements of this scale are also assumed for the years 2002 and 2005.

To accommodate the projected growth in passenger operations, the analysis assumes that a total of 10 additional coaches will be obtained, five in 1997 and 1999, respectively, at a unit cost of Y 600,000—an average of the unit prices paid by JRLLC for its initial hard-berth and hard-seat passenger equipment.

JRLLC anticipates spending about Y 46 million to construct additional sidings. This expenditure, expressed in 1994 prices, also is included as a complementary cost over the 1996-2003 period.

Project Benefits

18. The benefits stemming from the project fall into two basic categories: the value added to the economy from the new production (and incremental passenger movement) made possible by the additional transport capacity of the Ji-Tong route, and the transport cost savings associated with steam traction versus the higher costs of electric operations on alternative railway routes (see Table 3).

- **Valued Added.** The value added benefits were separately calculated for coal and noncoal traffic. For coal, the city of Siping—situated close to the boundary between Jilin and Liaoning provinces and a representative consumption point for Ji-Tong through traffic was selected. The economic

value added of coal, then, is the difference between the price of international and Dongsheng coal delivered to Siping.

To establish the international border price, the average 1994 figure for low-sulfur, low-ash, 12,000 Btu/pound thermal coal on the international market was obtained from the Bank's Commodity Price Data Base. This amount (\$36.48 per metric ton) was converted to Y 314.5 at the 1994 rate of Y 8.62/\$1. Assuming import at Qinhuangdao and allowing for onward railway delivery, the value of this coal at Siping amounted to Y 289.7 per ton in 1994.¹⁰

As for the delivered price of Dongsheng coal, the starting point is the cost of production. According to the SAR, the economic cost at the mine-mouth in 1988 was Y 18 per ton.¹¹ Whether this figure includes the fixed cost component or represents only the direct cost of production is not clear, but it is conservatively assumed here that only the direct cost is included. Based on the 1.25 fixed cost/direct cost ratio indicated in Railways VI,¹² the fixed cost of Dongsheng coal is estimated at 1988 Y 22.5 per ton and the total production cost at 1988 Y 40.5 per ton. Converted into 1994 prices, this is equivalent to Y 71.3 per ton. Transportation costs from the mine to Siping via the Ji-Tong route are equal to Y 60.4 per ton.¹³ The sum of the production and transport costs of Dongsheng coal, therefore, amount to Y 131.7 per ton (Y 71.3 plus Y 60.4). Accordingly, the value added benefit is Y 158 per ton—the difference between the delivery adjusted border price of Y 289.7 per ton and the Y 131.7 per ton price of Dongsheng coal transported via the Ji-Tong route.

¹⁰ The railway distance from Qinhuangdao to Siping is 590 km. According to MOR, the average cost of diesel traction in 1994 was equal to Y 0.036 per tkm. Thus, the line-haul cost for this traffic amounts to Y 21.2 per ton. Loading and unloading costs were estimated in the SAR at Y 1 per ton in 1988 prices, respectively. Using the GDP deflator, these loading and unloading costs together are equivalent to Y 3.6 per ton in 1994 prices. The total transport costs from Qinhuangdao to Siping, therefore, amount to Y 24.8 per ton in 1994 prices.

¹¹ SAR, Annex 6, para. 12.

¹² SAR, Railways VI, Report No. 11357-CHA, Supplementary Volume, Working Paper No. 22, Table 2.

¹³ In the SAR, the cost of haulage from the mine head to the railway was Y 3 per ton in 1988 prices, while the on-road/off-road marshaling costs were Y 2 per ton in 1988 prices. Restated with the use of the GDP deflator, these costs total to Y 8.8 per ton in 1994 prices. Linehaul diesel operating costs from Baotou to Benhong (360 km at Y 0.036 per tkm) in 1994 prices are equal to Y 13 per ton, the linehaul steam operating costs from Benhong to Tongliao (945 km at Y 0.032 per tkm) and from Tongliao to Siping (207 km at Y 0.032 per tkm) amount to Y 36.8 per ton in 1994 prices. The SAR unloading cost at Siping (Y 1 per ton in 1988 prices) at the 1994 price level is Y 1.8 per ton.

For noncoal traffic, the value added benefit in the SAR was estimated at Y 222 per ton in 1988 prices or 5.04 times the value added for coal.¹⁴ Using this relationship, the value added benefit for noncoal through traffic in the ICR is Y 797 per ton in 1994 prices. With regard to the freight volume originating and terminating on line, the Y 158 per ton established for coal was utilized.

- **Operating Cost Savings.** With the completion of this project, a less circuitous and hence less expensive railway line exists for through traffic moving between western Inner Mongolia and the northeastern provinces of China. From Jining in the west to Siping in the east, for example, the routing via JRLLC is 1,190 km or about 200 km shorter than the alternative via Datong and Qinhuangdao.¹⁵ In addition, the bulk of the Ji-Tong route is operated with steam traction (Benhong-Siping) while the routes via Datong and Qinhuangdao primarily utilize higher-cost electric locomotives.¹⁶ Taken together, the lower cost and shorter distance Ji-Tong route is 28 percent less expensive and results in a savings of Y 16.46 per ton. This amount is allocated as a benefit to all through traffic projected to traverse the line prior to diesel locomotive replacements, to 80 percent of through traffic for the period 1999-2001, to 60 percent of through traffic for the years 2002-2004, and to 40 percent of through traffic thereafter.
- **Passenger Benefits.** In 1996, personal travel over the Ji-Tong route amounted to 193,000 passengers. Projections provided to the 1997 mission estimate that the passenger traffic will approximate 280,000 in 1997, and increase at 40,000 to 50,000 per year through the year 2003. In accordance with the SAR methodology, the analysis here assumes that in traffic equivalent terms one passenger carried by a saturated railway line displaces

¹⁴ SAR, Annex 6, paras. 12-13. In the SAR this value added estimate was derived from limited data available for certain industries including cement, marble, copper, steel, iron, and zinc and applied to local industry traffic. For through traffic, coal was assumed to account for 90 percent of eastbound traffic and timber was estimated to represent 94 percent of westbound volume, for which no value added benefit was calculated. See SAR, Annex 6, para. 7 and para. 12. Based on current JRLLC estimates, these proportions are overstated. For 1997, JRLLC projects that less than a third of eastbound through traffic will consist of coal, while only 20 percent of westbound through tonnage will be accounted for by timber.

¹⁵ Specifically, the 1,190 km distance via Ji-Tong is composed of these segments: Jining-Benhong (38 km—diesel), Benhong-Tongliao (945 km—steam) and Tongliao-Siping (207 km—steam). The alternative route is equal to 1,387 km and includes Jining-Datong (127 km—diesel), Datong-Qinhuangdao (682 km via Beijing and 658 km via the new heavy-haul route or an average of 670 km—electric), and Qinhuangdao-Siping (590 km—diesel).

¹⁶ Based on data supplied by MOR, the average 1994 unit operating cost of steam traction was Y 0.032 per tkm, while the comparable figures for diesel locomotives was Y 0.036 per tkm, and Y 0.044 per tkm for electric units. To calculate the transport savings, these unit costs were applied to the distances reported in the prior footnote for all through traffic assumed to be handled in 1998 and, reflecting increasing dieselization, to 80 percent of through traffic (1999-2001), to 60 percent of through traffic (2002-2004), and to 40 percent of through traffic thereafter.

about 1 ton of freight traffic.¹⁷ Utilizing the value added derived for coal, the passenger benefit is calculated on the basis of Y 158 per passenger annually.

Economic Rate of Return and Sensitivity Analysis

19. For the economic reevaluation, net benefits are calculated for the 24-year period 1989-2012 to derive estimates of NPV and EIRR (a discount rate of 12 percent was used). As reported in Table 3, the estimated NPV is just under Y 4.6 billion in 1994 prices and the EIRR is 19.0 percent. By comparison, the EIRR in the SAR was 17.9 percent.¹⁸

20. Adjustments were made in four of the base case assumptions in order to test the sensitivity of these results. Three of these related to the valuation of benefits, while the fourth concerned the calculation of the major complementary cost component (see Table C below).

TABLE C: SENSITIVITY ANALYSIS

	NPV (Y million)	EIRR (%)
Base Case	4,597	19.0
Reduce Annual Rates of Growth in Freight Traffic by 1/3	4,426	18.8
Shift Through Traffic Mix to 2/3 Coal; 1/3 Noncoal	3,659	18.7
Reduce Coal Border Price by 10%	2,428	16.0
Increase Development Costs by 20%	3,749	17.3

- Traffic Growth.** The base case analysis adopts the JRLLC traffic forecast which anticipates annual growth rates of about 10 percent from 1998 to 2000, and somewhat smaller increases in subsequent years (8 percent in 2001, 5 percent in 2002, 4 percent in 2003; no growth in the latter years of the estimate period was postulated). When these assumptions were adjusted downward by a third for each respective year, the NPV fell to Y 4.4 billion in 1994 prices and the EIRR declined to 18.8 percent.
- Traffic Mix.** Coal and noncoal tonnage comprise 37.5 percent, respectively, of total freight traffic in the base case (local traffic accounts for the remaining 25 percent). Since the value added benefits (as well as the associated development costs) of noncoal production are assumed to be higher than those for coal, the sensitivity test altered the volume proportions such that coal

¹⁷ See SAR, Annex 6, para. 15.

¹⁸ SAR, Table 5.2.

constitutes 50 percent of total freight traffic, while the noncoal share is reduced to 25 percent. Under these conditions, the NPV amounts to 1994 Y 3.7 billion and the EIRR is equivalent to 18.7 percent.

- **Coal Border Price.** As an input to the coal value added calculation, the base case assumes that the border price of coal in 1994 was equal to Y 314.5 per ton. Although international coal prices subsequently are higher (a 7.4 percent increase was recorded in 1995, for example), this sensitivity test postulates a reduction in the 1994 price of 10 percent. This results in a NPV of 1994 Y 2.4 billion and an EIRR of 16.0 percent.
- **Development Costs.** The sensitivity of the complementary costs of coal and noncoal development was tested by increasing these values by 20 percent. This adjustment yielded a NPV of 1994 Y 3.7 billion and an EIRR of 17.3 percent.

Taken as a whole, therefore, none of these adjustments produced unacceptable NPV and EIRR results.

TABLE 1

Ji-Tong Railway Limited Liability Company -- Comparison of SAR and JRLLC Traffic Estimates
(thousands of tons and thousands of passengers)

	YEAR ONE*				YEAR TWO**			
	SAR	%	JRCL	%	SAR	%	JRCL	%
Freight								
Through	3470	0.846	3889	0.772	6100	0.847	4643	0.761
Coal	2260	0.551	1030	0.204	3970	0.551	1487	0.244
Other	1210	0.295	2859	0.567	2130	0.296	3156	0.517
Local	630	0.154	1151	0.228	1100	0.153	1457	0.239
Coal	NA		490	0.097	NA		713	0.117
Other	NA		661	0.131	NA		744	0.122
Total	4100	1.000	5040	1.000	7200	1.000	6100	1.000
Passengers	830		193		860		280	

* Year One is 1993 for SAR, 1996 for JRLLC.
NA=not available.

** Year Two is 1994 for SAR, 1997 for JRLLC.

Source: SAR, Table 5.1 and 1997 Mission.

TABLE 2

Ji-Tong Railway Limited Liability Company
Comparison of SAR and JRLLC Traffic Forecasts
(thousands of tons and thousands of passengers)

SAR Year	JRLLC Year	Freight		Passenger	
		SAR	JRLLC	SAR	JRLLC
1993	1996	4,100	5040	830	193
1994	1997	7,200	6100	860	280
1995	1998	10,400	6760	900	330
1996	1999	10,400	7435	970	380
1997	2000	10,400	8180	1,010	420
1998	2001	12,400	8834	1,040	460
1999	2002	14,900	9276	1,070	500
2000	2003	17,400	9650	1,110	550
2001		20,100		1,110	
2002		22,800		1,110	
2003		25,300		1,110	

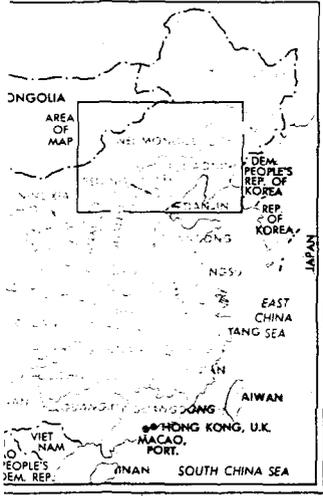
Source: SAR, Table 5.1 and 1997 Mission.

TABLE 3

Inner Mongolia Railway Project
Economic Rate of Return Calculation
(Yuan thousands, 1994 prices)

Year	COSTS							BENEFITS						
	Direct Project	Coal Development	Non-coal Development	Local Development	Tongliao South Yard	Additional Rly Capital	Total Costs	Coal Value Added	Noncoal Value Added	Local Value Added	Passenger Value Added	Transport Cost Savings	Total Benefits	Net Benefit Cash Flow
1989	41,486.6						(41,486.6)							(41,486.6)
1990	236,320.3						(236,320.3)							(236,320.3)
1991	708,850.2	294,137	1,092,006	88,241			(2,183,234.4)							(2,183,234.4)
1992	924,041.0	294,137	1,092,006	88,241			(2,398,425.2)							(2,398,425.2)
1993	576,040.8	294,137	1,092,006	88,241			(2,050,425.0)							(2,050,425.0)
1994	491,927.2	294,137	1,092,006	88,241	50,000		(2,016,311.4)							(2,016,311.4)
1995	349,074.4	294,137	1,092,006	88,241	100,000		(1,923,458.6)							(1,923,458.6)
1996	29,734.8				100,000	4,852	(134,586.8)	162,702	2,278,614	181,816	30,487		2,653,619	2,519,032.6
1997						10,702	(10,702.0)	234,892	2,515,322	230,153	44,230		3,024,596	3,013,894.4
1998						7,702	(7,702.0)	400,437	2,020,387	266,958	52,128	83,431	2,823,341	2,815,639.3
1999						63,000	(63,000.0)	440,422	2,222,127	293,614	60,026	73,409	3,089,599	3,026,598.6
2000						3,851	(3,851.0)	484,553	2,444,788	323,035	66,345	80,765	3,399,486	3,395,634.6
2001						3,851	(3,851.0)	523,293	2,640,252	348,862	72,663	87,222	3,672,292	3,668,441.4
2002						63,851	(63,851.0)	549,476	2,772,354	366,317	78,982	68,690	3,835,818	3,771,967.1
2003						3,851	(3,851.0)	571,630	2,884,133	381,087	86,880	71,459	3,995,189	3,991,337.5
2004								571,630	2,884,133	381,087	86,880	71,459	3,995,189	3,995,188.5
2005						60,000	(60,000.0)	571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,911,368.8
2006								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2007								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2008								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2009								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2010								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2011								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
2012								571,630	2,884,133	381,087	86,880	47,640	3,971,369	3,971,368.8
Total	3,357,475.3	1,470,686	5,460,030	441,206	250,000	221,660	(11,201,056.5)	8,512,073	45,735,174	5,821,621	1,273,659	917,552	62,260,079	51,059,022.5
		NPV @ 12%:	4,596,533		ERR:	19.0%								

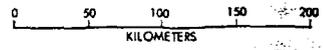
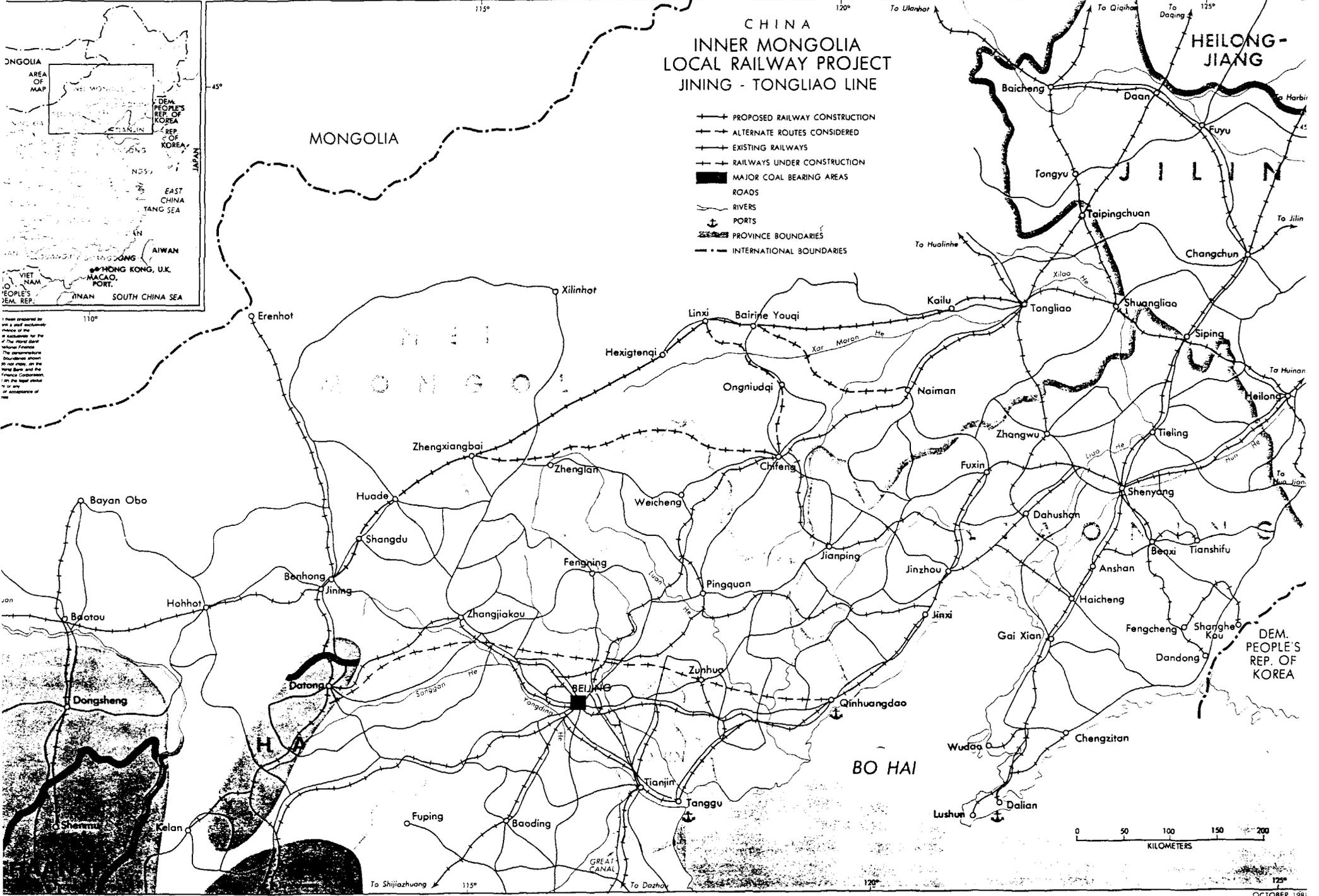
MAP SECTION



This map was prepared by the International Bank for Reconstruction and Development for the project of the Inner Mongolia Local Railway Project. The geographical coordinates shown on this map are based on the International Geodetic Reference System 1975 and the French Cassini system. It is the responsibility of the Bank for any error or omission of any kind.

CHINA INNER MONGOLIA LOCAL RAILWAY PROJECT JINING - TONGLIAO LINE

- +—+— PROPOSED RAILWAY CONSTRUCTION
- - - - - ALTERNATE ROUTES CONSIDERED
- — — — — EXISTING RAILWAYS
- - - - - RAILWAYS UNDER CONSTRUCTION
- MAJOR COAL BEARING AREAS
- ROADS
- RIVERS
- ⚓ PORTS
- — — — — PROVINCE BOUNDARIES
- - - - - INTERNATIONAL BOUNDARIES



IMAGING

Report No.: 16808
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