

(On-site evaluation: June 2007)

### **Ex-Post Monitoring of Completed ODA Loan Projects**

Evaluator: Kenji Momota (IC Net Limited)

Project Name: Chile Railway Rehabilitation Project (L/A No. CH-P3)

#### **Loan Outline**

Loan Amount/Disbursement Amount : 6,412 million yen/6,412 million yen

Loan Agreement : November 1992

Loan Completion : September 1999

Ex-Post Evaluation : FY2002

Executing Agency : Empresa de Los Ferrocarriles del Estado (EFE), Metro Valparaíso (Merval)

#### **Project Objective**

The project rehabilitated railway facilities and railcars owned by EFE, with the aim of improving and expanding transport capacity of forestry and mining products in Southern Chile along with passenger transport capacity for major city suburbs and between major cities, and thereby contributing to the development of social and economic activities in Chile.

Consultants: Pacific Consultants International (PCI), Japan Railway Technical Service, Libra Ingenieros Consultores Ltda. (Chile) (JV)

Contractors: COMSA de Chile S.A., SOCOFER S.A. (Chile), Marubeni (Japan), and others

## Overview of Results

Item	At Time of Ex-Post Evaluation	At Time of Monitoring																																																																							
<p><b>Effectiveness and Impact</b></p>		<p><b>The accident rate is generally decreasing, as stabilization of operations and improved safety are being achieved through the project. Railway user numbers are increasing on some routes, but low efficiency of operations are an issue, as represented by long distance lines.</b></p>																																																																							
<p><b>Effectiveness</b></p>	<p>(1) Improvements in safety and service (i) Number of accidents</p> <p>At the time of appraisal, railway facilities and railcars had generally deteriorated, but after implementation of this project, as shown in the table below, the number of derailings and accidents both decreased. Accompanying the higher safety, running speeds were successfully raised by about an average of 20-30%.</p> <p style="text-align: center;">&lt;Table 1: Number of Accidents&gt;</p> <table border="1" data-bbox="389 943 1205 1082"> <thead> <tr> <th>Year</th> <th>91</th> <th>92</th> <th>93</th> <th>94</th> <th>95</th> <th>96</th> <th>97</th> <th>98</th> <th>99</th> <th>00</th> </tr> </thead> <tbody> <tr> <td>Derails</td> <td>741</td> <td>814</td> <td>903</td> <td>859</td> <td>565</td> <td>205</td> <td>199</td> <td>234</td> <td>235</td> <td>268</td> </tr> <tr> <td>Collisions</td> <td>13</td> <td>14</td> <td>7</td> <td>15</td> <td>10</td> <td>1</td> <td>1</td> <td>1</td> <td>6</td> <td>4</td> </tr> </tbody> </table> <p>Source: Estadística Anual 1991-2000 (EFE)</p>	Year	91	92	93	94	95	96	97	98	99	00	Derails	741	814	903	859	565	205	199	234	235	268	Collisions	13	14	7	15	10	1	1	1	6	4	<p>(1) Improvements in safety and service (i) Number of accidents</p> <p style="text-align: center;">&lt;Table 1: Number of Accidents&gt;</p> <table border="1" data-bbox="1249 724 2018 1074"> <thead> <tr> <th>Year</th> <th></th> <th>1994</th> <th>2000 Ex-post evaluation</th> <th>2005</th> <th>2006</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Derails</td> <td>Total</td> <td>859</td> <td>268</td> <td>179*</td> <td>199*</td> </tr> <tr> <td>In stations</td> <td>473</td> <td>80</td> <td>N.A</td> <td>N.A</td> </tr> <tr> <td>Outside stations</td> <td>386</td> <td>188</td> <td>N.A</td> <td>N.A</td> </tr> <tr> <td rowspan="3">Collisions</td> <td>Total</td> <td>15</td> <td>4</td> <td>N.A</td> <td>N.A</td> </tr> <tr> <td>In stations</td> <td>15</td> <td>3</td> <td>N.A</td> <td>N.A</td> </tr> <tr> <td>Outside stations</td> <td>0</td> <td>1</td> <td>N.A</td> <td>N.A</td> </tr> </tbody> </table> <p>Source: Empresa de Los Ferrocarriles del Estado (EFE) *2005-6 data is the total number of accidents, without disclosure of more detailed classification.</p> <p>The total number of accidents decreased, even compared to at the time of ex-post evaluation. More detailed classification is not disclosed, but in discussions with EFE, they replied that there were no large accidents such as collisions in the past two</p>	Year		1994	2000 Ex-post evaluation	2005	2006	Derails	Total	859	268	179*	199*	In stations	473	80	N.A	N.A	Outside stations	386	188	N.A	N.A	Collisions	Total	15	4	N.A	N.A	In stations	15	3	N.A	N.A	Outside stations	0	1	N.A	N.A
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(ii) Reduced travel times

Comparing travel time on the Santiago-Chillán section (which was covered by this project), as shown in the table below, travel time was reduced compared to immediately after the project began ('94), improving the superiority of rail vs. buses.

<Table 2: Santiago-Chillán Travel Time Comparison>  
(unit: hours)

Destination	Bus	Train (1994)	Train (2001)
Santiago (depart)	---	---	---
Rancagua	1.5	1.12	1.12
Talca	3.1	2.52	2.28
Linares	4.7	4.09	3.63
Chillán	5.8	5.41	5

Source: Data from ex-post evaluation and on-site evaluation

years, so it is thought that there is a continued trend in safety improvements.

(ii) Reduced travel times

As shown in the table below, no large differences are seen when considering variation due to error. Effects of rehabilitation on the sections covered as of the time of ex-post evaluation are being maintained. Trains continue to maintain their superiority over buses, compared to when the project began.

<Table 2: Santiago-Chillán Travel Time Comparison>  
(unit: hours)

Destination	Bus	Train (2001)	Train (2007)
Santiago (depart)	---	---	---
Rancagua	1.3	1.12	1.12
Talca	2.8	2.28	2.28
Linares	4.0	3.63	3.40
Chillán	5.0	5.00	4.50

Source: 2007 data are questionnaire responses (EFE), not measurements.

(iii) Effects in metropolitan Valparaíso, on the approximately 40km commuting line commonly called the Merval line between Limache and Valparaíso (Chile's second largest metro area)

Regarding the MERVAL Line, where there are still the largest results of infrastructure improvements by the ODA loan project (rehabilitation of track and electrification facilities), combined with the effects of a rehabilitation project

implemented since 2003 with EFE's internal capital, safety and timeliness are showing good results, as seen in the table below. The accident rate which measures safety was 0 in 2006, and also 0 in the first half of 2007, with no serious accidents occurring until today. The operating ratio also achieved goals for the first half of 2007, with a trend towards improvements.

<Table 3 Operating Situation of Merval line (January-May 2007)>

	Goals	2006	2007
1. Operating trains (peak times)	Each 6 min.	7.6	Each 6 min.
2. Operating trains (off-peak times)	Each 12.5 min.	10.3	Each 11.8 min.
3. Operating rate*	Over 99%	91%	102%
4. Accident rate**	Under 0.01	0.00	0.00

Source: Merval

\*(Number of trains running)/(number of trains planned)

\*\*Accident rate = (number of accidents + number of deaths)/(1,000 railcar km)

Results of a satisfaction survey done with users of the Merval line are as follows. (Questionnaire survey: 146 total respondents, 80% of whom were commuters to work or school)

<Table 4 Satisfaction Survey Results for Merval Line>

Question Item	Satisfied	Medium	Not satisfied		
1) Satisfaction with service	88.4%	5.5%	5.5%		
2) Degree of improvement over 10 years ago	90.6%	4.7%	4.7%		
	Safety	Economic Efficiency	On time	Travel time	Other

3) Which point do you rate the highest ?	21%	5%	10%	40%	23%
4) Points improved compared to before	88%	22%	92%	91%	
5) Points superior to other means of transport	94%	44%	97%	93%	

About 90% of respondents stated in a service satisfaction survey that they are satisfied with current services, and compared to before the ODA loan project (about 10 years ago), they noticed improvements in safety, reduced travel time, and timeliness. The rehabilitation project since 2003\* also made large contributions to these effects, so it is difficult to measure effects of the ODA loan project alone. But one can judge that EFE's various efforts since the ODA loan project have led to service improvements, achieving high satisfaction.

\*ETAPA IV Project: Total project cost of \$320 million. Large scale rehabilitation of the Merval line, with replacement of all the railcars (27 cars), and new construction of signals, stations, repair workshops, etc.

(2) Passenger transport

(i) Passenger transport results

As shown in Table 3 below, passenger transport showed a temporarily drop due to the impact of the 1997 strike, but reached 13,190,000 people/year in 2000, the most passengers in the past 20 years.

<Table 3 Passenger Transport (Results)>

	94	95	96	97	98	99	00
Total passengers (thousands)	10,193	10,075	9,763	8,265	9,967	10,008	13,193
Passenger	815	7	642	550	534	637	736

(2) Passenger transport

Total passenger numbers grew by 15% since the ex-post evaluation. Greater demand on short distance commuting lines such as the Merval line (operated by a subsidiary of EFE) is a major cause of this growth.

(i) Short distance commuter lines

Regarding Merval line, EFE implemented a project in 2003 with internal capital to build new lines and stations and replace all railcars. Partially as a result of this, a large increase to 10

transport (thousand person-km)							
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Source: Estadística Anual 2000 (EFE)

(ii) Passenger transport results by rail line

The chart below shows passenger transport results by rail line. Large contributions to the increases in passenger transport were made by the 43.2km metro Valparaíso commuter “Merval line” (Valparaíso – Limache, \*left bar in the graph), and by the Santiago metro line (81.8km of Santiago – Rancagua, \*center bar). In the background of increasing passenger numbers, rapidly increasing demand for passenger transport in metro areas was met by (a) Improved operating speeds and safety due to this project’s rehabilitation of tracks, bridges, and electrification facilities, and (b) EFE’s use of internal capital to purchase railcars for more frequent trains. On the other hand, passenger numbers are in a declining trend on the long distance lines (1,080km of Santiago - Puerto Montt, \*right bar, \*\*At the time of ex-post evaluation, long distance lines were regarded as an unprofitable area).

Passengers  
(thousands)

Chart 1: Passengers by Rail Line

million passengers is expected in 2007. Currently, EFE is planning to integrate its fare system with other transport means such as buses on major commuting routes (mutual ridership). If these efforts progress, further expansion of demand is expected.

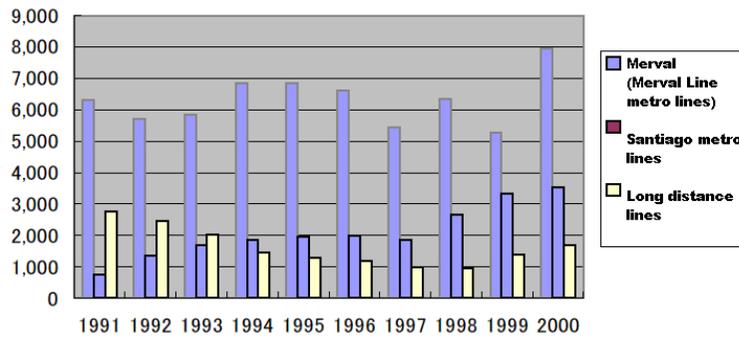
(ii) Long distance rail lines

There is intense competition with long distance buses, and the declining trend is continuing. According to interviews with EFE and the local consultant, railways have a slight superiority over buses for travel time, but railways are inferior in the aspects such as comfort, economic efficiency, and service, so railways have disadvantages when competing on routes which require long distance travel. Moreover, long distance lines are regarded as unprofitable areas, as was the case at the time of ex-post evaluation, and some scheduled trains were eliminated on major long distance lines such as Santiago-Temuco in 2006. Thus further decline in passengers is expected next year.

<Table 5: Passenger Transport (Actual)>

(unit: 1,000 passengers)

	2001	2002	2003	2004	2005	2006
<b>Total passengers*</b>	16,090	N.A	14,367	13,040	11,150	18,487
1. Metro Valparaíso (Merval)	8,912	6,900	4,894	3,356	1,718	7,984
2. Metro Santiago (Metrotren)	5,332	N.A	7,246	7,517	7,797	7,456
3. Long distance lines	1,394	N.A	878	805	778	632



Source: Estadística Anual 2000 (EFE)

### (3) Freight transport results

Freight continually decreased from 1994, but has been steadily recovering since 1998. The freight operations were privatized in 1994, when FEPASA began to manage operations. In the southern region, there is room to expand lumber related industries, and if improvement of tracks progresses, it is possible to secure freight demand. However, it is currently being exposed to intense price competition with truck transport.

<Table 4: Freight transport>

Passengers/km	870	NA	748	698	657	721
1. Metro Valparaíso (Merval)	206	159	113	74	38	192
2. Metro Santiago (Metrotren)	281	NA	398	406	413	358
3. Long distance lines	375	NA	237	218	206	171

Source: EFE

\*In addition to rows 1 to 3, total passenger numbers include actual passengers on the Biovias line (metro line for Concepción, Chile's second largest metro area), etc.

\* The Merval line figures fell during 2003-05 because of full scale rehabilitation construction work during that period.

The number of trains operating on each line is also increasing, but this contrasts with declining boarding efficiency, becoming a cause of the worsening profitability which is mentioned below. There is continued elimination of some scheduled trains on long distance lines since 2006, resulting in a large decrease in the number of trains running.

<Table 6 Trains Running on Major Lines/Day>

	2001	2002	2003	2004	2005	2006	2007
Total	160	160	148	128	98	270	264
1. Metro Valparaíso (Merval)	100	100	80	60	20	194	194
2. Metro Santiago (Metrotren)	44	44	48	48	54	54	54

	1993	94	95	96	97	98	99	2000
Total freight transport volume (thousand tons)	5,620	5,408	4,529	4,303	4,153	4,401	5,097	5,293
Freight transport (thousand ton-km)	1,321	1,178	967	931	867	972	1,097	1,241

Source: Estadística Anual 2000, EFE

3. Long distance lines	16	16	20	20	24	22	16
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Source: EFE (\*As of June, 2007)

<Table 7 Boarding ratio / Boarding Efficiency on Major Lines>

	2005	2006	2007
1. Long distance lines	51%	49%	N.A
2. Short distance lines (except for Merval line)	24%	21%	N.A
3. Other regional lines	29%	18%	N.A
Reference: Tokyo Metro (subway)	47%	48%	N.A

Source: EFE

Boarding efficiency = (person-km) / [(passenger car operating km) X (average passenger capacity in passenger cars)]

\*1 Merval's index: Boarding ratio =

(number of passengers) X (average passenger capacity in passenger cars)

There is no clear standard for an appropriate boarding ratio, but the local consultant who worked on the survey has the opinion that the current level on short distance lines of approximately 20% is very low, and points out that this is one cause of the chronic structural deficits. In particular, efficiency worsened further in 2006, and in the background of this are problems including the train operating schedule which does not consider economic efficiency and boarding efficiency, so it is thought necessary to adjust the number of trains operating and railcar numbers.

(3) Freight transport

Railway transport is competitive for products such as lumber and mining resources. Similar to at the time of ex-post evaluation, this is operated by FEPASA and TRANSAP (the privatized corporations which correspond to EFE's previous freight operations). Management efforts after privatization combined with growing export demand for its major products, leading to steadily growing volume handled (62% increase from the time of ex-post evaluation (2001)). On the other hand, deteriorating rail tracks in the southern region where there are long distance lines are obstacles to the efficiency of freight transport, and are becoming an issue which should be improved.

<Table 8: Freight Transport>

	2001	2002	2003	2004	2005	2006
Freight volume handled (thousand tons)	6,082	6,294	7,347	9,524	9,925	9,851
Freight volume handled (thousand ton-km)	1,399	1,501	1,608	1,925	1,914	1,671

Source: EFE

<Table 9: Freight Transport Breakdown (FEPASA)>

Item	Ratio
Forest products (cellulose, paper, etc.)	27%
Mining products (Copper, iron, etc.)	23%
Agricultural produce	13%
Cement	9%
Other (bulk container freight, etc.)	28%

Source: FEPASA

	<p>(4) Internal rate of return  FIRR is not calculated (however, operating cash flow was negative until 2000)  *At the time of appraisal, FIRR was hypothesized to be 10.7%.</p>	<p>(4) Internal rate of return  FIRR is not calculated. EFE's viewpoint is that from a perspective which emphasizes the public aspect of promoting broad use by the population, fares are set at a low level, so profitability is extremely low, even on high demand lines such as the Merval and Metrotren lines.</p>																																														
<p><b>Impact</b></p>	<p>(1) Economic effects  This project upgraded railway transport capacity, thereby promoting the transport of forestry and mining products from Southern Chile, which was expected to boost Chile's social and economic activities, but there is no data to show economic effects at the time of ex-post evaluation. (Reference: 6% annual economic growth was achieved until 1997. This was supported by export growth of natural resources such as lumber, copper, and seafood. The future trend is also for expanded demand for freight transport of these export products.)</p>	<p>(1) Economic effects  In recent years, Chile has benefited from steady growth in exports of copper and other mining resources, achieving stable economic growth. Mining resources currently comprise a large share of Chile's economy, especially of exports. Together with this with the forestry industry, which also creates large demand for rail transport, these comprise 12-13% of GDP. Of this, due to rising demand for copper in world markets, the value of copper exports has grown to 450% of its 2000 value (one third of total world production).</p> <p style="text-align: center;">&lt;Table 10 Growth Rates of Major Industries and GDP&gt;</p> <table border="1" data-bbox="1227 963 2040 1230"> <thead> <tr> <th></th> <th></th> <th>2000</th> <th>2001</th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> </tr> </thead> <tbody> <tr> <td>GDP</td> <td>Growth</td> <td>4.5%</td> <td>3.4%</td> <td>2.2%</td> <td>3.9%</td> <td>6.2%</td> <td>6.3%</td> </tr> <tr> <td rowspan="2">Mining</td> <td>Growth</td> <td>3.2%</td> <td>5.7%</td> <td>-4.2%</td> <td>5.5%</td> <td>7.0%</td> <td>0.2%</td> </tr> <tr> <td>% of GDP</td> <td>8.1%</td> <td>8.2%</td> <td>7.7%</td> <td>7.8%</td> <td>7.9%</td> <td>7.4%</td> </tr> <tr> <td rowspan="2">Agriculture &amp; forestry</td> <td>Growth</td> <td>6.0%</td> <td>6.1%</td> <td>4.5%</td> <td>6.0%</td> <td>8.8%</td> <td>5.7%</td> </tr> <tr> <td>% of GDP</td> <td>4.1%</td> <td>4.2%</td> <td>4.3%</td> <td>4.4%</td> <td>4.5%</td> <td>4.6%</td> </tr> </tbody> </table> <p>Source: Banco Central de Chile</p> <p style="text-align: center;">&lt;Table 11 Export Value of Major Categories&gt;</p>			2000	2001	2002	2003	2004	2005	GDP	Growth	4.5%	3.4%	2.2%	3.9%	6.2%	6.3%	Mining	Growth	3.2%	5.7%	-4.2%	5.5%	7.0%	0.2%	% of GDP	8.1%	8.2%	7.7%	7.8%	7.9%	7.4%	Agriculture & forestry	Growth	6.0%	6.1%	4.5%	6.0%	8.8%	5.7%	% of GDP	4.1%	4.2%	4.3%	4.4%	4.5%	4.6%
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	% of GDP	4.1%	4.2%	4.3%	4.4%	4.5%	4.6%																																									

(2) Environmental impact  
No negative environmental impacts are reported.

(unit: US\$ million)

FY	2000	2001	2002	2003	2004	2005	2006
Mining	8,020	7,256	7,120	8,795	16,962	23,165	36,572
Growth	18.3%	-9.5%	-1.9%	23.5%	92.9%	36.6%	57.9%
Forestry	1,710	1,878	2,127	2,341	3,218	3,321	3,674
Growth	1.8%	9.8%	13.2%	10.1%	37.5%	3.2%	10.6%

Source: Banco Central de Chile

There are insufficient statistics prepared for comparing actual freight transported by railways and trucks, but even for items for which there is demand for railway transport, railways have only about a 10% market share. However, benefiting from rising export demand, freight transport by railways is rapidly increasing (refer to the section on effectiveness). One can judge that improvements in stability and expansion of railway transport by the ODA loan play a certain role in the basic infrastructure which supports export of these major items.

<Table 12 Export Share of Major Products (2008 Forecast)>

	Rail	Trucks
Mining products	7%	93%
Steel and cement for construction	11%	89%
Cellulose (including cardboard and paper)*	9%	91%

Source: Ministry of Planning and Cooperation  
(trial calculation on a ton-km basis)

(2) Environmental impact  
None indicated in particular.  
(No negative environmental impacts are reported)

Sustainability	<p>(1) Technology No large problems are reported regarding technology. EFE is carrying out a general staff reduction, but there are no concerns about its technical level, as sufficient staff are allocated to operation and maintenance related departments, etc.</p> <p>(2) Organizational Structure The Maintenance Department of EFE's Infrastructure Division is in charge of planning, inspection, and supervision of maintenance for its facilities and equipment. Part of this work is contracted to private companies. The Business Division is in charge of on-site operations. The Engineering Department</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>Similar to at the time of ex-post evaluation, the executing agency (EFE) is recording large deficits every year. To improve its financial condition, moving forward with rationalization and support policies by the government such as subsidies are both necessary.</b></p> </div> <p>(1) Technology (i) EFE (Metrotren, Biovias, long distance lines) The majority of maintenance work is outsourced to private companies, and EFE does only supervisory work in these cases. Contractors are specialized companies such as COMSA and OHL (general contractors of Spain). These companies have much experience and high technical levels of similar projects.</p> <p>(ii) Merval (short distance lines of metro Valparaíso) *Effectively an EFE subsidiary Alstom is a the railcar manufacturer which is also in charge of maintenance. Alstom allocated 50 staff to do operation and maintenance work in its newly constructed repair workshop. Merval's organization has built a strong technical level, as all railcars have been replaced with the latest model made in France, it has a central-control operational management system, etc. There are no technical problems.</p> <p>(2) Organizational Structure (i) EFE EFE has 1,500 employees. Top management has been replaced in order to carry out a business rationalization since</p>

established in 2000 makes plans for new capital investments and repairs, and performs related research.

(3) Financial Status

EFE has an accumulated deficit of over 700 billion pesos (about US\$1.2 billion), so improvement in its financial situation is desirable. Operating income is steadily improving due to service improvements leading to increased passenger numbers, and cost reduction efforts through more efficient operations. But there is a need for further improvement in its financial situation. Support by the Chile government is also considered essential.

2006. As mentioned above, operation and maintenance is primarily done through outsourcing contracts, with long term 17-year contracts concluded for infrastructure such as tracks, signals, and electrical facilities.

(ii) Merval

Merval is effectively a subsidiary of EFE. A contract is concluded with the railcar manufacturer for outsourcing of operation and maintenance. As a business responsible for 40km-section of rail lines, Merval has sufficient size and staff.

<Table 13 Outline of Executing Agency>

Occupation	EFE	MERVAL
Manager class (including officers)	87	20
Technicians and office workers	30	87
Other employees	1,383	62
Total	1,500	169

(3) Financial Status

(i) EFE

The accumulated deficit on its 2006 balance sheet had worsened to about 940 billion pesos (about US\$1.8 billion). The main causes of this are as follows.

- Increased debt accompanying investments in rehabilitation projects during 2003-05
- Accumulated operating deficits due to low efficiency and profitability of operations (long distance lines, etc. Refer to this item under “Effectiveness.” Deficits in 2005 and 2006

were about US\$48 million and \$73 million, respectively)

The new management team appointed this year is moving forward with rationalizing operations on unprofitable long distance lines, including eliminating scheduled trains. But in addition to low boarding efficiency, the currently established fares, which emphasize its public aspect, result in costs which are more than twice the amount of revenues, and dramatic improvements are viewed as difficult.

<Table 14 EFE Profit and Loss Statement>  
(unit: 1,000 pesos)

	2005	2006
Operating revenues	29,862,297	25,598,904
Operating expenses	-29,669,486	-39,323,908
Sales, general and administrative expenses	-14,514,600	-14,537,764
Operating income	-14,321,789	-28,262,768
Non-operating profit and loss	-11,034,231	-10,062,919
Ordinary profit and loss	-25,356,020	-38,325,687
Current net income	-25,356,020	-38,325,687
Current net income (US\$ million)*	-48.3	-73.0

Source: EFE (\*Exchange rate: 1US\$ = 525 pesos)

(ii) Merval

Similar to EFE, Merval has issues of the debt burden from its rehabilitation projects and low profitability, so a move to profitability is viewed as difficult with its current fare

(4) Operation and Maintenance

There is a complete operation and maintenance organization, with no special problems.

revenues.

<Table 15 Merval Profit and Loss Statement>

(unit: 1,000 pesos)

	2005	2006	2007*
Operating revenues	760,304	3,657,782	4,334,600
Operating expenses	996,965	5,292,185	5,649,900
Gross profit on sales	-236,661	-1,634,403	-1,315,300
Sales, general, and administrative expenses	-741,557	-2,336,996	-2,046,400
Operating income	-978,218	-3,971,399	-3,361,700
Non-operating profit and loss	2,206,433	-2,194,057	-3,025,200
Ordinary profit and loss	1,228,215	-6,165,456	-6,386,900
Current net income	1,228,215	-6,165,456	-6,386,900
Current net income (US\$ millions)*	2.34	-11.7	-12.16

Source: Merval (\*2007 figures are forecasts)

\*Exchange rate: US\$1 = 525 pesos

\*The large increases in operating revenues and expenses during 2005-2006 were due to the start of full-scale operations after completion of rehabilitation construction work.

(4) Operation and Maintenance

(i) Short distance commuter lines (Santiago and Metro Valparaíso commuter lines, etc.)

The Merval line is operated by Merval, a subsidiary of EFE. But maintenance work is outsourced to the railcar manufacturer Alstom (France). Less than two years have passed since these railcars began operating, and large problems

		<p>have not been seen. Facilities developed through the loan (railroad ties, power poles, and transformer substations for rail lines) are being properly maintained.</p> <p>Regarding the Metrotren and Biovias lines, no serious problems have been seen since the rehabilitation of which operation and maintenance is outsourced.</p> <p>(ii) Long distance lines</p> <p>Sufficient operation and maintenance budgets are not allocated to track sections on long distance lines with low demand, so the state of these lines is progressively deteriorating. Starting this year, the decision has been taken to cut scheduled trains on most long distance lines, with safety problems due to deterioration as one reason for these cuts (*a detailed budget breakdown is not disclosed).</p>
<p><b>Lessons Learned, Recommendations, Information Resources and Monitoring Methods</b></p> <p>(1) Follow up on lessons learned and recommendations made in ex-post evaluation report or in</p>	<p>Lessons learned and recommendations None</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Similar to at the time of ex-post evaluation, EFE's deficits have not been eliminated. Also, concerns about operation and maintenance are arising. It is necessary to move forward with clarification of the causes of deficits and management issues, rationalize business through efficient operations such as adjusting the number of scheduled trains, and move forward with investigation of policies supporting EFE.</p> </div> <p>(1) There are no lessons learned nor recommendations at the time of project evaluation.</p> <p>(2) Recommendations from the perspective of seven years after project completion (to both the Chile government and EFE)</p> <p>There is progress in improvements of inefficient operations such as eliminating some scheduled trains on long distance</p>

<p>later evaluations</p> <p>(2) learned at the time of ex-post monitoring and recommendations for securing sustainability</p>		<p>lines. But the deficit is huge, so further rationalization is necessary, such as adjusting the number of scheduled trains on suburban lines. However, another issue is low profitability due to the effects of setting low fares for policy considerations, so it is necessary to closely examine the current financial situation and operating efficiency and clarify business problems, then investigate management policy options including a method of subsidy payments.</p>
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