

ASIAN DEVELOPMENT BANK

PCR: MON 26069

PROJECT COMPLETION REPORT

ON THE

**TELECOMMUNICATIONS PROJECT
(Loan 1300-MON[SF])**

IN

MONGOLIA

August 2001

CURRENCY EQUIVALENTS

	Currency Unit	–	Togrog (MNT)
	At Appraisal		At Project Completion
	(February 1994)		(April 2001)
MNT1.00	=	\$0.0024	\$0.0009
\$1.00	=	MNT409	MNT1,093
SDR1.00	=	\$1.4068	\$1.3845

ABBREVIATIONS

ADB	-	Asian Development Bank
EIRR	-	economic internal rate of return
FIRR	-	financial internal rate of return
KfW	-	Kreditanstalt für Wiederaufbau
MT	-	Mongolia Telecom
km	-	Kilometer
MIS	-	management information system
MOI	-	Ministry of Infrastructures
MTC	-	Mongolia Telecommunications Company
NDF	-	Nordic Development Fund
NORAD	-	Norwegian Agency for Development Cooperation
OSP	-	outside-plant
SDR	-	special drawings rights
PTA	-	Post and Telecommunications Authority
TA	-	technical assistance

NOTES

- (i) The fiscal year (FY) of the Government and Mongolia Telecom ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Mongolia
2.	Loan Number	1300-MON(SF)
3.	Project Title	Telecommunications Project
4.	Borrower	Mongolia
5.	Executing Agency	Mongolian Telecommunications Company
6.	Amount of Loan	SDR17,415,000 (equivalent to \$24.5 million at appraisal)
7.	PCR Number	PCR:MON 651

B. Loan Data

1.	Appraisal	
	- Date Started	01 Feb 1994
	- Date Completed	19 Feb 1994
2.	Loan Negotiations	
	- Date Started	16 May 1994
	- Date Completed	18 May 1994
3.	Date of Board Approval	16 Jun 1994
4.	Date of Loan Agreement	02 Aug 1994
5.	Date of Loan Effectiveness	
	- In Loan Agreement	90 days after date of Loan Agreement
	- Actual	05 Aug 1994
	- Number of Extensions	None
6.	Closing Date	
	- In Loan Agreement	31 Dec 1999
	- Actual	01 Jun 2000
	- Number of Extensions	One
7.	Terms of Loan	
	- Service Charge	1 percent per annum
	- Maturity	40 years
	- Grace Period	10 years
8.	Terms of Relending	
	- Interest	6.6 percent per annum
	- Maturity	25 years
	- Grace Period	5 years
	- Second-step Borrower	Mongolian Telecommunications Company

9. Disbursements

a. Dates

Initial Disbursement 19 Aug 1994	Final Disbursement 1 Jun 2000	Time Interval 5.8 years
Effective Date 5 Aug 1994	Original Closing Date 31 Dec 1999	Time Interval 5.3 years

b. Amount

(\$ million equivalent as of April 2001)

Cat. No.	Project Component	Original Allocation	Last Revised Allocation	Net Amount Disbursed	Undisbursed Balance
01	Outside-Plant (OSP)	11,849,756	17,848,325 ^a	20,998,758	(3,150,433)
02	Equipment and Supplies	348,895	351,454	137,122	214,332
03	Consulting Services	2,750,359	2,769,078	2,411,673	357,405
04	Service Charge	360,149	351,377	351,377	0
05	International Work Experience	180,075	173,960	115,198	58,762
06	Unallocated	2,760,207	2,616,759	0	2,616,759
07	Local Expenditures for OSP	6,250,560	0 ^b	0	0
	Total	24,500,000 ^c	24,100,954 ^d	24,014,129	96,825 ^e

^a Including the amount originally allocated for Category 07.^b Incorporated into Category 01.^c Equivalent to SDR17,415,000 at appraisal.^d The SDR exchange rate depreciated during implementation from SDR1=\$1.4068 at appraisal to SDR1=\$1.3845 at loan closing.^e Cancelled at loan closing.

10. Local Costs (Asian Development Bank-financed)

- Amount (US Dollars)	\$1.4 million
- Percentage of Local Costs	17 percent
- Percentage of Total Cost	3 percent

C. Project Data

1. Project Cost

Item	Appraisal Estimate	Actual
Foreign Exchange Cost	36.47	41.00
Local Cost	12.13	8.08
Total Cost	48.60	49.08

(\$ million)

2. Financing Plan

(\$ million)

Cost	Appraisal Estimate			Actual		
	Foreign	Local	Total	Foreign	Local	Total
Implementation Costs						
MT	0.00	2.03	2.03	0.20	4.51	4.71
ADB	17.89	6.13	24.02	22.26	1.40	23.66
KfW	6.29	0.00	6.29	7.02	0.00	7.02
Nordic Group ^a	11.66	0.00	11.66	10.66	0.00	10.66
Subtotal	35.84	8.16	44.00	39.94	5.91	46.05
Service Charges During Construction						
MT	0.00	3.85	3.85	0.51	2.17	2.68
ADB	0.36	0.12	0.48	0.35	0.00	0.35
KfW	0.13	0.00	0.13	0.00	0.00	0.00
Nordic Group ^a	0.14	0.00	0.14	0.00	0.00	0.00
Subtotal	0.63	3.97	4.60	0.86	2.17	3.03
Total	36.47	12.13	48.60	41.00	8.08	49.08

ADB = Asian Development Bank, KfW = Kreditanstalt für Wiederaufbau, MT = Mongolia Telecom.

^a The Nordic Group consisted of the Government of Norway, the Nordic Development Fund (NDF), and the Norwegian Agency for Development Cooperation (NORAD).

3. Cost Breakdown by Project Component

(\$ million)

Item	Appraisal Estimate			Actual		
	Foreign	Local	Total	Foreign	Local	Total
A. Base Costs						
Telephone Exchange Lines	5.32	0.28	5.60	5.46	0.09	5.55
Outside-Plant Lines	11.85	5.09	16.94	19.59	4.23	23.82
Regional Trunk Transmission and Spurs	5.56	0.56	6.12	7.04	0.03	7.07
Transmission Solar Power Supplies	2.37	0.24	2.61	2.30	0.14	2.44
Public Telephone Call Offices	0.22	0.02	0.24	0.39	0.00	0.39
Accounting and MIS Computer and Software	0.35	0.04	0.39	0.14	0.00	0.14
Emergency Maintenance Spares and Equipment	0.24	0.00	0.24	0.20	0.00	0.20
Exchange Buildings, Civil Works and Land	0.00	0.25	0.25	0.00	1.40	1.40
Laboratory and Testing Equipment	0.00	0.00	0.00	0.09	0.00	0.09
Corporate and Human Resource Plan for MT	0.42	0.02	0.44	0.43	0.00	0.43
Human Resource Development	0.18	0.02	0.20	1.26	0.00	1.26
Project Design and Management	2.75	0.14	2.89	2.41	0.02	2.43
Staff Training of Trainers	1.05	0.11	1.16	0.50	0.00	0.50
Design of Telephone Exchange Lines	0.00	0.00	0.00	0.32	0.00	0.32
Subtotal A	30.31	6.77	37.08	40.14	5.91	46.05
B. Contingencies						
Physical Contingency	2.39	0.67	3.06	0.00	0.00	0.00
Price Contingency	3.14	0.72	3.86	0.00	0.00	0.00
Subtotal B	5.53	1.39	6.92	0.00	0.00	0.00
C. Service Charges During Construction						
ADB Loan	0.36	2.32	2.68	0.35	2.17	2.52
Other Loans	0.27	1.65	1.92	0.51	0.00	0.51
Subtotal C	0.63	3.97	4.60	0.86	2.17	3.03
Total	36.47	12.13	48.60	41.00	8.08	49.08

ADB = Asian Development Bank, MIS = Management Information System, MT = Mongolia Telecom.

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants	Sep 1994	Aug 1994
Completion of Design:		
Outside-Plant	Sep 1994	Dec 1994
Telephone Exchange Lines	Mar 1995	Aug 1995
Trunk Transmission Radio Power Supplies	Sep 1994	Dec 1994
Trunk Transmission Radio	Sep 1994	Mar 1995
Final Completion of Civil works	Jun 1997	Aug 1997
Equipment and Supplies:		
First Procurement	May 1995	Nov 1995
Last Procurement	Feb 1997	Feb 1997

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-days	Specialization of Members ^a
Fact-finding	20 Jul – 6 Aug 1993	4	72	a, d, g, h
Appraisal	1-19 Feb 1994	6	114	a, b, c, e, f, j
Inception	15-30 Jul 1994	2	26	a
Review 1	18-21 Oct 1994	1	4	a
Review 2	1-12 Aug 1995	1	12	a
Mid-term Review	16-25 Sep 1996	1	10	a
Review 3 ^b	29 Aug-9 Sep 1997	3	36	a, i
Review 4 ^b	24 Mar-1 Apr 1998	1	9	a
Review 5 ^b	6-17 Apr 1999	1	12	a
Review 6 ^c	9-21 Nov 1999	1	13	a
Project Completion				
Review ^d	23 Apr-4 May 2001	3	36	a, h, i

^a a-engineer, b-financial analyst, c-counsel, d-economist, e-procurement specialist, f-programs officer, g-staff consultant/policy specialist, h-staff consultant/financial analyst, i-assistant project analyst, j-mission secretary.

^b In conjunction with review of Loan No.1256-MON: *Ulaanbaatar Airport Project*, for SDR25.745 million, approved on 12 October 1993, and Loan No.1370-MON: *National Air Navigation Development Project*, for SDR15.410 million, approved 5 September 1995.

^c In conjunction with review of Loan 1370-MON and Loan 1364-MON: *Roads Development Project*, for SDR16.052 million, approved on 22 August 1995.

^d The Mission comprised Jean-Marie Lacombe, Sr. Transport Specialist and Mission Leader, John Spurr, Staff Consultant and Financial Analyst, and Teresita S. Capati, Assistant Project Analyst.

I. PROJECT DESCRIPTION

1. The Project was the first loan approved by the Asian Development Bank (ADB) to the telecommunications sector in Mongolia. In line with the Government's development strategy and ADB's country operational strategy, the objective of the Project was to assist Mongolia's transformation to a market economy by removing bottlenecks created by inefficient telecommunications.¹ The Project was to achieve this objective by (i) promoting policy reforms, sector restructuring, and institutional development; (ii) enabling more efficient and cost-effective use of existing facilities to meet demand in three principal economic centers; (iii) providing for a stronger commercial, financial, and operational focus for the Mongolian Telecommunications Company; (iv) enhancing the sector's capacity for self-financing, domestic resource mobilization, and foreign private investment; (v) coordinating and integrating the activities of other funding institutions; and (vi) assisting in the development of human resources for the management of the sector and operation of the network facilities.

2. Designed to establish a balanced and basic integrated digital telecommunications network in the cities of Ulaanbaatar, Erdenet, and Darkhan, the project scope included two main components. The first one was to balance and expand the network through the supply and installation of (i) about 16,000 telephone exchange lines and about 48,500 outside-plant (OSP) lines in Ulaanbaatar, Erdenet, and Darkhan; (ii) digital trunk radio transmission systems between Ulaanbaatar and Erdenet and between Ulaanbaatar and Darkhan; (iii) emergency plant and equipment and solar power supplies for trunk radio systems; (iv) about 400 public telephone call offices; (v) computer hardware and software for accounting and management information systems; and (vi) minor works to extend telephone exchange facilities. The second project component covered the provision of consulting services for (i) preparation of a corporate plan and human resource plan; (ii) project design and implementation management, (iii) training of trainers; and (ii) international regulatory training.

3. The Project was appraised from 1 to 19 February 1994. On 16 June 1994, ADB approved a loan of SDR17.42 million (\$24.50 million equivalent) from its Special Funds resources and two advisory technical assistance (TA) grants.² The Loan Agreement was signed on 2 August 1994 and was declared effective on 5 August 1994. The original loan closing date was extended once, from 31 December 1999 to 30 April 2000.³ The loan account was closed on 1 June 2000. By the loan closing date SDR17.34 million (\$24.00 million equivalent) were disbursed. The chronology of major events in project implementation is in Appendix 1.

II. EVALUATION OF IMPLEMENTATION

A. Project Components

4. The project components were implemented as envisaged at appraisal. The loan financed the OSP lines, computers and software for the accounting and management information systems, consulting services for project design and management, and international training for regulatory body staff. The telephone exchange lines, including laboratory and testing equipment, were financed by the Kreditanstalt für Wiederaufbau (KfW). The Nordic Group (consisting of the Government of Norway, the Norwegian Agency for Development Cooperation [NORAD], and the

¹ ADB assisted the Government in developing policy and sector reforms through TA 1686-MON: *Telecommunications Development Plan*, for \$600,000, approved on 1 April 1992.

² TA 2101-MON: *Telecommunications Sector Reform*, for \$588,000 and TA 2102-MON: *Accounting and Management Information Systems and Tariff Reform for the Mongolian Telecommunications Company*, for \$599,000.

³ The extension of the loan closing date from 31 December 1999 to 30 April 2000 was required to enable the Executing Agency to prepare the project completion report.

Nordic Development Fund [NDF] financed the regional trunk transmission systems and spurs (NDF/NORAD), transmission power supplies (NDF), public telephone call offices (NDF), and consulting services (Government of Norway) for the preparation of the corporate and human resource plans, and training of trainers. The emergency maintenance parts and equipment were procured by the Executing Agency (EA) from its own resources, as they could not be financed by NORAD, as originally anticipated, due to shortage of funds.⁴

5. Overall the actual quantities of equipment procured exceeded those estimated at appraisal (Table 1).⁵ The additional equipment was financed through per unit contract savings resulting from lower than anticipated costs per switching/OSP lines and per kilometer (km) transmission. However, the anticipated numbers of solar power systems and public telephones could not be procured because the prices of successful bids were significantly higher than the estimate. The list of major items procured under the Project are in Appendix 2.

Table 1: Project Components

Component	Appraisal	Actual
Telephone Exchange Lines (no.)	16,000	24,040
Outside Plant Lines (pairs)	48,500	85,500
Digital Micro Link (km)	342	898
Solar Power Systems (no.)	43	25
Public Telephones (no.)	400	200

km = kilometer, no. = number

Sources: Mongolia Telecom, Asian Development Bank staff.

B. Implementation Arrangements

6. At appraisal, the then Mongolian Telecommunications Company (MTC), a State-owned agency, was the EA. As a result of the first phase of privatization concluded in mid-1995, Mongolia Telecom (MT) replaced MTC for operating the telecommunications network.⁶ However, the assets remained the property of the Post and Telecommunications Authority (PTA) under the Ministry of Infrastructure (MOI), and were leased to MT. MT ensured the responsibilities as EA under the Loan Agreement. Some PTA staff was seconded to MT to ensure project financial management. The project implementation unit headed by a qualified project manager was suitably staffed with competent and qualified personnel. The performance of MT as the EA was satisfactory.

C. Project Cost

7. The actual project cost was \$49.08 million compared with an appraisal estimate of \$48.60 million, and comprised \$41.00 million (83 percent) in foreign exchange cost and \$8.08 million (17 percent) in local currency cost. At appraisal the foreign exchange and the local currency costs were estimated at \$36.47 million and \$12.13 million, respectively (Appendix 3). The foreign currency requirements exceeded the estimate owing mainly to the higher than anticipated OSP cost.⁷ The

⁴ The NORAD funds were fully used to finance the regional trunk transmission and spurs.

⁵ Overall the appraised quantities were adequate to meet the demand; however, the unit costs were slightly overestimated to cover price uncertainties for this first ADB-financed telecommunications project in a country newly opened to market economy.

⁶ MT is a joint venture of the Government of Mongolia and Korea Telecom of the Republic of Korea.

⁷ The bid price of the lowest evaluated and substantially responsive OSP bidder was higher than anticipated at appraisal. However, during implementation, the actual civil works were implemented for a cost less than the contract amount. The consequent contract savings were used to procure additional equipment. The overall local cost decrease is attributed to lower than anticipated civil works costs and interest during construction under the KfW and Nordic Group loans relented to MT by the Government.

foreign currency cost overrun was offset by the lower than anticipated local cost. While the project scope was extended (para. 5), the Project was implemented for the cost estimated at appraisal.

8. At appraisal the ADB loan of \$24.50 million equivalent (SDR17.42 million) was to finance 50 percent of the total project cost. The loan was to cover the foreign exchange cost of the ADB-financed components (para. 4), including contingencies and service charges, and \$6.25 million equivalent of the OSP local currency cost. KfW and the Nordic Group were to provide parallel cofinancing to finance the balance of the foreign currency cost of \$18.22 million equivalent. The KfW loan amounted to \$6.42 million equivalent, and the Nordic Group through grants and loans provided \$11.80 million equivalent. The balance of the project cost (\$5.88 million or 12 percent) was to be provided by MT. The actual foreign exchange cost of the ADB-financed components, amounting to \$22.61 million (including \$0.35 million service charge during construction), was financed in full by the loan. In addition the loan financed \$1.40 million of the OSP local currency cost. Of the foreign exchange cost balance of \$18.39 million, the KfW and Nordic Group loans and grants financed \$17.68 million and \$0.71 million was financed by MT.⁸ The local currency cost balance of \$6.68 million equivalent was financed by MT. The ADB's loan financed 49 percent of the total project cost and 55 percent of the foreign exchange cost. The anticipated and actual financing plans are summarized in Table 2 and detailed financing plans are in Appendix 4.

Table 2: Financing Plan
(\$ million)

Agency	Appraisal				Actual			
	Foreign	Local	Total	Percent	Foreign	Local	Total	Percent
ADB	18.25	6.25	24.50	50	22.61	1.40	24.01	49
KfW	6.42	0.00	6.42	13	7.02	0.00	7.02	14
Nordic Group	11.80	0.00	11.80	24	10.66	0.00	10.66	22
MT	0.00	5.88	5.88	13	0.71	6.68	7.39	15
Total	36.47	12.13	48.60	100	41.00	8.08	49.08	100

ADB = Asian Development Bank, KfW =Kreditanstalt für Wiederaufbau, MT = Mongolia Telecom.

Source: Mongolia Telecom, ADB staff.

9. The grant savings realized under the consulting services financed by the Government of Norway are being utilized to finance further privatization of the telecommunication sector.⁹

D. Project Schedule

10. The implementation period envisaged at appraisal was about five years, with completion of the physical works in March 1999. The Project was substantially completed in May 1999 with the issuance of the acceptance certificate for the OSP. The delay in the implementation of the OSP by about five months, was due to delays in design and initial poor performance of the subcontractors. Also, the implementation of the trunk transmission radio power units under NDF financing was delayed by about two years owing to belated design and contract award. Despite these delays the project facilities and equipment were completed to the required standards and commissioned within the anticipated schedule (Appendix 5).

⁸ The foreign exchange cost financed by MT included \$0.20 million for emergency maintenance parts and equipment, and \$0.51 million interest during construction under the KfW and NDF loans.

⁹ The Government of Norway provided a \$2.00 million equivalent grant to finance the training of trainers and the development of the MT's corporate and human resource development plans. As the final disbursements for consulting services amounted to about \$0.93 million, the \$1.07 million grant surplus is being used to finance consulting services for the second phase of sector privatization.

E. Engagement of Consultants and Procurement of Goods and Services

11. Consulting services for project design and management were financed entirely by ADB's loan. Following ADB's approved advance action, the recruitment of consultants was carried out in accordance with ADB's *Guidelines on the Use of Consultants*. The \$2.38 million consultants' contract for project design and management was signed on 11 August 1994 a week after loan effectiveness. The consultants were mobilized on 13 September 1994 and the services substantially completed in February 1999.

12. The Government of Norway financed two consulting services contracts for (i) corporate and human resource plans for MT in the amount of \$520,552 and (ii) training of trainers in the amount of \$587,982. Contracts were signed on 18 October 1995 and 9 August 1995, respectively. Consultants for the development of the corporate and human resource plans were mobilized in November 1995 and the services completed in March 1997. The training of trainers program commenced in October 1995 and was completed in August 1996. As ADB administered the contracts financed by the Norwegian grant, all consulting services financed by the Government of Norway were procured using ADB's *Guidelines on the Use of Consultants*.

13. The Project was implemented under 14 contract packages: seven for the supply, delivery and installation of telecommunications equipment, four for procurement of consulting services, and three for training and human resource development (Appendix 6). The ADB-financed contract packages consisted of two contracts under international competitive bidding for procurement of equipment and consulting services, one contract under international shopping for procurement of computers and accounting software, and one directly negotiated contract for international training. All ADB-financed contracts were procured following ADB's *Guidelines for Procurement*.¹⁰ The equipment contracts financed by KfW and the Nordic Group were procured through local competitive bidding within the countries or group of countries financing the relevant contract packages. All goods and services were procured without any major problems.

F. Performance of Consultants, Contractors, and Suppliers

14. The consultants' performance in assisting MT with design and project management services was satisfactory. Also the performance of the consultants financed by the Government of Norway was satisfactory. Apart from the delays that occurred in the OSP and trunk transmission radio power supplies contracts, no significant problems were experienced with suppliers and contractors.

G. Conditions and Covenants

15. Most of the loan covenants were complied with (Appendix 7). The main areas of noncompliance related to the Borrower's failure to (i) advise ADB of a new KfW loan, and (ii) establish a regulatory body.¹¹ However, these did not affect project benefits. The new KfW soft loan of DM37.00 million signed in September 1998 and complemented by a DM1.70 million grant, is financing rural telecommunications. While the Borrower did not officially advise ADB of this development assistance, the lease fees paid to the Government by MT as the operator of the network are sufficient to service the KfW loan.

16. The action plan for sector restructuring and financial performance improvement included the establishment of a regulatory body no later than 30 June 1995 (Loan Agreement, Schedule 6, para.

¹⁰ ADB's approved advance procurement action and retroactive financing for civil works and equipment were not applied since the bidding and signing of the OSP contract took place after loan effectiveness.

¹¹ The financial covenant regarding accounts receivables was partly complied with (para.31).

8). To date the regulatory body has yet to be established. The telecommunications law is being amended to specify the functions and powers of the regulator. The amendment has been delayed due to changes in the administration. The amended law is expected to be passed during the 2001 autumn session of the Parliament. Assurance was given to ADB that upon approval of the amended law the regulatory body will be set up and adequately staffed. The Government recognized the need to have the regulator operational prior to implementing the second phase of sector privatization to ensure sound and sustainable development of the sector.

H. Disbursements

17. By the loan closing date of 1 June 2000, \$24.00 million—including \$0.35 million for service charge during construction—were disbursed (Appendix 8).¹² The \$0.12 million undisbursed loan balance was cancelled on loan closure. MT disbursed \$7.39 million equivalent to cover \$0.20 million foreign exchange costs, \$4.51 million local currency costs, and \$2.68 million interest during construction.¹³

I. Environmental and Social Impacts

18. The Project was classified as environmental category C. Cables required for the OSP access networks have been laid underground, inside-plants have been housed within existing buildings, microwave radio systems have been erected on existing radio towers, and building extensions have been constructed in accordance with national building standards. No adverse environmental impact resulted from the Project. The Project did not require any acquisition of land, nor did it affect landowners as cable trenches were opened along the urban road network. The Project was gender neutral. The first sector privatization phase did not involve any staff reduction.

J. Performance of the Borrower and the Executing Agency

19. The performance of the Borrower, MTC, and PTA was generally satisfactory. Communications with ADB were timely, implementation arrangements were well established and maintained, and the conditions and covenants stipulated in the Loan Agreement were generally complied with. The five-month extension of the loan closing date was required to enable MT and PTA to prepare the project completion report.

20. The policy dialogue under the Project focused on reforms to guide the transformation of the sector from a Government-run operation to a commercially oriented sector that meets markets requirements.

1. Sector Reform

21. Despite some delays and the absence of a regulatory body, most of the actions of the time-bound plan for sector restructuring have been implemented. The Government has implemented the following major reforms: (i) issuing a policy statement in May 1994 to establish the market-based framework under which the sector will operate; (ii) separation of postal services from telecommunications in November 1994; (iii) ending subsidies from telecommunications to postal services in January 1996; (iv) approving the Telecommunications Law in November 1995; (v) commercializing MT, contracting the performance of MT's managing director, and establishing

¹² As a result of the depreciation of the SDR to the US dollar from \$1.41 at appraisal to \$1.38 on the loan closing date, ADB financing decreased from \$24.50 million to \$24.10 million.

¹³ The ADB Special Funds resources loan was relented by the Government to Mongolia Telecommunications Company under a subsidiary loan agreement at a 6.6 percent interest rate. Upon creation of MT the subsidiary loan agreement was transferred to MT. Of the \$2.68 million interest during construction (IDC), \$2.17 was for IDC under the subsidiary loan and \$0.51 million was for IDC under the KfW and NDF loans.

performance targets for MT's network development and quality of service; (vi) preparing corporate plans to encourage autonomy and accountability of management, training of staff in finance, operations, and technical matters, and establishing a board of directors for MT; (vii) part privatizing MT, in August 1995, through the sale of 40 percent of MT to a foreign investor (Korea Telecom) and establishing a Government-owned holding company to lease the assets to MT; (viii) selling of cellular telephone licenses to two joint venture companies: Mobicom in August 1995 and Skytel in May 1999;¹⁴ and (ix) establishing timed local telephone calls in July 1996 to improve cost recovery and network efficiency.

2. Commercialization of the Sector

22. The commercialization of MT was instrumental in raising the efficiency of the provision of services. Corporate governance was improved through the part privatization of MT in 1995. To increase MT's autonomy and accountability, a corporate plan was developed under the Project. The plan defines the contract between MOI and MT management on performance targets for finance, marketing, and operations. The 1999-2002 corporate plan issued in October 1999 was reviewed by ADB and found acceptable. MT introduced a computerized accounting system according to international standards in 1995. While MT has complied with and, in some cases, exceeded the requirements of the Action Plan, there is still a need for MT to continue improving commercial, marketing, and human resource development activities.

23. The second phase of privatization is being assisted through technical assistance financed by the Government of Norway (para. 9).¹⁵ The TA is to help the Government to (i) introduce a new telecommunications law which will foster a faster and more market-oriented development of the sector, (ii) establish an independent regulatory body, (iii) reevaluate telecommunications assets currently owned by the Government, and (iv) market, negotiate, and conclude the second privatization agreement. However, the TA is currently on hold due to delay in passing the amended telecommunications law and the Government's pending decision on the packaging of telecommunications assets to be transferred to the private sector during 2001-2004.

3. Training and Human Resource Development

24. Staff training and human resource development were provided under the Project through two modules: (i) training for the sector's regulatory staff, financed by the ADB loan; and (ii) training for MOI, MT, and the Technical University training staff, financed by the Government of Norway. Under the ADB-financed human resource development component, 10 regulatory staff from MOI received a three-month training program at the Royal Melbourne Institute of Technology (Australia). Implemented successfully from October 1995 to April 1996, the training of trainers program covering technical, financial, marketing, and human resource disciplines, was provided by Korea Telecommunications International to 135 staff from MT, MOI and the Technical University of Ulaanbaatar. In addition training was provided to (i) MT's accounting staff under TA 2102-MON (para.3), and (ii) MT's operation and maintenance staff through suppliers' contracts financed by KfW.

25. While the training arrangements met the requirements anticipated at project appraisal, there is a continuing need for MT and MOI to improve their staff's qualifications and expertise in line with the corporate and human resource plans prepared under the Project. Further training in regulatory

¹⁴ Mobicom is a joint venture between Mongolian and Japanese investors; Skytel is a joint venture between investors from Mongolia and the Republic of Korea.

¹⁵ The second phase of privatization will consist of the Government acquiring additional shares in MT through transfer of PTA telecommunications assets to MT. The private investors will correspondingly increase their share to maintain the original proportion in the shareholding in MT.

functions is being provided under the Government of Norway-financed assistance to MOI in implementing the second privatization phase.

26. In addition to the training provided under the Project, MT developed its own in-house training program. In 2000, MT conducted 37 different training courses at its training center. These courses involved 715 trainees, equivalent to 16 percent of the total workforce. The content of the courses was wide ranging and included training for engineers from rural areas who will be working at digital exchanges, training for operators of Internet cafes, and training for operators of FM radio equipment. Also, 50 employees were sent abroad for training.

4. Sector Development

27. The sector is being developed further through assistance from KfW and the Republic of Korea. The KfW soft loan of DM37.00 million complemented by a DM1.70 million grant is financing the development of rural telecommunications in eastern, southern, and western provinces through the provision of switching, point to multi-point systems, very small aperture satellite networks, OSP, consulting services, and training programs. The Government of the Republic of Korea has also agreed to provide a soft loan to finance fiber optic trunk transmission systems in three eastern provinces.

K. Performance of the Asian Development Bank

28. ADB followed established procedures and standards in preparing and implementing the Project, and its performance was satisfactory. The Project did not face any major implementation-related issues. ADB staff, through frequent review missions and exchanges of correspondence, developed and maintained a successful partnership with the Government and the EA, and provided the required monitoring and follow-up. The aide-memoire prepared at the end of each review mission highlighted issues requiring particular attention, and recorded the agreements reached with the Borrower, PTA, and MT on actions required to ensure successful implementation of the Project.

III. EVALUATION OF INITIAL PERFORMANCE AND BENEFITS

A. Financial Performance

29. In July 1996, timed local calls were introduced for the first time in locations where digital switching was installed, both in and outside the project area. With the old analog switching systems, timed local calls were not technically possible. The initial tariff was MNT3.00 per minute, with the first 150 minutes per month being free of charge. In 1997, the timed local call tariff was increased to MNT5.00 per minute, and in 1998, to MNT6.00 per minute. On 1 April 2001, the free limit was stopped. Currently, MT is seeking approval to increase the timed local call tariff to MNT9.00 per minute. In 1997, the five bands of national long-distance tariffs were simplified to three bands: less than 300 km; 301 to 1,000 km; and over 1,000 km. At the same time and again in 1998, the long-distance tariffs were increased. Since 1996, MT's international tariffs have been progressively and significantly decreased for all destination countries—for example, the standard per minute rate for calls to North America is currently \$1.50 compared with \$5.00 in 1996. Since 1995, installation fees for new lines have been gradually increased. MT's tariff history is provided in Appendix 9.

30. With the introduction of modern technology under the Project, coupled with the impetus of the first phase of privatization in 1995, MT has become more efficient and customer oriented (Appendix 10 summarizes a number of performance indicators). MT's number of staff per thousand lines is currently 40 compared with 55 in 1997. Although not "world standard", this staffing level is a solid achievement given the vast size of Mongolia and the need to have a minimum staff presence in remote and distant locations. In absolute terms, MT's number of staff has fallen from 4,794 in

1997 to a current level of 4,556. By 2005, the staffing level is projected to be 4,010. MT's staff rationalization goals are being achieved through a combination of voluntary retirees, vacancies from retirements not being filled up, and economies resulting from the recently acquired modern technology (Appendix 11). By and large, MT's operational performance has exceeded appraisal targets.

31. Despite high charges for the lease of assets from the Government, significant decreases in international tariffs, and no increases in local and long-distance tariffs since 1998, MT's financial condition has remained reasonable. While almost all network assets are leased from Government, MT managed to self-finance a modest amount of network investment each year (about \$2.00 million in fiscal year 2000). As regards the financial action plan and finance-related covenants prescribed at appraisal, MT has not met the targeted level of receivables. In 2001, subscriber receivables are equivalent to about 60 days' billings compared with the covenanted level of no more than 45 days. The principal reason for noncompliance is that State-owned organizations tend to be slow in settling their telephone bills. However, the covenant was complied with in 2000. Compared with appraisal, MT's financial performance has exceeded expectations despite the local currency depreciation.¹⁶ MT's financial statements (1995-2000) and budget for 2001 are provided in Appendix 12.

32. With the assistance of TA 2102-MON (para.3), MT introduced computerized accounting systems based on international standards. This initiative was successful, enabling MT to produce timely financial statements of excellent quality each year. MT's audited accounts for the fiscal year ending 31 December 2000 were submitted to ADB in May 2001. To facilitate business planning, MT uses a financial projection model compatible with its accounting, marketing, and tariff systems. Since 1999, MT has also produced an annual report of good quality.

33. The reevaluated financial internal rate of return (FIRR) for the Project is 12.6 percent compared with 10.2 percent at appraisal. The details of the reevaluation are provided in Appendix 13. At appraisal the income tax rate used in the FIRR analysis was 25 percent. In the reevaluation, however, the current rate of 40 percent (applicable since 1995) was used. Incremental revenues in the FIRR reevaluation resulted from: timed local calls, public payphone revenue, rental and connection fees for new subscribers, and long distance and international incremental revenues attributable to a combination of subscriber growth, improved call completion rates, and higher than projected traffic growth. The Project continues to be financially viable.

B. Economic Performance

34. The economic reevaluation is based on actual project costs and revised revenue projections. Two economic internal rates of return (EIRR) have been calculated based first, on the amounts billed to users including value-added tax as done at appraisal (case 1), and second, on an estimate of the economic value of the telecommunication services provided under the Project, in accordance with ADB's *Guidelines for Economic Analysis of Telecommunications Projects*, issued in 1997 after appraisal (case 2). In the latter case, an economic valuation factor of 1.3 was chosen for residential users, and 1.2 for other users.¹⁷ The reevaluated EIRRs are 20.7 percent for case 1 and 26.3 percent for case 2. At appraisal the estimated EIRR was 18.5 percent. Sensitivity analysis indicates that a 10 percent reduction in revenue results in the EIRRs falling to 18.3 percent (case 1) and 23.4 percent (case 2). Details of the EIRR reevaluation are provided in Appendix 14. The

¹⁶ The local currency depreciated from \$1.00 = MNT400 in 1994 to \$1.00 = MNT1,093 in 2001.

¹⁷ An economic valuation factor (EVF) is used to convert a stream of telecommunications financial revenues into the corresponding gross economic benefits. It provides a ratio between the economic benefits to users as a result of telecommunications services, and the tariffs that they pay. An EVF should be calculated for each user group bearing in mind the economic benefits they derive, which will vary according to the type of user and the cost of alternative means of communication.

indirect benefits arising from the introduction of modern telecommunications system to trade, commerce, and finance are not captured in the analysis.

C. Attainment of Benefits

35. The modern OSP, digital switching, and digital transmission systems provided under the Project eased the severe bottlenecks in the national telecommunications network. In the pre-project conditions, the network was characterized by decades old, obsolete, and unreliable Soviet-era analog equipment. The principal beneficiaries were pre-project subscribers who gained access to modern technology, i.e., a changeover from analog to digital switching and access to modern OSP. The secondary beneficiaries were new subscribers who gained access to a modern telephone service as a result of network expansion.

36. The beneficiaries comprised residential subscribers (about 76 percent of total subscribers) and business/government subscribers (about 24 percent). Because the Project involved digitalizing part of the trunk transmission backbone, there is a third category of beneficiaries, namely, nationwide analog subscribers outside the project area whose outgoing or incoming long-distance and international calls are routed through the project facilities. The Project has been a major building block for facilitating, developing, and expanding Internet and E-mail communications. At appraisal, the main project locations were Ulaanbaatar, Darkhan, and Erdenet. During implementation, however, the network was modernized within the project budget in three other main cities: Sukhbaatar, Bulgan, and Arvaiheer (para. 5). The investment in these three additional cities was consistent with the sector master plan, which recommended that main cities should be modernized as a matter of priority in order to maximize revenues and boost economic growth.

37. Without the Project, the network would have become obsolete and unreliable, on the verge of collapse, and with virtually no prospects to accommodate traffic growth. The modern facilities provided under the Project have resulted in timed local calls, new public payphones, adequate provision for traffic growth, about 32,400 new subscribers,¹⁸ and a reliable network that provides a much better quality of service.

IV. TECHNICAL ASSISTANCE

38. Two advisory TAs were approved with the loan: TA 2101-MON: *Telecommunications Sector Reform*, and TA 2102-MON: *Accounting and Management Information Systems and Tariff Reform for the Mongolian Telecommunications Company* (para. 3).

39. The objectives of TA 2101-MON were to assist the Government with sector reforms that included assistance for (i) the preparation of the first telecommunications law and its passage through the Parliament, and separation of posts and broadcasting operations from telecommunications authority; (ii) establishment of MT's stakeholder board; (iii) identification of regulatory mechanisms; (iv) privatization of MTC; and (v) issuance of cellular telephone licenses to private service providers. The consulting services commenced in October 1994 and the final report was submitted to ADB in January 1996. The TA was generally successful as it provided the required assistance to the Government in implementing its reform program.

40. The objectives of TA 2102-MON were to assist MT in establishing commercial accounts and a management information system, and to review MT's tariffs and determine an appropriate tariff-setting mechanism. The consulting services commenced in October 1994 and the final report was submitted to ADB in December 1995. The TA was successful in helping MT establish an

¹⁸ To date there are about 73,700 telephone subscribers in the three main cities of Ulaanbaatar, Erdenet, and Darkhan compared with 41,300 subscribers at appraisal.

international standard accounting system, a billing system for Ulaanbaatar customers, computer-aided accounting system, a cost allocation model for setting tariffs, and a financial projection model. The TA consultants assisted with the procurement of computers and software for the accounting and management information systems. The TA was generally successful as the objectives were met.

41. In addition to the ADB TAs, the grant from the Government of Norway financed the preparation of corporate and human resource plans. The consulting services commenced in November 1995 and the final report was submitted in June 1996. The TA was successful in involving MT and MOI staff in preparing functional plans.

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

42. The Project was physically completed in May 1999, two months after the completion date of March 1999 envisaged at appraisal. Final payments to equipment suppliers and consultants were made in April 2000. Despite high lease charges, MT's financial performance is satisfactory. MT has a modest capacity to finance investment from its own resources. The Project met the main objective of promoting economic growth and market-oriented reforms by modernizing and rebalancing the telecommunications network. The Project has removed severe constraints and bottlenecks in telecommunications and has facilitated the development of good basic telephone service and provision of modern facilities including Internet and E-mail.

43. The Project achieved its objectives. Policy reforms were put in place to allow the first phase of privatization in 1995. The introduction of competition in the mobile service in 1999, substantial institutional development achieved in MT through the installation of international standard accounting systems, the introduction of more efficient operating practices consistent with the network modernization, and the various technical and management training programs provided under the Project helped to modernize the telecommunications sector. Moreover, based on the experience gained during project implementation, MT has institutionalized its own in-house training programs. In a relatively short period of six years, MT has moved from being a government entity with little customer orientation to a partly privatized company with progressive customer service goals, sound financial control, and well-run operations despite the somewhat troubled macroeconomic environment. ADB's review missions in the early part of implementation supported the procurement of additional quantities of plant and equipment under the Project, particularly the additional OSP, which improved the effective functioning of the other parts of the network (switching and transmission).

44. The TA components for sector reform (in particular, the assistance for designing and installing new accounting systems in MT) were successful. Also, the assistance for the first phase of privatization resulted in a strategic investor having a 40 percent stake in MT. The first phase of privatization has helped MT to become more efficient and commercially oriented.

45. The reevaluated FIRR and EIRR are higher than the appraisal estimates. All project facilities are in operation and no defects or malfunctions have been observed. Based on the overall assessment principles outlined in ADB's *Guidelines for the Preparation of Project Performance Audit Reports*, the Project is classified as successful (Appendix 15).

B. Lessons Learned

46. The main lesson learned in the first phase of privatization is that Mongolia was not perceived as a good investment destination by the foreign investor community (only two bids were received for the privatization of MT). In addition to physical constraints such as Mongolia's vast land area and relative remoteness, and a small telecommunications market, the risk factors inherent in transition economies are the main reasons for the lack of interest from the private sector. These will need to be overcome with well-designed programs for strengthening policy and governance frameworks. Nevertheless, despite the limited investor interest, the first phase of privatization was successfully concluded. The second phase of privatization needs to be carefully handled, with more emphasis on establishing an independent regulator, achieving full autonomy for MT under a sound corporate governance regime, and realizing a more suitable investment climate by redefining the relationship between the Government, MT, and the prospective investor, so that MT operates with full autonomy, the regulator functions with independence, and the Government only involves itself in high-level policy matters. However, now that MT is in much better financial and operational shape than was its predecessor before the first privatization exercise, in the second phase it will be easier for potential investors to undertake due diligence, particularly since MT has a six-year track record of sustained growth and excellent audited accounts.

C. Recommendations

1. Project-related

47. It is recommended that the policy focus of the draft telecommunications law be amended in order to promote more private sector investment, more autonomy for MT with the Government concentrating on policy matters, and the establishment of an independent regulator. It is also recommended that the Government's privatization program for the sector be amended to allow a phased transfer of all network assets to MT, but with provision to allow competition in the fixed-line service. Pending the outcome of the second phase of privatization, it is recommended that MT's lease charges be reviewed and adjusted downward based on the revaluation of assets recently undertaken. This would enable MT to generate more internal funds for network investment. Also, the lease payments, which at present are transferred in full to the national budget, should be partly reinvested in the sector, in particular to serve the rural areas that are not currently served. Furthermore, MT's dividend policy should be reconsidered with a view to allocating more of MT's reserves to the development of the sector. The financial, operational, and marketing performance indicators as currently recorded by MT should continue to be monitored to facilitate future audit and assessment of MT's performance.

48. The Government agreed to advise ADB of the progress of the sector reform, i.e., passing of the amended telecommunications law, establishment of the regulatory body, and second phase of privatization, in September 2001. MT's financial management and dividend policy will be monitored through MT's financial statements and the annual report to be submitted to ADB before 31 December 2001.

2. General

49. To some degree, the development of rural telecommunications is being addressed through the ongoing KfW-financed project and the recently approved project financed by the Government of the Republic of Korea. However, much more needs to be done because large tracts of rural Mongolia have no access to telephone service. Therefore, the Government needs to seek ways by which more funds could be allocated to rural telecommunications.

APPENDIXES

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12	Mongolia Telecom – Financial Statements	33	8,31
13	Financial Reevaluation	36	8,33
14	Economic Reevaluation	39	8,34
15	Project Performance Rating	42	10,45

CHRONOLOGY OF MAJOR EVENTS IN PROJECT IMPLEMENTATION

1 Apr 1992	Asian Development Bank approved the project preparatory technical assistance (TA 1686-MON) for development of Mongolian telecommunications in the amount of \$600,000 under Japan Special Fund financing.
20 Jul-6 Aug 1993	Fact-Finding Mission.
18 Oct 1993	Management Review Meeting. Management approved advance action for the recruitment of consultants for design and project implementation management and for recruitment of TA consultants.
1-19 Feb 1994	Appraisal Mission.
12 Mar 1994	Tendering for consulting services in project design and management.
15 Apr 1994	The Board of Directors of the Nordic Development Fund (NDF) approved a loan to finance (i) part of regional trunk transmission and spurs, (ii) transmission power supplies, and (iii) public telephone call offices.
18 Apr 1994	Staff Review Committee meeting.
9 May 1994	Norwegian Agency for Development Cooperation (NORAD) approved a tied co-financing grant of \$3.0 million to finance (i) part of regional trunk transmission and spurs, and (ii) emergency maintenance spares and equipment.
16-18 May 1994	Loan negotiations.
16 Jun 1994	ADB approved a loan of SDR17.415 million, (\$24.5 million equivalent) and two advisory TA grants of \$588,000 for Telecommunications Sector Reform (TA No. 2101-MON) and \$599,000 for Accounting and Management Information Systems and Tariff Reform for the Mongolian Telecommunications Company (TA No. 2102-MON).
29 Jun 1994	ADB approved award of consultants' contract for project design and management.
15-30 Jul 1994	Inception Mission.
2 Aug 1994	Loan and TA agreements signed.
5 Aug 1994	Loan effective.
9 Aug 1994	The Government of Germany approved the Financial Cooperation Loan to the Mongolian Government in the amount of DM10.0 million and additional grant of DM1.5 million.
11 Aug 1994	Consultants' contract for project design and management signed.

18-21 Oct 1994	Review Mission 1.
21 Nov 1994	Loan Agreement between Kreditanstalt für Wiederaufbau (KfW) and the Mongolian Government signed in the amount of DM10,000,000.
9 Dec 1994	Tendering for training of trainers.
9 Dec 1994	Tendering for corporate and human resource master plan.
14 Feb 1995	NORAD Agreement signed.
8 Mar 1995	ADB approved a HK\$809,840 contract for the procurement of computer hardware, software and other minor equipment, through direct purchase.
30 Mar 1995	Tendering for outside-plant.
12 Apr 1995	ADB approved a second order of hardware and software equipment, for \$32,624, through direct purchase.
1 Jul 1995	Tendering for regional trunk transmission.
1-12 Aug 95	Review Mission 2.
9 Aug 1995	Contract signed for training of trainers for \$587,982.
2 Oct 1995	Tendering for telephone exchange lines.
18 Oct 1995	Contract signed for preparation of corporate and human resource plans, for \$520,552.
21 Nov 1995	Tendering for public telephone offices.
22 Nov 1995	NDF approved award of contract for regional trunk transmission.
23 Nov 1995	ADB approved contract award for outside plant.
30 Nov 1995	Contract for regional trunk transmission signed, for NKr36,000,000.
4 Dec 1995	Submission of audited project accounts for FY1994
13 Dec 1995	KfW approved award of contract for telephone exchange lines.
17 Dec 1995	Contract for telephone exchange lines signed for DM7,185,869.18.
27 Jan 1996	Contract for outside-plant signed for \$20,998.758.
3 Mar 1996	NDF approved award of contract for the procurement of public telephone offices.
19 Apr 1996	Contract for public telephone offices signed for DKr 2,426,097.25.
May 1996	Tendering for transmission power supplies.

6 Aug 1996	Training of trainers – Final report.
16-25 Sep 1996	Midterm Review Mission.
25 Feb 1997	Contract for supply of solar power systems signed for \$2,299,551.
3 Mar 1997	Corporate and human resource master plans - Final report.
9 May 1997	NDF approved award of contract for the procurement of transmission power supplies.
2 Jun 1997	ADB approved international training for 10 telecommunications regulatory staff at the Royal Melbourne Institute of Technology, Australia.
29 Aug-9 Sep 1997	Review Mission 3.
3 Nov 1997	Submission of audited project accounts for FY1995 and FY1996
23 Mar-22 Apr 1998	Assessment of Mongolia Telecom financial capacity and viability of further privatization by ADB staff consultant.
24 Mar-1 Apr 1998	Review Mission 4.
22 Jul 1998	Final report on Mongolia Telecom financial capacity to ADB.
23 Jul 1998	Submission of audited project accounts for FY1997.
18 Dec 1998	Final acceptance certificate for telephone exchange lines.
26 Feb 1999	Project design and management – Final report.
6-17 April 1999	Review Mission 5.
2 Jun 1999	Submission of audited project accounts for FY1998.
9-21 Nov 1999	Review Mission 6.
5 Jan 2000	ADB approved a four-month extension of loan closing date from 31 December 1999 to 30 April 2000.
19 Jan 2000	Consultants' contract for capacity building and privatization (Phase II) signed.
8 May 2000	Borrower's project completion report submitted to ADB.
1 Jun 2000	Loan account closed and unutilized loan proceeds of SDR72,597.51 canceled.
26 Jun 2000	Submission of audited project accounts for FY1999.
23 Apr-4 May 2001	Project Completion Review Mission.

MAJOR COMPONENTS FINANCED UNDER THE PROJECT

Item	Unit	Appraisal		Actual	
		Site	Quantity	Site	Quantity
Telephone Exchange Lines	Unit	Digital	16,000	Digital	24,040
		Ulaanbaatar	7,000	Ulaanbaatar	9,824
		Darkhan	5,000	Darkhan	5,096
		Erdenet	4,000	Erdenet	4,592
				Sukhbaatar	1,384
				Bulgan	1,384
				Arvaiheer	1,760
Outside-Plant Lines	No. of pairs	Lines	48,500	Lines	85,500
		Ulaanbaatar	35,000	Ulaanbaatar	66,000
		Darkhan	7,500	Darkhan	9,100
		Erdenet	6,000	Erdenet	10,400
Regional Trunk Transmission	km	Digital Micro Link	342.0	Digital Micro Link	898.1
		Ulaanbaatar-Darkhan	180.3	Ulaanbatar-Dashinchilen	225.1
		Ulaanbaatar-Erdenet	161.7	Dash-Darkhan-Suhbaatar	275.6
				Dash-Bulgan-Erdenet	161.7
				Dash-Arvaiheer	235.7
Trunk Transmission Radio Power Supply	No. of sites	Solar Power	43	Solar Power	25
		West	25	West	24
		East	10	East	1
		South	8		
		Line		PV Module Assembly	1
Public Telephone Sets	No.		400		200
		Ulaanbaatar	300	Ulaanbaatar	170
		Darkhan	50	Darkhan	14
		Erdenet	50	Erdenet	16

km = kilometer, no. = number.

Sources: Mongolia Telecom, Post and Telecommunication Authority, Asian Development Bank staff.

PROJECT COST
(US\$ million)

Item	Appraisal			Actual		
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total
A. Base Costs						
1. Telephone Exchange Lines	5.32	0.28	5.60	5.46	0.09	5.55
2. Outside-Plant Lines	11.85	5.09	16.94	19.59	4.23	23.82
3. Regional Trunk Transmission	5.56	0.56	6.12	7.04	0.03	7.07
4. Transmission Power Supplies	2.37	0.24	2.61	2.30	0.14	2.44
5. Public Telephone Call Offices	0.22	0.02	0.24	0.39	0.00	0.39
6. Accounting and MIS Computer and Software	0.35	0.04	0.39	0.14	0.00	0.14
7. Emergency Maintenance Spares and Equipment	0.24	0.00	0.24	0.20	0.00	0.20
8. Exchange Buildings, Civil Works, and Land	0.00	0.25	0.25	0.00	1.40	1.40
9. Laboratory Equipment	0.00	0.00	0.00	0.09	0.00	0.09
10. Corporate and Human Resource Plans for MT	0.42	0.02	0.44	0.43	0.00	0.43
11. Human Resource Development	0.18	0.02	0.20	1.26	0.00	1.26
12. Project Design and Management	2.75	0.14	2.89	2.41	0.02	2.43
13. Staff Training of Trainers	1.05	0.11	1.16	0.50	0.00	0.50
14. Design of Telephone Exchange Lines	0.00	0.00	0.00	0.32	0.00	0.32
Subtotal (A)	30.31	6.77	37.08	40.14	5.91	46.05
B. Contingencies						
1. Physical	2.39	0.67	3.06	0.00	0.00	0.00
2. Price	3.14	0.72	3.86	0.00	0.00	0.00
Subtotal (B)	5.53	1.39	6.92	0.00	0.00	0.00
C. Service Charges During Construction and Other Charges						
1. ADB Loan	0.36	2.32	2.68	0.35	2.17	2.52
2. Other Loans	0.27	1.65	1.92	0.51	0.00	0.51
Subtotal (C)	0.63	3.97	4.60	0.86	2.17	3.03
Total Project Cost	36.47	12.13	48.60	41.00	8.08	49.08

ADB = Asian Development Bank, MIS = Management Information System, MT = Mongolia Telecom.

Sources: Mongolia Telecom, Post and Telecommunication Authority, ADB staff.

FINANCING PLAN
Table A4.1: Financing Plan at Appraisal
(US\$ Million)

Components	ADB			KfW			Nordic Group ^a			MT			Total		
	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total
A. Base Costs															
Telephone Exchange Lines				5.32	0.00	5.32				0.00	0.28	0.28	5.32	0.28	5.60
Outside-Plant Lines	11.85	5.09	16.94										11.85	5.09	16.94
Regional Trunk Transmission							5.56	0.00	5.56	0.00	0.56	0.56	5.56	0.56	6.12
Transmission Power Supplies							2.37	0.00	2.37	0.00	0.24	0.24	2.37	0.24	2.61
Public Telephone Call Offices							0.22	0.00	0.22	0.00	0.02	0.02	0.22	0.02	0.24
Accounting and MIS Computer & Software	0.35	0.00	0.35							0.00	0.04	0.04	0.35	0.04	0.39
Emergency Maintenance Spares Parts							0.24	0.00	0.24	0.00	0.00	0.00	0.24	0.00	0.24
Exchange Buildings, Civil Works & Land										0.00	0.25	0.25	0.00	0.25	0.25
Laboratory Equipment													0.00	0.00	0.00
Corporate and Human Resource for MT							0.42	0.00	0.42	0.00	0.02	0.02	0.42	0.02	0.44
Human Resource Development	0.18	0.00	0.18							0.00	0.02	0.02	0.18	0.02	0.20
Project Design and Management	2.75	0.00	2.75							0.00	0.14	0.14	2.75	0.14	2.89
Staff Training of Trainers							1.05	0.00	1.05	0.00	0.11	0.11	1.05	0.11	1.16
Design of Telephone Exchange Lines													0.00	0.00	0.00
Total Base Cost	15.13	5.09	20.22	5.32	0.00	5.32	9.86	0.00	9.86	0.00	1.68	1.68	30.31	6.77	37.08
B. Contingencies															
Physical	1.19	0.50	1.69	0.42	0.00	0.42	0.78	0.00	0.78	0.00	0.17	0.17	2.39	0.67	3.06
Price	1.57	0.54	2.11	0.55	0.00	0.55	1.02	0.00	1.02	0.00	0.18	0.18	3.14	0.72	3.86
Total Contingencies	2.76	1.04	3.80	0.97	0.00	0.97	1.80	0.00	1.80	0.00	0.35	0.35	5.53	1.39	6.92
Service Charges During Construction															
ADB	0.36	0.12	0.48							0.00	2.20	2.20	0.36	2.32	2.68
Other Loans				0.13	0.00	0.13	0.14	0.00	0.14	0.00	1.65	1.65	0.27	1.65	1.92
Total Service Charges	0.36	0.12	0.48	0.13	0.00	0.13	0.14	0.00	0.14	0.00	3.85	3.85	0.63	3.97	4.60
Total Project Cost	18.25	6.25	24.50	6.42	0.00	6.42	11.80	0.00	11.80	0.00	5.88	5.88	36.47	12.13	48.60
Financing Percentage			50%			13%			24%			12%			

ADB = Asian Development Bank, KfW = Kreditanstalt für Wiederaufbau, MIS = Management Information System, MT = Mongolia Telecom.

^a The Nordic Group consisted of the Government of Norway, the Norwegian Agency for Development Cooperation (NORAD), and the Nordic Development Fund (NDF).

^b NDF financed Nkr27,062,205 (US\$4,046,041 equivalent) and NORAD financed Nkr19,003,630 (US\$2,997,700 equivalent), or a total of Nkr46,065,835 (US\$7,043,741 equivalent).

FINANCING PLAN
Table A4.2: Actual Financing Plan
(US\$ Million)

Components	ADB			KfW			Nordic Group ^a			MT			Total		
	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total
A. Base Costs															
Telephone Exchange Lines				5.46	0.00	5.46				0.00	0.09	0.09	5.46	0.09	5.55
Outside-Plant Lines	19.59	1.40	21.00							0.00	2.83	2.83	19.59	4.23	23.83
Regional Trunk Transmission							7.04	^b 0.00	7.04	0.00	0.03	0.03	7.04	0.03	7.07
Transmission Power Supplies							2.30	0.00	2.30	0.00	0.14	0.14	2.30	0.14	2.44
Public Telephone Call Offices							0.39	0.00	0.39	0.00	0.00	0.00	0.39	0.00	0.39
Accounting and MIS Computer & Software	0.14	0.00	0.14							0.00	0.00	0.00	0.14	0.00	0.14
Emergency Maintenance Spares Parts							0.00	0.00	0.00	0.20	0.00	0.20	0.20	0.00	0.20
Exchange Buildings, Civil Works & Land										0.00	1.40	1.40	0.00	1.40	1.40
Laboratory Equipment				0.09	0.00	0.09							0.09	0.00	0.09
Corporate and Human Resource for MT							0.43	0.00	0.43	0.00	0.00	0.00	0.43	0.00	0.43
Human Resource Development	0.12	0.00	0.12	1.14	0.00	1.14				0.00	0.00	0.00	1.26	0.00	1.26
Project Design and Management	2.41	0.00	2.41							0.00	0.02	0.02	2.41	0.02	2.43
Staff Training of Trainers							0.50	0.00	0.50	0.00	0.00	0.00	0.50	0.00	0.50
Design of Telephone Exchange Lines				0.32	0.00	0.32							0.32	0.00	0.32
Total Base Cost	22.26	1.40	23.66	7.02	0.00	7.02	10.66	0.00	10.66	0.20	4.51	4.71	40.14	5.91	46.05
B. Contingencies															
Physical															
Price															
Total Contingencies															
Service Charges During Construction															
ADB	0.35	0.00	0.35							0.00	2.17	2.17	0.35	2.17	2.52
Other Loans							0.00	0.00	0.00	0.51	0.00	0.51	0.51	0.00	0.51
Total Service Charges	0.35	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.51	2.17	2.68	0.86	2.17	3.03
Total Project Cost	22.61	1.40	24.01	7.02	0.00	7.02	10.66	0.00	10.66	0.71	6.68	7.39	41.00	8.08	49.08
Financing Percentage			49%			14%			22%			15%			

ADB = Asian Development Bank, KfW = Kreditanstalt für Wiederaufbau, MIS = Management Information System, MT = Mongolia Telecom.

^a The Nordic Group consisted of the Government of Norway, the Norwegian Agency for Development Cooperation (NORAD), and the Nordic Development Fund (NDF).

^b NDF financed Nkr27,062,205 (US\$4,046,041 equivalent) and NORAD financed Nkr19,003,630 (US\$2,997,700 equivalent), or a total of Nkr46,065,835 (US\$7,043,741 equivalent).

IMPLEMENTATION SCHEDULE

Component	1994				1995				1996				1997				1998				1999				
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
Network Balancing and Expansion																									
Telephone Exchange Lines	App.				Design		Tender. Award					Delivery, Installation, and Commissioning													Final Acceptance
	Actual																								
Outside Plant	App.				Design		Tender. Award					Delivery, Installation, and Commissioning													
	Actual																								
Regional Trunk Transmission	App.				Design		Tender. Award					Delivery, Installation, and Commissioning													Final Acceptance
	Actual																								
Trunk Transmission Radio	App.				Design		Tender. Award					Delivery, Installation, and Commissioning													
	Actual																								
Power Supplies	App.											Delivery, Installation, and Commissioning													
	Actual																								
Public Telephones	App.																								
	Actual																								
Accounting and MIS Computer and Software	App.																								
	Actual																								
Emergency Spare Parts	App.																								
	Actual																								
Exchange Building and Civil Works	App.																								
	Actual																								
Consulting Services and HRD																									
Corporate and Human Resource Plans for MT	App.				Tender. Award																				
	Actual																								
Human Resource Development	App.				Tender. Award																				
	Actual																								
Project Design and Management	App.				Tender. Award																				
	Actual																								
Staff Training of Trainers	App.				Tender. Award																				
	Actual																								

App = appraisal, HRD = human resource development, MIS = management information system, MT = Mongolia Telecom.

CONTRACT PACKAGES

Components	Procurement Mode	Approval of Contract Award	Name of Supplier/ Consultant	Origin	Contract Amount	Contract Signing	Amount Disbursed
ADB-Financed							
1. Outside-Plant Lines	ICB	23 Nov 1995	Alcatel Contracting of France	France	US\$ 20,998,758.00	27 Jan 1996 US\$	20,998,758.00
2. Accounting and MIS Computer and Software Equipment	IS	8 Mar 1995	Expert System Company Ltd.	Hong Kong	HK\$ 809,840.00	26 Apr 1995 HK\$	809,840.00
		27 Apr 1995	Future Data Holdings Pte. Ltd.	Singapore	US\$ 32,624.00	26 Apr 1995 US\$	32,624.00
3. Project Design and Management	ICB	29 June 1994	Nippon Telecom Consulting Co./Sofrecom	Japan/ France	US\$ 1,474,017.00 Yen 99,844,908.00	11 Aug 1994 US\$ Yen	1,471,855.00 99,844,906.00
4. Human Resource Development	DN	2 June 1997	Royal Melbourne Institute of Technology	Australia	A\$ 60,000.00	16 Aug 1997 A\$	60,000.00
					US\$ 73,360.00	US\$	73,360.00
KfW-Financed							
5. Telephone Exchange Lines	LCB	13 Dec 1995	Siemens	Germany	DM 7,897,996.11	17 Dec 1995 DM	9,442,371.66
6. Design for Telephone Exchange Lines	LCB		Detecon	Germany	DM 531,662.25	3 Mar 1995 DM	531,662.25
7. Laboratory Equipment	LCB		Detecon	Germany	DM 143,232.62	29 Apr 1996 DM	143,232.62
8. Training by Supplier	LCB		Siemens	Germany	DM 987,225.00	17 Dec 1995 DM	987,225.00
9. Training by Design Consultant	LCB		Detecon	Germany	DM 943,831.26	23 Aug 1995 DM	943,831.26
Nordic Group-Financed							
10. Regional Trunk Transmission (NDF/NORAD)	LCB	22 Nov 1995	NERA Telecommunications	Norway	NKR 46,065,835.00	30 Nov 1995 NKr	46,065,835.00
11. Transmission Power Supplies (NDF)	LCB	9 May 1997	NESTE OY, Neste Advance Power Systems (NAPS)	Norway/ US	US\$ 2,299,551.00 ^b	25 Feb 1997 US\$	2,299,550.00
12. Public Telephone Call Offices (NDF)	LCB	3 Mar 1996	Ascom Nordic	Denmark	DKR 2,426,097.25	19 Apr 1996 DKr	2,426,097.25
13. Corporate and Human Resource Plan for MTC (Government of Norway)	ICB	11 May 1995	Norconsult International	Norway	US\$ 520,552.00	18 Oct 1995 US\$	429,246.19
14. Staff Training of Trainers (Government of Norway)	ICB	5 Apr 1995	Korea Telecom International	Rep. Of Korea	US\$ 587,982.00	9 Aug 1995 US\$	497,163.00

ADB = Asian Development Bank, DN = direct negotiation, ICB = international competitive bidding, IS = international shopping, KfW = Kreditanstalt für Wiederaufbau, LCB = local competitive bidding within the country or member countries of the financial institution, US = United States.

^a The Nordic Group consisted of the Government of Norway, the Norwegian Agency for Development Cooperation (NORAD), and the Nordic Development Fund (NDF).

^b Includes assembling cost of US\$525,000 procured from SPIRE of United States.

COMPLIANCE WITH LOAN COVENANTS

Covenants	Reference to Loan Documents	Status of Compliance
A. Sector Reform		
1. The Borrower shall carry out, or cause the Mongolia Telecommunications Company (MTC) to carry out, the following action, set forth in the Sector Reform Action Plan:	Loan Agreement, Sch. 6, para. 8.	
(a) Formal submission of the telecommunications law to Parliament no later than 31 July 1994;		Complied with. The Telecommunications Law was submitted to Parliament in August 1994 and was approved on 16 November 1995.
(b) establishment of a stakeholders board for MTC no later than 31 December 1994;		Complied with in 1995.
(c) reorganization of MTC's postal and broadcasting functions into separate state-owned corporations or suitable agencies no later than 31 December 1994;		Complied with in 1995.
(d) establishment of the regulatory body no later than 30 June 1995.		Not complied with. No regulatory body was established as of May 2001.
(e) Preparation of proposals for appointment of private sector participants with MTC no later than 30 June 1995; and		Complied with. Sale of 40 percent of MTC shares with Korea Telecom was concluded in August 1995.
(f) Invitation for bids, through international competitive bidding, for licensing of mobile cellular telephones no later than 31 December 1995.		Complied with. Sale of a cellular telephone license to a private consortium was finalized in September 1995.

Covenants	Reference to Loan Documents	Status of Compliance
B. Corporate Plan		
<p>2. No later than 31 December 1995 and thereafter until the completion of the Project, MTC shall each year furnish to the Asian Development Bank (ADB), the Nordic Group, and Kreditanstalt für Wiederaufbau (KfW), MTC's five-year corporate plan and shall take all actions necessary to carry out its corporate plan.</p>	<p>Loan Agreement Sch. 6, para. 9.</p>	<p>Complied with.</p>
<p>3. MTC shall report annually to ADB, the Nordic Group and KfW on implementation of such plans in respect of: (a) accounting and financial management; (b) operations; (c) capacity utilization; (d) human resource development; and (e) training of staff and managers in management techniques and new technology.</p>	<p>Loan Agreement Sch. 6, para. 9.</p>	<p>Complied with. Mongolia Telecom now produces a good quality annual report.</p>
C. Financial Matters		
<p>4. The Borrower shall cause MTC to adhere to the time-bound financial action plan. Specifically:</p>		
<p>(a) The Borrower and MTC shall ensure that MTC's revenues, including its tariffs, are adequate to meet its (i) operation and maintenance expenses, (ii) depreciation expenses calculated in accordance with generally accepted accounting principles, and (iii) debt-service obligations (payment of interest and repayment principal) on all loans, including the ADB loan, and other debt instruments to the extent that such charges exceed annual depreciation expenses.</p>	<p>Loan Agreement Sch. 6, para. 13</p>	<p>Being complied with. Tariffs and installation fees have been progressively and significantly increased.</p>
<p>(b) Prior to 31 December 1998, MTC will not commit to, or enter into agreement to commit to, any form of loan, public or private bond issue, or any debt with a repayment obligation of greater than 18 months in duration, without the prior agreement of ADB.</p>	<p>Loan Agreement Sch. 6, para. 14.</p>	<p>Not complied with. Without notifying ADB, Mongolia Telecom obtained a soft loan of DM 37 million from KfW in September 1998. However, the sector can afford to repay the KfW loan.</p>

Covenants	Reference to Loan Documents	Status of Compliance
(c) From 1 January 1995, MTC will introduce timed local calls in Ulaanbaatar and thereafter, consistent with the commissioning of digital telephone exchanges, shall progressively expand the application of timed local calls to all exchanges.	Loan Agreement Sch. 6, para. 15.	Complied with. Introduction of timed local calls in Ulaanbaatar was approved by Government in April 1995 and was implemented in July 1996.
5. MTC shall take all such action as may be necessary to minimize its net working capital, including implementation of appropriate procedures, to ensure that its accounts receivable do not exceed the equivalent of 45 days of billed revenue; and shall report annually to ADB on its targets and achievements for working capital management.	Loan Agreement Sch. 6, para. 13.	Complied with in some years (43 days in 2000). The current level of receivables (60 days) reflects that Government organizations are slow in paying their telephone bills.
D. Tariffs		
6. Commencing on 1 January 1995, the Borrower shall cause MTC to review annually the level and structure of MTC's tariffs and thereafter submit to ADB for its comments the results of such review and proposed tariff changes, if any. Subsequently, MTC taking into account ADB's comments, if any, shall adjust the tariff as necessary.	Loan Agreement Sch. 6, para. 13.	Complied with.
A. Reports and Accounts		
7. MTC shall maintain separate accounts for the Project and for MTC and shall have these audited by an auditor acceptable to ADB. Audited project accounts and auditor's report shall be submitted to ADB within 12 months of the end of each related fiscal year. Unaudited project accounts shall be forwarded to ADB within six months of the end of each related fiscal year.	Project Agreement Section 2.09.	Complied with.
8. MTC will prepare and submit to ADB quarterly progress reports on the status of implementation of the Project.	Project Agreement Section 2.08 (b).	Complied with.

Covenants	Reference to Loan Documents	Status of Compliance
<p>9. MTC will also furnish to ADB, within three months of physical completion of the Project, a project completion report (PCR) covering the execution and initial operation of the facilities to be provided under the Project.</p>	<p>Project Agreement Section 2.08 (c).</p>	<p>Complied with. The Borrower's PCR was received by ADB in May 2000.</p>
<p>F. Implementation Arrangements</p>		
<p>10. MTC shall be responsible for overall supervision of the Project and coordination of project-implementation activities with support and assistance of a project implementation unit (PIU) and under general guidance of a project steering committee (PSC).</p>	<p>Loan Agreement Sch. 6, para. 1</p>	<p>Complied with.</p>
<p>11. MTC shall maintain the PIU at its headquarters to ensure cost-effective and timely project implementation. MTC shall ensure that the PIU is headed by a full-time project manager acceptable to ADB; staffed by suitably qualified personnel in finance and telecommunications, and assisted by the design and management consultants.</p>	<p>Loan Agreement Sch. 6, para. 2.</p>	<p>Complied with.</p>
<p>12. The Borrower shall maintain throughout project implementation the PSC to oversee all activities of project implementation, including liaison with all the Borrower's departments and agencies concerned. The PSC will be chaired by a representative of the Ministry of Infrastructure (MOI) and shall meet not less than twice annually.</p>	<p>Loan Agreement Sch. 6, para. 3.</p>	<p>Complied with.</p>
<p>13. The Borrower and MTC shall make available, or cause to be made available, all land and rights of way which will be required for the Project.</p>	<p>Loan Agreement, Sch. 6, para. 4.</p>	<p>Complied with.</p>
<p>14. The Borrower, ADB and MTC shall carry out, no later than 30 June 1996, a midterm review of the Project.</p>	<p>Loan Agreement Sch. 6, para. 5</p>	<p>Complied with in September 1996.</p>

Covenants	Reference to Loan Documents	Status of Compliance
G. Cofinancing		
15. The Borrower and MTC shall, no later than six months from the effective date of ADB loan, execute the necessary agreements for the cofinancing arrangements for the Project.	Loan Agreement Sch. 6, para. 7.	Not complied with. As of May 2001, a regulatory body was not established.
H. Work Experience and Training		
16. The Borrower shall cause MOI, within three months of the establishment of the regulator, to (i) prepare a program, for the review and approval of ADB, of overseas work experience for staff concerned of Borrower, of institutions and individual instructions proposed, and of criteria and procedures for selection of trainees; and (ii) arrange for overseas work in regulatory experience. The Borrower shall ensure that all staff who receive overseas work experience shall remain with the sponsoring department or agency of the Borrower or the regulator for a period of time equal to three times the duration of the overseas work experience.	Sch. 6, para. 6(a)	Partly complied with. While international training in regulatory functions was implemented, the trained staff could not be assigned to the regulatory body since the regulator was not established.
17. The Borrower and MTC shall prepare a program, for the review and approval of ADB, of local training for staff concerned of the Borrower and MTC, of institutions proposed, and of criteria and procedures for selection of trainers.	Loan Agreement Sch. 6, para. 6(b)	Complied with.
I. Network Performance		
18. MTC, no later than 31 December 1998, shall ensure that the overall performance of its telecommunications network conforms to performance criteria agreed to by the Borrower, ADB, and MTC; and shall, within 6 months of the end of each fiscal year, report to the Borrower, ADB, the Nordic group, and KfW on such performance.	Loan Agreement Sch.6, para. 10	Complied with.

Covenants	Reference to Loan Documents	Status of Compliance
J. Environment		
19. MTC shall ensure that the Project is designed and implemented and the project facilities are operated and maintained in strict conformity with the Borrower's national environmental laws, regulations, and standards as well as the initial environmental examinations.	Loan Agreement Sch. 6, para. 11	Complied with.
K. Operation and Management		
20. MTC shall be responsible for operation and maintenance of the project facilities and the Borrower and MTC shall ensure that all funds and resources required for O&M are made available on a timely basis. The Borrower and MTC shall also ensure that the O&M capability of MTC staff is improved with the assistance of the design and management consultants and the training consultants and through training provided under the Project and by suppliers of equipment under the Project.	Loan Agreement Sch. 6, para. 12	Complied with.

ACTUAL LOAN DISBURSEMENTS

Cat. No.	Description	Name of Supplier/ Consultant	Base	Contract Amount	Disbursement							Total	
					1994	1995	1996	1997	1998	1999	2000		
I	Outside-Plant	Alcatel Contracting of France	France	US\$ 20,998,758			20,998,757						20,998,757
II	Equipment and Supplies	Expert System Company Ltd. Future Data Holdings Pte. Ltd.	Hong Kong Singapore	HK\$ 809,840 US\$ 32,624	104,498	104,498							32,624
III	Consulting Services	Nippon Telecom Consulting Co./Sofrecom	Japan/ France	US\$ 1,474,017 ¥ 99,844,908	709,034	437,325	310,935	387,274	390,510	150,944	25,654		2,411,676
IV	Service Charge During Construction				1,455	10,129	34,900	75,149	126,813	102,931	0		351,377
V	International Work Experience	Royal Melbourne Institute of Technology	Australia	A\$ 60,000 US\$ 73,360				115,198					115,198
Total (US\$)					710,489	584,576	21,344,592	577,621	517,323	253,875	25,654		24,014,130

The disbursements in Australian dollar, Hong Kong dollar, and Yen were based on the US\$ exchange rate prevailing on the day of the transaction. Source: Asian Development Bank staff

MONGOLIA TELECOM – TARIFF HISTORY
(MNT)

Tariff	1995	1996	1997	1998	1999	2000	2001 ^a
A. Monthly Rental Fee							
Ulaanbaatar							
Residential	420	420	750	750	750	750	750
Government	3,900	3,900	4,500	4,500	4,500	4,500	4,500
Business	6,600	6,600	6,900	6,900	6,900	6,900	6,900
Darkhan, Erdenet							
Residential	590	590	750	750	750	750	750
Government	3,300	3,300	4,500	4,500	4,500	4,500	4,500
Business	5,000	5,000	6,900	6,900	6,900	6,900	6,900
Other Provincial Centers							
Residential	560	560	1,200	1,200	1,200	1,200	1,200
Government	3,000	3,000	4,500	4,500	4,500	4,500	4,500
Business	4200	4,200	6,100	6,100	6,100	6,100	6,100
Somons							
Residential	108	108	360	360	360	360	600
Government	180	180	600	600	600	600	1000
Business	180	180	600	600	600	600	1000
B. Installation Charge							
Ulaanbaatar							
Residential	12,000	24,000	40,000	40,000	70,000	70,000	70,000
Government	24,000	50,000	80,000	80,000	100,000	100,000	100,000
Business	24,000	50,000	80,000	80,000	100,000	100,000	100,000
Darkhan, Erdenet							
Residential	7,500	15,000	40,000	40,000	40,000	40,000	40,000
Government	15,000	30,000	80,000	80,000	80,000	80,000	80,000
Business	15,000	30,000	80,000	80,000	80,000	80,000	80,000
Other Provincial Centers							
Residential	5,000	10,000	20,000	20,000	20,000	20,000	40,000
Government	12,000	24,000	50,000	50,000	50,000	50,000	70,000
Business	12,000	24,000	50,000	50,000	50,000	50,000	70,000
Somons							
Residential	1,200	2,400	3,800	3,800	3,800	3,800	5,000
Government	2,000	4,000	6,400	6,400	6,400	6,400	10,000
Business	2,000	4,000	6,400	6,400	6,400	6,400	10,000

^a As of 1 April 2001.

Source: Mongolia Telecom.

Table, Continued

Tariff	1995	1996	1997	1998	1999	2000	2001 ^a
C. Local Call Charge, per Minute							
Charge per minute		3	5	6	6	6	6
Free Minutes							
Per Month		150	150	150	150	150	0
Per Day		5	5	5	5	5	0
D. Long Distance Charge, per minute							
< 100 km	68	81					
101-300 km	97	99					
301-500 km	117	117					
501-1000 km	130	129					
> 1,000 km	137	138					
< 300 km			135	154	154	154	154
301-1000 km			175	205	205	205	205
> 1,000 km			200	231	231	231	231
E. International Call Charge, per Minute in US\$							
United States	5.00	5.00	2.00	1.90	1.90	1.50	1.50
Canada	5.00	5.00	2.00	1.90	1.90	1.50	1.50
Russia	2.20	2.20	1.80	1.40	1.40	1.40	1.40
China, People Rep. of	2.20	2.20	1.80	1.80	1.80	1.70	1.70
United Kingdom	5.00	5.00	2.00	1.90	1.90	1.50	1.50
Germany	5.00	5.00	3.00	2.80	1.90	1.50	1.50
Japan	4.00	4.00	2.00	1.90	1.90	1.50	1.50
Rep. of Korea	4.00	4.00	2.00	1.90	1.90	1.50	1.50
Singapore	4.50	4.50	2.00	1.90	1.90	1.50	1.50
Hong Kong, China	4.00	4.00	2.00	1.90	1.90	1.50	1.50
Australia	5.00	5.00	3.00	2.80	2.00	1.80	1.80
Rest of Europe	5.00	5.00	3.00	2.80	2.00	1.80	1.80
South America	6.00	6.00	3.00	2.80	2.00	1.80	1.80
Rest of North America	5.00	5.00	3.00	2.80	2.00	1.80	1.80
Rest of Former USSR	2.80	2.80	2.50	2.40	2.00	1.80	1.80
Rest of Asia	4.50	4.50	2.70	2.40	2.00	1.80	1.80
Africa	6.00	6.00	3.00	2.80	2.00	1.80	1.80

km = kilometer, USSR = Union of Soviet Socialist Republics.

^a As of 1 April 2001.

Source: Mongolia Telecom.

MONGOLIA TELECOM – NETWORK PERFORMANCE INDICATORS

Year	Ulaanbaatar	Darkhan	Erdenet	Provincial Centers	Rural	Whole Country
A. Penetration (percent)						
1997	8.00	4.00	5.80	6.20	0.60	3.80
1998	9.00	4.80	7.00	6.30	0.60	4.20
1999	9.14	5.86	7.80	6.92	0.64	4.29
2000	9.79	6.10	7.80	7.40	0.67	4.50
2001	10.00	6.20	7.80	7.40	0.67	4.60

Year	Ulaanbaatar	Darkhan & Erdenet	Provincial Centers	Rural
B. Number of Faults (per Subscriber per year)				
1997 actual	1.7	—	—	—
1998	1.4	1.6	1.7	1.7
1999	1.1	1.2	1.5	1.7
2000	0.8	1.0	1.3	1.3
2001	0.6	0.8	1.0	1.0

Percentage of Faults Cleared within 24 Hours (percent)

1997 actual	53	—	—	—
1998	65	75	60	65
1999	75	80	65	75
2000	80	85	75	85
2001	85	87	85	90

D. Call Completion Rate (percent)

1997 actual	45	—	—	—
1998	46	49	33.12	—
1999	50	53	33.20	—
2000	52	54	33.28	—
2001	54	58	33.54	—

— = not available

Sources: Mongolia Telecom, Asian Development Bank staff.

MONGOLIA TELECOM – STAFF RATIONALIZATION PROGRAM

Mongolia Telecom's retirement profile up to 2005 is as follows:

							(no. of retirees)	
1998	1999	2000	2001	2002	2003	2004	2005	
31	26	33	24	28	38	29	48	

Mongolia Telecom's staff rationalization plan is as follows:

Division	1997	1998	1999	2000	2005
Technical	1,731	1,779	1,680	1,615	1,598
Power Supply	416	383	358	390	194
Finance	191	185	179	177	175
Customer Service	1,711	1,710	1,747	1,787	1,410
Marketing	26	28	30	33	70
Personnel	28	33	45	44	33
Information Technology	24	29	28	42	50
Administration	667	647	501	468	555
Total	4,794	4,794	4,568	4,556	4,010
Staff per 1,000 Lines	55	50	42	40	37

Sources: Mongolia Telecom, Asian Development Bank staff.

MONGOLIA TELECOM - FINANCIAL STATEMENTS
Table A12.1: Income Statement
(MNT' 000)

Item	1995	1996	1997	1998	1999	2000	2001
Operating Revenue							
Rental Fees	1,457,306	1,663,391	2,165,232	2,339,134	2,542,290	2,647,591	2,642,580
Calls - local	0	323,011	1,416,461	2,545,709	3,013,262	3,038,995	4,378,900
- long distance	1,124,677	1,470,650	2,173,723	2,743,248	3,308,834	3,666,305	4,462,410
- international	3,061,018	3,793,917	5,540,354	5,121,094	6,085,677	5,935,363	5,875,770
Additional Telephone Services	93,966	747	13,662	8,546	16,306	24,345	46,300
Payphone	0	0	50,677	263,966	223,246	300,375	850,810
International Settlement - net	545,872	1,873,340	3,770,366	2,902,880	4,064,937	6,076,941	3,730,190
Connection Fees	109,667	172,663	364,982	878,867	1,020,151	797,466	580,000
Telegram and Telex	191,483	237,510	229,154	152,007	168,481	166,541	151,630
Leased Channels	648,276	581,949	880,909	769,478	862,710	964,909	953,290
Access Charge	0	0	600,025	1,089,214	2,297,682	4,019,177	8,565,840
Other Revenue	162,097	452,780	438,902	720,355	509,480	1,640,500	722,050
Television and Radio	282,270	358,814	417,403	603,732	762,750	782,653	653,750
Foreign Exchange Gain		267,638	219,815	92,900	174,134	36,482	0
Dividend of Intelsat				202,987	173,269	262,799	160,000
Discount of Revenue				(520,685)	(676,651)	(971,743)	(806,920)
Total Operating Revenue	7,676,632	11,196,410	18,281,666	19,913,432	24,546,558	29,388,699	32,966,600
Operating Expenses							
Rental Charge to PTA	964,161	2,516,323	3,985,225	4,917,933	7,238,430	7,540,875	7,920,000
License Fee	0	10,423	14,807	16,320	9,800	21,470	1,220,685
Personnel	1,554,959	2,547,218	2,934,028	3,665,619	3,944,639	4,418,771	5,812,316
Social Insurance	322,860	525,433	588,823	747,070	774,899	861,113	1,180,289
Utilities	405,801	522,567	799,165	829,495	858,269	877,982	1,202,600
Transport	124,516	168,132	292,181	337,697	328,777	448,200	543,900
Materials	108,823	133,116	189,128	181,003	202,743	308,225	348,100
Fuel	293,836	308,269	393,548	286,425	251,166	316,744	464,000
Repairs	143,579	214,643	343,775	253,263	334,650	539,689	714,820
Interconnection Fee	0	27,810	63,084	290,231	0	0	0
Satellite Charges & Circ.Rent.	127,179	194,308	278,219	554,330	540,074	975,585	0
Administration & General	98,781	351,240	1,255,944	707,718	728,920	932,771	1,049,367
Miscellaneous	409,480	513,422	386,144	685,625	1,061,537	1,675,161	2,717,427
Working Expenses	4,553,974	8,032,904	11,524,071	13,472,729	16,273,904	18,916,586	23,173,504
Operating Result bef. Depr./ Bad Debt.	3,122,658	3,163,506	6,757,594	6,440,703	8,272,654	10,472,113	9,793,096
Foreign Exchange Loss	91,772	0	22,153	0	459	0	0
Bad Debt Provision	58,795	48,376	2,166	60,000	65,000	228,851	120,000
Depreciation	774,485	0	255,938	398,844	642,950	708,014	910,390
Total Operating Expenses	5,479,027	8,081,280	11,804,328	13,931,573	16,982,313	19,853,451	24,203,894
Operating Income	2,197,605	3,115,130	6,477,338	5,981,859	7,564,245	9,535,248	8,762,706
Interest Expense	0	0	23,378	49,396	32,916	41,116	250,006
Subsidy to Post Company	130,000	0	0	0	0	0	0
Pretax Income	2,067,605	3,115,130	6,453,959	5,932,463	7,531,329	9,494,132	8,512,700
Income Tax	1,108,453	1,426,256	2,823,633	2,985,654	3,705,846	4,795,418	4,128,650
Net Income after Tax	959,153	1,688,874	3,630,327	2,946,809	3,825,483	4,698,714	4,384,050
Dividends		316,439	610,895	909,317	1,122,457	2,176,725	1,139,850
Retained Income for Year	567,809	1,940,244	3,019,432	2,037,492	2,703,026	2,521,989	3,244,200

PTA = Post and Telecommunication Authority.

MONGOLIA TELECOM - FINANCIAL STATEMENTS
Table A12.1: Income Statement
(MNT' 000)

Item	1995	1996	1997	1998	1999	2000
A. Assets						
1. Current Assets						
Cash	328,154	398,386	734,057	934,148	1,208,274	1,310,974
Accounts Receivable	2,887,768	2,547,987	3,688,183	3,189,699	4,521,839	6,660,157
Inventory	703,443	722,815	1,172,380	1,388,328	1,608,393	2,459,273
Bad Debt				(130,697)	(192,449)	(407,000)
Short-term Receivable from Bank			11,449		94,055	15,571
Prepayment & Others	1,674	30,393	54,210	13,415	65,283	85,141
Total Current Assets (1)	3,921,038	3,699,581	5,660,279	5,394,893	7,305,395	10,124,116
2. Fixed Assets						
Gross Fixed Assets	2,086,118	2,809,312	3,580,535	6,819,065	7,854,014	10,145,567
Less Accumulated Depreciation	222,518	428,171	667,222	(1,041,102)	(1,648,077)	(2,324,418)
Net Fixed Assets	1,863,600	2,381,141	2,913,312	5,777,964	6,205,937	7,821,149
Receivable from Bank				13,145	13,138	
					11,139	5,569
Intangible Assets and Investments	34,113	116,533	961,466	1,072,735	1,237,819	1,265,871
Total Fixed Assets (2)	1,897,713	2,497,673	3,874,779	6,863,843	7,468,032	9,092,589
Total Assets (A)	5,818,751	6,197,254	9,535,057	12,258,736	14,773,427	19,216,706
B. Liabilities and Equity						
1. Current Liabilities						
Accounts Payable	2,092,949	1,519,845	894,337	1,832,563	1,459,340	2,632,346
Other Liabilities & Accruals	188,152	86,413	62,383	48,754	53,480	71,542
Tax Payable	470,627	160,413	0	10,474	173,958	499,490
Short-term Debt	19,885	0	184,099	206,462	245,458	331,294
Deferred Revenue		99,820	251,576	197,641	426,726	294,406
Dividend Payable		144,443	128,404	207,120	316,402	933,414
Overdraft						
Total Current Liabilities (1)	2,771,613	2,010,934	1,520,798	2,503,013	2,675,364	4,762,491
2. Long-term Liabilities						
Long-term Debt						
- Intelsat			625,335	378,185	81,881	
- Telecom-I						
- KfW -II						
Long-term Deferred Revenue			183,173	160,757	112,619	34,366
Total Long-term Liabilities (2)			808,508	538,941	194,499	34,366
Total Liabilities (B)	2,771,613	2,010,934	2,329,305	3,041,955	2,869,863	4,796,857
C. Equity						
Share Capital	2,479,329	2,479,329	2,479,329	2,587,028	2,587,028	2,587,028
Asset Revaluation Reserve						
Retained Earnings	567,809	1,706,991	4,726,423	6,629,754	9,316,536	11,832,821
Total Equity (C)	3,047,138	4,186,320	7,205,752	9,216,782	11,903,563	14,419,849
Total Liabilities and Equity (B+C)	5,818,751	6,197,254	9,535,057	12,258,736	14,773,426	19,216,706

KfW = Kreditanstalt für Wiederaufbau.

MONGOLIA TELECOM - FINANCIAL STATEMENTS
Table A12.1: Income Statement
(MNT' 000)

Item	1996	1997	1998	1999	2000
Cash Flow from Operations					
Income after Tax	1,688,874	3,630,327	5,932,463	7,519,695	9,582,379
+ Depreciation	0	255,938	398,844	668,908	793,159
+ Gain on Disposal of Fixed Assets	0	(16,887)	0	(11,254)	(22,796)
+ Provision for Bad Debt					228,851
+ Losses on Disposal of Fixed Assets					30,840
Internal Cash General	1,688,874	3,869,377	6,331,307	8,177,349	10,612,433
NetChange Working Capital					
Increase Account Reciv. (-)	339,781	(1,140,196)	498,483	(1,270,388)	(2,059,835)
Increase Inventory (-)	(19,373)	(449,565)	(215,948)	(220,065)	(850,881)
Increase Other Assets (-)	(28,719)	(23,817)	40,795	(145,923)	(19,857)
Increase Acc. Payab- (+)	(573,104)	(625,508)	938,226	(373,222)	1,173,007
Increase Other Li.Ac. (+)	(101,739)	(24,029)	(13,629)	2,216	18,062
Increase Short-term Debt (+)			22,363		
Increase Divident Payable (+)	144,443	(16,039)			
Increase Other Def.Pa. (+)	99,820	151,756	(53,934)		
Increase Tax Payable (+)	(310,214)	(160,413)	(3,017,842)	(3,542,362)	(4,586,603)
Previous Tax Paid				(4,611)	(79,511)
Decrease in Deferred Revenue				180,947	(210,574)
Increase Other Debt (+)	(19,885)	183,173	(22,416)		
Increase Share Capital (-)	0	0	0		
Net Change Working Capital	(468,990)	(2,104,640)	(1,823,903)		
Net Cash Flow from Operations	1,219,885	1,764,737	4,507,404	2,803,941	3,996,241
Cash Flow from Investment Activities					
Investment to Intelsat (-)			11,449	(176,215)	(28,052)
Purchase of Fixed Assets (-)	0	(771,223)	(3,263,495)	(1,085,626)	(2,309,732)
Purchase of Other In.Ass/Inves.(-)	(82,420)	(844,934)	(111,269)		
Net Cash Flow from Investment Activities	(82,420)	(1,616,157)	(3,363,315)	(1,261,841)	(2,337,784)
Cash Flow from Financing Activities					
Payment of Dividends (-)	(316,439)	(610,895)	(922,102)	(1,010,665)	(1,559,713)
Net Decrease in Loans from Foreign Bank				(257,309)	3,955
Repayment of Debt (-)	0	(111,060)	(247,150)		
Increase in Debt (+)		736,395	0		
Repayment of Short Debt (-)	0	184,099	0		
			225,254		
Net Cash Flow from Finance Activities	(316,439)	198,538	(943,998)	(1,267,974)	(1,555,758)
Net Change in Cash	821,025	347,119	200,091	274,126	102,699
Cash Beginning	358,818	398,386	734,057	934,148	1,208,274
Cash End	398,386	745,504	934,148	1,208,274	1,310,973

FINANCIAL REEVALUATION

A. General

1. The Project comprised four main physical components: (i) a modern outside-plant (OSP) in each of the country's three main cities to replace the extremely old and obsolete OSPs; (ii) local exchange digital switching systems in six main locations¹ to replace obsolete analog systems; (iii) digital trunk transmission systems along selected routes to replace obsolete analog systems; and (iv) the introduction of public payphones. At appraisal, the project main's objective was to rebalance and modernize the network, with expansion of telephone lines being an important but secondary objective. During project implementation, however, it was possible to provide about 8,000 more lines of digital switching capacity and 37,000 more OSPs lines than were expected at appraisal. Accordingly, there are two groups of project subscribers: existing subscribers changing from analog to digital lines along with new OSP (modernization) and new subscribers receiving digital lines and new OSP (expansion). This background provides the basis for the with-project and without-project comparison.

2. The without-project option is characterized by the following: no timed local calls; no public payphones; almost zero long-distance traffic growth after 1999/2000 and limited international traffic growth after 1999/2000 due to capacity and technical constraints and obsolete plant and equipment; and no new subscribers. In the with-project situation, there are timed local calls introduced in 1996, new payphones, good capacity for traffic growth, a large number of new subscribers, and a much more reliable network providing a much better quality of service.

3. At appraisal in 1994, there were about 41,300 subscribers in the project area—36,000 in Ulaanbaatar, 2,700 in Darkhan, and 2,600 in Erdenet. At that time, the switching capacity in Ulaanbaatar was a long way from being fully utilized due to insufficient OSP, which prevented new subscribers from being hooked up (only 66 percent utilization). The rectification of this was the rebalancing part of the Project. As a result of the Project, there are now 64,400 subscribers in Ulaanbaatar, 4,650 in Darkhan, and 4,650 in Erdenet (all of these are digital lines with new OSP). Thus, there are about 32,400 new subscribers under the Project. The utilization of switching capacity in Ulaanbaatar is now about 98 percent. In addition, the existing subscribers as of 1994 were provided with new OSP under the Project. For the other three locations that were added to the project scope,¹ there are virtually no new subscribers because this additional project component concentrated on modernization, namely, changing from analog to digital.

4. The reevaluation of the financial internal rate of return (FIRR) considered the costs and benefits over the implementation period plus 20 years of project operations. Costs and benefits are expressed in April 2001 constant togrog.²

¹ At appraisal the Project was designed to improve telecommunications in three cities: Ulaanbaatar, Erdenet, and Darkhan. During implementation the project scope was extended within the appraisal budget to three other main cities: Sukhbaatar, Bulgan, and Arvaiheer.

² Future depreciation of the local currency against the dollar, if any, may increase the international call bills beyond the inflation rate as the international call tariffs are nominated in dollars. In togrog terms the international call revenues should not decrease because the current dollar rates are very competitive and most of the subscribers using the international lines belong to the wealthiest group.

B. Financial Costs

5. The project cost in financial prices, excluding service charges during construction, was based on the project expenditure records maintained by Asian Development Bank (ADB) and the Executing Agency. The project facilities have an economic life of 20 years with zero residual value. Incremental operating costs are low because the modern project facilities are cheaper to operate and maintain than the pre-project obsolete network. Also, the modern project facilities have resulted in reduced staff numbers. Based on information provided by Mongolia Telecom (MT), the operator of the new facilities, and allowing for the fact that the Project has an element of expansion, incremental operating costs were estimated as 1 percent of capital costs. The 1 percent estimate is net of decreased costs, e.g., fewer staff and lower operating and maintenance costs due to modernization, and net of increased costs attributable to more telephone lines. Incremental working capital was considered to be zero because it has not been necessary for MT to increase its inventory since appraisal in 1994. The current income tax rate of 40 percent was applied compared with 25 percent at appraisal.

C. Revenues

6. Incremental revenues comprise: timed local calls; public payphone revenue; new telephone rental and connection fees as a result of the Project providing more lines; and long distance and international incremental revenues attributable to a combination of subscriber growth, traffic growth not possible without the Project, and improved call completion rates. The improvement in call completion rates results from the fact that the modern facilities provided by the Project replaced a very old, obsolete, and unreliable network. Call completion rates in Ulaanbaatar improved from 45 percent in 1997 to about 54 percent in 2001.

7. The detailed incremental revenue assumptions are as follows: all timed local calls and public payphone revenues (actual up to 2000 and 3 percent annual growth thereafter); all new connection and rental fees (actual); and 50 percent of MT's long distance and international revenues (actual up to 2000 and 4 percent annual growth thereafter). MT's revenues outside the six project locations are negligible. MT's existing tariff rates were adopted. The 50 percent assumption for long distance and international revenues is conservative and reflects that the pre-project network was decades old, very difficult to maintain (with important spare parts no longer available on the market) and close to collapse in the three main economic centers (Ulaanbaatar, Darkhan, and Erdenet). The assumptions are also conservative because access charges paid by the two mobile operators and international settlement revenues have been excluded from the analysis. To summarize, incremental revenues come from new subscribers, pre-project subscribers enjoying modern technology, and subscribers outside the project area whose long distance and international calls are routed through the project's modern transmission facilities. The assumptions on incremental revenues are summarized in Table A13.1

Table A13.1: Assumptions on Incremental Revenues

Revenue Item	Up to 2000	After 2000
Rental Fees	Actual	Constant 2000 revenue
Connection Fees	Actual	No new connection
Timed Local Calls	Actual	3 percent annual increase
Long Distance Calls	50 percent of actual revenues	4 percent annual increase
International Calls	50 percent of actual revenues	4 percent annual increase
Public Payphone	Actual	3 percent annual increase

D. Estimation of FIRR

8. The FIRR was reevaluated based on the stream of annual costs and revenues, as shown in Table A13.2. The reevaluated FIRR is 12.6 percent compared with 10.2 percent at appraisal. The FIRR exceeds MT's cost of capital.³ MT's cost of capital (all equity capital) is currently about 10.0 percent and varies from year to year depending on dividend policy. It is concluded that the Project is financially sound. Sensitivity analysis indicates that a 10 percent reduction in revenue results in the FIRR falling to 10.8 percent.

Table A13.2: Financial Internal Rate of Return
(MNT million)

Year	Capital Costs			Operating Costs	Revenue	Net Cashflow Before tax	Income Taxes	Net Cashflow
	Foreign	Local	Total					
1994	776.03		776.03	7.76		(783.79)		(783.79)
1995	1,005.56		1,005.56	17.82	109.67	(913.71)		(913.71)
1996	28,724.04	3,071.33	31,795.37	335.77	3,334.04	(28,797.10)		(28,797.10)
1997	10,252.34	1,344.39	11,596.73	451.74	6,397.09	(5,651.38)		(5,651.38)
1998	2,918.31	2,032.98	4,951.29	501.25	8,502.54	3,050.00	1,220.00	1,830.00
1999	163.95	10.93	174.88	503.00	10,038.90	9,361.02	3,744.41	5,616.61
2000	32.79		32.79	503.00	10,127.96	9,592.17	3,836.87	5,755.30
2001				503.00	10,202.70	9,699.71	3,879.88	5,819.82
2002				503.00	9,925.61	9,422.61	3,769.04	5,653.56
2003				503.00	10,239.59	9,736.59	3,894.64	5,841.96
2004				503.00	10,565.07	10,062.07	4,024.83	6,037.24
2005				503.00	10,902.48	10,399.48	4,159.79	6,239.69
2006				503.00	11,252.25	10,749.26	4,299.70	6,449.55
2007				503.00	11,614.86	11,111.86	4,444.74	6,667.12
2008				503.00	11,990.77	11,487.77	4,595.11	6,892.66
2009				503.00	12,380.49	11,877.49	4,751.00	7,126.49
2010				503.00	12,784.53	12,281.53	4,912.61	7,368.92
2011				503.00	13,203.42	12,700.42	5,080.17	7,620.25
2012				503.00	13,637.72	13,134.72	5,253.89	7,880.83
2013				503.00	14,088.00	13,585.01	5,434.00	8,151.00
2014				503.00	14,554.87	14,051.88	5,620.75	8,431.13
2015				503.00	15,038.95	14,535.95	5,814.38	8,721.57
Financial internal rate of return (percent)								12.6

Sources: Mongolia Telecom, Post and Telecommunications Authority, Asian Development Bank staff.

³ Cost of equity capital has been used as a comparative indicator for FIRR because MT has no debt capital. The on-lending agreements were terminated upon project completion following the leasing arrangements between MT and Post and Telecommunications Authority. The reevaluated FIRR being higher than the original on-lending terms of 6.6 percent, a comparison with the weighted average cost of capital would be even more favorable.

ECONOMIC REEVALUATION

A. General

1. The reevaluation of the economic internal rate of return (EIRR) considered the costs and benefits over the implementation period plus 20 years of project operations. Costs and benefits are expressed in April 2001 constant togrog.⁴

D. Economic Costs

2. The financial costs of the Project were adjusted to economic prices, first by deducting taxes and duties, second by dividing local currency costs into tradeable and nontradeable groups, and third by applying a standard conversion factor of 0.88 to the nontradeable portion.

E. Economic Benefits

3. Two estimates of the economic benefits of the Project were made, first by using the amounts actually paid by users (case 1), and second by using the economic value of incremental revenue based on Asian Development Bank (ADB) *Guidelines for the Economic Analysis of Telecommunications Projects, 1997* (case 2).
4. For the first estimate, the value-added tax applicable to telephone bills was included in the estimate of economic revenue because it is paid by users. Until the year 2000, the value-added tax was 13 percent. In 2001 it was increased to 15 percent. These benefits measured in domestic prices were adjusted to the world price level by applying the standard conversion factor.
5. To follow ADB's guidelines, a profile of users (residential, businesses by size, institutions, government, agriculture, and other categories) is needed, as well as revenues for each user group. Such a profile is not available.⁵ Nevertheless, in an attempt to follow ADB's guidelines two types of users were identified: residential, and business and government. The estimated revenues for each type were adopted for the second EIRR case, e.g., in 2000 76 percent of digital subscribers were residential and 39 percent of total telephone revenue came from residential subscribers. The 76 percent will remain virtually unchanged over the 20-year analysis period because the digital switching provided by the Project is already very near to capacity. Based on ADB's guidelines, economic valuation factors (EVF) of 1.3 for the residential group and 1.2 for the business and government group have been applied to the second EIRR case in conjunction with the percentage of revenue applicable to each of the two types of users.
6. The EVFs act as a weighted average valuation of nonincremental and incremental benefits. Because nonincremental benefits are normally higher than incremental benefits, the EVF values are all more than one. Therefore, the second case calculations necessarily lead to the upward adjustment of economic benefits.

⁴ The local currency depreciated from \$1 = MNT400 at appraisal in 1994 to \$1 = MNT1,093 in 2001.

⁵ ADB's *Guidelines for the Economic Analysis of Telecommunications Projects* were applied to telecommunications projects in 1997 three years after appraisal.

A. Estimation of EIRR

7. The reevaluated EIRR for the first case is 20.7 percent, compared with 18.5 percent at appraisal, as detailed in Table A14.1. The estimated EIRR for the second case is 26.3 percent, as detailed in Table A14.2. It is concluded that the Project is economically viable. Sensitivity analysis indicates that a 10 percent reduction in revenue results in the EIRRs falling to 18.3 percent (case 1) and 23.4 percent (case 2).

Table A14.1: Economic Internal Rate of Return – Case 1
(MNT million)

Year	Capital Costs			Operating Costs	Revenue	Net Cashflow Before tax
	Foreign	Local	Total			
1994	776.03		776.03	6.98	0.00	(783.01)
1995	1,005.56		1,005.56	16.03	109.05	(912.54)
1996	28,724.04	2,702.77	31,426.81	298.88	3,315.37	(28,410.31)
1997	10,252.34	1,183.06	11,435.40	401.79	6,361.26	(5,475.94)
1998	2,918.31	1,789.02	4,707.33	444.16	8,454.93	3,303.43
1999	163.95	9.62	173.57	445.72	9,982.68	9,363.39
2000	32.79			445.72	10,071.24	9,625.52
2001				445.72	10,325.14	9,879.41
2002				445.72	10,044.71	9,598.99
2003				445.72	10,362.47	9,916.74
2004				445.72	10,691.85	10,246.13
2005				445.72	11,033.31	10,587.59
2006				445.72	11,387.28	10,941.56
2007				445.72	11,754.24	11,308.52
2008				445.72	12,134.66	11,688.94
2009				445.72	12,529.06	12,083.33
2010				445.72	12,937.94	12,492.22
2011				445.72	13,361.86	12,916.14
2012				445.72	13,801.37	13,355.65
2013				445.72	14,257.06	13,811.34
2014				445.72	14,729.53	14,283.81
2015				445.72	15,219.41	14,773.69
Economic internal rate of return (percent)						20.7

Sources: Mongolia Telecom, Post and Telecommunications Authority, Asian Development Bank staff.

Table A14.2: Economic Internal Rate of Return – Case 2
(MNT million)

Year	Capital Costs			Operating Costs	Revenue	Net Cashflow Before tax
	Foreign	Local	Total			
1994	776.03		776.03	6.98	0.00	(783.01)
1995	1,005.56		1,005.56	16.03	135.23	(886.37)
1996	28,724.04	2,702.77	31,426.81	298.88	4,111.06	(27,614.62)
1997	10,252.34	1,183.06	11,435.40	401.79	7,887.97	(3,949.23)
1998	2,918.31	1,789.02	4,707.33	444.16	10,484.11	5,332.62
1999	163.95	9.62	173.57	445.72	12,378.53	11,759.23
2000	32.79			445.72	12,488.34	12,042.61
2001				445.72	12,803.17	12,357.45
2002				445.72	12,455.44	12,009.72
2003				445.72	12,849.46	12,403.74
2004				445.72	13,257.90	12,812.18
2005				445.72	13,681.30	13,235.58
2006				445.72	14,120.23	13,674.51
2007				445.72	14,575.26	14,129.53
2008				445.72	15,046.98	14,601.26
2009				445.72	15,536.03	15,090.31
2010				445.72	16,043.05	15,597.33
2011				445.72	16,568.71	16,122.98
2012				445.72	17,113.70	16,667.98
2013				445.72	17,678.76	17,233.03
2014				445.72	18,264.62	17,818.90
2015				445.72	18,872.07	18,426.35
Economic internal rate of return (percent)						26.3

Sources: Mongolia Telecom, Post and Telecommunications Authority, Asian Development Bank staff.

PROJECT PERFORMANCE RATING

Table A15.1: Achievement of Outcomes

Criterion	Status of Achievement
A. Relevance	
Relevance of project preparation to project output at the time of approval	Yes
Relevance of project output to achieve project goals and purposes at the time of approval	Yes
Priority in the context of the country's development strategy at the time of approval	Yes
Priority in the context of the development strategy of ADB (ADB) for the country at the time of approval	Yes
Priority in the context of the country's development strategy at the time of evaluation	Yes
Priority in the context of ADB's development strategy for the country at the time of evaluation	No
Priority in the context of one or more of ADB's strategic objectives at the time of evaluation	Yes
Appropriate changes made at mid-term review/other reviews to make the Project more relevant	Yes
Percent of Subcriteria that Met Assessment	87.5 % Most targets
Equivalent Rating	2
B. Efficacy	
Achievement of most project physical outcomes	Yes
Achievement of most project intangible outcomes (e.g., technical assistance)	Yes
The likelihood of project outcomes leading to project goals	Yes
Percent of Subcriteria that Met Assessment	100 % Almost all targets
Equivalent Rating	3
C. Efficiency	
1. Efficiency of investments	
- EIRR > 12 percent (where recalculated at evaluation)	Yes
- FIRR > weighted average cost of capital (where recalculated at evaluation)	Yes
- Cost-effectiveness in generating the project outputs	
2. Efficiency of process	
- Manner of ADB's internal processing of the Project	Yes
- Organization and management of executing and implementing agencies	Yes
- Effectiveness of project management	Yes
- Efficiency in recruiting consultants and other procurement	Yes
- Timely and adequate availability of counterpart funding	Yes
Percent of Subcriteria that Met Assessment	100 % Almost all targets
Equivalent Rating	3

Table, Continued

Criterion	Status of Achievement
D. Sustainability	
Availability of adequate and effective demand for project services or products	Yes
Probable operating and financial performance of the operational entity and the ability to recover costs	Yes
Probability of the existence of appropriate maintenance policy and procedures	Yes
Probability of funds availability (cash flow) for continued operations, maintenance, and growth requirement	Yes
Probable availability of skills to continue the Project	Yes
Probable availability of appropriate technology and equipment to operate the Project	Yes
Probable availability of the enabling environment (subsidies, tariffs, price competitiveness, and political developments) in which the Project is operating at the time of evaluation	No
Government ownership and commitment to the Project	Yes
The extent to which the operation affects the environment and renewable or nonrenewable resources	
The extent to which community participation and beneficiary incentives are adequate to maintain project benefits	
Percent of Subcriteria that Met Assessment	87.5 %
Equivalent Rating	Most targets 2
E. Institutional Development and Other Impacts	
1. Institutional development impacts	
- Country's formal laws, regulations, and procedures ^a	-
- The people's informal norms and practices	+
- Institutional or organization strengthening	+
- Institutional skill levels and capacities	+
- Participatory attitudes of the society	
- Macroeconomic or sector policy framework ^a	-
2. Other development impacts	
- Impacts on poverty	
- Impacts on the environment	
- Impacts on social organization	
- Impacts on political developments	
Percent of Subcriteria that Met Assessment	60 %
Equivalent Rating	Most targets 2

ADB = Asian Development Bank, EIRR = economic internal rate of return, FIRR = financial internal rate of return.

^a The negative rating of these subcriteria is due to the delay in finalizing the sector regulatory framework. While this delay did not affect the project benefit, it impacted on the attainment of further benefits expected from the full privatization of the sector.

Table A15.2: Assessment of Overall Project Performance

Criterion	Assessment	Rating (0-3)	Weight (%)	Weighted Rating
Relevance	Relevant	2	20	0.40
Efficacy	Highly Efficacious	3	25	0.75
Efficiency	Highly Efficient	3	20	0.60
Sustainability	Likely	2	20	0.40
Institutional Development and Other Impacts	Moderate	2	15	0.30
Overall Rating	Successful		100	2.45